



City of Tacoma
Department of Public Works
Facilities Management Division

PROJECT MANUAL

Division 00: Bidding & Contract Requirements
Division 01: General Requirements

Tacoma Municipal Building Fire Pump, Domestic Water & Automatic Transfer Switch Projects

**SPECIFICATION NO.:
PW20-0061F**



**City of Tacoma
Public Works Department, Facilities Management**

**REQUEST FOR BIDS PW20-0061F
Tacoma Municipal Building
Fire Pump, Domestic Water & Automatic Transfer Switch Projects**

Submittal Deadline: 11:00 a.m., Pacific Time, Tuesday, November 3, 2020

Submittal Delivery: Sealed submittals will be received as follows:

By Email:

bids@cityoftacoma.org

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

By Carrier:

City of Tacoma Procurement & Payables Division
Tacoma Public Utilities
3628 S 35th Street
Tacoma, WA 98409

In Person:

City of Tacoma Procurement & Payables Division
Tacoma Public Utilities Administration Building North
Guard House (east side of main building)
3628 S 35th Street
Tacoma, WA 98409

By Mail:

City of Tacoma Procurement & Payables Division
Tacoma Public Utilities
PO Box 11007
Tacoma, WA 98411-0007

Until further notice, public Bid Opening meetings have been cancelled.

Submittals in response to a RFB will be recorded as received. As soon as possible 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 by accessing the City of Tacoma Purchasing website at www.TacomaPurchasing.org.

- [Register for the Bid Holders List](#) to receive notices of addenda, questions and answers and related updates.
- Click here to see a [list of vendors registered for this solicitation](#).

Pre-Proposal Meeting: A virtual Pre-Bid Meeting will be held on Friday, October 16, 2020 at 10 AM. Registration is required. Please register in advance at https://us02web.zoom.us/webinar/register/WN_pxT141aRSbavAYspQ8kJHg. After registering, you will receive a confirmation email containing information about joining the webinar. Pre-proposal site walk will be held by appointment only on Tuesday, October 20 and Wednesday, October 21 by emailing Stephen Kruger at skruger@cityoftacoma.org. Questions shall be submitted in writing and responses to all contractors questions will be issued via addendum.


Project Scope: The project consists of upgrades and renewals to the TMB Fire sprinkler pump and test line, Domestic flush water system and Automatic Transfer Switch

Estimate: \$253,000

Paid Leave and Minimum Wage: Effective February 1, 2016, the City of Tacoma requires all employers to provide paid leave and minimum wages, as set forth in Title 18 of the Tacoma Municipal Code. For more information visit www.cityoftacoma.org/employmentstandards.

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 Form No. SPEC-040C 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 Gail Himes at ghimes@cityoftacoma.org, or by calling her collect at 253-591-5785.

Additional Information: Requests for information regarding the specifications may be obtained by contacting Doreen Klaaskate, Senior Buyer by email to dklaaskate@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.

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**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 Small Business Enterprise and Local Employment and Apprenticeship 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 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.

Requests for modifications to the supplemental criteria may be submitted via postal mail or delivered personally, or sent by e-mail, within the above timeline as follows:

By Carrier: City of Tacoma Procurement & Payables Division Tacoma Public Utilities 3628 S 35 th Street Tacoma, WA 98409	In Person: City of Tacoma Procurement & Payables Division Tacoma Public Utilities Administration Building North – Guard House (east side of main building) 3628 S 35 th Street Tacoma, WA 98409
By Mail: City of Tacoma Procurement & Payables Division Tacoma Public Utilities PO Box 11007 Tacoma, WA 98411-0007	E-mail: bids@cityoftacoma.org

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.

BID PERIOD FORMS

The following forms shall be used during the bidding process to request clarifications and request substitutions. These forms are not required to be submitted with the Bid.

- Bidder Question Form
- Substitution Request Form

BIDDER QUESTION FORM

Fire Pump, Domestic Water & Automatic Transfer Switch Projects

SPECIFICATION NO.: PW20-0061F

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:

Doreen Klaaskate, Senior Buyer.

E-mail address: dklaaskate@cityoftacoma.org

All e-mails must be received by **Noon on Thursday, October 22, 2020**. 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

Fire Pump, Domestic Water & Automatic Transfer Switch Projects

SPECIFICATION NO.: PW20-0061F

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

Doreen Klaaskate, Senior Buyer.

E-mail address: dklaaskate@cityoftacoma.org

All e-mails must be received by **Noon on Thursday, October 22, 2020**. 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

Fire Pump, Domestic Water & Automatic Transfer Switch Projects
SPECIFICATION NO.: PW20-0061F

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 AND SIGNATURE PAGE
2. BID BOND
3. EQUITY IN CONTRACTING UTILIZATION FORM
4. STATE RESPONSIBILITY FORM
5. GENERAL CONTRACTOR QUALIFICATION SUBMITTAL
6. CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUTES
FORM

Fire Pump, Domestic Water & Automatic Transfer Switch Projects

SPECIFICATION NO.: PW20-0061F

BID PROPOSAL

**City of Tacoma
Department of Public Works
Facilities Management**

Name of Firm: _____
(Write in company name)

In compliance with the contract documents, the following bid proposal is submitted:

BASE BID:

Lump sum base bid is inclusive of the Scope of Work described in the Contract Documents.

BASE BID: \$ _____

ALLOWANCE # 1: \$ _____ \$10,000.00

SUBTOTAL: \$ _____

WA STATE SALES TAX @ 10.2%: \$ _____

GRAND TOTAL: \$ _____

BID ALTERNATES: (do not include Washington State Sales Tax)

The undersigned proposes to modify the contract requirements and scope of work as defined in the Contract Documents and as described in the Project Manual, for the following amounts to be added to the Base Bid. The Owner reserves the right to accept or reject any or alternates within (90) days of the bid date.

**Additive Alternate No. AA-1,
ROOFTOP BACKFLOW PREVENTER** \$ _____

Fire Pump, Domestic Water & Automatic Transfer Switch Projects

SPECIFICATION NO.: PW20-0061F

BID PROPOSAL

UNIT PRICES: (Not used)

INTENT AND AFFIDAVIT OF WAGES PAID:

In compliance with Chapter 296-127 WAC the Contractor shall pay all fees associated with the Intent and Affidavit of Wages Paid to the Department of Labor and Industries. These costs shall be included in the base bid.

CITY OF TACOMA PROGRAMS:

The City of Tacoma's Equity in Contracting (EIC) Program will be utilized on this project. The City has established a Minority Business Enterprise Utilization Requirement of **6%**, Women Business Enterprise Requirement **4%** and a Small Business Enterprise Utilization Requirement of **8%**

TIME FOR COMPLETION:

The undersigned hereby agrees to substantially complete all the work under the Base Bid (and accepted alternates and/or unit prices) within **370** calendar days after the Notice to Proceed.

LIQUIDATED DAMAGES:

The undersigned agrees to pay the Owner as liquidated damages the sum of \$500 for each consecutive calendar day beyond the SUBSTANTIAL COMPLETION date. Liquidated damages shall be deducted from the contract by change order.

Fire Pump, Domestic Water & Automatic Transfer Switch Projects
SPECIFICATION NO.: PW20-0061F

B I D P R O P O S A L

SUSTAINABILITY:

1) Have you incorporated sustainability into your everyday business practices? **Yes / No**

Please Describe: _____

2) Have you taken measures to minimize impacts to the environment in the delivery of proposed goods and services? **Yes / No**

Please Describe: _____

3) Will you be incorporating and implementing sustainable practices during the construction of this project? **Yes / No**

Please Describe: _____

Fire Pump, Domestic Water & Automatic Transfer Switch Projects

SPECIFICATION NO.: PW20-0061F

BID PROPOSAL

SIGNATURE PAGE

All submittals must be in ink or typewritten and must be executed by a duly authorized officer or representative of the bidding/proposing entity. 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.

Submittals will be received and time stamped only at the City of Tacoma Purchasing Division, located in the Tacoma Public Utilities Administration North Building, Main Floor, at 3628 South 35th Street, Tacoma, WA 98409. **See the Request for Bids page near the beginning of the specification for additional details.**

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

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.)

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

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
Community & Economic Development
Office of Equity in Contracting
747 Market Street, Rm 900
Tacoma WA 98402
253-591-5075

EQUITY IN CONTRACTING UTILIZATION FORM

This form is to document **only** the EIC subcontractors or material suppliers that will be awarded a contract. This information will be used in calculating the **EVALUATED BID**. Additional forms may be used if needed.

- Prime contractors are encouraged to solicit bids from EIC approved firms.
- Be sure to include this form with your bid submittal in order to receive EIC credit.
- It is the prime contractor's responsibility to check the certification status of EIC subcontractors prior to the submittal deadline.

Bidder's Name: _____

Address: _____ City/State/Zip: _____

Spec. No. _____ Base Bid * \$ _____ **Complete company names and phone numbers are required to verify your EIC usage.**

a. Company Name and Telephone Number	b. MBE, WBE, or SBE (Write all that apply)	c. NAICS code(s)	d. Subcontractor 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 EIC firms 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 deductive selected by the City. Also, please refer to Items #10-12 below.
2. Column "a" – List all EIC companies that you will be awarding a contract to if you are the successful bidder.
3. Column "b" – Identify if this firm is being utilized as an MBE, WBE, or SBE. (Firms may count towards multiple requirements)
4. Column "c" – List the appropriate NAICS code for the scope of work, services, or materials/supplies for each subcontractor.
5. Column "d" – The bid amount must be indicated for **all** listed **EIC** that you plan on doing business with. This quote is the price that you and the subcontractor have negotiated prior to bid opening.
6. Column "e" – The bid amount must be indicated for **all** listed **EIC** that you plan on doing business with. This quote is the price that you and the material supplier have negotiated prior to bid opening.
8. 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.
9. 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.
10. 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.
11. Block "i" – The percent 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 = EIC usage as a percent of the Base Bid.)
12. Block "j" – The percent 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 = EIC usage as a percent of the Base Bid.)

13. Block "k" – The percent 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 = EIC usage as a percent of the Base Bid.)

It is the prime contractor's responsibility to check the status of EIC subcontractors prior to bid opening. Call the EIC Office at 253-591-5075 for additional information.

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

Fire Pump, Domestic Water & Automatic Transfer Switch Projects

SPECIFICATION NO.: PW20-0061F GENERAL CONTRACTOR/FIRE PROTECTION QUALIFICATIONS SUBMITTAL

This form shall be completed in its entirety, **submitted with the bid**, and shall be used to demonstrate the General Contractor's minimum experience. Failure to submit this form may be grounds for bid rejection.

The City shall be the sole judge in determining if the prospective Contractor meets the bidder minimum experience requirements. The City reserves the right to take whatever action it deems necessary to ascertain the ability of the bidder to perform the work satisfactorily.

Qualification of General Contractor: General Contractor shall have a minimum of five (5) projects, of similar size and scope within the last five (5) years, demonstrating an ability to meet the contract schedule and requirements. General Contractor shall meet all Local and State Certifications and License requirements prior to bidding. Copies of the required Certificates and Licenses shall be made available upon request.

Fire Protection Contractor shall have a minimum of five (5) projects, of similar size and scope within the last five (5) years, demonstrating an ability to meet the contract schedule and requirements. Fire Protection Contractor shall meet all Local and State Certifications and License requirements prior to bidding. Copies of the required Certificates and Licenses shall be made available upon request.

Name: _____

Address: _____

Contact Person: _____ Phone: _____

Project Experience:

Project No. 1 Name:
Project Owner:
Owner Contact / Phone No.:
Date Work Completed:
Description of Work:

Project No. 2 Name:
Project Owner:
Owner Contact / Phone No.:
Date Work Completed:

Fire Pump, Domestic Water & Automatic Transfer Switch Projects

SPECIFICATION NO.: PW20-0061F GENERAL CONTRACTOR/FIRE PROTECTION QUALIFICATIONS SUBMITTAL

Description of Work:

Project No. 3 Name:

Project Owner:

Owner Contact / Phone No.:

Date Work Completed:

Description of Work:

Project No. 4 Name:

Owner Contact / Phone No.:

Contact Person:

Date Work Completed:

Description of Work:

Project No. 5 Name:

Owner Contact / Phone No.:

Contact Person:

Date Work Completed:

Description of Work:

Fire Pump, Domestic Water & Automatic Transfer Switch Projects

SPECIFICATION NO.: PW20-0061F GENERAL CONTRACTOR/FIRE PROTECTION QUALIFICATIONS SUBMITTAL

Project Experience:

Project No. 1 Name:
Project Owner:
Owner Contact / Phone No.:
Date Work Completed:
Description of Work:

Project No. 2 Name:
Project Owner:
Owner Contact / Phone No.:
Date Work Completed:
Description of Work:

Project No. 3 Name:
Project Owner:
Owner Contact / Phone No.:
Date Work Completed:
Description of Work:

Fire Pump, Domestic Water & Automatic Transfer Switch Projects

SPECIFICATION NO.: PW20-0061F GENERAL CONTRACTOR/FIRE PROTECTION QUALIFICATIONS SUBMITTAL

Project No. 4 Name:
Owner Contact / Phone No.:
Contact Person:
Date Work Completed:
Description of Work:

Project No. 5 Name:
Owner Contact / Phone No.:
Contact Person:
Date Work Completed:
Description of Work:



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, **October 5, 2020**, 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.*

CONTRACT FORMS (POST AWARD)

1. CONTRACT
2. INSURANCE CERTIFICATE REQUIREMENTS
3. PERFORMANCE BOND TO THE CITY OF TACOMA
4. PAYMENT BOND TO THE CITY OF TACOMA
5. BOND IN LIEU OF RETAINAGE (OPTIONAL)
6. ESCROW IN LIEU OF RETAINAGE (OPTIONAL)
7. GENERAL RELEASE TO THE CITY OF TACOMA

CONTRACT

Resolution No.
Contract No.

This Contract is made and entered into effective this ____ day of ,20____, ("Effective Date") by and between the City of Tacoma, a Municipal Corporation of the State of Washington ("City"), and legal name of Supplier including type of business entity ("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. Enter Spec Number and Enter 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. Enter Spec Number and Enter 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.
-

Delete this highlighted sentence, paragraph II and sub-bullets #1 and #2 if there are no additional attachments to the contract (attachments would be things other than a specific, contract, or bonds).

- II. 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
 2. List remaining Contract Documents in applicable controlling order.
- III. The Contract terminates on xxxxx. {May remove if not applicable}
- IV. The total price to be paid by City for Contracts full and complete performance hereunder may not exceed:
\$ _____, plus any applicable taxes.
- V. 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.
- VI. 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.
- VII. 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.
- VIII. Contractor acknowledges, and by signing this Contract agrees, that the Indemnification provisions set forth in the controlling Contract Documents, including the Industrial Insurance immunity waiver (if applicable), are totally and fully part of this Contract and, within the context of the competitive bidding laws, have been mutually negotiated by the Parties hereto.

- 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.
- X. 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, as of the Effective Date stated above, which shall be Effective Date for bonding purposes as applicable.

CITY OF TACOMA:

CONTRACTOR:

By:

By:

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

Director of Finance: _____

City Attorney (approved as to form): _____

Approved By: _____

Approved By: _____

Approved By: _____

Approved By: _____

Approved By: _____

Approved By: _____

Approved By: _____

Approved By: _____



CITY OF TACOMA INSURANCE REQUIREMENTS FOR CONTRACTS

The Contractor (Contractor) shall maintain at least the minimum insurance set forth below. By requiring such minimum insurance, the City of Tacoma shall not be deemed or construed to have assessed the risk that may be applicable to Contractor under this Contract. Contractor shall assess its own risks and, if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.

1. GENERAL REQUIREMENTS

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

- 1.1. City of Tacoma reserves the right to approve or reject the insurance provided based upon the insurer, terms and coverage, the Certificate of Insurance, and/or endorsements.
- 1.2. Contractor shall not begin work under the Contract until the required insurance has been obtained and approved by City of Tacoma.
- 1.3. Contractor shall keep this insurance in force during the entire term of the Contract and for Thirty (30) calendar days after completion of all work required by the Contract, unless otherwise provided herein.
- 1.4. Insurance policies required under this Contract that name "City of Tacoma" as Additional Insured shall:
 - 1.4.1. Be considered primary and non-contributory for all claims.
 - 1.4.2. Contain a "Separation of Insured provision and a "Waiver of Subrogation" clause in favor of City of Tacoma.
- 1.5. Section 1.4 above does not apply to contracts for purchasing supplies only.
- 1.6. Verification of coverage shall include:
 - 1.6.1. An ACORD certificate or equivalent.
 - 1.6.2. Copies of all endorsements naming the City of Tacoma as additional insured and showing the policy number.
 - 1.6.3. A notation of coverage enhancements on the Certificate of Insurance shall not satisfy these requirements – actual endorsements must be submitted.
- 1.7. Liability insurance policies, with the exception of Professional Liability and Workers' Compensation, shall name the City of Tacoma and its officers, elected officials, employees, agents, and authorized volunteers as additional insured.
 - 1.7.1. No specific person or department should be identified as the additional insured.
 - 1.7.2. All references on certificates of insurance and endorsements shall be listed as "City of Tacoma".
 - 1.7.3. The City of Tacoma shall be additional insured for both ongoing and completed operations using Insurance Services Office (ISO) form CG 20 10 04 13 and CG 20



CITY OF TACOMA INSURANCE REQUIREMENTS FOR CONTRACTS

37 04 13 or the equivalent for the full available limits of liability maintained by the Contractor irrespective of whether such limits maintained by the Contractor are greater than those required by this Contract and irrespective of whether the Certificate of Insurance describes limits lower than those maintained by the Contractor.

- 1.8. Contractor shall provide a Certificate of Insurance for each policy of insurance meeting the requirements set forth herein when Contractor provides the signed Contract for the work to City of Tacoma. Contractor shall provide copies of any applicable Additional Insured, Waiver of Subrogation, and Primary and Non-contributory endorsements. Contract or Permit number and the City Department must be shown on the Certificate of Insurance.
- 1.9. Insurance limits shown below may be written with an excess policy that follows the form of an underlying primary liability policy or an excess policy providing the required limit.
- 1.10. Liability insurance policies shall be written on an "occurrence" form, except for Professional Liability/Errors and Omissions, Pollution Liability, and Cyber/Privacy and Security
- 1.11. If coverage is approved and purchased on a "Claims-Made" basis, Contractor warrants continuation of coverage, either through policy renewals or by the purchase of an extended reporting period endorsement as set forth below.
- 1.12. The insurance must be written by companies licensed or authorized in the State of Washington pursuant to RCW 48 with an (A-) VII or higher in the A.M. Best's Key Rating Guide www.ambest.com.
- 1.13. Contractor shall provide City of Tacoma notice of any cancellation or non-renewal of this required insurance within Thirty (30) calendar days.
- 1.14. Contractor shall not allow any insurance to be cancelled or lapse during any term of this Contract, otherwise it shall constitute a material breach of the Contract, upon which City of Tacoma may, after giving Five (5) business day notice to Contractor to correct the breach, immediately terminate the Contract or, at its discretion, procure or renew such insurance and pay any and all premiums in connection therewith; with any sums so expended to be repaid to City of Tacoma by Contractor upon demand, or at the sole discretion of City of Tacoma, offset against funds due Contractor from City of Tacoma.
- 1.15. 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.
- 1.16. 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 has changed.



CITY OF TACOMA INSURANCE REQUIREMENTS FOR CONTRACTS

- 1.17. All costs for insurance shall be incidental to and included in the unit or lump sum prices of the Contract and no additional payment will be made by City of Tacoma to Contractor.
- 1.18. 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).
- 1.19. Failure by City of Tacoma to identify a deficiency in the insurance documentation provided by Contractor or failure of City of Tacoma 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.
- 1.20. If Contractor is a State of Washington or local government and is self-insured for any of the above insurance requirements, a certification of self-insurance shall be attached hereto and be incorporated by reference and shall constitute compliance with this Section.
- 1.21. As used herein, "Contractor" shall be the Supplier(s) entering a Contract with City of Tacoma, whether designated as a Supplier, Contractor, Vendor, Proposer, Bidder, Respondent, Seller, Merchant, Service Provider, or otherwise.

2. SUBCONTRACTORS

It is Contractor's responsibility to ensure that each subcontractor obtain and maintain adequate liability insurance coverage. Contractor shall provide evidence of such insurance upon City of Tacoma's request.

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. The Commercial General Liability Insurance policy shall be written on an Insurance Services Office form CG 00 01 04 13 or its equivalent. Products and Completed Operations shall be maintained for a period of three years following Substantial Completion of the Work related to performing construction services.

This policy shall include product liability especially when a Contract solely is for purchasing supplies. The Commercial General Liability policy shall be endorsed to include:

- 3.1.1 A per project aggregate policy limit, using ISO form CG 25 03 05 09 or an equivalent endorsement.
- 3.1.2 Contractual Liability-Railroad using ISO form CG 24 17 10 01 or equivalent if Contractor is performing work within Fifty (50) feet of a City of Tacoma railroad right of way.



CITY OF TACOMA

INSURANCE REQUIREMENTS FOR CONTRACTS

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 an MCS 90 endorsement or equivalent and a CA 99 48 endorsement or equivalent if "Pollutants" are to be transported.

3.3 Workers' Compensation

3.3.1 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. The 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

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.

If the policy limit includes the payment of claims or defense costs, from the policy limit, the per claim limit shall be Two Million Dollars (\$2,000,000).

If the scope of such design-related professional services includes work related to pollution conditions, the Professional Liability policy shall include Pollution Liability coverage.

If provided on a "claims-made" basis, such coverage shall be maintained by policy renewals or an extended reporting period endorsement for not less than three years following the end of the Contract.

3.6 Excess or Umbrella Liability Insurance

Contractor shall provide Excess or Umbrella Liability Insurance with limits not less than Five Million Dollars (\$5,000,000) 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 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 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.

Approved as to form:

Principal: Enter Vendor Legal Name

Deputy City Attorney

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.

Approved as to form:

Principal: Enter Vendor Legal Name

Deputy City Attorney

By: _____

Surety:

By: _____

Agent's Name: _____

Agent's Address: _____



BOND IN LIEU OF RETAINAGE TO THE CITY OF TACOMA

Bond No. _____

That we _____, as PRINCIPAL, and _____, a corporation organized and existing under the laws of the State of _____ 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 _____, (\$ _____) 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 Obligees have entered into and executed a certain contract for: _____ (Contract No. _____), dated _____, 20____.

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 Obligees harmless from and against all losses, damages, claims, suits, demands, causes, charges and expenses to which the Obligees 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 Obligees, 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____.

Approved as to form:

Principal: **Vendor Legal Name**

Deputy City Attorney

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

CITY OF TACOMA

By _____

Approved as to form:

Printed Name _____

Deputy City Attorney

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.

GENERAL RELEASE TO THE CITY OF TACOMA

The undersigned, named as the contractor for the _____ between _____ and the City of Tacoma, Contract No. _____ dated _____, 20____, hereby releases the City of Tacoma, its departmental officers and agents from any and all claim or claims whatsoever in any manner whatsoever at any time whatsoever arising out of and/or in connection with and/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 _____ excluding sales tax.

Signed at _____, Washington this _____ day of _____, 20__.

Contractor

By _____
Title _____

STATE OF WASHINGTON)
) ss
COUNTY OF)

I, _____, a Notary Public in and for the said State, do hereby certify that on this _____, day of _____, 20____, that _____, executed the within and foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said company, for the uses and purposes therein mentioned, and on oath stated that he/she was authorized to execute said instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

Notary Public in and for the State of Washington
My appointment expires _____

WASHINGTON STATE **PREVAILING WAGE RATES**

- **STATE PREVAILING WAGE RATES FOR PIERCE COUNTY**

PREVAILING WAGE RATES

This project requires prevailing wages under chapter 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 DOCUMENTS

The Contractor shall submit to the City the following Department of Labor and Industries (L&I) forms for itself and for each firm covered under [39.12 RCW](#) that provided work and materials for the Contract:

1. A copy of an approved Statement of Intent to Pay Prevailing Wages, L&I form number [F700-029-000](#). The City will make no payment under this Contract for the Work performed until this statement has been approved by L&I and a copy of the approved form has been submitted to the City.
2. A copy of an approved Affidavit of Prevailing Wages Paid, L&I form number [F700-007-000](#). The Contracting Agency will not grant completion or release retainage held under chapter 60.28 RCW until all approved Affidavit of Wages paid for Contractor and all Subcontractors have been received by the City.

CITY PROGRAMS

- EQUITY IN CONTRACTING – EIC REQUIREMENTS
- EIC – TACOMA MUNICIPAL CODE
- EIC – PROGRAM REGULATIONS
- EIC – SPECIAL REMINDER
- EIC – WAIVER REQUEST

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 insure that the EIC-eligible subcontractor(s) listed on the EIC Utilization Form are currently certified by the City of Tacoma or the State of Washington's Office of Minority and Women Business Enterprises 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. Please refer to the City of Tacoma EIC Provisions included elsewhere in these Special Provisions.

Equity in Contracting Requirements

Minority Business
Enterprise Requirement

6%

Women Business
Enterprise Requirement

4%

Small Business Enterprise
Requirement

8%

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

www.cityoftacoma.org/sbe
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: PW20-0061F
Date of Record: 2.24.2020

*For the OMWBE list, be sure to only look for businesses in Pierce, King, Lewis, Mason, and Grays Harbor counties.

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 Certification.
- 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.

- 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."
- C. "City" means all Departments, Divisions and agencies of the City of Tacoma.
- D. "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.
- E. "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.

F. “Goals” means the annual level of participation by MWBEs and SBEs 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.

G. “MWBE Certified business” (or “MWBEs”) means a business that meets the criteria set forth in Section 1.07.050 of this chapter and has been certified as meeting that criteria by the Community and Economic Development Department Program Manager.

H. “SBE Certified Business” (or “SBEs”) means a business that meets the criteria set forth in Section 1.07.050 of this chapter and has been certified as meeting that criteria by the Community and Economic Development Department-SBE Program Manager.

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

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

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

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

M. “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.

N. “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.

O. “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.

P. “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.

Q. “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.

R. “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.

S. “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.

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

(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 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. 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 rules and 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 MWBE and SBE goals set forth herein. The Program Regulations shall become effective following public notice and an opportunity to comment by the public.

C. The Program Regulations adopted pursuant to this section are for the administrative and procedural guidance of the officers and employees of the City and are further expressions of the public policy of the City. The Program Regulations, when adopted, shall not confer an independent cause of action or claim for relief cognizable in the courts of the state of Washington or the United States of America to any third parties, and such provisions shall not be used as the basis for a lawsuit in any court of competent jurisdiction challenging the award of any contract by the City.

(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 Certification.

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

1. The business is certified as a SBE, MBE, WBE, or MWBE through the state of Washington's Office of Minority & Women Business Enterprises; and
2. The company 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 company'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 company'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.

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 certification 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. 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 MWBEs and SBEs in the provision of supplies, services, and public works procured by the City. Cumulative annual goals for the participation of MWBEs and SBEs in City contracts shall be based on the number of qualified MWBEs and SBEs operating within the Tacoma Public Utilities Service Area. The dollar value of all contracts awarded by the City to MWBEs and SBEs 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. Waivers. City departments/divisions or the Program Manager may request to waive one or more of the requirements of this chapter as they apply to a particular contract or contracts. Waivers 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 and waiver must be documented by the department/division awarding the contract.

2. Not Practicable: Compliance with the requirements of this chapter would impose an unwarranted economic burden or risk to the City after consideration of existing budgetary approvals.

3. Sole source: The supplies, services, and/or public works are available from only one source, and subcontracting possibilities do not reasonably exist as determined by the finance purchasing manager.

4. Government purchasing. The City is a party to or included in a federal, state or inter-local government purchasing agreement as approved by the finance purchasing manager.

5. Lack of certified contractors: An insufficient number of qualified contractors exist to create utilization opportunities.

6. Best interests of the City: Waiver of goals is in the best interests of the City due to unforeseen circumstances, provided that said circumstances are set forth in writing by the requestor.

C. Review of Waivers. A waiver determination by the finance purchasing manager may be reviewed by the Board of Contracts and Awards (C&A Board). The C&A Board may also review a request to reduce or waive the utilization requirements based on Not Practicable or Best Interests of the City circumstances. The C&A Board shall determine whether compliance with such requirements 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. If the determination of the C&A Board does not resolve the matter, a final determination shall be made by the City Council or Public Utility Board, as the case may be.

(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 MWBE and SBE requirements established for that contract in accordance with this chapter and the Program Regulations.

B. The determination of MWBE and SBE usage and the calculation of MWBE or SBE requirements per this section shall include the following considerations:

1. General. The dollar value of the contract awarded by the City to a MWBE or SBE 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 MWBE and/or SBE requirement(s) for expenditures for supplies obtained from an MWBE or SBE; provided such MWBE or SBE assumes the actual and contractual responsibility for delivering the supplies with its resources. The contractor may also receive credit toward attainment of the MWBE or SBE goal for the amount of the commission paid to a MWBE or SBE resulting from a supplies contract with the City; provided the MWBE or SBE performs a commercially useful function in the process.

3. Services and Public Works subcontracts. Any bid by a certified MWBE and/or SBE or a bidder that utilizes a certified MWBE and/or SBE shall receive credit toward requirement attainment based on the percentage of MWBE and/or SBE usage demonstrated in the bid. A contractor that utilizes an MWBE and/or SBE 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. MWBEs and/or SBEs 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. An MWBE and/or SBE firm 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 MWBE and/or SBE requirements shall be considered a non-responsible bidder unless the bidder receives a waiver from the Program Manager or C&A Board.

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. 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 MWBE or SBE 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 MWBE or SBEs projected to be used must be approved in advance by the Program Manager. Substitution of one MWBE or SBE with another shall be allowed where there has been a refusal to execute necessary agreements by the original MWBE or SBE, 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 MWBE or SBE is available as a substitute and that failure to secure participation by the MWBE or SBE identified in the solicitation is not the fault of the respondent, substitution with a non-MWBE or non-SBE 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 MWBEs or SBEs, 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 MWBEs or SBEs, and shall include the right of the City to inspect such records.

(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 MWBE and SBE utilization

levels, waivers, proposed modifications to the program, and such other matters as may be specified 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)

1.07.100 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)

City of Tacoma

Equity In Contracting Program Regulations

City of Tacoma Equity In Contracting Regulations Manual

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Introduction

This document serves as the administrative manual for the Equity in Contracting policy that is described in Tacoma Municipal Code (TMC) Chapter 1.07.040(B). The manual will explain how compliance, monitoring, oversight, requirement-making, bid incentives, and enforcement actions will be administered. The document will be regularly updated. For any questions related to this document, please contact the Equity in Contracting (EIC) office at (253)591-5075 or SBEOffice@cityoftacoma.org.

Goals/Requirements on Contracts

A. Requirements

1. Public Work

- a. Minority Business Enterprise (MBE), Women Business Enterprise (WBE), and Small Business Enterprise (SBE) requirements are placed on all Public Work projects.
- i. MBE, WBE, and SBE requirements are **mandatory**. As such, any bidder that does not meet any requirement shall be considered non-responsive by the Equity in Contracting office.
- ii. If a bidder wishes to request a waiver, they must identify the request on the Equity in Contracting Waiver Request Form complete with the reason(s) why.
 1. Waiver types are listed under the “Waivers” section B.

Contractors are also subject to the City’s ordinances and regulations pertaining to having an affirmative action program and prohibiting discrimination. If needed, please contact the Equity in Contracting Office at 253-591-5075 for assistance. The list of City of Tacoma SBE subcontractors is available at

<https://cityoftacoma.org/cms/One.aspx?portalId=169&pageId=112505>. The list of MBE, WBE, and SBE certified firms from the Washington State Office of Minority and Women Owned Business Enterprises (OMWBE) can be found at: <https://omwbe.diversitycompliance.com/>

All SBE goals may be met by using DBE’s or SBE’s from the OMWBE list or the City of Tacoma SBE list. Please contact the Equity in Contracting Office for questions or to verify a firms status.

Contract Compliance

A. Benefits

The City of Tacoma must monitor compliance for all contracts that have requirements related to Equity in Contracting policies. Adequate monitoring allows the City to audit ongoing contracts for compliance, make necessary changes to the Equity in Contracting Regulations Manual based on real data, and to pro-actively monitor any possible discrimination on City of Tacoma-funded contracts.

B. Requirements

1. All contracts that have requirements related to the Equity in Contracting policy must utilize two cloud-based software solutions:
 - a. “B2GNow” for prime-contractor and sub-contractor payment compliance.
 - b. “LCP Tracker” for certified payroll compliance.
2. To access both systems, please use the following link:
<https://cityoftacoma.sbecompliance.com/?TN=cityoftacoma>

3. For support using these software solutions, please contact the Equity in Contracting office at (253)591-5075.

C. Key Performance Indicators

1. B2GNow
 - a. Ethnicity and Gender Summary
 - i. Subcontractors Only
 - ii. With Primes
 - b. Prompt Payment Analysis
 - c. Prime Contractor Performance on Active Contracts
 - d. Contract Awards Summarized by Department
2. LCP Tracker
 - a. Apprentice Hours
 - i. By Trade
 - ii. By Contractor
 - b. Employment By Area
 - i. Zip Code
 - ii. Council Districts
 - c. Employment By Ethnicity

Waivers

A. Benefits

There are times where the City may desire to waive a requirement from a contract. The following waivers, also identified in the Purchasing Policy Manual, give the City flexibility to waive requirements when the situation makes sense for it.

B. Requirements

1. Emergency
 - a. Must be documented and requested by the department/division awarding the contract.
2. Not Practicable
 - a. Must be documented and requested by the department/division awarding the contract.
3. Sole Source
 - a. Must be confirmed by the Finance Purchasing Manager.
 - b. Preliminary check to be made by Equity in Contracting division explicitly for potential MBEs, WBEs, and SBEs.
4. Government Purchasing
 - a. Must be confirmed by the Finance Purchasing Manager.
5. Lack of Certified Contractors
 - a. Must be documented and confirmed by the Equity in Contracting division.
 - b. The division will look up the available contractors by scope of work from the OMWBE roster and/or WEBS.
 - c. The list produced by this research shall be documented with other files for the contract in question.
 - d. If there are not more than 3 available contractors, there will not be a requirement placed on the contract for that scope of work.
6. Best Interests of the City
 - a. Must be documented and requested by the department/division awarding the contract.

C. Compliance

1. Waiver requests may be initiated by the contractor or the department owner.
 - a. When initiated by the contractor, the “Application for EIC Requirement Waiver” must be submitted to the EIC office.
 - i. The application will be reviewed by the office, and a determination will be made.
 - b. When initiated by the department owner, a request must be made in writing to the EIC office.
2. The waivers will be reviewed in accordance with 1.07.060(C).

D. Key Performance Indicators

1. Total quantity of Waivers
 - a. By type number
 - b. Type 5 will also need to document the NAICS code referenced.

Version History

The version history is marked by day.month.year.version nomenclature. A higher version number denotes a more recent version. For example, a 1.1.2020.1 version would denote the first version made in January 1st of 2020. A 1.1.2020.3 version would denote the third version made on January 1st of 2020. When referencing a specific contract, be sure to note that the version of the administrative manual matches that which was in the bid specifications.

Current Version

3.11.2020.1

Previous Version(s)

2.21.2020.1

Equity in Contracting Special Reminder

Equity in Contracting (EIC) forms and attachments must be fully and accurately completed and returned at the time of Bids. Failure to do so may result in the proposal being considered nonresponsive. These forms will be used to determine if the firm complies with Tacoma Municipal Code Chapter 1.07 and State Law.

Vendors for public works and improvement-type projects are required to be inclusive of Minority Owned Business Enterprises, Women-Owned Business Enterprises, and Small Business Enterprises. The criteria for determining whether inclusion has been made are set forth in the City's EIC regulations. Vendors are also subject to the City's EIC ordinance and regulations pertaining to having an Equal Employment Opportunity policy prohibiting discrimination. Bids will be evaluated on an individual basis to determine compliance with this section. The EIC Utilization Form, when required, should accompany your submittal. Contact the EIC Office at (253) 591-5075 if there are questions about this requirement.

A list of EIC subcontractors can be downloaded at:

<https://cityoftacoma.org/cms/One.aspx?portalId=169&pageId=112505>

Application for Waiver of EIC Requirements

Section 1: Basic Information			
Contractor's Name:		EIC Requirements	
Street Address:		MBE %	WBE %
City, State, ZIP Code:			
Contact E-mail Address:			
Contact Telephone No.:			
Section 2: Type of EIC Waiver Requested			
MBE Waiver: <input type="checkbox"/> Total	<input type="checkbox"/> Partial	If partial waiver, please enter the revised MBE percentage:	
WBE Waiver: <input type="checkbox"/> Total	<input type="checkbox"/> Partial	If partial waiver, please enter the revised WBE percentage:	
SBE Waiver: <input type="checkbox"/> Total	<input type="checkbox"/> Partial	If partial waiver, please enter the revised SBE percentage:	
Please explain the reason for the waiver request:			
Section 3: Supporting Documentation			
Provide the following documentation as evidence of your efforts to meet the EIC requirements set forth in the contract and in support of your waiver application:			
<input type="checkbox"/> Attachment A. List of the general circulation, trade and MWBE/SBE-oriented publications and dates of publications soliciting for certified MWBE/SBE participation as a subcontractor/supplier and copies of such solicitation.			
<input type="checkbox"/> Attachment B. List of the certified MWBEs/SBEs appearing in the State of Washington Office of Minority and Women Business Enterprise (OMWBE) directory that were solicited for this contract. Provide proof of dates or copies of the solicitations and copies of the responses made by the certified MWBEs/SBEs. Describe the specific reasons that responding certified MWBEs/SBEs were not selected.			
<input type="checkbox"/> Attachment C. Descriptions of the contract documents/plans/specifications made available to certified MWBEs/SBEs by the contractor when soliciting their participation and steps taken to structure the scope of work for the purpose of subcontracting with or obtaining supplies from certified MWBEs.			
<input type="checkbox"/> Attachment D. Description of the negotiations between the contractor and certified MWBEs/SBEs for the purposes of complying with the EIC requirements of this contract.			
<input type="checkbox"/> Attachment E. Identify dates of any pre-bid, pre-award or other meetings attended by the contractor, if any, scheduled by the City of Tacoma with certified MWBEs/SBEs whom the City of Tacoma determined were capable of fulfilling the EIC requirements set in the contract.			
<input type="checkbox"/> Attachment F. Other information deemed relevant to the request.			
Section 4: Signature and Contract Information			
By signing and submitting this form, the contractor certifies that a good faith effort has been made to promote MWBE/SBE participation pursuant to the EIC requirements set forth under the contract. Failure to submit complete and accurate information may result in a finding of noncompliance, non-responsibility, non-responsiveness, and a suspension or termination of the contract.			
Prepared by (signature): _____		Date: _____	
Name and title of preparer (print): _____			

Instructions for Completing and Submitting an Application for a Waiver of EIC Requirements

Section 1.07 of the Tacoma Municipal Code requires the City to set requirements for participation by Minority and Women-owned Business Enterprises (MWBE) and/or Small Business Enterprise (SBE) on many types of contracts. Prior to the contract award, separate goals are established for MBE, WBE, and SBE utilization, expressed as a percentage of payments made under the contract. The regulations allow the City to impose penalties if contractors fail to meet the requirements established for the contract and also allow the City to grant waivers of requirements, either prior to a contract award or after the award has been made, provided the contractor demonstrates an inability to solicit participation despite good faith efforts to that end. In order for a waiver to be granted, the contractor must submit a completed “Application for Waiver of EIC Requirements” form, along with the required supporting documentation.

Section 1: Basic Information

Enter the contractor’s name, address, federal identification number, and the contract number in the spaces provided. Enter the MBE, WBE, and SBE utilization goals set forth in the solicitation or assigned contract.

Section 2: Type of Waiver Request

Check the type(s) of waiver requested. You may request a total or partial waiver of the EIC requirements. If you request a partial waiver any requirement, enter the revised goal for participation in the box provided. Use the space provided to provide a rationale for your waiver request. Consult the EIC Regulations Manual for the acceptable reasons waivers may be provided. You may attach additional sheets, if necessary.

Section 3: Supporting Documentation

Extensive documentation is required to demonstrate good faith efforts to comply with the EIC requirements. See the form for details on the required documentation.

Section 4: Signature and Contact Information

The waiver application must be signed by someone authorized to discuss the waiver with the Equity in Contracting office and Procurement. By signing the waiver application, the contractor certifies that a good faith effort has been made to promote MWBE/SBE participation pursuant to the EIC requirements set forth under the contract. Failure to submit complete and accurate information may result in a finding of non-compliance, non-responsibility, non-responsiveness, and a suspension or termination of the contract.

Note: Unless total waivers for all three of the MBE, WBE, and SBE participation have been granted, the contractor is required to submit all reports and documents – including compliance reports – pursuant to the provisions set forth in the contract, to evidence compliance with the requirements.

GENERAL CONDITIONS AND OTHER CONTRACT TERMS & CONDITIONS

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

**CITY OF TACOMA
STANDARD TERMS AND CONDITIONS
GOVERNS BOTH GOODS AND SERVICES AS APPLICABLE**

In the event of an award by the City, these Terms and Conditions stated herein, Additional Contract Documents if issued, Solicitation if issued, Purchase Orders if issued by City, and Supplier's Submittal, if provided, shall constitute the Contract between City and Supplier for the acquisition of goods, including materials, supplies, and equipment or for the provision of services and deliverables.

Said documents represent the entire Contract between the parties and supersede any prior oral statements, discussions, or understandings between the parties, and/or subsequent Supplier invoices. No modification of the Contract shall be effective unless mutually agreed in writing.

The specific terms and conditions of any Solicitation (Specification, Request for Bids, Request for Proposals, Requests for Qualifications, Requests for Quotations, Request for Information, bid documents, request to enter into negotiations, or other form of solicitation issued by City, including any general, special, or technical provisions associated with such Solicitations) are incorporated herein by reference and supersede these Terms and Conditions where there is conflict or inconsistency.

In the event Additional Contract Documents are negotiated and agreed to in writing between Supplier and City, the specific terms of such Additional Contract Documents are incorporated herein by reference and supersede all other terms and conditions where there is conflict or inconsistency.

These Terms and Conditions, Additional Contract Documents if issued, Solicitation if issued, City purchase order if issued, are controlling over Supplier's Submittal if a Submittal is provided. Submittals if provided are incorporated herein by reference.

1.01 SUPPLIER / CONTRACTOR

As used herein, "Supplier" or "Contractor" shall be the Supplier(s) entering a Contract with City, whether designated as a Supplier, Contractor, Vendor, Proposer, Bidder, Respondent, Seller, Merchant, Service Provider, or otherwise.

1.02 SUBMITTAL

Submittal means Bids, Proposals, Quotes, Qualifications or other information, content, records or documents submitted in response to a City Solicitation.

1.03 FORMS OF SUBMITTAL

Unless stated otherwise, all submittals must be in SAP Ariba and submitted exactly as specified or directed, and all required forms must be used.

1.04 COSTS TO PREPARE SUBMITTAL

The City is not liable for any costs incurred by Supplier for the preparation of materials or a Submittal provided in response to a solicitation, conducting presentations to the City, or any other activities related to responding to the City's Solicitation.

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 PUBLIC DISCLOSURE: PROPRIETARY OR CONFIDENTIAL INFORMATION

- A. Supplier Submittals, all documents and records comprising the Contract, and all other documents and records provided to the City by Supplier 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 Supplier has complied with the requirements to mark records considered confidential or proprietary as such requirements are stated below, City agrees to provide Supplier 10 days written notice of impending release. Should legal action thereafter be initiated by Supplier to enjoin or otherwise prevent such release, all expense of any such litigation shall be borne by Supplier, 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 Supplier took no action to oppose the release of information.
- B. If Supplier provides City with records or information that Supplier considers confidential or proprietary, Supplier 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 Supplier expressly waives its right to allege any kind of civil action or claim against the City pertaining to the release of said record(s).
- C. Submission of materials in response to City's Solicitation shall constitute assent by Supplier to the foregoing procedure and Supplier shall have no claim against the City on account of actions taken pursuant to such procedure.

1.07 SUSTAINABILITY

- A. The City has interest in measures used by its contractors to ensure sustainable operations with minimal adverse impact on the environment. The City seeks to do business with vendors that value community and environmental stewardship that help us meet our sustainable purchasing goals.
- B. The City encourages the use of environmentally preferable products or services that help to minimize the environmental and human health impacts of City operations. Suppliers are encouraged to incorporate environmentally preferable products or services into Submittals wherever possible. "Environmentally preferable" means products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service.
- C. Environmental Standards. The City seeks to ensure that all purchases comply with current environmental standards and product specifications. Where appropriate, third party independent certifiers such as Green Seal and USEPA Standards shall be a minimum specification for products to the City, unless specified otherwise herein.
- D. The City encourages the use of sustainability practices and desires any awarded Suppliers to assist in efforts to address such factors when feasible for:
 - 1. Pollutant releases
 - 2. Toxicity of materials used
 - 3. Waste generation
 - 4. Greenhouse gas emissions, including transportation of materials and services
 - 5. Recycle content
 - 6. Energy consumption
 - 7. Depletion of natural resources
 - 8. Potential impact on human health and the environment

1.08 ALTERATIONS NOT ALLOWED

Except as otherwise specifically provided in a Solicitation, Submittals that are incomplete or conditioned in any way, contain erasures, alternatives or items not called for, or not in conformity with law, may be rejected as being non-responsive. Any attempt to condition a Submittal by inserting exceptions to the Solicitation or any conditions, qualifications or additions that vary its terms may result in rejection of the Submittal. The City may reject any submittal containing a material deviation from the Solicitation.

1.09 CORRECTION OF AMBIGUITIES AND OBVIOUS ERRORS

- A. The City reserves the right to correct obvious errors in Supplier's Submittal. In this regard, if the unit price does not compute to the extended total price, the unit price shall govern.
- B. Supplier shall notify the City of Tacoma Procurement and Payables Division in writing of any ambiguity, conflict, discrepancy, omission or other error in a Solicitation no later than five business days prior to the submittal deadline.
 - 1. For solicitations conducted in SAP Ariba, Supplier shall notify the City of Tacoma Procurement and Payables Division on the message board of the event.
 - 2. For all other solicitations, Supplier shall notify the contract person listed in the Solicitation.
- C. The City will make necessary modifications by addendum.
- D. Supplier is responsible for identifying ambiguities, conflicts, discrepancies, omissions or other errors in the Solicitation prior to providing its Submittal or the ambiguity, conflict, discrepancy, omission, or other error is waived. Any Submittal that includes assumed clarifications and/or corrections without the required authentication of the same is subject to rejection.

1.10 WARRANTIES/GUARANTEE

- A. Suppliers warrant that all items, including services, as applicable:
 - 1. Are merchantable.
 - 2. Comply with the City's latest drawings and specifications.
 - 3. Are fit for the City's intended use.
 - 4. Will be performed according to the skill and care required by customarily accepted good practices and procedures followed by service providers rendering the same or similar type of service.
 - 5. Are new and unused unless otherwise stated.
 - 6. Comply with all applicable safety and health standards established for such products by the Occupational Safety and Health Administration (OSHA), Washington Industrial Safety and Health Act (WISHA) and/or Consumer Products Safety Act (CPSA), and all other applicable state and federal laws or agency regulations.
 - 7. Are properly packaged and contain appropriate instructions or warnings, including applicable MSDS sheets.

1.11 PATENTS, TRADEMARKS AND COPYRIGHTS

Suppliers warrant that equipment and/or materials furnished, including software, do not infringe on any patent, trademark or copyright, and agree to indemnify, defend and hold harmless, the City in the event of any infringement or claim thereof.

1.12 DELIVERY OF SUBMITTALS TO THE CITY'S PROCUREMENT AND PAYABLES DIVISION

- A. Submittal 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.

1.13 SUBMITTAL IS NON-COLLUSIVE

Supplier acknowledges that by its delivery of a Submittal to the City in response to a Solicitation, it represents that the prices in such Submittal are neither directly nor indirectly the result of any formal or informal agreement with another Supplier.

1.14 PARTNERSHIPS

The City will allow firms to partner in order to respond to a Solicitation. Multiple suppliers may team under a Prime Supplier's Submittal in order to provide responses to all sections in a single submission; however, each Supplier's participation must be clearly delineated by section. The Prime Supplier will be considered the responding vendor and the responsible party at contract award. All contract negotiations will be conducted only with the Prime Supplier. All contract payments will be made only to the Prime Supplier. Any agreements between the Prime Supplier and other companies will not be a part of the Contract between the City and the Prime Supplier. The City reserves the right to select more than one Prime Supplier.

1.15 WITHDRAWAL OF SUBMITTALS

- A. Prior to Submittal Deadline. Submittals may be withdrawn (including in SAP Ariba) prior to the scheduled submittal deadline.
- B. After Submittal Deadline. No Submittal can be withdrawn after having been opened before the actual award of the contract, unless the award is delayed more than 90 calendar days beyond the date of opening. If a delay of more than 90 calendar days does occur, Supplier must submit written notice to the City purchasing manager that Supplier is withdrawing its submittal.

1.16 ACCEPTANCE OF SUBMITTALS

- A. If the solicitation announcement so states, submittals, unless previously withdrawn, will be read aloud, irrespective of any irregularities or informalities in such submittal, at the time and place specified in the solicitation announcement.
- B. All submittals must remain open for acceptance by the City for a period of at least 90 calendar days from the submittal deadline.

1.17 RIGHT TO REJECT

- A. The City of Tacoma reserves the right to reject any and all submittals, waive minor deviations or informalities, supplement, amend, reduce or otherwise modify the scope of work or cancel the solicitation, and if necessary, call for new submittals.

1.18 RESERVED RIGHTS

- A. By providing a submittal in response to a City solicitation, Supplier acknowledges and consents to the below City rights and conditions. With regard to this procurement process, the City reserves, holds without limitation, and may exercise, at its sole discretion, the following rights and conditions:
 - 1. To terminate the procurement process or decide not to award a contract as a result thereof by written notice to the Suppliers for any reason whatsoever with or without substitution of another solicitation.
 - 2. To waive any defect, technicality, or any other minor informality or irregularity in any submittal, or any other response from Suppliers.
 - 3. To issue addenda for any purpose including:
 - a. To make minor or major changes or alterations to the evaluation, selection and/or performance schedule(s) for any events associated with a procurement.
 - b. To supplement, amend, reduce, cancel, or otherwise modify a Solicitation, including but not limited to modifications to the description of services and/or products contained in the solicitation, by omitting services/products and/or including services/products.
 - 4. To request clarifications, additional information, and/or revised Submittals from one or more Suppliers.
 - 5. To conduct investigations with respect to the qualifications and experience of Supplier(s), including inspection of facilities and to request additional evidence to support any such information.

6. To eliminate any Supplier that submits an incomplete or inadequate response, or is non-responsive to the requirements of a Solicitation, or is otherwise deemed to be unqualified during any stage of the procurement process.
7. To select and interview a single finalist or multiple finalists to further the City's evaluation of Submittals provided in response to a Solicitation. The City may, in its sole and exclusive discretion as to what is in the City's best interest, elect not to conduct interviews of any or all Suppliers in connection with a solicitation process.
8. Except in the case of Requests for Bids, to negotiate any rate/fee offered by a Supplier. The City shall have the sole right to make the final rate/fee offer during contract negotiations. If the selected Supplier does not accept the City's final offer, the City may, in its sole discretion discontinue contract negotiations and commence negotiations with another Supplier, except as otherwise provided in Chapter 39.80, RCW.
9. To select and enter into a Contract with one or more Suppliers whose Submittal best satisfies the interests of the City and is most responsive, in the sole judgment of the City, to the requirements of a Solicitation.
10. To award by line item or group of line items.
11. To not award one or more items.
12. To issue additional or subsequent solicitations.
13. To seek partnerships between one or more Suppliers.
14. Request additional related products and services from the selected Supplier(s) as necessary throughout the term of the Contract.
15. Negotiate costs or fees in the event of new legislation or regulatory changes, or issuance of related compliance guidance, technology enhancements, and innovative solutions.
16. In the event the City receives questions concerning a Solicitation from one or more Suppliers prior to the deadline for response, the City reserves the right to provide such questions, and the City's responses, if any, to all Suppliers.
17. If an award is made and, prior to entering into a contract, subsequent information indicates that such award is not in the best interest of the City, the City may rescind the award without prior notice to Supplier and either award to another Supplier or reject all submittals or cancel this solicitation.
18. To cancel award of a contract at any time before execution of the Contract by both parties if cancellation is deemed to be in the City's best interest. In providing a submittal, Suppliers agree that the City is not liable for any costs or damages for the cancellation of an award. Supplier assumes the sole risk and responsibility for all expenses connected with the preparation of its submittal.
19. To add additional City departments or divisions to the Contract or develop a separate Contract with the Supplier subject to all terms, conditions and pricing of the original Contract
20. To take any other action affecting a Solicitation or a procurement process that is determined to be in the City's best interests.

1.19 SUBMITTAL CLARIFICATION

Suppliers may be asked to clarify their Submittal. This action shall not be construed as negotiations or any indication of intentions to award. If called upon, Supplier must respond to such requests within two business days or the timeframe set forth by the City in its request for clarification. Supplier's failure to respond to such a request may result in rejection of its Submittal.

1.20 EVALUATION OF SUBMITTALS

- A. The City of Tacoma reserves the right to award to the lowest and best responsible Supplier(s) delivering a Submittal in compliance with the Solicitation, provided such Submittals are reasonable and are in the best interest of the City to accept. The City may use a number of criteria for determining award, including evaluation factors set forth in Municipal Code Section 1.06.262. Suppliers who are inexperienced or who fail to properly perform other contracts may have their submittal rejected for such cause.

1. Evaluation Factors. In addition to the factors set forth in Municipal Code Section 1.06.262, the following may be used by the City in determining the lowest and best responsible Submittal:
 - a. Compliance with a Solicitation and with applicable City requirements, including by not limited to, the City's Ethics Code and its Small Business Enterprise and Local Employment and Apprenticeship programs.
 - b. Submittal prices, listed separately if requested, as well as a lump sum total (if the unit price does not compute to the extended total price, the unit price shall govern).
 - c. The total cost to the City, including all applicable taxes, may be the basis for contract award.
 - d. Time of delivery and/or completion of performance (delivery date(s) offered).
 - e. Warranty terms.
 - f. Quality of performance of previous contracts or services, including safety requirements and past compliance with the City's Ethics Code.
 - g. Previous and existing compliance with laws and ordinances relating to contracts or services.
 - h. Sufficiency of financial resources.
 - i. Quality, availability, and adaptability of the supplies or services to the particular use required.
 - j. Ability to provide future maintenance and service on a timely basis.
 - k. Location of nearest factory authorized warranty repair facility or parts dealership.
 - l. Ability, capacity, experience, stability, reputation, integrity, character, judgment, technical qualifications, and skill to perform the contract or provide the services required.
2. Prompt Payment Discount. Payment discount periods of 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.
 - a. 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.
3. All other elements or factors, whether or not specifically provided for in a Solicitation, which would affect the final cost to, and the benefits to be derived by, the City, may be considered in determining the award of a Contract. The final award decision will be based on the best interests of the City.

1.21 CONTRACT OBLIGATION

- A. The Submittal contents of the successful Supplier will become contractual obligations if a Contract ensues.
- B. In the event the City of Tacoma determines to award a Contract, the selected Supplier(s) may be requested to execute Additional Contract Documents.
- C. Supplier shall register with the City of Tacoma on the SAP Ariba Network and be enabled for transactions upon request by the City.
- D. Suppliers may propose amendments to City's Contract documents or to these Terms and Conditions, but the City retains the right to accept or reject proposed amendments.
- E. No costs chargeable for work under the proposed Contract may be incurred before mutual acceptance and execution as directed.

1.22 AWARD

The City reserves the right to award Contracts for any or all items to one or more Suppliers in the best interests of the City.

1.23 SUPPLIER'S REFUSAL TO ENTER INTO CONTRACT

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

1.24 LEGAL HOLIDAYS

- A. The City of Tacoma observes the following holidays, which shall apply to performance of all contracts:

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

- B. 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.

1.25 CONTRACT TERM

All services shall be satisfactorily completed and all deliverables provided by the termination date stated, and the Contract shall expire on said date unless mutually extended in writing by the parties.

1.26 EXTENSION OF CONTRACT

Contracts shall be subject to extension at City's sole discretion.

1.27 TERMINATION AND SUSPENSION

- A. Supplies. The City reserves the right to terminate a Contract at any time upon prior written notice to Supplier. 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.
- B. Services. The City may terminate a Contract at any time, with or without cause, by giving 10 business days 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.
- C. Suspension. For either services or supplies, the City may suspend a Contract, at its sole discretion, upon three business days' written notice to Supplier. Such notice shall indicate the anticipated period of suspension. Any reimbursement for expenses incurred due to the suspension shall be limited to Supplier's actual expenses and shall be subject to verification. Supplier shall resume performance of services under the Contract without delay when the suspension period ends.
- D. Termination or suspension of a Contract by City shall not constitute a waiver of any claims or remaining rights the City may have against Supplier relative to performance under a Contract.

