

**TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER  
PUMP STATION**

**JOB NO. 02-26-PW  
CIP NO. WAC 0570 003  
Kirkland, WA 98033**



**PROJECT MANUAL**  
**Divisions 0-18**

**MARCH 13, 2026**

HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP  
STATION

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HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION Certifier Ryan Feskens, PE

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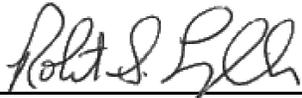
TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMP REGIONAL BOOSTER  
PUMP STATION

SECTION 00 00 02  
APPROVED FOR CONSTRUCTION

**CITY OF KIRKLAND  
DEPARTMENT OF PUBLIC WORKS**

**TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION  
JOB NO. 02-26-PW  
CIP NO. WAC 0570003**

*Approved for Construction:*

A handwritten signature in black ink, appearing to read "Robert English", is written above a solid horizontal line.

Robert English, P.E.  
Capital Projects Manager

**CITY OF KIRKLAND  
DEPARTMENT OF PUBLIC WORKS**

**TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION  
JOB NO. 02-26-PW  
CIP NO. WAC0570003**

***Certificate of Architect/Engineer:***

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



Signed: 03/18/2026

Ryan Feskens, PE  
Project Manager

**INVITATION FOR BIDS**

**City of Kirkland  
Temporary Regional Booster Pump Station  
Highlands Temporary Booster Pump Station  
CIP # WAC 0570 003  
JOB # 02-26-PW  
Kirkland, WA 98033**

The City of Kirkland invites interested and qualified contractors to submit sealed bids for the following project:

TITLE: Temporary Regional Booster Pump Station –  
Highlands Temporary Regional Booster Pump  
Station

ESTIMATED BID AMOUNT: In range of \$400,000 to \$450,000 based on the  
base bid

BID SUBMITTAL TIME/DATE/LOCATION: Prior to 2:00 P.M. on April 6, 2026, in the  
Office of Purchasing Agent at City of Kirkland  
123 5<sup>th</sup> Avenue  
Kirkland WA 98033

Bids can be hand delivered or mailed, but must  
be received by the City, in the Office of  
Purchasing Agent at City Hall, prior to the stated  
date and time.

PUBLIC BID OPENING 2:00 P.M. on April 6, 2026  
Council Chambers  
City of Kirkland  
123 5<sup>th</sup> Avenue  
Kirkland WA 98033

Bids will be publicly opened and read aloud and  
initially verified for completeness. Bid results  
will be posted online after the public bid  
opening. The City reserves the right ascertain  
full compliance with the bid proposal  
requirements in a more detailed review after the  
public bid opening.

**BID SUBMITTAL ENVELOPE:**

All bid submittal envelopes must be opaque, sealed, and *plainly marked on the outside* with “**Bid for Temporary Regional Booster Pump Station – Highlands Temporary Regional Booster Pump Station, Job # 02-26-PW.**” The bid submittal envelope must contain all documents required at the bid

**TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION**

**SECTION 00 00 10  
INVITATION FOR BIDS**

submittal time. NO BIDS WILL BE ACCEPTED AFTER THE BID SUBMITTAL TIME. Upon submittal, bids will be marked by the City of Kirkland with the time and date received, and then secured until the date and time set for the public bid opening.

**ITEM FOR BID:**

The Project consists of all work to be performed as indicated in the Project Manual, Drawings, and any posted Addenda. The work consists of all labor, materials, and other incidentals for construction of the Temporary Regional Booster Pump Station (TRBPS) including, but not limited to: installation of a block retaining wall; site piping; building slab; installation of Owner provided pump skid; installation of pre-engineered building; site restoration, including sidewalk, curb and gutter, asphalt overlay, sod, and crushed surfacing; mechanical; and electrical improvements.

Substantial Completion shall be achieved 30 working days after the Owner's Notice to Proceed and no later than June 18, 2026. Final Completion shall be achieved within forty-five (45) calendar days after Substantial Completion.

**BID DOCUMENTS:**

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

This online plan room provides Bidders with fully usable online documents with the ability to: download, view, print, order full/partial plan sets from numerous reprographic sources, and a free online digitizer/take-off tool. It is recommended that Bidders "Register" in order to receive automatic e-mail notification of future addenda, schedule changes, and to place themselves on the "Self-Registered Bidders List". Bidders that do not register will not be automatically notified of addenda and will need to periodically check the on-line plan room for addenda issued on this project. Contact Builders Exchange of Washington at (425) 258-1303 should you require assistance with access or registration.

The content available through [bxwa.com](http://bxwa.com) is our property or the property of our licensors and is protected by copyright and other intellectual property laws. Access to project documents is intended for use by bidders (general contractors/prime bidders, subcontractors and suppliers), agency personnel and agency's consultants, as well as for personal, noncommercial, use by the public. You may display or print the content available for these uses only. "Harvesting" (downloading, copying, and transmitting) of any project information and/or project documents for purposes of reselling and/or redistributing information by any other party is not allowed by BXWA.

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**QUESTIONS:**

Questions regarding this project shall be submitted in writing to Nick Sondergaard (NSondergaard@kirklandwa.gov) via e-mail with the subject line of “**Temporary Regional Booster Pump Station – Highlands Temporary Regional Booster Pump Station: Bid Question**”. Questions received via phone or any other method other than e-mail will not be accepted. Bidders shall submit questions no later than April 1, 2026, at 3 PM. Receipt of questions will be acknowledged; however, bidder questions will be answered via addendum.

**CONTRACTOR REGISTRATION:**

Pursuant to RCW 39.06, the bidder shall be registered and licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27.

In order to perform public work, the successful bidder and subcontractors, prior to Contract award, shall hold or obtain such licenses and registrations as required by State Statutes and Codes, and Federal and local laws and regulations and a City of Kirkland business license.

**BID SECURITY:**

Certified check, bank cashier's check or bid bond congruent with the Bid Bond Security Form (Section 00 43 30) as identified in the "Instructions to Bidders" is required to be submitted with each proposal, in the amount equal to five percent (5%) of the total base bid plus additive alternate bids (if applicable). Make bid security payable to the City of Kirkland, furnish bond executed by a licensed bonding agency authorized to do business in the locality of the Project. No bid shall be considered unless accompanied by such bid security.

**RIGHT TO ACCEPT OR REJECT:**

The Contract will be awarded to the responsible bidder submitting the lowest proposal complying with these contract documents provided the bid is reasonable and in the best interest of the City of Kirkland.

The Owner (City of Kirkland) reserves the right to reject any or all bid proposals and the right to waive any irregularities or informalities in any proposal, subject to the Laws of the State of Washington as pertinent to Public Works and congruent with requirements and policies of City of Kirkland, and as may be deemed in the best interest of the Owner. In particular, the Owner reserves the right to reject a bid which is not accompanied by the documents specified in the Instructions to Bidders and incomplete or irregular bids which may exclude any item(s) as may be required by the Project Manual.

The City of Kirkland, in accordance with Title VI of the Civil Rights Act of 1964, (78 Stat. 252, 42 USC 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, or national origin in consideration for an award.

City of Kirkland is an Equal Opportunity and Affirmative Action Employer.

Small, Minority and Women-Owned firms are encouraged to submit bids.

**WITHDRAWAL OF BID:**

**TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION**

**SECTION 00 00 10  
INVITATION FOR BIDS**

No bid may be withdrawn after the date set for the public bid opening for a period of sixty (60) calendar days.

**NOTICE GIVEN BY ORDER OF THE CITY OF KIRKLAND:**

Published in the Daily Journal of Commerce: March 18, 2026, and March 25, 2026

**END OF SECTION**

**BIDDER'S CHECKLIST**

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

1.  Has a bid bond or certified check been enclosed with your bid? Is the amount of the bid guaranty at least 5 percent of the total amount of the bid?
2.  Has the proposal been properly completed and signed? Do written amounts on the proposal agree with the amounts shown in the figures?
3.  Have you bid on all items including, if applicable, all alternates and unit prices?
4.  Have you acknowledged all addenda, if any, in the Bid Form (Section 00 41 00)
5.  Do not submit any of the forms still attached to the Project Manual. Remove or copy the forms and submit in the sealed envelope as directed.
6.  Are you and all your subcontractors familiar with the schedule of value requirements including but not limited to the required placement of 5% of the bid for work between substantial completion and final completion?
7.  Have you reviewed the Bidder's Qualifications and Bidder Responsibility Criteria forms and understand these obligations if you are selected as the apparent low bidder?
8. The following items must be completed and included within the sealed bid submittal envelope:
  - A.  **Bid Form (00 41 00)** The bid price must be shown in the space provided. Show price in both words and figures. The bid form must be completed in full, signed, and dated.
  - B.  **Bidder's Qualifications Form (00 10 20):** This form must be filled in and signed. The owner reserves the right to check all statements and to judge the adequacy of the bidder's qualifications.
  - C.  **Bid Bond Security Form (00 43 30):** A surety issued bid bond must be executed by the bidder and its surety company. The amount of the bid bond shall be not less than five (5%) of the total bid and may be shown in dollars or on a percentage basis. A cashier's check payable to the City of Kirkland and issued for an amount not less than 5% of the total bid may be submitted in lieu of a bid bond.
  - D.  **Non-Collusion, Bidder Responsibility, and Minimum Wage Certification Form (00 15 40):** This form must be filled in, signed, and notarized.
9. All bidders must submit the following either within the sealed bid submittal envelope **or** within the stated time requirement after the published bid submittal time, as specified. If submitting after the published bid submittal time, Bidder must hand deliver this form to the Cashier Counter at City Hall, 123 5<sup>th</sup> Avenue, Kirkland WA 98033.
  - E.  **Subcontractor Identification List (1 of 2) (00 44 00):** This form must be filled in and submitted at the published bid submittal time, identifying subcontractors for HVAC, Plumbing, and Electrical.
  - F.  **Subcontractor Identification List (2 of 2) (00 44 00):** This form must be filled in and submitted within forty-eight (48) hours of the published bid submittal time, identifying subcontractors for structural steel installation and rebar installation.

10. The following forms are to be executed after the contract is awarded:
- A.  **AGREEMENT FORM (00 52 20):** This agreement to be executed by the successful bidder.
  - B.  **PERFORMANCE BOND (00 61 40):** One hundred percent of the Contract Price to be executed by the successful bidder and his surety company. The surety on such bonds shall be a duly authorized surety company satisfactory of the Owner.
  - C.  **LABOR MATERIALS AND TAXES BOND (PAYMENT BOND) (00 61 41):** One hundred percent of the Contract Price to be executed by the successful bidder and his surety company. The surety on such bonds shall be a duly authorized surety company satisfactory of the Owner.
  - D.  **RETAINAGE INVESTMENT OPTION (00 45 70):** This agreement to be executed by the successful bidder.
  - J.  **CERTIFICATES OF INSURANCE (00 60 00):** To be executed by the successful bidder and by an acceptable insurance company. The City of Kirkland must be named as an additional insured.
  - K.  **CONTRACTOR'S CERTIFICATION (00 83 00):** Concerning Labor Standards and Prevailing Wage Requirements. Submit Statement of Intent to Pay Prevailing Wages. (Form F 700-029-000, available at Offices of Washington State Department of Labor and Industries).
11.  Special Note: Prior to commencing work, the Contractor and all subcontractors must have applied and paid for a City of Kirkland Business License.