1.28 DEFAULT/BREACH

In the event of material default or breach by Supplier on any of the conditions of a Contract, Supplier agrees that the City may, at its election, procure the goods or services from other sources, and may deduct from the unpaid balance due Supplier, or collect against the bond or security (if any), or may invoice and recover from Supplier all costs paid in excess of the price(s) set forth in the Contract.

- A. Supplies. The City at any time by written change order or other form of written contract amendment may make reasonable changes in the place of delivery, installation, or inspection, the method of shipment or packing, identification and ancillary matters that Supplier may accommodate without substantial additional expense.
- B. Services. The City shall have the right to make changes within the general scope of services and/or deliverables upon execution in writing of a change order or other written form of contract amendment. If the changes will result in additional work effort by Supplier the City agrees to reasonably compensate Supplier for such additional effort up to the maximum amount specified in the Contract or as otherwise provided by Tacoma Municipal Code. Any new services accepted by the City may be added to the Contract and/or substituted for discontinued services. New services shall meet or exceed all requirements of original award.
- C. Expansion Clause. A Contract may be further expanded in writing to include other related services or products normally offered by Supplier, as long as the price of such additional services or products have a profit margin equal to or less than that in place at the time of original submittal. Such additions and prices will be established in writing. New items not meeting these criteria will not be added to the Contract. Supplier profit margins are not to increase as a result any such expansion.

1.29 SCOPE OF SERVICES

Supplier agrees to diligently and completely perform the services required by a Contract.

1.30 SERVICES DO NOT INCLUDE PUBLIC WORK

Unless otherwise stated, the services and/or work contracted for herein exclude public work and improvements as defined in RCW 39.04, as that statute may hereafter be amended.

1.31 PREVAILING WAGES

- A. 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.
- B. If applicable, a Schedule of Prevailing Wage Rates 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 the provisions of Chapter 39.12 RCW, as amended, relating to prevailing wages and usual fringe benefits,
 - 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
 - 3. Immediately upon award of the Contract, contact the Department of Labor and Industries, Prevailing Wages section, Olympia, Washington, to obtain full information, forms and procedures relating to these matters. Per such procedures, a Statement of Intent to Pay Prevailing Wages 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 must be received or verified by the City prior to final Contract payment.

1.32 CONTRACT PRICING

- A. Submitted prices shall include costs of submittal preparation, servicing of the account, all contractual requirements during contract period such as transportation, permits, insurance costs, bonds, labor, wages, materials, tools, components, equipment, and appurtenances necessary to complete the work, which shall conform to the best practice known to the trade in design, quality, material, and workmanship.
- B. Surcharges of any type will not be paid.
- C. If applicable, related additional products and corresponding services of benefit to the City not specifically required in a solicitation, but which Supplier offers to provide, may be included with the submittal. Supplier may request to add new products if the City approves them and Supplier can demonstrate the pricing is from the same pricing structure/profit margin.
- D. Unless specifically stated otherwise, only firm prices will be accepted and all prices shall remain firm during the term of a Contract.
- E. Price increases may at City's discretion be passed along during a contract period if the increase is mandated by statute, or the result of a tariff.
- F. By submitting prices, Supplier warrants prices equal to or better than the equivalent prices, terms, and benefits offered by Supplier to any other government unit or commercial customer.
- G. Should Supplier, during the term of a Contract, enter into any other contract, agreement or arrangement that provides lower prices, more favorable terms or greater benefits to any other government unit or commercial customer, the Contract with the City shall thereupon be deemed amended to provide the same price or prices, terms and benefits to the City. This provision applies to comparable products and purchase volumes by the City that are not less than the purchase volumes of the government unit or commercial customer that has received the lower prices, greater benefits, or more favorable terms.
- H. If at any time during the term of the Contract, Supplier reduces prices to other buyers purchasing approximately the same quantities stated on the Contract, Supplier will immediately notify the City purchasing manager of such fact, and the price(s) for future orders under the Contract shall be reduced accordingly.
- I. The City is entitled to any promotional pricing during the Contract period.
- J. Price decreases shall be immediately passed on to the City.

- K. The City reserves the right to increase or decrease the quantities of any item awarded pursuant to the Contract and pay according to the unit prices quoted in the submittal with no adjustments for anticipated profit.

1.33 APPROVED EQUALS WHEN ALTERNATES ARE ALLOWED

- 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 Supplier specifies the brand and model, and provides all descriptive literature, independent test results, specification sheets, schematic drawings, photographs, product samples, local servicing, parts availability, etc., to enable the City to evaluate the proposed equal. Performance testing in the field may be required.
- 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 Supplier 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 Supplier's expense.
- C. When a brand name or level of quality is not stated in Supplier's submittal, it is understood Supplier's submittal shall exactly confirm with those required in the Contract. If more than one brand name is stated in a Solicitation, Supplier(s) must indicate the brand and model/part number to be supplied.

1.34 RISK OF LOSS, SHIPPING AND DELIVERY

- A. Shipping. Prices must be quoted FOB destination (the place of destination as defined in RCW 62A.2-319, as that statute may hereafter be amended), with freight prepaid and allowed (shipping costs included in unit prices), and risk of loss remaining with Supplier until delivery is tendered.
- B. Delivery. Delivery will be to the designated addresses set forth in a Solicitation or as otherwise stated in the Contract. Deliveries shall be between 9:00 a.m. and 3:30 p.m., Monday through Friday only, except Legal Holidays. Failure to make timely delivery shall be cause for termination of the contract or order and return of all or part of the items at Supplier's expense except in the case of force majeure.

1.35 DELIVERY OF PRODUCTS AND PROVISION OF SERVICES – IDLING PROHIBITED

- A. The City of Tacoma has a commitment to reduction of unnecessary fuel emissions and improving air quality by reducing unnecessary air pollution from idling vehicles. Limiting car and truck idling supports cleaner air, healthier work environments, the efficient use of city resources, the public's enjoyment of City properties and programs, conservation of natural resources, and good stewardship practices.
- B. Vehicles and/or diesel fuel trucks shall not idle at the time and location of the delivery to the City of Tacoma for more than three minutes. The City requires contractors to utilize practices that reduce fuel consumption and emission discharge, including turning off trucks and vehicles during delivery of products to the City. Exceptions to this requirement include when associated power is necessary to make a delivery or provide the service, when the engine is used to provide power to another device, and when a running engine is required for proper warm-up and cool-down of the engine.

1.36 PACKING SLIPS AND INVOICES

- A. 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.
- B. Any terms, provisions or language in Supplier's invoice(s) that conflict with the terms of the Contract are superseded and shall not apply to the Contract unless expressly accepted in writing by the City.
- C. 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.

- D. Supplier shall package orders, preferably in environmental friendly packaging such as reduced packaging and recyclable packing materials.

1.37 COOPERATIVE PURCHASING

The Washington State Interlocal Cooperation Act RCW 39.34 provides that other governmental agencies may purchase goods and services based on the Contract with the City in accordance with the terms and prices of the Contract if all parties are agreeable. Each public agency shall formulate a separate contract with Supplier, incorporating the terms and conditions of the Contract with the City of Tacoma. The City shall incur no liability in connection with such contracts or purchases by other public agencies thereunder. It will be Supplier's responsibility to inform such public agencies of the Contract with the City. Supplier shall invoice such public agencies as separate entities.

1.38 TAXES

- A. Unless otherwise stated, applicable federal, state, City, and local taxes shall be included in the submittal and in contract as indicated below. As used herein, the term "taxes" shall include any and all taxes, assessments, fees, charges, interest, penalties, and/or fines imposed by applicable laws and regulations in connection with the procurement of goods and/or services hereunder.
 - 1. Federal Excise Tax. The City of Tacoma is exempt from federal excise tax. The City will furnish a Federal Excise Tax Exemption certificate, if required. If Supplier fails to include any applicable tax in its submittal, then Supplier shall be solely responsible for the payment of said tax.
 - 2. State and Local Sales Tax. The City of Tacoma is subject to Washington state sales tax. It is Supplier's obligation to state the correct sales tax percentage and include the applicable Washington state, city and local sales tax as a separate line item(s) in the submittal.
 - 3. City of Tacoma Business and Occupation Tax. It is Supplier's obligation to include City of Tacoma Business and Occupation tax in the unit and/or lump sum prices submitted; it shall not be shown separately on the submittal. Per Sub-Title 6A of the City of Tacoma Municipal Code, transactions with the City of Tacoma may be subject to the City's Business and Occupation Tax.
- B. Any or All Other Taxes. Any or all other taxes are the responsibility of Supplier unless otherwise required by law. Except for state sales tax, Supplier acknowledges that it is responsible for the payment of all taxes applicable to the Contract and Supplier agrees to comply with all applicable laws regarding the reporting of income, maintenance of records, and all other requirements and obligations imposed pursuant to applicable law.
- C. If the City is assessed, made liable, or responsible in any manner for taxes contrary to the provisions of the Contract, Supplier agrees to hold the City harmless from such costs, including attorney's fees. In the event Supplier fails to pay any taxes, assessments, penalties, or fees imposed by any governmental body, including a court of law, other than those taxes the City is required to pay, then Supplier authorizes the City to deduct and withhold or pay over to the appropriate governmental body those unpaid amounts upon demand by the governmental body. It is agreed that this provision shall apply to taxes and fees imposed by City ordinance. Any such payments shall be deducted from Supplier's total compensation.

1.39 COMPENSATION

- A. The City shall compensate Supplier in accordance with the Contract. Said compensation shall be the total compensation for Supplier's performance hereunder including, but not limited to, all work, services, deliverables, materials, supplies, equipment, subcontractor's fees and all reimbursable travel and miscellaneous or incidental expenses to be incurred by Supplier. Unless stated otherwise the total stated compensation may not be changed without a written change order or other form of contract amendment.
- B. Payment(s) made in accordance with the Contract shall fully compensate Supplier for all risk, loss, damages or expense of whatever nature, and acceptance of payment shall constitute a waiver of all claims submitted by Supplier.

1.40 PAYMENT TERMS

- A. Payment shall be made through the City's ordinary payment process, and shall be considered timely if made within 30 days of receipt of a properly completed invoice. All payments shall be subject to adjustment for any amounts, upon audit or otherwise, determined to have been improperly invoiced.

The City may withhold payment to Supplier for any services or deliverables not performed as required hereunder until such time as Supplier modifies such services or deliverables to the satisfaction of the City.

- B. Invoices will not be processed for payment, nor will the period of cash discount commence, until all invoiced items are received and satisfactory performance of the Contract has been attained. Upon CITY'S request, Supplier shall submit necessary and appropriate documentation, as determined by the CITY, for all invoiced services and deliverables. 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.

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

- A. Payment methods include:

1. 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:
 - a. 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.
 - b. Supplier retrieves card account through the secure, on-line portal provided via email notifications sent by the City's commercial card provider.
2. 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.
 - a. Suppliers must be PCI-DSS compliant (secure credit card data management) and federal FACTA (sensitive card data display) compliant.
 - b. 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.
3. Electronic Funds Transfer (EFT) by Automated Clearing House (ACH). Standard terms are net 30 for this payment method.
4. 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.

1.42 NOTICES

Unless otherwise specified, except for routine operational communications, which may be delivered personally or transmitted by electronic mail, all notices required by the Contract shall be in writing and shall be deemed to have been duly given if delivered personally or mailed first-class mail, postage prepaid, to Supplier's registered agent and to the applicable City department representative.

1.43 INDEPENDENT CONTRACTOR STATUS

- A. Supplier is considered an independent contractor who shall at all times perform his/her duties and responsibilities and carry out all services as an independent contractor and shall never represent or construe his/her status to be that of an agent or employee of the City, nor shall Supplier be eligible for any employee benefits. No payroll or employment taxes or contributions of any kind shall be withheld or paid by the City with respect to payments to Supplier. Supplier shall be solely responsible for all said payroll or employment taxes and/or contributions including, but not limited to, FICA, FUTA, federal income tax, state personal income tax, state disability insurance tax and state unemployment insurance tax. If the City is assessed, made liable or responsible in any manner for such taxes or contributions, Supplier agrees to indemnify and hold the City harmless from all costs incurred, including attorney fees.

- B. Unless otherwise specified in writing, Supplier shall provide at its sole expense all materials, working space, and other necessities and instruments to perform its duties under the Contract. Supplier, at its sole expense, shall obtain and keep in force any and all applicable licenses, permits and tax certificates necessary to perform the Contract.

1.44 NONDISCRIMINATION

Supplier agrees to take all steps necessary to comply with all federal, state, and City laws and policies regarding non-discrimination and equal employment opportunities. Supplier shall not discriminate in any employment action because 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 handicap. In the event of non-compliance by Supplier with any of the non-discrimination provisions of the Contract, the City shall be deemed to have cause to terminate the Contract, in whole or in part.

1.45 FEDERAL, STATE, AND MUNICIPAL LAWS AND REGULATIONS

Supplier shall comply with all federal, state, municipal, and/or local laws and regulations in the performance of all terms and conditions of the Contract. Supplier shall be solely responsible for all violations of the law from any cause in connection with its performance of work under the Contract.

1.46 FEDERAL 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 for an award.

1.47 REPORTS, RIGHT TO AUDIT, PERSONNEL

- A. Reports. Supplier shall, at such times and in such form as the City may reasonably require, furnish the City with periodic status reports pertaining to the services undertaken or goods provided pursuant to the Contract.
- B. Right to Audit. Upon City's request, Supplier shall make available to City all accounts, records and documents related to the scope of work for City's inspection, auditing, or evaluation during normal business hours as reasonably needed by City to assess performance, compliance and/or quality assurance under the Contract or in satisfaction of City's public disclosure obligations as applicable.
- C. Personnel. If before, during, or after the execution of a Contract, Supplier has represented or represents to the City that certain personnel would or will be responsible for performing services pursuant to the Contract, then Supplier is obligated to ensure that said personnel perform said Contract services to the maximum extent permitted by law. Substantial organizational or personnel changes within Supplier's firm are expected to be communicated to City immediately. Failure to do so could result in termination of the Contract. This provision shall only be waived by written authorization by the City, and on a case-by-case basis.

1.48 INSURANCE

- A. During the course and performance of a Contract, Supplier 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.

1.49 INDEMNIFICATION – HOLD HARMLESS

- A. Supplier agrees to indemnify, defend, and hold harmless the City of Tacoma, its officers, agents and employees, from and against any and all liability which may accrue to or be sustained by the City of Tacoma for any claim, suit or legal action made or brought against the City for the death of or injury to persons (including Supplier's or subcontractor's employees), or damage to property involving Supplier or subcontractor(s) and their employees or agents, or for any other cause arising out of and in connection with or incident to the performance of the Contract, except for injuries or damages caused by the sole negligence of the City. In this regard, Supplier recognizes it is waiving immunity under

Industrial Insurance Law, Title 51 RCW. This indemnification includes attorney's fees and the cost of establishing the right to indemnification hereunder in favor of the City of Tacoma. By Supplier's acceptance of this order, he/she agrees that this subsection has been mutually negotiated.

B. These indemnifications shall survive the termination of a Contract.

1.50 CONFLICT OF INTEREST

No officer, employee, or agent of the City, nor any member of the immediate family of any such officer, employee or agent as defined by City ordinance, shall have any personal financial interest, direct or indirect, in a Contract, either in fact or in appearance. Supplier shall comply with all federal, state, and City conflict of interest laws, statutes, and regulations. Supplier represents that Supplier presently has no interest and shall not acquire any interest, direct or indirect, in the program to which the Contract pertains that would conflict in any manner or degree with the performance of Supplier's services and obligations hereunder. Supplier further covenants that, in performance of a Contract, no person having any such interest shall be employed. Supplier also agrees that its violation of the City's Code of Ethics contained in Chapter 1.46 of the Tacoma Municipal Code shall constitute a breach of Contract subjecting the Contract to termination.

1.51 CITY OWNERSHIP OF WORK/RIGHTS IN DATA/PUBLICATIONS

- A. To the extent that Supplier creates any work subject to the protections of the Copyright Act (Title 17 U.S.C.) in its performance of a Contract, Supplier agrees to the following: The work has been specially ordered and commissioned by the City. Supplier agrees that the work is a "work made for hire" for copyright purposes, with all copyrights in the work owned by City. To the extent that the work does not qualify as a work made for hire under applicable law, and to the extent that the work includes material subject to copyright, Supplier hereby assigns to City, its successors and assigns, all right, title and interest in and to the work, including but not limited to, all copyrights, patent, trade secret and other proprietary rights, and all rights, title and interest in and to any inventions and designs embodied in the work or developed during the course of Supplier's creation of the work.
- B. Supplier shall be solely responsible for obtaining releases and/or licenses for the reproduction, distribution, creation of derivative works, performance, display, or other use of copyrighted materials. Should Supplier fail to obtain said releases and/or licenses, Supplier shall indemnify, defend, and hold harmless the City for any claim resulting there from.

1.52 DUTY OF CONFIDENTIALITY

Supplier acknowledges that unauthorized disclosure of information or documentation concerning the Scope of Work hereunder may cause substantial economic loss or harm to the City. Except for disclosure of information and documents to Supplier's employees, agents, or subcontractors who have a substantial need to know such information in connection with Supplier's performance of obligations under the Contract, Supplier shall not without prior written authorization by the City allow the release, dissemination, distribution, sharing, or other publication or disclosure of information or documentation obtained, discovered, shared or produced pursuant to a Contract.

1.53 DISPUTE RESOLUTION

In the event of a dispute pertaining to a Contract, the parties agree to attempt to negotiate in good faith an acceptable resolution. If a resolution cannot be negotiated, then the parties agree to submit the dispute to voluntary non-binding mediation before pursuing other remedies. This provision does not limit the City's right to terminate.

1.54 GOVERNING LAW AND VENUE

- A. 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.
- B. 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.

1.55 ASSIGNMENT

Supplier shall not assign, subcontract, delegate or transfer any obligation, interest or claim to or under the Contract without the prior written consent of the City.

1.56 WAIVER

A waiver or failure by either party to enforce any provision of the contract shall not be construed as a continuing waiver of such provisions, nor shall the same constitute a waiver of any other provision of the Contract.

1.57 SEVERABILITY AND SURVIVAL

If any term, condition or provision herein or incorporated by reference is declared void or unenforceable or limited in its application or effect, such event shall not affect any other provisions hereof and all other provisions shall remain fully enforceable. The provisions of the Contract, which by their sense and context are reasonably intended to survive the completion, expiration or cancellation of the Contract, shall survive termination of the Contract.

1.58 NO CITY LIABILITY

Neither the City, its officials, staff, agents, employees, representatives, or consultants will be liable for any claims or damages resulting from any aspect of this procurement process.

1.59 SIGNATURES

A signed copy of Submittals, Contract documents, including but not limited to contract amendments, contract exhibits, task orders, statements of work and other such Contract related documents, delivered by email or other means of electronic transmission including by using a third party service, which service is provided primarily for the electronic execution of electronic records, shall be deemed to have the same legal effect as delivery of an original signed copy.

CITY OF TACOMA MODIFICATIONS TO THE
GENERAL CONDITIONS FOR WASHINGTON STATE FACILITY CONSTRUCTION

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**CITY OF TACOMA MODIFICATIONS TO THE
GENERAL CONDITIONS FOR WASHINGTON STATE FACILITY CONSTRUCTION**

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, affirmative action requirements, L.E.A.P. and SBE.
- 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.

CITY OF TACOMA MODIFICATIONS TO THE
GENERAL CONDITIONS FOR WASHINGTON STATE FACILITY CONSTRUCTION

- 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:

4. 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 SBE 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 on a monthly basis.

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.

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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 which has been delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended or, if delivered or sent by registered or certified mail, to the last business address known to the party giving notice.

- 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.
 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

Insurance amounts: The coverage limits shall be as follows:

- A. Limits of Liability shall not be less than \$1,000,000 Combined Single Limit for Bodily Injury and Property Damage (other than Automobile Liability) Each Occurrence; Personal Injury and Advertising Liability Each Occurrence.
- B. \$2,000,000 Combined Single Limit Annual General Aggregate.
- C. \$2,000,000 Annual Aggregate for Products and Completed Operations Liability.
- D. \$1,000,000 Combined Single Limit for Automobile Bodily Injury and Property Damage Liability, Each Accident or Loss.

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 \$35,000 or less and Contractor agrees that Owner may, in lieu of the bond, retain 50% 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: Unless otherwise provided in Division 1, the Progress Schedule shall be in the form of a bar chart, or a critical path method analysis, as specified by Owner. The preliminary Progress Schedule may be general, showing the major portions of the Work, with a more detailed Progress Schedule submitted as directed by Owner.
- 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.
- 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.
- 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. 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 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, if Owner reasonably deems the superintendent incompetent, careless, or otherwise objectionable, provided Owner has first notified Contractor in writing and allowed a reasonable period for transition.
- 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, request Contractor to remove from the Work or Project site any employee Owner reasonably deems incompetent, careless, or otherwise objectionable.
- 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: If allowances for permits or utility fees are called for in the Contract Documents and set forth in Contractor's bid, and the actual costs of those permits or fees differ from the allowances in the Contract Documents, the difference shall be adjusted by Change Order.
- 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.

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: 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. 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.
- 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 Department of Labor and Industries, 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 Department of Labor and Industries, 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 Department of Labor and Industries. 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 prefilled 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 Department of Labor and Industries 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 Department of Labor and Industries the currently established fee(s) for each statement of intent and/or affidavit of wages paid submitted to the Department of Labor and Industries for certification.
- G. Certified Payrolls: Consistent with WAC 296-127-320, the Contractor and any subcontractor shall submit a certified copy of payroll records if requested.

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 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: Discrimination in all phases of employment is prohibited by, among other laws and regulations, Title VII of the Civil Rights Act of 1964, the Vietnam Era Veterans Readjustment Act of 1974, Sections 503 and 504 of the Vocational Rehabilitation Act of 1973, the Equal Employment Act of 1972, the Age Discrimination Act of 1967, the Americans with Disabilities Act of 1990, the Civil Rights Act of 1991, Presidential Executive Order 11246, Executive Order 11375, the Washington State Law Against Discrimination, RCW 49.60, and Gubernatorial Executive Order 85-09. These laws and regulations establish minimum requirements for affirmative action and fair employment practices which Contractor must meet.
- 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. Contractor responsible for safety: Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Work.
- 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.);
 - 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 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. 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.
- C. 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.
- 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.
- 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;
 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.
- B. Provide names of Subcontractors and use qualified firms: Before submitting the first Application for Payment, Contractor shall furnish in writing to Owner the names, addresses, and telephone numbers of all Subcontractors, as well as suppliers providing materials in excess of \$2,500. 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.

- 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:
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;
 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;
 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.
- 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 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 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:

- 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 Department of Labor and Industries 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 Department of Labor and Industries.
 - (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) Associated General Contractors Washington State Department of Transportation (AGC WSDOT) Equipment Rental Agreement current edition, on the Contract execution date.
- (2) The National Electrical Contractors Association for equipment used on electrical work.
- (3) The Mechanical Contractors Association of America for equipment used on mechanical work.

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.

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:

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- (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.
 - (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:
 - 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 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;
 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;
 - 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 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;
 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:
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 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.

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GENERAL REQUIREMENTS

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 - 26 05 32 – Outlets and Pull Boxes
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 - 26 28 13 - Fuses
 - 26 28 16 – Disconnects and Fused Switches
 - 26 36 23 – Automatic Transfer Switches Time Delay Neutral
- . **DIVISION 27 – COMMUNICATIONS**
- . **DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**
- . **DIVISION 31 – EARTHWORK**
- . **DIVISION 32 – EXTERIOR IMPROVEMENTS**
- . **DIVISION 33 – UTILITIES**

REPORTS

APPENDIX A – Limited Hazardous Material Report

END OF SECTION

SECTION 01 10 00
SUMMARY

PART 1 GENERAL

1.01 PROJECT

- A. Project Name: Tacoma Municipal Building Fire Pump, Domestic Water & Automatic Transfer
- B. Owner's Name: City of Tacoma.
- C. Architect's/Engineers Name: City of Tacoma, Public Works, Facilities Management & BCE Engineering
- D. The Project consists of the replacement of building systems within the Tacoma Municipal Building as prepared by BCE Engineering, and located in Tacoma, Washington.
 - 1. Replacement of existing fire pump, jockey pumps and all associated appurtenances and controllers
 - 2. Replacement of domestic water booster pumps and all associated appurtenances and controllers
 - 3. Replacement of existing domestic water hydro-pneumatic tanks
 - 4. Replace domestic water pressure reducing stations
 - 5. Relocate rooftop cooling tower backflow preventer (alternate)
 - 6. Replace existing automatic transfer switch and all associated appurtenances and controllers
 - 7. All electrical and control work to support mechanical and electrical work as required.

1.02 CONTRACT DESCRIPTION

- A. Contract Type: The work will be constructed under a single prime contract based on a Lump Sum Bid.

1.03 OWNER OCCUPANCY

- A. Owner intends to occupy the Project during construction.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations. This includes any power, fire protection and plumbing shut downs of the occupied building. **All shutdowns must be coordinated with owner and provisions shall be in place to provide temporary service. Refer to drawings for scope specific guidelines.**
- C. Schedule the Work to accommodate Owner occupancy.

1.05 COMPLETION TIME

- A. Time is of the essence, the Owner needs this project completed within the times listed. Provide the necessary management, equipment and staffing, including any overtime, double-shifting or special work schedules, required to achieve completion of the Project within the times listed in the following Completion Schedule.
- B. Substantial Completion for this project will be considered to have been achieved when all of the Work shown on the drawings has been satisfactorily completed in accordance the Contract Documents and an Occupancy Permit (or Temporary Occupancy Permit) has been issued by the City. Minor punch list items may be completed after Substantial Completion date within the

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SUMMARY

time frame listed in the Completion Schedule. The Contractor shall provide written notice, three (3) days prior to anticipated substantial completion date.

SECTION 01 12 00
PERMITS AND FEES

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General Conditions and other Division-1 Specification sections, apply to work of this section.

1.02 PERMITS PAID FOR BY OWNER:

- A. The Owner will pay for the primary Building Permit (and its related plan check fee) as issued by the City of Tacoma outside of the contract. Do not include the cost of this permit in the bid. Note that the Owner has previously submitted the construction documents to the City of Tacoma for plan review. Contractor will attend permit acceptance meeting with the City of Tacoma and obtain final building permit.
- B. The Owner will pay for the Work Order Permit (and its related plan check fee) as issued by the City of Tacoma outside of the contract. Do not include the cost of this permit in the bid. Note that the Owner has previously submitted the work order drawings to the City of Tacoma for plan review. Contractor will attend a Work Order pre-construction meeting with the City of Tacoma and obtain final work order permit.
- C. Make any remaining final permit application(s) and advise Owner when permit is ready for payment, and notify Owner of all pertinent permit payment details so that payment can be made.

1.03 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.

1.04 PERMIT RECORDS:

- A. Maintain notebook on site with copies of all permits and inspection reports. Include same in Maintenance and Operation Manuals furnished at conclusion of project.

1.05 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.

1.06 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.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

END OF SECTION

SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

- A. DIVISION 00 (Bidding & Contract Requirements) – Section E. City Programs: Equity in Contracting documentation requirements
- B. Section 01 26 00 – Contract Modification Procedures
- C. Section 01 78 00 - Closeout Submittals: Project record documents.

1.03 SCHEDULE OF VALUES

- A. Forms: Use AIA G703 or other form agreed to by the Architect & Owner for the Schedule of Values.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.
- C. Forms filled out by hand will not be accepted.
- D. Submit Schedule of Values electronically within 15 days after the Notice to Proceed.
- E. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification section. Identify site mobilization, bonds and insurance, and Contractor's General Conditions.
 - 1. Provide additional breakdown of line items if requested by the Architect or the Owner's Representative.
- F. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 PRIOR TO APPLICATION FOR PROGRESS PAYMENT

- A. Submit Contractor's Construction Schedule for information and Submittal Schedule.
- B. Submit a list of all Subcontractors and Suppliers.
- C. City of Tacoma **EIC** Program Documentation Forms.

1.05 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: Submit monthly.
- B. Forms: Use modified AIA G702 or other form provided by or agreed to by the Architect & Owner for Applications for Payment.
 - 1. Application for Payment must identify sales tax as a separate item.
- C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

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PRICE AND PAYMENT PROCEDURES

D. Forms filled out by hand will not be accepted.

- E. For each item, provide a column for listing each of the following:
 - 1. Item Number.
 - 2. Description of work.
 - 3. Scheduled Values.
 - 4. Previous Applications.
 - 5. Work in Place and Stored Materials under this Application.
 - 6. Authorized Change Orders.
 - 7. Total Completed and Stored to Date of Application.
 - 8. Percentage of Completion.
 - 9. Balance to Finish.
 - 10. Retainage.
- F. Execute certification by signature of authorized officer.
- G. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.
 - 1. Stored Materials: Requests for payment on materials stored shall be for materials properly stored on the site. Materials stored off-site may be included subject to the following conditions:
 - a. A paid invoice from Supplier is provided.
 - b. Materials are stored in a secure facility.
 - c. Contractor and its bonding company accepts total responsibility for the stored materials.
- H. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.
- I. Submit one electronic and three hard-copies of each Application for Payment.
- J. Include the following with the application:
 - 1. Transmittal letter as specified for submittals in Section 01 30 00.
 - 2. Partial release of liens from major subcontractors and vendors.
 - 3. Affidavits attesting to off-site stored products.
- K. When Architect requires substantiating information, submit data justifying dollar amounts in question.
- L. Submit City of Tacoma SBE & LEAP Program Documentation Forms.

1.06 APPLICATION FOR FINAL PAYMENT

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following have been accomplished:
 - 1. All closeout procedures specified in Section 01 70 00.
 - 2. Satisfactory completion of the following:
 - a. Ensure that unsettled claims will be settled. Receipt by the Owner of General Release of Liens.

- b. Receipt by the Owner of proof of all project tax payments to the State of Washington Department of Revenue and Department of Labor and Industries for the entire length of the project.
 - c. Receipt by the Owner of release by the Washington State Employment Security Department.
 - d. Receipt by the Owner of all approved Affidavit of Wages Paid.
 - e. Punch list items complete and accepted.
 - f. Contract closeout document submittals received and accepted.
 - g. Original documentation of all required permits signed off by Authorities Having Jurisdiction.
 - h. Submittal of Operating and Maintenance Data.
 - i. City of Tacoma SBE & LEAP Program Documentation Forms.
- C. Retainage payment will be made separately. Once all completion and release forms have been received, the retainage payment may be released and a Final Acceptance Letter issued by the Owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 23 00

BID ALTERNATES, UNIT PRICES AND ALLOWANCES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of contract, including General Conditions, Modifications to the General Conditions and Divisions 0 and 1 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

- A. Administrative and Procedural Requirements for Bid Alternates, Unit Prices and Allowances.

1.03 BID ALTERNATES

- A. Definition: A Bid Alternate is an additive or deductive amount proposed by bidders on their bid proposal for specific component(s) of the work or for specific products, materials, equipment, systems or installation methods described in Contract Documents that may be added to or deducted from the Base Bid amount at the discretion of the Owner.
- B. Coordination: Coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each selected Bid Alternate is complete and fully integrated into the project.
- C. Notification: Immediately following the award of the contract, prepare and distribute to each party involved, notification of the status of each Bid Alternate. Indicate whether Bid Alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to Bid Alternates.
- D. Schedule: A "Schedule of Bid Alternates" is included in this section. Specification sections referenced in the Schedule contain requirements for materials and methods necessary to achieve the Work described under each Bid Alternate.
 - 1. Include as part of each Bid Alternate, miscellaneous devices, accessory objects and similar items incidental to or required for a complete and functional installation whether or not mentioned as part of the Bid Alternate.

1.04 SCHEDULE OF BID ALTERNATES

- A. **Alternate 1: RELOCATE ROOFTOP COOLING TOWER BACKFLOW PREVENTOR**

1.05 ALLOWANCES

- A. This Section includes administrative and procedural requirements governing allowances.
1. Allowances have been established where actual work to be performed is not readily quantifiable prior to bidding. If necessary, additional requirements will be issued by Change Order.
 2. Owner will authorize work under the allowance through Change Order.
 3. At Project closeout, credit unused amounts remaining in the allowance to Owner by Change Order.

1.06 ALLOWANCE SCHEDULE

- A. **Allowance No. 1: Unforeseen Utilities**

An Allowance of **\$10,000** will be included in the Total Base Bid Amount, for addressing unforeseen utilities. Work under this contract will be performed in a space that has undergone several improvements throughout the years and may require additional scope not readily quantifiable prior to bidding.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 25 00
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedural requirements for proposed substitutions.

1.02 RELATED REQUIREMENTS

- A. Bid Period Forms – Substitution Request Form
- B. Section 01 30 00 - Administrative Requirements: Submittal procedures, coordination.
- C. Section 01 60 00 - Product Requirements: Fundamental product requirements, product options, delivery, storage, and handling.

1.03 DEFINITIONS

- A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
 - 1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
 - a. Unavailability.
 - b. Regulatory changes.
 - 2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.
 - a. Substitution requests offering advantages solely to the Contractor will not be considered.

1.04 REFERENCE STANDARDS – NOTE USED

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

- A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
 - 2. Agrees to provide the same warranty for the substitution as for the specified product.
 - 3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
 - 4. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
 - 5. Waives claims for additional costs or time extension that may subsequently become apparent.

6. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.
 7. Agrees to reimburse Owner and Architect for changes to the building design, including Architect, engineering, and detailing costs caused by the requested substitution.
 8. Stipulates that the proposed substitution has no effect on other trades, the construction schedule, or specified warranty requirements.
- B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
1. Note explicitly any non-compliant characteristics.
- C. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
1. Forms included in the Project Manual are adequate for this purpose, and must be used.
- D. Limit each request to a single proposed substitution item.
1. Submit an electronic document, combining the request form with supporting data into single document.

3.02 SUBSTITUTION PROCEDURES DURING PROCUREMENT

- A. Submittal Form (before award of contract):
1. Substitution requests shall be submitted utilizing the form provided under "Bid Period Forms" to the Senior Buyer. Substitution requests must be received no later than **the date specified on the "Substitution Request Form"** to be included in an addendum:
 - a. Submit electronic copy of request for substitution for consideration. Limit each request to one proposed substitution.
 - b. Requests received after the due date will not be reviewed or considered regardless of cause. No request for approval will be considered unless submitted in accordance with this Section.
 - c. Bidders will be notified by Addendum of materials and products approved for use in addition to those specified. No other form of approval, including verbal or implied, is acceptable as indicator of accepted Substitution Requests.

3.03 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

- A. Submittal Form (after award of contract):
1. Submit substitution requests by completing the form attached to this section. See this section for additional information and instructions. Use only this form; other forms of submission are unacceptable.
- B. Architect will consider requests for substitutions only within 30 days after date established in Notice to Proceed.
- C. Submit request for Substitution for Cause immediately upon discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
- D. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.

2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
3. Bear the costs engendered by proposed substitution of:
 - a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.
 - b. Other construction by Owner.
 - c. Other unanticipated project considerations.
- E. Substitutions will not be considered under one or more of the following circumstances:
 1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
 2. Without a separate written request.
 3. When acceptance will require revisions to the Contract Documents.

3.04 RESOLUTION

- A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.
- B. Architect will notify Contractor in writing of decision to accept or reject request.

3.05 ACCEPTANCE

- A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

3.06 CLOSEOUT ACTIVITIES

- A. See Section 01 78 00 - Closeout Submittals, for closeout submittals.
- B. Include completed Substitution Request Forms as part of the Project record.

3.07 ATTACHMENTS

- A. A facsimile of the Substitution Request Form (During Construction) required to be used on the Project is included after this section.

END OF SECTION

SECTION 01 26 00
CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Administrative and procedural requirements for handling and processing contract modifications.
 - 1. Architect's Supplemental Instruction (ASI)
 - 2. Construction Change Directive (CCD)
 - 3. Change Order Proposal (COP)
 - 4. Change Order (CO)

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to work of this Section.

1.3 GENERAL REQUIREMENTS

- A. Changes to and/or clarifications of the Work may be initiated by a Request for Information, Architect's Supplemental Instruction, Construction Change Directive, or a Change Order Proposal.
- B. A monetary change to the Contract Sum is only implemented by a Change Order, signed by the Owner.

1.4 DOCUMENTATION OF COSTS

- A. Unit prices noted on the Bid Form shall include all overhead, profit and related costs. Adjustments shall be made in accordance with General Conditions. The Contractor shall document quantities used.
- B. All actual or proposed costs, whether initiated by a Change Order Proposal or Construction Change Directive, shall be summarized on forms acceptable to the Owner, with all necessary substantiating documentation attached thereto. Contractor and Subcontractors of all tiers shall submit a summary of work.
- C. Estimates of Not-to-Exceed costs may only be used for the purpose of expediting the Work.
- D. The Owner reserves the right to request notarized time sheets, invoices and other documentation as necessary to protect the public interest.
- E. The Contractor's quotations shall be valid for 60 days.

1.5 CHANGES TO CONTRACT TIME

- A. The Contractor shall make every effort to comply with the Contract Dates of Substantial and Final Completion.
- B. The Contractor may not make claim for costs or losses associated with the use of float time, if any, between anticipated completion dates and the Contract Dates of Substantial and Final Completion.
- C. Only impacts on critical path activities which can be documented as delaying the Contract Date of Substantial Completion shall be considered for changes in the Contract Time.

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.

1.6 ARCHITECT'S SUPPLEMENTAL INSTRUCTION (ASI)

- A. Prepared by Architect.
- B. No change in time or cost as determined by Architect.
- C. Acceptance by Owner required prior to issuance to Contractor.
- D. Transmitted to Contractor for signature.
- E. Contractor must either:
 - 1. Proceed upon receipt.
 - 2. Submit a statement of cost impact within 7 days of receipt.
 - a. If cost impact is justified, Owner shall issue a CCD and/or COP.
 - b. If cost impact is not justified, Owner will issue a Notice to Proceed, directing the Contractor to proceed with the work in question, with no change to the Contract sum.
- F. Architect's Supplemental Instructions shall be numbered consecutively. Reissued ASIs shall be given decimal extensions (e.g. 17.1).
- G. Changes shall be recorded weekly on record drawings and specifications.

1.7 CONSTRUCTION CHANGE DIRECTIVE (CCD)

- A. Issued by Owner in response to:
 - 1. An unresolved Architect's Supplemental Instruction.
 - 2. The absence of agreement on Change Order Proposal costs submitted by Contractor.
 - 3. The need to expedite the work and avoid delays.
- B. Form provided by Architect.
- C. Signed by Owner.
- D. Contractor must proceed immediately with the work identified in the CCD.
- E. Method of adjustment of the Contact Sum shall be determined per General Conditions.

1.8 CHANGE ORDER PROPOSAL (COP)

- A. Issued by Owner and distributed to Contractor and Architect.
- B. May be initiated by Contractor by submitting a written notice to Owner indicating justification and proposed cost impact.
- C. Contractor must provide cost data and substantiating documentation within 14 days of receipt of COP.
- D. All costs must be summarized on the forms provided by the Owner, utilizing the fees indicated.

- E. Direct costs of labor and fringe benefits shall be limited to the amounts shown in Statements of Intent to pay Prevailing Wages. Additional labor burden costs shall be limited to actual costs substantiated in writing by the Contractor and approved by the Owner and Architect.
 - 1. All indirect costs, including but not limited to such items as insurance, taxes, (except Sales Tax), general conditions, small tool allowance, plant and equipment costs, and the like, shall be included in the fees as provided for on the forms, which shall not exceed the percentages specified in the General Conditions.
- F. Prime Contractor Change Order Proposal provided to the Owner, must be submitted together with all necessary substantiating documentation.
- G. Each subcontractor or sub-subcontractor of any tier must prepare and submit, through the Contractor, all of its costs together with all necessary substantiating documentation.
- H. Architect makes recommendation.
- I. Owner accepts or rejects:
 - 1. Owner prepares Change Order, or,
 - 2. Owner requests additional cost data, and/or issues CCD.
 - 3. Owner may issue Notice to Proceed to expedite Work.
- J. Accepted and signed COP is binding on both Owner and Contractor. It is the Notice to Proceed and authorization to do the work as soon as practical.
- K. COPs shall be numbered consecutively. Reissued COPs shall be given decimal extensions.
- L. Changes shall be recorded on record drawings and specifications.

1.9 CHANGE ORDER (CO)

- A. Prepared by Owner.
- B. May include several COPs or CCDs.
- C. Shall be signed by Contractor as soon as practicable.
- D. Change Orders shall be numbered consecutively.
- E. Changes shall be marked on record drawings and specifications.
- F. Costs may be included in Applications for Payment only following approval of the Change Order by the Owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General administrative requirements.
- B. Preconstruction meeting.
- C. Progress meetings.
- D. Construction progress schedule.
- E. Daily construction reports.
- F. Progress photographs.
- G. Requests for Information (RFI) procedures.
- H. Submittals for review, information, and project closeout.
- I. Number of copies of submittals.
- J. Submittal procedures.

1.02 RELATED REQUIREMENTS

- A. Section 01 32 16 - Construction Progress Schedule
- B. Section 01 60 00 - Product Requirements: General product requirements.
- C. Section 01 78 00 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

- A. Comply with requirements of Section 01 70 00 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.
- B. Make the following types of submittals to Owner and Architect:
 - 1. Requests for Information (RFI).
 - 2. Shop drawings, product data, and samples.
 - 3. Test and inspection reports.
 - 4. Design data.
 - 5. Manufacturer's instructions and field reports.
 - 6. Applications for payment and change order requests.
 - 7. Progress schedules.
 - 8. Coordination drawings.
 - 9. Correction Punch List and Final Correction Punch List for Substantial Completion.
 - 10. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

- A. Owner will schedule a meeting after Notice of Award.
- B. Attendance Required:
 - 1. Owner.
 - 2. Architect/Engineer.
 - 3. Contractor.
- C. Agenda:
 - 1. Submission of list of subcontractors, schedule of values, and progress schedule.
 - 2. Designation of personnel representing the parties to Contract, Owner, Contractor, and Architect.
 - 3. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 4. Scheduling.
 - 5. Scheduling activities of Ground Improvement Contractor.
- D. Record minutes and distribute copies within three days after meeting to participants, with copies to Architect, Owner, participants, and those affected by decisions made.

3.02 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the work at maximum weekly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required:
 - 1. Contractor.
 - 2. Owner.
 - 3. Architect. (Bi-Weekly)
 - 4. Special consultants. Professional consultants shall attend as needed.
 - 5. Contractor's superintendent.
 - 6. Major subcontractors.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems that impede, or will impede, planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of RFIs log and status of responses.
 - 7. Maintenance of progress schedule.

8. Corrective measures to regain projected schedules.
 9. Planned progress during succeeding work period.
 10. Coordination of projected progress.
 11. Maintenance of quality and work standards.
 12. Effect of proposed changes on progress schedule and coordination.
 13. Other business relating to work.
- E. Record minutes and distribute copies within three days after meeting to participants, with copies to Architect, Owner, participants, and those affected by decisions made.

3.03 CONSTRUCTION PROGRESS SCHEDULE

- A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of work, with a general outline for remainder of work.
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 1. Include written certification that major Subcontractors have reviewed and accepted proposed schedule.
- D. Within 10 days after joint review, submit complete schedule.
- E. Submit updated schedule every 30 days.

3.04 DAILY CONSTRUCTION REPORTS

- A. In addition to transmitting electronically a copy to Owner and Architect, submit two printed copies at weekly intervals.
- B. Prepare a daily construction report recording the following information concerning events at Project site and project progress:
 1. Date.
 2. List of subcontractors at Project site.
 3. List of separate contractors at Project site.
 4. Approximate count of personnel at Project site.
 - a. Include a breakdown for supervisors, laborers, journeymen, and equipment operators.
 5. Safety, environmental, or industrial relations incidents.
 6. Meetings and significant decisions.
 7. Stoppages, delays, shortages, and losses. Include comparison between scheduled work activities (in Contractor's most recently updated and published schedule) and actual activities. Explain differences, if any. Note days or periods when no work was in progress and explain the reasons why.
 8. Directives and requests of Authority(s) Having Jurisdiction (AHJ).
 9. Testing and/or inspections performed.
 10. Signature of Contractor's authorized representative.

3.05 PROGRESS PHOTOGRAPHS

- A. Submit photographs with each application for payment, taken not more than 3 days prior to submission of application for payment.
- B. Photography Type: Digital; electronic files.
- C. In addition to periodic, recurring views, take photographs of each of the following events:
 - 1. Completion of site clearing.
 - 2. Excavations in progress.
 - 3. Foundations in progress and upon completion.
 - 4. Structural framing in progress and upon completion.
- D. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
 - 1. Delivery Medium: Via email.
 - 2. File Naming: Include project identification, date and time of view, and view identification.

3.06 REQUESTS FOR INFORMATION (RFI)

- A. Definition: A request seeking one of the following:
 - 1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in the Contract Documents.
 - 2. A resolution to an issue which has arisen due to field conditions and affects design intent.
- B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.
- C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of the Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
 - 1. Prepare a separate RFI for each specific item.
 - a. Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
 - b. Do not forward requests which solely require internal coordination between subcontractors.
 - 2. Prepare in a format and with content acceptable to Owner.
 - 3. Combine RFI and its attachments into a single electronic file. PDF format is preferred.
- D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
 - 1. Unacceptable Uses for RFIs: Do not use RFIs to request the following:
 - a. Approval of submittals (use procedures specified elsewhere in this section).
 - b. Approval of substitutions (see Section - 01 60 00 - Product Requirements)
 - c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
 - d. Different methods of performing work than those indicated in the Contract Drawings and Specifications (comply with provisions of the Conditions of the Contract).

2. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, the Contract Documents, with no additional input required to clarify the question. They will be returned without a response.
 - a. The Owner reserves the right to assess the Contractor for the costs (on time-and-materials basis) incurred by the Architect, and any of its consultants, due to processing of such RFIs.
- E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
 1. Official Project name and number, and any additional required identifiers established in Contract Documents.
 2. Discrete and consecutive RFI number, and descriptive subject/title.
 3. Issue date, and requested reply date.
 4. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
 5. Annotations: Field dimensions and/or description of conditions which have engendered the request.
 6. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.
- F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.
- G. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
 1. Indicate current status of every RFI. Update log promptly and on a regular basis.
 2. Note dates of when each request is made, and when a response is received.
- H. Review Time: Architect will respond and return RFIs to Contractor within fourteen calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.
 1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.
- I. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
 1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
 2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
 3. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.
 4. Notify Architect within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

3.07 SUBMITTAL SCHEDULE

- A. Submit to Architect for review a schedule for submittals in tabular format.
 - 1. Submit at the same time as the preliminary schedule specified in Section - 01 32 16 - Construction Progress Schedule.
 - 2. Coordinate with Contractor's construction schedule and schedule of values.
 - 3. Arrange information to include scheduled date for initial submittal, specification number and title, submittal category (for review or for information), description of item of work covered, and role and name of subcontractor.
 - 4. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.

3.08 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
 - 1. Product data.
 - 2. Shop drawings.
 - 3. Samples for selection.
 - 4. Samples for verification.
 - 5. Warranties..
- B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in the contract documents.
- C. Samples will be reviewed for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - Closeout Submittals.

3.09 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
 - 1. Design data.
 - 2. Certificates.
 - 3. Test reports.
 - 4. Inspection reports.
 - 5. Manufacturer's instructions.
 - 6. Manufacturer's field reports.
 - 7. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator or for Owner.

3.10 SUBMITTALS FOR PROJECT CLOSEOUT

- A. Submit Correction Punch List for Substantial Completion.
- B. Submit Final Correction Punch List for Substantial Completion.
- C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 78 00 - Closeout Submittals:
 - 1. Project record documents.

2. Operation and maintenance data.
 3. Warranties.
 4. Bonds.
 5. Other types as indicated.
- D. Submit for Owner's benefit during and after project completion.

3.11 NUMBER OF COPIES OF SUBMITTALS

- A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.
- B. Extra Copies at Project Closeout: See Section 01 78 00.
- C. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
 1. After review, produce duplicates.
 2. Retained samples will not be returned to Contractor unless specifically so stated.

3.12 SUBMITTAL PROCEDURES

- A. General Requirements:
 1. Use a single transmittal for related items.
 2. Submit separate packages of submittals for review and submittals for information, when included in the same specification section.
 3. Transmit using approved form.
 - a. Use Contractor's form, subject to prior approval by Architect.
 4. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
 5. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
 6. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
 - a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
 7. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
 - a. Send submittals in electronic format via email to Architect with copy to the Owner's Representative.
 8. Schedule submittals to expedite the Project, and coordinate submission of related items.
 - a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
 - b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 7 days.
 9. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
 10. Provide space for Contractor and Architect review stamps.

11. When revised for resubmission, identify all changes made since previous submission.
 12. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
 13. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
 14. Submittals not requested will be recognized, and will be returned "Not Reviewed",
- B. Product Data Procedures:
1. Submit only information required by individual specification sections.
 2. Collect required information into a single submittal.
 3. Submit concurrently with related shop drawing submittal.
 4. Do not submit (Material) Safety Data Sheets for materials or products.
- C. Shop Drawing Procedures:
1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related work.
 2. Do not reproduce the Contract Documents to create shop drawings.
 3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
- D. Samples Procedures:
1. Transmit related items together as single package.
 2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.

3.13 SUBMITTAL REVIEW

- A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.
- B. Submittals for Information: Architect will acknowledge receipt and review. See below for actions to be taken.
- C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
1. Notations may be made directly on submitted items and/or listed on appended Submittal Review cover sheet.
- D. Architect's and consultants' actions on items submitted for review:
1. Authorizing purchasing, fabrication, delivery, and installation:
 - a. "Approved", or language with same legal meaning.
 - b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
 - 1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
 - c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
 2. Not Authorizing fabrication, delivery, and installation:
 - a. "Revise and Resubmit".
 - 1) Resubmit revised item, with review notations acknowledged and incorporated.
 - b. "Rejected".

- 1) Submit item complying with requirements of Contract Documents.
- E. Architect's and consultants' actions on items submitted for information:
1. Items for which no action was taken:
 - a. "Received" - to notify the Contractor that the submittal has been received for record only.
 2. Items for which action was taken:
 - a. "Reviewed" - no further action is required from Contractor.

END OF SECTION

SECTION 01 32 16
CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preliminary schedule.
- B. Construction progress schedule, with network analysis diagrams and reports.

1.02 SUBMITTALS

- A. Within 10 days after date of Agreement, submit preliminary schedule.
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 - 1. Include written certification that major Subcontractors have reviewed and accepted proposed schedule.
- D. Within 10 days after joint review, submit complete schedule.
- E. Submit updated schedule every 30 days.
- F. Submit the number of opaque reproductions that Contractor requires, plus three copies that will be retained by Architect.

1.03 QUALITY ASSURANCE

- A. Contractor's Administrative Personnel: Three years minimum experience in using and monitoring CPM schedules on comparable projects.

1.04 SCHEDULE FORMAT

- A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE

- A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by specification section number.
- C. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

- D. Provide separate schedule of submittal dates for shop drawings, product data, and samples, and dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.
- E. Coordinate content with schedule of values specified in Section 01 20 00 - Price and Payment Procedures.
- F. Provide legend for symbols and abbreviations used.

3.03 NETWORK ANALYSIS

- A. Prepare network analysis diagrams and supporting mathematical analyses using the Critical Path Method.
- B. Illustrate order and interdependence of activities and sequence of work; how start of a given activity depends on completion of preceding activities, and how completion of the activity may restrain start of subsequent activities.
- C. Mathematical Analysis: Tabulate each activity of detailed network diagrams, using calendar dates, and identify for each activity:
 - 1. Preceding and following event numbers.
 - 2. Activity description.
 - 3. Estimated duration of activity, in maximum 15 day intervals.
 - 4. Earliest start date.
 - 5. Earliest finish date.
 - 6. Actual start date.
 - 7. Actual finish date.
 - 8. Latest start date.
 - 9. Latest finish date.
 - 10. Total and free float; float time shall accrue to Owner and to Owner's benefit.
 - 11. Percentage of activity completed.
 - 12. Responsibility.
- D. Analysis Program: Capable of accepting revised completion dates, and recomputation of all dates and float.
- E. Required Reports: List activities in sorts or groups:
 - 1. By preceding work item or event number from lowest to highest.
 - 2. By amount of float, then in order of early start.
 - 3. Listing of activities on the critical path.

3.04 REVIEW AND EVALUATION OF SCHEDULE

- A. Participate in joint review and evaluation of schedule with Architect at each submittal.
- B. Evaluate project status to determine work behind schedule and work ahead of schedule.
- C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.05 UPDATING SCHEDULE

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

- C. Update diagrams to graphically depict current status of Work.
- D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- E. Indicate changes required to maintain Date of Substantial Completion.
- F. Submit reports required to support recommended changes.

3.06 DISTRIBUTION OF SCHEDULE

- A. Distribute copies of updated schedules to Contractor's project site file, to subcontractors, suppliers, Architect, Owner, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

END OF SECTION

[illegible]

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Contractor's design-related professional design services.
- B. Submittals.
- C. Quality assurance.
- D. References and standards.
- E. Testing and inspection agencies and services.
- F. Control of installation.
- G. Mock-ups.
- H. Tolerances.
- I. Manufacturers' field services.
- J. Defect Assessment.

1.02 RELATED REQUIREMENTS

- A. Section 01 30 00 - Administrative Requirements: Submittal procedures.
- B. Section 01 60 00 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCE STANDARDS

- A. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2018.
- B. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2015.

1.04 DEFINITIONS

- A. Contractor's Professional Design Services: Design of some aspect or portion of the project by party other than the design professional of record. Provide these services as part of the Contract for Construction.
 - 1. Design Services Types Required:
 - a. Design-Related: Design services explicitly required to be performed by another design professional due to highly-technical and/or specialized nature of a portion of the project. Services primarily involve engineering analysis, calculations, and design, and are not intended to alter the aesthetic aspects of the design.
- B. Design Data: Design-related, signed and sealed drawings, calculations, specifications, certifications, shop drawings and other submittals provided by Contractor, and prepared directly by, or under direct supervision of, appropriately licensed design professional.

1.05 CONTRACTOR'S DESIGN-RELATED PROFESSIONAL DESIGN SERVICES – NOT USED

1.06 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents, or for Owner's information.
 - 1. Include calculations that have been used to demonstrate compliance to performance and regulatory criteria provided, and to determine design solutions.
 - 2. Include required product data and shop drawings.
 - 3. Include a statement or certification attesting that design data complies with criteria indicated, such as building codes, loads, functional, and similar engineering requirements.
 - 4. Include signature and seal of design professional responsible for allocated design services on calculations and drawings.
- C. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
 - 1. Include:
 - a. Date issued.
 - b. Project title and number.
 - c. Name of inspector.
 - d. Date and time of sampling or inspection.
 - e. Identification of product and specifications section.
 - f. Location in the Project.
 - g. Type of test/inspection.
 - h. Date of test/inspection.
 - i. Results of test/inspection.
 - j. Compliance with Contract Documents.
 - k. When requested by Architect, provide interpretation of results.
 - 2. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents, or for Owner's information.
- D. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
 - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
 - 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.
- E. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

- F. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
 - 1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents.

1.07 QUALITY ASSURANCE

- A. Testing Agency Qualifications:
 - 1. Prior to start of Work, submit agency name, address, and telephone number, and names of full time specialist and responsible officer.
- B. Designer Qualifications: Where professional engineering design services and design data submittals are specifically required of Contractor by Contract Documents, provide services of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.08 REFERENCES AND STANDARDS

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.09 TESTING AND INSPECTION AGENCIES AND SERVICES

- A. Owner will employ and pay for services of an independent testing agency to perform specified testing.
- B. Owner will employ, and pay for, services of an independent testing laboratory to perform only services specifically required by the International Building Codes as amended and adopted by the City of Tacoma.
- C. Contractor shall pay for all other inspection, certification, testing, and balancing required for completion of the work, and as required in respective specification sections.
- D. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- E. Contractor Employed Agency:
 - 1. Testing agency: Comply with requirements of ASTM E329, ASTM E543, ASTM C1021, ASTM C1077, ASTM C1093, and ASTM D3740.
 - 2. Inspection agency: Comply with requirements of ASTM D3740 and ASTM E329.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

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

3.02 MOCK-UPS – NOT USED

3.03 TOLERANCES

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

3.04 TESTING AND INSPECTION

- A. Testing Agency Duties:
 - 1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
 - 2. Perform specified sampling and testing of products in accordance with specified standards. Refer to Structural Notes.
 - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
 - 5. Perform additional tests and inspections required by Architect.
 - 6. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:
 - 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency may not approve or accept any portion of the Work.

3. Agency may not assume any duties of Contractor.
4. Agency has no authority to stop the Work.
- C. Contractor Responsibilities:
 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 4. Notify Architect and laboratory 48 hours prior to expected time for operations requiring testing/inspection services.
 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
 6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.
- E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.05 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 as applicable, 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.

3.06 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.

END OF SECTION

SECTION 01 5000

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of contract, including General Conditions, Modifications to the General Conditions and Divisions 0 and 1 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

- A. Requirements for the Contractor's Construction Facilities and Temporary Controls.

1.03 DESCRIPTION

- A. This section specifies minimum actions required. Other actions may be specified elsewhere in the Contract Documents, manufacturer's literature, and governing regulations.
- B. Nothing in this section is intended to limit types or amounts of construction facilities and temporary controls.
- C. No omission from this section will be recognized as a temporary activity that is not required to complete the Work.

1.04 PROTECTION OF EXISTING UTILITIES

- A. If unknown utilities are encountered in the course of construction, protect them from damage and notify the utility Owner immediately. Do not remove or disable any unknown existing utility without the approval of the Owner.
- B. In the event utilities are damaged during construction, temporary services and / or repairs must be made immediately to maintain continuity of services at Contractor's expense.

1.05 DISPOSAL OF WASTE MATERIALS

- A. Transportation and disposal of solid waste shall meet the requirements of Tacoma Municipal Code 12.09.50. Coordinate with the City of Tacoma Solid Waste Division for the collection and disposal of solid wastes.
- B. Dispose of refuse and waste material off Owner's property. Do not stockpile waste material on Owner's property. Immediately clean up any spilled material.
- C. Clean trash and debris from work area daily. Keep work area, site, and adjacent properties free from accumulations of waste materials, rubbish and windblown debris resulting from construction operations.

- D. Provide on-site containers for collection of waste materials, debris and rubbish. Periodically remove waste from the site.
- E. Waste Construction Liquid Disposal: Provide portable containers for disposal of any waste construction liquids or fluids that are generated by or needed for the construction work. Do not dump any waste construction liquid or fluid (including oil, solvent, cleaning compound, paint, plaster mud, brush and tool cleanup water, etc.) onto the ground or down the building sanitary or storm drain systems or anywhere on the site. Dispose of contents of all portable containers off site daily.
- F. Dispose of flammable, hazardous, and toxic waste materials daily.
- G. Conform to work place safety regulations for storage, mixing, application and disposal of all cleaning, sealing and repair related materials to requirements of those authorities having jurisdiction, including Federal, State and Local.
- H. Conform to safety precautions in accordance with the latest requirements to Health and Safety regulations, latest edition, of authorities having jurisdiction.

1.06 TEMPORARY ELECTRICITY

- A. The Owner will allow the Contractor to use the existing building's electricity for the duration of the construction without charge.
- B. Provide power outlets for construction operations, with branch wiring and distribution boxes. Provide OSHA / WISHA approved flexible power cords as needed.
- C. Provide over current protection at convenient locations for large loads on the existing electrical panels.
- D. Permanent convenience receptacles may be utilized during construction, provided they are replaced if damaged or defaced in any way.

1.07 TEMPORARY LIGHTING

- A. Provide and maintain temporary lighting for construction operations. Provide sufficient lighting to ensure proper workmanship everywhere.
 - 1. The Owner will allow the Contractor to use the existing building's lighting for the duration of the construction without charge. If the lighting levels are too low, temporary lighting may be required.
- B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required to do the Work safely and at the light levels required by each trade to produce work conforming to the quality specified.
- C. Maintain lighting and provide routine repairs.

1.08 TEMPORARY TELEPHONE SERVICE

- A. Superintendent shall carry a cellular phone to allow voice communication at all times.

1.09 TEMPORARY WATER SERVICE

- A. The Owner will allow the Contractor to use the existing building's water service for the duration of the construction without charge.
- B. Provide backflow prevention device approved by State of Washington Department of Health for any water connection to domestic water main or system serving the public.

1.10 TEMPORARY SANITARY FACILITIES

- A. Use of Owner's existing public toilet facilities on the 1st floor will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner.

1.11 TEMPORARY HEAT

- A. The Owner will allow the Contractor to use the existing building's heating system for the duration of the construction without charge. Direct fired gas / oil heaters are not allowed for supplemental heat, all combustion / exhaust gases shall be vented to building exterior.
- B. Install MERV 8 HEPA filters at return air intakes where construction activities are occurring.
- C. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless required otherwise by manufacturers, trade associations, and / or the specification sections.
- D. Maintain current temperature settings in the existing building. Coordinate with the Owner to determine the correct temperature setting.

1.12 TEMPORARY VENTILATION

- A. Provide temporary ventilation equipment to assist curing and drying out of materials, to dissipate humidity, to maintain consistent temperature in areas and to prevent accumulation of dust, fumes, vapors, or gases.

1.13 TEMPORARY DEHUMIDIFICATION

- A. Provide temporary dehumidification equipment as required to lower the moisture content of the building interior and allow materials to dry out to required levels.

1.14 BUILDING MATERIALS ACCLIMATIZATION AND DRY OUT – NOT USED

1.15 TEMPORARY BARRIERS AND TRAFFIC CONTROL

- A. Provide temporary barriers within the building as required.

- B. Provide barriers to protect the public from any potentially unsafe conditions, and from damage from construction operations.
- C. Provide protection for existing plant life designated to remain. Replace damaged plant life.
- C. Protect non-owned vehicular traffic, stored materials, site and structures from damage.
- D. Provide vehicular and pedestrian traffic control as appropriate for the work.

1.16 TEMPORARY STORAGE

- A. Make whatever provisions are necessary to ensure the safe and weathertight protection of materials and equipment temporarily stored.

1.17 PROTECTION OF EXISTING AND INSTALLED WORK

- A. Protect installed work. Provide special protection where specified in individual specification sections or as required to prevent any type of damage or defacement.
- B. Provide temporary and removable protection for existing and installed products. Control activity in immediate work area to minimize damage.
- C. Prohibit traffic in landscaped areas.
- D. Prohibit construction worker access to rooms and areas which do not have construction work. After work in any area or room is complete, prohibit further worker access.
- E. Prevent any construction dust and dirt from entering the HVAC equipment and ductwork, computer equipment, electrical switchgear, building systems / equipment, smoke detectors or anything that will be adversely affected.

1.18 SECURITY

- A. Provide site and building security as required to protect work in progress, stored materials, tools and equipment from vandalism and theft.
- B. Coordinate with Owner's security program during construction, including assigned access control badges for secure work areas.
- C. Maintain room security until Substantial Completion when Owner takes responsibility for security. Work areas shall be separated from the corridors with walls or doors. Provide temporary barriers during the course of construction if corridor walls or doors will be removed during construction.

1.19 ACCESS ROADS

- A. Provide and maintain access to fire hydrants, free of obstructions. Do not block access roads or prevent emergency vehicles access to site.

- B. Maintain the emergency vehicle access road on the site in good, drivable condition for any type of emergency vehicle as required by the City of Tacoma code and permit conditions.

1.20 PROGRESS CLEANING

- A. Provide periodic cleaning to prevent any buildup or accumulation of construction debris in the building or on the site.
- B. Pre-Cover Cleaning: Remove construction debris and vacuum clean dirt and dust from concealed spaces that will be enclosed or inaccessible after completion of the work, including concealed spaces within walls, shafts, attics, and void spaces.
- C. Maintain building and site in a clean and orderly condition.
- D. Remove waste materials, debris, and rubbish from building and site weekly and dispose off-site.
- E. Provide final cleaning at substantial completion

1.21 ENVIRONMENTAL PROCEDURES

- A. Comply with environmental and health safety regulations. Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result.
- B. Burning on site is not permitted.

1.22 MACHINERY AND EQUIPMENT RESTRICTIONS

- A. Equipment and Internal Combustion Engine Noise: The noise level of each vehicle or piece of equipment shall not be greater than 90 DB(A) at a distance of 50 feet as measured under noisiest operating conditions. Mufflers for stationary engines shall be hospital-area quality of silencing.

1.23 REMOVAL OF UTILITIES, FACILITIES AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, etc.
- B. Clean and repair damage caused by installation or use of temporary work.

1.24 EMERGENCY CONTACTS

- A. Provide Owner with two emergency contact names (Superintendent and Project Manager), with cell phone numbers.

1.25 CONSTRUCTION PARKING

- A. Contractor is responsible to provide parking for construction personnel.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General product requirements.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations.
- E. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

- A. Section 01 25 00 - Substitution Procedures: Substitutions made during procurement and/or construction phases.
- B. Section 01 40 00 - Quality Requirements: Product quality monitoring.
- C. Section 01 74 19 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging and substitutions.

1.03 SUBMITTALS

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

PART 2 PRODUCTS

2.01 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.
- B. See Section 01 40 00 - Quality Requirements, for additional source quality control requirements.
- C. Use of products having any of the following characteristics is not permitted:
 - 1. Made using or containing CFC's or products manufactured using HCFC's.
 - 2. Containing lead, cadmium, or asbestos.

2.02 PRODUCT OPTIONS

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

2.03 MAINTENANCE MATERIALS

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

- A. See Section 01 25 00 - Substitution Procedures.

3.02 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 01 74 19.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

- E. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- G. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- H. Comply with manufacturer's warranty conditions, if any.
- I. Do not store products directly on the ground.
- J. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- K. Prevent contact with material that may cause corrosion, discoloration, or staining.
- L. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- M. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Pre-installation meetings.
- C. Cutting and patching.
- D. Surveying for laying out the work.
- E. Cleaning and protection.
- F. Starting of systems and equipment.
- G. Demonstration and instruction of Owner personnel.
- H. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

1.02 RELATED REQUIREMENTS

- A. Section 01 30 00 - Administrative Requirements
- B. Section 01 40 00 - Quality Requirements
- C. Section 01 74 19 - Construction & Demolition Waste Management Requirements
- D. Section 01 78 00 - Closeout Submittals
- G. Individual Product Specification Sections.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
 - 1. On request, submit documentation verifying accuracy of survey work.
- C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
 - 1. Structural integrity of any element of Project.
 - 2. Integrity of weather exposed or moisture resistant element.
 - 3. Efficiency, maintenance, or safety of any operational element.
 - 4. Visual qualities of sight exposed elements.
 - 5. Work of Owner or separate Contractor.
 - 6. Include in request:
 - a. Identification of Project.
 - b. Location and description of affected work.
 - c. Necessity for cutting or alteration.
 - d. Description of proposed work and products to be used.
 - e. Alternatives to cutting and patching.

- f. Effect on work of Owner or separate Contractor.
 - g. Written permission of affected separate Contractor.
 - h. Date and time work will be executed.
- D. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.04 QUALIFICATIONS

1.05 PROJECT CONDITIONS

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.06 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

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

3.02 PREPARATION

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

3.03 PREINSTALLATION MEETINGS

- A. When required in individual specification sections, convene a pre-installation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Architect seven days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
 - 1. Review conditions of examination, preparation and installation procedures.
 - 2. Review coordination with related work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

- A. Promptly notify Architect of any discrepancies discovered.

3.05 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

3.06 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
 - 1. Complete the work.

2. Fit products together to integrate with other work.
 3. Provide openings for penetration of mechanical, electrical, and other services.
 4. Match work that has been cut to adjacent work.
 5. Repair areas adjacent to cuts to required condition.
 6. Repair new work damaged by subsequent work.
 7. Remove samples of installed work for testing when requested.
 8. Remove and replace defective and non-complying work.
- C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing.
- D. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- F. Restore work with new products in accordance with requirements of Contract Documents.
- G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. Patching:
1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
 2. Match color, texture, and appearance.
 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.07 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.08 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

- F. Protect work from spilled liquids. If work is exposed to spilled liquids, immediately remove protective coverings, dry out work, and replace protective coverings.
- G. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- H. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.09 SYSTEM STARTUP

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Architect and Owner's Representative seven days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify that wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.10 DEMONSTRATION AND INSTRUCTION

- A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.
- B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
- C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- D. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.
- E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

3.11 ADJUSTING

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

3.12 FINAL CLEANING

- A. Execute final cleaning prior to Substantial Completion.
 - a. Clean areas to be occupied by Owner prior to final completion before Owner occupancy.

- B. Use cleaning materials that are nonhazardous.
- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Replace filters of operating equipment.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.
- H. Clean Owner-occupied areas of work.

3.13 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
- B. Accompany Owner's Representative and Architect on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's comprehensive list of items to be completed or corrected.
- C. Complete and/or correct work included on the Contractor's Correction Punch List prior to Architect's Substantial Completion Inspection.
- D. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
- E. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.
- F. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected prior to Substantial Completion and submit to Architect.
- G. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas prior to Substantial Completion.
- H. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.
- I. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

END OF SECTION

SECTION 01 74 19 - CONSTRUCTION AND
DEMOLITION WASTE MANAGEMENT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This Section includes the general requirements and procedures for the development and execution of a construction waste management plan.

1.2 RELATED REQUIREMENTS

- A. Related Documents:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Related Sections:
 - 1. 01 3300 – Submittal Procedures
 - 2. 01 5000 – Temporary Facilities Controls
 - 3. 01 6000 - Product Requirements
 - 4. 01 7700 – Closeout Procedures

1.3 REFERENCE STANDARDS

- A. Tacoma Municipal Code TMC 12.09.50 - Transportation and disposal of solid waste shall meet the requirements of this Code. Coordinate with the City of Tacoma Solid Waste Division for the collection and disposal of solid wastes.
- B. Pierce County Construction and Demolition Debris – This resources can be found at <https://www.co.pierce.wa.us/1512/Construction-Debris>.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 CONSTRUCTION WASTE MANAGEMENT PLAN IMPLEMENTATION:

- A. Construction Waste Management – On-Site Procedure
 - 1. Separation Area – Contractor shall allocate and sign a dedicated area for separation of materials for recycling, salvage and reuse. Receptacles are to be maintained and clearly marked in order to avoid contamination of recyclable, reusable or salvageable materials.
 - 2. Hazardous Waste – Hazardous wastes shall be separated, stored and disposed of appropriately, according to regulations.

END OF SECTION

SECTION 01 78 00
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

- A. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- B. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.
- C. Individual Product Sections: Specific requirements for operation and maintenance data.
- D. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

- A. Project Record Documents: Submit documents to Architect prior to claim for final Application for Payment.
- B. Operation and Maintenance Data:
 - 1. Submit one electronic copy of completed documents 30 days prior to final inspection. This copy will be reviewed and returned, with Architect comments. Revise content of all document sets as required prior to final submission.
 - 2. Submit three sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.
 - 4. Submit two sets of original Warranties and Bonds executed documents in separate binders.
 - 5. Provide photocopies of Warranties and Bonds in each Operations and Maintenance Manual.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

- A. Maintain on-site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish first floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

- A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. For Each Product, Applied Material, and Finish:
 - 1. Product data, with catalog number, size, composition, and color and texture designations.

- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- C. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

- A. For Each Item of Equipment and Each System:
 - 1. Description of unit or system, and component parts.
 - 2. Identify function, normal operating characteristics, and limiting conditions.
 - 3. Include performance curves, with engineering data and tests.
 - 4. Complete nomenclature and model number of replaceable parts.
- B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.
- C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Provide servicing and lubrication schedule, and list of lubricants required.
- G. Include manufacturer's printed operation and maintenance instructions.
- H. Include sequence of operation by controls manufacturer.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Provide control diagrams by controls manufacturer as installed.
- K. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- L. Include test and balancing reports.
- M. Additional Requirements: As specified in individual product specification sections.

3.05 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

- A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.
- B. Where systems involve more than one specification section, provide separate tabbed divider for each system.
- C. Binders: Commercial quality, 8-1/2 by 11 inch (216 by 280 mm) three D side ring binders with durable plastic covers; 3 inch (75 mm) maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors and suppliers, with names of responsible parties.
- F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.
- G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.
- H. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
- I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- J. Arrangement of Contents: Organize each volume in parts as follows:
 - 1. Project Directory.
 - 2. Table of Contents, of all volumes, and of this volume.
 - 3. Operation and Maintenance Data: Arranged by system, then by product category.
 - a. Source data.
 - b. Product data, shop drawings, and other submittals.
 - c. Operation and maintenance data.
 - d. Field quality control data.
 - e. Photocopies of warranties and bonds.

3.06 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 30 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.
- E. Manual: Bind in commercial quality 8-1/2 by 11 inch (216 by 279 mm) three D side ring binders with durable plastic covers. Provide two copies of Warranties and Bonds Manual.
- F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor; and name of responsible company principal.
- G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.

- H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION

TECHNICAL SPECIFICATIONS

SECTION 20 00 00
GENERAL MECHANICAL REQUIREMENTS

PART 1 GENERAL

1.01 GENERAL

- A. Includes, but not limited to, furnishing labor, materials, and equipment for completion of work unless indicated or noted otherwise. See Division 1 for sequence of work.
- B. Work indicated on the mechanical plans and in the specifications that will not be performed by this Mechanical Contractor (i.e. duct and pipe block-outs, penetrations through walls, floors, and attic, wall patching, work indicated to be performed by other Contractors, etc.) shall be coordinated with the General Contractor prior to bid. The Mechanical Contractor is responsible for identifying quantity, size, and type of work with the General Contractor. Work not coordinated will be the responsibility of the Mechanical Contractor and shall not be charged as additional cost to the Owner.
- C. All work included in Division 22 and 23 shall be the responsibility of a single Mechanical Subcontractor.
- D. This Contractor shall obtain and pay for all permits required by State and local authorities governing the installation of the mechanical work. It is the Contractor's responsibility to contact all utility organizations serving the building, prior to bid, and to include all charges for inspections, installation of materials, equipment, and connection of all required utilities.
- E. Furnish exact location of electrical connections and complete information on motor controls to Division 26, prior to bid.
- F. The drawings and specifications are complementary and what is called for in either is binding as if called for in both.

1.02 RELATED SECTIONS

- A. General and Supplementary Conditions and Division 1 apply to this Section.

1.03 SUBMITTALS REQUIREMENTS OF THIS SECTION

- A. Access doors.

1.04 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies:
 - 1. Perform work in accordance with applicable Codes.
 - 2. In case of differences between building codes, state laws, local ordinances, utility company regulations, and Contract Documents, the most stringent shall govern.
- B. Product Approvals: See paragraphs elsewhere in this specification.

- C. Warranties:
 - 1. In addition to guarantee specified in General Conditions, guarantee heating, cooling, and plumbing systems to be free from noise in operation that may develop from failure to construct system in accordance with Contract Documents.
 - 2. In order to be protected, secure proper guarantees from suppliers and Subcontractors.
 - 3. Provide certificates of warranty for each piece of equipment. Clearly record "start-up" date of each piece of equipment on certificate. Include certificates as part of Operation & Maintenance Manual.
- D. Manufacture: Use domestic made pipe, pipe fittings, and motors on Project.
- E. Identification: Motor and equipment name plates as well as applicable UL and AGA labels shall be in place when Project is turned over to Owner.

1.05 CODES AND STANDARDS

- A. Codes and agencies having jurisdictional authority over mechanical installation.
 - 1. Washington State Energy Code -- Latest Approved Edition
 - 2. International Building Code -- Latest Approved Edition
 - 3. International Fire Code - Latest Approved Edition
 - 4. International Mechanical Code -- Latest Approved Edition
 - 5. Uniform Plumbing Code -- Latest Approved Edition
 - 6. Local Sewer and Water District Requirements
 - 7. State and County Department of Health
 - 8. Local Fire Marshal
 - 9. State Boiler Inspector
 - 10. Puget Sound Air Pollution Control
 - 11. State of Washington Boiler and Unfired Pressure Vessel Inspection Law
 - 12. Occupational Safety and Health Administration (OSHA)
 - 13. Washington Industrial Safety and Health Act (WISHA)
 - 14. National Fire Protection Association (NFPA)

- B. ASME code stamp required on all pressure vessels and relief valves. Certificate required from the State Boiler Inspector showing approval of the equipment and its installation.

1.06 SYSTEMS DESCRIPTION

- A. Site Inspection:
 - 1. Examine premises and understand the conditions which may affect performance of work of this Division before submitting proposals for this work.
 - 2. No subsequent allowance for time or money will be considered for any consequence related to failure to examine site conditions.

1.07 DESIGN DRAWINGS

- A. Mechanical drawings are not shop drawings and are intended to show general arrangement of piping, ductwork, equipment, etc. Follow as closely as actual building construction and work of other trades will permit.
- B. Consider architectural, structural, and electrical drawings part of this work in so far as these drawings furnish information relating to design and construction of building. Architectural drawings take precedence over mechanical drawings.
- C. Because of small scale of mechanical drawings, it is not possible to indicate all offsets, fittings, and accessories which may be required. The Mechanical Contractor shall include in the bid a sufficient quantity of offsets, fittings, and accessories for the size of the project, based upon the contractor's experience, necessary to facilitate mechanical utility installation. No additional costs shall be charged for additional offsets, fittings, and accessories required for installation of the mechanical utilities shown on the design drawings. Investigate structural and finish conditions affecting this work and arrange work accordingly, providing such fittings, valves, and accessories required in meeting the design conditions.

1.08 PRE-CONSTRUCTION COORDINATION MEETING

- A. This Contractor is responsible to participate in coordination meetings with the General Contractor, Fire Protection Contractor, and other subcontractors needing to coordinate special requirements (such as electrical contractor, HVAC contractor, plumbing contractor, etc.)
- B. Coordination meetings shall consider elevations, required clearances, and routings of all trades to assure that all trades can be installed without conflict.
- C. The outcome of this coordination shall allow each system (Mechanical, Fire Protection, Plumbing, Electrical, etc.) to be installed without further conflicts for space or locations.

- D. Failure to coordinate with other trades and/or existing conditions that result in the removal and re-installation of systems shall not be charged as additional costs.

1.09 COORDINATION DRAWINGS

- A. Develop coordination drawings, and other pre-installation coordination methods as necessary to coordinate layouts prior to installation. Coordination drawings shall consist of overlay drawings, or other similar methods to graphically indicate plumbing, fire protection, HVAC, electrical, and other similar elements in a single location in order to identify conflicts. All elements shall be drawn to scale. Coordination drawings are not required to be submitted for approval, except where indicated otherwise in the specification. However, a minimum of one hard copy of coordination drawings shall be present on site at all times and made available to the Architect/Engineer (A/E) Representative upon request. If coordination drawings are not on file, or if systems are not installed per coordination drawings, costs and delays of required re-engineering, replacement, and other work required to correct conflicts shall be solely the Contractor's.
 - 1. Contractor shall have the underground coordination drawings available upon request by A/E Representative within 60 days after Notice to Proceed.
 - 2. Contractor shall have the aboveground coordination drawings available upon request by A/E Representative within 90 days after Notice to Proceed.
- B. Coordination drawings shall consist of:
 - 1. Drawing sheets developed sequentially by each trade with all components drawn to scale and color coded to represent each trade.
- C. Where coordination drawings, or other preinstallation coordination methods show that available space is inadequate or that modifications will affect architectural elements, request information from the Architect before proceeding with work. No additional payment will be made for installation conflicts which could have been identified by coordination drawings or other pre-installation coordination methods.
- D. Make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. Each subcontractor shall:
 - 1. Indicate the exact name, location, and dimension of each element to be provided by that subcontractor.

2. Arrange components as necessary to avoid conflict with new and existing conditions and the work of other subcontractors as directed by the General Contractor.
 3. Note requirements for sleeves, block-outs, cutting, patching, access doors, blocking, supports, inserts, and other similar items.
 4. Notify the General Contractor of conflicts.
 5. Approve the coordination drawings when all conflicts are resolved and an acceptable layout is obtained.
- F. The General Contractor shall coordinate the layouts indicated on the coordination drawings and resolve any conflicts prior to commencement of subject portions of the work.

1.10 ELECTRICAL

- A. All electrical work, conduit, boxes, and devices in connection with control wiring as required to install the control equipment as specified herein or shown on the drawings shall be furnished and installed complete by the Division 26 Contractor.
- B. All electrical work performed under this Section of the Specifications shall conform to all applicable portions of the Division 26 specifications and shall conform to all governing codes.
- C. All equipment shall be factory wired to a junction box for connection to electrical service.
- D. Where a piece of equipment specified includes an electric motor, the motor shall be furnished and mounted by this Contractor. Motor starter, disconnect switches, and wiring from the electrical panel to the motor control devices and to the motor shall be provided by the Division 26 Contractor unless stated otherwise in the mechanical specification and/or on the mechanical drawings.
- E. All motor controllers and equipment panels (including but not limited to packaged equipment, custom control panels, custom air handler panels, etc.) shall comply with NEC (including, but not limited to, marking on controllers and labeling requirements).

1.11 PRODUCT HANDLING AND PROTECTION

- A. Contractor is responsible for protection of all material, equipment and apparatus provided under this Section from damage, water, corrosion, freezing and dust, both in storage and when installed, until final project acceptance.
- B. Provide temporary heated and sheltered storage facilities for material and equipment.
- C. Completely cover motors and other moving machinery to protect from dirt and water during construction.

- D. Handle and protect equipment and/or material in manner precluding unnecessary fire hazard.
- E. Equipment requiring rotation and/or lubrication during storage shall have records maintained and witnessed on a monthly basis and forwarded to the Architect/Engineer prior to acceptance. Provide recorded maintenance for the O&M Manual.
- F. Material or equipment damaged because of improper storage or protection will be rejected.
- G. Equipment finish that is damaged by handling, storage, etc. shall be corrected by the Contractor at no additional cost to the Owner.

1.12 DEFINITIONS

- A. Finished Spaces: Spaces used for habitation or occupancy where rough surfaces are plastered, paneled, or otherwise treated to provide a pleasing appearance.
- B. Unfinished Spaces: Spaces used for storage or work areas, such as fan rooms, mechanical and boiler rooms, etc., where appearance is not a factor.
- C. Concealed Spaces: Spaces out of sight. For example, above ceilings; below floors; between double walls; furred-in areas; pipe and duct shafts; and similar spaces.
- D. Exposed: Open to view. For example, pipe running through a room and not covered by other construction.
- E. Outside: Open to view up to 5 feet beyond the exterior side of walls, above the roof, and unexcavated or crawl spaces.
- F. Conditioned Space: An area, room, or space normally occupied and being heated or cooled for human habitation by any equipment as defined by the extent of the building envelope insulation.
- G. Replace: Existing mechanical equipment and components shall be demolished and discarded from the project site or as directed otherwise. New mechanical equipment and components shall be installed in the area where the existing mechanical equipment and components were demolished or as indicated on the contract documents.
- H. Removed: Existing mechanical equipment and components identified on the contract documents shall be taken apart, taken down, and discarded from the project site unless directed otherwise on plan. Removed items shall not be brought back to the project site for use or reinstallation.
- I. Reinstall: Existing mechanical equipment and components identified on the contract documents that need to be taken down and installed in the same or new location.

1.13 ABBREVIATIONS

- A. ADA Americans with Disabilities Act

B.	A/E	Architect/Engineer
C.	AFF	Above Finish Floor
D.	AGA	American Gas Association
E.	AMCA	Air Moving & Conditioning Association
F.	ANSI	American National Standards Institute
G.	APWA	American Public Works Association
H.	ASHRAE	American Society of Heating, Refrigerating and Air
I.	ASME	American Society of Mechanical Engineers
J.	ASTM	American Society of Testing & Materials
K.	AWWA	American Water Works Association
L.	BFF	Below Finish Floor
M.	BHP	Brake Horsepower
N.	BTU	British Thermal Unit
O.	CFM	Cubic Feet per Minute
P.	CISPI	Cast Iron Soil Pipe Institute
Q.	fpm	feet per minute
R.	FS	Federal Specifications
S.	FDC	Fire Department Connection
T.	FCO	Flush Cleanout
U.	FD	Floor Drain
V.	FPWH	Freeze Proof Wall Hydrant
W.	GPM	Gallons per Minute
X.	HP	Horsepower
Y.	IAPMO	International Association of Plumbing and Mechanical
Z.	IAQ	Indoor Air Quality
AA.	IEEE	Institute of Electrical and Electronics Engineers
AB.	KW	Kilowatt
AC.	LPG	Liquefied Petroleum Gas
AD.	MBH	One Thousand British Thermal Units per Hour
AE.	MS	Military Specifications
AF.	MSS	Manufacturers Standardization Society
AG.	NEC	National Electrical Code
AH.	NEMA	National Electrical Manufacturers Association
AI.	NFPA	National Fire Protection Association
AJ.	NP	Non-Potable Water
AK.	NPSH	Net Positive Suction Head

AL.	OS&Y	Outside Screw and Yoke
AM.	PIV	Post Indicator Valve
AN.	PDI	Plumbing and Drainage Institute
AO.	per	in accordance with
AP.	POC	Point of Connection
AQ.	PSI	Pounds per Square Inch Gauge Pressure
AR.	PVC	Polyvinyl Chloride
AS.	SMACNA	Sheet Metal and Air Conditioning Contractors National
AT.	SP	Static Pressure
AU.	SWP	Steam Working Pressure
AV.	UL	Underwriter's Laboratories
AW.	VFD	Variable Frequency Drive
AX.	VTR	Vent Thru Roof
AY.	wg	Water Gauge (inches of water)
AZ.	WP	Working Pressure
BA.	WPL	Weatherproof Louver
BB.	WQA	Water Quality Association
BC.	Additional abbreviations are as listed on the drawings or elsewhere in these specifications.	

1.14 SCHEDULE OF VALUES

- A. General: Provide schedule of values per Division 1 and related project requirements:
 - 1. Division 22 and 23 Breakdown: Provide schedule of values for each building, broken down into labor and materials per specification section at a minimum. Further breakdown into subcategories is at the option of the Contractor, except as noted below:
 - a. Section 20 00 00 - General Mechanical Requirements:
Provide a subcategory for "Mechanical Punchlist, Closeout and Owner Training". The dollar value for this subcategory shall be no less than 2.25% of the total dollar value of the Division 22 and 23 work (or as indicated in Division 1, whichever is higher). The contractor shall receive payment upon completion of all Mechanical Punchlist and Closeout items and Owner Training.

- b. Section 20 00 00 - General Mechanical Requirements:
Provide a subcategory for "Pre-Construction Coordination Meeting." The dollar value for this subcategory shall be no less than 1% of the total dollar value of the Division 22 and 23 work. Contractor shall submit the meeting's sign in sheet to the Engineer for review. The sign in sheet shall include the printed and signed names of the General and all subcontractors who attended the meeting. The contractor shall receive payment once the sign-in sheet has been verified to meet the Pre-Instruction Coordination requirements of this Section.
 - c. Section 20 00 00 - General Mechanical Requirements:
Provide a subcategory for "Coordination Drawings". The dollar value for this subcategory shall be no less than 1% of the total dollar value of the Division 22 and 23 work. The contractor shall receive payment upon Engineer's verification of Coordination Drawing completion, in accordance with the requirements of this Section.
- B. The Contractor is advised that in addition to payments held out for retainage and project final completion (i.e. "Mechanical Punchlist, Closeout, and Owner Training"), as specified above and in Division 1, 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, adjusted, and balanced.

1.15 SUBMITTAL PROCEDURES

- A. All material used on the project shall be new and free of defects. The Architect and/or Engineer reserve the right to reject any material, the appearance of which has been damaged on the site or in shipment. The material shall be of pre-approved equal quality to that which is specified. Should the make and type of material differ from that specified, the Contractor may be required to submit catalog and engineering data (samples if requested) necessary to make a comparison and determine its suitability. The Contractor shall also bear the cost of all changes to any aspect of the project (electrical, mechanical, building, etc.) made necessary by any approved substitutions. Approved substitutions include those listed as approved manufacturers or approved substitutions. Tentative approval of substitute material and equipment will be made prior to bid only. Such request for approval shall be made two weeks in advance of the bid opening to allow time to assess its suitability. Failure to obtain approval prior to bid shall require the successful bidder to furnish materials and equipment only as specified herein (see paragraph 2.01, this specification).

- B. Equipment submittals shall be submitted per one of the following processes as selected by the Architect/Engineer Representative and/or Owner:
1. Electronic Submittal Process:
 - a. The Contractor shall upload one complete PDF file of the Electronic Submittal Package to the Architect's SharePoint Site for approval. The Electronic Submittal package shall include the following:
 - 1) All required submittals (i.e. equipment cut sheets, shop drawings, etc.) per each specification section.
 - 2) Table of contents identifying each specification section, submittal requirement of each specification, and the manufacturer name and model number of each item submitted.
 - 3) Index sheet for each specification section.
 - 4) Submission of PDF files of individual specifications or equipment cuts will be automatically rejected.
 - 5) The Contractor shall complete and upload a Submittal Information Form, in Microsoft WORD format, for the A/E team to review. The equipment submittal will not be considered "Received" nor will a review be provided until both the Electronic Submittal Package and Submittal information Form have been uploaded.
 - 6) If the Electronic Submittal Process is not feasible for a particular submittal section (i.e. samples, certain shop drawings, recorded videos, CD's, etc.), the Contractor shall submit a request in writing to the A/E Representative to deviate from the Electronic Submittal Process. If acceptable by the A/E Representative the Contractor shall follow the Hard Copy Submittal Process for the submission.

2. Hard Copy Submittal Process:
 - a. The Contractor shall submit to the Architect, for approval, complete information on all equipment and materials to be provided on the project. Provide copies as specified by Division 1 and at a minimum provide six (6) copies of the manufacturer's catalog and engineering data, shop drawings of shop fabricated equipment, and instruction data for each item included under this Section of the Specifications. The Contractor shall submit a typed, signed list including all items to be furnished on the project. The signature on the aforementioned list shall indicate that the Contractor has examined the suitability of all material and equipment with respect to compliance with these specifications. The Contractor's approval shall also indicate that physical dimensions of the equipment have been verified with the installation requirements and were found to cause no interference therewith.
 - b. Furnish submittals in a hard-back, three-ring binder. The binder shall have tabs which are indexed with a Table of Contents. The Table of Contents shall correlate an index number for each individual specification number. If the equipment submittal is not bound to the Engineer's satisfaction, it may be rejected.
3. Review of submittal data by the Engineer or Architect does not relieve the Contractor of responsibility for quantities, measurements, and compliance with the intent of all contract documents.
4. Furnish submittals generally according to the list below. Individual sections may contain more specific submittal listing of the particular section labeled "Submittal Requirements." Furnish on each particular section and the following equipment:
 - a. Pipe
 - b. Pipe Insulation
 - c. Valves
 - d. Pipe Hangers
 - e. Piping Specialties
 - f. Pumps
 - g. Temperature Control Equipment and Shop Drawings

- h. Any material found to be installed without prior approval will be required to be removed and replaced with only specified material at Contractor's cost.
- i. Mechanical Drawings for the project have been developed by the Engineer using AutoCAD™ Revision 2015 software. These drawing files will be made available to the Contractor for development of shop drawings and/or "As-Built" for a fee of \$30.00 per sheet. Full payment to be made prior to release of drawing files.

1.16 OPERATION AND MAINTENANCE MANUAL FOR MECHANICAL SYSTEMS

- A. Bind Operation & Maintenance Manual for Mechanical Systems in three-ring, hard-backed binder with clear plastic pocket on spine. Spine of each binder shall have following typewritten lettering inserted:

OPERATION
AND
MAINTENANCE
MANUAL
FOR MECHANICAL SYSTEMS
- B. Provide master index at beginning of Manual showing items included. Use plastic permanent tab indexes for Sections of Manual.
- C. First Section shall consist of name, address, and phone number of Architect, General Contractor, and Mechanical, Plumbing, Sheet Metal, Refrigeration, Temperature control, and Electrical Subcontractors. Also include complete list of equipment installed with name, address, and phone number of each vendor.
- D. Provide Section for each type of item of equipment.
- E. Submit copies as specified by Division 1 and at a minimum provide three (3) copies of Operation & Maintenance Manual to Architect for his approval.
- F. Include descriptive literature (Manufacturer's catalog data) of each manufactured item. Literature shall show capacities and size of equipment used and be marked indicating each specific item with applicable data underlined.
- G. Include all warranties/guarantees including extended warranties.
- H. Include all start-up logs.
- I. Operating Instructions shall include:
 - 1. General description of each mechanical system.
 - 2. Step-by-step procedure to follow in putting each piece of mechanical equipment into operation.

3. Provide schematic control diagrams for all systems. Each diagram shall show locations of start-stop switches, insertion thermostats, room thermostats, thermometers, firestats, pressure gauges, automatic valves, and refrigeration accessories. Mark correct operating settings for each control instrument on these diagrams.
 4. Provide diagram for electrical control system showing wiring of related electrical control items such as firestats, fuses, interlocks, electrical switches, and relays.
 5. Provide drawing of each temperature control panel identifying components on panels and their function.
- J. Maintenance Instructions shall include:
1. Manufacturer's maintenance instructions for each piece of mechanical equipment installed in Project. Instructions shall include name of vendor, installation instructions, parts numbers and lists, operation instructions of equipment, and maintenance and lubrication instructions.
 2. Summary list of mechanical equipment requiring lubrication showing name of equipment, location, and type and frequency of lubrication.
 3. List of mechanical equipment used indicating name, model, serial number, and name plate data of each item together with number and name associated with each system item.

1.17 WARRANTY

- A. All warranty information shall be submitted as part of the "Operation and Maintenance Manual for Mechanical Systems" in this section.
- B. All warranties for mechanical and plumbing equipment shall start upon completion of commissioning.

1.18 AS-BUILT DRAWINGS

- A. The Contractor shall maintain, in addition to coordination drawings, an as-built set of prints that clearly identify all deviations from the original design. The As-Built drawings shall be drafted per one of the following methods:
 1. Draft all revisions on a separate dark layer, on the coordination drawing set. The Contractor shall maintain a copy of the original coordination drawing set.
 2. Draft all revisions on the design drawings with a red color pencil.
- B. This red lined set shall identify all drawing revisions including addenda items, change orders, and Contractor revisions.

- C. Drawings shall show locations of all underground pipe and duct installed by this Contractor. Underground pipes and ducts shall be shown with cross section elevations. All pipe, raceway, manholes, or lines of other trades shall be included.
- D. The Contractor shall update all references to specific products to indicate products actually installed on project. This shall include, but not be limited to, air handlers, heat pumps etc.
 - 1. Upon completion of the Division 22 and 23 Work, the Contractor shall deliver the red lined drawings and one set of neatly drafted as-built drawings on electronic media in ACAD 2015 format and PDF files to the Engineer for transmittal through the Engineer to the Owner.

PART 2 PRODUCTS

2.01 APPROVED MANUFACTURERS

- A. Any reference to the specifications or on the drawings to any article, device, product, material, fixture, form, or type of construction by manufacturer, name, make, or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition.
- B. The manufacturers listed as Approved Manufacturers are approved to bid the project for the items indicated without obtaining prior approval. Other manufacturers desiring to bid the project require prior approval.
- C. The listing of a manufacturer as an Approved Manufacturer does not necessarily mean that the products of that manufacturer are equal to those specified. The listing is only an indication of those manufacturers which may be capable of manufacturing, or have in the past manufactured, items equal to those specified, and is intended to aid the Contractor in identifying manufacturers.
- D. Products provided by Approved Manufacturers shall be equal to or superior to the specified manufacturer's item in function, appearance, and quality, and shall fulfill all requirements of the plans and specifications. The Architect/Engineer shall be the final judge as to whether an item meets these requirements or not. If a manufacturer is not certain that his product meets these requirements or not, then the manufacturer shall submit data as required to obtain the Design Consultant's approval prior to bid opening.
- E. The approval of a manufacturer applies to the manufacturer only and does not relieve the Contractor from the responsibility of meeting all applicable requirements of the plans and specifications.
- F. Contractor shall be responsible for all costs to other trades and all revisions required in accommodating any products which are different from those specified or shown.

- G. In reviewing a manufacturer for acceptance, factors considered include the following: engineering data showing item's performance, proper local representation of manufacturer, likelihood of future manufacturer's local support of product, service availability, previous installation, previous use by Owner/Engineer/Architect, and record, product quality, availability/quality of maintenance and operation data, capacity/performance compared to specified items, acoustics, items, geometry/access utility needs, and similar concerns.
- H. If approval is received to use other than specified items, responsibility for specified capacities and ensuring that items to be furnished will fit space available lies with this Division.
- I. If non-specified equipment is used and it will not fit job site conditions, this Division assumes responsibility for replacement with items named in Specification.

2.02 ACCESS DOORS

- A. This Contractor shall be responsible for furnishing and installing flush mounted access doors in walls, ceilings, floors, and chases where the following equipment is concealed and is not accessible through same.
 - 1. Valves (shut off, balancing, control, trap primers, etc.).
 - 2. Dampers (control, balancing, fire, smoke, etc.).
- B. Doors shall be UL listed 20 ga. cold rolled steel with concealed hinge, screwdriver operated lock and prime coated. Furnish suitable for area mounted. Provide stainless steel access doors for non-painted surfaces (i.e. tile, MDF)
- C. Approved Manufacturers:
 - 1. Milcor
 - 2. Acudor
 - 3. Greenheck
 - 4. Nystrom

PART 3 EXECUTION

3.01 WORKMANSHIP

- A. This Contractor shall provide completed systems with a neat and finished appearance. If, in the judgment of the Engineer, any portion of the work has not been performed in a workmanlike manner or is left in a rough, unfinished state, this Contractor will be required to remove, reinstall, or replace same and patch and paint surrounding surfaces in a manner acceptable to the Engineer, without increase in cost to the Owner.

3.02 FINAL INSPECTION

- A. Final Inspection:
 - 1. Prior to acceptance of the mechanical work, the Contractor shall put all mechanical systems into operation for a period of not less than 5 working days so that they may be inspected by the Architect/Engineer and the Owner's representatives.
 - 2. The time of the final inspection shall be mutually agreed to by the Owner, Engineer, and Contractor.
 - 3. The Contractor shall furnish adequate staff to operate the mechanical systems during inspection.

3.03 OPERATION AND MAINTENANCE TRAINING

- A. Upon completion of the work, and after all tests and final inspection of the work by the Authority(s) having jurisdiction, the Contractor shall demonstrate and instruct the Owner's designated operation and maintenance personnel in the operation and maintenance of the various mechanical systems. The Contractor shall arrange scheduled instruction periods with the Owner. The Contractor's representatives shall be Superintendents or Foremen knowledgeable in each system and Supplier's Representative when so specified.
- B. Scheduled instruction periods shall be:
 - 1. Plumbing Equipment 4 Hours
- C. The contractor shall, at a minimum, include an Owner Training sign-in sheet in the O&M Manual that indicates the start and end times of the training and the type of training provided. Owner shall sign off on the Owner training sign-in sheet to be considered complete and satisfactory to Owner.
- D. Costs for time involved by Contractor shall be included in the bid.

3.04 CLOSEOUT SUBMITTALS

- A. Requirements: Final approval of mechanical installation will be recommended upon completion of the following:
 - 1. Completion of all punchlist items
 - 2. Owner Training Sign-In sheet with Owner's signature
 - 3. Permit Submittal
 - 4. Valve Diagrams
 - 5. Reproducible As-Built drawings delivered to Architect
 - 6. Asbestos Free Statement
 - 7. Guarantees

3.05 PREPARATION

- A. New Buildings: Each Section of this Division shall bear expense of cutting, patching, repairing, and replacing of work of other Sections required because of its fault, error, tardiness, or because of damage done by it.
- B. Existing Buildings:
 - 1. Cut carefully to minimize necessity for repairs to existing work. Do not cut beams, columns, or trusses.
 - 2. Patch and repair walls, floors, ceilings, and roofs with materials of same quality and appearance as adjacent surfaces unless otherwise shown. Surface finishes by General Contractor.
 - 3. Cutting, patching, repairing, and replacing pavements, sidewalks, roads, and curbs to permit installation of work of this Division is responsibility of Section installing work.
 - 4. This work shall be scheduled such that utility services and/or existing systems for the facility are not interrupted during normal operating hours, without prior written permission of the Owner's representative. Work that is performed during normal operational hours shall not interfere with the normal function of the facility's daily operation.
 - 5. The Mechanical Contractor shall be responsible for the removal of all existing mechanical equipment and utilities indicated to be removed on the drawings. The Mechanical Contractor shall also be responsible for the removal and reinstallation of all existing mechanical equipment and utilities that will interfere with installation and operation of any new construction indicated or required and shall be responsible for the removal of all existing mechanical equipment and utilities indicated to be abandoned that will interfere with installation and operation of any new construction indicated or required. All mechanical equipment (other than piping) to be removed shall remain the property of the Owner, and shall be transported, stored, or disposed of, as directed by the Owner. This will be at no cost to the Owner.

3.06 INSTALLATION

- A. Install mechanical equipment to permit easy access for normal maintenance, and so that parts requiring periodic replacement or maintenance, (e.g., coils, heat exchanger bundles, sheaves, filters, motors, bearings, etc.) can be removed. Relocate items which interfere with access.
- B. Provide access doors in equipment, ducts, and walls/ceilings as required to allow for inspection and proper maintenance.

- C. Valves, damper operators, and other devices which are manually adjusted or operated shall be located so as to be easily accessible by a person standing on the floor. Any such items which are not in the open shall be made accessible through access openings in the building construction.
- D. Gauges, thermometers, instrumentation, and other components which are installed to monitor equipment performance, operating conditions, etc., shall be oriented so as to be easily read by a person standing on the floor. Provide necessary brackets and hangers as needed.
- E. If circumstances at a particular location make the accessible installation of an item difficult or inconvenient, the situation shall be discussed with the Architect/Engineer before installing the item in a poor access location.
- F. Belts, pulleys, couplings, projecting set screws, keys, and other rotating parts which may pose a danger to personnel, shall be fully enclosed or guarded in accordance with OSHA regulations.
- G. Dissimilar Metals: Provide separations between all dissimilar metals. Where not specified in another way, use 10 mil black plastic tape wrapped at point of contact or plastic centering inserts.
- H. Provide offsets around all electrical panels (and similar electrical equipment) to maintain space clear above and below panel to structure and clearance of 3.5 feet directly in front of panel, except where indicated otherwise or required by NEC to be more. Such offsets are typically not shown on the drawings, but are required per this paragraph.
- I. Piping Through Framing: Piping through framing shall be installed in the approximate center of the member. Where located such that nails or screws are likely to damage the pipe, a steel plate at least 1/16-inch thick shall be installed to provide protection. At metal framing, wrap piping to prevent contact of dissimilar metals. At metal and wood framing, provide plastic pipe insulators at piping penetrations through framing nearest each fixture and on at least 48-inch centers.
- J. Safety Protection: All ductwork, piping, and related items installed by this Contractor that present a safety hazard (i.e., items installed at/near head height, items projecting into maintenance access paths, etc.) shall be covered (at hazardous area) with 3/4" thick elastomeric insulation and 2" wide reflective red/white striped self-sticking safety tape.

- K. Equipment Access: Access to equipment is of utmost importance. Contractor shall apply extra attention to the laying out of pipe and duct routings, and in coordinating all work. Poor access to equipment will not be accepted. Contractor shall note that in essentially all areas, piping routed in ceiling space needs to run in joist space, necessitating elbows/fittings/transitions at crosses with other trades, at structural beams, and at all connections to mains and branches. Hatched areas at HVAC units indicate equipment access areas. These (and all other) access areas shall be clear of obstructions. The Mechanical Contractor is responsible to coordinate and ensure that all trades stay clear of access areas for any Division 22 and 23 furnished equipment.
- L. Ensure that items to be furnished fit space available. Make necessary field measurements to ascertain space requirements including those for connections and furnish and install equipment of size and shape so final installation shall suit true intent and meaning of Contract Documents.
- M. Pipe Installation: Install piping in longest reasonable lengths. The use of short lengths of pipe with multiple couplings where a single length of pipe could have been used is not acceptable.

3.07 CONCRETE BASES

- A. Provide a 3-inch high "minimum" concrete base under boilers, hot water tanks, and floor-mounted pumps located in mechanical/utilities spaces. Provide 6" thick structural concrete pad for equipment located outside the building or as detailed on drawings.

3.08 ADJUSTMENT AND CLEANING

- A. Properly lubricate equipment before Owner's acceptance.
- B. Clean exposed piping, ductwork, equipment, and fixtures, remove debris from site. Repair all damaged finishes and leave everything in working order.
- C. Remove stickers from fixtures and adjust flush valves.

3.09 PAINTING

- A. Paint all exposed pieces of equipment if not factory finished or painted under the Architectural Section of these specifications. Paint shall be one coat primer and two coats enamel color as directed by the Architect.

3.10 REBATES

- A. Furnish vendor invoices on pumps to Owner after installation for power company rebates.

3.11 REQUESTS FOR INFORMATION (RFI)

- A. It is our intent to provide a timely response for RFIs regarding Division 22 and 23 Work. To further expedite this process, if a suggestion can be determined or derived at by the initiator of the RFI, it is required this suggestion be supplied with the submitted RFI. If no suggestion is given where one is possible, the RFI will be returned as incomplete. RFI's will be returned to the Contractor within seven (7) business days from the time received by the Architect/Engineer Representative.

END OF SECTION

SECTION 21 00 00
GENERAL FIRE PROTECTION REQUIREMENTS

PART 1 - GENERAL

1.01 **GENERAL**

- A. Includes, but not limited to, furnishing labor, materials, and equipment for completion of work unless indicated or noted otherwise. See Division 1 for sequence of work.
- B. The Fire Protection Contractor shall obtain and pay for all permits required by State and local authorities governing the installation of the fire protection work.
- C. The fire protection specifications are a mix of being performance based and prescriptive. It is the Fire Protection Contractor's responsibility to determine the exact pipe routing, elevations, and device locations that will meet N.F.P.A. #13, N.F.P.A. #14, N.F.P.A. #20 the local Authority Having Jurisdiction, and project specification requirements.
- D. The Fire Protection Contractor may request a pre-design meeting with the Architect, Fire Protection Engineer, Fire Protection Contractor, General Contractor, and building Owner Representative to answer any specification and contract design related questions during the early design phase of the project. The Fire Protection Contractor shall provide a written request for this meeting to the General Contractor that is addressed to the Architect.
- E. **All fire protection sprinkler system components and devices shall be domestically manufactured. Imported components will not be allowed.**
- F. All piping shall have the manufacturers stenciling that is installed at the factory along the length of the pipe. The stenciling shall consist of the manufacturer's identifier (name or logo) at a minimum. Piping that does not contain the information described (i.e. no stenciling on black pipe, white dashes on black pipe, etc.) shall be assumed to be imported and shall be replaced at the Fire Protection Contractors expense. All exposed piping that is to be painted shall be visually inspected by the engineer prior to being painted.

1.02 RELATED DOCUMENTS

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

1.03 RELATED SECTIONS

- A. The following sections apply to this section:
 - 1. Section 21 31 13 "ELECTRICALLY DRIVEN FIRE PUMPS".

1.04 COORDINATION

- A. The Fire Protection Contractor is responsible to initiate coordination meetings to coordinate spatial requirements such as the Electrical and Mechanical Contractor.
- B. Coordination meetings shall consider elevations, required clearances, and routings of all trades to assure that all trades can be installed without conflict.
- C. The outcome of this coordination shall allow each system (Electrical, Mechanical, Fire Protection, Plumbing, etc.) to be installed without further conflicts for space or locations.
- D. Failure to coordinate with other trades and/or existing conditions that result in the removal and re-installation of systems shall not be charged as additional costs.
- E. The Fire Protection Contractor shall be responsible for documenting the date and participants of each coordination meeting and providing record copies of this documentation to the Architect/Engineer.

1.05 FIRE ALARM / ELECTRICAL CONNECTIONS

- A. The Fire Protection Contractor shall provide all new fire alarm devices associated with the fire protection system (tamper switches, etc.), as indicated on the contract documents.
- B. The low voltage electrical Contractor shall make all connections and terminations of the fire alarm devices to the fire alarm system control panel.
- C. All electrical work performed under this Section of the Specifications shall conform to all applicable portions of the Division 26 specifications and shall conform to all governing codes.
- D. Where a piece of equipment specified includes an electric motor, the motor shall be furnished and mounted by this Contractor. Motor starter, disconnect switches and wiring from the electrical panel to the motor control devices and to the motor shall be provided by the Division 26 Contractor unless stated otherwise in the fire protection specifications and on the fire protection drawings (schedules and/or notes).

1.06 SITE INSPECTIONS OF EXISTING SITE CONDITIONS PRIOR TO BIDDING

- A. The Fire Protection Contractor shall examine premises and understand the existing conditions that may affect performance of the Fire Protection Contractor's work of this Division before submitting proposals and/or bids for this work.
- B. No subsequent allowance for time or costs will be considered for any consequence related to failure to examine site conditions.
- C. Existing site conditions may not be fully depicted on the contract documents and it is the bidding Fire Protection Contractor's responsibility to fully understand the existing conditions of the project.

1.07 CONTRACT DOCUMENTS

- A. The Fire Protection Contractor shall be responsible for reviewing all contract documents such as electrical, mechanical, plumbing, fire protection drawings, etc. These drawings could furnish information and/or details related to the design and construction of this project that requires additional fire protection that is not indicated on the fire protection contract documents. It is the Fire Protection Contractor's responsibility to review the design documents of all trades and to coordinate the design documents with the fire protection shop drawings.
- B. It is not possible to indicate all offsets, fittings, and accessories which may be required. Investigate structural and finish conditions affecting this work and arrange work accordingly, providing such fittings, valves, and accessories required to meet conditions.
- C. Drawings of larger scale and of greater detail take precedence over drawings of smaller scale and lesser detail.
- D. Drawings with written or computed dimensions take precedence over scaled dimensions.
- E. Where new piping layout and locations are shown on the contract documents, the piping shall be designed and installed in a similar fashion, unless accepted by the design team. The Fire Protection Contractor is responsible for providing the required elbows, fittings, transitions, and offsets to accommodate structural members, architectural features, and coordination with other trade work.
- F. The fire protection system installation shall be made in accordance with the drawings, specifications, and applicable standards. Should a conflict occur between the drawings and specifications, the specifications shall prevail, refer to Division 1.

- G. In the case that criteria contained on the drawings is omitted from the specifications or the specifications have criteria that is omitted from the drawings, the criteria given in one location shall apply as if shown in both the drawings and in the specifications (what's in one document applies to both documents). The drawings and specifications are complementary and what is called for in either is binding as if called for in both, see General Conditions of the Project Manual.
- H. The latest dated document shall have precedence over earlier released documents such as Change Orders, ASI directives, RFI responses, project Addendums, etc.
- I. The Fire Protection Contractor shall provide any work or materials the provision of which is clearly implied in the contract documents or project specifications, even if not specifically indicated.

1.08 SUBMITTALS

- A. All material used on the project shall be new and free of defects.
- B. The Fire Protection Contractor shall also bear the cost of all changes to any aspect of the project (electrical, mechanical, building, etc.) made necessary by any approved substitution. Tentative approval of substitute material and equipment will be made **prior to bid only**. Such request for approval shall be made **7 days** in advance of the bid opening to allow time to assess its suitability. Failure to obtain approval prior to bid shall require the successful bidder to furnish materials and equipment only as specified herein (see Specification Section 21 00 00 Paragraph 2.01).
- C. The Fire Protection Sprinkler System Contractor shall simultaneously submit shop drawings, calculations, and manufacturer's data sheets to the Architect/Engineer for review and obtain approval from the Architect/Engineer prior to the purchase, fabrication, or installation of any system component.
- D. Failure to receive the Architect/Engineer approval that results in reordering of material, re-fabrication of piping, removal of installed system components, and the re-installation of the fire protection system shall not be charged as additional cost to the Owner or General Contractor.
- E. Contractor qualifications shall be presented to the Architect / Engineer for review and approval within **10 calendar days** from the date of the Contract signing by the General Contractor.
- F. Equipment submittals shall be presented to the Architect / Engineer for review and approval within **45 calendar days** from the date of the approval of contractor qualifications.
- G. Shop drawings, seismic brace calculations, and hydraulic calculations for overhead fire protection systems shall be presented to the Architect / Engineer for review and approval within **60 calendar days** from the date of the approval of contractor qualifications.

- H. All applicable items contained in the "Working Plans" section of the latest edition of N.F.P.A. #13 adopted by the Authority Having Jurisdiction shall be included as part of the submittal package.
- I. Equipment Submittals shall contain original brochures supplied by manufacturers (scans of photo copied originals will not be accepted). Each type of device provided shall be identified in the Equipment Submittals using the same identification as shown on the drawings and specifications. The information included must be the exact equipment to be installed, not the complete "line" of the manufacturer. Where sheets show the equipment installed and other equipment, the installed equipment shall be neatly and clearly identified on such sheets.
- J. Each fire protection specification section shall be tabbed individually with a master index at beginning of each section.
- K. Submitting portions of the equipment submittals will not be accepted.
- L. Electronic delivery of the submittals shall meet the following format requirements:
 - 1. Submittal Drawings:
 - a. The Submittal Drawings shall be a single PDF that is formatted to actual size (not 11x17) and collated in numerical order as designated in the title block of each drawing.
 - 2. Equipment Submittals:
 - a. The Equipment Submittal shall be a single PDF.
 - b. The Equipment Submittal PDF shall contain all equipment, devices, and components that are collated for printing on 8½"x11" sized paper.
 - c. The Equipment Submittal PDF shall be a searchable document.
 - d. The Equipment Submittal PDF shall be formatted for duplex printing with blank sheet inserted where necessary.
 - e. The Equipment Submittal PDF shall contain a "Table of Contents".
 - f. The Equipment Submittal PDF shall be bookmarked by "Tabbed Divider" for each category of equipment, device, and component.
 - g. Hydraulic Calculations and Seismic Brace Calculations that are submitted as part of the Equipment Submittal PDF shall be formatted to the following:
 - 1) Calculations shall be included at the end of the Equipment Submittal PDF under a separate "Tabbed Divider" for both Hydraulic Calculations and the Seismic Brace Calculations.