**END OF SECTION**

**BIDDER'S QUALIFICATIONS**

Each bidder submitting a proposal for this Project shall submit, as part of its bid, the following information:

1. Bidder (Contractor): \_\_\_\_\_
2. Contractor's Address: \_\_\_\_\_
3. Telephone Number and Area Code: \_\_\_\_\_
4. IRS Federal Employer's Identification Number: \_\_\_\_\_
5. Current State Unified Business Identification Number: \_\_\_\_\_
6. Number of years engaged in the construction business under the present company name.  
Number of Years: \_\_\_\_\_  
Name: \_\_\_\_\_
7. Total value of contracts in force: \_\_\_\_\_
8. To qualify for bidding for this project the General Contractor as the legal entity bidding the project shall have constructed two (2) municipal water or wastewater pump station with a flow rate of at least 200 gallons per minute within the past five (5) years.
9. **List below project(s) which meet the qualifications as outlined above.**  
*(Attach additional project pages if required)*  
  
Project Name: \_\_\_\_\_  
Project Value: \_\_\_\_\_  
Reference Name, phone number and email: \_\_\_\_\_  
  
Project Name: \_\_\_\_\_  
Project Value: \_\_\_\_\_  
Reference Name, phone number and email: \_\_\_\_\_  
  
Project Name: \_\_\_\_\_  
Project Value: \_\_\_\_\_  
Reference Name, phone number and email: \_\_\_\_\_  
  
Project Name: \_\_\_\_\_  
Project Value: \_\_\_\_\_  
Reference Name, phone number and email: \_\_\_\_\_  
  
Project Name: \_\_\_\_\_  
Project Value: \_\_\_\_\_

Reference Name, phone number and email: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Value: \_\_\_\_\_

Reference Name, phone number and email: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Value: \_\_\_\_\_

Reference Name, phone number and email: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Value: \_\_\_\_\_

Reference Name, phone number and email: \_\_\_\_\_

10. Recent significant projects completed by Bidder including owner's name, Approximate cost, and completion date:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

11. Washington State Contractor's Registration Number: \_\_\_\_\_

12. Bonding Reference: \_\_\_\_\_

\_\_\_\_\_

13. Bonding Capacity: \_\_\_\_\_

Bidder:

By (Name): \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**This Form Must Be Submitted with the Bid.**

**END OF SECTION**

## BIDDER'S RESPONSIBILITY CRITERIA

### Low Responsible Bidder

It is the intent of the Owner to award a contract to the low responsible bidder. The Bidder must meet the minimum project bidding requirements outlined in Section 00 10 20 Bidder's Qualifications Section, Item 8.

In addition, the Owner shall consider an overall accounting of the items listed below which the bidder must meet. The bidder must submit the Non-Collusion, Bidder Responsibility, and Minimum Wage Certification Form (00 15 40) demonstrating that they meet the following criteria:

### Bid Procedures and Conditions

#### Qualifications of Bidder

- A. Bidders must meet the minimum qualifications of RCW 39.04.350, as amended:  
"Before award of a public works contract, a bidder must meet the following responsibility criteria to be considered a responsible bidder and qualified to be awarded a public works project. The bidder must:
- (a) At the time of bid submittal, have a certificate of registration in compliance with chapter 18.27 RCW;
  - (b) Have a current State unified business identifier number;
  - (c) If applicable, have industrial insurance coverage for the bidder's employees working in Washington as required in Title 51 RCW; an employment security department number as required in Title 50 RCW; and a State excise tax registration number as required in Title 82 RCW; and
  - (d) Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).
  - (e) If bidding on a public works 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 bid solicitation; and
  - (f) Have received training on the requirements related to public works and prevailing wage under this chapter and chapter 39.12 RCW. The bidder 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. The department, in consultation with the prevailing wage advisory committee, must determine the length of the training. 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. The department of labor and industries must keep records of entities that have satisfied the training requirement or are exempt and make the records available on its web site. Responsible parties may rely on the records made

available by the department regarding satisfaction of the training requirement or exemption; and

- (f) Until December 31, 2013, not have violated RCW 39.04.370 more than one time as determined by the Department Of Labor And Industries.

B. In addition to the bidder responsibility criteria above, the bidder must also meet the following relevant supplemental bidder responsibility criteria applicable to the project:

- a. The Bidder shall not currently be debarred or suspended by the Federal government. The Bidder shall not be listed as a current debarred or suspended bidder on the U.S. General Services Administration's "Excluded Parties List System" website. Bidder debarment or suspension status may be verified through this website: <http://www.sam.gov/>. The Owner may also use other sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.
- b. The Bidder shall not owe delinquent taxes to the Washington State Department of Revenue, without a payment plan approved by the Washington State Department of Revenue. The Bidder shall not be listed on the Washington State Department of Revenue's "Delinquent Taxpayer List", which may be verified at the following website:  
<http://dor.wa.gov/content/fileandpataxes/latefiling/dtlwest.aspx>. The Owner may also use other sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.
- c. The Bidder shall not have been convicted of a crime involving bidding on a public works contract within five (5) years prior to the bid submittal deadline. The Bidder shall provide a duly executed sworn statement (on the included form, or on a form otherwise determined to be acceptable by the Owner), that the Bidder has not been convicted of a crime involving bidding on a public works contract. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental.
- d. The Bidder's standard subcontract form shall include the subcontractor responsibility language required by RCW 39.06.020, and the Bidder shall have an established written procedure which the Bidder uses to validate the responsibility of each of its subcontractors. The Bidder's subcontract form shall also include a requirement that each of its subcontractors shall have and document a similar procedure to determine whether the sub-tier subcontractors with whom it contracts are also "responsible" contractors as defined per RCW 39.06.020. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.
- e. The Bidder shall not have a record of prevailing wage complaints filed against the Bidder within five (5) years prior to the bid submittal date that demonstrates a pattern of failing to pay workers prevailing wages, unless there are extenuating

circumstances that are acceptable to the Owner. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.

- f. The Bidder shall not have had any public works contract terminated for cause by a government agency during the five (5) year period immediately preceding the bid submittal deadline for the project, unless there are extenuating circumstances acceptable to the Owner. The Bidder shall provide a duly executed sworn statement (on the included form, or in a form otherwise determined to be acceptable by the Owner), that the Bidder has not had any public works contract terminated for cause by a government agency during the five (5) year period immediately preceding the bid submittal deadline for the project. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.
  - g. The Bidder shall not have a record of excessive claims filed against the retainage or payment bonds for public works projects within three (3) years of the bid submittal date, that demonstrate a lack of effective management by the Bidder of making timely and appropriate payments to its subcontractors, suppliers, and workers, unless there are extenuating circumstances which are acceptable to the Owner. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.
  - h. Within two (2) years prior to the bid submittal date the Bidder shall not have had a project construction site shut down due to a safety violation (i.e., WISHA / OSHA written citations) from the Washington State Department Labor & Industries or analogous agency with jurisdiction in the location the work was performed, regardless of whether such willful and/or serious safety violations have been abated or not. The Bidder shall maintain compliance with all safety and health requirements (i.e., WISHA / OSHA) from the Washington State Department Labor & Industries (or analogous agency with jurisdiction in the location the work is performed). The Owner may verify such information provided with the Washington State Department Labor & Industries or analogous agency with jurisdiction in the location the work was performed. The Owner may also use other sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.
- C. If a Bidder fails to supply the required bidder responsibility documentation, information, or materials, then Bidder may be determined by the Owner to be non-responsive, and the bid may be rejected on this basis. If the Owner determines the apparent successful bidder does not meet the bidder responsibility criteria above and is therefore not a responsible bidder, the Owner shall notify the bidder in writing with the reasons for its determination. If the bidder disagrees with this determination, it may appeal the determination within twenty-four (24) hours of receipt of the Owner's determination by presenting additional written information to the Owner. The Owner will consider the additional information before issuing its final determination. If the Owner's final determination affirms that the bidder is not responsible, the Owner will not execute a contract with any other bidder until two (2) business days after the bidder determined to

be not responsible has received the final determination. Please note that the above-described information, materials, and documentation requested by the Owner for purposes of determining Bidder responsibility is not necessarily exclusive, and the Owner expressly reserves the right to request additional information, materials, and documentation as may be determined to be necessary or desirable by the Owner in order to evaluate and determine Bidder's compliance with the above-described bidder responsibility criteria. At all times, the Owner may also use other sources of information that may be available to otherwise determine whether the Bidder is in compliance with the forgoing bidder responsibility criteria.

**END OF SECTION**

**NON-COLLUSION, BIDDER RESPONSIBILITY, AND  
MINIMUM WAGE CERTIFICATION FORM**

In accordance with the Contract Documents and Instructions to Bidder, the Bidder must provide the following sworn statement and certification:

Bidder (Contractor): \_\_\_\_\_

Contractor Address: \_\_\_\_\_

Telephone No. \_\_\_\_\_ E-Mail: \_\_\_\_\_

I, \_\_\_\_\_, the undersigned declarant, as the duly authorized representative on behalf of \_\_\_\_\_ (herein the "Bidder") hereby make this declaration on the basis of facts within the scope of my first-hand knowledge and authority to which I am competent to testify:

1. I hereby certify, swear and affirm under penalty of perjury, that the Bidder, as of the date of this declaration (below) meets all of the minimum bidder responsibility qualifications of RCW 39.04.250, as amended.
2. I hereby certify, swear and affirm under penalty of perjury, that the Bidder, as of the date of this declaration (below) meets all of the minimum project bidding requirements outlined in the Bidder's Qualifications Form (Section 00 10 20) Item 8, if any.
3. I hereby certify, swear and affirm under penalty of perjury, that the Bidder, as of the date of this declaration (below) meets all of the supplemental bidder responsibility criteria as set forth in the Bidder's Responsibility Criteria (Section 00 15 30), Section B.
4. I hereby certify, swear and affirm under penalty of perjury, that the undersigned is the person that submitted the bid herewith, that such bid is genuine and not a sham or collusive, or made in the interest of any person not therein named; and he/she further says that said Bidder has not directly or indirectly induced or solicited any Bidder on the above work or supplies to put in a sham bid, or any other person or corporation to refrain from bidding; and that said Bidder has not in any manner sought by collusion to secure to himself or to any other person an advantage over any other Bidder or Bidders.
5. I hereby certify, swear and affirm under penalty of perjury, that in connection with the performance of the work of this Project, if awarded, I will pay each classification of laborer, workman, or mechanic employed in the performance of such work; not less than the prevailing rate of wage or not less than the minimum rate of wages as specified in the Contract Documents.

**TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP  
STATION**

**SECTION 00 15 40  
BIDDER'S  
CERTIFICATION**

Signed under penalty of perjury under the laws of the State of Washington this \_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_, at \_\_\_\_\_, Washington.

Bidder (Contractor): \_\_\_\_\_

Signature: \_\_\_\_\_

Name (Printed): \_\_\_\_\_

Title: \_\_\_\_\_

STATE OF WASHINGTON }  
COUNTY OF \_\_\_\_\_ } ss.

I certify that I know or have satisfactory evidence that \_\_\_\_\_ is the person who appeared before me, and said person acknowledged that he/she signed this instrument, on oath stated that he/she was duly authorized execute the instrument and acknowledged it as the \_\_\_\_\_ of \_\_\_\_\_, to be the free and voluntary act of such party for the uses and purposes herein mentioned.

DATED this \_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

\_\_\_\_\_  
Notary Public in and for the State of Washington

Name (Printed): \_\_\_\_\_

Residing at: \_\_\_\_\_

Commission Expiration: \_\_\_\_\_

**NOTICE TO ALL BIDDERS**

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

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

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

**END OF SECTION**

## INSTRUCTION TO BIDDERS

### A. EXAMINATION OF SITE AND CONSTRUCTION DOCUMENTS

Before submitting a proposal, the bidder shall:

- a. Carefully examine the Project Manual, Drawings, and any Addenda
- b. Fully inform itself of existing conditions and limitation, relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of its obligation to furnish all material and labor necessary to carry out the provisions of this contract.
- c. Rely entirely upon its own judgment in making its bid,
- d. Include in its bid a sum sufficient to cover all items required by the contract including all labor, materials, services, and incidentals necessary to complete this project.

### B. ADDENDA AND INTERPRETATIONS

Bidders shall promptly notify the City of Kirkland of any ambiguity, inconsistency, or error which they may discover upon examination of the Project Manual, Drawings, and any Addenda or of the site and local conditions.

Bidders requiring clarification or interpretation of the Project Manual, Drawings, and/or any Addenda shall provide a written request to Nick Sondergaard (nsondergaard@kirklandwa.gov) via e-mail with the subject line of "**Temporary Regional Booster Pump Station – Highlands Temporary Regional Booster Pump Station: Bid Question**". Requests received via phone or any other method other than e-mail will not be accepted. Bidders shall submit requests no later than April 6 at 3 PM. Receipt of requests will be acknowledged; however, response will be via addendum.

Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the Project Manual and Drawings. Any interpretation, correction, or change of the Project Manual, Drawings, and any Addenda made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections, and changes.

Failure of any bidder to receive Addenda shall not relieve any such bidder from any obligation under its bid as submitted. All Addenda so issued shall become part of the Contract Documents. Bidders shall acknowledge receipt of all Addenda, if any, on the Bid Form. Failure to do so may result in the bid being declared non-responsive.

No oral or written statements by Owner, Engineer, Architect, or other representative of the Owner shall, in any way, modify the Project Manual, Drawings, and any Addenda whether made before or after letting the Contract.

C. PRODUCT SUBSTITUTIONS:

1. Substitutions: Bids must be based upon the specific articles and materials named in the Project Manual, Drawings, and any Addenda. Substitution may be made only under the following conditions:
  - a. Prior to Bid Opening: No later than April 6 at 3 PM, prime bidders may submit to the City of Kirkland written requests for approval of articles or materials, accompanied by complete descriptions, technical data, and samples. Approval or rejection of the proposed substitutions will be made by addenda issued to all bidders. Submit material/product requests as specified in Section 01 61 00 to Nick Sondergaard (nsondergaard@kirklandwa.gov) via e-mail with the subject line of "**Temporary Regional Booster Pump Station – Highlands Temporary Regional Booster Pump Station: Substitution Request**". Requests received via phone or any other method other than e-mail will not be accepted. Receipt of requests will be acknowledged; however, response will be via addendum.
  - b. After Award of Contract: Approval of substitution will be made only in exceptional cases where the Contractor submits satisfactory evidence to the City of Kirkland that, through no fault of its own, specified or otherwise approved items cannot be obtained in time to avoid delay to the work. Approval in such cases shall conform to the other requirements above.

D. BID FORM (Section 00 41 00)

Bids must be submitted on and according to the Bid Form. Fill in all spaces. Bids shall not contain any recapitulation of work done. State numbers in writing and in figures. Completed form must be without interlineation, alteration or erasure. Signatures shall be in longhand. The bid price(s) for the work as specified in the Project Manual, Drawings, any Addenda and any Alternates must be the total price to cover all items required by the contract including all labor, materials, services, taxes, permits, and incidentals necessary to complete this project.

E. POWER OF ATTORNEY

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of the power of attorney.

F. ORAL AND TELEGRAPHIC BIDS

Oral and telephonic modifications of bids cannot be considered.

G. SUBMISSION OF BID

Enclose all required bid submittal documents an envelope, as indicated in the Invitation to Bid. Deliver as indicated in the Invitation to Bid. Bidder is responsible for delivery of bid at or before the time set for bid opening. The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligation of the contract and to complete the

work contemplated therein. Conditional bids will not be accepted. No proposal or bid may be changed after the time set for receiving bids.

H. BID BOND

Each bidder agrees to furnish a certified check, bank cashier's check, or bid bond in the amount equal to five percent (5%) of the total base bid plus additive alternative bids (if applicable) within its bid proposal. Failure to provide this bid security when required shall render the bid non-responsive. The right is reserved to hold the bid security of the three lowest bidders until the award of the contract or for a period of sixty (60) days, whichever is the shorter time. Bids of all unsuccessful bidders will be returned as soon as feasible after the bid opening.

I. WITHDRAWAL OF BIDS

Any bidder may withdraw its bid either personally or by written request at any time prior to the time set for the bid opening. No bid may be withdrawn or modified after the time set for opening unless and until the award of the contract is delayed for period exceeding sixty (60) days.

J. TIME OF COMPLETION AND LIQUIDATED DAMAGES

The Owner can issue Notice to Proceed at any time after contract execution. Bidder must agree to commence work immediately of receipt of the Notice to Proceed; and achieve Substantial Completion of the Work within 30 working days of the date of the Notice to Proceed, and no later than June 18, 2026, and to achieve Final Completion of the work within forty-five (45) consecutive calendar days thereafter. Bidder must agree to pay as liquidated damages the sum of \$3,000 for each consecutive calendar day that Substantial Completion is delayed. Liquidated damages have been established based on the estimated cost that will be incurred by City of Kirkland in the event the Contractor fails to complete the Work in the time stipulated.

K. SECURITY FOR FAITHFUL PERFORMANCE

Simultaneously with its delivery of the executed contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of the Contract and for payment of all persons performing labor under the Contract and furnishing material or services in connection with the Contract as described in the Contract Documents. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner, registered in the State of Washington, Insurance Commissioner's Office. List Bonding Agent and address of same.

L. INSURANCE

The Contractor shall obtain such construction insurance as is set forth in Section 00 60 00 "Bonds and Certificates."

M. QUALIFICATIONS OF BIDDERS

Bidder must meet all criteria set forth in the Bidder's Qualifications (Section 00 10 20), Item 8 and the Bidder's responsibility Criteria in Section 00 15 30). The Owner may make such investigations as necessary to determine the ability of a Bidder to perform the work, and the Bidder shall furnish all such information and data as may be requested prior to bidding. The Owner reserves the right to reject any bid if the evidence submitted by, or if investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to perform the obligations of the Contract and to complete the work contemplated therein. Conditional Bids will not be accepted.

N. LAWS AND REGULATIONS

The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they shall be deemed to be included in the Contract the same as though written out in full therein. Bidders are advised that if successful, they will be required to meet all applicable federal, state, and local laws pertaining to permits, licenses, fees and taxes, as well as laws pertaining to employment and wages. Bidders are responsible for determining the extent and applicability of such laws.

O. AWARD OF THE CONTRACT/REJECTION OF BIDS

1. The Contract will be awarded to the responsible bidder submitting the lowest proposal complying with the condition of the Invitation for Bid and these contract documents provided the bid is reasonable and in the best interest of The Owner. Items in this bid, approved for contract by City of Kirkland, shall be awarded by the City of Kirkland.
2. If applicable, City of Kirkland reserves the right to select, or not select, all or individual alternate bid items whichever is determined to be in the best interest of the City of Kirkland. The City of Kirkland has the right to determine the low bidder on the basis of the sum of the Total Base Bid and Unit Prices (per bid form multipliers), and Alternates accepted (if any).
3. City of Kirkland reserves the right to reject any and all bids and to waive any informality in bids received whenever such rejection or waiver is in the interest of the Owner.
4. The bidder to whom the award is made will be notified at the earliest practicable date.

P. DISQUALIFICATION OF BIDDERS

Any one or more of the following causes may be considered sufficient for the disqualification of a Bidder and the rejection of its bid or bids:

- a. Evidence of collusion among Bidders.
- b. Lack of expertise as shown by past work, and judged from the standpoint of workmanship and performance history.
- c. Uncompleted work under other contracts which, in the judgment of the City, might hinder or prevent the prompt completion of additional work if awarded.

- d. Being in arrears on existing contracts, in litigation with an Owner, or having defaulted on a previous contract.
- e. Contractor's naming oneself as a Subcontractor for which they have no expertise and working knowledge directly within the firm.
- f. Contractor's inability to meet the Bidder's Qualifications (Section 00 10 20) outlined in item 8.
- g. Contractor's inability to meet the Bidder's Responsibility Criteria outlined in Section 00 15 30.
- h. Failure to comply with any requirements of the Invitation for Bid or Instructions to Bidders.

**END OF SECTION**

**INFORMATION AVAILABLE TO BIDDERS**

The following documents are provided for the Contractor's reference. These documents are part of the Contract Documents and are made available to the Contractor for information only.

- A. Geotechnical Memorandum, prepared by RH2 Engineering, dated February 14, 2026.
- B. Packaged Pump System Submittal
- C. Check Valve Stations – Temporary Regional Booster Pump Station Bid Plans and Specifications.
- D. PSE Requirements

**END OF SECTION**

BID FORM

Bidder (Contractor): \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

**TO: City of Kirkland  
123 5<sup>th</sup> Avenue  
Kirkland, WA 98033**

**RE: TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION  
JOB NO. 02-26-PW  
CIP NO. WAC0570003  
Kirkland, WA 98033**

**GENERAL PROPOSAL**

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

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

The Bidder further agrees that they have exercised their own judgment regarding the interpretation of subsurface information and have utilized all data which they believe is pertinent from the Architect, Owner and other sources in arriving at his/her conclusions.

The Bidder agrees to hold their bid proposal open for sixty (60) days after the actual date of bid opening and to accept the provisions of the Instructions to Bidders regarding disposition of bid bond.

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

BID FORM

**TIME OF COMPLETION:**

The Owner can issue Notice to Proceed at any time after contract execution, and intends to issue it as expeditiously as possible. The undersigned understands and agrees that Substantial Completion shall be achieved 30 working days after the Owner's Notice to Proceed and no later than June 18, 2026. Final Completion shall be achieved within forty-five (45) calendar days after Substantial Completion.