- 2) The Equipment Submittal "Table of Contents" shall also indicate all calculations being provided for both the Hydraulic Calculations and the Seismic Brace Calculations.
3. Hydraulic Calculations and Seismic Brace Calculations that are submitted as a separate PDF from the Equipment Submittal PDF:
 - a. The single Hydraulic Calculations and Seismic Brace Calculations submittal PDF shall contain all calculations that are collated for printing on 8½"x11" sized paper.
 - b. The Hydraulic Calculations and Seismic Brace Calculations submittal PDF shall be a searchable document.
 - c. The Hydraulic Calculations and Seismic Brace Calculations submittal PDF shall be formatted for duplex printing with blank sheet inserted where necessary.
 - d. The Hydraulic Calculations and Seismic Brace Calculations submittal PDF shall contain a "Tabbed Divider" to separate the Hydraulic Calculations from the Seismic Brace Calculations.
 - e. The Hydraulic Calculations and Seismic Brace Calculations submittal PDF shall contain a "Table of Contents".
 - f. The Hydraulic Calculations and Seismic Brace Calculations submittal PDF shall be bookmarked by "Tabbed Divider" for each Hydraulic Calculation and Seismic Brace Calculation.
- M. Review of submittal data by the Engineer or Architect does not relieve the Fire Protection Contractor of responsibility for quantities, measurements, and compliance with the intent of all contract documents.
- N. Any material found to be installed without prior approval will be required to be removed and replaced with only specified material at Contractor's cost.
- O. Submittal of Qualifications:
 1. Submit qualifications of welders that meet or exceed American Welding Society (AWS) B2.1 "Standard Welding Procedures and Performance Qualifications" or Section IX of the ASME "Boiler and Pressure Vessel Code".
 2. Submit Welding procedures that comply with the qualification requirements of N.F.P.A. #13 and that meet or exceed American Welding Society (AWS) B2.1 "Standard Welding Procedures and Performance Qualifications" or SME Section IX of the ASME "Boiler and Pressure Vessel Code".
 3. Submit State of Washington "Certificate of Competency" documentation of the company and individual performing the design and the installation of the fire protection system.

4. The "Certification of Competency" documentation submitted shall be listed on the "Washington State Patrol – Office of the State Fire Marshal – Licensing and Certification Report" website indicating that the submitted "Certification of Competency" is valid and up to date. If either the company or individual certifications are not indicated at this website, the company will not be allowed on the project.

1.09 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies:
 1. Perform work in accordance with applicable Codes.
 2. In case of differences between building codes, state laws, local ordinances, utility company regulations, and Contract Documents, the most stringent shall govern.
- B. Product Approvals: See each individual specification section associated with this project for the prior approved products.
- C. Materials: **Use only domestic made pipe, fittings, valves, hangers, sprinklers, and devices on this Project.**

1.10 CODES AND STANDARDS

- A. Codes and agencies having jurisdictional authority over Fire Protection installations.
 1. International Building Code -- Latest Adopted Edition
 2. International Fire Code – Latest Adopted Edition
 3. Local Water District Requirements
 4. State and County Department of Health
 5. Local Fire Marshal
 6. Occupational Safety and Health Administration (OSHA)
 7. Washington Industrial Safety and Health Act (WISHA)
 8. National Fire Protection Association (N.F.P.A.)
 9. Underwriters Laboratories (UL) Approval Guides

1.11 PRODUCT HANDLING AND PROTECTION

- A. Fire Protection Contractor is responsible for protection of all piping, fittings, and devices provided under this specification section free from damage, water, corrosion, rust, or foreign matter build up both in storage and when installed, until final project acceptance.
- B. Materials in the staging areas shall be protected by an approved means to prevent corrosion of the sprinkler system components. Failure to do so shall result in the material not being approved and if found installed will be replaced at the Fire Protection Contractor's expense.
- C. Equipment finish that is damaged by handling, storage, etc. shall be corrected by the Fire Protection Contractor at no additional cost to the Owner.

- D. The Architect and/or Engineer reserve the right to reject any material, the appearance of which has been damaged on the site or in shipment.

1.12 **OPERATION AND MAINTENANCE MANUAL FOR FIRE PROTECTION SYSTEMS**

- A. Bind Operation & Maintenance Manual for the Fire Protection System in a single three-ring, hard-backed binder with clear plastic pocket on spine. Spine of each binder shall have following typewritten lettering inserted:

OPERATION
AND
MAINTENANCE
MANUAL
FOR FIRE PROTECTION SYSTEMS

- B. Equipment submittal shall be contained within 3-ring hard cover binders. A single 3-ringed hard cover binder may be used that is divided by specification section.
- C. Equipment submittal shall be tabbed individually with a master index.
- D. First section shall consist of name, address, and phone number of Mechanical, Plumbing and Electrical Contractors. Also include complete list of equipment installed with name, address, and phone number of each vendor including fire pump supplier.
- E. Provide Section for each type of item of equipment.
- F. Submit copies as specified by Division 1 and at a minimum provide **three (3) copies** of Operation & Maintenance Manual to Architect for approval.
- G. Submit Operation and Maintenance manuals for each piece of equipment requiring instructions on operation and/or maintenance.
- H. Operation and Maintenance 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.
- I. Include descriptive literature (Manufacturer's catalog data) of each manufactured item. Literature shall show capacities and size of equipment used and be marked indicating each specific item with applicable data underlined.
- J. Operation and Maintenance manuals shall contain original brochures supplied by manufacturers (photo copies of originals will not be accepted).
- K. The information included must be the exact equipment installed not the complete "line" of the manufacturer. Where sheets show the equipment installed and other equipment, the installed equipment shall be neatly and clearly identified on such sheets.

- L. Parts lists shall give full ordering information assigned by the original parts manufacturer. Relabeled and/or renumbered parts information as reassigned by equipment supplier is not acceptable.
- M. 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 unity or other similar time unit.
- N. Operating Instructions shall include:
 - 1. General description of each fire protection system.
 - 2. Step-by-step procedure to follow shutting down each fire protection system.
 - 3. Step-by-step procedure to follow putting each fire protection system back into operation.
- O. If the Operations and Maintenance Manuals are being delivered electronically, the Fire Protection Contractor shall provide the following:
 - 1. "As-Built" Drawings:
 - a. The "As-Built" Drawings shall be a single PDF that is formatted to actual size (not 11x17) and collated in numerical order as designated in the title block of each drawing.
 - 2. Operations and Maintenance Manual Equipment Submittals:
 - a. The Operations and Maintenance Manual Equipment Submittal shall be a single PDF.
 - b. The Operations and Maintenance Manual Equipment Submittal PDF shall contain all equipment, devices, and components having replacement parts or can be replaced that are collated for printing on 8½"x11" sized paper.
 - c. The Operations and Maintenance Manual Equipment Submittal PDF shall be a searchable document.
 - d. The Operations and Maintenance Manual Equipment Submittal PDF shall be formatted for duplex printing with blank sheet inserted where necessary.
 - e. The Operations and Maintenance Manual Equipment Submittal PDF shall contain a "Table of Contents".
 - f. The Operations and Maintenance Manual Equipment Submittal PDF shall be bookmarked by "Tabbed Divider" and for each type of equipment, device, and component.

- P. A copy of N.F.P.A. #25 shall be provided as part of the Operations and Maintenance manual. The edition of N.F.P.A. #25 provided shall correspond to the editions of N.F.P.A. #13 and N.F.P.A. #20 utilized in the sprinkler system design.
- Q. The Operation and Maintenance manual shall be assembled in a single 3-ring hard cover binder. The information contained in the Operation and Maintenance manuals shall be grouped in an orderly arrangement by specification index. The Operation and Maintenance manuals shall have a typewritten index and divider sheets between categories with identifying tabs. The covers shall be imprinted with the name of the job, Owner, Architect, Mechanical Contractor, and year of completion.

1.13 **WARRANTY LETTER**

- A. In addition to the guarantee specified in General Conditions, the Fire Protection Contractor shall guarantee that the fire protection systems are installed to N.F.P.A. code and approved shop drawings.
- B. In order to be protected, secure proper guarantees from suppliers and any Sub-Contractors. Include all warranties/guarantees including extended warranties.
- C. Provide a "Certificate of Warranty" letter at the completion of the project. The date of "Substantial Completion" shall be clearly shown on the letter indicating when the warranty period begins and the "Certificate of Warranty" letter shall be signed by the Fire Protection Contractor.
- D. The "Certificate of Warranty" shall be included as part of the Operation and Maintenance Manual. The date of "Substantial Completion" shall be the date indicated on the approved test certificate that was signed by the Authority Having Jurisdiction for system acceptance.

1.14 **TEST CERTIFICATES**

- A. The following completed tests shall be contained as a minimum on "Test Certificates" provided to the Owner at completion of this project.
 - 1. Fire Pump system
 - a. Hydrostatic testing
 - b. Fire alarm connection point interface testing
 - c. Automatic start/stop certification
 - d. Manual start/stop certification
 - e. Certified pump curve certification

1.15 **AS-BUILT DRAWINGS**

- A. The Fire Protection Contractor shall maintain, in addition to any reference drawings, an As-Built set of drawings, which have been reproduced from the approved site set on which all deviations from the original design shall be drafted in a neat legible manner with red colored pencil.

- B. The Fire Protection Contractor shall update all references to specific products to indicate products actually installed on project.
- C. Upon completion of work, the Fire Protection Contractor shall deliver the red lined drawings and one set of neatly drafted As-Built drawings on electronic media in AutoCAD format to the Architect for the Engineer to review and accept prior to being forwarded to the Owner for their records.
- D. Submit full-scale drawings that are not larger than the contract documents (out of scale drawings will not be allowed)
- E. The As-Built drawings shall show actual installation from all change orders, field authorizations, design changes, installation modifications, etc.
- F. As-Built drawings shall contain dimensions to all main piping (from structure or gridlines), elevations of all piping (both above finished floor and below structure), and pipe length for all piping.
- G. Schematic details provided on submittal drawings shall be changed to project specific details with all piping and devices sized and drawn to scale.

1.16 FIRE PUMP OPERATION PROCEDURES

- A. The "Operations and Maintenance Manual" shall contain a section devoted to the Operation Procedures of the fire pump.
- B. The Operation Procedures shall consist of a detailed list of step-by-step instructions to follow, including any and all intermediate steps.

1.17 CLOSE OUT MATERIAL

- A. The fire protection close out material shall be submitted to the Architect for review and approval by the Engineer prior to being provided to the Owner.
- B. All close out materials shall be contained within a single 3-ring hard cover binder.
- C. The close out materials shall include the following at a minimum:
 - 1. Operations and Maintenance Manuals: See Paragraph 1.14 of this Specification Section for "Operations and Maintenance Manual" requirements.
 - 2. Warranty Letters: See Paragraph 1.15 of this Specification Section for "Warranty Letter" requirements.
 - 3. Test Certificates: See Paragraph 1.16 of this Specification Section for "Test Certificate" requirements.
 - 4. As-Built Drawings: See Paragraph 1.17 of this Specification Section for "As-Built Drawing" requirements.
 - 5. Operation Procedures: See Paragraph 1.16 of this Specification Section for Operation Procedure requirements.

1.18 **ABBREVIATIONS**

AHJ	Authority having Jurisdiction
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing & Materials
AWWA	American Water Works Association
BHP	Brake Horsepower
CH	Ceiling Height
EC	Electrical Contractor
FDC	Fire Department Connection
FM	Factory Mutual Global
GC	General Contractor
GPM	Gallons per Minute
HP	Horsepower
MC	Mechanical Contractor
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NPSH	Net Positive Suction Head
NRS	Non-Rising Stem
NTS	Not to Scale
OS&Y	Outside Screw and Yoke
POC	Point of Connection
PSI	Pounds per Square Inch Gauge Pressure
UL	Underwriter's Laboratories

PART 2 - PRODUCTS

2.01 **ACCEPTABLE MANUFACTURERS**

- A. Any reference in the specifications or on the drawings to any article, device, product, or material, by manufacturer, name, make, model, or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition.

- B. The manufacturer listed as "Approved Manufacturer" has been approved for this project for the items indicated and does not require obtaining prior approval. Other manufacturers not listed shall require prior approval.
- C. The listing of a manufacturer as an "Acceptable Manufacturer" does not necessarily mean that the products of that manufacturer are equal to those specified. The listing is only an indication of those manufacturers which may be capable of manufacturing, or have in the past manufactured, items equal to those specified, and is intended to aid the Fire Protection Contractor in identifying manufacturers.
- D. A product provided by an "Approved Manufacturer" shall be equal to or superior to the specified manufacturer's item in function, appearance, and quality, and shall fulfill all requirements of the contract documents and specifications. The Architect/Engineer shall be the final judge as to whether an item meets these requirements or not. If a manufacturer is not certain that his product meets these requirements or not, then the manufacturer shall submit data as required to obtain the Architect/Engineer's approval prior to bid opening.
- E. The approval of a manufacturer applies to the manufacturer only and does not relieve the Fire Protection Contractor from the responsibility of meeting all applicable requirements of the plans and specifications.
- F. Fire Protection Contractor shall be responsible for all costs to other trades and all revisions required to accommodate any products which are different from those specified or shown.
- G. In reviewing a manufacturer for acceptance, factors considered include the following: engineering data showing item's performance, proper local representation of manufacturer, likelihood of future manufacturer's local support of product, service availability, previous installation, previous use by Owner/Engineer/Architect, product quality, availability/quality of maintenance and operation data, capacity/performance compared to specified items, and similar concerns.
- H. If approval is received to use other than specified items, responsibility for ensuring that items to be furnished will fit space available lies with this Division.
- I. If non-specified equipment is used and it will not fit job site conditions, the Fire Protection Contractor assumes responsibility for replacement with items named in project specifications.
- J. All Substitution Requests shall be submitted on the forms provided in Division 0 or 1 of the General and Supplemental Conditions of the Project Manual.

- K. The material shall be of pre-approved equal quality to that which is specified. Should the make and type of material differ from that specified, the Fire Protection Contractor may be required to submit catalog and engineering data (samples if requested) necessary to make a comparison and determine its suitability.

PART 3 - EXECUTION

3.01 WORKMANSHIP

- A. This Fire Protection Contractor shall provide completed systems with a neat and finished appearance. If, in the judgment of the Engineer, any portion of the work has not been performed in a workmanlike manner or is left in a rough unfinished state, the Fire Protection Contractor will be required to remove, reinstall, or replace same and patch and paint surrounding surfaces in a manner acceptable to the Engineer, without increase in cost to the Owner or General Contractor.

3.02 CLOSEOUT SUBMITTALS

- A. Requirements: Final approval of fire protection installation will be recommended upon completion of the following:
 - 1. Completion of all punch list items
 - 2. Operation instruction period to Owner's satisfaction
 - 3. Permit Submittal
 - 4. As-Built drawings on electronic media delivered to Architect
 - 5. Signed Warranty Letter
 - 6. Operations and Maintenance Manuals
 - 7. Completed and Signed Test Certificates

3.03 FINAL INSPECTION

- A. Prior to acceptance of the fire protection work, the Fire Protection Contractor shall put the fire pump and all fire protection systems into operation for a period of not less than 5 working days so that they may be inspected by the Architect/Engineer and the Owner's representatives.
- B. The time of the final inspection shall be mutually agreed to by the Authority Having Jurisdiction and the Fire Protection Contractor.

3.04 OPERATION AND MAINTENANCE TRAINING

- A. Upon completion of the work, and after all tests and final inspection of the work by the Authority Having Jurisdiction (AHJ), the Fire Protection Contractor shall demonstrate and instruct the Owner's designated operation and maintenance personnel in the operation and maintenance of the various fire protection systems.
- B. The Fire Protection Contractor shall arrange for scheduled instruction periods with the Owner.

- C. The Fire Protection Contractor's representatives shall be Superintendents or Foremen knowledgeable in each system and Supplier's Representative when so specified.
- D. All drain locations shall be shown in addition to showing the access required to obtain the valves.
- E. A general description of the fire pump system shall be demonstrated.
- F. Scheduled instruction periods shall in no case, be less than the following:

Fire Pumps	4 Hours
------------	---------
- G. Costs for time involved by the Fire Protection Contractor shall be included in the bid.

3.05 FIRE PROTECTION CONTRACTORS RESPONSIBILITY FOR EXISTING BUILDINGS

- A. This work shall be scheduled such that services and/or existing systems for the facility are not interrupted during normal operating hours, without prior written permission of the Owner's representative. Work that is performed during normal operational hours shall not interfere with the normal function of the facility's daily operation.
- B. The existing fire protection systems, including fire pump, shall remain in a fully operational condition throughout the entire building. During the time the fire pump or any portion of the sprinkler systems are not operational, the Fire Protection Contractor shall coordinate with the building owner for fire watched to be provided by building security.
- C. Existing system piping and fittings that have been removed for any reason including demolition work and system modifications, shall not be re-installed. New system piping and fittings are required and shall meet the requirements of Paragraph 2.02 of Fire Protection Specification Section 21 31 13.
- D. All existing fire protection sprinkler system components, devices, and materials that are removed from the original installation location shall not be re-installed or placed back into service as part of the new fire protection sprinkler system work, unless specifically identified on the contract documents.
- E. All fire protection equipment (other than piping) to be removed shall remain the property of the Owner, and shall be transported, stored, or disposed of, as directed by the Owner. This will be at no additional cost to the Owner.

3.06 INSTALLATION

- A. Install fire protection equipment to permit easy access for normal maintenance, and so that parts requiring periodic replacement or maintenance can be readily removed.

- B. Design and provide each system with full consideration to blind spaces, piping, electrical equipment, ducts, other construction, and equipment in accordance with detailed working drawings to be submitted to the Architect/Engineer for approval.
- C. The Fire Protection Contractor shall modify or relocate all items that interfere with access to other trade work.
- D. If circumstances at a particular location make the accessible installation of an item difficult or inconvenient, the situation shall be discussed with the Architect/Engineer before installing the item in a poor access location.
- E. Provide separations between all dissimilar metals with a dielectric connection.
- F. Provide offsets around all electrical panels and similar electrical equipment (transformers, main distribution panels, etc.) to maintain the clear space required by Section 110.26.E(1)a of N.F.P.A. #70 (National Electrical Code). A 6'-0" clear space is required above all electrical panels or to a structural ceiling, whichever is lower, except where indicated otherwise or required by N.F.P.A. #70 (National Electrical Code). Such offsets are typically not shown on the contract documents, but are required to be indicated and installed as part of the installation.
- G. All piping and related items installed by the Fire Protection Contractor shall not present a safety hazard (i.e., items installed at/near head height, items projecting into maintenance access paths, or any items that present a tripping hazard etc.) or it will be required to be relocated at no additional cost to the Owner or General Contractor.
- H. Access to equipment is of utmost importance. The Fire Protection Contractor shall apply extra attention to the laying out of pipe and in coordinating all work. Poor access to other trade work equipment will not be accepted.
- I. Ensure that items to be furnished fit space available. Make necessary field measurements to ascertain space requirements including those for connections and furnish and install equipment of size and shape so final installation shall suit true intent and meaning of contract documents.
- J. Install piping in longest reasonable lengths. The use of short lengths of pipe with multiple couplings where a single length of pipe could have been used is not acceptable.

3.07 **REQUESTS FOR INFORMATION (RFI)**

- A. It is our intent to provide a timely response to any Request for Information (RFI) regarding the fire protection work. To further expedite this process, if a suggestion can be determined or derived at by the initiator of the Request for Information (RFI), it is required that this suggestion is supplied with the submitted Request for Information (RFI). If no suggestion is given where one is possible, the RFI will be returned as incomplete.
- B. All Fire Protection Request for Information (RFI) questions shall be written on the forms provided in Division 0 or 1 of the General and Supplemental Conditions of the Project Manual.

END OF SECTION

SECTION 21 31 13
ELECTRICALLY DRIVEN FIRE PUMPS

PART 1 - GENERAL

1.01 **GENERAL**

- A. Includes, but not limited to, the following:
1. Provide all material, labor, equipment, design, and services necessary to perform the installation of one (1) electrically driven fire pump, in accordance with the required and advisory provisions of the latest edition of N.F.P.A. #20 accepted by the Authority having Jurisdiction (City of Tacoma), and project specifications, except as modified herein.
 2. The Fire Protection Fire Pump System Contractor shall obtain a permit and final approval from City of Tacoma for the electrically driven fire pump installation. All permits, fees for plan review, inspections, testing, etc. shall be included in the bid proposal.
 3. **The Fire Protection Fire Pump System Contractor shall simultaneously submit shop drawings, certified pump curves, seismic bracing calculations, and manufacturer's data sheets to the local Authority Having Jurisdiction and Architect/Engineer for review and shall be approved by the Architect/Engineer prior to the purchase, fabrication, or installation of any system component as detailed in Paragraph 1.09 of Specification Section 21 31 13.**
 4. All fire protection equipment installed shall be by a manufacturer contained within "PART 2 – PRODUCTS" of this specification unless prior approval has been received for "Requests For Substitution" following the guidelines set forth in Specification Section 21 00 00 paragraphs 1.09 and 2.01.

1.02 **RELATED DOCUMENTS**

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

1.03 **RELATED SECTIONS**

- A. The following sections apply to this section:
1. Section 21 00 00 "GENERAL FIRE PROTECTION REQUIREMENTS".

1.04 GENERAL SYSTEM REQUIREMENTS

- A. Notify the Architect, Fire Protection Engineer, General Contractor, and building Owner to coordinate the pre-design meeting stated in Specification Section 21 00 00 Paragraph 1.01.D, if the Fire Protection Fire Pump System Contractor decides a pre-design meeting is warranted.
- B. Design each fire pump system with full consideration to headroom, accessibility, and piping in accordance with detailed working drawings to be submitted to the Architect/Engineer for approval.
- C. Existing fire pump system piping and fittings that have been removed for any reason including demolition work and system modifications, shall not be re-installed. New fire pump system piping and fittings are required and shall meet the requirements of paragraph 2.02 of this Specification Section.
- D. The electric fire pump design shall include a flow meter for testing of the electrically driven fire pump on a weekly basis. Existing hose valves at the rooftop shall be utilized as a means to physically discharge water during testing once every three years.
- E. Devices and equipment for fire protection service shall be U.L. listed or Factory Mutual Global approved for use in sprinkler systems.
- F. Installation of fire protection related equipment shall take precedence over all other disciplines in the fire pump house / fire pump room only. The Fire Protection Fire Pump System Contractor shall be required to coordinate with other disciplines and/or the existing conditions for installation.

1.05 PIPE C-VALUES FOR CALCULATING FRICTION LOSSES

- A. Calculate losses in piping in accordance with Hazen-Williams equation using a 'C' value of:
 - 1. 100 for unlined cast iron or unlined ductile iron.
 - 2. 120 for black steel wet systems or galvanized steel wet systems.
 - 3. 140 for cement lined cast iron, cement lined ductile iron, asbestos cement, or concrete.

1.06 WATER SUPPLY

- A. Base hydraulic calculations (for the bid) on a flow model of 108 p.s.i. static pressure with a residual pressure of 97 p.s.i. while flowing 1,500 g.p.m. Test elevation is 188.54 and the pressure zone is 446.

Flow test information provided by Tacoma Water Engineering in an email dated January 17, 2019.

- B. After award of the project, the Fire Protection Fire Pump System Contractor shall verify available water supply with a flow test recorded within six months of bid date. If a new flow test is required, the Fire Protection Fire Pump System Contractor shall coordinate with local authorities for a new flow test and the fees associated with a new flow test shall be included in the bid. Information obtained from this flow test and indicated on the drawings shall be: test hydrant static pressure, test hydrant residual pressure, associated pitot reading from flowing hydrant, test hydrant location, test hydrant elevation, and underground water main configuration.

1.07 PIPE HANGER DETAILS

- A. Provide pipe hanger details and seismic bracing details in strict accordance with N.F.P.A. #13 and manufacturer's literature.
- B. Details shall be unique to each installation configuration with all components clearly identified including the means of attachment and structure to be attaching to.

1.08 SEISMIC BRACING

- A. Calculations.
 - 1. Seismic brace calculation requirements shall be based upon Section 1613.1 of the 2015 Edition of the International Building Code (I.B.C.) and Chapter 13 of ASCE 7-10.
 - 2. Per Section 13.6.8.2 of ASCE 7-10, fire protection sprinkler piping, pipe hangers, and bracing designed and constructed in accordance with N.F.P.A. #13 shall be deemed to meet the force and displacement requirements of this section.
 - 3. Provide seismic calculations for each seismic brace configuration showing the total calculated load, size of bracing material, type of bracing material, length of bracing material, seismic brace design angle, allowable load of the bracing component, allowable horizontal bracing load of the sprinkler system, structure for bracing connection, size of fastener, length of fastener, allowable load per fastener, and the number of braces required.
 - 4. Each seismic brace configuration shall have a unique identifier associated with the calculation to easily and readily identify which seismic brace calculation it is.
 - 5. Seismic bracing members shall be sized per assigned load tables in N.F.P.A. #13 with a maximum L/R ratio of 200.
 - 6. **The "Total Calculated Load" divided by the "Allowable Load per Fastener" shall not exceed a maximum value of 0.90.**

- B. Drawings.
 - 1. The submittal drawings shall identify the "Zone of Influence" for each seismic brace configuration that is provided with a seismic brace calculation.
 - 2. The submittal drawings shall identify each seismic brace on the submittal drawings by the same unique identifier indicated in the seismic brace calculations to easily and readily cross reference the seismic brace calculation associated with that particular seismic brace.
- C. Details.
 - 1. Seismic bracing details may be incorporated into the seismic bracing calculations to form a single detail for each brace configuration.
 - 2. The seismic brace details shall identify the seismic brace member, length of brace member, angle of brace member installation, the structural member the seismic brace is attaching to, the fastener to be utilized, and all seismic brace components by Manufacturer and model number.

1.09 SUBMITTALS

- A. See Specification Section 21 00 00 Paragraphs 1.08 and 2.01 for "Submittal" requirements.
- B. Follow the guidelines set forth in Specification Section 21 00 00 Paragraphs 1.08 and 2.01 for "Requests For Substitution" procedures. Product substitution during installation from the approved Equipment Submittals will not be allowed and shall result in the removal and re-installation of system components at no additional cost to the Owner.
- C. Equipment submittal tabs shall include, at a minimum, the following:
 - 1. Piping
 - 2. Fittings / Couplings
 - 3. Valves
 - 4. Electrical / Fire Alarm Components
 - 5. Pipe Hangers
 - 6. Seismic Bracing Components
 - 7. Electrically Driven Fire Pump and Accessories
 - 8. Pressure Maintenance (Jockey) Pump and Accessories
 - 9. Controllers
 - 10. Miscellaneous Equipment
- D. Equipment submittals shall include all materials, components, and devices being installed. The items contained in the following list are typically included in an Electrically Driven Fire Pump installation and would require equipment submittal literature to be provided.
 - 1. Piping

2. Fittings / Couplings
 3. Valves.
 4. Tamper Switches.
 5. Pipe Hangers.
 6. Seismic Bracing Components.
 7. Water Pressure Gauges.
 8. Electrically Driven Fire Pumps.
 9. Pressure Maintenance (Jockey) Pumps.
 10. Electrically Driven Fire Pump Controllers.
 11. Pressure Maintenance (Jockey) Pump Controllers.
 12. Flow Meters.
 13. Hose Valves.
 14. Automatic Air Release Valves.
- E. Follow the guidelines set forth in Specification Section 21 00 00 Paragraph 1.08 for submittal requirements of the following:
1. Equipment Submittals.
 2. Shop Drawings.
 3. Hydraulic Calculations.
 4. Seismic Brace Calculations.
 5. Certified Fire Pump Curve.
 6. Contractor Qualifications.
- F. Submit all test results identified in "Part 3 – Execution" of Specification Section 21 31 13 for review and/or approval.
- G. All re-submitted drawings shall have the areas of revision clearly marked with revision clouds.
- H. When the drawings are created in CAD, the submittal drawings shall be in plotted to the following criteria:
1. Black and white plots shall consist of the following as a minimum:
 - a. Grey for drawing background.
 - b. Black for all sprinkler related components and text.

1.10 QUALIFICATIONS

- A. Design and installation of the of Fire Protection Sprinkler System shall be in accordance with Section 212.80.018 of the "Washington Administrative Code" (WAC)
- B. The installing Fire Protection Fire Pump System Contractor shall have a minimum of five (5) years experience in the design, installation, and testing of electrically driven fire pumps, or similar fire protection systems. A list of installations of a similar nature and scope shall be provided on request.

1.11 PIPING SYSTEM LAYOUT

- A. Prepare detailed working drawings in accordance with N.F.P.A. #13, "Working Drawings (Plans)". Show data essential for the proper installation of each diesel driven fire pump system per N.F.P.A. #13 and N.F.P.A. #20, consisting of floor plans (1/2" = 1'-0" minimum), building sections, piping details, and elevations to clearly show pipe routing, system water supply, devices, valves, and fittings.
- B. The shop drawings shall clearly show the fire service main routing with size and type of pipe indicated, backflow preventer, devices, valves, and fittings.
- C. A graphical scale shall be provided for each floor plan or detail on the shop drawings in accordance with N.F.P.A. #13, "Working Drawings (Plans)".
- D. The minimum text size on full scale drawings shall be 1/8" high.
- E. The cover sheet of the shop drawings shall clearly state the scope of Contractor's work, Contractor's exclusions, Contractor's start point, which edition of N.F.P.A. #20 was used for the fire pump design, and current water flow information used in the hydraulic calculations.
- F. Projects that require more than one sheet to show the entire fire protection sprinkler system shall require a key plan.
- G. The key plan shall be located in the lower right-hand corner of the drawing, shall identify the location of the fire protection sprinkler system that is contained on that sheet, and shall contain a reference north arrow.
- H. All sheets shall contain a "Matchline" designation to indicate where the building and fire protection sprinkler system continues, even if on the same sheet.
- I. All flexible grooved couplings that are to be installed shall be designated on the drawings and shall meet the requirements of N.F.P.A. #13 for vertical and horizontal pipe runs.

1.12 FIRE PUMP SYSTEM VELOCITY REQUIREMENTS

- A. Maximum permissible velocity in mains shall be 26 feet per second.
- B. The maximum velocity in the piping containing a vane type water flow detector shall be 18 feet per second.
- C. The maximum velocity allowed in the underground mains shall be 8 feet per second.
- D. The maximum velocity allowed through the backflow preventer shall be 16 feet per second maximum.

PART 2 - PRODUCTS

2.01 ABOVEGROUND PIPING SYSTEMS

- A. Provide fittings for changes in direction of piping and for connections. Make changes in piping sizes through tapered reducing pipe fittings and perform all welding in the shop. Bushings and field welding will not be permitted.
- B. All fire protection system components, devices, and materials installed as part of this project shall be new.
- C. **All fire protection system components and devices shall be domestically manufactured. Imported components will not be allowed.**

2.02 FIRE PUMP PIPE AND FITTINGS

- A. All above-ground fire pump system pipe and fittings shall meet the following criteria:
 - 1. Threaded: Black and galvanized steel pipe Schedule 40. Piping with a lesser schedule value (thinner walled pipe i.e. "Dyna-Thread", XL, Schedule 10, or other Schedule 40 "Replacement" pipe) will not be allowed for threaded or cut groove connections regardless of the corrosion resistance ratio.
 - 2. Roll Grooved: Black and galvanized steel pipe to be either having a minimum wall thickness in accordance with Schedule 10, Schedule 40, or U.L. listed or Factory Mutual Global approved pipe having a U.L. corrosion resistance ratio equal to or greater than 1.0.
 - 3. Grooved Fittings and Couplings: All grooved fittings and couplings shall be manufactured to ASTM A536 requirements for ductile iron castings. The couplings shall consist of two ductile iron housing segments with an elastomer pressure responsive gasket and zinc electroplated bolts and nuts.
 - a. Rigid Style Grooved Couplings: All rigid style couplings shall consist of housings casted with an offset, angle pattern bolt pads to provide rigidity and system support. The coupling installation shall be complete at visual, pad-to-pad offset contact. Rigid couplings that require exact gapping of bolt pads at specified bolt torques are not permitted. Grooved couplings that are "Installation-Ready" for direct stab installation without field disassembly are acceptable.

- b. Flexible Style Grooved Couplings: All flexible style couplings shall consist of housings casted with parallel pattern bolt pads to provide flexibility for vibration attenuation, stress relief, or seismic movement. The coupling installation shall be complete at visual, pad-to-pad contact. Flexible couplings that require exact gapping of bolt pads at specified bolt torques are not permitted. Grooved couplings that are "Installation-Ready" for direct stab installation without field disassembly are acceptable.
 - c. Gaskets: All gaskets for fire pump systems shall be Grade "E" Type "A" EPDM. All gaskets for areas of high temperatures shall be Grade "EHP" EPDM.
 - d. All grooved couplings and fittings shall be the products of a single manufacturer.
4. All fire protection piping and fittings (above-ground) shall be threaded, grooved, or flanged ends fittings. The use of plain end, lock-type, friction type, compression type, or any other type of fitting that is plain end ("prepared end", "polished end", beveled end, "FIT" end such as Victaulic "FIT", Gruvlok "Sock-It", Victaulic "Pressfit") is not permitted.
5. Welded Outlets and Drilled Outlets for Mechanical Tees shall be U.L. listed or Factory Mutual Global approved. Welded outlets with grooved ends shall have a nominal diameter equal to or smaller than the pipe to which they are attached. Welded outlets with threaded ends and drilled outlets for mechanical tees shall have nominal size outlets at least one pipe diameter smaller than the pipe to which they are attached.
6. Approved manufacturers are as follows:
- a. Black and Galvanized Steel Pipe: AMS Tube Corporation, Bull Moose Tube Company, Charlotte Pipe and Foundry Company, North West Pipe and Casing, State Pipe and Supply Company, Wheatland Tube Company, Youngstown Tube, or prior approved equal.
 - b. Threaded Products: Anvil International, Ward, Youngstown Tube, or prior approved equal.
 - c. Grooved Products: Gruvlok, Tyco, Victaulic, or prior approved equal.
 - d. Factory Segmentally Welded Grooved Products: Iowa Fittings, TexLine, Victaulic, or prior approved equal.
 - e. Flanged Products: American Cast Iron Pipe Company, Anvil International, Merit Manufacturing (Mueller), Trinity Valley Iron & Steel Company, Pacific Coast Flange Incorporated, Tyler Pipe, Union Foundry Company, U.S. Pipe and Foundry Company, Ward, or prior approved equal.
 - f. Welded outlets: Anvil International, Island Fitting, Merit Manufacturing (Mueller), NAP (North Alabama Pipe Corporation), Ward, or prior approved equal.

2.03 VALVES

- A. Provide valves of types approved for fire service in accordance with N.F.P.A. #13.
- B. Control valves for fire protection systems shall be either NRS, OS&Y or butterfly style, except that the pump suction valve shall be an O.S.&Y. gate valve.
- C. All butterfly style valves shall be provided with an integral tamper switch and weatherproof actuator.
- D. Check valves shall be grooved or flanged clear opening spring assisted swing-check type for vertical or horizontal installation of sizes 2½" and larger (butterfly style check valves are not allowed).
- E. Approved manufacturers are as follows:
 - 1. Butterfly Valves: Anvil International (Gruvlok), McWane (Kennedy), Nibco, Tyco, Victaulic, or prior approved equal.
 - 2. Ball Valves: Anvil International, Milwaukee, Nibco, United Brass, Victaulic, Watts, or prior approved equal.
 - 3. Check Valves: Anvil International (Gruvlok), Reliable, United Brass, Victaulic, Viking, or prior approved equal.
 - 4. N.R.S. Gate Valves: McWane (Kennedy), Mueller, Nibco, Victaulic, Wilkins, or prior approved equal.
 - 5. OS&Y Gate Valves: AVK, McWane (Kennedy), Mueller, Nibco, Victaulic, Wilkins, or prior approved equal.

2.04 DRAINS

- A. Provide auxiliary drains for trapped sections of system piping.

2.05 PIPE HANGERS

- A. Hanger components that attach directly to sprinkler piping or the building structure shall be U.L. listed or Factory Mutual Global approved.
- B. Hangers consisting of a hanger ring, all thread rods, and a hanger ring attached to a pipe at a higher elevation will not be allowed.
- C. All pipe stands shall be constructed of a minimum of 2" diameter schedule 40 pipe.
- D. Wedge anchors shall have passed the ACI 355.2 cracked concrete test. All other wedge anchors will not be allowed.
- E. Approved manufacturers are as follows:
 - 1. Hangers: Afcon (Anvil International), Erico (Pentair Electrical and Fastening Solutions), PHD, Tolco (Eaton), or prior approved equal.
 - 2. Attachments: Hilti, ITW Ramset, Powers Fastening Innovations, Simpson Manufacturing Company, Speedy Products (Sammy Super Screw), Textron (HangerMate), or prior approved equal.

2.06 SEISMIC BRACING COMPONENTS

- A. Wedge anchors shall have passed the ACI 355.2 cracked concrete test. All other wedge anchors will not be allowed.
- B. Approved manufacturers are as follows:
 - 1. Seismic Braces: Afcon (Anvil International), Erico (Pentair Electrical and Fastening Solutions), Tolco (Eaton), or prior approved equal.
 - 2. Attachments: Hilti, ITW Ramset, Powers Fastening Innovations, Simpson Manufacturing Company, or prior approved equal.

2.07 WATER PRESSURE GAUGES

- A. Each fire pump system shall have permanently installed oil-filled stainless-steel pressure gauges on the supply side and discharge side of the fire pump to provide visual supervision of the water pressure.
- B. Each system shall have permanently installed stainless steel pressure gauge to provide visual supervision of the water pressure.
- C. Each water pressure gauge shall be provided with a ball valve for easy water pressure gauge replacement without shutting down the system.
- D. Provide a minimum 3½" diameter pressure gauge with a ¼" national pipe thread connection.
- E. The pressure gauge shall have an accuracy of 3-2-3% over the range of the gauge per ASME B40.100 (3% over the first ¼ of the gauge range, 2% over the middle ½ of the gauge range, and 3% over the last ¼ of the gauge range).
- F. The pressure gauge shall be calibrated to register up to a maximum of 300 p.s.i. for static water pressures less than 175 p.s.i. and a minimum of 50 p.s.i. above static water pressure when the static water pressure exceeds 175 p.s.i.
- G. Provide a water pressure gauge in the following locations at a minimum.
 - 1. Supply side of the backflow preventer check valves to read the system supply pressure.
 - 2. Discharge side of the backflow preventer check valves to read the pressure drop across the backflow assembly.
 - 3. Suction side of the fire pump impeller.
 - 4. Discharge side of the fire pump impeller.
- H. Approved manufacturers are as follows:
 - 1. Water Pressure Gauges: Argco, Ashcroft, Moeller Instrument Company Inc., Potter Roemer, Reliable, US Gauge Products, Victaulic, Wika, or prior approved equal.

2.08 PRIMARY ELECTRICALLY DRIVEN FIRE PUMP

- A. The primary electrically driven fire pump shall be rated for 500 g.p.m. at approximately 41 p.s.i., however shall be selected to provide no more than 175 p.s.i. pressure on sprinkler components at churn pressure.
- B. The electrically driven fire pump shall be able to produce a churn pressure no more than 140 percent the rated net pressure of the fire pump, a minimum of 65 percent the rated net pressure at 150 percent the rated flow capacity. The electrically driven fire pump shall be capable of providing a churn pressure approximately 50 p.s.i. The actual churn pressure and pressure associated with 150 percent rated net flow submitted in the hydraulic calculations shall be based upon the actual fire pump selected by the Fire Protection Fire Pump System Contractor.
- C. The electrically driven fire pump shall be of a vertical in-line style.
- D. Approved manufacturers are as follows:
 - 1. Electrically Driven Fire Pumps: Armstrong, Aurora, Fairbanks Morse, Patterson Pumps, Peerless, or prior approved equal.

2.09 ELECTRICAL DRIVER

- A. Motor shall conform to NEMA MG 1, shall be marked as complying with NEMA Design B standards, and shall be U.L listed or Factory Mutual Global approved.
- B. The electric driver shall be a vertical hollow shaft, drip proof, normal torque, low starting current, squirrel cage induction type that shall be equipped with a non-reverse ratchet.
- C. Motor wattage horsepower shall be of sufficient size so that the nameplate wattage horsepower rating will not be exceeded throughout the entire published pump characteristic curve.
- D. The motor and fire pump controller shall be fully compatible.

2.10 PUMP PADS

- A. A base shall be provided for the fire pump/driver unit.
- B. Pump unit shall be mounted on the raised reinforced concrete pad that is an integral part of the reinforced concrete floor.

2.11 PRESSURE MAINTENANCE (JOCKEY) PUMP

- A. The pressure maintenance pump shall be electric motor driven, in-line vertical shaft, centrifugal type.
- B. The pressure maintenance pump shall take its supply from the suction supply side of the electrically driven fire pump suction pipe O.S.&Y. gate valve and shall discharge into the system on the discharge side of the electrically driven fire pump's discharge butterfly valve.

- C. An approved indicating gate valve of the outside screw and yoke (O.S.&Y.) type shall be provided in the maintenance pump suction piping.
- D. A check valve with an approved indicating gate valve of the outside screw and yoke (O.S.&Y.) type shall be provided in the maintenance pump discharge piping.
- E. The check valve shall be of the swing type with a removable inspection plate.
- F. Approved manufacturers are as follows:
 - 1. Pressure Maintenance Pumps: Aurora, Grundfos, or prior approved equal.

2.12 **ELECTRICALLY DRIVEN FIRE PUMP CONTROLLER**

- A. Controller shall be the automatic type and U.L. listed or Factory Mutual Global approved for electric motor driven fire pump service.
- B. The controller shall be of the "Soft Start / Stop" type.
- C. The controller shall be designed for a maximum of 20 H.P. with a 208 Volts A.C. three phase power source. Controller shall have a short circuit rating of 100,000 amps R.M.S. (rated motor speed) symmetrical at 208 volts A.C.
- D. Controllers shall be completely terminally wired, ready for field connections, and mounted in an N.E.M.A. Type 2 drip-proof enclosure.
- E. Automatic Transfer switch is existing.
- F. The controller shall be equipped with a 7-day electric pressure recorder with 24-hour spring wound back-up. The pressure recorder shall provide a readout of the system pressure, time, and date. The pressure recording device shall be spring wound mechanically or driven by reliable electrical means and shall not be solely dependent upon A.C. electrical power as its primary power source. Upon loss of A.C. power, the electric driven recorder shall be capable of at least 24 hours of operation.
- G. The controller shall monitor pump running, loss of a phase or line power, phase reversal, low reservoir, and pump room temperature. Alarms shall be individually displayed in front of panel by lighting of visual lamps.
- H. The controller shall be equipped with terminals for remote monitoring of pump running, pump power supply trouble (loss of power or phase and phase reversal), and pump room trouble (pump room temperature and low reservoir level), and for remote start.
- I. Controller shall be provided with voltage surge arresters installed per N.F.P.A. #20.
- J. Controller shall be installed within sight of the fire pump motor that it controls and located so that it is protected from injury by water escaping from the pumps or pump connections with no current-carrying part of the controller being less than 1'-0" above the finished floor.

- K. When the engine emergency over speed device operates, the controller shall cause the engine to shut down without time delay and lock out until manually reset.
- L. Pump shall be arranged for automatic start / stop with a manual push-button stop. Controller shall be marked "ELECTRIC FIRE PUMP CONTROLLER" and plainly show:
 - 1. Single Fire Pump Controller:
 - a. Name of Manufacturer.
 - b. The Identifying Designations.
 - c. The complete electrical rating.
- M. The Fire Protection Fire Pump System Contractor is responsible to provide all wiring and interconnections required between the sensors at the fire pump and the fire pump controller.
- N. The electric fire pump controller shall be equipped with the following supervisory alarm and signal device functions:
 - 1. Single Source Fire Pump Controller:
 - a. Power availability.
 - b. Phase loss.
 - c. Motor Running.
 - d. Phase sequence reversed.
 - 2. When the Pump Room is not constantly attended (signals shall be sent to a constantly attended location).
 - a. Engine Running.
 - b. Controller Main Switch turned to "OFF" or "MANUAL" position.
 - c. Trouble on the Controller.
 - d. Trouble on the Engine.
 - 3. Pump Room Trouble (individually monitored)
 - a. Water Level In Suction Supply Below Normal.
 - b. Water Level In Suction Near Depletion.
 - c. Water Pressure In Suction Supply Low.
- O. The controller shall be equipped with a motor branch circuit shall be protected by a circuit breaker that shall be connected directly to the load side of the isolating switch and shall have one pole for each underground circuit conductor and have the following characteristics:
 - 1. Mechanically
 - 2. Externally Operable.
 - 3. Trip Free of the Handle.
 - 4. A nameplate with a legend "CIRCUIT BREAKER – DISCONNECTING MEANS" in letters not less than 3/8" high and be located on the outside of the controller enclosure adjacent to the means for operating the circuit breaker.

- P. Electrically:
1. A continuous current rating not less than 115% of the rated full load current of the motor.
 2. Overcurrent sensing elements of the non-thermal type.
 3. Instantaneous short-circuit overcurrent protection.
 4. An adequate interrupting rating to provide the suitability rating of the controller.
 5. Capability of allowing normal and emergency starting and running of the motor without tripping.
- Q. A locked rotor overcurrent protection device shall be required and permitted between the isolating switch and the fire pump motor and located within the fire pump controller and shall have the following characteristics:
1. For a wound-rotor induction motor.
 - a. Of the time-delay type having a tripping time between 8 seconds and 20 seconds.
 - b. Calibrated and set at a minimum of 300% of motor full load current.
 2. Approved manufacturers are as follows:
 - a. Electrically Driven Fire Pump Controllers: Eaton Corporation (Cutler-Hammer), Industrial Controls (Hubbell), Joslyn Clark, Master, Metron, or prior approved equal.

2.13 PRESSURE MAINTENANCE (JOCKEY) PUMP CONTROLLER

- A. The pressure maintenance pump controller shall be arranged for automatic and manual starting and stopping and equipped with a "manual-off-automatic" switch.
- B. The controller shall be completely pre-wired, ready for field connections, and wall-mounted in an N.E.M.A. type 2 drip-proof enclosure.
- C. The controller shall be equipped with a bourdon tube pressure switch or a solid-state pressure switch with independent high and low adjustments for automatic starting and stopping.
- D. An adjustable run timer shall be provided to prevent frequent starting and stopping of the pump motor and shall be set for 2 minutes.
- E. The controller shall be designed for a maximum of one (1) H.P. with a 208 Volts A.C. three (3) phase power source.
- F. Approved manufacturers are as follows:
1. Pressure Maintenance Pump Controllers: Eaton Corporation (Cutler-Hammer), Gorman Rupp (Patterson), Industrial Controls (Hubbell), Joslyn Clark, Master, Metron, or prior approved equal.

2.14 **PRESSURE SENSING LINES**

- A. A completely separate pressure sensing line shall be provided for each electrically driven fire pump and for the pressure maintenance pump.
- B. The pressure sensing lines shall be arranged between the pump's discharge check valve and the pump's discharge control valve and be in accordance with N.F.P.A. #20.
- C. Each pressure sensing line shall be ½" brass pipe and shall be equipped with two brass check valves mounted in the horizontal position (not less than 5 feet apart) with a 3/32" hole drilled in the clapper to serve as a damper. If the water is clean, ground face unions with non-corrosive diaphragms drilled with 3/32" orifices shall be allowed in lieu of the check valves stated above. No shutoff valve is allowed in the pressure sensing lines per N.F.P.A. #20.
- D. Two test connections shall be provided for each pressure sensing line. The test connection shall be located adjacent to the pump's controller and the point of connection to the system piping. Each test connection shall consist of two brass ½" globe valves and a ¼" gauge connection tee arranged in a dirt leg configuration per N.F.P.A. #20. The test connection adjacent to the pump's controller shall be equipped with a 0 to 300 p.s.i. oil-filled gauge.

2.15 **FLOW METER**

- A. Flow meter shall be U.L. listed or Factory Mutual Global approved for fire pump installation with direct flow readout device.
- B. Flow meter shall be capable of metering any water flow quantities between 50 percent and 150 percent of the rated flow of the pump.
- C. The flow meter shall be arranged in accordance with N.F.P.A. #20.
- D. The meter throttle valve shall be a butterfly style valve.
- E. Automatic air release shall be provided if flow meter test discharge is piped to the pump suction and forms a closed-loop meter arrangement as defined by N.F.P.A. #20.
- F. Approved manufacturers are as follows:
 - 1. Flow Meters: Gerand Engineering Company, Global Vision Incorporated, or prior approved equal.

2.16 **HOSE VALVES WITH A MANIFOLD TEST HEADER**

- A. The hose valve manifold test header shall be connected by an ASME B16.5, Class 150 flange inlet connection.
- B. Hose valves shall be U.L. listed or Factory Mutual Global approved bronze hose gate valves with 2½" American National Fire Hose Connection Screw Standard Threads (NH) per NFPA 1963.

- C. The number of valves shall be per N.F.P.A. #20 and Factory Mutual Global Property Loss Prevention Data Sheets.
- D. Each hose valve shall be equipped with a cap and chain, and located no more than 3'-0" and no less than 2'-0" above outside grade.
- E. Approved manufacturers are as follows:
 - 1. Hose Valves: Croker, Elkhart, Guardian, Nibco, Potter Roemer, Powhattan, or prior approved equal.

2.17 CIRCULATION RELIEF VALVE

- A. An adjustable circulating relief valve shall be provided for each fire pump where required by N.F.P.A. #20.
- B. It shall provide flow of sufficient water to prevent the pump from overheating when operating with no discharge.
- C. Circulating relief valves shall not be tied in with the packing box or drip rim drains.
- D. The minimum size of the circulating relief valve shall be $\frac{3}{4}$ " for pumps with a rated capacity of up to 2,500 g.p.m. and 1" for pumps with a rated capacity of 3,000 and greater.

2.18 AUTOMATIC AIR RELEASE VALVE

- A. Provide an automatic air release valve to remove any trapped air from high points of the fire pump piping system.
- B. The automatic air release valve shall be provided with a listed float operated air release that is not less than $\frac{1}{2}$ " in size.

2.19 IDENTIFICATION SIGNS

- A. Provide a permanently marked metal or engraved rigid plastic identification sign with proper lettering and secured with corrosion resistant wire, chain, or other approved methods for all control valves, drain valves, and fire department connection zones in accordance with N.F.P.A. #13.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Installation, workmanship, fabrication, assembly, erection, examination, inspection, and testing shall be in accordance with N.F.P.A. #13 and N.F.P.A. #20, except as modified herein. In addition, the fire pump and motor shall be installed in accordance with the written instructions of the manufacturer.

- B. Grooved couplings and fittings shall be installed in accordance with the manufacturer's recommendations. Grooved ends shall be clean and free from indentations, projections, and roll marks in the area from the pipe end to the groove. Grooved coupling gaskets shall be molded and produced by the coupling manufacturer.
- C. The Fire Protection Fire Pump System Contractor shall remove and replace any piping joints deemed improperly installed or show signs of leakage.
- D. The Fire Protection Fire Pump System Contractor shall remove and replace any piping that has been damaged upon installation and shows signs of being bent, warped, or dented.
- E. Install piping straight and true to bear evenly on hangers and supports. Hangers for piping to attach to structural members with no hanger being attached to acoustical ceiling tiles or gypsum wallboard ceilings.
- F. Ends of new piping and existing piping affected by the Fire Protection Fire Pump System Contractor's operations shall be thoroughly cleaned of water, cutting oil, and foreign matter. Keep piping systems clean during installation. Inspect all piping before placing into position for foreign matter and remove as necessary.
- G. Install piping at such heights and in such a manner so as not pose hazards to normal walking head heights, impact the minimum clear height requirements or present tripping hazards.
- H. When a flow meter is considered the primary means of testing of the fire pump, then the fire pump installation shall contain either a manifold test header with hose valves. N.F.P.A. #20 requires one of the two additional fire pump test options to allow the fire pump to draw water from the primary water source once every three years and physically discharge water for visual inspection once every three years.

3.02 **FLUSHING OF PUMP PIPING**

- A. The electrically driven fire pump suction and discharge piping shall be flushed at 150 percent of rated capacity for each pump.
- B. Flushing operations shall continue until water is clear, but not less than 10 minutes.
- C. The Fire Protection Fire Pump System Contractor shall submit a signed and dated flushing certificate before requesting field testing.

3.03 **PREPARATION OF SPRINKLER PIPING FOR PAINTING IN EXPOSED AREAS**

- A. The Fire Protection Fire Pump System Contractor shall clean the exterior surface to the sprinkler piping that is to be painted. The piping shall be cleaned and prepped in the following manner.
 - 1. The Fire Protection Fire Pump System Contractor shall remove all pipe tags or fabrication labels that have been adhered to the sprinkler system piping as part of the listing/fabrication process.

2. Any adhesive that remains on the sprinkler piping after removal of the pipe tags or fabrication labels shall be removed with an acceptable adhesive solvent.
3. All sprinkler piping and fittings that show signs of surface rust shall be sanded to remove the rust from the sprinkler piping.
4. Sprinkler system piping shall be wiped down with a solvent soaked rag to remove cutting oil residue, finger prints, adhesive solvents, and other foreign materials that could prevent the primer and/or finished color coats of paint from adhering properly to the sprinkler system piping.

3.04 PAINTING OF PIPE

- A. The Fire Protection Fire Pump System Contractor shall paint all fire pump piping and components.
- B. Clean and prep all steel fire protection sprinkler system piping including valves, hangers, supports, bracing, and accessories installed in exposed areas. Clean all surfaces to remove dust, dirt, rust, cutting oils, and loose mill scale.
- C. After cleaning, provide the surface with (1) coat of pretreatment primer.
- D. After priming, provide primed surfaces of sprinkler piping and accessories with (2) coats of red alkyd gloss enamel.

3.05 HYDROSTATIC TEST

- A. Hydrostatically test each system at 200 P.S.I. or 50 P.S.I. in excess of the systems working pressure (whichever is greater), for a 2-hour period with no leakage or reduction in pressure.
- B. Piping above ceilings shall be tested, inspected, and approved before installation of ceiling material.
- C. The Fire Protection Fire Pump System Contractor shall be responsible for one of the following:
 1. The Fire Protection Fire Pump System Contractor shall take full responsibility of the entire existing fire pump system for the purpose of hydrostatic testing. All leaks, system failures, and building damage incurred within 48 hours after the hydrostatic test due to the condition of the existing fire protection sprinkler system shall be the responsibility of the Fire Protection Fire Pump System Contractor performing the hydrostatic test.
 2. The Fire Protection Fire Pump System Contractor shall isolate the new work from the existing fire protection sprinkler system by whatever means necessary.
- D. When tests have been completed and corrections made, submit a signed and dated certificate similar to that specified in N.F.P.A. #13.

3.06 FORMAL TESTS AND INSPECTIONS

- A. Do not submit a request for formal test and inspection until the preliminary test and corrections are completed and approved.
- B. Request formal inspection per City of Tacoma procedures.
- C. An experienced technician regularly employed by the system installer shall be present during the inspection.
- D. At this inspection, repeat any or all of the required tests as directed. Correct defects in work provided by the Fire Protection Fire Pump System Contractor and make additional tests until the system(s) comply with contract requirements.
- E. Furnish appliances, equipment, electricity, instruments, connecting devices and personnel for the tests.
- F. The Owner will furnish water for the tests. Furnish Architect with three (3) copies of certificates required by testing agencies.

3.07 FINAL ACCEPTANCE TESTS

- A. A manufacturer's representative of the fire pump and fire pump controller shall be required to witness the final tests. The Fire Protection Fire Pump System Contractor shall take all readings and measurements and shall be responsible for repairing any damage caused by hose streams or other aspects of the test. The final acceptance test shall include the following:
 - 1. Flow Tests:
 - a. Flow tests using the flow meter, or hose valves shall be conducted.
 - b. Flow tests shall be performed at churn (no flow), 100 percent capacity, 150 percent capacity, and at the system demand pressure for each pump installed.
 - c. Flow readings shall be taken from each nozzle by means of a calibrated pitot tube with gauge or other approved measuring equipment.
 - d. Suction pressure readings, discharge pressure readings, and rpm readings shall be taken at each flow test point.
 - 2. Starting Tests:
 - a. Pumps shall be tested for automatic starting and sequential starting.
 - b. Setting of the pressure switches shall be tested when pumps are operated by pressure drop. Tests may be initiated by operating the test connection on the pressure sensing lines.
 - c. As a minimum, each pump shall be started automatically 10 times and manually 10 times, in accordance with N.F.P.A. #20.

- d. The fire pumps shall be operated for a period of at least 10 minutes for each of the starts; except that electric motors over 200 horse power shall be operated for at least 15 minutes and shall not be started more than 2 times in 10 hours.
 - e. Pressure settings that include automatic starting and stopping of the fire pump(s) shall be indicated on an etched plastic placard, attached to the corresponding pump controller.
3. Alarms:
- a. All pump alarms, both local and remote, shall be tested.
4. Miscellaneous:
- a. Valve tamper switches, pressure recorder operation, relief valve settings, valve operations, operation of meters, accuracy of meters, operation of gauges, accuracy of gauges, and all other accessory devices shall be tested and verified.
5. Test Equipment:
- a. The Fire Protection Fire Pump System Contractor shall provide all equipment and instruments necessary to conduct a complete the final test.
 - b. The Fire Protection Fire Pump System Contractor shall provide all necessary supports to safely secure hoses and nozzles during the test.
 - c. The Owner will furnish water for the tests.

3.08 TRAINING PERIOD

- A. Upon completion of the work and after all tests and inspections by the authority(s) having jurisdiction, the Fire Protection Fire Pump System Contractor shall demonstrate and train the Owner's designated operation and maintenance personnel in the operation and maintenance of the fire protection system.
- B. The Fire Protection Fire Pump System Contractor shall arrange scheduled instruction periods with the Owner's designated operation and maintenance personnel.
- C. The Fire Protection Fire Pump System Contractor's representatives shall be superintendents or foremen who are knowledgeable in each system and supplier's representatives when so specified.
- D. Scheduled training periods shall be based upon complexity of the system installed, but in no case, be less than indicated in Paragraph 3.04 of Specification Section 21 00 00.

- E. Upon request of the Owner, a DVD of the training period shall be made available by the Fire Protection Fire Pump System Contractor at no additional cost to the Owner.

END OF SECTION

SECTION 22 05 17
SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe sleeves.
- B. Manufactured sleeve-seal systems.

1.02 RELATED REQUIREMENTS

- A. Section 07 84 00 - Firestopping.

1.03 REFERENCE STANDARDS

- A. ASTM C592 - Standard Specification for Mineral Fiber Blanket Insulation and Blanket-Type Pipe Insulation (Metal-Mesh Covered) (Industrial Type); 2016.
- B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2013a (Reapproved 2017).

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Seals

1.05 QUALITY ASSURANCE

- A. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system.

PART 2 PRODUCTS

2.01 PIPE SLEEVES

- A. Vertical Piping:
 - 1. Sleeve Length: 1 inch above finished floor.
 - 2. Provide sealant for watertight joint.
 - 3. Blocked Out Floor Openings: Provide 1-1/2 inch angle set in silicon adhesive around opening.
 - 4. Drilled Penetrations: Provide 1-1/2 inch angle ring or square set in silicone adhesive around penetration.
- B. Sheet Metal: Pipe passing through interior walls, partitions, and floors, unless steel or brass sleeves are specified below.
- C. Pipe Passing Through Below Grade Exterior Walls:
 - 1. Zinc coated or cast iron pipe.

2. Provide watertight space with link rubber or modular seal between sleeve and pipe on both pipe ends.
- D. Pipe Passing Through Concrete Beam Flanges, except where Brass Pipe Sleeves are Specified:
 1. Galvanized steel pipe or black iron pipe with asphalt coating.
 2. Connect sleeve with floor plate except in mechanical rooms.
- E. Pipe Passing Through Mechanical, Laundry, and Kitchen above Basement:
 1. Galvanized steel pipe or black iron pipe with asphalt coating.
 2. Connect sleeve with floor plate except in mechanical rooms.
- F. Penetrations in concrete beam flanges are permitted but are prohibited through ribs or beams without prior approval from the Architect.
- G. Clearances:
 1. Provide allowance for insulated piping.
 2. Wall, Floor, Partitions, and Beam Flanges: 0.5 inch greater than external/pipe diameter.
 3. All Rated Openings: Caulked tight with fire stopping material conforming to ASTM E814 in accordance with Section 07 84 00 to prevent the spread of fire, smoke, and gases.

2.02 MANUFACTURED SLEEVE-SEAL SYSTEMS

- A. Manufacturers:
 1. Flexicraft Industries; PipeSeal.
 2. Thunderline; Link-Seal.
- B. Modular/Mechanical Seal:
 1. Synthetic rubber interlocking links continuously fill annular space between pipe and wall/casing opening.
 2. Provide watertight seal between pipe and wall/casing opening.
 3. Elastomer element size and material in accordance with manufacturer's recommendations.
 4. Glass reinforced plastic pressure end plates.

PART 3 EXECUTION

3.01 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and foreign material, from inside and outside, before assembly.

3.02 INSTALLATION

- A. Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient.
- B. Install piping to conserve building space, to not interfere with use of space and other work.
- C. Install piping and pipe sleeves to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- D. Structural Considerations:
 - 1. Do not penetrate building structural members unless indicated.
- E. Provide sleeves when penetrating footings, floors, walls, partitions, and similar elements. Seal pipe including sleeve penetrations to achieve fire resistance equivalent to fire separation required.
 - 1. Underground Piping: Caulk pipe sleeve watertight with mechanically expandable chloroprene inserts with bitumen sealed metal components.
 - 2. Aboveground Piping:
 - a. Pack solid using mineral fiber conforming to ASTM C592.
 - b. Fill space with an elastomer caulk to a depth of 0.50 inch where penetrations occur between conditioned and unconditioned spaces.
 - 3. All Rated Openings: Caulk tight with fire stopping material conforming to ASTM E814 in accordance with Section 07 84 00 to prevent the spread of fire, smoke, and gases.
 - 4. Caulk exterior wall sleeves watertight with mechanically expandable chloroprene inserts with mastic-sealed components.
- F. Manufactured Sleeve-Seal Systems:
 - 1. Install manufactured sleeve-seal systems in sleeves located in grade slabs and exterior concrete walls at piping entrances into building.
 - 2. Provide sealing elements of the size, quantity, and type required for the piping and sleeve inner diameter or penetration diameter.
 - 3. Locate piping in center of sleeve or penetration.
 - 4. Install field assembled sleeve-seal system components in annular space between sleeve and piping.
 - 5. Tighten bolting for a water-tight seal.
 - 6. Install in accordance with manufacturer's recommendations.

- G. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, unions, and couplings for servicing are consistently provided.
- H. Insulation shall run continuous through sleeves in non-fire rated elements. Insulation shall not run continuous through sleeves in fire rated elements unless the fire sealant system used is UL accepted for use with insulated pipes.
- I. Do not place sleeves around soil, waste, vent, or roof drain lines passing through concrete floors on grade.

END OF SECTION

SECTION 22 05 23
GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Applications.
- B. General requirements.
- C. Angle valves.
- D. Ball valves.
- E. Butterfly valves.
- F. Check valves.
- G. Gate valves.
- H. Plug valves.

1.02 RELATED REQUIREMENTS

- A. Section 20 00 00 - General Mechanical Requirements
- B. Section 22 05 48 - Vibration and Seismic Controls for Plumbing Piping and Equipment.
- C. Section 22 05 53 - Identification for Plumbing Piping and Equipment.
- D. Section 22 07 19 - Plumbing Piping Insulation.
- E. Section 22 10 05 - Plumbing Piping.

1.03 ABBREVIATIONS AND ACRONYMS

- A. CWP: Cold working pressure.
- B. EPDM: Ethylene propylene copolymer rubber.
- C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.
- D. NRS: Non-rising stem.
- E. OS&Y: Outside screw and yoke.
- F. PTFE: Polytetrafluoroethylene.
- G. RS: Rising stem.
- H. SWP: Steam working pressure.
- I. TFE: Tetrafluoroethylene.

1.04 REFERENCE STANDARDS

- A. ASME B1.20.1 - Pipe Threads, General Purpose (Inch); 2013.
- B. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250; 2015.
- C. ASME B16.5 - Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24 Metric/Inch Standard; 2017.
- D. ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves; 2017.

- E. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2012.
- F. ASME B16.34 - Valves - Flanged, Threaded and Welding End; 2017.
- G. ASME B31.9 - Building Services Piping; 2014.
- H. ASME BPVC-IX - Boiler and Pressure Vessel Code, Section IX - Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing and Fusing Operators; 2017.
- I. ASTM A48/A48M - Standard Specification for Gray Iron Castings; 2003 (Reapproved 2016).
- J. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings; 2004 (Reapproved 2014).
- K. ASTM A536 - Standard Specification for Ductile Iron Castings; 1984 (Reapproved 2014).
- L. ASTM B61 - Standard Specification for Steam or Valve Bronze Castings; 2015.
- M. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings; 2017.
- N. AWWA C606 - Grooved and Shouldered Joints; 2015.
- O. MSS SP-45 - Bypass and Drain Connections; 2003 (Reaffirmed 2008).
- P. MSS SP-67 - Butterfly Valves; 2017.
- Q. MSS SP-70 - Cast Iron Gate Valves, Flanged and Threaded Ends; 2011.
- R. MSS SP-71 - Cast Iron Swing Check Valves, Flanged and Threaded Ends; 2011, with Errata (2013).
- S. MSS SP-78 - Cast Iron Plug Valves, Flanged and Threaded Ends; 2011.
- T. MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves; 2013.
- U. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; 2010.
- V. MSS SP-125 - Gray Iron and Ductile Iron In-Line, Spring-Loaded, Center-Guided Check Valves; 2010.
- W. NSF 61 - Drinking Water System Components - Health Effects; 2017.
- X. NSF 372 - Drinking Water System Components - Lead Content; 2016.

1.05 SUBMITTALS

- A. Product Data: Provide data on valves including manufacturer's catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.
- B. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts listings.
- C. Maintenance Materials: Furnish Owner with one wrench for every ten plug valves, in each size of square plug valve head.

1.06 QUALITY ASSURANCE

- A. Manufacturer:
 - 1. Obtain valves for each valve type from single manufacturer.
 - 2. Company must specialize in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Welding Materials and Procedures: Conform to ASME BPVC-IX.
- C. Domestic water fittings, joining materials, and all other appurtenances in contact with potable water shall be lead-free except those specifically exempted in Section 3874 of the Safe Water Drinking Act.
 - 1. Lead-free shall mean:
 - a. Not containing more than 0.2% lead when used with respect to solder and flux; and
 - b. Not more than a weighted average of 0.25% when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Prepare valves for shipping as follows:
 - 1. Minimize exposure of operable surfaces by setting plug and ball valves to open position.
 - 2. Protect valve parts exposed to piped medium against rust and corrosion.
 - 3. Protect valve piping connections such as grooves, weld ends, threads, and flange faces.
 - 4. Adjust globe, gate, and angle valves to the closed position to avoid clattering.
 - 5. Secure check valves in either the closed position or open position.
 - 6. Adjust butterfly valves to closed or partially closed position.
- B. Use the following precautions during storage:
 - 1. Maintain valve end protection and protect flanges and specialties from dirt.
 - a. Provide temporary inlet and outlet caps.
 - b. Maintain caps in place until installation.

2. Store valves in shipping containers and maintain in place until installation.
 - a. Store valves indoors in dry environment.
 - b. Store valves off the ground in watertight enclosures when indoor storage is not an option.
- C. Exercise the following precautions for handling:
 1. Handle large valves with sling, modified to avoid damage to exposed parts.
 2. Avoid the use of operating handles or stems as rigging or lifting points.

PART 2 PRODUCTS

2.01 APPLICATIONS

- A. See drawings for specific valve locations.
- B. Provide the following valves for the applications if not indicated on drawings:
 1. Shutoff: Ball, butterfly, gate
 2. Dead-End: Single-flange butterfly (lug) type.
 3. Throttling: globe or butterfly.
 4. Swing Check (Pump Outlet):
 - a. 2 NPS and Smaller: Bronze swing check valves with bronze or nonmetallic disc.
 - b. 2-1/2 NPS and Larger for Domestic Water: Iron swing check valves with closure control, metal or resilient seat check valves.
- C. Substitutions of valves with higher CWP classes or SWP ratings for same valve types are permitted when specified CWP ratings or SWP classes are not available.
- D. Required Valve End Connections for Non-Wafer Types:
 1. Steel Pipe:
 - a. 2 NPS and Smaller: Threaded ends.
 - b. 2-1/2 NPS to 4 NPS: Grooved or flanged ends except where threaded valve-end option is indicated in valve schedules below.
 - c. 5 NPS and Larger: Grooved or flanged ends.
 - d. Grooved-End Copper Tubing and Steel Piping: Grooved.

2. Copper Tube:
 - a. 2 NPS and Smaller: Threaded ends except where solder-joint valve-end option is indicated in valve schedules below.
 - b. 2-1/2 NPS to 4 NPS: Grooved or flanged ends except where threaded valve-end option is indicated in valve schedules below.
 - c. 5 NPS and Larger: Grooved or flanged ends.
- E. Domestic, Hot and Cold Water Valves:
 1. 2 NPS and Smaller:
 - a. Ball: One piece, full port, bronze with bronze trim.
 - b. Bronze Swing Check: Class 125, bronze disc.
 - c. Bronze Gate: Class 125, NRS.
 - d. Bronze Globe: Class 125, bronze disc.
 2. 2-1/2 NPS and Larger:
 - a. Iron, 2-1/2 NPS to 4 NPS: Provide with threaded or flanged ends.
 - b. Iron Ball: Class 150.
 - c. Iron Single-Flange Butterfly: 200 CWP, EPDM seat, aluminum-bronze disc.
 - d. Iron Grooved-End Butterfly: 175 CWP.
 - e. Iron Swing Check: Class 125, metal seats.
 - f. Iron Swing Check with Closure Control: Class 125, lever and spring.
 - g. Iron Grooved-End Swing Check: 300 CWP.
 - h. Iron Center-Guided Check: Class 125, compact-wafer, metal seat.
 - i. Iron Plate-Type Check: Class 125; single plate; metal seat.
 - j. Iron Gate: Class 125, NRS.
 - k. Iron Globe: Class 125.

2.02 GENERAL REQUIREMENTS

- A. Valve Pressure and Temperature Ratings: No less than rating indicated; as required for system pressures and temperatures.
- B. Valve Sizes: Match upstream piping unless otherwise indicated.

- C. Valve Actuator Types:
 - 1. Handwheel: Valves other than quarter-turn types.
 - 2. Hand Lever: Quarter-turn valves 6 NPS and smaller.
 - 3. Wrench: Plug valves with square heads.
- D. Valves in Insulated Piping: With 2 NPS stem extensions and the following features:
 - 1. Gate Valves: Rising stem.
 - 2. Ball Valves: Extended operating handle of non-thermal-conductive material, and protective sleeve that allows operation of valve without breaking the vapor seal or disturbing insulation.
 - 3. Butterfly Valves: Extended neck.
 - 4. Memory Stops: Fully adjustable after insulation is installed.
- E. Valve-End Connections:
 - 1. Threaded End Valves: ASME B1.20.1.
 - 2. Flanges on Iron Valves: ASME B16.1 for flanges on iron valves.
 - 3. Pipe Flanges and Flanged Fittings 1/2 NPS through 24 NPS: ASME B16.5.
 - 4. Solder Joint Connections: ASME B16.18.
 - 5. Grooved End Connections: AWWA C606.
- F. General ASME Compliance:
 - 1. Ferrous Valve Dimensions and Design Criteria: ASME B16.10 and ASME B16.34.
 - 2. Solder-joint Connections: ASME B16.18.
 - 3. Building Services Piping Valves: ASME B31.9.
- G. Valve Materials for Potable Water: NSF 61 and NSF 372.
- H. Bronze Valves:
 - 1. Fabricate from dezincification resistant material.
 - 2. Copper alloys containing more than 15 percent zinc are not permitted.
- I. Valve Bypass and Drain Connections: MSS SP-45.
- J. Source Limitations: Obtain each valve type from a single manufacturer.

2.03 BRONZE ANGLE VALVES

- A. Class 125: CWP Rating: 200 psig:.
 - 1. Comply with MSS SP-80, Type 1.
 - 2. Body: Bronze; ASTM B62, with integral seat and screw in bonnet.
 - 3. Ends: Threaded.
 - 4. Stem: Bronze.
 - 5. Disc: Bronze.
 - 6. Packing: Asbestos free.
 - 7. Handwheel: Bronze or aluminum.
 - 8. Manufacturers:
 - a. Nibco
 - b. Stockham
 - c. Apollo

2.04 BRONZE BALL VALVES

- A. Two Piece, Full Port with Stainless Steel Trim:
 - 1. Comply with MSS SP-110.
 - 2. SWP Rating: 150 psig.
 - 3. CWP Rating: 600 psig.
 - 4. Body: Bronze.
 - 5. Ends: Threaded.
 - 6. Seats: PTFE or TFE.
 - 7. Stem: Stainless steel.
 - 8. Ball: Stainless steel, vented.
 - 9. Manufacturers:
 - a. Nibco
 - b. Stockham
 - c. Apollo
 - d. Jomar

B. Three Piece, Full Port with Stainless Steel Trim:

1. Comply with MSS SP-110.
2. SWP Rating: 150 psig.
3. CWP Rating: 600 psig.
4. Body: Bronze.
5. Ends: Threaded.
6. Seats: PTFE or TFE
7. Stem: Stainless steel.
8. Ball: Stainless steel, vented.
9. Manufacturers:
 - a. Nibco
 - b. Stockham
 - c. Apollo
 - d. Jomar

2.05 BRONZE LIFT CHECK VALVES

A. Class 125:

1. Comply with MSS SP-80, Type 1, Metal Disc to Metal Seat and Type 2, Nonmetallic Disc to Metal Seat.
2. CWP Rating: 200 psig.
3. Design: Vertical flow.
4. Body: Comply with ASTM B61 or ASTM B62, bronze.
5. Ends: Threaded as indicated.
6. Disc (Type 1): Bronze.
7. Manufacturers:
 - a. Nibco
 - b. Stockham
 - c. Apollo

2.06 BRONZE SWING CHECK VALVES

- A. Class 125: CWP Rating: 200 psig (1380 kPa).
1. Comply with MSS SP-80, Type 3.

2. Design: Horizontal flow.
3. Body: Bronze, ASTM B62.
4. Ends: Threaded as indicated.
5. Disc: Bronze.
6. Manufacturers:
 - a. Nibco
 - b. Stockham
 - c. Apollo

2.07 BRONZE GATE VALVES

- A. Non-Rising Stem (NRS):
 1. Comply with MSS SP-80, Type I.
 2. Class 125: CWP Rating: 200 psig:.
 3. Body: ASTM B62, bronze with integral seat and screw-in bonnet.
 4. Ends: Threaded or solder joint.
 5. Stem: Bronze.
 6. Disc: Solid wedge; bronze.
 7. Packing: Asbestos free.
 8. Handwheel: Malleable iron, bronze, or aluminum.
 9. Manufacturers:
 - a. Nibco.
 - b. Stockham
 - c. Apollo

2.08 LUBRICATED PLUG VALVES

- A. Regular Gland and Cylindrical with Flanged Ends:
 1. Comply with MSS SP-78, Type II.
 2. Class 125: CWP Rating: 200 psig.
 3. Body: ASTM A48/A48M or ASTM A126, cast iron with lubrication sealing system.
 4. Pattern: Regular or short.
 5. Plug: Cast iron or bronze with sealant groove.

6. Manufacturers:
 - a. Nibco
 - b. Stockham
 - c. Apollo

PART 3 EXECUTION

3.01 EXAMINATION

- A. Discard all packing materials and verify that valve interior, including threads and flanges is completely clean without signs of damage or degradation that could result in leakage.
- B. Verify valve parts to be fully operational in all positions from closed to fully open.
- C. Confirm gasket material to be suitable for the service, to be of correct size, and without defects that could compromise effectiveness.
- D. Should valve be determined to be defective, replace with new valve.

3.02 INSTALLATION

- A. Provide unions or flanges with valves to facilitate equipment removal and maintenance while maintaining system operation and full accessibility for servicing.
- B. Provide separate valve support as required and locate valve with stem at or above center of piping, maintaining unimpeded stem movement.
- C. Install check valves where necessary to maintain direction of flow as follows:
 1. Lift Check: Install with stem plumb and vertical.
 2. Swing Check: Install horizontal maintaining hinge pin level.
 3. Orient plate-type and center-guided into horizontal or vertical position, between flanges.

END OF SECTION

SECTION 22 05 53
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nameplates.
- B. Tags.
- C. Stencils.
- D. Pipe markers.

1.02 RELATED REQUIREMENTS

- A. Section 09 91 23 - Interior Painting: Identification painting.

1.03 REFERENCE STANDARDS

- A. ASME A13.1 - Scheme for the Identification of Piping Systems; 2015.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. List: Submit list of wording, symbols, letter size, and color coding for mechanical identification.
- C. Operation and Maintenance Data:
 - 1. Valve Diagram: Provide an unlaminated copy of the valve diagram.
 - 2. Valve Tag Schedule: Provide an unlaminated copy of the valve tag schedule.
 - 3. Concealed Items Legend: Provide a color legend listing the colors used to label equipment above the ceiling.
- D. Project Record Documents: Record actual locations of tagged valves.

PART 2 PRODUCTS

2.01 NAMEPLATES

- A. Manufacturers:
 - 1. Brimar Industries, Inc
 - 2. Kolbi Pipe Marker Co
 - 3. Seton Identification Products
- B. Description: Laminated three-layer plastic with engraved letters.
 - 1. Letter Color: White.
 - 2. Letter Height: 1/4 inch.

3. Background Color: Black.
4. Plastic: Conform to ASTM D709.

2.02 TAGS

- A. Manufacturers:
 1. Advanced Graphic Engraving
 2. Brady Corporation
 3. Brimar Industries, Inc
 4. Kolbi Pipe Marker Co
 5. Seton Identification Products
- B. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch diameter.
- C. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2 inch diameter with smooth edges.
- D. Valve Tag Chart: Typewritten letter size list hard laminated.

2.03 STENCILS

- A. Manufacturers:
 1. Brady Corporation
 2. Kolbi Pipe Marker Co.
 3. Seton Identification Products
- B. Stencils: With clean cut symbols and letters of following size:
 1. 3/4 to 1-1/4 inch Outside Diameter of Insulation or Pipe: 8 inch long color field, 1/2 inch high letters.
 2. 1-1/2 to 2 inch Outside Diameter of Insulation or Pipe: 8 inch long color field, 3/4 inch high letters.
 3. 2-1/2 to 6 inch Outside Diameter of Insulation or Pipe: 12 inch long color field, 1-1/4 inch high letters.
- C. Stencil Paint: As specified in Section 09 91 23, semi-gloss enamel, colors conforming to ASME A13.1.

2.04 PIPE MARKERS

- A. Manufacturers:
 1. Brady Corporation
 2. Brimar Industries, Inc
 3. Kolbi Pipe Marker Co

4. Seton Identification Products
- B. Comply with ASME A13.1.
- C. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.
- D. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.
- E. Underground Plastic Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.
- F. Color code assignments shall be verified with the Owner prior to ordering. Color code as follows:
 1. Potable Domestic Cold, Hot, and Hot Recirculation Water: Green with white letters.
 2. Fire Quenching Fluids: Red with white letters.
 3. Non-Potable Cold, Hot, and Hot Recirculation Water: Orange with black letters with added words stating "CAUTION: NON-POTABLE, DO NOT DRINK"
 4. Flammable Fluids: Yellow with black letters.
 5. Compressed Air: Blue with white letters.

2.05 VALVE TAG SCHEDULES

- A. Provide a Valve Tag Schedule for each piping system, typewritten, and reproduced on 8-1/2" x 11" bond paper, hard laminated. Tabulate valve number, piping system, system abbreviation (as shown on tag), location of valve (room or space), and variations for identification (if any). Mark valves which are intended for emergency shut-off and similar special uses, by special "flags", in margin of schedule.

2.06 VALVE DIAGRAM

- A. Provide a Valve Diagram showing the location of all valves relative to the floor plan of the building. Each Valve Diagram shall be 11x17, hard laminated sheets. Each piping system shall be in a unique color and a legend noting the system colors shall be placed on the first page.

PART 3 EXECUTION

3.01 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.

3.02 INSTALLATION

- A. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
- B. Install tags with corrosion resistant chain.
- C. Install plastic pipe markers in accordance with manufacturer's instructions.
- D. Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.
- E. Install underground plastic pipe markers 6 to 8 inches below finished grade, directly above buried pipe.
- F. Locate ceiling tacks to locate valves or dampers above lay-in panel ceilings. Locate in corner of panel closest to equipment.

3.03 PIPE MARKERS AND COLOR BANDS

- A. Locate pipe markers and color bands as follows wherever piping is exposed to view in occupied space, machine rooms, accessible maintenance spaces and exterior non-concealed locations or in accessible ceiling spaces.
 - 1. Near each valve and control device.
 - 2. Near each branch, excluding short take-offs for fixtures and terminal units; mark each pipe at branch where there could be question of flow pattern.
 - 3. Near locations where pipes pass through walls or floor/ceilings, or enter non-accessible enclosures.
 - 4. At access doors, manholes, and similar access points which permit view of concealed piping.
 - 5. Near major equipment items and other points of origination and termination.

3.04 PLUMBING EQUIPMENT IDENTIFICATION

- A. Install engraved plastic laminate sign on or near each major item of plumbing equipment and each operation device. Provide signs for the following general categories of equipment and operational devices. Provide signs or suspended ceiling tile below mechanical equipment located above ceiling.
 - 1. Pumps and similar motor-driven units.
 - 2. Tanks and pressure vessels.

3.05 CONCEALED ITEMS

- A. Items concealed above accessible ceilings requiring access, shall have the ceiling marked to indicate such item's location. The marking system shall consist of colored phenolic plates with ½" tall engraved lettering specifying the item concealed; plate shall be applied to ceiling T-bar framing with rivets or other owner approved method below the concealed item. Colors used shall be verified with Owner, and unless directed otherwise, shall be:

- 1. Domestic Plumbing System Components: Green

3.06 VALVE TAG SCHEDULE

- A. Provide the hard laminated Valve Tag Schedule in the mechanical/janitors room.

3.07 VALVE DIAGRAM

- A. Provide the hard laminated Valve Diagram in the mechanical/janitors room.

END OF SECTION

SECTION 22 10 05
PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe, pipe fittings, specialties, and connections for piping systems.
 - 1. Sanitary sewer.
 - 2. Domestic water.
 - 3. Flanges, unions, and couplings.
 - 4. Pipe hangers and supports.
 - 5. Manufactured sleeve-seal systems.
 - 6. Water pressure reducing valves.
 - 7. Relief valves.
 - 8. Strainers.

1.02 RELATED REQUIREMENTS

- A. Section 22 05 48 - Vibration and Seismic Controls for Plumbing Piping and Equipment.
- B. Section 22 05 53 - Identification for Plumbing Piping and Equipment.

1.03 REFERENCE STANDARDS

- A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2012.
- B. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2013.
- C. ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings - DWV; 2016.
- D. ASME B16.29 - Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV; 2012.
- E. ASME B31.9 - Building Services Piping; 2014.
- F. ASSE 1003 - Performance Requirements for Water Pressure Reducing Valves for Domestic Water Distribution Systems; 2009.
- G. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- H. ASTM A47/A47M - Standard Specification for Ferritic Malleable Iron Castings; 1999 (Reapproved 2014).
- I. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- J. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2015a.

- K. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).
- L. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes; 2015a.
- M. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2016.
- N. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2016.
- O. ASTM B306 - Standard Specification for Copper Drainage Tube (DWV); 2013.
- P. ASTM B813 - Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube; 2016.
- Q. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings; 2016.
- R. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings; 2014.
- S. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 2012.
- T. ASTM D2609 - Standard Specification for Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe; 2015.
- U. ASTM D2657 - Standard Practice for Heat Fusion Joining of Polyolefin Pipe and Fittings; 2007 (Reapproved 2015).
- V. ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings; 2014.
- W. ASTM D2855 - Standard Practice for the Two-Step (Primer & Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets; 2015.
- X. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2016.
- Y. ASTM D4101 - Standard Specification for Polypropylene Injection and Extrusion Materials; 2014, with Editorial Revision (2016).
- Z. AWS A5.8M/A5.8 - Specification for Filler Metals for Brazing and Braze Welding; 2011 (Amended 2012).
- AA. AWWA C550 - Protective Interior Coatings for Valves and Hydrants; 2017.
- AB. AWWA C606 - Grooved and Shouldered Joints; 2015.
- AC. AWWA C651 - Disinfecting Water Mains; 2014.
- AD. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution; 2016.
- AE. CISPI 301 - Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications; 2009 (Revised 2012).

- AF. CISPI 310 - Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications; 2011 (Revised 2012).
- AG. ICC-ES AC01 - Acceptance Criteria for Expansion Anchors in Masonry Elements; 2015.
- AH. ICC-ES AC106 - Acceptance Criteria for Pre drilled Fasteners (Screw Anchors) in Masonry Elements; 2015.
- AI. ICC-ES AC193 - Acceptance Criteria for Mechanical Anchors in Concrete Elements; 2015.
- AJ. ICC-ES AC308 - Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements; 2016.
- AK. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2009.
- AL. NSF 61 - Drinking Water System Components - Health Effects; 2017.
- AM. NSF 372 - Drinking Water System Components - Lead Content; 2016.
- AN. PPI TR-4 - PPI Listing of Hydrostatic Design Basis (HDB), Hydrostatic Design Stress (HDS), Strength Design Basis (SDB), Pressure Design Basis (PDB), and Minimum Required Strength (MRS) Ratings For Thermoplastic Piping Materials or Pipe; 2017.

1.04 SUBMITTALS

- A. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
- B. Welder Certificate: Include welders certification of compliance with ASME BPVC-IX.
- C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
- D. Operation and Maintenance Data
 - 1. Domestic water sterilization test.
 - 2. Domestic water pressure tests.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with applicable codes.
- B. Valves: Manufacturer's name and pressure rating marked on valve body.
- C. Welding Materials and Procedures: Conform to ASME BPVC-IX and applicable state labor regulations.
- D. Welder Qualifications: Certified in accordance with ASME BPVC-IX.

- E. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.
- F. Domestic water fittings, joining materials, and all other appurtenances in contact with potable water shall be lead-free except those specifically exempted in Section 3874 of the Safe Water Drinking Act.
 - 1. Lead-free shall mean:
 - a. Not containing more than 0.2% lead when used with respect to solder and flux; and
 - b. Not more than a weighted average of 0.25% when used with respect to the vetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- B. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

2.02 DOMESTIC WATER PIPING, ABOVE GRADE

- A. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), hard drawn
 - 1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
 - 2. Joints: ASTM B32, alloy Sn95 solder, lead free conforming to UPC standards for solder and all local code requirements.
 - a. Manufacturers:
 - 1) Canfield
 - 2) J.W. Harris
 - 3) Aqua-Clean

3. Mechanical Press Sealed Fittings: Double pressed type, NSF 61 and NSF 372 approved or certified, utilizing EPDM, non toxic synthetic rubber sealing elements.
 - a. Manufacturers:
 - 1) Grinnell Products, a Tyco Business
 - 2) Viega LLC
 - 3) Nibco
4. Mechanical Couplings on pipe 2.5" and larger: NSF 61
 - a. Manufacturers:
 - 1) Victualic
 - 2) Gruvlok

2.03 FLANGES, UNIONS, AND COUPLINGS

- A. Unions for Pipe Sizes 3 Inches and Under:
 1. Ferrous pipe: Class 150 malleable iron threaded unions.
 2. Copper tube and pipe: Class 150 bronze unions with soldered joints.
- B. Flanges for Pipe Size Over 1 Inch:
 1. Ferrous Pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; preformed neoprene gaskets.
 2. Copper Tube and Pipe: Class 150 slip-on bronze flanges; preformed neoprene gaskets.
- C. Mechanical Couplings for Grooved and Shouldered Joints: Two or more curved housing segments with continuous key to engage pipe groove, circular C-profile gasket, and bolts to secure and compress gasket.
 1. Dimensions and Testing: In accordance with AWWA C606.
 2. Housing Material: Provide ASTM A47/A47M malleable iron or ductile iron, galvanized.
 3. Gasket Material: Nitrile rubber suitable for operating temperature range from minus 20 degrees F to 180 degrees F.
 4. Bolts and Nuts: Hot dipped galvanized or zinc-electroplated steel.
 5. When pipe is field grooved, provide coupling manufacturer's grooving tools.

- 6. Manufacturers:
 - a. Grinnell Products, a Tyco Business
 - b. Victaulic
 - c. Gruvlok
- D. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.04 PIPE HANGERS AND SUPPORTS

- A. Provide hangers and supports that comply with MSS SP-58.
 - 1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
 - 2. Hanger Rods: Threaded hot rolled steel, electro-galvanized or cadmium plated. Hanger rods shall be sized so that the total load (including pipe or duct, insulation, hangers, and fluid) does not exceed the following:
 - a. 610 pounds for 3/8" diameter rods.
 - b. 1130 pounds for 1/2" diameter rods.
 - 3. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
 - a. Cold and Hot Pipe Sizes 6 Inches and Over: Double hangers.
 - 4. Trapeze Hangers: Welded steel channel frames attached to structure.
 - 5. Vertical Pipe Support: Steel riser clamp, epoxy coated.
 - 6. Steel: Provide structural steel per ASTM A36/A36M.
 - 7. Wood: Shall be fire treated.
- B. Plumbing Piping - Drain, Waste, and Vent:
 - 1. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
 - 2. Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
 - 3. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
 - 4. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.

5. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- C. Plumbing Piping - Water:
1. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
 2. Hangers for Cold Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
 3. Hangers for Hot Pipe Sizes 2 Inches to 4 Inches: Carbon steel, adjustable, clevis.
 4. Hangers for Hot Pipe Sizes 6 Inches and Over: Adjustable steel yoke, cast iron pipe roll, double hanger.
 5. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
 6. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.
 7. Wall Support for Hot Pipe Sizes 6 Inches and Over: Welded steel bracket and wrought steel clamp with adjustable steel yoke and cast iron pipe roll.
 8. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- D. Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
1. Concrete Wedge Expansion Anchors: Complying with ICC-ES AC193.
 2. Masonry Wedge Expansion Anchors: Complying with ICC-ES AC01.
 3. Concrete Screw Type Anchors: Complying with ICC-ES AC193.
 4. Masonry Screw Type Anchors: Complying with ICC-ES AC106.
 5. Concrete Adhesive Type Anchors: Complying with ICC-ES AC308.
 6. Other Types: As required.
 7. Manufacturers:
 - a. Powers Fasteners, Inc
 - b. Rawplug
 - c. Phillips
 - d. Hilti

- e. Caddy
- E. Insulated Pipe Inserts and Insulation Shields:
 - 1. Insulated pipe insert shall have no more than 5% deformation at 100 psi and a thermal conductivity no more than 0.38 Btu/hr./sq. ft./degree F/1-inch thick at 75°F.
 - 2. Insulated pipe insert shall be same thickness as adjoining pipe insulation and sized to match pipe in which it is used on. See Section 22 07 19 for insulation sizes.
 - 3. Provide shield per Section 22 07 19 Plumbing Piping Insulation.
 - 4. Manufacturers:
 - a. TPS Thermal Pipe Shields
 - b. B-Line
 - c. Clement Support Services
 - d. Snappitz

2.05 WATER PRESSURE REDUCING VALVES

- A. Manufacturers:
 - 1. Amtrol Inc
 - 2. Cla-Val Company
 - 3. Flomatic Valves
 - 4. Watts Regulator Company
 - 5. Wilkins
 - 6. Apollo Conbraco
- B. Up to 2 Inches:
 - 1. ASSE 1003, bronze body, stainless steel, and thermoplastic internal parts, fabric reinforced diaphragm, strainer, threaded single union ends.
- C. Over 2 Inches:
 - 1. ASSE 1003, cast iron body with interior lining complying with AWWA C550, bronze fitted, elastomeric diaphragm and seat disc, flanged.

2.06 RELIEF VALVES

- A. Pressure:
 - 1. Manufacturers:
 - a. Cla-Val Co

- b. Watts Regulator Company
 - 2. ANSI Z21.22, AGA certified, bronze body, teflon seat, steel stem and springs, automatic, direct pressure actuated.
- B. Temperature and Pressure:
 - 1. Manufacturers:
 - a. Cla-Val Co
 - b. Watts Regulator Company
 - 2. ANSI Z21.22, AGA certified, bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, temperature relief maximum 210 degrees F, capacity ASME BPVC-IV certified and labelled.

2.07 STRAINERS

- A. Manufacturers:
 - 1. Armstrong International, Inc
 - 2. Bell and Gossett
 - 3. Apollo Conbraco
 - 4. Hoffman
 - 5. Wheatley
 - 6. Nibco
- B. Size 2 inch and Under:
 - 1. Threaded brass body for 175 psi CWP, Y pattern with 1/32 inch stainless steel perforated screen.
 - 2. Class 150, threaded bronze body 300 psi CWP, Y pattern with 1/32 inch stainless steel perforated screen.
- C. Size 1-1/2 inch to 4 inch:
 - 1. Class 125, flanged iron body, Y pattern with 1/16 inch stainless steel perforated screen.
- D. Size 5 inch and Larger:
 - 1. Class 125, flanged iron body, basket pattern with 1/8 inch stainless steel perforated screen.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.03 GENERAL INSTALLATION

- A. Furnish and install complete system of piping, valved as indicated or as necessary to completely control entire apparatus. Pipe drawings are diagrammatic and indicate general location and connections. Piping may have to be offset, lowered, or raised as required or directed at site. This does not relieve this Division from responsibility for proper erection of systems of piping in every respect. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- D. Consult all drawings for location of pipe spaces, ducts, electrical equipment, ceiling heights, door openings, window openings, and other details and report discrepancies or possible conflicts to Architect/Engineer before installing pipe.
- E. Allow sufficient clearances for installation of pipe insulation in thickness specified. If interferences occur, reroute piping to accommodate insulation.
- F. Install piping to maintain headroom, conserve space, and not interfere with use of space, removal of other equipment, ducts, or devices, or block access to doors, windows, or access openings.
- G. Group piping whenever practical at common elevations.
- H. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- I. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- J. Provide access where valves and fittings are not exposed.
- K. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- L. Install valves with stems upright or horizontal, not inverted. Refer to Section 22 05 23.
- M. Install water piping to ASME B31.9.
- N. Sleeve pipes passing through partitions, walls and floors.
- O. Do not use reducing bushings, street elbows, or close nipples.
- P. T-drill procedure for connecting pipes will not be allowed.

- Q. All piping in finished areas shall be installed concealed unless specifically noted otherwise.
- R. Provide escutcheons where pipe passes through walls, floors, or ceilings.
- S. Install all exposed piping parallel to the closest wall and in a neat, workmanlike manner.
- T. Strainers: Install strainers as indicated. Provide plugged gate or ball valve in blow-off connection on strainers, valve shall be same size as blow-off tapping. Final blow-off shall have a hose connection fitting.
- U. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.
- V. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.
- W. Inserts:
 - 1. Provide inserts for placement in concrete formwork.
 - 2. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
 - 3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
 - 4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
- X. Pipe Hangers and Supports:
 - 1. Install in accordance with ASME B31.9.
 - 2. Support horizontal piping as indicated.
 - 3. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
 - 4. Place hangers within 12 inches of each horizontal elbow.
 - 5. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
 - 6. Support vertical piping at every other floor. Support riser piping independently of connected horizontal piping.
 - 7. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
 - 8. Provide copper plated hangers and supports for copper piping.
 - 9. Provide hangers adjacent to motor driven equipment with vibration isolation; refer to Section 22 05 48.

10. Support cast iron drainage piping at every joint.
- Y. Manufactured Sleeve-Seal Systems:
 1. Install manufactured sleeve-seal systems in sleeves located in grade slabs and exterior concrete walls at piping entrances into building.
 2. Provide sealing elements of the size, quantity, and type required for the piping and sleeve inner diameter or penetration diameter.
 3. Locate piping in center of sleeve or penetration.
 4. Install field assembled sleeve-seal system components in annular space between sleeve and piping.
 5. Tighten bolting for a water-tight seal.
 6. Install in accordance with manufacturer's recommendations.
- Z. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

3.04 SOIL, WASTE, VENT, AND STORM DRAIN SYSTEMS

- A. Place cleanouts as follows:
 1. Where shown on plans and near bottom of each stack and riser.
 2. At every 90 degree change of direction for horizontal lines.
 3. Every 100 feet of horizontal run.
 4. Extend cleanout to accessible surface. Do not place cleanouts in carpeted floors. In such locations, use wall type cleanouts.
- B. Vent entire waste system to atmosphere. Discharge vent pipe minimum 14 inches above roof. Join lines together in least practicable number before projecting above roof. Set back vent lines so they will not pierce roof near edge or valley. Install vent piping penetrating roofed areas to maintain integrity of roof assembly.
- C. Use torque wrench to obtain proper tension in cinch bands on above ground hubless cast iron pipe. Butt ends of pipe against centering flange of coupling.
- D. Flash pipes passing through roof (or as shown on the plan) fitted snugly around pipes and caulk between flashing and pipe with flexible waterproof compound. Provide counterflashing fitting with vandal resistant screws. Extend lead up and turn in a minimum of 1" into the pipe. Flashing base shall be at least 24 inches square (or 8 inch radius).

- E. Install an expansion joint in each vertical straight run of PVC or polypropylene soil, waste, vent, and drain pipe at intervals in excess of 30 feet. Install and anchor pipe per expansion joint manufacturer's instructions. Provide access panel as required for servicing the expansion joint.
- F. Install vertical waste pipe to comply with standard installation practices for suds control.
- G. Reducing size of pipe in the direction of flow is prohibited.
- H. Install drainage piping at the following minimum slopes unless otherwise indicated:
 - 1. Building soil and waste drain: 2 percent downward in the direction of flow unless indicated otherwise on the plans.
- I. Field Quality Control
- J. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

3.05 APPLICATION

- A. Install unions downstream of valves and at equipment or apparatus connections.

3.06 TOLERANCES

- A. Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/4 inch per foot slope.
- B. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.

3.07 DOMESTIC WATER PIPING TESTS

- A. Tests: As the work progresses each section of the water system shall be tested under a 100psi hydrostatic test held for 2 hours without reduction of pressure (a pressure fluctuation of +/- 1 psi is acceptable). If any leaks occur or piping or valves are found to be defective, same shall be removed and new material installed, and the test made on that section again until all material is found to be satisfactory. Such test shall be made in the presence of the Owner's Representative.
- B. Provide written test documentation in the operation and maintenance manual.

3.08 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Prior to starting work, verify system is complete, flushed, and clean.
- B. Ensure acidity (pH) of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).
- C. Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 to 80 mg/L residual.

- D. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.
- E. Maintain disinfectant in system for 24 hours.
- F. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
- G. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.
- H. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C651.
- I. Provide test results in the operation and maintenance manual.

3.09 SCHEDULES

- A. Pipe Hanger Spacing:
 - 1. Metal Piping:
 - a. Pipe Size: 1/2 inches to 1-1/4 inches:
 - 1) Maximum Hanger Spacing: 6.5 ft.
 - 2) Hanger Rod Diameter: 3/8 inches.
 - b. Pipe Size: 1-1/2 inches to 2 inches:
 - 1) Maximum Hanger Spacing: 10 ft.
 - 2) Hanger Rod Diameter: 3/8 inch.
 - c. Pipe Size: 2-1/2 inches to 3 inches:
 - 1) Maximum Hanger Spacing: 10 ft.
 - 2) Hanger Rod Diameter: 1/2 inch.
 - d. Pipe Size: 4 inches to 6 inches:
 - 1) Maximum Hanger Spacing: 10 ft.
 - 2) Hanger Rod Diameter: 5/8 inch.
 - e. Pipe Size: 8 inches to 12 inches:
 - 1) Maximum hanger spacing: 14 ft.
 - 2) Hanger Rod Diameter: 7/8 inch.
 - f. Pipe Size: 14 inches and Over:
 - 1) Maximum Hanger Spacing: 20 ft.
 - 2) Hanger Rod Diameter: 1 inch.

- 2. Plastic Piping:
 - a. All Sizes:
 - 1) Maximum Hanger Spacing: 6 ft.
 - 2) Hanger Rod Diameter: 3/8 inch.
- END OF SECTION

SECTION 22 10 06
PLUMBING PIPING SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Thermometers.
- B. Pressure Gauges.
- C. Unions.
- D. Flexible Connectors.

1.02 REFERENCE STANDARDS

- A. ASSE 1013 - Performance Requirements for Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers; 2011.
- B. NSF 61 - Drinking Water System Components - Health Effects; 2017.
- C. NSF 372 - Drinking Water System Components - Lead Content; 2016.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.
- C. Manufacturer's Instructions: Indicate Manufacturer's Installation Instructions. Indicate assembly and support requirements.
- D. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views, etc. for the following:

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Accept specialties on site in original factory packaging. Inspect for damage.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Specialties in Potable Water Supply Systems: Provide products that comply with NSF 61 and NSF 372 for maximum lead content.

2.02 PRESSURE GAUGES

- A. Glycerin filled type, 2.5" reading dial with aluminum face and black numerals, markings in English units, 304 stainless steel case and acrylic lens. Provide each gauge with snubber and needle valve. Provide sockets with extension necks where installed on insulated piping.
- B. Pressure gauge ranges:
 - 1. Domestic Hot Water, range 0 - 160 PSI with numeral intervals of 20 PSI and 2 PSI inter-graduations.
 - 2. Domestic Cold Water, range 0 - 160 PSI with numeral intervals of 20 PSI and 2 PSI inter-graduations.
 - 3. Compressed Air, range 0 - 160 PSI with numeral intervals of 20 PSI and 2 PSI inter-graduations.
- C. Manufacturers:
 - 1. Ashcroft
 - 2. Marsh
 - 3. Weiss
 - 4. Tel-Tru
 - 5. Winters
 - 6. Taylor

2.03 UNIONS

- A. Dielectric Waterways: Inert, non-corrosive thermoplastic lining with zinc electroplated casing, rated at 300 psi at 225 deg. F., conforming to NSF 61. Type and size to match piping.
 - 1. Manufacturers:
 - a. Walter Vallett Company V-line
 - b. Clear Flow
- B. Unions on Copper Pipe:
 - 1. In 2" Pipe and Smaller: Wrought copper solder joint copper to copper union.
 - 2. In 2.5" Pipe and Larger: Brass flange unions.
 - 3. Manufacturers:
 - a. Watts
 - b. Nibco

- c. Mueller

2.04 FLEXIBLE CONNECTORS

- A. Water Pump Flexible Connectors: Flexible bronze braid, bronze hose, and copper ends rated to a working pressure of 470 psi at 70°F for a 1" flexible connector.
 - 1. Manufacturers:
 - a. Metraflex
 - b. Minnesota Flex
 - c. Resistoflex

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Thermometers: Install thermometers and thermal wells in piping at locations indicated, and so as to be easily read.
- C. Pressure Gauges: Install pressure gauges at each side of pressure reducing valves; and as indicated.
- D. Unions: Install unions in pipe connections to control valves, coils, regulators, reducers, all equipment, and where it may be necessary to disconnect the equipment or piping for repairs or maintenance; and as indicated.

END OF SECTION

SECTION 22 11 23
DOMESTIC-WATER PACKAGED BOOSTER PUMPS

PART 1 GENERAL

1.01 SUMMARY

- A. This section covers variable speed domestic cold water and domestic hot water pressure booster systems.

1.02 QUALITY ASSURANCE

- A. Installed material not meeting specification requirements of the Contract Documents will be subject to removal and replacement.

1.03 SUBMITTAL REQUIREMENTS OF THIS SECTION

- A. Manufacturer's technical data for the following:
 - 1. Pipe.
 - 2. Fittings
 - 3. Valves
 - 4. Hydro-Pneumatic Tank
 - 5. Pumps including materials of construction and performance curves.
 - 6. Controls including VFD's, sensors, sequence of operation and enclosure type stating all door mounted items.
 - 7. Welding standards and procedures for piping and structural steel.
 - 8. Paint including primer and finish coat.
- B. Three-dimensional drawings showing dimensions and electrical requirements.
- C. Certificate of NSF/ANSI 61/372 Compliance.
- D. Statement of AB1953 No Lead Compliance.

PART 2 PRODUCTS

2.01 APPROVED MANUFACTURERS

- A. Flowtherm
- B. Wilo
- C. Bell & Gossett

2.02 MANUFACTURED UNITS

- A. Manufacturers must be able to demonstrate a successful history of manufacturing similar systems for a minimum of 10 years.

- B. Booster pump package shall be UL Listed, NSF 61/372 certified compliant, and have all components frame mounted, piped, painted, wired and factory tested. All wetted surfaces shall be lead free. Package shall include Triplex pumps, manifolds, Wessels FXA-300 (or equal) 79 Gallon ASME hydro-pneumatic bladder tank and control panel. Package shall have a single point 208 volt 3 phase power connection.
- C. Pumps:
 - 1. Pumps shall be mounted vertical multistage with stainless steel fitted construction and mechanical seals. Pumps casings shall include vent and drain ports at the top and the bottom of the casings.
 - 2. Pumps shall be rated with a maximum working pressure of 360 psig for vertical multi-stage and 225F continuous operating temperature.
 - 3. Pumps shall run without excessive noise or vibration.
- D. Pumps motors shall be VFD-rated premium efficient motors and shall meet the efficiency requirements of EISA 2007. Motor shall have an ODP enclosure as called out in the equipment schedule.
- E. Each pump and motor to have nameplate listing manufacturer's name, pump serial number, capacity in GPM and feet of head at design conditions, motor horsepower, voltage frequency, speed and full load current.
- F. Check valves shall be NSF61/372 approved lead free, cast iron body with fusion epoxy coating, center guided with stainless steel spring, and lead-free bronze discs.
- G. Isolation valves at inlet and outlet of each pump shall be NSF61/372 approved butterfly or ball valves with union or flanged connections.
- H. Pump manifold headers shall be 304 stainless steel schedule 10 welded pipe for cold water service and 316 stainless steel schedule 10 welded pipe for hot water service. Header pipe size shall be designed or a maximum of 10 fps velocity. All pipe welds shall be performed by ASME Section IX certified welders and shall be welded to ASME/ANSI B31-9 specifications. System suction and discharge connections shall be Grooved.
- I. Pressure transducers shall be supplied on the suction and discharge manifold headers and factory wired to the control panel. For atmospheric break tank applications, the suction pressure transducer is mounted on the break tank to indicate tank level on the touchscreen display.
- J. The control system shall be configured for "pressure staging" in a lead/lag sequence. Each pump shall be fitted with a thermally activated purge valve to allow water to be purged to a remote drain in the event of a system overheating.

- K. The booster pump package shall include a factory wired Aqualogic™ XL (or equal) control panel, UL 508 listed in a NEMA 1 enclosure with single point power connection and all necessary components to allow for automatic operation of the variable speed pumps. The panel shall include the following components:
1. Main power disconnect, non-fused
 2. Control circuit transformer with fused secondary.
 3. Variable Frequency Drive for each pump
 4. Through the door circuit breaker disconnect for each pump.
 5. H-O-A selector switch for each pump
 6. Door Mounted Pump Status Lights shall include as a minimum:
 - a. Pump Run
 - b. Pump Out of Service
 - c. General Alarm
 7. Digital programmable logic controller
 8. HMI - Door mounted 6" color graphic touch screen display.
 9. Audible General Fault Alarm – includes a push to silence button and a set of dry contacts wired to a terminal strip for remote monitoring. A general fault alarm shall occur upon pump fault, VFD fault, PLC fault, transducer failure, high system pressure, low suction pressure, overload and network failure. The PLC shall maintain a data log including a date and time stamp of the past 20 system and VFD faults. These faults shall be displayed in English text on the HMI.
 10. The micro-processor based supervisory controller (HMI) shall be a panel door mounted unit with color graphic touch screen display. The controller shall include PID control functions and control the VFD's through a network interface. In addition to sending the run command and speed reference signal to the VFD's through the network interface, the HMI shall display line voltage, output frequency, output current and fault conditions for each VFD. The HMI shall provide an easy to use operator interface to all system parameters and display those parameters in plain English and engineering units. Monitoring functions shall be available to all users, but access to parameters shall be restricted by two levels of password protection.

11. Standard Variable Frequency Drive (VFD) features shall include over current, earth fault, electronic motor overload protection, over temperature, over voltage, under voltage, phase failure, PID close-loop controller, and automatic energy saving mode, motor synchronization, and user macro storage, auto restart after power failure, electronic motor potentiometer, 16 mixed frequencies and min/max frequency limitation.
12. Control logic shall include an energy saving proof of no demand shutdown, NDS, which tests the system demand and then shuts off the lead pump if no demand is proven. The lag pumps shall shut off when it operates at its minimum speed for an adjustable elapsed time. The control logic shall also include the energy saving feature of dynamic set point adjustment, DSA, which automatically lowers or increases the system discharge operating pressure set point as the system demand changes. Alternative designs that do not utilize a built in software algorithm to compensate for the variable friction losses shall not be allowed to have their pressure transducer mounted on the discharge header; instead their transducer shall be provided loose and installed at the furthest remote location of the system to account for the variable friction losses within the piping system. The controls shall automatically stage the pumps and adjust the pump speed based on discharge pressure control. The lead and lag pumps shall be rotated after each system shutdown. The controls shall start a lag pump on lead pump failure. A high temperature safety shut down system shall be provided which uses a temperature sensor which measures the discharge water temperature and is directly connected to the PLC. If a high temperature occurs the system shall shut down and go into alarm. The pump water temperature monitoring must be used as a safety feature and cannot be used as an operating control. The controls shall include pump minimum run time and pump maximum run time adjustable set points.
13. The PLC shall be capable of connection to a building management system (BMS) using BACnet IP.
14. The entire system shall be pre-assembled on a heavy structural steel frame. The frame shall be welded in accordance with AWS D1.1 specifications. The steel frame shall have a zinc oxide primer and a machine enamel finish coat.

15. Hydro-pneumatic bladder tank shall be ASME rated with a ring base and replaceable bladder. The tank shall be provided a union isolation ball valve, pressure gauge and drain valve. The tank shall ship loose for field installation

Pump package shall be rated for 210 GPM at 210 PSI at the discharge header based upon 120 PSI minimum suction pressure booster to deliver 90PSI Boost. All pumps shall be of equal capacity unless otherwise stated in the project pump schedule.

Part 3 EXECUTION

3.01 INSTALLATION

- A. Install pipe and fittings in accordance with reference standards, manufacturer's recommendations and recognized industry practices.
- B. Provide neoprene waffle pads under the pump skid and flexible pipe connections (metra-flex or equal) at each connection to the building system for vibration control.
- C. Anchor the pump skid to the concrete.
- D. Field piping includes connections to suction and discharge headers, drain piping and piping to hydro-pneumatic pressure tank, when not skid mounted, with union ball valve, pressure gauge and drain.
- E. Field electrical connections include main power to the control panel and control wiring to remote pressure transducer.
- F. Flush and clean piping prior to testing.
- G. The manufacturer shall pressure test the system prior to shipment. Test piping with water to a pressure of **125 psi** for 1 hour. No decrease in pressure allowed. Inspect joints in system under test.
- H. Defective work or material shall be replaced or repaired as necessary and inspection and test repeated. Repairs shall be made with new materials. Test reports shall be included in the owner's manual.
- I. The manufacturer shall test the control panel including operating logic, safeties and wiring prior to shipment.
- J. Pressure test and control panel tests reports shall be signed by the manufacturer and included with the equipment O&M's.
- K. The manufacturer's representative shall provide a system check and start-up service for the system. The system shall be warranted (including parts and labor) for a period of 12 months from date of start-up for 18 months after shipment, whichever comes first.

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 Division 26, 27, and 28. See Division 1 for sequence of work.

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 Division 26 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
- B. Cutting and Patching - See Division 1

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 to 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 "Contractors" 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.

- D. The contractor shall review the manufacturer provided installation instructions for each piece of equipment prior to rough-in. Any conflict between the drawings, specifications and installation instructions shall be brought to the Owner's attention immediately. The contractor will not be paid for any reinstallation required due to failing to comply with manufacturer's recommendations or requirements unless specifically directed by the engineer, in writing, after the conflict has been identified.

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. See Division 1 for detailed requirements.

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.
- B. Temporary power and lighting for use during construction shall be provided per the requirements of the Division 1 specifications.

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. 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, lighting controls, etc.
- D. Upon completion of the Division 26 the Contractor shall deliver the red lined drawings and one set of neatly drafted as-built drawings on electronic media in AutoCAD R-2016 format and full size pdf to the Engineer for transmittal through the Engineer to the Owner.