**PERMITS, FEES AND INSPECTIONS:**

Owner will obtain and pay for the general electrical permit, and general plumbing permit. The contractor is required to meet the requirements and conditions of any owner-procured permits, to post the permits, and for the scheduling and inspections related to these permits. The Contractor is responsible for all other required permits for the project in their entirety: which may include, but not limited to, temporary power, mechanical, irrigation, and utility permits. A City right-of-way permit is not required to be applied for or paid for as this is a City project, although the Contractor will need to comply with requirements of working in the right of way, such as, but not limited to, developing an approved traffic control plan for approval by the City. Utility charges and utility connection fees, if incurred by the contractor to facilitate the work, shall be paid back to the contractor by the Owner within the contract document change order process without markup of any kind. All other City of Kirkland and other State of Washington or local agency permits and requirements are the financial and administrative responsibility of the Contractor at no cost to the City of Kirkland.

**BID:**

The Bidder further proposes to accept as full payment for the work proposed herein the amounts computed under the provisions of the contract documents and based upon the bid price for fully completed work as included in the proposal and the Bid Price represents a true measure of the labor, equipment, and materials required to perform and complete the work, as well as all use taxes, overhead, profit, bond premiums, insurance premiums and all other miscellaneous and incidental expenses. The amounts shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.

The undersigned bids for complete construction of the TEMPORARY REGIONAL BOOSTER PUMP STATION Project as follows:

**TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMP REGIONAL BOOSTER PUMP STATION**

**SECTION 00 41 00  
BID FORM**

BID FORM

**CITY OF KIRKLAND**

**BID SCHEDULE**

TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION  
JOB NO. 02-26-PW

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

Item No.	Item Description	Spec Ref.	Est. Qty.	Unit	Unit Price	Amount
1	Mobilization, Demobilization, Site Preparation, and Cleanup (15% of Subtotal)	Div 18	1	LS		
2	Excavation Safety and Shoring	Div 18	1	LS		
3	Site and Utility Work	Div 18	1	LS		
4	Unscheduled Excavation (If Necessary)	Div 18	50	TN		
5	Grind and HMA Overlay	Div 18	200	SY		
6	Concrete Sidewalk	Div 18	30	SY		
7	Concrete Curb and Gutter	Div 18	50	LF		
8	Traffic Control	Div 18	1	LS		
9	Structural	Div 18	1	LS		
10	Mechanical	Div 18	1	LS		
11	Electrical	Div 18	1	LS		
12	Testing, Startup, and Training (min. \$2,000)	Div 18	1	LS		
13	Minor Change	Div 18	1	FA	\$25,000	\$25,000

**TOTAL COMPUTED PRICE: \$** \_\_\_\_\_

**WA Sales Tax 10.4% Per WAC458-20-170:** \_\_\_\_\_

**TOTAL BID PRICE: \$** \_\_\_\_\_

BID FORM

**ADDENDA**

Receipt of the following Addenda is hereby acknowledged.

Addendum No. \_\_\_\_\_ dated \_\_\_\_\_

**BID REVIEW MEETING**

The Undersigned agrees that if they are the successful bidder, they will be available for a bid review meeting with the Engineer and the Owner at the Owner's office, at a time to be agreed upon.

**Within the three-year period immediately preceding the date of the bid solicitation for this Project, bidder has not been determined by a final and binding citation and notice of assessment issued by the department of labor and industries or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of chapter 49.46, 49.48, or 49.52 RCW.**

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

\_\_\_\_\_  
CONTRACTOR (Company Name)

\_\_\_\_\_  
By (Signature)

\_\_\_\_\_  
Printed Name/Title of Signatory

\_\_\_\_\_  
(Indicate whether Contractor is Partnership)

\_\_\_\_\_  
Washington State Contractor's  
Registration Number

\_\_\_\_\_  
Contractor's Industrial Insurance  
Account Number

Contractor's Address:  
\_\_\_\_\_

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_

\_\_\_\_\_  
Fax Number

**TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMP REGIONAL BOOSTER PUMP STATION**

**SECTION 00 41 00  
BID FORM**

BID FORM

**BID FORM TO BE SUBMITTED IN A SEALED ENVELOPE  
END OF SECTION**

**BID DEPOSIT**

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

SIGN HERE \_\_\_\_\_

---

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**BID BOND**

KNOW ALL MEN BY THESE PRESENTS:

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

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

\_\_\_\_\_ Project Name \_\_\_\_\_ Job Number \_\_\_\_\_

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

SIGNED, SEALED AND DATED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_\_.

PRINCIPAL:

SURETY:

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

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

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

RCW 39.30.060 requires the following:

“(1) Every invitation to bid on a prime contract that is expected to cost one million dollars or more for the construction, alteration, or repair of any public building or public work of the state or a state agency or municipality as defined under RCW 39.04.010 ... shall require each prime contract bidder to submit:

(a) **At the bid submittal time**, the names of the subcontractors with whom the bidder, if awarded the contract, will subcontract for performance of the work of: HVAC (heating, ventilation, and air conditioning); plumbing as described in chapter 18.106 RCW; and electrical as described in chapter 19.28 RCW, or to name itself for the work; and

(b) **Within forty-eight hours after the published bid submittal time**, the names of the subcontractors with whom the bidder, if awarded the contract, will subcontract for performance of the work of structural steel installation and rebar installation.

The prime contract bidder shall not list more than one subcontractor for each category of work identified, unless subcontractors vary with bid alternates, in which case the prime contract bidder must indicate which subcontractor will be used for which alternate. Failure of the prime contract bidder to submit as part of the bid the names of such subcontractors or to name itself to perform such work or the naming of two or more subcontractors to perform the same work shall render the prime contract bidder's bid non-responsive and, therefore, void."

**CITY OF KIRKLAND  
SUBCONTRACTOR IDENTIFICATION LIST (1 of 2)**

Submit this form within the bid proposal envelope **or** within one (1) hour after the published bid submittal time. If submitting after the published bid submittal time, Bidder must hand deliver this form to the Cashier Counter at City Hall, 123 5<sup>th</sup> Avenue, Kirkland WA 98033.

Bidder (Company): \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

**Proposed Subcontractors and items of work to be performed:**

**Subcontractor Name:** \_\_\_\_\_

**HVAC Work to be Performed:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Subcontractor Name:** \_\_\_\_\_

**Plumbing Work to be Performed:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Subcontractor Name:** \_\_\_\_\_

**Electrical Work to be Performed:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**CITY OF KIRKLAND  
SUBCONTRACTOR IDENTIFICATION LIST (2 of 2)**

Submit this form within the bid proposal envelope **or** within forty-eight (48) hours after the published bid submittal time. If submitting after the published bid submittal time, Bidder must hand deliver this form to the Cashier Counter at City Hall, 123 5<sup>th</sup> Avenue, Kirkland WA 98033.

Bidder (Company): \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

**Subcontractor Name:** \_\_\_\_\_

**Structural Steel Installation Work to be Performed:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Subcontractor Name:** \_\_\_\_\_

**Rebar Installation Work to be Performed:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**RETAINAGE INVESTMENT OPTION**

CONTRACTOR:

PROJECT NAME:

DATE:

Pursuant to R.C.W. 60.28.010, as amended, you may choose how your retainage under this contract will be held and invested. Please complete and sign this form indicating your preference. If you fail to do so, the Owner will hold your retainage as described in "Current Expense" option 1 below.

1. Current Expense: The Owner will retain your money in its Current Expense Fund Account until thirty days following final acceptance of the improvement or work as completed. You will not receive interest earned on this money.
2. Interest Bearing Account: The Owner will deposit retainage checks in an interest-bearing account in a bank, mutual savings bank, or savings and loan association, not subject to withdrawal until after the final acceptance of the improvement or work as completed or until agreed to by both parties. Interest on the account will be paid to you. Any fees incurred shall be the responsibility of the contractor.
3. Escrow/Investments: The Owner will place the retainage checks in escrow with a bank or trust company until thirty days following the final acceptance of the improvement or work as completed. When the moneys reserved are to be placed in escrow, the Owner will issue a check representing the sum of the moneys reserve payable to the bank or trust company and you jointly. This check will be converted into bonds and securities chosen by you and approved by the Owner and these bonds and securities will be held in escrow. Interest on these bonds and securities will be paid to you as interest accrues.

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

4. Bond-in-Lieu: With the consent of the Owner, the contractor may submit a bond for all or any portion of the amount of funds retained by the Owner in a form and from an authorized surety insurer acceptable to the Owner. Such bond and any proceeds therefrom shall be made subject to all claims and liens and in the same manner and priority as set forth for retained percentages in this chapter. The Owner shall release the bonded portion of the retained funds to the contractor within thirty days of accepting the bond from the contractor. Whenever an Owner accepts a bond in lieu of retained funds from a contractor, the contractor shall accept like bonds from any

subcontractors or suppliers from which the contractor has retained funds. The contractor shall then release the funds retained from the subcontractor or supplier to the subcontractor or supplier within thirty days of accepting the bond from the subcontractor or supplier.

Retainage is normally released 30 days after Final Acceptance of the work, or following receipt of Labor and Industries/Department of Revenue clearance, whichever date is the later. Retainage on landscaping work may be retained longer, due to its seasonal nature. State law allows for limited early release in certain circumstances.

**CONTRACTOR:**

Signature: \_\_\_\_\_

Print or Type Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**THIS FORM TO BE EXECUTED AFTER CONTRACT IS AWARDED**

**END OF SECTION**

CITY OF KIRKLAND  
TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION  
AGREEMENT FORM

SECTION 00 52 20  
AGREEMENT FORM

THIS AGREEMENT is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ by and between the City of Kirkland, Washington, a municipal corporation of the State of Washington, hereinafter referred to as "City" and \_\_\_\_\_, hereinafter referred to as "Contractor" effective as of the date of the first signature on the agreement so long as all other parties' authorized signatories have also executed the Agreement.