1.13 **WARRANTY**

- A. Provide a written warranty that the Division 26 work is free from mechanical and electrical defects. Contractor shall replace and repair, to the satisfaction of the Owner, any parts of the installation which may fail within a period of 12 months after the certificate of final acceptance or 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. Operation and maintenance data shall be submitted in accordance with Section 01 78 23.
- 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. Xerox copies of originals will not be accepted.
- 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. Where sheets show the equipment installed and other equipment, the installed equipment shall be neatly and clearly identified on such sheets. Parts lists shall give full ordering information assigned by the original parts manufacturer. Relabeled and/or renumbered parts information as reassigned by equipment supplier is 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 unity or other similar time unit.
- D. The O & M Manual shall be assembled electronically on compact disc. The information contained in the manuals shall be grouped in an orderly arrangement by specification index. The manuals shall have a typewritten index and divider sheets between categories with identifying tabs. The coversheet shall contain the name of the job, Owner, Division 26, Contractor, and year of completion.
- 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 INSTRUCTION PERIODS

- A. Upon completion of the work and after all tests and final inspection of the work by the authority(s) having jurisdiction, the Contractor shall demonstrate and instruct the Owner's designated operation and maintenance personnel in the operation and maintenance of the various electrical systems. The Contractor shall arrange scheduled instruction periods with the Owner. The Contractor's representatives shall be superintendents or foremen knowledgeable in each system and suppliers representatives when so specified.
- B. Scheduled Instruction periods shall be:
 - 1. Automatic Transfer Switch 1/2 day
- C. Costs for time involved by Contractor shall be included in the bid.

1.17 COMPLETION OF WORK

- A. Upon completion of the Division 26 work, the Contractor shall deliver to the Owner a completion letter stating that he has fulfilled all the requirements of his Contract for Division 26 work as set forth in the drawings and specifications and that all items in pre-final inspection lists have been satisfactorily completed.
- B. Arrange for and obtain all required inspections and certificates pertaining to the Division 26, work and deliver the certificates to the Owner in triplicate.
- 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, in triplicate form.
 - Electrical Inspector COMPLETION OF WORK
 - Fire Department 26 00 00 – 1.17
 - 3. Warranty to Owner SUPPLEMENTARY GENERAL CONDITIONS
26 00 00- 1.13
 - 4. Marked Set, Electronic GENERAL AS-BUILT DRAWINGS
Media Set on CD in 26 00 00– 1.12
AutoCAD R-2017
Format of " As-Built"
Electrical Drawings
 - 5. Motor Current GENERAL, TESTS
Readings 26 05 19 – 3.03(D)

- | | | |
|----|--|---|
| 6. | Phase Current Readings | GENERAL, TESTS
26 05 19 – 3.03 (E) |
| 7. | Certificate of Feeders Torque Results | WIRES AND CABLES
26 05 19 |
| 8. | Wiring diagrams, Maintenance Manuals, Operation Instructions, and Brochures (5 sets minimum) | GENERAL, INSTRUCTIONS & MANUALS –
26 00 00– 1.14 |

1.18 **SHOP DRAWING SUBMITTALS**

- A. This Contractor shall submit to the Owner as described in Section 01 60 00. When shop drawings are submitted electronically, they shall be submitted as described in Paragraph B below.
- B. The Contractor shall submit to the Owner 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. The contractor shall provide either a digital or hardware method of transporting the electronic submittal to the Owner. Files larger than 10Megabytes shall not be sent via email and shall be transferred via an FTP or similar file transfer protocol, PC compatible CD or PC compatible Thumb Drive.
 2. Each Specification PDF shall be submitted with the following format and salient attributes:
 - a. Cover page including:
 - i. Project Title as indicated on the plans
 - ii. Project Location including Address, City, State, Country
 - iii. Prime Contractor name, phone number, and email address
 - iv. Sub-Contractor name, phone number, and email address
 - v. 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 hi-lighted 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 hi-lighted as they apply to the project rather than hi-lighting 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 be not be protected to prevent printing, selecting of text within the document, or extracting of pages from the document.
- C. Shop drawings shall be submitted complete, at one time and each item indexed with dividers and separated per specification section and shall be, but not limited to the items of equipment listed below:
 - 1. Disconnect Switches
 - 2. Fuses
 - 3. Boxes
 - 4. Raceways and Connectors
 - 5. Copper Wire
 - 6. Automatic Transfer Switches
- D. Within 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, Contractor shall submit a new list of items he proposes 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.
- E. 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.
- F. Electrical Drawings for the project have been developed by the Engineer using AutoCAD™ Revision 2016 software. 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.

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 at his option 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 accordance with Section 01 60 00, 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.
 - 1. Motor Starter and Disconnect Labels: Refer to Section 26 28 16
 - 2. Automatic Transfer Switch.

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 Division 26 wiring and equipment with Division 23 and other trades. Where insufficient room for proper installation appears, obtain clarification from Owner before any installation is begun.
- B. Cutting and Patching:
 - 1. Obtain permission from the 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 Division 26. The work shall coordinate with that of the other Contractors and/or other trades doing work in the building and shall examine all Drawings, including the several Divisions of Mechanical and existing as-built drawings, 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 Owner 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 equipment is 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 Owner immediately. Final determination shall be by the Owner. The Contractor will not be paid for reinstallation due to failure to comply with manufacturer instructions or design documents.

3.03 **REQUESTS FOR INFORMATION (RFI)**

- A. It is our intent to provide a timely response for RFIs regarding Division 26 Work. To further expedite this process, where a suggestion can be determined or derived at by the initiator of the RFI, it is required this suggestion be supplied with the submitted RFI. If no suggestion is given where one is possible, the RFI will be returned as incomplete.

3.04 **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.

3.05 **EQUIPMENT IDENTIFICATION**

- A. Provide identifying 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.

3.06 **WIRING METHODS**

- A. All low voltage wiring shall be in Raceway with Junction Boxes and Fittings where concealed in walls, in inaccessible ceiling space, or where exposed in finished or unfinished areas.
- B. All branch circuit wiring shall be installed in raceway with junction boxes and fittings.
- C. Provide access panels as needed for pull boxes and equipment located above ceiling or behind walls.
- D. All emergency systems outlet and junction boxes shall have a red plastic tag inside marked critical or life safety as applicable.
- E. Multiple feeder runs shall be rod hung, using a strut type channel with individual one hole clamps, back plates and machine screws.
- F. Any low voltage cables that are not terminated at both ends shall be tagged and labeled per code.

3.07 **PENETRATIONS OF FIRE RATED ELEMENTS**

- A. Must be made such as to retain that rating.

3.08 **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 equipment unless permitted by Owner.

3.09 **PAINTING**

- A. Painting in general will be covered under another division of this specification, except items furnished under Division 26 that are scratched, marred in shipment or installation, shall be refinished by the Division 26 Contractor.

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 and workmanship like 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.

END OF SECTION

SECTION 26 00 05
ELECTRICAL – EXISTING SYSTEMS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Portions of the existing electrical power system are to be removed as detailed on the drawings.

1.02 RELATED DOCUMENTS

- A. Section 26 00 00 – Electrical General Conditions

PART 2 - PRODUCTS

2.01 EXISTING MATERIALS

- A. Existing materials which are a part of the building shall remain the property of the Owner.

2.02 EXISTING MATERIALS RE-INSTALLED

- A. Existing materials and equipment that are removed as a part of the work or stored in surplus may be re-installed as a part of the new system subject to approval of condition suitability by the Owner. The requirements of the specifications (i.e. installation, warranty, testing, etc.) shall apply as if the materials were new, supplied by the Contractor.

2.03 EXISTING MATERIALS NOT TO BE RE-INSTALLED

- A. In coordination with the Owner, these materials shall be made available for his inspection and decision as to whether the Owner will retain possession. Items selected for retention shall be delivered to a location on the premises selected by the Owner and turned over to him. Take reasonable care to avoid damage to this material. If the Contractor fails to conform to this requirement, he shall purchase and turn over to the Owner replacement materials of like kind and quality.
- B. All material not selected for retention by the Owner and debris shall be disposed of by the Contractor.

PART 3 - EXECUTION

3.01 **EXISTING CONDITIONS**

- A. Examine the structure, building, and conditions under which Division 26 work is to be installed for conditions detrimental to proper and timely completion of the work. Do not proceed with work until deficiencies encountered in installation have been corrected. Report any delay or difficulties encountered in installation of Division 26 work which might be unsuitable to connect with work by other divisions of this specification. Failure to report conditions shall constitute acceptance of other work as being fit and proper for the installation of Division 26 work.
- B. Maintain continuity of existing circuits of equipment to remain. Existing circuits of equipment shall remain energized. Circuits which are to remain but were disturbed during demolition shall have circuits, wiring, and power restored back to original condition.

3.02 **DEMOLITION**

- A. Switchboards, panelboards, signaling systems, other electrical equipment free standing (or surface mounted), raceway (exposed) and conductors no longer in service as a result of this Contract shall be removed. Unused raceways or sleeves shall be cut flush at ceiling, floor or wall and filled with grout.

3.03 **NEW DEVICES IN REMODEL AREAS**

- A. Provide surface mounting for devices on existing walls. Where existing boxes are indicated to be reused, extend box as necessary and provide new devices and plates.

3.04 **EXISTING PANELBOARD**

- A. Any modifications made to existing panels must be incorporated into the existing circuit index on the panel. If more than three circuits are modified a new typewritten index incorporating the changes to the existing index shall be installed in the existing panel.
- B. Listing shall match circuit breaker arrangements, typically with odd numbers on the left and even numbers on the right.

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 26 00 00 – 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.

2.02 **WIRE AND CABLE (ALUMINUM, 600-VOLT)**

- A. Not allowed.

2.03 **SPLICES**

- A. Above Grade: 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. No. 12 AWG minimum for power circuits.
- B. Provide solid wire for No. 10 AWG and smaller, and stranded conductors for No. 8 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 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 Owner. 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 nameplate full-load amperes, and actual operating amperes of each motor. **IMPORTANT:** Submit recorded data in triplicate to the Owner. Check proper load balance on the electrical system, direction of rotation, lubrication, and overload protection of all motors before placing in operation.
- D. Provide a log of ampere reading for all panels from phase to neutral for 4 wire panels and from phase to phase for 3 wire panels. These readings shall be taken with all loads activated.
- E. The final test of all equipment shall be made on dates designated by the Owner and all readings shall be made in his presence.
- F. 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.
- G. Minimum megger test for equipment shall be as follows:

Equipment Maximum Voltage Rating	Minimum Test Resistance
1,000-Volts or less	2 Megohms
- H. 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. Use no mechanical means for pulling No. 8 AWG conductors and smaller. 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 26 00 00 – 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. Install pull boxes so as to be accessible after completion of building construction.

PART 3 - EXECUTION

3.01 **ANCHORING**

- A. All boxes shall be firmly anchored. Boxes must be so attached so that they will not "Rock" or "Shift" when devices are operated.

3.02 **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.

3.03 **BLANK COVERS**

- A. Provide blank covers or plates over all boxes not covered by equipment.

3.04 **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 Owner.
- B. 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.

3.05 **COLOR CODING**

- A. All Junction Boxes installed in accessible spaces and exposed in unfinished areas shall be color coded using spray paint or tape on the box and cover as applicable in the following manner:
 - 120/208-Volt Gray
 - Emergency Power Orange
 - Fire Alarm Red
- B. The colors shall match the colors used on the Raceway - See Section 26 05 33

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 26 00 00 – Electrical General Conditions

PART 2 - PRODUCTS

2.01 **GALVANIZED RIGID STEEL CONDUIT (GRS)**

- A. General: Hot dipped galvanized.
- B. Fittings: Galvanized malleable iron or noncorrosive alloy compatible with galvanized conduit. Erickson couplings, watertight split couplings (O.Z. type or equivalent) permitted. Running thread or set screw type fittings not approved.

2.02 **INTERMEDIATE METAL CONDUIT (IMC)**

- A. General: Hot Dipped galvanized.
- B. Fittings: Galvanized malleable iron or noncorrosive alloy compatible with galvanized conduit. Erickson couplings, watertight split couplings (O.Z. type or equivalent) permitted. Running thread or set screw type fittings not approved.

2.03 **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.

2.04 **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.

PART 3 - EXECUTION

3.01 **GENERAL**

- A. Cut Raceway ends square, ream and extend maximum distance into all couplings and connectors.
- B. 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.
- C. Swab out all Raceways before pulling wires.
- D. All elbows for GRS Raceway shall be factory radius bends. For all other Raceway, use factory radius bends of 1-1/4" and larger diameter.

3.02 **GALVANIZED RIGID STEEL CONDUIT**

- A. All Connections shall be watertight. Install for all Raceways where subject to damage.

3.03 **INTERMEDIATE METAL CONDUIT**

- A. Intermediate metal conduit is permitted as a substitute for galvanized rigid steel conduit except where GRS is required by code.

3.04 **ELECTRICAL METALLIC TUBING**

- A. May be used for exposed work in unfinished areas where not subject to damage.

3.05 **SEALING OF RACEWAY PENETRATIONS**

- A. 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.

3.06 **HANGERS FOR RACEWAYS**

- A. When more than two Raceways will use the same routing, group together on a patented channel support system (such as Unistrut).

3.07 **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.

3.08 **COLOR CODING**

- A. General: Provide color bands of tape or paint one inch (25 mm) wide for Raceways up to two inch (51 mm) in diameter and one-half the Raceway diameter for larger Raceways, applied at panel and pullbox locations within each room, and 50 ft. (15.25 m) on centers within an area.
- B. Color Banding:
 - 120/208 Volt Gray
 - Emergency Power Orange
 - Fire Alarm Red
- C. The colors shall match the colors used on the boxes - See Section 26 05 32.

3.09 **PULL CORDS**

- A. Nylon type shall be included in all installed empty Raceway.

END OF SECTION

SECTION 26 28 13
FUSES

PART 1 - GENERAL

1.01 **RELATED DOCUMENTS**

- A. Section 26 00 00 – 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 601 to 6000 amperes shall be protected by current limiting BUSSMANN Low-Peak Time-Delay Fuses KRP-C. Fuse links shall be pure silver links (99.9% pure), delay and must hold 500% of rated current for a minimum of 4 seconds, clear 20 times rated current in .01 seconds or less and be listed by Underwriters Laboratories Inc., with an interrupting rating of 200,000 amperes r.m.s.
- B. 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.

- C. 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 26 00 00 – 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 padlockable in the "Off" position.
- C. Enclosure shall be suitable for environment in which mounted. All exterior enclosures shall have a minimum 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 26 28 13.
- B. 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 26 00 00, Paragraph 2.05.

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 **SPICES**

- 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 36 23
AUTOMATIC TRANSFER SWITCHES
TIME DELAY NEUTRAL

PART 1 - GENERAL

1.01 **RELATED DOCUMENTS**

- A. Section 26 00 00 – Electrical General Conditions

1.02 **WORK INCLUDED**

- A. Provide all automatic transfer switches. Meet UL Standard 1008.

PART 2 - PRODUCTS

2.01 **ACCEPTABLE MANUFACTURERS**

- A. Asco
- B. Zenith
- C. Thomson
- D. Cummins

2.02 **TYPE**

- A. Transfer and retransfer to normal load shall be automatic. Automatic transfer switches shall be electrically operated, mechanically held and supplied with positive mechanical interlocking. The main contracts shall be equipped with a safe manual override capability, UL 1008 listed meeting tables 21.1, 23.1, 23.2.
- B. Automatic Transfer Switch shall be open transition, time delayed type
- C. Shall be bypass isolation type.

2.03 **RATING**

- A. Shall have voltage, amperage and ampere withstand ratings as indicated on the drawings.
- B. Transfer switches used to transfer from normal to emergency power shall be approved for emergency service, full ampere rated (no derating) with make rating at 20 times and break rating at 6 times full load current rating.

2.04 ACCESSORIES

- A. The following accessories shall be provided as a minimum in addition to those normally required for proper operation.
 - 1. Full three phase voltage failure and phase reversal sensing. Adjusting drop out and pick up. Set at 85% drop out, 92% pick up.
 - 2. Signals: Two pilot lights for indicating transfer position. White - normal, yellow - emergency at transfer switch. Auxiliary contacts for remote pilot lights.
 - 3. Test Switch: For simulating power failure.
 - 4. Transfer: Adjustable ride through feature of approximately 0-10 seconds for start of engine generator and transfer on momentary loss of normal source. Set at 1 second. Includes two auxiliary contacts, one N.O. and one N.C. for use for engine start signal.
 - 5. Retransfer: Adjustable time delay (with emergency failure by-pass) of 0 to 30 minutes for retransfer to normal. Set at 15 minutes.

2.05 ENCLOSURE

- A. Each transfer switch shall be enclosed in an enclosure suitable for the environment in which it is located, with front opening lockable door.

2.06 SHOP DRAWINGS

- A. Prepare and submit detailed shop drawings for review prior to manufacture. Include the following information (written or highlighted): wiring diagrams, dimensions, front view, catalog information indicating complete electrical and mechanical characteristics and compliance with all specification items of Section 26 36 23.

PART 3 - EXECUTION

3.01 MOUNTING

- A. Free-standing assembly as per plans.

3.02 OPERATION TEST

- A. Provide testing of transfer system coordinated with generator set(s) and start control panel to insure proper operation of transfer devices under actual operating conditions.

3.03 SEQUENCE

- A. Any automatic transfer switch sensing loss of power shall start the emergency generator set and the set shall continue to run until after all transfer switches have returned to normal power (engine cool-down timer part of emergency generator set).

3.04 OPERATIONS AND MAINTENANCE MANUALS

- A. Provide pursuant to Specification Section 16050. Manuals shall in addition contain the following information:
1. Recommended test intervals.
 2. Recommended service intervals.
 3. Test and service record forms showing proper intervals for tests.
 4. Recommended maintenance.
 5. The first page of the manual shall contain the name, address and phone number of the local representative to be called for service and parts.

3.05 INSTRUCTION

- A. The Contractor shall (after one week (minimum) written notification to Owner) conduct an instruction session during which all maintenance and operational aspects of the system will be described and demonstrated to personnel selected by the Owner in conjunction with instruction period for generator system equipment. The session shall be conducted by a Contractor's representative thoroughly familiar with the characteristics of the system. O & M Manual information regarding the system shall be turned over to the Owner prior to scheduling the instruction session.

END OF SECTION

APPENDIX A

- Limited Hazardous Materials Survey

Limited Hazardous Materials Survey Report

Tacoma Municipal Building – Pump Replacement

747 Market Street
Tacoma, WA 98444

Prepared for:
City of Tacoma Public Work Department
Facilities Management Division
747 Market Street, Room 744
Tacoma, WA 98402

December 31, 2019
PBS Project No. 41286.022



214 E GALER STREET
SUITE 300
SEATTLE, WA 98102
206.233.9639 MAIN
866.727.0140 FAX
PBSUSA.COM

TABLE OF CONTENTS

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1.1	Project Background.....	1
1.2	Survey Process	1
2	FINDINGS.....	1
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2.2	Lead-Containing Paint (LCP)	2
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3.2	LCP	3

APPENDIX A: PLM Bulk Sampling Information

PLM Bulk Sample Inventories
PLM Bulk Sample Laboratory Data Sheets
PLM Bulk Sample Chain of Custody Documentation

APPENDIX B: AA Lead Paint Chip Sampling Information

AA Lead Paint Chip Sample Inventories
AA Lead Paint Chip Laboratory Data Sheets
AA Lead Paint Chip Chain of Custody Documentation

APPENDIX C: Certifications

1 INTRODUCTION

1.1 Project Background

PBS Engineering and Environmental, Inc. (PBS) performed a limited hazardous materials survey of mechanical spaces, chases, and shafts on the Basement Level, 9th Floor, 16th Floor, and 17th Floor of the Tacoma Municipal Building located at 747 Market Street in Tacoma, Washington, in conjunction with the planned domestic water pump replacement project. The intent of this investigation is to ensure that City of Tacoma is in compliance with applicable regulatory requirements that a "good faith inspection" for ACMs be performed prior to renovation activities.

At the request of City of Tacoma Public Works Facilities Management, all accessible areas included in the planned pump replacement project areas were inspected for the presence of Asbestos-Containing Materials (ACMs) and Lead-Containing Paint (LCP). Areas inspected were based on drawings provided by the BCE Engineers, Inc.

The planned work areas are comprised of mechanical spaces, bathroom chases, and mechanical shafts. Interior finishes within these areas include concrete floors, wall, and ceilings on the Basement Level; concrete floors and ceilings with brick/mortar walls, and gypsum wallboard covering plaster restroom ceilings, on the 9th Floor; and concrete floors and ceilings with brick/mortar walls on the 16th and 17th Floors work areas.

1.2 Survey Process

Accessible areas included in the project scope were inspected by AHERA Certified Building Inspector Cel Alvarez (Cert. No. 171157 Exp. 1/23/2020) on November 26, 2019. PBS endeavored to inspect all accessible areas of the scope of work. Inaccessible areas consist of those requiring selective demolition, fall protection, or confined space entry protocols in order to gain access.

When observed, suspect materials were sampled, or presumed to contain asbestos. Sixteen (16) bulk samples were collected of suspect asbestos-containing materials. All samples were assigned a unique identification number and transmitted for analysis to Seattle Asbestos Test (NVLAP #200768-0) under chain-of-custody protocols. Samples were analyzed according to EPA Method 600R-93/116 using Polarized Light Microscopy (PLM), which has a reliable limit of quantification of 1% asbestos by volume. Information regarding the type and location of sampled materials can be found on the attached PLM Sample Inventory.

Suspect ACMs may exist in inaccessible areas of the Tacoma Municipal Building. PBS endeavored to determine the presence of suspect materials in all accessible areas included in the scope of work. While PBS has endeavored to identify ACM that may be found in concealed locations, additional unidentified ACM may exist.

2 FINDINGS

2.1 Asbestos-Containing Materials (ACMs)

The following materials were determined to contain greater than 1% asbestos:

- **Piping Flange Gaskets – fire pump and domestic pump lines in Basement - approx. 52 EA.**

PBS sampled four (4) accessible flange gaskets and all were found to contain no asbestos. However, it is possible that older asbestos-containing gaskets may exist. Disassembly of piping flanges was not included in the scope of this investigation. Any untested piping flange gaskets should be presumed to contain asbestos pending testing.

The following materials sampled *in areas of planned work* were found not to contain detectable concentrations of asbestos:

- Joint compound and gypsum wallboard – Throughout;
- Plaster – 9th floor women’s bathroom chase;
- Piping insulation – Throughout;
- Water tank insulation – 17th floor “Penthouse”;
- Brick and mortar – Throughout;
- Vibration pad – Basement, water pump for domestic water.

For a complete listing of representative bulk sampling and associated laboratory analysis refer to the attached PLM Asbestos Sample Inventories and associated laboratory reports Appendix A.

2.2 Lead-Containing Paint (LCP)

PBS inspected representative paint coatings for lead. Six (6) samples of representative painted coatings were collected throughout for lead analysis as part of this investigation. The samples were assigned unique identification numbers and transmitted to EMSL Laboratories, Inc. (AIHA-LAP #167337) under chain-of-custody protocols for analysis using Flame Atomic Absorption.

- All six (6) samples were found to contain lead at concentrations ranging from 0.0085% to 1.5%.

Based on testing and age of the building, all painted coatings are considered lead containing.

Refer to the attached Lead Paint Chip Sample Inventory for additional information on materials sampled as part of this investigation, Appendix B.

3 RECOMMENDATIONS

3.1 ACMs

The possibility exist that suspect ACM may be present in equipment, wall and ceiling cavities, and in select areas of the ceiling included in the scope. These may include but are not limited to ACM pipe insulation and hard-mudded fittings in wall cavities, chase areas and ceiling plenums, construction mastics and adhesives within wall/ceiling assemblies, mechanical insulation/components on ductwork and equipment, and/or weatherproofing/moisture barriers.

PBS recommends that any previously unidentified materials revealed during construction activities be sampled for asbestos content prior to impact. In the event that suspect ACM is uncovered during construction, contractor should stop work immediately and inform the owner promptly for confirmation testing. All untested materials should be presumed asbestos-containing or tested for asbestos content prior to impact.

3.2 LCP

Representative painted coatings sampled as part of this investigation were found to contain detectable lead by laboratory analysis. Other painted coatings may exist in inaccessible areas of the work area or in secondary coatings. Any previously unidentified painted coatings should be considered lead containing until sampled and proven otherwise.

Impact of painted surfaces with detectable concentrations of lead requires construction activities to be performed according to Washington Labor and Industries regulations for Lead in Construction (WAC 296-62-155). Workers impacting LCP should be provided the proper personal protective equipment and use proper work methods to limit occupational and environmental exposure to lead until an initial exposure assessment has been conducted.

Report prepared by:

Report reviewed by:

Cel Alvarez
AHERA Building Inspector
Cert. # 171157, expiration 1/23/2020

Tim Ogden
Principal/ Sr. Project Manager,
AHERA Building Inspector
Cert. #IR-19-2008A, exp. 4/2/2020

APPENDIX A

PLM Bulk Sampling Information

PLM Bulk Sample Inventory

PLM Bulk Sample Laboratory Data Sheets

PLM Bulk Sample Chain of Custody Documentation

**Tacoma Municipal Bldg. Pump Replacement
City of Tacoma**

**PBS Engineering + Environmental
PBS Project #41286.022**

PLM ASBESTOS SAMPLE INVENTORY

<u>PBS Sample #</u>	<u>Material Type</u>	<u>Sample Location</u>	<u>Lab Description</u>	<u>Lab Result</u>	<u>Lab</u>
41286.019 -01	Joint compound Gypsum wallboard	9 th Floor, Women's restroom, ceiling	Layer 1: Trace white powdery material with paint and paper Layer 2: Brown chalky material with paper	NAD NAD	SAT
41286.019 -02	Cloth with fiberglass insulation	Basement, domestic water line, wrap around valves	Layer 1: White woven fibrous material Layer 2: Yellow fibrous material	NAD NAD	SAT
41286.019 -03	Cloth with fiberglass insulation	Basement, domestic water line, wrap around valves	Layer 1: White woven fibrous material Layer 2: Yellow fibrous material	NAD NAD	SAT
41286.019 -04	Cloth with fiberglass insulation	Basement, domestic water line, wrap around valves	Layer 1: White woven fibrous material Layer 2: Yellow fibrous material	NAD NAD	SAT
41286.019 -05	White caulking Fiberglass insulation	Basement, domestic water line, pipe ends	Layer 1: White soft material with paint Layer 2: Yellow fibrous material	NAD NAD	SAT
41286.019 -06	White caulking Fiberglass insulation	Basement, domestic water line, pipe ends	Layer 1: White soft material Layer 2: Yellow fibrous material	NAD NAD	SAT
41286.019 -07	White caulking Fiberglass insulation	Basement, domestic water line, pipe ends	Layer 1: White soft material Layer 2: Yellow fibrous material	NAD NAD	SAT
41286.019 -08	Black insulated pad	Basement, under pump footing, domestic water lines	Layer 1: Black/brown cork	NAD	SAT
41286.019 -09	Gasket	Basement, fire suppressor lines, large valves	Layer 1: Brown/red brittle material	NAD	SAT
41286.019 -10	Gasket	Basement, fire suppressor lines, small valves	Layer 1: Black soft material	NAD	SAT
41286.019 -11	Gasket	9 th Floor, mechanical shaft, domestic cold water supply, large valve	Layer 1: Black soft material with fibrous material	NAD	SAT
41286.019 -12	Gasket	9 th Floor, mechanical shaft, domestic cold water supply, small valve	Layer 1: Black/red rubbery material	NAD	SAT
41286.019 -13	Brick mortar	9 th Floor, women's bathroom chase	Layer 1: Gray sandy/brittle material	NAD	SAT
41286.019 -14	Water tank insulation	17 th Floor, penthouse, cold water tanks	Layer 1: Yellow/off-white foamy material	NAD	SAT

**Tacoma Municipal Bldg. Pump Replacement
City of Tacoma**

**PBS Engineering + Environmental
PBS Project #41286.022**

<u>PBS Sample #</u>	<u>Material Type</u>	<u>Sample Location</u>	<u>Lab Description</u>	<u>Lab Result</u>	<u>Lab</u>
41286.019 -15	Water tank insulation	17 th Floor, penthouse, cold water tanks	Layer 1: Yellow/off-white foamy material	NAD	SAT
41286.019 -16	Water tank insulation	17 th Floor, penthouse, cold water tanks	Layer 1: Yellow/off-white foamy material	NAD	SAT
41286.019 -17	Plaster	9 th Floor, Women's restroom, ceiling (covered by GWB)	Layer 1: Gray sandy/brittle material with debris	NAD	SAT
41286.019 -18	Plaster	9 th Floor, Women's restroom, ceiling (covered by GWB)	Layer 1: Gray sandy/brittle material with debris	NAD	SAT
41286.019 -19	Plaster	9 th Floor, Women's restroom, ceiling (covered by GWB)	Layer 1: Gray sandy/brittle material with debris	NAD	SAT

SEATTLE ASBESTOS TEST, LLC

Seattle Laboratory: 4500 9th Ave, NE, Suite 300, Seattle, WA 98105, Tel: 206.633.1111, Fax: 206.633.4747, NVLAP Lab Code: 201057-0

www.seattleasbestosest.com, admin@seattleasbestosest.com

Project Manager: Mr. Tim Ogden, Mr. Cel Alvarez, Ms. Eman Jabali
Client: PBS Engineering and Environmental, Seattle
Address: 214 E Galer Street, Suite 300, Seattle, WA 98102
Tel: 206.233.9639

Date Analyzed: 11/27/2019
Client Job#: 41286.022
Project Location: TMB Pump Replacement
Laboratory batch#: 201913098
Samples Received: 16

Enclosed please find the test results for the bulk samples submitted to our laboratory for asbestos analysis. Analysis was performed using polarized light microscopy (PLM) in accordance with Test Method US EPA/600/R-93/116.

Percentages for this report are done by visual estimate and relate to the suggested acceptable error ranges by the method. Since variation in data increases as the quantity of asbestos decreases toward the limit of detection, the EPA recommends point counting for samples containing between <1% and 10% asbestos (NESHAP, 40 CFR Part 61). Statistically, point counting is a more accurate method. If you feel a point count might be beneficial, please feel free to call and request one.

The test results refer only to the samples or items submitted and tested. The accuracy with which these samples represent the actual materials is totally dependent on the acuity of the person who took the samples. This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government. The test report or calibration certificate shall not be reproduced except in full, without written approval of the laboratory.

This report is highly confidential and will not be released without your consent. Samples are archived for 30 days after the analysis, and disposed of as hazardous waste thereafter.

Thank you for using our service and let us know if we can further assist you.

Sincerely,



Steve (Fanyao) Zhang
President

201913098

Project: TMB Pump ReplacementProject #: 41286.022Analysis requested: PLMDate: 11/26/19Relinquished by/Signature: [Signature]Date/Time: 11/26/19 1400Received by/Signature: Carolyn YeeDate/Time: 11/26/19 16:45Analyzed by: Carolyn YeeDate/Time: 11/27/19 9:45

E-mail results to:

- ☐ Brian Stanford
☐ Willem Mager
☐ Gregg Middaugh
☐ Mark Hiley
☒ Tim Ogden
☐ Prudy Stoudt-McRae
☒ Cel Alvarez
☐ Janet Murphy
☐ Kaitlin Soukup
☐ Martin Estira
☐ Justin Day
☐ Filmon Embaye

- ☐ Mike Smith
☐ Ferman Fletcher
☐ Holly Tuttle
☐ Ryan Hunter
☒ Eman Jabali

E-mail all invoices to: seattleap@pbsusa.com

TURN AROUND TIME:

- ☐ 1 Hour
☐ 2 Hours
☒ 24 Hours
☐ 48 Hours
☐ 3-5 Days
☐ Other _____

SAMPLE DATA FORM

Sample #	Material	Location	Lab
41286.022-01	JC/GWB	9 th Floor, Women's restroom, ceiling	SAT
41286.022-02	Cloth with fiberglass insulation	Basement, domestic water line, wrap around valves	SAT
41286.022-03	Cloth with fiberglass insulation	Basement, domestic water line, wrap around valves	SAT
41286.022-04	Cloth with fiberglass insulation	Basement, domestic water line, wrap around valves	SAT
41286.022-05	White caulking w/ fiberglass	Basement, domestic water line, pipe ends	SAT
41286.022-06	White caulking w/ fiberglass	Basement, domestic water line, pipe ends	SAT
41286.022-07	White caulking w/ fiberglass	Basement, domestic water line, pipe ends	SAT
41286.022-08	Black insulated pad	Basement, under pump footing, domestic water lines	SAT
41286.022-09	Gasket	Basement, fire suppressor lines, large valves	SAT
41286.022-10	Gasket	Basement, fire suppressor lines, small valves	SAT
41286.022-11	Gasket	9 th floor, mechanical shaft, domestic cold water supply, large valve	SAT
41286.022-12	Gasket	9 th floor, mechanical shaft, domestic cold water supply, small valve	SAT
41286.022-13	Brick mortar	9 th floor, women's bathroom chase	SAT
41286.022-14	Tank insulation	17 th floor, penthouse, cold water tanks	SAT
41286.022-15	Tank insulation	17 th floor, penthouse, cold water tanks	SAT
41286.022-16	Tank insulation	17 th floor, penthouse, cold water tanks	SAT

SEATTLE ASBESTOS TEST

Seattle Laboratory: 4500 9th Ave. NE, Suite 300, Seattle, WA 98105, Tel: 206.633.1111, Fax: 206.633.4747, NVLAP Lab Code: 201057-0

Disclaimer: This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government.

ANALYTICAL LABORATORY REPORT PLM by Method EPA/600/R-93/116

Mr. Tim Ogden, Mr.
Attn: Cel Alvarez, Ms.
Eman Jabali
Job#: 41286.022
Samples Rec'd: 16
Project Loc.: TMB Pump Replacement

Client: PBS Engineering and
Environmental, Seattle
Batch#: 201913098
Date Analyzed: 11/27/2019

Address: 214 E Galer Street, Suite 300, Seattle, WA 98102
Date Received: 11/26/2019
Samples Analyzed: 16

Analyzed by: Carolyn Yen

Reviewed by: Steve (Fanyao) Zhang, President

Lap ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
1	41286.022-01	1	Trace white powdery material with paint and paper		None detected	Binder, Filler, Paint	2	Cellulose
		2	Brown chalky material with paper		None detected	Binder/filler, Gypsum/binder	24	Cellulose
2	41286.022-02	1	White woven fibrous material		None detected	Filler	87	Glass fibers
		2	Yellow fibrous material		None detected	Filler	91	Glass fibers
3	41286.022-03	1	White woven fibrous material		None detected	Filler	88	Glass fibers
		2	Yellow fibrous material		None detected	Filler	93	Glass fibers
4	41286.022-04	1	White woven fibrous material		None detected	Filler	85	Glass fibers
		2	Yellow fibrous material		None detected	Filler	90	Glass fibers
5	41286.022-05	1	White soft material		None detected	Binder, Filler	2	Cellulose
		2	Yellow fibrous material		None detected	Filler	89	Glass fibers
6	41286.022-06	1	White soft material		None detected	Binder, Filler	3	Cellulose
		2	Yellow fibrous material		None detected	Filler	86	Glass fibers
7	41286.022-07	1	White soft material		None detected	Binder, Filler	2	Cellulose
		2	Yellow fibrous material		None detected	Filler	88	Glass fibers
8	41286.022-08	1	Black/brown cork		None detected	Cork		None detected
9	41286.022-09	1	Brown/red brittle material		None detected	Binder, Filler	2	Cellulose
10	41286.022-10	1	Black soft material		None detected	Binder, Filler	31	Cellulose
11	41286.022-11	1	Black soft material with fibrous material		None detected	Binder, Filler	39	Cellulose
12	41286.022-12	1	Black/red rubbery material		None detected	Rubber/binder	2	Cellulose
13	41286.022-13	1	Gray sandy/brittle material		None detected	Sand, Filler, Binder	3	Cellulose
14	41286.022-14	1	Yellow/off-white foamy material		None detected	Synthetic foam		None detected
15	41286.022-15	1	Yellow/off-white foamy material		None detected	Synthetic foam		None detected

SEATTLE ASBESTOS TEST

Seattle Laboratory: 4500 9th Ave. NE, Suite 300, Seattle, WA 98105, Tel: 206.633.1111, Fax: 206.633.4747, NVLAP Lab Code: 201057-0

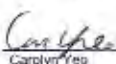
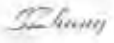
Disclaimer: This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government.

ANALYTICAL LABORATORY REPORT PLM by Method EPA/600/R-93/116

Mr. Tim Ogden, Mr.
Attn.: Cel Alvarez, Ms.
Eman Jabali
Job#: 41286.022
Samples Rec'd: 16
Project Loc.: TMB Pump Replacement

Client: PBS Engineering and
Environmental, Seattle
Batch#: 201913098
Date Analyzed: 11/27/2019

Address: 214 E Galer Street, Suite 300, Seattle, WA 98102
Date Received: 11/26/2019
Samples Analyzed: 16

Analyzed by:  Carolyn Yee
Reviewed by:  Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
16	41286.022-16	1	Yellow/off-white foamy material with paint		None detected	Synthetic foam, Paint		None detected

SEATTLE ASBESTOS TEST, LLC

Seattle Laboratory: 4500 9th Ave. NE, Suite 300, Seattle, WA 98105, Tel: 206.633.1111, Fax: 206.633.4747, NVLAP Lab Code: 201057-0

www.seattleasbestostest.com, admin@seattleasbestostest.com

Project Manager: Tim Ogden

Client: PBS Engineering and Environmental, Seattle

Address: 214 E Galer Street, Suite 300, Seattle, WA
98102

Tel: 206.233.9639

Date Analyzed: 12/26/2019

Client Job#: 41286.022

Project Location: TMB Pump Replacement

Laboratory batch#: 201913360

Samples Received: 3

Enclosed please find the test results for the bulk samples submitted to our laboratory for asbestos analysis. Analysis was performed using polarized light microscopy (PLM) in accordance with Test Method US EPA - 40 CFR Appendix E of Part 763, Interim Method of Determination of Asbestos in Bulk Insulation Samples and Test Method US EPA/600/R-93/116.

Percentages for this report are done by visual estimate and relate to the suggested acceptable error ranges by the method. Since variation in data increases as the quantity of asbestos decreases toward the limit of detection, the EPA recommends point counting for samples containing between <1% and 10% asbestos (NESHAP, 40 CFR Part 61). Statistically, point counting is a more accurate method. If you feel a point count might be beneficial, please feel free to call and request one.

The test results refer only to the samples or items submitted and tested. The accuracy with which these samples represent the actual materials is totally dependent on the acuity of the person who took the samples. This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government. The test report or calibration certificate shall not be reproduced except in full, without written approval of the laboratory.

This report is highly confidential and will not be released without your consent. Samples are archived for 30 days after the analysis, and disposed of as hazardous waste thereafter.

Thank you for using our service and let us know if we can further assist you.

Sincerely

Steve Zhang

Steve (Fanyao) Zhang
President

Project: TMB Pump Replacement

Analysis requested: PLM

Relinq'd by/Signature: 

Received by/Signature: Caroline Yeo G111111

Project #: 41286, 027

Date: 12/26/19

Date/Time: 12/26/19 10:22

Date/Time: 12/26/19 10:22

E-mail results to:

- ☐ Brian Stanford
- ☐ Willem Mager
- ☐ Gregg Middaugh
- ☐ Mark Hiley
- ☒ Tim Ogden
- ☐ Ryan Hunter

- ☐ Prudy Stoudt-McRae
- ☒ Cel Alvarez
- ☐ Janet Murphy
- ☐ Kaitlin Soukup
- ☐ Martin Estira

- ☐ Holly Tuttle
- ☐ Filmon Embaye
- ☐ Mike Smith
- ☐ Ferman Fletcher

☒ ~~Melissa Mearns~~ Eman Tabak

TURN AROUND TIME:

- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours

- ☒
- 24 Hours
-
- ☐
- 48 Hours

- ☐ 3-5 Days
- ☐ Other

SAMPLE DATA FORM

[illegible]

SEATTLE ASBESTOS TEST

Seattle Laboratory: 4500 9th Ave. NE, Suite 300, Seattle, WA 98105, Tel: 206.633.1111, Fax: 206.633.4747, NVLAP Lab Code: 201057-0

Disclaimer: This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government.

ANALYTICAL LABORATORY REPORT PLM by Method EPA/600/R-93/116

Attn.: Tim Ogden Client: PBS Engineering and Environmental, Seattle Address: 214 E Galer Street, Suite 300, Seattle, WA 98102
Job#: 41286.022 Batch#: 201913360 Date Received: 12/26/2019
Samples Rec'd: 3 Date Analyzed: 12/26/2019 Samples Analyzed: 3
Project Loc.: TMB Pump Replacement

Analyzed by: Yui Yang

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
1	41286.022-17	1	Gray sandy/brittle material with debris		None detected	Sand, Filler, Binder, Debris	4	Cellulose
2	41286.022-18	1	Gray sandy/brittle material		None detected	Sand, Filler, Binder	3	Cellulose
3	41286.022-19	1	Gray sandy/brittle material		None detected	Sand, Filler, Binder	3	Cellulose

APPENDIX B

AA Lead Paint Chip Sampling Information

AA Lead Paint Chip Sample Inventory

AA Lead Paint Chip Laboratory Data Sheets

AA Lead Paint Chip Chain of Custody Documentation

AA LEAD PAINT CHIP SAMPLE INVENTORY

<u>PBS Sample #</u>	<u>Paint Color / Component or Substrate</u>	<u>Sample Location</u>	<u>Results (%)</u>	<u>Lab</u>
41286.022 -PB01	Green/concrete/wall	Basement, west wall concrete	0.26	EMSL
41286.022 -PB02	Light green/concrete/wall	Basement, west wall concrete,>4ft	0.0085	EMSL
41286.022 -PB03	Blue/metal/box	Basement, "Fire Pump Controller Box", domestic water	0.058	EMSL
41286.022 -PB04	Gray/metal/pump	Basement, pump motor, domestic water	0.13	EMSL
41286.022 -PB05	Red/metal/pipe	Basement, main fire suppression lines	1.5	EMSL
41286.022 -PB06	Black/metal/pipe	9 th Floor, Mech. Shaft, domestic cold water supply	0.79	EMSL

**EMSL Analytical, Inc**

464 McCormick Street, San Leandro, CA 94577

Phone/Fax: (510) 895-3675 / (510) 895-3680

<http://www.EMSL.com>sanleandrolab@emsl.com

EMSL Order: 091926892

CustomerID: PBSE51

CustomerPO:

ProjectID:

Attn: **Tim Ogden**
PBS Engineering & Environmental, Inc.
214 East Galer St, Suite 300
Seattle, WA 98102

Phone: (206) 233-9639
Fax: (206) 762-4780
Received: 11/27/19 10:00 AM
Collected: 11/26/2019

Project: **TMB PUMP REPLACEMENT; 41286.022****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Weight</i>	<i>Lead Concentration</i>
41286.022-PB01	091926892-0001	11/26/2019	11/27/2019	0.2529 g	0.26 % wt
Site: GREEN CONCRETE WALL BASEMENT WEST WALL					
41286.022-PB02	091926892-0002	11/26/2019	11/27/2019	0.2549 g	0.0085 % wt
Site: LIGHT GREEN CONCRETE WALL BASEMENT WEST WALL					
41286.022-PB03	091926892-0003	11/26/2019	11/27/2019	0.2512 g	0.058 % wt
Site: BLUE METAL BOX BASEMENT FIRE PUMP CONTROLLER BOX					
41286.022-PB04	091926892-0004	11/26/2019	11/27/2019	0.2777 g	0.13 % wt
Site: GRAY METAL PUMP BASEMENT PUMP MOTOR					
41286.022-PB05	091926892-0005	11/26/2019	11/27/2019	0.2803 g	1.5 % wt
Site: RED METAL PIPE BASEMENT MAIN FIRE SUPPRESSION LINES					
41286.022-PB06	091926892-0006	11/26/2019	11/27/2019	0.1064 g	0.79 % wt
Site: BLACK METAL PIPE 9TH FLOOR MECH SHAFT COLD WATER SUPPLY					

Julian Neagu, Lead Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc San Leandro, CA A2LA Accredited Environmental Testing Cert #2845.09

Initial report from 11/27/2019 13:30:53

**Project #:** 41286.022

Date: 11/26/19

Date/Time: 11/26/19 1406

Date/Time:_____

☐ Mike Smith
☐ Ferman Fletcher
☐ Holly Tuttle
☐ Ryan Hunter
☒ Eman Jabali

TURN AROUND TIME:☐ 3-5 Days
☐ Other[illegible]

JR 11/27/19 10:00am E-Fedex ① 79569274 9349
214 EAST GALER STREET, SUITE 300, SEA Page 1 Of 1 639 MAIN • 866.727.0140 FAX • PBSUSA.COM

APPENDIX C

PBS Certifications

Certificate of Completion

This is to certify that

Cel A. Alvarez

has satisfactorily completed
4 hours of refresher training as an
AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

171157

Certificate Number



Jan 23, 2019 Expires in 1 year.

Date(s) of Training

Exam Score (if applicable): N/A

A handwritten signature in black ink, appearing to read "D. A. White".

Instructor

ARGUS PACIFIC, INC / 21905 64th AVE W, SUITE 100 / MOUNTLAKE TERRACE, WASHINGTON 98043 / 206.285.3373 / ARGUSPACIFIC.COM

THIS IS TO CERTIFY THAT

TIM OGDEN

HAS SUCCESSFULLY COMPLETED THE TRAINING COURSE

for

ASBESTOS INSPECTOR REFRESHER

In accordance with TSCA Title II, Part 763, Subpart E, Appendix C of 40 CFR

Course Date: 04/02/2019

Course Location: Portland, OR

Certificate: IR-19-2008A



4-Hour AHERA Inspector Refresher Training;
AHERA is the Asbestos Hazard Emergency
Response Act enacting Title II of Toxic Substance
Control Act (TSCA)

Expiration Date: 04/02/2020

For verification of the authenticity of this
certificate contact:
PBS Environmental
4412 SW Corbett Avenue
Portland, OR 97239
(503) 248-1939

A handwritten signature in black ink, reading 'Gregory M. Baker'.

Greg Baker, Instructor

DRAWINGS

TACOMA MUNICIPAL BUILDING

FIRE PUMP, DOMESTIC PUMP AND ATS

PROJECT TEAM

BCE ENGINEERS, INC.
6021 12TH STREET EAST, SUITE 200
FIFE, WA 98424
PHONE: (253) 922-0446
FAX: (253) 922-0896
CONTACT: STEVE WOOLERY, FPE, PE, LEED AP BD+C

CLIENT

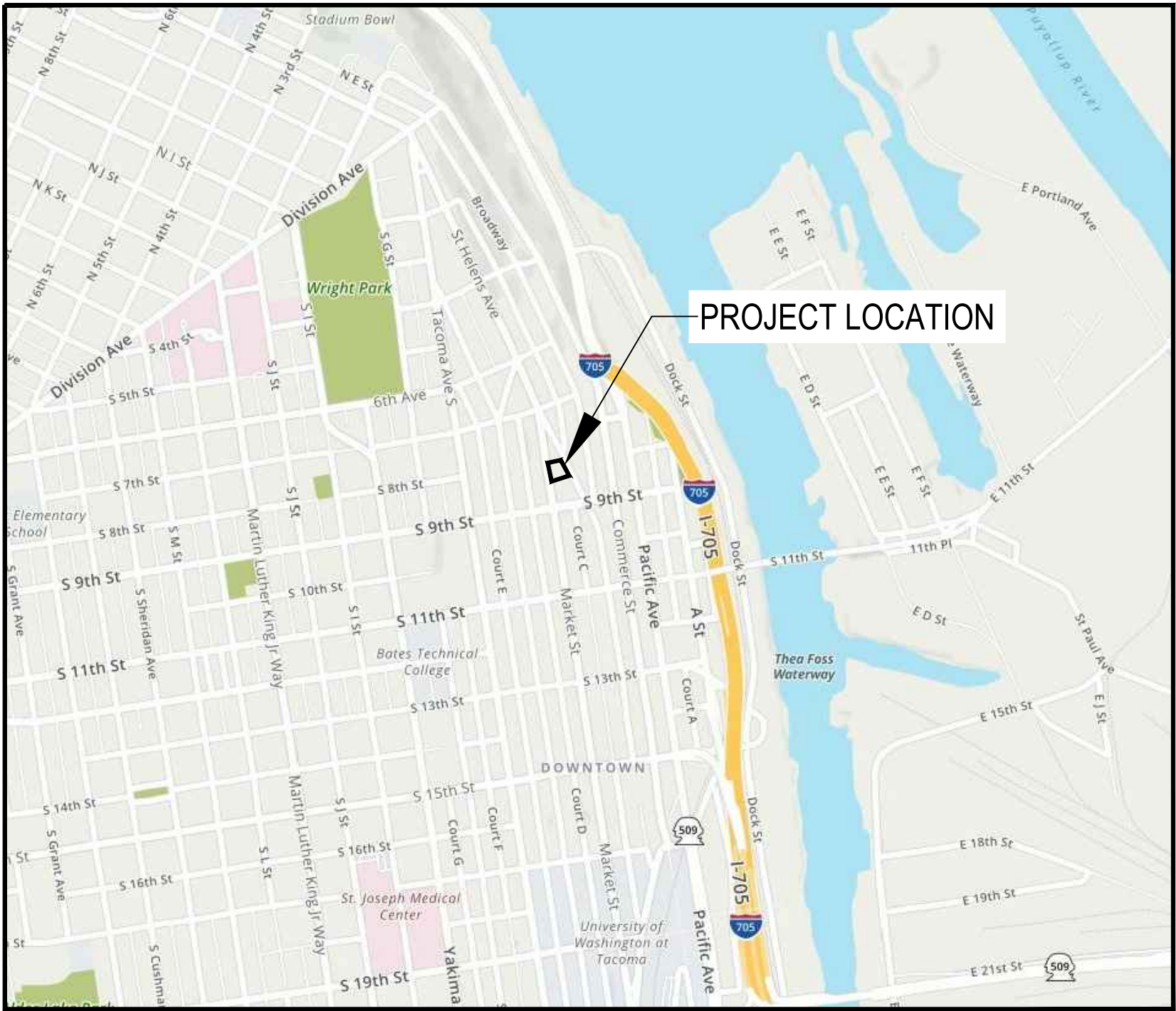
CITY OF TACOMA PUBLIC WORKS
FACILITIES MANAGEMENT DIVISION
747 MARKET STREET, RM 744
TACOMA, WA 98402
PHONE: (253) 591-5297
ATTN.: STEPHEN KRUGER, NCARB, LEED AP



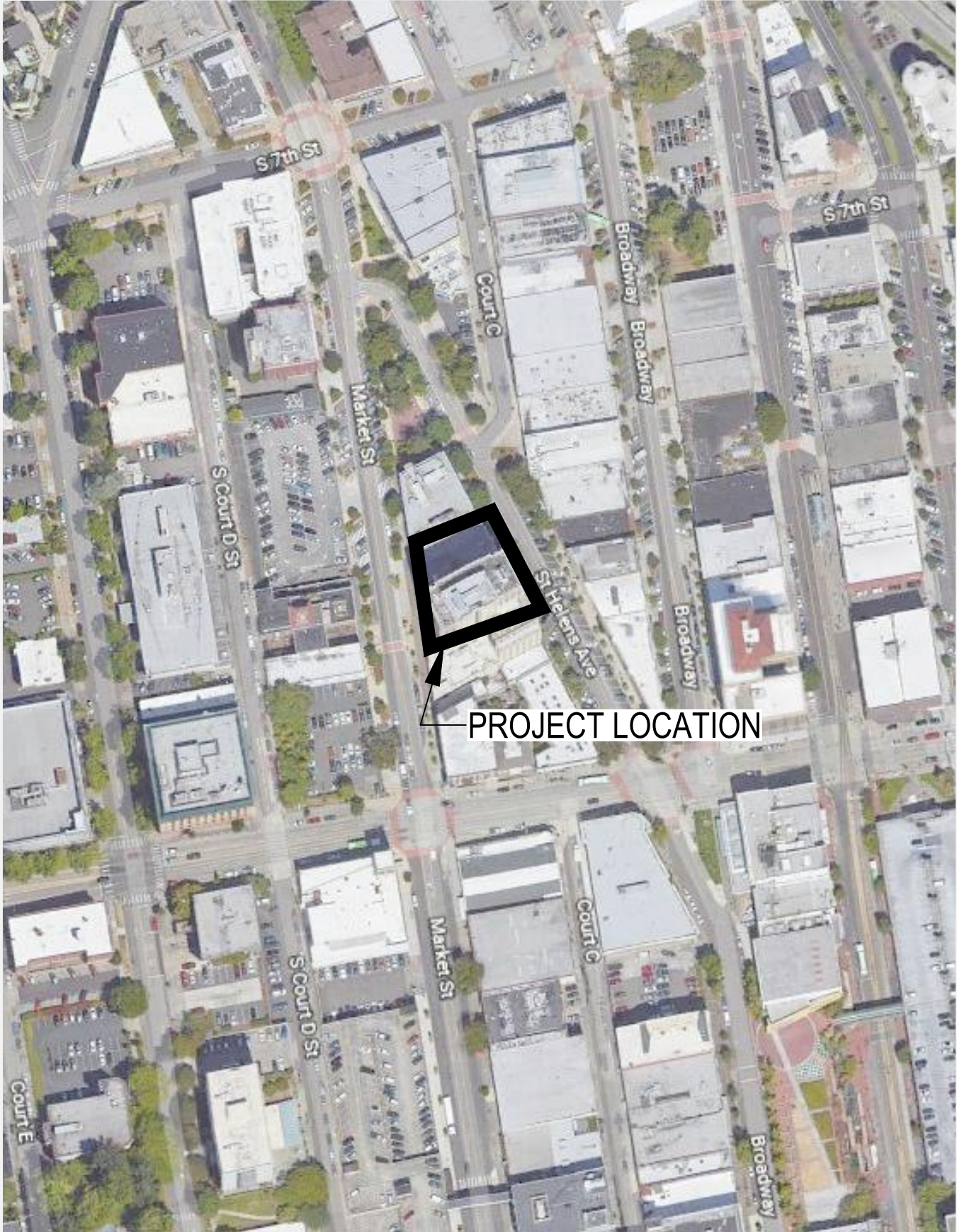
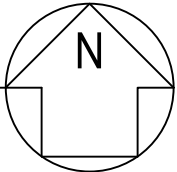
SHEET LIST	
Sheet Number	Sheet Title
G0.01	PROJECT OVERVIEW & SHEET LIST
PLUMBING SHEETS	
P0.01	GENERAL NOTES & SYMBOLS
P0.02	MECHANICAL EQUIPMENT SCHEDULES
P2.01	BASEMENT DEMOLITION & NEW WORK PLAN
P2.11	9TH FLOOR PLUMBING PLAN
P2.21	16TH & 17TH FLOOR DEMOLITION AND PLUMBING PLAN
FIRE PROTECTION SHEETS	
FX0.01	GENERAL NOTES
FX1.01	FIRE PUMP DETAILS
ELECTRICAL SHEETS	
E0.01	ELECTRICAL LEGEND & NOTES
ED1.01	BASEMENT DEMOLITION PLAN
E1.01	BASEMENT POWER PLAN
E2.01	PANEL SCHEDULES SCHEDULES
E2.02	PANEL SCHEDULES & MECHANICAL SCHEDULES

SCOPE

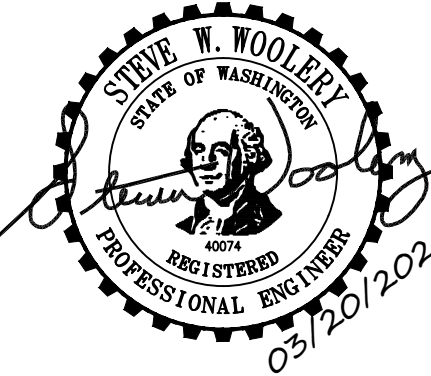
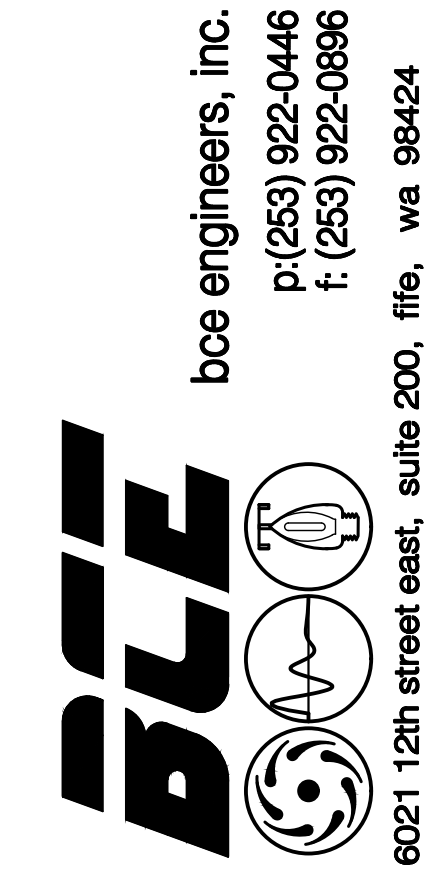
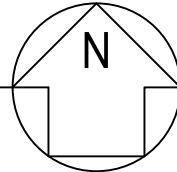
1. REMOVE AND REPLACE FIRE PUMP AND JOCKEY PUMP ALONG WITH ALL ASSOCIATED APPURTENANCES AND CONTROLLERS.
2. REMOVE AND REPLACE OF DOMESTIC WATER BOOSTER PUMPS AND ALL ASSOCIATED APPURTENANCES AND CONTROLLERS.
3. REMOVE AND REPLACE DOMESTIC WATER HYDRO-PNEUMATIC TANKS.
4. REMOVE AND REPLACE DOMESTIC WATER PRESSURE REDUCING STATIONS.
5. RELOCATE ROOFTOP COOLING TOWER BACKFLOW PREVENTER. (ALTERNATE BID)
6. REMOVE AND REPLACE ALL ELECTRICAL WIRING, PANELS AND APPURTENANCES TO SUPPORT MECHANICAL AND FIRE PROTECTION WORK AS REQUIRED.
7. REMOVE AND REPLACE EXISTING BUILDING AUTOMATIC-TRANSFER SWITCH.
8. CONTACT SHEA DEWALD AT ATS.Automation.SHEAD@ATSINC.ORG FOR BUILDING EMS CONTROLS WORK NOTED TO BE PERFORMED BY ATS AUTOMATION. INCLUDE ATS AUTOMATION'S PRICING IN BID.