In consideration of the mutual covenants and obligations contained herein, the City and Contractor agree as follows:

- 1. Agreement.** The "Contract Documents" form the "Contract." The Contract Documents consist of this Agreement, any attached Exhibits, the Project Manual, including the General Conditions; Supplemental Conditions, if any, Special Provisions, if any, the Specifications, Contract Plans, and Amendments to the Specifications; and written modifications, amendments and Change Orders to the Contract issued after execution of this Agreement, the City's Contract Bid Documents for the Project, including but not limited to the Bid package, Instructions to Bidder, Addenda, Proposal Form, Contractor's Proposal and all documents submitted therewith in response to the City's Invitation to Bid, and any additional documents referenced as comprising the Contract and Contract Documents, which are hereby fully incorporated as part of the Contract as if set forth herein.
- 2. Project.** Contractor shall fully complete all Work and furnish all labor, tools, materials, and equipment for the project entitled TEMPORARY REGIONAL BOOSTER PUMP STATION – HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION, Project No. 02-26-PW, including all changes to the Work, timely and in strict accordance with the Contract Documents.
- 3. Payments.** In consideration of full and faithful compliance with the terms and conditions of this agreement and the Contract Documents, the City shall pay Contractor, at the times and in the manner provided in the Contract Documents, the total sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), which sum is subject, however, to increase or decrease in such proportion as the quantities for unit price items set forth in the Bid Proposal Form are so changed as set forth in the Contract Documents or as modified by an approved Change Order or addendum as permitted by the Contract Documents. The payments to Contractor include the costs for all labor, tools, materials, equipment, and subcontracts for the Work.
- 4. Contract Sum.** The Contract Sum shall be the Total for Base Bid amount plus anticipated Washington State Sales Tax, subject to addition and deductions as provided in the Contract Documents.
- 5. Completion Date.** The Contract Time shall be measured from the Notice to Proceed date to the date of Substantial Completion, subject to adjustments of the Contract Time as provided in the Contract Documents. Substantial Completion shall be achieved 30 working days after the Owner's Notice to Proceed and no later than June 18, 2026. Final Completion shall be achieved within forty-five (45) calendar days after Substantial Completion. If the physical Work under this Agreement is not completed within the time specified, Contractor

shall pay liquidated damages and all engineering inspection and supervisions costs to the City as specified in the Contract Documents.

6. **Liquidated damages.** The City will assess, and Contractor will be responsible for, liquidated damages in the amount of \$3,000.00 per Day for each Day beyond the Contract Time that Substantial Completion is not timely achieved. Contractor and the City agree that any liquidated damages established by this Agreement are not penalties and are a reasonable estimation of actual damages to the City, as of this date of Agreement, based on the inherent uncertainty and difficulty in calculating and quantifying damages caused by delays in the construction of the Project. This provision is intended to be in lieu of Contractor's liability for delay damages sustained by Owner by reason of Contractor's delay in reaching Substantial Completion by the date set for Substantial Completion. This provision shall not relieve or release Contractor from liability occasioned by other breaches or defaults under this Contract, nor shall it limit Owner's rights to terminate the Contract for cause pursuant to the General Conditions or to pursue any other remedy under the Contract or otherwise. In addition, Owner may recover its actual damages (including direct architectural, administrative, and other related costs attributable to the Project) as a result of any delay by Contractor in reaching Final Completion within the time required in Paragraph 5 above.
7. **Independent Contractor.** Contractor's employees, while engaged in the performance of any of Contractor's services under this Agreement, shall be considered employees of the Contractor and not employees, agents, representatives of the City and as a result, shall not be entitled to any coverage or benefits from the City. Contractor's relation to the City shall be at all times as an independent contractor. Any and all Workman's Compensation Act claims on behalf of Contractor employees, and any and all claims by third-party as a consequence of any negligent act or omission on the part of Contractor's employees, while engaged in services provided to be rendered under this Agreement, shall be solely Contractor's obligation and responsibility.
8. **Jurisdiction and Venue.** Any lawsuit or legal action brought by any party to enforce or interpret this Agreement or any of its terms or covenants shall be brought in King County Superior Court for the State of Washington.
9. **Contract is complete and integrated agreement.** The Contract represents the entire, complete, and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. No oral representations or other agreements have been made by the parties except as specifically established in the Contract.
10. **Severability.** A court of competent jurisdiction's determination that any provision or part of this Agreement is illegal or unenforceable shall not cancel or invalidate the remainder of this Agreement, which shall remain in full force and effect. In such event a provision is determined void or unenforceable, the parties agree to negotiate a replacement provision to enable that party to receive the benefit as nearly as possible as to what it would have received but for the determination that a provision was illegal or unenforceable.
11. **Disclaimer.** No liability of Contractor shall attach to the City by reason of entering into this Agreement, except as expressly provided in this Agreement.

**CITY OF KIRKLAND  
TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION**

**SECTION 00 52 20  
AGREEMENT FORM**

In witness whereof, the City, as approved by the City Council, and Contractor have executed this agreement by their proper officers or duly authorized agents

Dated: \_\_\_\_\_ Dated: \_\_\_\_\_

City of Kirkland [Contractor Name] (Contractor)

By: \_\_\_\_\_ By: \_\_\_\_\_

Its: \_\_\_\_\_ Its: \_\_\_\_\_

Attention: If Contractor is a corporation, the name of the corporation should be listed in full and both the President and Secretary must sign the contract. OR, if one signature is permitted by corporation by-laws, a copy of the by-laws shall be furnished to the City and made part of the Contract Documents.

If the business is a partnership, the full name of each partner should be listed followed by d/b/a and the firm or trade name. Any one partner may sign the Contract.

If the business is a limited liability company, an authorized management member or manager must sign followed by his/her title.

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

STATE OF WASHINGTON )  
 ) SS  
COUNTY OF KING )

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

Given under my hand and official seal this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

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

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

STATE OF WASHINGTON )



**BONDS AND CERTIFICATES**

The bond and insurance requirements set forth on the following pages are required of the successful bidder.

1.01 GENERAL: In addition to the Bid Security, the Owner requires the Contractor to furnish the following bonds and insurance. The insurance coverage shall be maintained during the life of the Contract and for not less than one year thereafter, unless otherwise indicated herein.

1.02 BOND REQUIREMENTS:

A. Evidence of Bonds Compliance

a. Performance Bond: Submitted at time of execution of the Contract and attached thereto.

b. Labor, Materials, and Taxes (Payment) Bond: Submitted at time of execution of the Contract and attached thereto.

B. Performance and Payment Bonds: The Contractor shall procure and maintain insurance, as required in this Section, without interruption from commencement of the Contractor's Work through the term of the Contract and for thirty (30) days after the Physical Completion date, unless otherwise indicated herein. See Section 00 70 00 Paragraph 2.4.

1.03 INSURANCE & INDEMNITY REQUIREMENTS:

Indemnification / Hold Harmless:

The Contractor shall defend, indemnify and hold the City of Kirkland (Owner), its officers, officials, employees and volunteers harmless from any and all claims, injuries, damages, losses or suits including attorney fees, arising out of or in connection with the performance of this Agreement, except for injuries and damages caused by the sole negligence of the City of Kirkland.

However, should a court of competent jurisdiction determine that this Agreement is subject to RCW 4.24.115, then, in the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of the Contractor and the Owner, its officers, officials, employees, and volunteers, the Contractor's liability hereunder shall be only to the extent of the Contractor's negligence. It is further specifically and expressly understood that the indemnification provided herein constitutes the Contractor's waiver of immunity under Industrial Insurance, Title 51 RCW, solely for the purposes of this indemnification. This waiver has been mutually negotiated by the parties. The provisions of this section shall survive the expiration or termination of this Agreement.

C. Insurance Term: The Contractor shall procure and maintain insurance, as required in this Section, without interruption from commencement of the Contractor's Work

through the term of the Contract and for thirty (30) days after the Physical Completion date, unless otherwise indicated herein.

- D. No Limitation: The Contractor's maintenance of insurance, its scope of coverage and limits as required herein shall not be construed to limit the liability of the Contractor to the coverage provided by such insurance, or otherwise limit the Owner's recourse to any remedy available at law or in equity.
- E. Minimum Scope of Insurance: The Contractor's required insurance shall be of the types and coverage as stated below:
- a. **Automobile Liability** insurance covering all owned, non-owned, hired, borrowed, and leased vehicles. Coverage shall be at least as broad as Insurance Services Office (ISO) form CA 00 01.
  - b. **Commercial General Liability** insurance shall be at least as broad as ISO occurrence form CG 00 01 and shall cover liability arising from premises, operations, stop gap liability, independent contractors, products-completed operations for a period of not less than three years following final acceptance of the Work for the benefit of the Owner, personal injury and advertising injury, and liability assumed under an insured contract. The Commercial General Liability insurance shall be endorsed to provide a per project general aggregate limit, using ISO form CG 25 03 05 09 or an endorsement providing at least as broad coverage. There shall be no exclusion for liability arising from explosion, collapse or underground property damage. The Owner shall be named as an additional insured under the Contractor's Commercial General Liability insurance policy with respect to the Work performed for the Owner using ISO Additional Insured endorsement CG 20 10 10 01 and Additional Insured-Completed Operations endorsement CG 20 37 10 01 or substitute endorsements providing at least as broad coverage.
  - c. **Workers' Compensation and Employer's Liability Insurance**: All employees of the Contractor and subcontractors shall be insured under Washington State Industrial Insurance. Employees not subject to the State Act shall be insured under Employer's Liability "Stop-Gap" coverage. A separate Certificate of Insurance shall be furnished to the Owner if any of the Contractor's payroll is not reported to the Washington State Industrial Insurance. The contractor shall be responsible for confirming compliance of all subcontractors with the above requirements.
  - d. **Builders Risk**: Contractor shall purchase and maintain Builders Risk insurance covering the interests of the Owner, the Contractor, Subcontractors, and Sub-subcontractors in the Work. Builders Risk insurance shall be on a special perils policy form and shall insure against the perils of fire and extended coverage and physical loss or damage including flood, earthquake, falsework, flood, wind, theft, vandalism, malicious mischief, and collapse, and shall cover reasonable compensation for A/E's services and expenses required as a result of an insured loss. The Builders Risk insurance shall include coverage for temporary buildings, debris removal, and damage to materials in transit or stored off-site. The Builders Risk insurance shall be maintained until the Owner has granted substantial completion of the project.
  - e. If applicable, **Excess or Umbrella Liability** insurance shall be excess over and

at least as broad in coverage as the Contractor's Commercial General Liability and Automobile Liability insurance. The Owner shall be named as an additional insured on the Contractor's Excess or Umbrella Liability insurance policy. The Excess or Umbrella insurance coverage will drop down when underlying policy aggregate limits are exhausted.

- F. Minimum Amount of Insurance: The Contractor shall maintain the following insurance limits:
- a. Automobile Liability insurance with a minimum combined single limit for bodily injury and property damage of \$2,000,000 per accident.
  - b. Commercial General Liability insurance shall be written with limits no less than \$2,000,000 each occurrence, \$3,000,000 general aggregate and a \$3,000,000 products-completed operations aggregate limit.
  - c. Employer's Liability Insurance: Employees not subject to the State Act shall be insured under Employer's Liability with a \$2,000,000 limit of liability.
  - d. Builders Risk insurance shall be written in the amount of the Contract Sum, including all Change Orders, for the Work on a replacement cost basis until Substantial Completion. Builders Risk insurance covering the Work shall have a deductible of \$5,000 for each occurrence, of which will be the responsibility of the Contractor. Higher deductibles for flood and earthquake perils may be accepted by the City upon written request by the Contractor and written acceptance by the Owner. Any increased deductibles accepted by the Owner will remain the responsibility of the Contractor.
- G. Full Availability of Contractor Limits: If the Contractor maintains higher insurance limits than the minimums shown above, the Owner shall be insured for the full available limits of Commercial General and Excess or Umbrella liability maintained by the Contractor, irrespective of whether such limits maintained by the Contractor are greater than those required by this Contract or whether any certificate of insurance furnished to the Owner evidences limits of liability lower than those maintained by the Contractor
- H. Other Insurance Provision: The Contractor's Automobile Liability, Commercial General Liability and Builders Risk insurance policies are to contain, or be endorsed to contain, that they shall be primary insurance as respect the Owner. Any insurance, self-insurance, or self-insured pool coverage maintained by the Owner shall be excess of the Contractor's insurance and shall not contribute with it.
- I. Contractor's Insurance for Other Losses: The Contractor shall assume full responsibility for all loss or damage from any cause whatsoever to any tools, Contractor's employee-owned tools, machinery, equipment, or motor vehicles owned or rented by the Contractor, or the Contractor's agents, suppliers, contractors or subcontractors as well as to any temporary structures, scaffolding and protective fences. Insurance for such losses is the responsibility of the Contractor and the cost of such insurance shall not be included in the cost of insurance required herein before.