1 VICINITY MAP
SCALE: NTS



2 LOCATION MAP
SCALE: NTS



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TACOMA MUNICIPAL BLDG
FIRE PUMP, DOMESTIC
PUMP AND ATS
747 MARKET STREET
TACOMA, WA 98402

PROJECT OVERVIEW &
SHEET LIST

REVISIONS		
NO.	DESCRIPTION	DATE

DRAWN BY:

CHECKED BY:

PROJECT MANAGER:


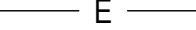
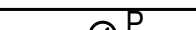
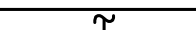
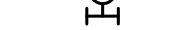
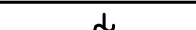









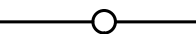
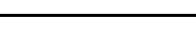
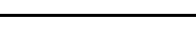





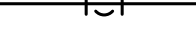
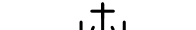
DRAWING No. 1 of TOTAL 13

G0.01








DATE: 03/20/2020
SUBMITTAL: IFC
PROJECT No. 218-245

MECHANICAL LEGEND

HYDRONIC / PLUMBING

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	COMPRESSED AIR		EXISTING PIPING
	PRESSURE GAGE		CROSSING LINES, NON CONNECTING
	PRESSURE REDUCING VALVE (PRV)		PIPE CONTINUATION
	CHECK VALVE (CV)		WASTE OR VENT UP
	BALL VALVE		IN LINE WASTE CONNECTION
	PIPE DOWN		P-TRAP
	PIPE UP		BRANCH PIPE DOWN
	BRANCH-TOP CONNECTION		BRANCH PIPE UP
	BRANCH-BOTTOM CONNECTION		TEE & UP
	DOMESTIC COLD WATER (CW)		TEE
	SOIL, WASTE (S, W)		ELBOWS, 90° & 45°
	VENT (V), OR HIDDEN BELOW WASTE		CAP
	POINT OF CONNECTION		

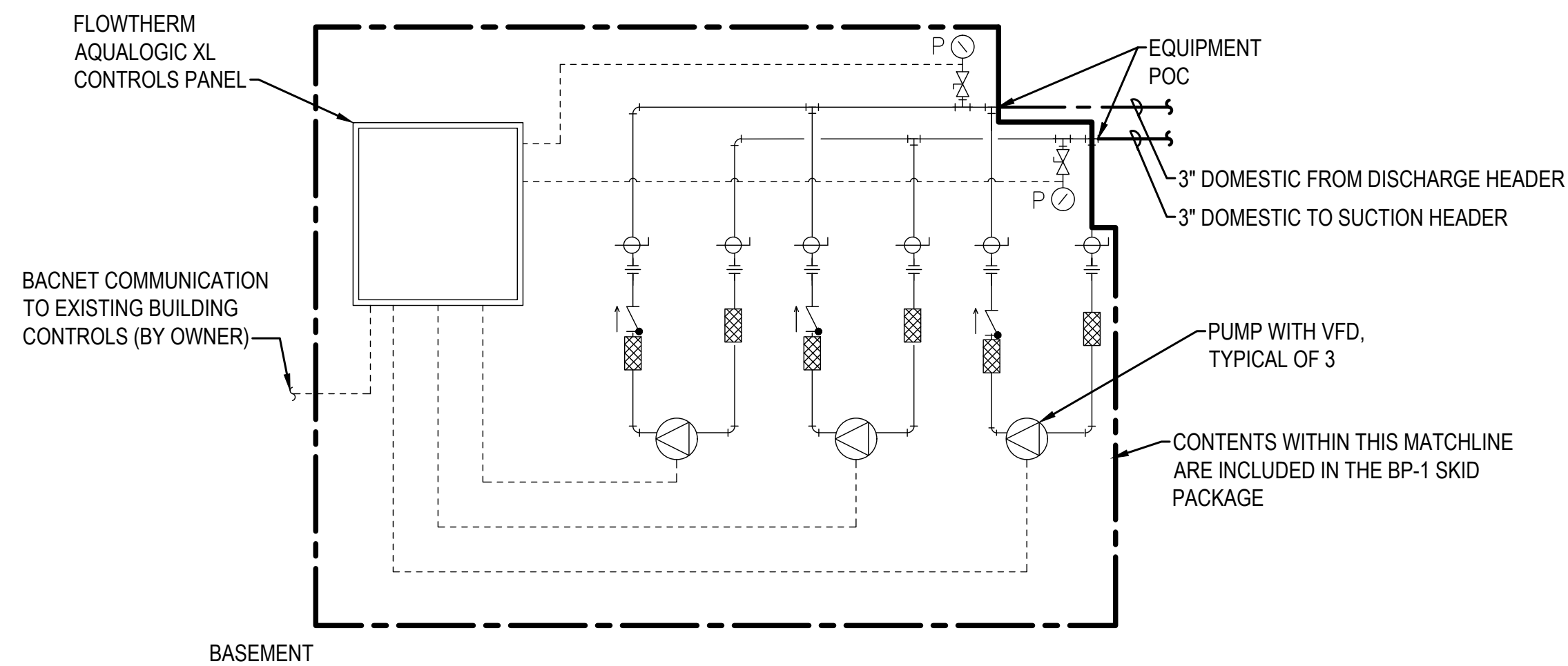
CONTROLS	
1	2
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95	96
97	98
99	100

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	CURRENT SENSOR		TEMPERATURE ELEMENT
	CURRENT RELAY		FLOW INDICATOR
	VARIABLE FREQUENCY DRIVE		FLOW ELEMENT
	PRESSURE ELEMENT	FS	FLOW SWITCH

DOMESTIC WATER BOOSTER SEQUENCE OF OPERATIONS

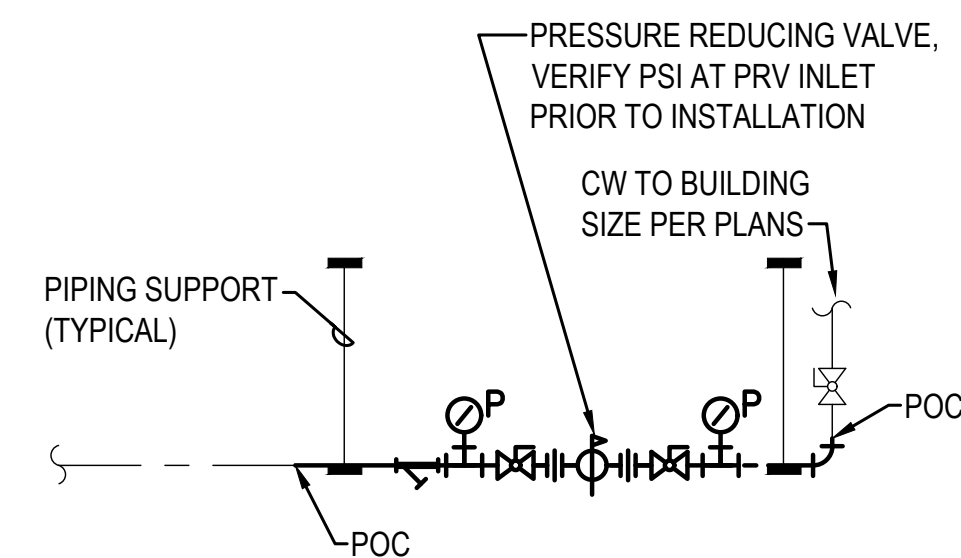
1. VFD'S SHALL STAGE PUMPS TO MAINTAIN 35 FEET OF HEAD AT INLET TO PT-1.
 - a. VFD'S SHALL ACTIVATE SUBSEQUENT PUMPS TO MAINTAIN PRESSURE AFTER THE LEAD PUMP REACHES 100%.
2. PUMPS SHALL FULLY ALTERNATE TO MAINTAIN APPROXIMATELY SIMILAR HOURS OF OPERATION.
 - a. PUMP WITH THE LEAST AMOUNT OF OPERATING HOURS AT THE NEXT PUMPING CYCLE SHALL BE THE LEAD PUMP.
3. PUMP PACKAGE CONTROLLER SHALL MAINTAIN FAULT DATA LOGGING AND PROVIDE TRENDING DATA FOR ALL ITEMS UNDER PART 4 OF THIS SEQUENCE AND OPERATION REQUIREMENTS OF PART 1 AND 2.
4. UPON ANY OF THE FOLLOWING CONDITIONS, AN AUDIBLE AND VISUAL INDICATION THAT AN ALARM CONDITION EXISTS WILL BE GENERATED AT THE OPERATOR INTERFACE AND REPORTED TO THE BUILDING EMS:

- HIGH DISCHARGE PRESSURE
- LOW DISCHARGE PRESSURE
- TRANSDUCER FAILURE
- PUMP FAILURE
- MOTOR CONTROL SYSTEM FAULT
- VFD FAILURE
- HIGH SUCTION PRESSURE
- LOW SUCTION PRESSURE
- HIGH TEMPERATURE
- MOISTURE IN MOTOR



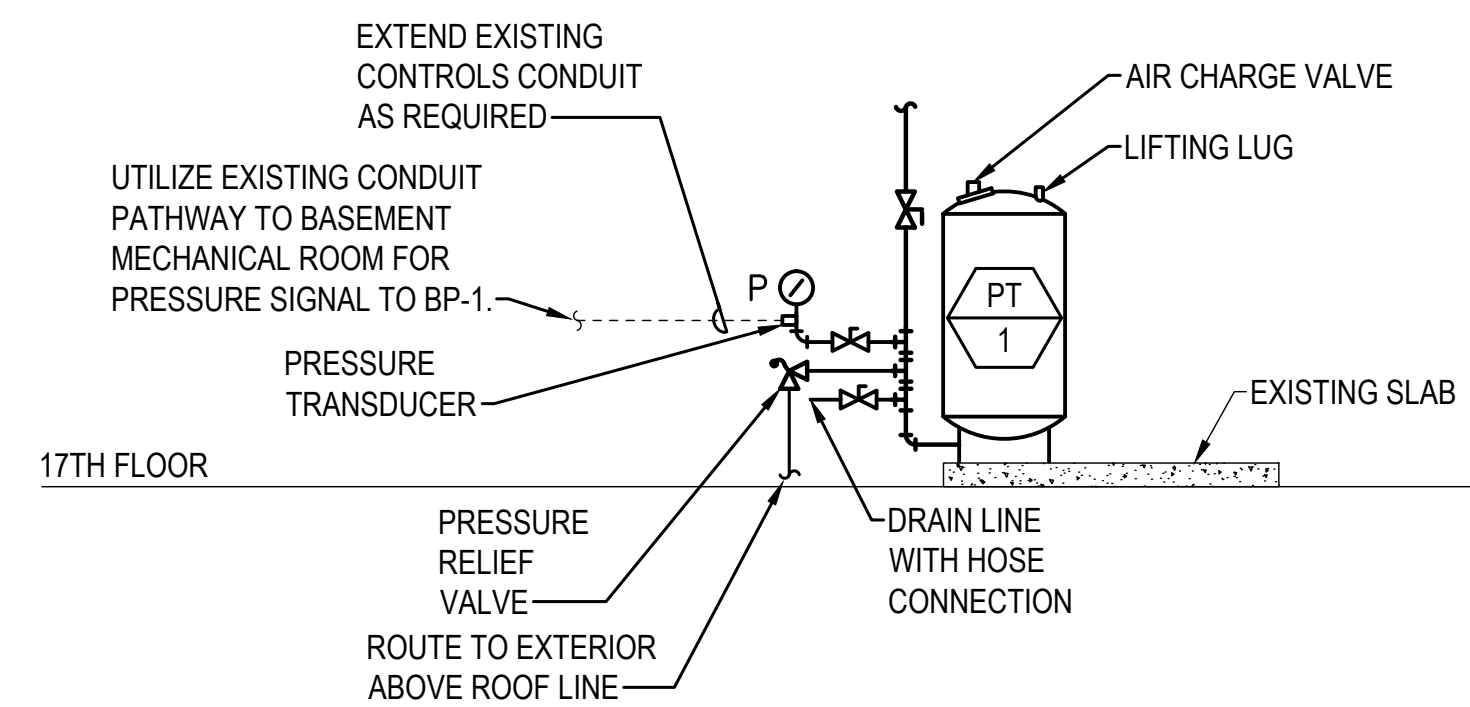
1 DOMESTIC BOOSTER PUMP SYSTEM DIAGRAM

SCALE: NTS



3 TYPICAL PRESSURE REDUCING VALVE INSTALLATION DETAIL

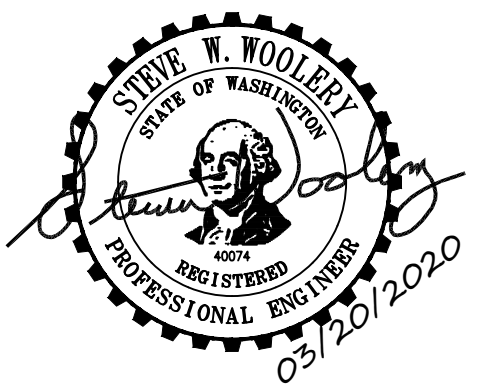
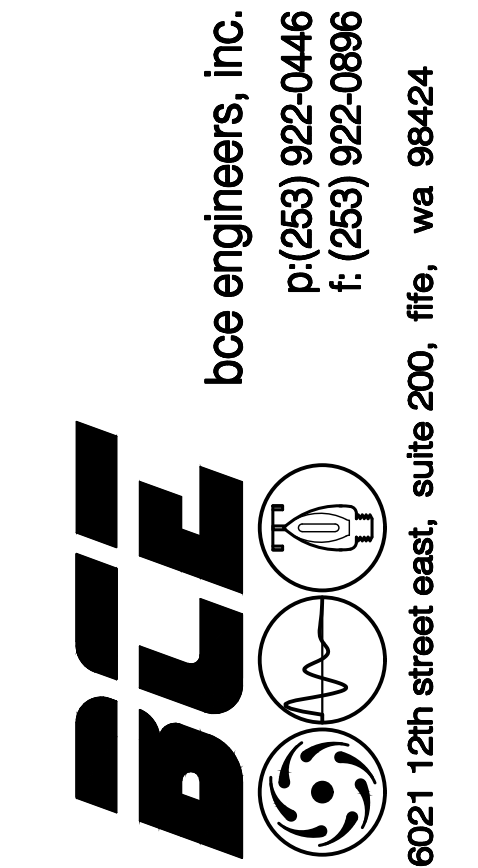
SCALE: NTS



NOTE:
SEE SHEET P2.21 VIEW 3.

HYDRO-PNEUMATIC EXPANSION TANK PIPING DIAGRAM

2 SCALE: NTS



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TACOMA MUNICIPAL BLDG
FIRE PUMP, DOMESTIC
PUMP AND ATS
747 MARKET STREET
TACOMA, WA 98402

GENERAL NOTES & SYMBOLS

REVISIONS		
NO.	DESCRIPTION	DATE
-	-	-

DRAWN BY: FM

CHECKED BY: JH

PROJECT MANAGER: SW

DRAWING No. 2 of TOTAL 13

P0.01

DATE: 03/20/2020
SUBMITTAL: IFC
PROJECT No. 218-245

HYDRO PNEUMATIC EXPANSION TANK SCHEDULE									
UNIT NO	MFR.	MODEL	TANK VOLUME (GAL)	DESIGN PRESSURE (PSI)	MAX PRESSURE (PSI)	TANK CONFIGURATION	DRY WEIGHT (LBS)	WET WEIGHT (LBS)	REMARKS
PT-1	AMTROL	FXA-800L	211	35	125	VERTICAL	475	2300	①②③④⑤

NOTES FOR WATER HEATER SCHEDULE

- ① ASME TANK CONSTRUCTION.
- ② INSTALL DRAIN VALVE BETWEEN SHUT-OFF VALVE AND TANK FOR CHECKING AND ADJUSTING TANK AIR CHARGE.
- ③ PROVIDE BALL-TYPE ISOLATION VALVE WITH LOCKABLE HANDLE, VALVE TO BE LOCKED OPEN FOR OPERATION.
- ④ ADJUST TANK PRE-CHARGE TO EQUAL THE INCOMING WATER PRESSURE SETPOINT.
- ⑤ PROVIDE WITH ACCESSORY PACKAGE INCLUDING PRESSURE TRANSDUCER FOR COMMUNICATION TO BP-1 CONTROLS.

DOMESTIC WATER BOOSTER PUMP SCHEDULE															
UNIT NO	MFR.	MODEL	PUMP							ELECTRICAL			STARTER FURN. BY	DISCONNECT FURN. BY	REMARKS
			MFR.	MODEL	QTY.	GPM	HEAT (FT)	RPM	HP	FLA	VOLTS	Ø			
BP-1	FLOWTHERM	FMV-3.1	GOULDS	10SV9G	3	1800	490	3500	7.5	57	208	3	②	②	①②③④⑤

NOTES FOR CIRCULATION PUMP SCHEDULE

- ① SYSTEM TO BE PROVIDED AS A SKID-MOUNTED PACKAGE, PREPARED FOR FIELD DISSASSEMBLY AND REASSEMBLY DUE TO CONSTRAINTS IN ACCESS TO MECHANICAL ROOM . FIELD ASSEMBLY SHALL NOT VOID UL LISTING OF THE SYSTEM.
- ② PROVIDE 3" 304 STAINLESS STEEL HEADERS AND FLANGED CONNECTIONS.
- ③ PROVIDE WITH ONE CHECK VALVE AND TWO ISOLATION VALVES PER PUMP.
- ④ PACKAGE PUMP MOTORS TO BE RATED FOR VFD APPLICATION. PROVIDE ONE VFD PER PUMP COMPLETE WITH PACKAGED CONTROL SYSTEM.
- ⑤ PROVIDE WITH BACnet OR APPROVED EQUAL COMMUNICATION PROTOCOL CAPABILITY. CONNECTION, PROGRAMMING, AND INTEGRATION TO EXISTING ENERGY MANAGEMENT CONTROL SYSTEM BY CC.

WATER HEATER SCHEDULE															
UNIT NO	MFR.	MODEL	LOCATION	TANK SIZE (GAL)	INPUT KW	EFFICIENCY	RECOVERY (GPH) @ 90° F RISE	WET WEIGHT (LB)	ELECTRICAL				STARTER FURN. BY	DISCONNECT FURN. BY	REMARKS
									MCA	MOP	VOLTS	Ø			
WH-1	RHEEM	MRG85245C	17TH FLOOR	85	4.5	0.92	21	900	-	-	240	1	MFR	EC	① ②

NOTES FOR WATER HEATER SCHEDULE

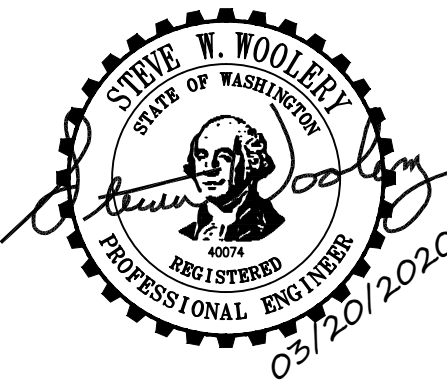
- ① SINGLE POINT POWER CONNECTION. EC TO PROVIDE DISCONNECT.
- ② SET TEMPERATURE AT 140° F.

bce engineers, inc.

p:(253) 922-0446

f: (253) 922-0896

6021 12th street east, suite 200, fife, wa 98424



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TACOMA MUNICIPAL BLDG
FIRE PUMP, DOMESTIC
PUMP AND ATS
747 MARKET STREET
TACOMA, WA 98402

MECHANICAL EQUIPMENT
SCHEDULES

REVISIONS		
NO.	DESCRIPTION	DATE

DRAWN BY:

FM

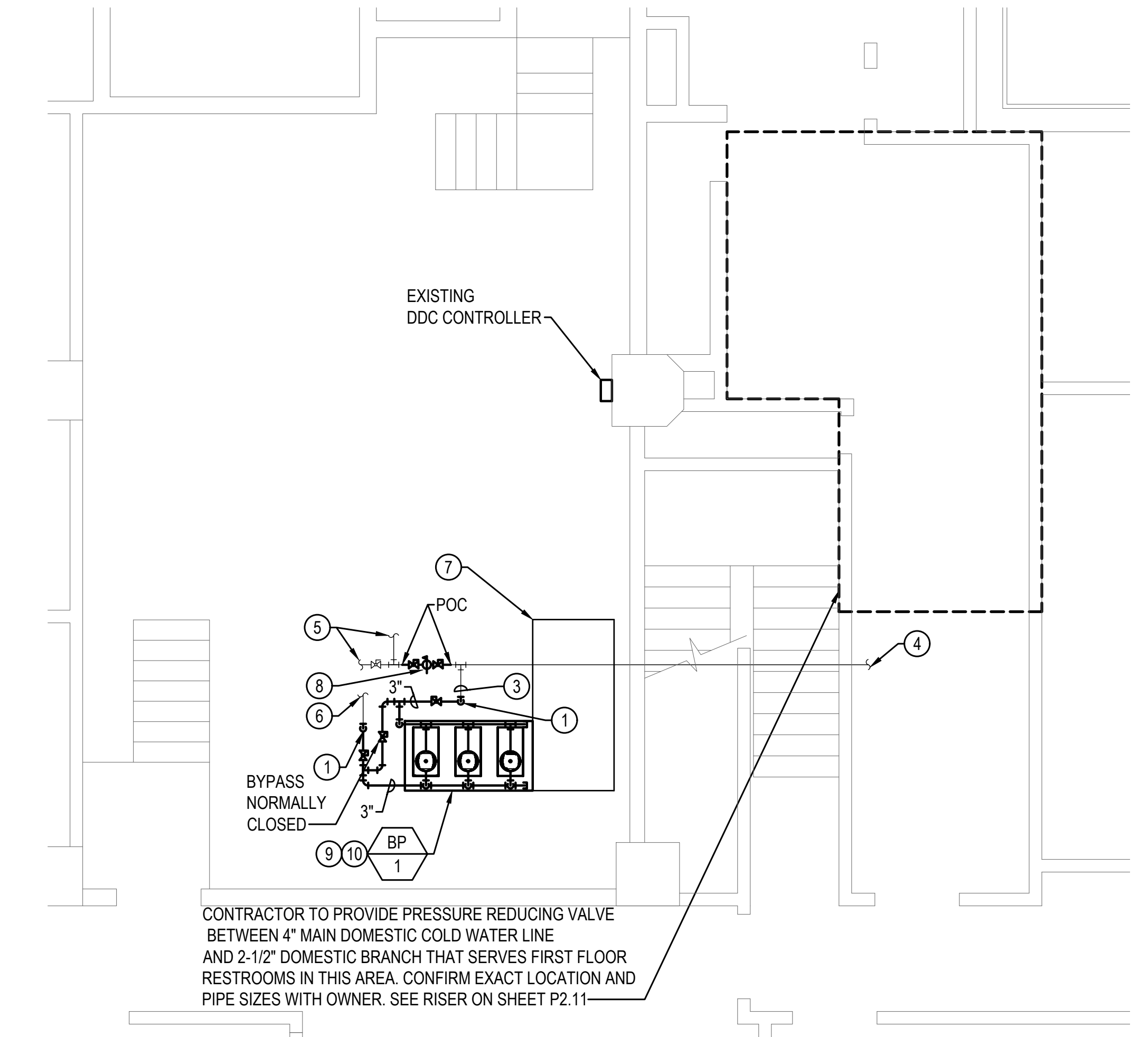
CHECKED BY:

JH

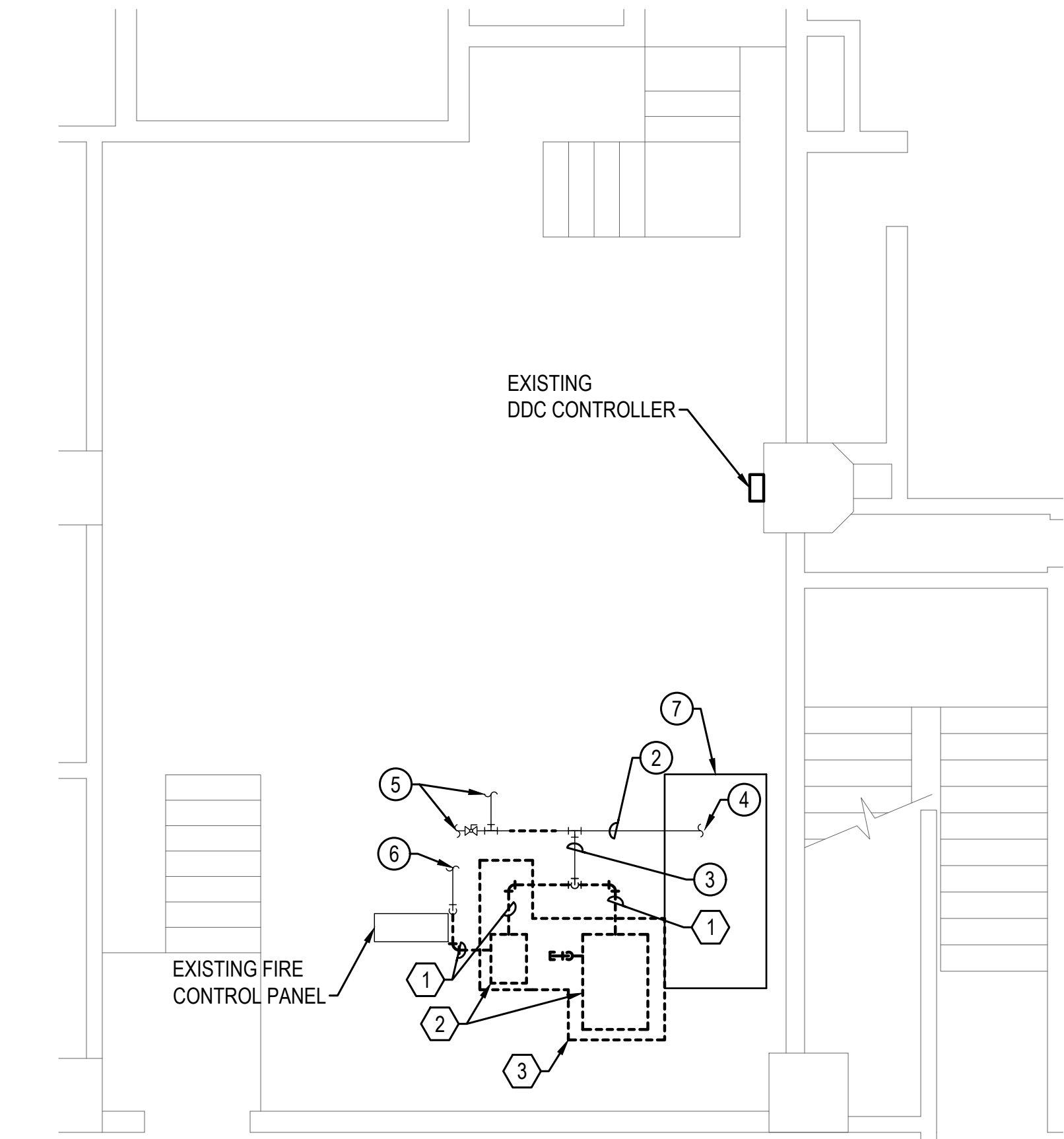
PROJECT MANAGER:

SW

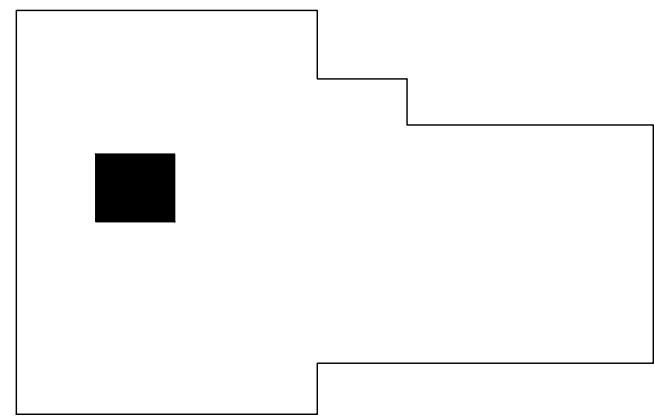
DRAWING No. 3 of TOTAL 13



1 BASEMENT NEW WORK PLUMBING PLAN
SCALE: 1/4" = 1'-0"



2 BASEMENT DEMOLITION PLUMBING PLAN
SCALE: 1/4" = 1'-0"



3 KEY PLAN
SCALE: NTS

GENERAL NOTES

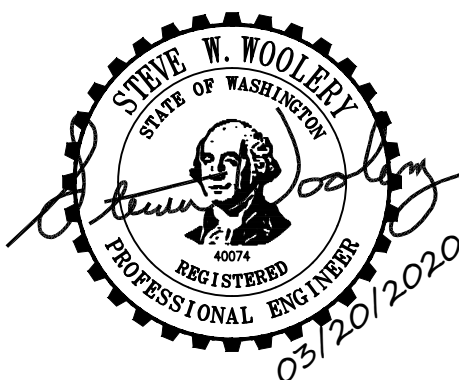
- MECHANICAL ROOM ALSO CONTAINS HEATING SYSTEM BOILER AND APPURTENANCES, HEATING WATER PUMPS, DOMESTIC WATER HEATING SYSTEM AND APPURTENANCES, AS WELL AS OTHER BUILDING SYSTEMS AND EQUIPMENT. THESE SYSTEMS ARE NOT SHOWN FOR CLARITY, BUT CONTRACTOR IS ADVISED THAT WORKING SPACE IS LIMITED FOR THE WORK INDICATED HEREIN.

CONSTRUCTION NOTES

- POINT OF CONNECTION IN PLUMBING RISER AT ISOLATION VALVE.
- EXISTING 4" DOMESTIC COLD WATER MAIN.
- EXISTING 2-1/2" DOMESTIC COLD WATER BOOSTER BRANCH.
- CONTINUES TO BACKFLOW PREVENTER AT STREET CONNECTION.
- CONTINUES TO OTHER SYSTEMS.
- CONTINUES TO 17TH FLOOR VIA MECHANICAL SHAFT.
- EXISTING FIRE PUMP CONCRETE PAD.
- NEW PRESSURE REDUCING VALVE SET TO 80 PSI.
- BP-1 SKID TO BE MOUNTED DIRECTLY TO FLOOR SLAB.
- BP-1 CONTROLS TO BE CONNECTED TO BUILDING EMCS BY ATS AUTOMATION.

DEMOLITION NOTES

- DEMOLISH 2-1/2" DOMESTIC PIPING BACK TO ISOLATION VALVE IN RISER.
- DEMOLISH EXISTING DOMESTIC BOOSTER PUMPS AND APPURTENANCES.
- DEMOLISH EXISTING CONCRETE PAD.



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TACOMA MUNICIPAL BLDG
FIRE PUMP, DOMESTIC
PUMP AND ATS
747 MARKET STREET
TACOMA, WA 98402

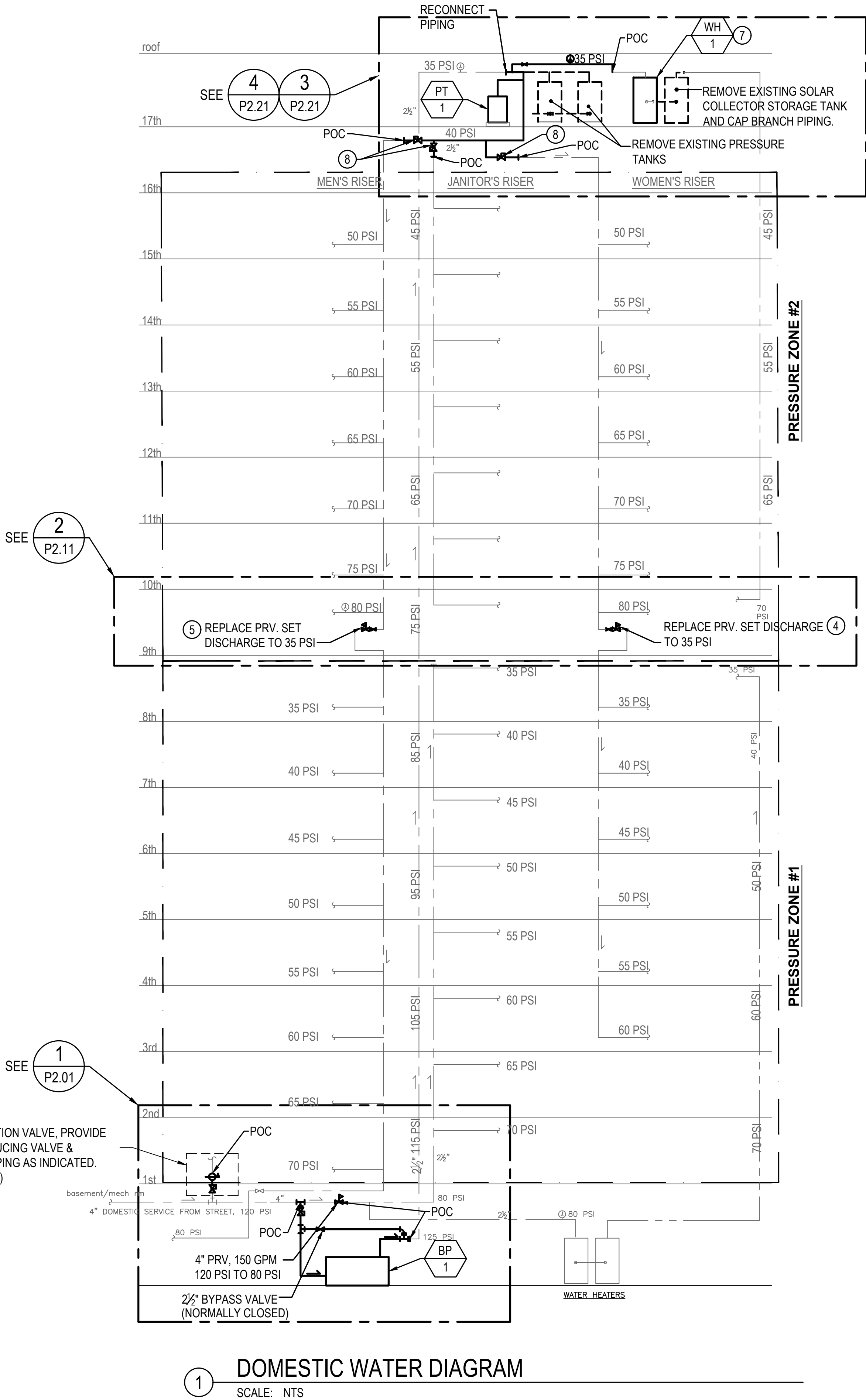
BASEMENT DEMOLITION &
NEW WORK PLAN

REVISIONS		
NO.	DESCRIPTION	DATE

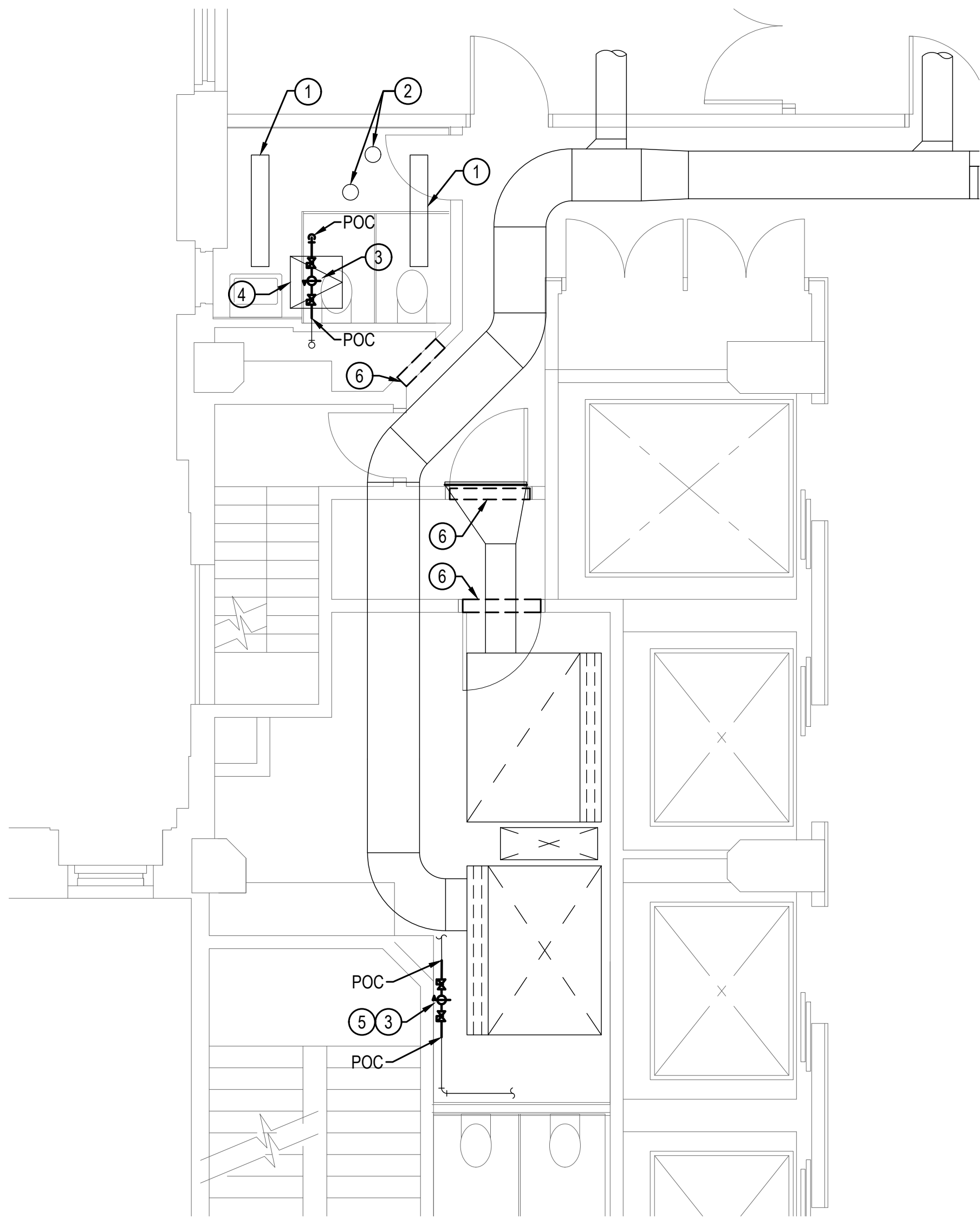
DRAWN BY: FM
CHECKED BY: JH
PROJECT MANAGER: SW

DRAWING No. 4 of TOTAL 13

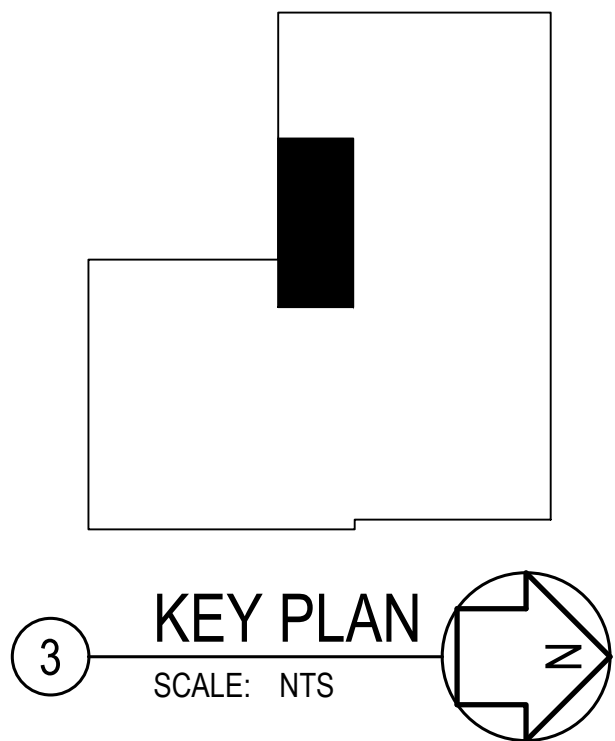
P2.01
DATE: 03/20/2020
SUBMITTAL: IFC
PROJECT No. 218-245



1 DOMESTIC WATER DIAGRAM
SCALE: NTS



2 9TH FLOOR PLUMBING PLAN
SCALE: 1/4" = 1'-0"



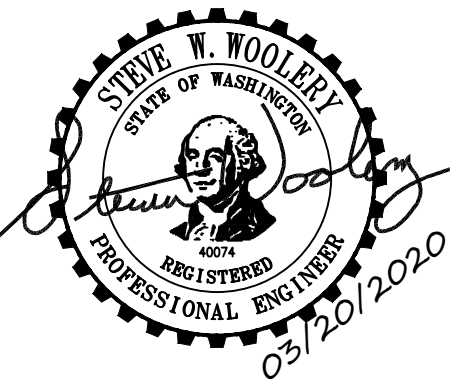
3 KEY PLAN
SCALE: NTS

GENERAL NOTES

- LOCATIONS OF EXISTING COMPONENTS INDICATED ARE APPROXIMATE, CONTRACTOR TO VERIFY AND REPORT CONFLICTS IN THE FIELD.

CONSTRUCTION NOTES

- EXISTING LIGHTING FIXTURE TO REMAIN.
- EXISTING FIRE ALARM DEVICES TO REMAIN.
- REPLACE EXISTING PRESSURE REDUCING VALVE, SEE DETAIL ON SHEET P0.01. REPLACE ADJACENT PIPING AS REQUIRED TO FACILITATE THE PRV REPLACEMENT.
- PRESSURE REDUCING VALVE IS LOCATED ABOVE THE HARD LID CEILING. PROVIDE CEILING OPENING WITH LOCKING 24 X 24 ACCESS PANEL FOR FUTURE ACCESS REQUIREMENTS.
- PRESSURE REDUCING VALVE IS LOCATED ABOVE A SHAFT COVERED WITH WALKING BOARDS. CONTRACTOR TO ENSURE NO COMPONENTS FALL TO LOWER FLOORS DURING REPLACEMENT OF EXISTING COMPONENTS.
- REDUCED SIZE SERVICE ACCESS DOOR.
- REPLACE EXISTING WATER HEATER WITH NEW IN EXISTING LOCATION. EXISTING DOMESTIC HOT WATER CIRCULATION PUMP TO REMAIN FOR REUSE.
- PROVIDE NEW BALL VALVE FOR ISOLATION. FIELD VERIFY SIZE.



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TACOMA MUNICIPAL BLDG
FIRE PUMP, DOMESTIC
PUMP AND ATS
747 MARKET STREET
TACOMA, WA 98402

9TH FLOOR PLUMBING
PLAN

REVISIONS	
NO.	DESCRIPTION
1	DESCRIPTION
2	DESCRIPTION
3	DESCRIPTION
4	DESCRIPTION
5	DESCRIPTION
6	DESCRIPTION
7	DESCRIPTION
8	DESCRIPTION
9	DESCRIPTION
10	DESCRIPTION

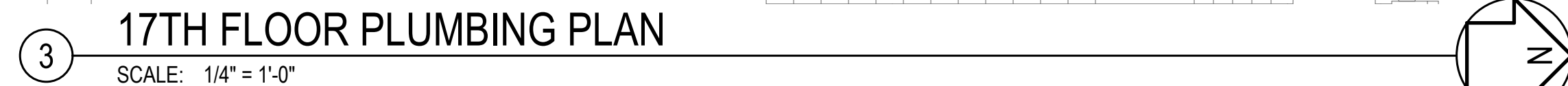
DRAWN BY: FM
CHECKED BY: JH
PROJECT MANAGER: SW

DRAWING No. 5 of TOTAL 13

P2.11

DATE: 03/20/2020
SUBMITTAL: IFC
PROJECT No. 218-245

bce engineers, inc.
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FIRE PROTECTION SCOPE OF WORK:

THE FIRE PROTECTION SPRINKLER SYSTEM CONTRACTOR SHALL PROVIDE DESIGN, SUBMITTALS, PERMIT, MATERIALS, EQUIPMENT, LABOR, TESTING, AND INSPECTIONS REQUIRED FOR THE REPLACEMENT OF THE EXISTING TACOMA MUNICIPAL BUILDING FIRE PUMP, JOCKEY PUMP, FIRE PUMP CONTROLLER, JOCKEY PUMP CONTROLLER, AND RELATED PIPING AND DEVICES, AND TO MODIFY THE EXISTING FIRE PUMP PIPING AND RISER MANIFOLD ARRANGEMENT FOR THE ADDITION OF A FLOW METER TEST LOOP IN ACCORDANCE WITH NFPA 13, NFPA 20, AND CITY OF TACOMA STANDARDS.

FIRE PROTECTION GENERAL NOTES:

1. THE NEW FIRE PUMP SHALL BE VERTICAL IN-LINE, ELECTRICALLY-DRIVEN FIRE PUMP, WITH A MAXIMUM 20 HOSEPOWER RATING, SELECTED TO PROVIDE A MAXIMUM 175 PSI OPERATING/SYSTEM PRESSURE ON EXISTING SYSTEM FITTINGS AND COMPONENTS YET ABLE TO PROVIDE THE SPRINKLER DEMANDS OF THE UPPER FLOORS.
2. DUE TO EXISTING BUILDING CONDITIONS, AN AUTOMATIC TRANSFER SWITCH WILL NOT BE REQUIRED IN THE FIRE PUMP CONTROLLER. THE EXISTING BUILDING AUTOMATIC TRANSFER SWITCH WILL BE REPLACED IN ITS CURRENT LOCATION AND THE EXISTING BUILDING/FIRE PUMP POWER DISTRIBUTION CONFIGURATION WILL REMAIN.
3. PER CITY OF TACOMA FIRE PREVENTION, THE EXISTING STANDPIPES ARE NOT REQUIRED TO BE AUTOMATIC - THE NEW FIRE PUMP IS NOT REQUIRED TO SUPPORT STANDPIPE DEMANDS.
4. THE DETAILS AND MODIFICATIONS DEPICTED ON SHEET FX101 ARE CONCEPTUAL IN NATURE, BASED ON BCE'S ASSESSMENT OF THE MOST PRUDENT METHODS TO ACCOMPLISH THE SCOPE OF WORK, BUT IS NOT INTENDED TO PRECLUDE THE CONTRACTOR FROM PROPOSING ALTERNATE CONFIGURATIONS IN ORDER TO ACCOMPLISH THE SAME SCOPE.
5. THE FIRE PUMP TEST HEADER AND HOSE VALVES THAT ARE TYPICALLY INSTALLED BETWEEN THE FIRE PUMP DISCHARGE CHECK VALVE AND FIRE PUMP DISCHARGE CONTROL VALVE ARE NOT REQUIRED ON THIS PROJECT DUE TO IMPRACTICALITY OF THE BASEMENT LOCATION. THE FLOW TESTING OF THE FIRE PUMP SHALL BE ACCOMPLISHED BY DISCHARGING ON THE ROOF THROUGH THE THREE EXISTING ROOFTOP MANIFOLD HOSE VALVES. BEFORE WATER IS FLOWED FOR FIRE PUMP TESTING, COORDINATE WITH THE OWNER SO THAT PROPER AUTHORITIES MAY BE NOTIFIED.
6. THE FIRE PUMP MOTOR SHALL BE 208VAC THREE PHASE, AND NOT EXCEED 20 BRAKE HORSEPOWER. THE SPECIFIC FIRE PUMP SPECIFICATIONS AND SETTINGS INDICATED ON SHEET FX101 ARE BASED ON A SPECIFIC FIRE PUMP UTILIZED IN BCE'S HYDRAULIC ANALYSIS CALCULATION. ACTUAL NUMBERS SHALL BE BASED ON NEW FLOW TEST INFORMATION, CONTRACTOR'S DESIGN, AND ACTUAL FIRE PUMP SELECTION.
7. THE FIRE PROTECTION SPRINKLER SYSTEM CONTRACTOR SHALL COORDINATE WITH CITY OF TACOMA WATER PERMIT COUNTER TEAM (253.502.8247) TO ARRANGE FOR A NEW FLOW TEST, TO BE PAID FOR BY THE CONTRACTOR.
8. ALL FIRE PROTECTION COMPONENTS, DEVICES, AND MATERIALS SHALL BE DOMESTICALLY MANUFACTURED. IMPORT COMPONENTS WILL NOT BE ALLOWED. REFER TO SPECIFICATIONS FOR SUBMITTAL REQUIREMENTS.
9. ALL FIRE PROTECTION COMPONENTS, DEVICES, AND MATERIALS TO BE INSTALLED SHALL BE NEW. ANY THAT ARE REMOVED FROM THE EXISTING INSTALLATION AS PART OF THIS WORK SHALL NOT BE REUSED OR REINSTALLED.
10. THE EXISTING FIRE PUMP, FIRE PUMP CONTROLLER, JOCKEY PUMP CONTROLLER, PIPING AND DEVICES REQUIRED TO BE REPLACED, OR NOT REQUIRED FOR THE MODIFIED INSTALLATION, SHALL BE REMOVED FROM SITE BY THE FIRE PROTECTION SPRINKLER SYSTEM CONTRACTOR. THE EXISTING JOCKEY PUMP SHALL BE PRESERVED AND TURNED OVER TO THE OWNER FOR FUTURE REUSE.
11. NO WORK SHALL BE PERFORMED ON THE EXISTING MANUAL DELUGE EXPOSURE PROTECTION SYSTEM, EXCEPT AS MAY BE REQUIRED IN THE MECHANICAL ROOM TO ACCOMPLISH THE FIRE PUMP REPLACEMENT.
12. N.F.P.A. #70 (NATIONAL ELECTRICAL CODE) REQUIRES A DEDICATED SPACE OF 6'-0" ABOVE ALL ELECTRICAL PANELS, TRANSFORMERS, SWITCHGEARS, ETC. NO PIPING, DUCTS, OR OTHER EQUIPMENT FOREIGN TO THE ELECTRICAL INSTALLATION SHALL BE LOCATED IN THIS ZONE PER SECTION 110.26(f)(1)(a). ALL SPRINKLER PIPING THAT IS NOT COORDINATED TO AVOID THESE AREAS SHALL BE MODIFIED AND RELOCATED AT THE FIRE PROTECTION SPRINKLER CONTRACTOR EXPENSE.
13. A FIRE WATCH IS REQUIRED FOR THE DURATION THAT THE FIRE PUMP, OR ANY PORTION OF ANY EXISTING SPRINKLER AND/OR STANDPIPE SYSTEM, IS OUT OF SERVICE. BUILDING SECURITY MAY PROVIDE THE FIRE WATCH. CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR SCHEDULING FIRE WATCH.
14. THE CONTRACTOR SHALL COORDINATE ALL SCHEDULES WITH OWNER PRIOR TO COMMENCING WORK.

FLOW TEST INFORMATION

BASE HYDRAULIC CALCULATIONS FOR THE BID ON A FLOW MODEL PROVIDED BY CITY OF TACOMA WATER ENGINEERING IN AN EMAIL DATED JANUARY 17, 2019. AFTER AWARD OF THE PROJECT, THE CONTRACTOR SHALL VERIFY THE AVAILABLE WATER SUPPLY BY COORDINATING WITH TACOMA WATER PERMIT COUNTER FOR A PHYSICAL FLOW TEST. FEES FOR THE FLOW TEST ARE TO BE PAID FOR BY THE FIRE SPRINKLER CONTRACTOR. SEE PROJECT SPECIFICATIONS FOR MORE DETAIL.

STATIC PRESSURE: 108 P.S.I.
RESIDUAL PRESSURE: 97 P.S.I.
FLOW: 1,500 G.P.M.
ELEVATION: 188.54 FT.
PRESSURE ZONE: 446

NEW FIRE PUMP CRITERIA

THE FOLLOWING FIRE PUMP CRITERIA WAS USED AS A BASIS FOR THE HYDRAULIC ANALYSIS:

PATTERSON 5x3 VIP VERTICAL INLINE 500 G.P.M., 41 P.S.I. MODEL 95 TDH FIRE PUMP WITH 20.0 H/P 3,525 R.P.M. 3 PHASE, 60 CYCLE, 208 VOLT SOFT-START MOTOR

CHURN PRESSURE: 50 P.S.I.
RATED CAPACITY: 41 P.S.I. @ 500 G.P.M.
150% RATED CAPACITY: 26.6 P.S.I. @ 3,525 R.P.M.

SET POINTS - NEW FIRE PUMP

THE FOLLOWING IS BASED ON THE FLOW TEST MODEL PROVIDED BY TACOMA WATER ENGINEERING AND THE FIRE PUMP SELECTED AS THE BASIS FOR THE HYDRAULIC ANALYSIS. THE FIRE PROTECTION SPRINKLER SYSTEM CONTRACTOR SHALL ESTABLISH ACTUAL SET POINTS BASED ON THE FLOW TEST COORDINATED AND PAID FOR BY THE FIRE SPRINKLER CONTRACTOR, THEIR DESIGN, AND THE ACTUAL FIRE PUMP SELECTION.

PRESSURE MAINTENANCE "JOCKEY" PUMP START SET POINT: 148 P.S.I.
(PRESSURE MAINTENANCE "JOCKEY" PUMP STOP SET POINT MINUS 10 P.S.I.)

PRESSURE MAINTENANCE "JOCKEY" PUMP STOP SET POINT: 158 P.S.I.
(FIRE PUMP CHURN PRESSURE PLUS STATIC PRESSURE FROM SITE SYSTEM)

FIRE PUMP START SET POINT: 143 P.S.I.
(PRESSURE MAINTENANCE "JOCKEY" PUMP START SET POINT MINUS 5 P.S.I.)

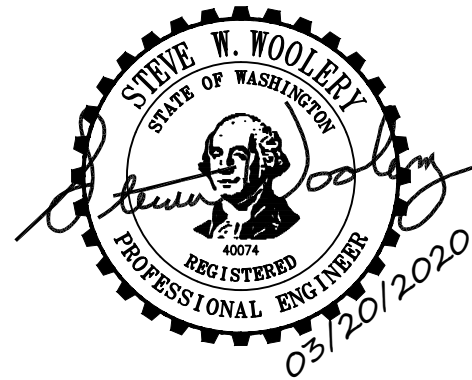
FIRE PUMP STOP SET POINT: 158 P.S.I.
(PRESSURE MAINTENANCE "JOCKEY" PUMP STOP SET POINT)

IF THE AUTHORITY HAVING JURISDICTION REQUIRES THE FIRE PUMP TO BE MANUALLY STOPPED, IGNORE THIS AUTOMATIC STOP SET POINT VALUE.