- J. Waiver of Subrogation: The Contractor and the Owner waive all rights against each other, any of their Subcontractors, Sub-subcontractors, agents and employees, each of the other, for damages caused by fire or other perils to the extent covered by Builders Risk insurance or other property insurance obtained pursuant to Section 00 60 00 of this Contract or other property insurance applicable to the Work. The policies shall provide such waivers by endorsement or otherwise.
- K. Acceptability of Insurers: Insurance is to be placed with insurers with a current A.M. Best rating of not less than A: VII.
- L. Verification of Coverage: The Contractor shall furnish the Owner with original certificates and a copy of the amendatory endorsements reflective of all insurance requirements in the City's contract documents, including but not necessarily limited to the additional insured endorsements, evidencing the Automobile Liability and Commercial General Liability insurance of the Contractor before commencement of the Work. Before any exposure to loss may occur, the Contractor shall file with the Owner a copy of the Builders Risk insurance policy that includes all applicable conditions, exclusions, definitions, terms and endorsements related to this project.

Certificate shall be issued on an ACORD Form, or a form that meets with the Owner's approval. Any Certificate filed with the Owner found to be incomplete or not compliant with the Contract Documents, will be returned as not satisfactory. Rejected certificates shall be corrected as necessary and resubmitted to the Owner.

The Certificate should contain the Contract Number and a "concise verbal definition" of the Contract to which the Certificate applies.

Certificates of Insurance shall indicate the following to be Additional Named Insureds:

- a. City of Kirkland; It's officers, elected officials, employees, agents, and volunteers
- b. Consultants hired by the Owner to administer the construction
- c. The Architect and Engineer of Record

The "Cancellation" Block shall be altered to include the wording "Should any of the above-described policies be canceled or materially reduced before expiration date thereof, the issuing company will mail 30 days written notice to the certificate holder named to the left."

Upon request by the Owner, the Contractor shall furnish certified copies of all required insurance policies, including endorsements, required in this Contract and evidence of all subcontractors' coverage.

- M. Subcontractors: The Contractor shall cause each and every Subcontractor to provide insurance coverage that complies with all applicable requirements of the Contractor-provided insurance as set forth herein, except the Contractor shall have sole responsibility for determining the limits of coverage required to be obtained by Subcontractors. The Contractor shall ensure that the Owner is an additional insured on each Subcontractor's Commercial General liability insurance policy using an

endorsement as least as broad as ISO CG 20 10 10 01 for ongoing operations and CG 20 37 10 01 for completed operations.

- N. Notice of Cancellation: The Contractor shall provide the Owner and all Additional Insureds for this Work with written notice of any policy cancellation within two business days of their receipt of such notice. Each policy shall contain an endorsement stating that the insurance company will not, prior to the completion of the Work or any expiration date shown on the policy and certificate, whichever occurs first, terminate the policy, make any material change, or change any coverage therein without first mailing, by registered mail, written notice of such action at least thirty (30) days prior to the termination or change, to the Owner.
- O. Failure to Maintain Insurance: Failure on the part of the Contractor to maintain the insurance as required shall constitute a material breach of contract, upon which the Owner may, after giving five business days' notice to the Contractor to correct the breach, immediately terminate the Contract or, at its discretion, procure or renew such insurance and pay any and all premiums in connection therewith, with any sums so expended to be repaid to the Owner on demand, or at the sole discretion of the Owner, offset against funds due the Contractor from the Owner.

**END OF SECTION**

PERFORMANCE BOND

SURETY TO HAVE AN A.M. BEST RATING OF A:VII OR BETTER.

Bond No. \_\_\_\_\_

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

WHEREAS, the Principal has been awarded, and is about to enter into, a written Contract with the City for **PROJECT NAME: TEMPORARY REGIONAL BOOSTER PUMP STATION – HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION, JOB # 02-26-PW**, which is hereby made a part of this bond as if fully set forth herein;

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

1. If the Principal shall completely and faithfully perform all of its obligations under the Contract, including any warranties required thereunder, and all modifications, amendments, additions, and alterations thereto, including modifications which increase the contract price or time for completion, with or without notice to the surety;
2. If the Principal shall indemnify and hold the City harmless from any and all losses, liability, damages, claims, judgments, liens, costs, and fees of any type that the City may be subject to because of the failure or default of the Principal (a) in performance of any of the terms, conditions, or obligations of the Contract, including all modifications, amendments, additions, and alterations thereto, and any warranties required thereunder, and/or (b) in the payment for labor, equipment, and materials by satisfying all claims and demands incurred under the Contract, and reimbursing and paying Owner all expenses that Owner may incur in making good any default by the Principal; and
3. If the Principal shall indemnify and hold the City harmless from all claims, liabilities, causes of action, damages and costs, including property damages and personal injuries, resulting from any defect appearing or developing in the material provided or workmanship performed under the Contract;

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

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

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

Principal: \_\_\_\_\_ Surety: \_\_\_\_\_

By: \_\_\_\_\_ By: \_\_\_\_\_

Title: \_\_\_\_\_ Title: \_\_\_\_\_

Address: \_\_\_\_\_ Address: \_\_\_\_\_

City/Zip: \_\_\_\_\_ City/Zip: \_\_\_\_\_

Telephone: ( ) \_\_\_\_\_ Telephone: ( ) \_\_\_\_\_

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

CITY OF KIRKLAND  
TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP  
STATION

SECTION 00 61 41  
PAYMENT BOND



**LABOR, MATERIAL, AND TAXES BOND (PAYMENT BOND)**

**Surety to have an A.M. Best rating of A:VII or better.**

**Bond No.** \_\_\_\_\_

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

WHEREAS, Principal has been awarded, and is about to enter into, a Contract with City of Kirkland for **PROJECT NAME: TEMPORARY REGIONAL BOOSTER PUMP STATION – HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION, JOB # 02-26-PW**, which contract is by this reference made a part hereof;

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

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

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

**CITY OF KIRKLAND  
TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP  
STATION**

**SECTION 00 61 41  
PAYMENT BOND**

(Form continues on next page)

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

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

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

Signed this _____ day of _____, 20__	
Principal: _____	Surety: _____
By: _____	By: _____
Title: _____	Title: _____
Address: _____	Address: _____
City/Zip: _____	City/Zip: _____
Telephone: ( ) _____	Telephone: ( ) _____

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

**END OF LABOR, MATERIAL AND TAXES (PAYMENT) BOND FORM**

## GENERAL CONDITIONS

### PART 1 – GENERAL TERMS

#### 1.1 DEFINITIONS

- A. “Application for Payment” means a written request submitted by Contractor to Owner for payment of Work completed in accordance with the Contract Documents and approved Schedule of Values, supported by such substantiating data as Owner 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. “Award of Contract” refers to City of Kirkland Council’s acceptance of the Contractor’s Bid. Council Award, or Bid Rejection, will occur within 60 calendar days after Bid opening. If the lowest responsible Bidder and the City of Kirkland agree, this deadline may be extended. If they cannot agree on an extension by the sixty (60) calendar day deadline, the City of Kirkland reserves the right to Award the Contract to the next lowest responsible Bidder or reject all Bids. The City of Kirkland will notify the successful Bidder of the Contract Award in writing.
- D. “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.
- E. “Claim” means Contractor’s exclusive remedy for resolving disputes with Owner arising out of or relating to the Contract Documents or the breach thereof or requesting an adjustment in the Contract Sum or Contract Time. As used in the Contract Documents, the exclusive meaning of “equitable adjustment” is the ability of Contractor to follow the contractual dispute resolution process as set forth herein, including the requirement for submitting a timely Notice, substantiation, and Claim.
- F. “Construction Change Directive” (“CCD”) is a written order prepared by Owner that directs Work prior to total agreement on adjustment, if any, in the Contract Sum or Contract Time, or both.
- G. The “Contract” is the agreement between Owner and Contractor and is formed by the Contract Documents. The Contract represents the entire and integrated agreement between Owner and Contractor and supersedes prior negotiations, representations or agreements, either written or oral.
- H. “Contract Award Amount” is the sum of the Base Bid and any City accepted Alternates, including applicable sales tax at the current rate where the project resides.

- I. "Contract Documents" includes the Executed Agreement, General Conditions, modifications to the General Conditions, Supplementary and Special Conditions, Drawings and Specifications, the Project Manual, the Bonds and Insurance Certificate Requirements provided in the Bid Documents, and all addenda and modifications thereof.
- J. "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, including applicable sales tax at the current rate where the project resides.
- K. "Contract Time" is the number of calendar days allotted in the Contract Documents from the Notice to Proceed for achieving Substantial Completion of the Work.
- L. "Contractor" means the person or entity who has agreed with Owner to perform the Work in accordance with the Contract Documents.
- M. "Day(s)" means calendar day(s) unless otherwise specified.
- N. "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.
- O. "Final Acceptance" means the written acceptance of the Work by Owner, as more fully set forth in Section 6.
- P. "Final Completion" means that the Work is fully and finally complete in accordance with the Contract Documents and Contractor has submitted its final Application for Payment, as more fully set forth in Section 6.
- Q. "Force Majeure" means those acts entitling Contractor to request an equitable adjustment in the Contract Time, as more fully set forth in Section 3.
- R. "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.
- S. "Notice to Proceed" means a written Notice from Owner to Contractor that permits pre-construction and construction activities to commence upon specified terms and defines the date on which the Contract Time begins to run.
- T. "Owner" means the City of Kirkland, a municipal corporation, which has the authority to enter into, administer, and/or terminate the Work in accordance with the Contract Documents. Owner shall designate in writing a Representative who shall have authority to bind Owner with respect to all matters requiring Owner's approval or authorization. A/E does not have such authority.

- U. "Person" means a corporation, partnership, business association of any kind, trust, company, or individual.
- V. "Prior Occupancy" means Owner's use of all or parts of the Project before Substantial Completion, as more fully set forth in Section 6.
- W. "Project Manual" means all Bid Documents, Contract Documents, General Conditions, Supplementary Conditions, if any, Specifications, Special Provisions, if any, and Addenda, if any.
- X. "Progress Schedule" means a schedule of the Work, in a form satisfactory to Owner, as further set forth in Section 3.
- Y. "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.
- Z. "Schedule of Values" means a written breakdown allocating the total Contract Sum to each principal category of Work, in such detail and format as requested by Owner.
- AA. "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. 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.
- BB. "Subcontract" means a contract between Contractor and a Subcontractor for the purpose of obtaining supplies, materials, equipment, work or services of any kind for or in connection with the Work.
- CC. "Subcontractor" means any Person of any tier, other than Contractor, who agrees to furnish or furnishes by contract with, or through Contractor, any supplies, materials, equipment, or services of any kind in connection with the Work.
- DD. "Substantial Completion" means that stage in the progress of the Work (or portion of the Work designated and approved by Owner) when the construction is sufficiently complete, in accordance with the Contract Documents, so that Owner can fully occupy or utilize the Work (or portion designated by Owner) for its intended use, as more fully set forth in Section 6. There may be separate dates of Substantial Completion specified in the Contract Documents for various phases or portions of the Work.
- EE. "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.

- FF. "Work Site" means the space identified and circumscribed on construction documents. The work site is controlled by the Contractor and the Contractor is responsible for compliance to regulatory requirements within the circumscribed area. Changes to the work site shall be submitted by Contractor and approved by Owner.

## 1.2 ORDER OF PRECEDENCE

Any conflict or inconsistency in the Contract Documents shall be resolved by giving the documents precedence in the following order, with a revision to a Contract Document having precedence over the original document and a later document having precedence over an earlier document:

1. Executed Agreement, including any Change Orders.
2. Supplementary Conditions.
3. Special Conditions or Modifications to the General Conditions.
4. General Conditions
5. Specifications and Drawings. The Specifications and Drawings are complementary and shall have equal precedence. Thus, anything mentioned in the Specifications but not shown on the Drawings, or shown on the Drawings but not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both. If there is any inconsistency between the Specifications and Drawings, Contractor will make an inquiry to Owner to determine how to proceed. Unless otherwise directed, Contractor will provide the better quality or greater quantity of any Work or materials, as reasonably interpreted by Owner, at no change in the Contract Sum or Contract Time. In case of conflict within the Specifications, provisions in Division 1 shall take precedence over provisions of any other Division. In case of conflict within the Drawings, large scale Drawings shall take precedence over small scale Drawings.
6. Signed and Completed Bid Form
7. Instructions to Bidders
8. Advertisement for Bids

## 1.3 EXECUTION AND INTENT

Contractor Representations: Contractor makes the following representations to Owner:

1. Contract Sum and Contract Time 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: Execution of the Contract by Contractor is a representation that 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, weather, 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; No allowance shall subsequently be made on behalf of Contractor on account of error or negligence on its part or its failure to acquaint itself with the conditions of the site;

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 the 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

### 2.1 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, including but not limited to (1) Certificates of Insurance, on ACORD Form 27 and/or ACORD Form 25-S, or other forms that are similarly binding on insurers, (2) the actual costs (expressed as a percentage) of Contractor's liability insurance under Section 2.1A.1 below, (3) endorsements, including endorsements for additional insureds as listed in Section 2.1D below, (4) evidence of State Workers' Compensation coverage, and (5) a copy of any builder's risk policy required by the Contract Documents. All policies, endorsements and certificates must be signed copies and shall contain a provision that coverages afforded under the policies cannot be materially altered (i.e. the coverages reduced, the limits decreased or the additional insured removed) allowed to expire, or cancelled without first giving forty-five (45) days prior written Notice by certified mail to Owner. Contractor shall furnish to Owner copies of any subsequently issued endorsements amending, modifying, altering or restricting coverage limits. Review of Contractor's insurance by Owner shall not relieve or decrease the liability of Contractor. Companies writing the insurance to be obtained shall be licensed to do business under Chapter 48 RCW or comply with the Surplus Lines Law of the State of Washington, and shall be acceptable to Owner.

Contractor shall include in the Contract Sum the cost of all insurance and bond costs required for the Work. Insurance carriers providing insurance 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 three years after Final Acceptance, with the exception of Professional Liability insurance, when required, which shall be maintained for a minimum of three years. Contractor shall also maintain the following insurance coverage during the performance of any corrective Work required by Section 5.

1. General Liability Insurance: Commercial General Liability (CGL) on an Occurrence Form, including personal injury, bodily injury and property damage liability on Contractor's operations, including Subcontractors; on Work Contractor may subcontract or sublet to others; and on the indemnity provisions of this Contract. Coverage shall include, but not be limited to:
    - a. Personal injury
    - b. Blanket contractual liability;
    - c. Completed operations/products liability;
    - d. Explosion, collapse, and underground, which applicable to the work being performed; and
    - e. Employer's liability coverage.

Contractor's policy shall be designated primary coverage for both defense and indemnity, and any Owner's policies excess and non-contributory.
  2. Automobile Liability Insurance: Automobile liability on an Occurrence Form for owned, non-owned, and hired vehicles.
  3. Professional Liability: Required if professional services (e.g., architect, engineering, surveying, legal or medical) are being provided to the Owner and if those professional services are excluded from the General Liability Insurance provided. Coverage may be on a Claims Made basis, if coverage is maintained at least 3-years beyond Final Acceptance.
- 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, its officers, and employees, and any required governmental agencies as additional named insureds for Work performed in accordance with the Contract Documents, and all insurance certificates and endorsements shall evidence such additional insureds.
- E. Subcontractor Coverage: Contractor shall ensure and require that Subcontractors have insurance coverage to cover bodily injury and property damage on all operations and all vehicles owned or operated by Subcontractors. Subcontractors shall name Contractor and Owner, any required governmental agencies, and others designated in the Contract

Documents as well as their officers and employees, as additional insureds and give at least 30 Days' Notice of cancellation.

## 2.2 COVERAGE LIMITS

Insurance amounts: The minimum coverage limits shall be as follows for applicable required insurance are specified in the Bonds and Insurance Certificates Section (Section 00 60 00) included with the Bid Documents. To the extent not set forth in the Bonds and Certificates Section or otherwise in the Contract Documents, they are as set forth below:

- A. Limits of Liability shall not be less than \$2,000,000 Combined Single Limit for Bodily Injury and Property Damage (other than Automobile Liability) Each Occurrence; Personal Injury and Advertising Liability Each Occurrence.
- B. \$3,000,000 Combined Single Limit Annual General Aggregate.
- C. \$3,000,000 Annual Aggregate for Products and Completed Operations Liability.
- D. \$2,000,000 Combined Single Limit for Automobile Bodily Injury and Property Damage Liability, Each Accident or Loss.
- E. \$1,000,000 for Professional Liability, if applicable.
- F. \$2,000,000 for Stop Gap / Employers' Liability per accident.
- G. Coverages and Minimums: The Owner does not represent that the minimum required insurance coverage or limits are adequate to protect Contractor from all liabilities.

## 2.3 INSURANCE COVERAGE CERTIFICATES

- A. Certificate required: Prior to commencement of the Work, Contractor shall furnish to Owner a completed certificate of insurance coverage and additional insured endorsements.
- 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.

## 2.4 PAYMENT AND PERFORMANCE BONDS

Conditions for bonds: Payment and performance bonds for 100% of the Contract Award Amount, including Washington state sales tax, shall be furnished for the Work, using the City of Kirkland Contract Bond Form provided. 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.

When alternative surety required: Contractor shall promptly furnish payment and performance bonds from an alternative surety 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.

## 2.6 BUILDER'S RISK

- A. See Section 00 60 00.

## PART 3 – TIME AND SCHEDULE

### 3.1 PROGRESS AND COMPLETION

- A. 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 the time period specified in the Contract Documents. If Contractor fails to perform in a timely manner in accordance with the Contract Documents and, through the fault of Contractor or Subcontractor(s), fails to meet the Progress Schedule, Contractor shall be in default and shall take such steps as may be necessary to immediately improve its progress without change in the Contract Sum or Contract Time.
- B. Progress Schedule: Promptly, but in no event later than seven (7) days after issuance of the Notice to Proceed, Contractor shall prepare and submit a preliminary network diagram in the form of a critical path method analysis ("Progress Schedule"). See Section 01 32 00 for specific requirements for the Contractor's Construction Schedule ("Progress Schedule"). The Progress Schedule shall be related to the entire Project and fully consistent with the Contract Documents. The Progress Schedule shall not exceed time limits specified by the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work, and shall show the sequence in which Contractor and the dates on which Contractor plans to start and finish major portions of the Work, including dates for submission of Submittals, which shall be coordinated with the Progress Schedule and identify dates for Owner review, and for acquiring materials and equipment. The Owner shall not be obligated to accept any Early Completion Schedule suggested by the Contractor. If the Contractor feels that the Work can be completed in less than the specified Contract Time, then the Surplus Time shall be considered Project Float. This Float shall be shown on the Project Schedule. It shall be available to accommodate changes in the work and unforeseen conditions. Neither the Contractor nor the Owner have exclusive right to this Float Time. It belongs to the Project.
- C. Monthly Updates: With each Application for payment submitted by Contractor other than the final Application for Payment, Contractor shall submit to the Owner a current

Progress Schedule revised to indicate the portion of the Work executed during the time period covered by the Application for Payment, all progress slippages occurring during the previously covered time period, and the corrective actions taken for the slippage carryover into the time period covered by the Application for Payment, the anticipated delays or difficulties, and all other information required to adequately present the actual status of the progress of the Work as of the date of the Application for Payment as may be further required by the Owner.

- D. Compliance with Progress Schedule: In the event the Contractor falls behind the Progress Schedule to such an extent that the Owner in good faith determines that the Contractor will be unable to achieve Substantial Completion by the date set forth in the Progress Schedule, as such date may be extended as provided in the Contract Documents, the Contractor shall within two (2) working days following the Owner's demand therefor, provide to the Owner, in writing, a detailed explanation of the measures the Contractor will take in order to recover from the delays so that the progress of the Work complies with the Progress Schedule. If, in the Owner's good faith business judgment, the Contractor's intended recovery measures will not cause the Contractor to recover from the delay (provided such delay arises from a cause which is the Contractor's or its Subcontractor's responsibility) so as to achieve Substantial Completion on schedule, the Owner may direct the Contractor to accelerate the progress of the Work, at the Contractor's sole cost, which acceleration costs shall not cause an adjustment to the Contract Sum.
- E. Contractor to notify Owner of delays: Contractor shall perform the Work in accordance with the most recent Progress Schedule submitted to Owner. Contractor shall promptly notify Owner in writing of any actual or anticipated event, interference, or that is delaying or could delay achievement of any milestone, performance of any critical path activity of the Work, or delay in the Substantial Completion date. 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.