FIRE PROTECTION LEGEND	
SYMBOL	DESCRIPTION
	ELEVATION CHANGE IN PIPING WITH A 90° ELBOW GOING DOWN
	ELEVATION CHANGE IN PIPING WITH A 45° ELBOW GOING DOWN
	ELEVATION CHANGE IN PIPING WITH A 90° ELBOW GOING UP
	PIPING CONNECTION - TOP
	PIPING CONNECTION - BOTTOM
	PIPING CONNECTION - SIDE
	CAP ON END OF PIPE
	GROOVED RIGID COUPLING
	GROOVED FLEXIBLE COUPLING
	GROOVED CHECK VALVE
	THREADED CHECK VALVE OR GROUND-FACE UNION WITH 3/32" ORIFICE
	GROOVED BUTTERFLY VALVE WITH INTEGRAL TAMPER SWITCH
	FLANGED OS&Y GATE VALVE (SIDE VIEW)
	FLANGED OS&Y GATE VALVE (TOP VIEW)
	THREADED OS&Y VALVE (SIDE VIEW)
	THREADED OS&Y VALVE (TOP VIEW)
	THREADED BALL VALVE
	THREADED UNION
	4-WAY SWAY BRACE LOCATION
	ANGLED HOSE VALVE
	SOLID DARK LINETYPE REPRESENTS NEW PIPING, DEVICES, AND EQUIPMENT
	GREY DASHED LINETYPE INDICATES EXISTING PIPING, DEVICES, AND EQUIPMENT TO REMAIN
	DARK DASHED LINETYPE INDICATES EXISTING PIPING, DEVICES, AND EQUIPMENT TO BE REMOVED
	PIPE BREAK (INDICATED CONTINUATION NOT SHOWN FOR CLARITY)
	PIPE STAND OR HANGER (PLAN VIEW)
	EQUIPMENT LIST ITEM CALL OUT

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TACOMA MUNICIPAL BLDG
FIRE PUMP, DOMESTIC
PUMP AND ATS
747 MARKET STREET
TACOMA, WA 98402

FIRE PUMP REPLACEMENT
GENERAL NOTES

REVISIONS		
NO.	DESCRIPTION	DATE
-	-	-

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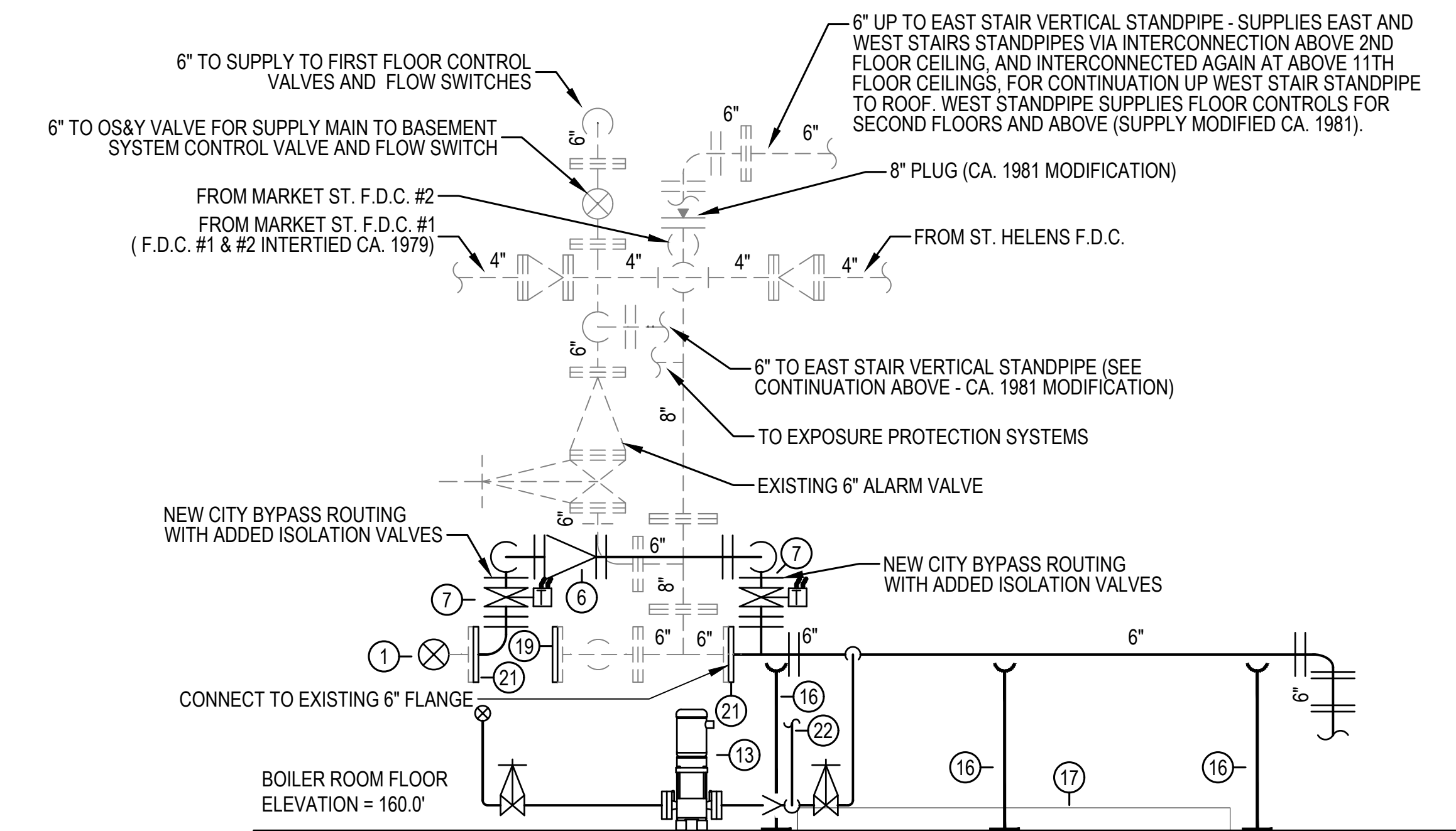
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PROJECT MANAGER:SW

DRAWING No. 7 of TOTAL 13

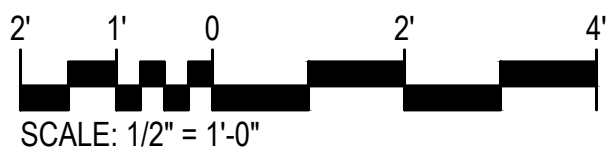
FX0.01

DATE: 03/20/2020
SUBMITTAL: IFC
PROJECT No. 218-245



3 FIRE PUMP ELEVATION DETAIL (LOOKING NORTH)

SCALE: 1/2" = 1'-0"

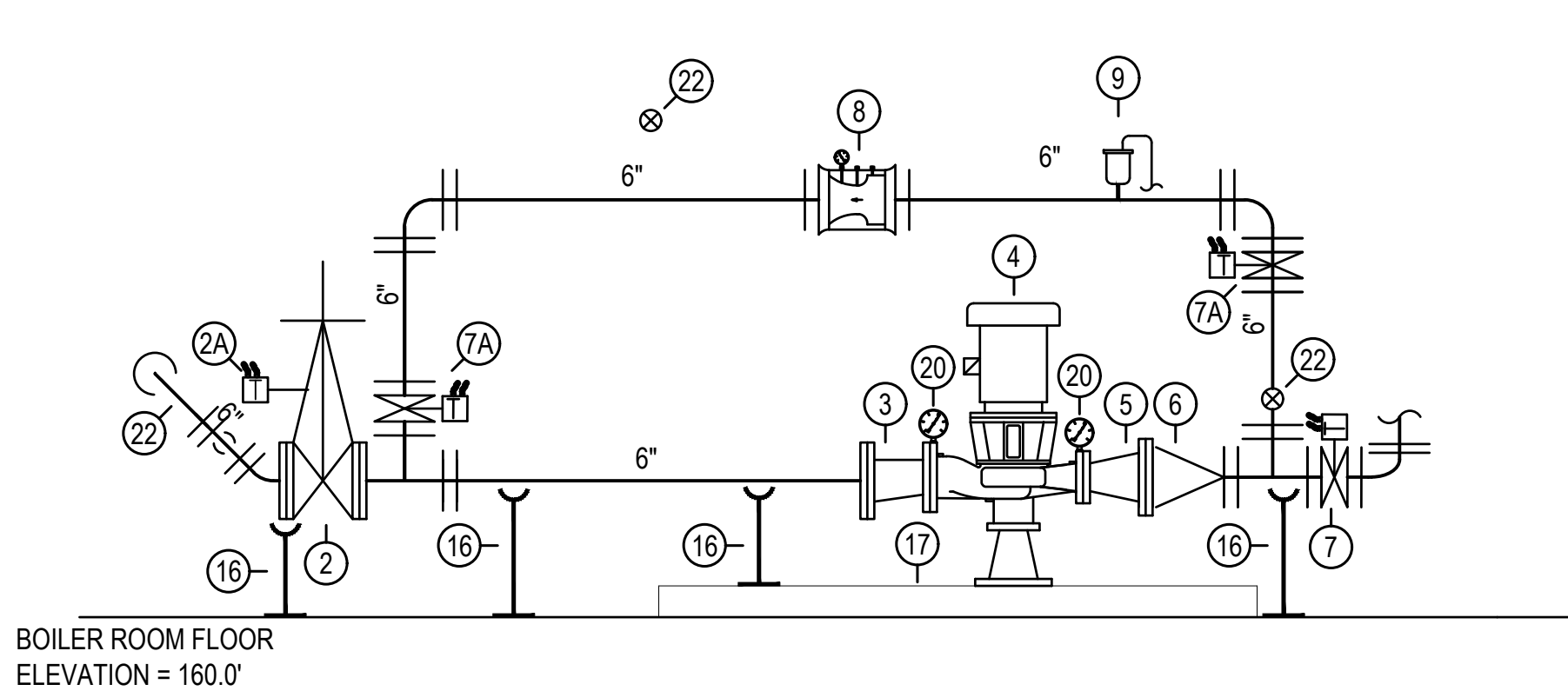


SCALE: 1/2" = 1'-0"

FIRE PROTECTION LINE TYPE LEGEND	
	SOLID DARK LINETYPE REPRESENTS NEW PIPING, DEVICES, AND EQUIPMENT
	GREY DASHED LINETYPE INDICATES EXISTING PIPING, DEVICES, AND EQUIPMENT TO REMAIN
	DARK DASHED LINETYPE INDICATES EXISTING PIPING, DEVICES, AND EQUIPMENT TO BE REMOVED

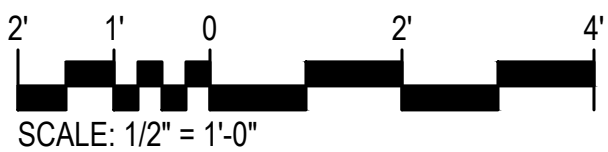
FIRE PROTECTION NOTES:

1. SEE FX001 FOR FIRE PROTECTION GENERAL NOTES, FIRE PUMP SETTINGS, AND FIRE PROTECTION LEGEND



2 FIRE PUMP ELEVATION DETAIL (LOOKING NORTH)

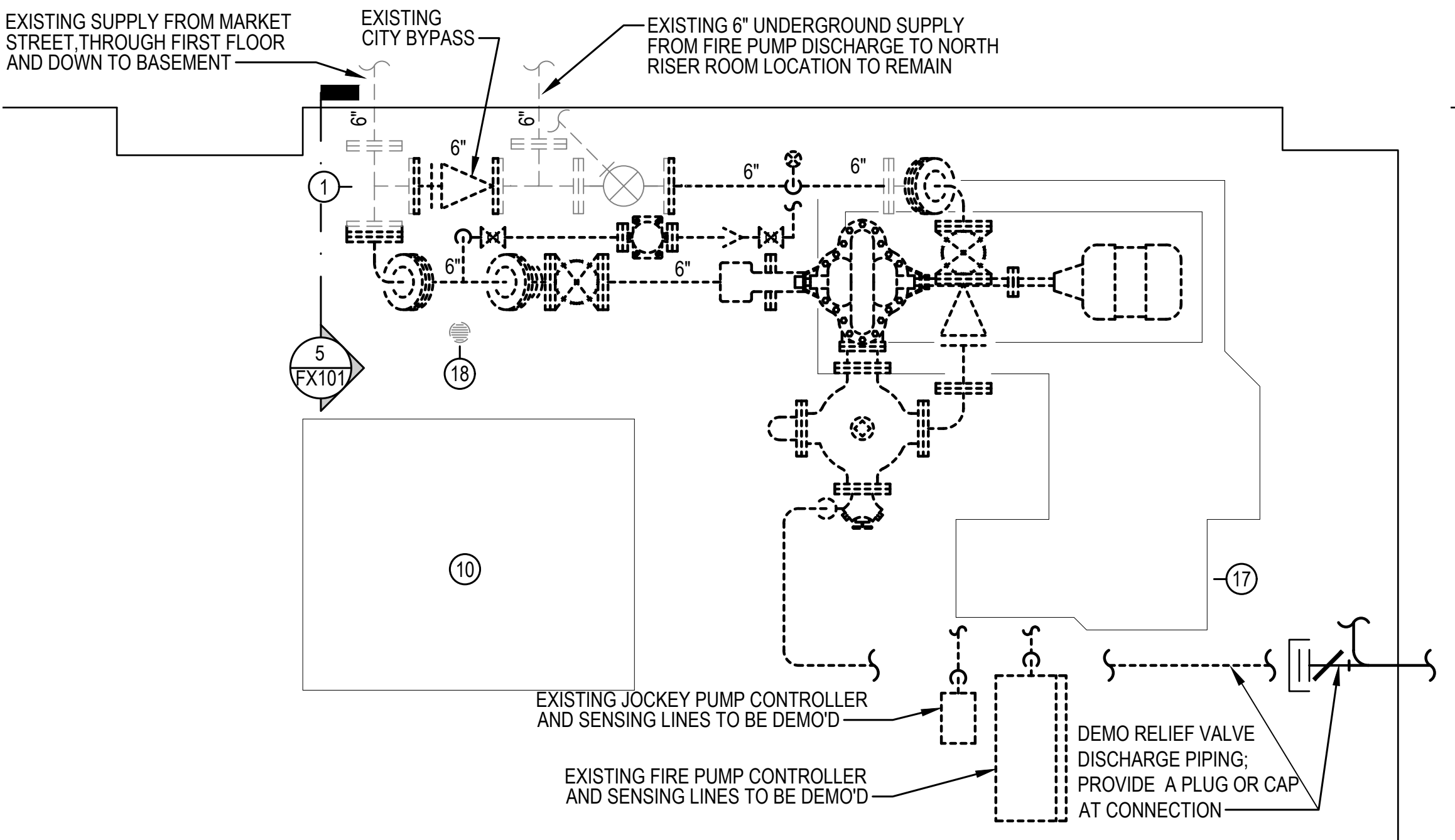
SCALE: 1/2" = 1'-0"



SCALE: 1/2" = 1'-0"

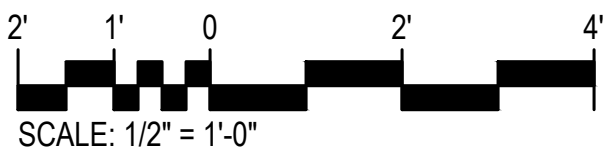
FIRE PROTECTION COMPONENTS LIST

- 1 EXISTING 6" FLANGED TEE
- 2 6" OS&Y VALVE
- 2A TAMPER SWITCH SERVING 6" OS&Y VALVE
- 3 6" x 5" ECCENTRIC FLANGED REDUCER
- 4 NEW 41 P.S.I. 500 G.P.M. VERTICAL INLINE FIRE PUMP WITH 3 PHASE 60 CYCLE 208V 20 H.P. MOTOR
- 5 6" x 3" CONCENTRIC FLANGED REDUCER
- 6 6" CHECK VALVE
- 7 6" BUTTERFLY VALVE WITH TAMPER SWITCH (NORMALLY OPEN)
- 7A 6" BUTTERFLY VALVE WITH TAMPER SWITCH (NORMALLY CLOSED)
- 8 6" FLOW METER
- 9 AUTOMATIC AIR RELEASE (ROUTE DISCHARGE TO FLOOR DRAIN)
- 10 EXISTING BOILER
- 11 1/2" PRESSURE SENSING LINE PROVIDED WITH DIRT LEG ROUTED OVERHEAD
- 12 1/2" PRESSURE SENSING LINE TO HAVE (2) CHECK VALVES WITH 3/32" HOLE IN CLAPPER A MINIMUM OF 5'-0" APART.
- 13 NEW JOCKEY PUMP
- 14 NEW FIRE PUMP CONTROLLER
- 15 NEW JOCKEY PUMP CONTROLLER
- 16 PIPE STAND
- 17 EXISTING CONCRETE HOUSEKEEPING PAD TO BE REUSED
- 18 EXISTING FLOOR DRAIN
- 19 6" BLIND FLANGE
- 20 OIL-FILLED PRESSURE GAUGE
- 21 6" GROOVED BY FLANGE ADAPTER
- 22 LONG RADIUS 6" GROOVED 90
- 23 1/2" PRESSURE SENSING LINE

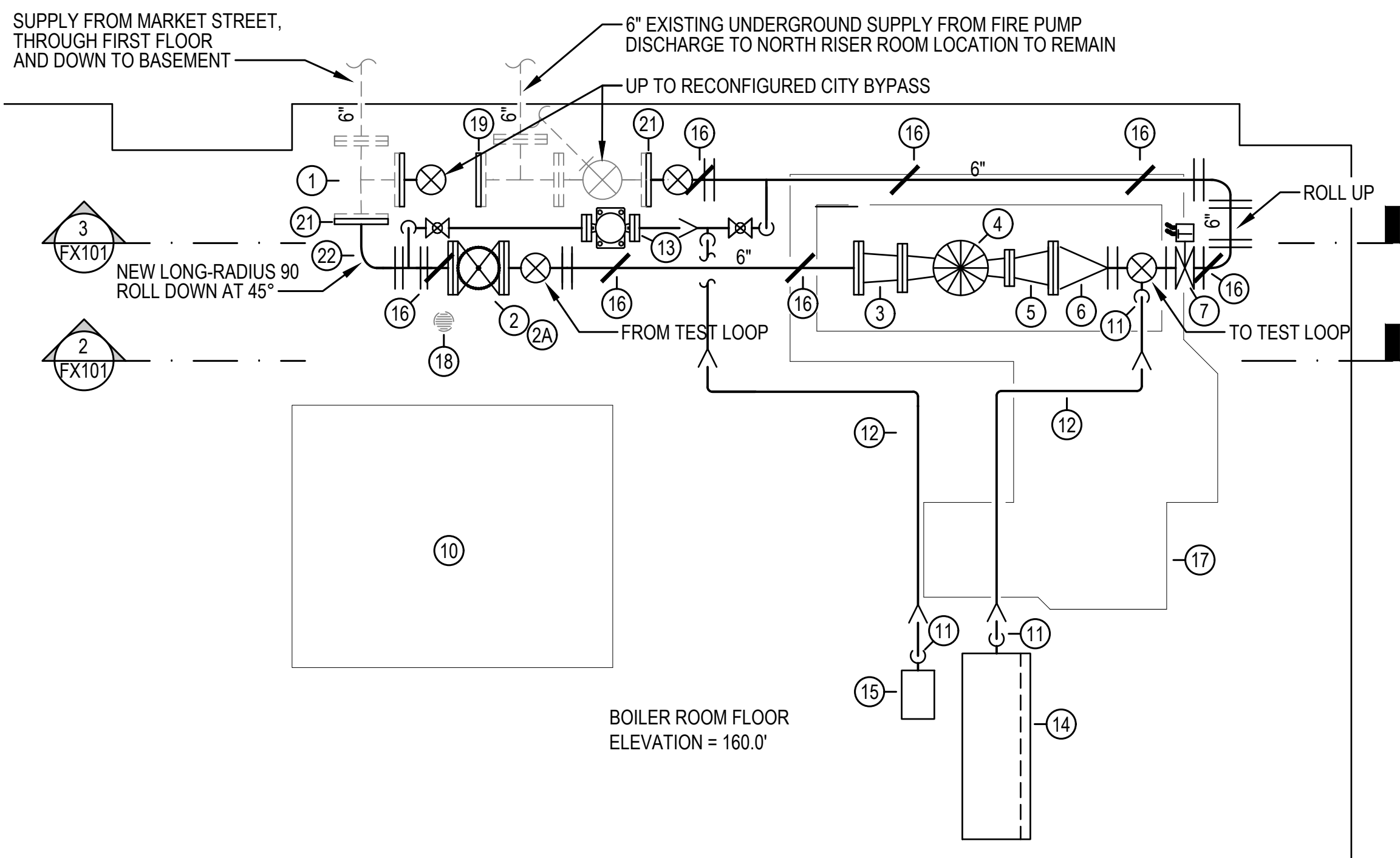


4 FIRE PUMP FLOOR PLAN DEMOLITION DETAIL

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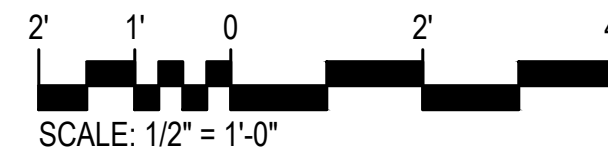


SCALE: 1/2" = 1'-0"



1 FIRE PUMP FLOOR PLAN DETAIL

SCALE: 1/2" = 1'-0"



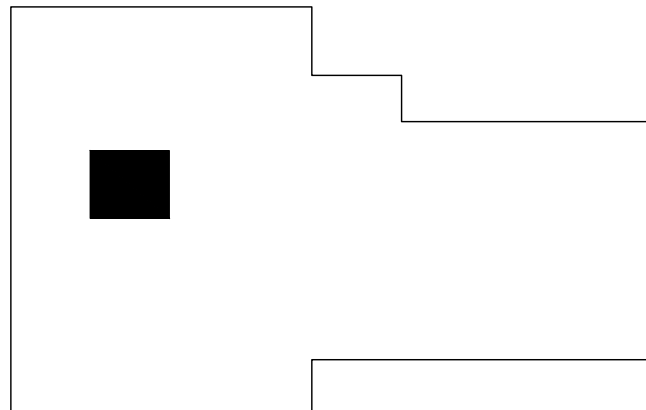
SCALE: 1/2" = 1'-0"



DEMO EXISTING FIRE PUMP, JOCKEY PUMP, AND ASSOCIATED PIPING AND COMPONENTS AS REQUIRED FOR NEW FIRE PUMP INSTALLATION (SEE DETAIL #4 AT LEFT)

5 EXISTING FIRE PUMP INSTALLATION

SCALE: (NO SCALE)



BASEMENT KEY PLAN

NO SCALE

REVISIONS		
NO.	DESCRIPTION	DATE

DRAWN BY: DL



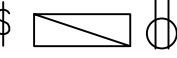
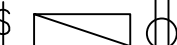






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PROJECT MANAGER: SW

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DATE: 03/20/2020
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PROJECT No. 218-245

ELECTRICAL LEGEND	
SYMBOL	DESCRIPTION
	MISCELLANEOUS
	CONSTRUCTION NOTES
	DEMOLITION NOTES
W	W INDICATES WEATHERPROOF FOR ALL DEVICES, PROVIDE LOCKING COVER ON RECEPTACLES.
	ALL DEVICES WITH LIGHT LINE WEIGHT INDICATES EXISTING TO BE RETAINED
	ALL DEVICES WITH DASH LINE INDICATES EXISTING TO BE REMOVED
	DETAIL CALL OUT - A INDICATES DETAIL IDENTIFICATION, E2 INDICATES SHEET TAKEN FROM, E3 INDICATES SHEET DRAWN ON
	MECHANICAL EQUIPMENT CONNECTION
	RACEWAY CONCEALED IN WALL OR CEILING
	EXISTING PANELBOARD
	MOTOR CONNECTION
	MOTOR STARTER

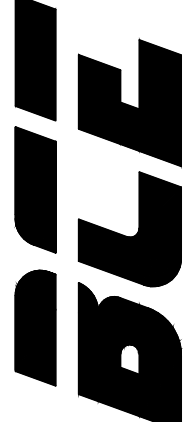
GENERAL DEMOLITION NOTES

- THESE PLANS DELINEATE THE BASIC SCOPE OF WORK FOR THE REMOVAL OF EXISTING MATERIAL. THE DEMOLITION DRAWINGS AND NOTES ARE PROVIDED WITH THE INTENT TO GENERALLY DESCRIBE AREAS AND LIMITS OF WORK. THE CONTRACTOR SHALL BE FAMILIAR WITH THE SITE AND CONDITIONS THERE ON AND SHALL NOT RELY SOLELY ON REVIEW OF THE BIDDING DOCUMENTS IN DETERMINING THE EXTENT OF DEMOLITION WORK REQUIRED. COORDINATION OF THESE DRAWINGS WITH REQUIREMENTS FOR CONTRACT WORK IS THE RESPONSIBILITY OF THE CONTRACTOR. DISCREPANCIES BETWEEN OR WITHIN THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE OWNER IMMEDIATELY. THE CONTRACTOR SHALL PROVIDE CLARITY SKETCHES, DIAGRAMS, AND FIELD DIMENSIONS OF EXISTING CONDITIONS AT THE REQUEST OF THE OWNER IF/WHEN CONFLICTS ARE IDENTIFIED.
- PROTECT ALL OWNER EQUIPMENT LEFT IN BUILDINGS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO INCLUDE IN HIS BID ALL COSTS ASSOCIATED WITH DEMOLITION TO ALLOW NEW CONSTRUCTION SHOWN IN CONTRACT DOCUMENTS. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL REMOVE ABANDONED RACEWAYS, CONDUCTORS, TOGETHER WITH ANY AUXILIARY ITEMS, TO ALLOW NEW CONSTRUCTION AND FINISH TO OCCUR AS COMPLEMENTED BY THE CONTRACT DOCUMENTS.
- REMOVE ALL WIRES, CABLES, SURFACE MOUNT RACEWAYS, AND ALL APPURTENANCES WHICH SERVE DEVICES BEING REMOVED. USE CARE TO PRESERVE EXISTING CABLES OR WIRES TO REMAIN. CUT CONDUIT FLUSH TO CEILING OR WALL WHEN CONCEALED, AND SEAL OFF WITH SPRAY FOAM. ABANDON FLUSH BOXES AND NON-ACCESSIBLE CONDUIT, PROVIDE COVER PLATES FOR ALL BOXES TO REMAIN. CUT CONDUIT FLUSH TO FLOOR AND SEAL WITH GROUT.
- CONTRACTOR SHALL REMOVE AND COORDINATE DELIVERY TO OWNER, ALL DEVICES THAT ARE IDENTIFIED TO BE SALVAGED. CONTRACTOR SHALL COORDINATE WITH OWNER TO ASSURE THAT ALL ITEMS TO BE RETAINED ARE IDENTIFIED PRIOR TO THE START OF DEMOLITION. ALL ITEMS NOT SO IDENTIFIED SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF SITE.
- CONTRACTOR SHALL REMOVE ELECTRICAL CONNECTIONS TO ALL MECHANICAL EQUIPMENT TO BE DEMOLISHED. ELECTRICAL CONTRACTOR SHALL CHECK MECHANICAL DEMOLITION PLANS FOR UNIT LOCATIONS. ALL CONDUIT THROUGH ROOF AND ACCESSIBLE CONDUIT SHALL BE REMOVED.
- CONTRACTOR SHALL COORDINATE ALL CUTTING, PATCHING AND FINISH WORK.

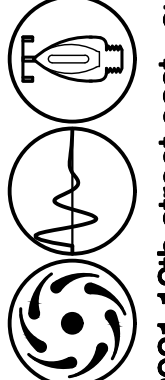
GENERAL NOTES

- THESE PLANS DELINEATE THE BASIC SCOPE OF WORK FOR THE INSTALLATION OF A NEW FIRE PUMP AND BOOSTER PUMPS. THE CONSTRUCTION DRAWINGS AND NOTES ARE PROVIDED WITH THE INTENT TO GENERALLY DESCRIBE THE AREAS AND LIMITS OF WORK. THE CONTRACTOR SHALL BE FAMILIAR WITH THE SITE AND CONDITION THEREON, AND SHALL NOT RELY SOLELY ON REVIEW OF THE BIDDING DOCUMENTS IN DETERMINING THE EXTENT OF CONSTRUCTION WORK REQUIRED. COORDINATION OF THESE DRAWINGS WITH REQUIREMENTS FOR CONTRACT WORK IS THE RESPONSIBILITY OF THE CONTRACTOR. DISCREPANCIES BETWEEN OR WITHIN THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE OWNER IMMEDIATELY. THE CONTRACTOR SHALL PROVIDE CLARITY SKETCHES, DIAGRAMS, AND FIELD DIMENSIONS OF EXISTING CONDITIONS AT THE REQUEST OF THE OWNER IF/WHEN CONFLICTS ARE IDENTIFIED.
- BIDS SHALL INCLUDE ALL CORE DRILLING REQUIRED TO FACILITATE ALL CONDUIT WORK. CORE DRILLED HOLES SHALL NOT PENETRATE THROUGH REBAR AND/OR CONDUIT CONTAINED IN THE EXISTING CONCRETE SLABS OR WALLS. CORE DRILL LOCATIONS MAY NEED TO BE MODIFIED TO ACCOMMODATE EXISTING OBSTRUCTIONS CONTAINED WITHIN THE FLOOR AND WALLS. DO NOT CORE DRILL A STRUCTURAL BEAM OR MODIFY THE STRUCTURAL INTEGRITY OF THE BUILDING.
- ALL CABLING SHALL BE RUN IN CONDUIT PARALLEL OR PERPENDICULAR TO THE STRUCTURE. THE CONTRACTOR VENDOR SHALL COORDINATE ALL CONDUIT ROUTING. NEATLY SURFACE MOUNT EXPOSED CONDUIT.
- REPAIRS FOR ANY DAMAGE DONE DURING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO REPAIRS WHERE EXISTING DEVICES ARE REMOVED, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR MAY UTILIZE ANY SPARE OR ABANDONED CONDUIT PER OWNER'S APPROVAL
- PAINT EXPOSED CONDUIT TO MATCH SURFACE COLOR
- COORDINATE FIRE ALARM SYSTEM SHUTDOWN AND PROGRAMMING WITH OWNER WHERE EXISTING FIRE ALARM INITIATING OR SIGNALING DEVICES MUST BE REMOVED FOR CONSTRUCTION. PROTECT ANY DEVICES FROM DUST OR DAMAGE THAT ARE LEFT IN PLACE. REINSTALL DEVICES THAT ARE REMOVED. ALL WORK TO BE DONE BY A QUALIFIED FIRE ALARM CONTRACTOR.

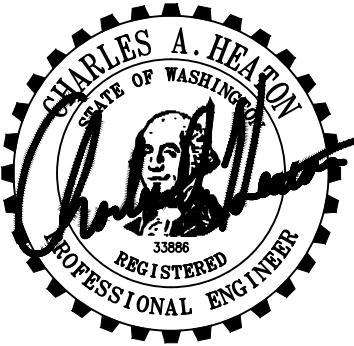
ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERER INTERRUPTING CAPACITY
C	CONDUIT OR COUNTER HEIGHT
CU	COPPER
EC	ELECTRICAL CONTRACTOR
EMDB	EMERGENCY POWER DISTRIBUTION BOARD
EMT	ELECTRICAL METALLIC TUBING
EWI	ELECTRIC WALL HEATER
FLA	FULL LOAD AMPERE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GOVERNMENT FURNISHED, GOVERNMENT INSTALLED
GND	GROUND
HP	HORSE POWER OR HEAT PUMP
ICU	INDOOR CONDITIONING UNIT
IDF	INTERMEDIATE DISTRIBUTION FRAME
KW	KILOWATT
LTG	LIGHTING
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MDB	MAIN DISTRIBUTION BOARD
MDF	MAIN DISTRIBUTION FRAME
MFR	MANUFACTURER
MLO	MAIN LUG ONLY
NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
NTS	NOT TO SCALE
OCU	OUTDOOR CONDENSING UNIT
PH	PHASE
RECP.T.	RECEPTACLE
SCH	SCHEDULE
SL	SURFACE MOUNTED LED LIGHT FIXTURE
SPD	SURGE PROTECTION DEVICE
THHN	THERMOPLASTIC HIGH HEAT NYLON COATED
V	VOLT(S)
VA	VOLT - AMPERS
WR	WIRE(S)



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FIRE PUMP, DOMESTIC
PUMP AND ATS
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TACOMA, WA 98402

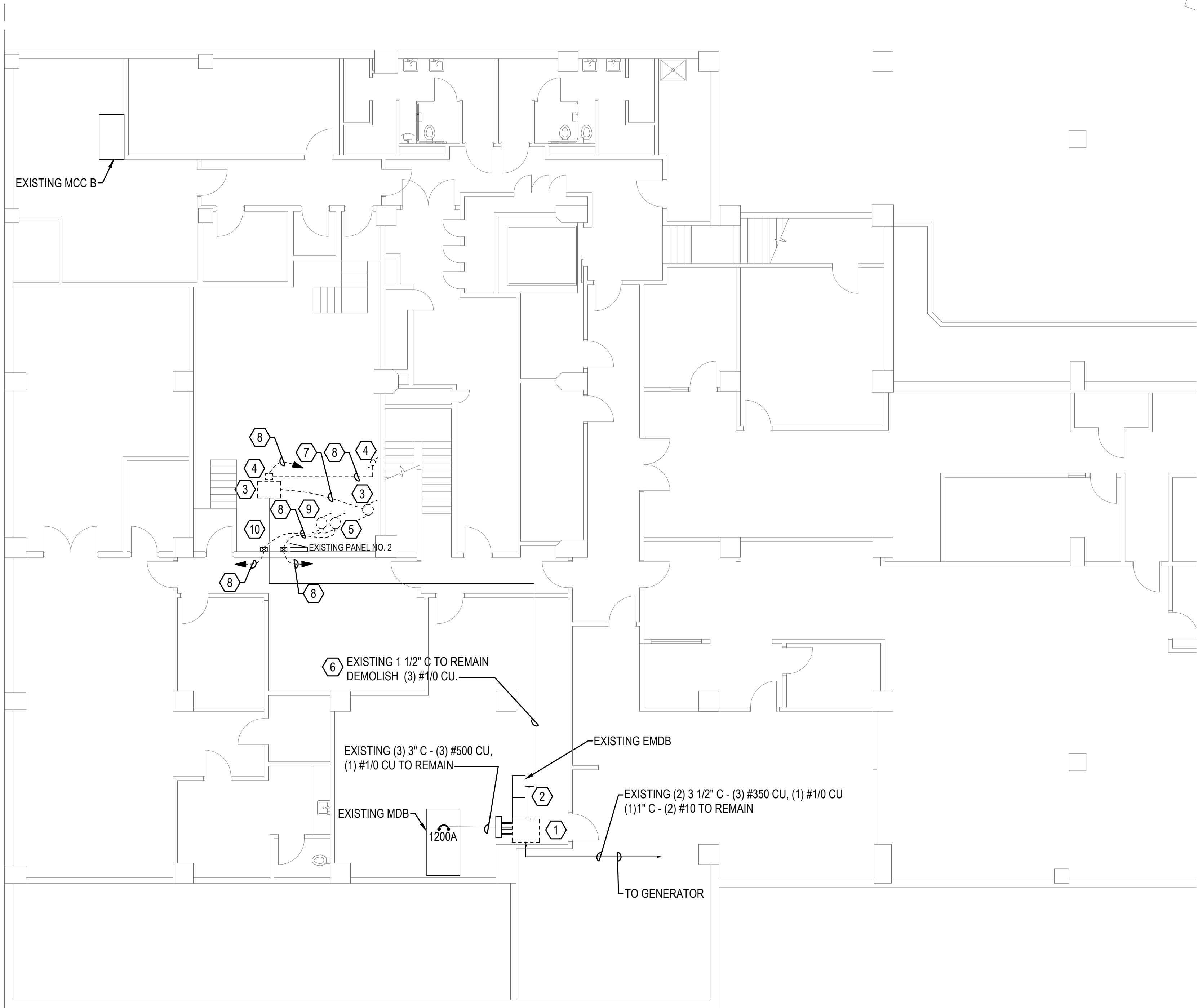
ELECTRICAL LEGEND & NOTES

REVISIONS		
NO.	DESCRIPTION	DATE
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CHECKED BY: DN		
PROJECT MANAGER: DN		

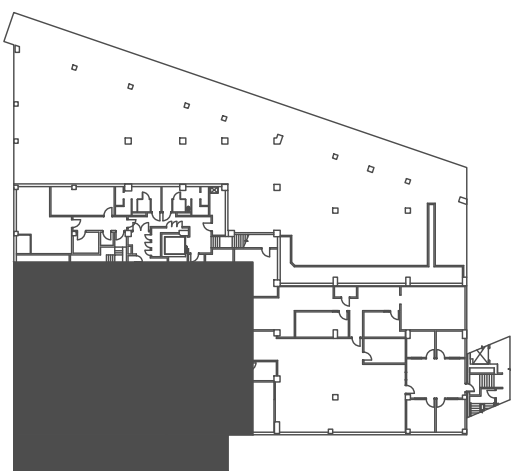
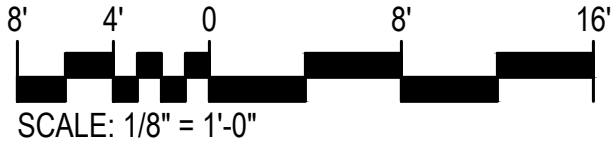
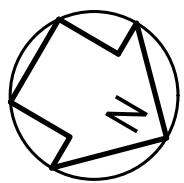
DRAWING No. 9 of TOTAL 13

E0.01

DATE: 03/20/2020
SUBMITTAL: IFC
PROJECT No. 218-245



1 BASEMENT DEMOLITION PLAN
SCALE: 1/8"= 1'-0"



KEYPLAN
N.T.S.

GENERAL NOTES

1. SEE TYPICAL GENERAL NOTES ON E0.01.

DEMOLITION NOTES

- 1 DISCONNECT AND REMOVE EXISTING 1200 AMP ATS AND CABINET. PROTECT FEEDERS AND CONTROL WIRES FOR CONNECTIONS TO NEW ATS. PROVIDE 1200 AMP TEMP POWER FROM THE MDB TO THE EXISTING EMDB UNTIL THE NEW ATS IS INSTALLED AND TESTED. WORK SHALL BE PERFORMED ON WEEKENDS TO REDUCE BUILDING OCCUPANT INTERRUPTIONS.
- 2 DISCONNECT FIRE PUMP FEEDER AND LABEL SWITCH SPARE. PROVIDE PROVISIONS FOR NEW 400 AMP FUSED SWITCH FOR FIRE PUMP.
- 3 DISCONNECT 50 HP FIRE PUMP AND CONTROL PANEL. PROTECT FEEDER FROM EMDB TO CONTROL PANEL FOR REUSE.
- 4 DISCONNECT 1 1/2 HP JOCKEY PUMP AND CONTROL PANEL. DEMOLISH CONDUIT AND WIRE BACK TO PANEL NO. 2.
- 5 DISCONNECT 20 HP PUMP, DISCONNECT SWITCH, AND STARTER. DEMOLISH CONDUIT AND WIRE BACK TO PANEL NO. 2.
- 6 INTENT IS TO REUSE EXISTING CONDUIT.
- 7 DEMOLISH WIRE BETWEEN CONTROLLER AND FIRE PUMP. CUT CONDUIT OFF FLUSH AT FLOOR AND PLUG WITH GROUT.
- 8 DEMOLISH CONDUCTORS AND CONDUIT.
- 9 DISCONNECT 5 HP PUMP AND DISCONNECT SWITCH. DEMOLISH CONDUIT AND WIRE BACK TO MCC B.
- 10 CONTROL CONTRACTOR TO DEMOLISH PUMP MONITORING/CONTROLS.

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03/20/2020

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TACOMA MUNICIPAL BLDG
FIRE PUMP, DOMESTIC
PUMP AND ATS
747 MARKET STREET
TACOMA, WA 98402

BASEMENT
DEMOLITION
PLAN

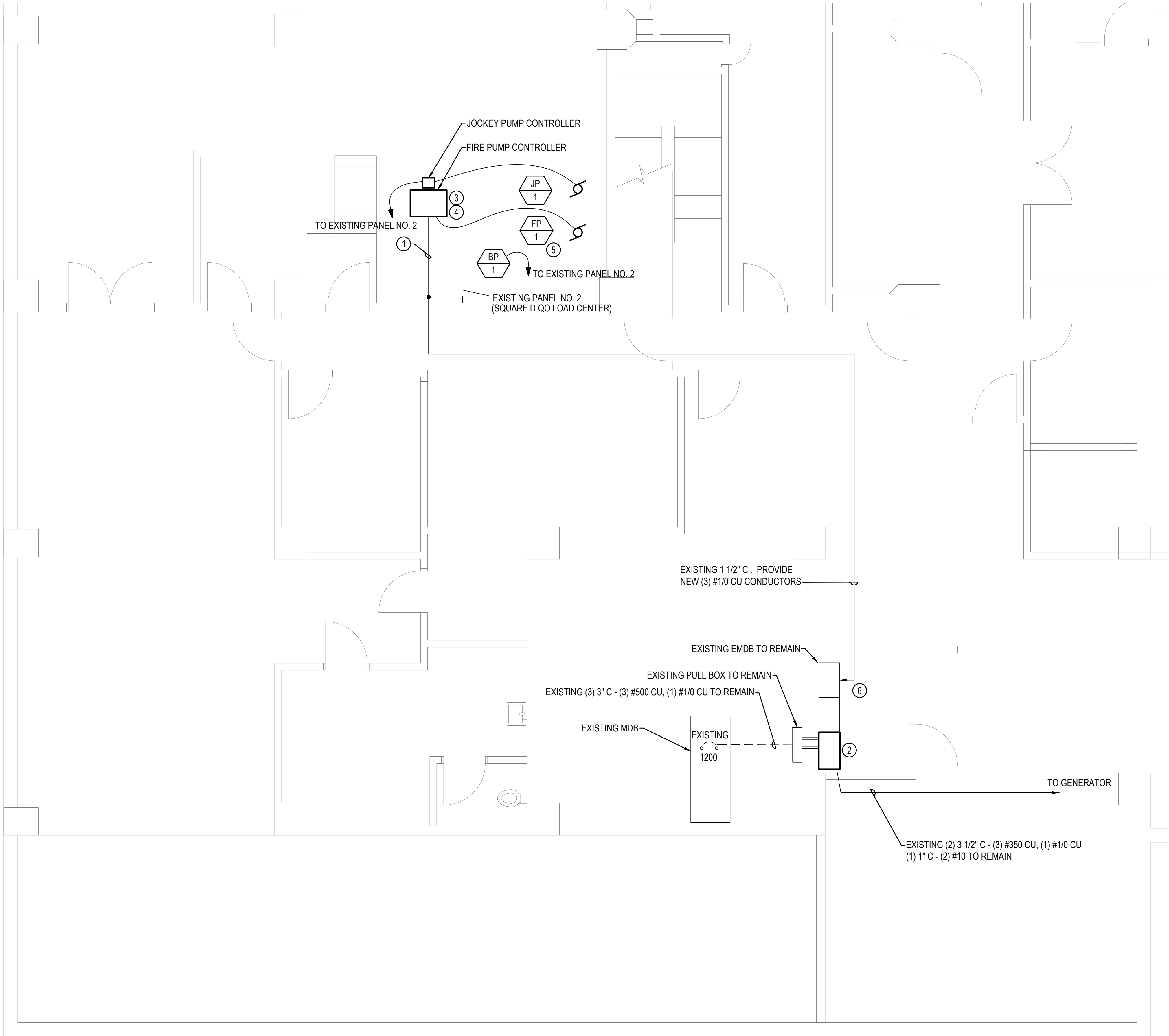
REVISIONS		
NO.	DESCRIPTION	DATE

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PROJECT MANAGER: DN

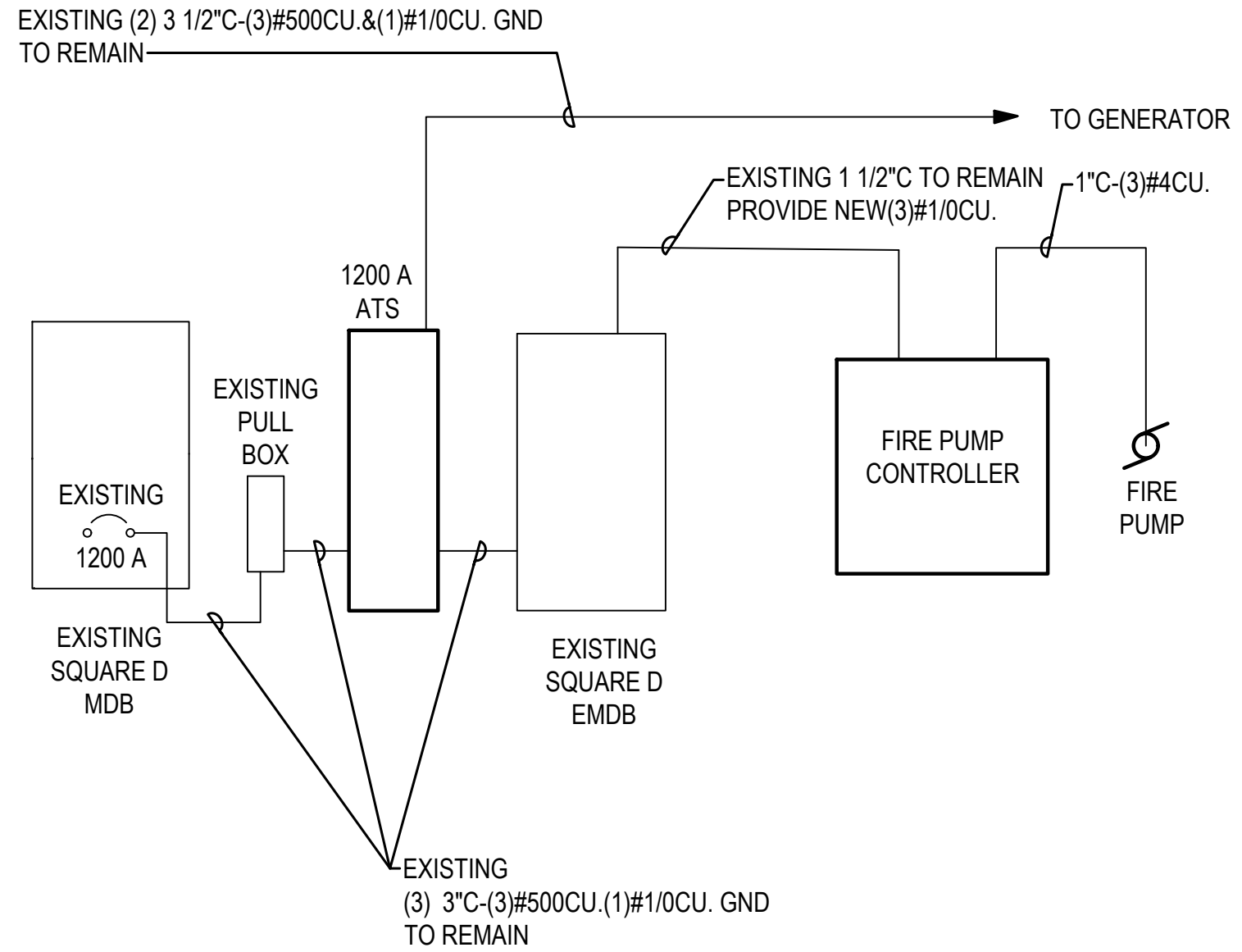
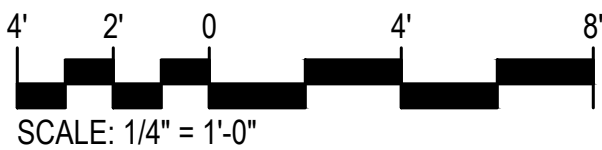
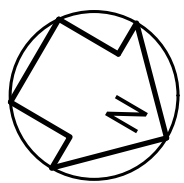
DRAWING No. 10 of TOTAL 13

ED1.01

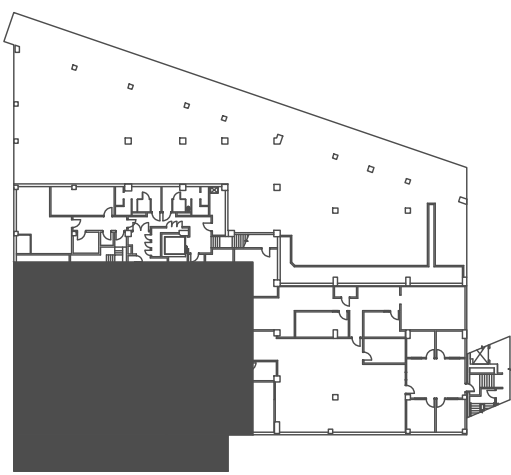
DATE: 03/20/2020
SUBMITTAL: IFC
PROJECT No. 218-245



1 BASEMENT POWER PLAN
SCALE: 1/4"= 1'-0"



2 EXISTING ONE-LINE DIAGRAM
SCALE: DIAGRAMMATIC



KEYPLAN
N.T.S.

GENERAL NOTES

- SEE TYPICAL GENERAL NOTES ON E0.01.
- VERIFY LUG SIZES AND QUANTITY ON NEW ATS ARE ADEQUATE.
- PROVIDE SELECTIVE COORDINATION BETWEEN FIRE PUMP CONTROLLER AND MDB 1200A CIRCUIT BREAKER. ADJUST EMDB FUSE SIZE AS REQUIRED.

CONSTRUCTION NOTES

- CONNECT CONDUIT AND WIRE TO FIRE PUMP CONTROLLER. PROVIDE SPLICE BOX AND CONDUIT EXTENSION AS REQUIRED.
- PROVIDE 3P-1200 AMP AUTOMATIC TRANSFER SWITCH, 75,000 AIC, MAXIMUM WIDTH OF 36". RECONNECT EXISTING POWER AND CONTROL CONDUCTORS.
- ELECTRICAL CONTRACTOR SHALL SUBCONTRACT WITH GUARDIAN SECURITY TO PROVIDE ADDITIONAL FIRE PUMP CONTROLLER MONITORING POINTS AND ADDITIONAL TAMPER SWITCH MONITORING.
- THERE IS CURRENTLY ONE FIRE PUMP CONTROLLER POINT BEING MONITORED BY THE FIRE ALARM SYSTEM. THE FIRE ALARM CONTRACTOR (GUARDIAN SECURITY) MUST PROVIDE 3 ADDITIONAL POINTS TO MONITOR THE FIRE PUMP CONTROLLER FOR PUMP RUNNING, LOSS OF PHASE, PHASE REVERSAL, AND ALTERNATE POWER SOURCE.
- FIRE ALARM CONTRACTOR TO PROVIDE MONITORING OF 6 ADDITIONAL TAMPER SWITCHES ASSOCIATED WITH THE NEW FIRE PUMP. SEE NOTES 2A, 7, AND 7A ON ELEVATION DETAILS 2 & 3 OF SPRINKLER DRAWING SHEET FX101 FOR TAMPER SWITCH LOCATIONS.
- PROVIDE NEW OR RE-MANUFACUTRED SQUARE D 400 AMP FUSED SWITCH WITH 400 AMP DUAL-ELEMENT FUSES. PROVIDE NEW #1/0 COPPER CONDUCTORS TO FIRE PUMP CONTROLLER.

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PUMP AND ATS
747 MARKET STREET
TACOMA, WA 98402

BASEMENT
POWER
PLAN

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DRAWING No. 11 of TOTAL 13

E1.01

DATE: 03/20/2020
SUBMITTAL: IFC
PROJECT No. 218-245

LOAD TYPE	PANEL: No. 2 (EXISTING)		3 PH		4 WIRE		VOLTAGE: 208Y/120V		200 MLO					
	LOC: PUMP ROOM		MOUNT: SURFACE		FEED: TOP									
	TYPE: NEMA 1		POLES: 42		SF MAINS:		10,000AIC MINIMUM							
LOAD TYPE	LOAD	CIRCUIT DIRECTORY	CIR. NO.	CIR. BRKR P	AMP	A	B	C	CIR. BRKR P	AMP	CIR. NO.	CIRCUIT DIRECTORY	LOAD	LOAD TYPE
			1	3		6098			3		2		6098	ML
		SHOP CIRC PUMP	3				6098				4	WATER BOOSTER	6098	ML
			5	20				6098		60	6		6098	ML
			7	3					3		8			
		BOILER FEED PUMP	9								10	CIRC PUMP		
			11	20						60	12			
			13	3					3		14			
		COND TANK PUMP	15								16	COMPRESSOR		
			17	20						40	18			
		WATER CIRC PUMP	19	1	20				2		20	TELECOM		
1	ML 792		21	3			792			20	22			
	ML 792	JOCKEY PUMP	23					792	2		24	TELECOM		
	ML 792		25	20		792				20	26			
		SPACE	27								28	SPACE		
			29								30			
			31								32			
			33								34			
			35								36			
			37								38			
			39								40			
			41								42			
	2376	TOTAL	THIS PANEL->			6890	6890	6890				TOTAL	18294	
												TOTAL CONNECTED LOAD (VA): 20,670.00		
												TOTAL CONNECTED CURRENT (A): 57.37		
						6890	6890	6890				TOTAL DEMAND LOAD (VA): 25,243.50		
												TOTAL DEMAND CURRENT (A) 70.07		
NOTES: L=LIGHTING, R=RECEPTACLES, H=ELECTRIC HEAT, ML=LARGEST MOTOR, MO=OTHER MOTORS, WH=WATER HEATERS, K=KITCHEN LOADS, A=APPLIANCES, D=DEDICATED, X=MISC, SF=SUB FEED														

DEMOLITION NOTES

- 1 DISCONNECT PUMP AND REMOVE CIRCUIT BREAKER.

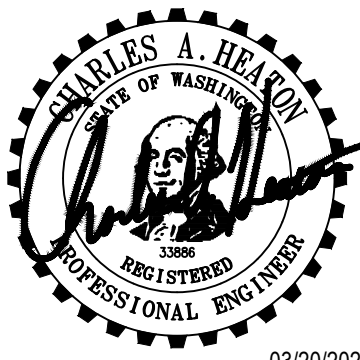
MECHANICAL EQUIPMENT CONNECTION SCHEDULE										
EQUIP.	VOLT/PH	LOAD			CIRCUIT		CONDUIT/WIRE SIZE	MAGNETIC STARTER (NOTE 1)	FUSED DISC. (NOTE 1)	REMARKS
		VA	MCA	HP	PANEL	BKR				
BP- 1	208/3		57		No. 2	2,4,6	1" C - (3) #4 CU	---	EC	
JP- 1	208/3			1	No. 2	21,23,25	½ " C - (3) #12 CU	MFR	EC	
FP- 1	208/3			20	EMDB		1" C - (3) #4 CU	MFR	---	

NOTES: 1. CONTRACTOR LISTED SHALL FURNISH AND INSTALL THE LISTED DEVICE.

	PANEL:	No. 2 (REVISED)	3 PH	4 WIRE	VOLTAGE:	208Y/120V	200 MLO									
	LOC:	PUMP ROOM		MOUNT: SURFACE	FEED:	TOP										
	TYPE:	NEMA 1		POLES: 42	SF MAINS:		10,000AIC MINIMUM									
LOAD TYPE	LOAD	CIRCUIT DIRECTORY	CIR. NO.	CIR. BRKR P	AMP	A	B	C	CIR. BRKR P	AMP	CIR. NO.	CIRCUIT DIRECTORY	LOAD	LOAD TYPE		
			1	3		4560			3		2		4560	ML		
		SHOP CIRC PUMP	3				4560				4	WATER BOOSTER BP-1	4560	ML		
			5	20				4560	80		6		4560	ML		
			7	3					3		8					
		BOILER FEED PUMP	9								10	SPARE				
			11	20					60		12					
			13	3					3		14					
		COND TANK PUMP	15								16	COMPRESSOR				
			17	20					40		18					
		WATER CIRC PUMP	19	1	20				2		20	TELECOM				
ML	552		21	3			552			20	22					
ML	552	JOCKEY PUMP JP-1	23					552	2		24	TELECOM				
ML	552		25	20		552				20	26					
		SPACE	27								28	SPACE				
			29								30					
			31								32					
			33								34					
			35								36					
			37								38					
			39								40					
			41								42					
	1656	TOTAL	THIS PANEL->			5112	5112	5112	TOTAL						13680	
						5112	5112	5112	TOTAL CONNECTED LOAD (VA): 15,336.00							
									TOTAL CONNECTED CURRENT (A): 42.57							
			LIGHTING(125%) = 0.00			LARGEST MOTOR(125%) = 17100.00			KITCHEN LOADS(65%) = 0.00			TOTAL DEMAND LOAD (VA): 18,756.00				
			RECEPTS<=10000(100%) = 0.00			OTHER MOTORS(100%) = 1656.00			APPLIANCES(100%) = 0.00			TOTAL DEMAND CURRENT (A) 52.06				
			RECEPTS>10000(50%) = 0.00			MOTOR TOTAL = 18756.00			DEDICATED(100%) = 0.00							
			RECEPTS TOTAL = 0.00			WATER HEATERS(100%) = 0.00			MISC(100%) = 0.00							
			ELECTRIC HEAT(100%) = 0.00													
NOTES: L=LIGHTING, R=RECEPTACLES, H=ELECTRIC HEAT, ML=LARGEST MOTOR, MO=OTHER MOTORS, VH=WATER HEATERS, K=KITCHEN LOADS, A=APPLIANCES, D=DEDICATED, X=MISC, SF=SUB FEED																

CONSTRUCTION NOTES

- 1 CONNECT TO EXISTING CIRCUIT BREAKER.
- 2 CONNECT PUMP SKID TO NEW 3P-80 AMP CIRCUIT BREAKER.



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PANEL SCHEDULES
AND
MECHANICAL SCHEDULES

REVISIONS		
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DRAWING No. 13 of TOTAL 13

E2.02

DATE: 03/20/2020
SUBMITTAL: IFC
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