### 3.2 DELAY

- A. Force Majeure Events: Acts of Force Majeure include, but are not limited to: acts of God or the public enemy; acts or omissions of any government entity not the fault of Owner or Contractor; fire or other casualty for which Contractor is not responsible; quarantine or epidemic; industry-wide strike or defensive lockout; unusually severe weather conditions which could not have been reasonably anticipated; and unusual delay in receipt of supplies or products which were ordered and expedited and for which no substitute reasonably acceptable to Owner was available. "Unusually severe weather" shall mean weather conditions that are abnormal for the period of time for which Force Majeure is claimed, that could not reasonably have been anticipated or avoided, and that had an adverse effect on the Progress Schedule.
- 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 submits Notice and a Claim in strict compliance with the requirements of Section 8. 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 submits Notice and a Claim in strict compliance with the requirements of Section 8.
- 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 may be entitled to an adjustment in the Contract Time only for that portion of the delay or failure of performance that was concurrently caused, provided it submits Notice and a Claim in strict compliance with the requirements of Section 8, 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. Contractor shall not recover damages, an equitable adjustment or an increase in the Contract Sum or Contract Time from Owner where Contractor could have reasonably avoided the delay by the exercise of due diligence.
- G. Types of damages permitted: If Contractor and its Subcontractors are entitled to a change in the Contract Sum, the amount of the change shall be the actual costs incurred by the Contractor and Subcontractors directly related to the change calculated in accordance with Section 7 and provided Contractor has complied with Section 8. Failure of Contractor to comply with Section 8 shall result in waiver of Contractor's Claim. Contractor and its Subcontractors shall not be entitled to damages arising out of actual or alleged loss of efficiency; morale, fatigue, attitude, or labor rhythm; constructive acceleration; home office overhead; expectant underrun; trade stacking; reassignment of workers; rescheduling of Work, concurrent operations; dilution of supervision; learning curve; beneficial or joint occupancy; logistics; ripple; season change; extended overhead; profit upon damages for delay; impact damages including cumulative impacts; or similar damages.
- H. 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.
- I. 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.

### 3.3 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 obligations or liabilities pursuant to the Contract Documents. If Contractor substantially fails to perform in a timely manner in accordance with the Contract Documents and, through the fault of Contractor or Subcontractor(s), fails to achieve Substantial Completion within the Contract Time, Contractor shall be in default.

- B. Actual Damages: If no liquidated damages are set forth in the Contract Documents, actual damages may be assessed for failure to achieve both Substantial Completion and Final Completion within the time provided. Actual damages will be calculated on the basis of direct, architectural, administrative, and any other related costs attributable to the Project from the date when Substantial and/or Final Completion should have been achieved, as applicable. Owner may offset these costs against any payment due Contractor.

## PART 4 – SPECIFICATIONS AND CONTRACT DOCUMENT REVIEW

### 4.1 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, and, where required, accepted shop drawings and other Submittals, 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.

## 4.2 SUBMITTALS

- A. Definition of Submittals: “Submittals” 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. Submittals can include, but are not limited to, shop drawings, product data, 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 Submittals provided in accordance with the Contract Documents. Submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the

design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require Submittals.

- B. Approval of Submittals by Contractor and A/E: Contractor shall coordinate all Submittals with the Progress Schedule, shall 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, Submittals shall be stamped by an appropriate professional licensed by the state of Washington. Submittals submitted to A/E without evidence of Contractor's approval shall be returned for resubmission. Contractor shall review, approve, and submit Submittals 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 Submittals. Contractor shall perform no portion of the Work requiring submittal and review of Submittals 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 Submittal with reasonable promptness. Any Work by Contractor shall be in accordance with reviewed Submittals. Submittals made by Contractor which are not required by the Contract Documents may be returned without action.
- C. Contractor not relieved of responsibility when Submittals approved: Approval, or other appropriate action with regard to Submittals, by Owner or A/E shall not relieve Contractor of responsibility for any errors or omissions in such Submittals, 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 Submittals and Contract Documents: If Submittals vary from the requirements of the Contract Documents, Contractor shall in detail describe such variations in writing, separate from the Submittals, at the time it submits the Submittals containing such variations. If Owner 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 approved by Owner in writing. Approval for substitutions shall not be sought and shall not be approved through the submission of Submittals.

#### **4.3 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS**

- A. The City/Owner not Contractor, owns Copyright of Drawings and Specifications: The Drawings, Specifications, and other documents prepared by A/E are instruments of A/E's contracted service to the City 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. 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 Submittals, together with the information and diagrams contained therein, prepared by Contractor or any Subcontractor. In providing Submittals, Contractor and all Subcontractors warrant that they have authority to grant to Owner a license to use the Submittals, 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 from any violations of copyright or other intellectual property rights arising out of Owner's use of the Submittals hereunder, or to secure for Owner, at Contractor's own cost, licenses in conformity with this Section.

## PART 5 – PERFORMANCE

### 5.1 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. The Contractor shall be responsible to the Owner for acts and omissions of Contractor, Contractor's employees, Subcontractors, and their agents and employees, and other person or entities performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.
- B. Competent project manager required: Contractor shall employ a competent project manager and necessary assistants. The project manager shall, at a minimum, maintain all records and documentation of the Project per the contract. The project manager shall represent the Contractor. Contractor, as soon as practicable after award of the Contract, shall furnish in writing to Owner the name and qualifications of its proposed project manager. Within 14 days of receipt of the information, Owner may reply to Contractor in writing stating (1) whether Owner has reasonable objection to the proposed project manager or (2) that Owner requires additional time to review. The project manager must be satisfactory to Owner and shall not be changed without the prior written consent of

Owner. Owner may require Contractor to remove the project manager from the Project, if Owner reasonably deems the project manager incompetent, careless, or otherwise objectionable, provided Owner has first notified Contractor in writing and allowed a reasonable period for transition.

- C. Competent superintendent required: Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The Contractor shall notify the Owner of any absence by the superintendent and shall appoint another qualified person of the Contractor's team, including the project manager, project engineer or general foreman to be on site during the superintendent's absence. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Contractor, as soon as practicable after award of the Contract, shall furnish in writing to Owner the name and qualifications of its proposed superintendent. Within 14 days of receipt of the information, Owner may reply to Contractor in writing stating (1) whether Owner has reasonable objection to the proposed superintendent or (2) that Owner requires additional time to review. The superintendent must be satisfactory to 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.
- 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 Submittals, 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.
- G. Daily Reports: Contractor shall provide a Daily Report to the Owner for each work day during the Contract Time. The Daily Report shall be completed on a form subject to the approval of the Owner and Egnieer. The Daily Report shall include names of subcontractors, work performed, equipment used, number of workers and hours worked on site each day. The Daily Report shall include any disputed, delayed, or disrupted Work as well as any changed or additional Work requested or identified. The Daily

Report shall not serve as a substitute for, or relieve Contractor of its obligations to provide formal written notice to Contractor as required by the Contract Documents, including but not limited to Section 7 and Section 8.

## 5.2 PERMITS, TAXES, PATENTS AND ROYALTIES

- A. Permits: Owner will obtain and pay for the General Plumbing Permit and General Electrical Permit. The contractor is required to meet the requirements and conditions of any owner-procured permits, to post the permits, and for the scheduling and inspections related to these permits. The Contractor is responsible for all other required permits for the project in their entirety: including, but not limited to, temporary power. Prior to Final Acceptance, the approved, finalized permits shall be delivered to the Owner.
- B. 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. No person shall, on the grounds, of age, race, creed, color, sex, sexual orientation, religion, national origin, marital status, honorably discharged veteran or military status, or disability (physical, mental, or sensory) be denied the benefits of, or otherwise be subjected to discrimination under any project, program, or activity funded in whole or in part under this Agreement.
- C. Taxes: Contractor shall pay sales, consumer, use, business and occupation, income and similar taxes for the Work that are legally enacted when the initial Contract Sum is agreed.
- D. Patents and Royalties: 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.

## 5.3 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, certified by the Department of Labor and Industries, for the Contractor and each and every Subcontractor that performed work on the Project. Contractor's compliance with this paragraph and RCW 60.28 is a condition precedent to the release of retainage to Contractor.
- 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 prefiled statement(s) of intent, as approved. Copies of the approved intent statement(s) shall be posted on the job site with the address and telephone number of the Industrial Statistician of the 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.

#### 5.4 SAFETY AND CLEAN-UP

- 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. Contractor shall be solely and completely responsible for conditions of the Project site, including safety of all persons and property, during performance of the Work. Contractor shall maintain the Project site and perform the Work in a manner that meets statutory and common-law requirements for the provision of a safe place to work. This requirement shall apply continuously and not be limited to working hours. Any review by Owner or A/E of Contractor's performance shall not be construed to include a review of the adequacy of Contractor's safety measures in, on or near the site 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. At a minimum, Contractor shall inform persons working on the Project site of the requirements of chapter 296-62 WAC, General Occupational Health Standards, any operations in their work area where hazardous chemicals are present; and 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. Contractor shall also provide training for persons working on the Project site which includes Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area, the physical and health hazards of the chemicals in the work area; the measures such persons can take to protect themselves from these hazards, 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 and Notice: 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. 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 relieve Contractor of sole and complete responsibility for safety at the Project site, for sole and complete responsibility for any violation of safety or property protection requirements or the correction thereof, or impose any duty upon Owner or A/E with regard to, or as constituting any express or implied assumption of control or responsibility over, any other safety conditions relating to employees or agents of Contractor or any of its Subcontractors, or the public. Any Notice Owner or A/E gives to Contractor of a safety or property protection violation will not: (1) relieve Contractor of sole and complete responsibility for the violation and the correction thereof, or for sole liability for the consequences of said violation; (2) impose any obligation upon Owner or A/E to inspect or review Contractor's safety program or precautions or to enforce Contractor's compliance with the requirements of this Section; or (3) impose any continuing obligation upon Owner or A/E to provide such Notice to Contractor or any other persons or entity.
- I. 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.

## 5.5 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

6. Continue performance only to the extent not terminated or suspended.
- C. Terms of adjustment in Contract Sum if Contract terminated or suspended: If Owner terminates or suspends 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 during the period of suspension or 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. Failure of Contractor to comply with the requirements of Part 7 shall result in waiver of Contractor's claim.
- 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.

### 9.3 TERMINATION BY CONTRACTOR FOR CAUSE

- A. Contractor termination: Except as provided by RCW 60.28.080, Contractor may terminate the Contract for any of the following reasons:
  1. Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped permanently;
  2. An act of government, such as a declaration of national emergency, that requires all Work to be stopped permanently; or
  3. The Work is stopped for a period of 60 consecutive Days through no act or fault of Contractor, a Subcontractor, or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with Contractor.
- B. Contractor termination procedure: If one of the above reasons exists, Contractor may, upon seven (7) Days' written Notice to Owner (during which period Owner has the opportunity to cure), terminate the Contract and recover from Owner payment for Work executed in accordance with the Contract Documents, including reasonable overhead and profit on Work executed and costs incurred by reason of such termination. The total recovery of Contractor shall not exceed the unpaid balance of the Contract Sum.

### 9.4 OWNER'S RIGHT TO STOP AND/OR CARRY OUT 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 Owner has accepted satisfactory corrective action.

- B. Owner may carry out the Work after Contractor's failure to perform: If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a 14- Day period after receipt of written Notice from Owner to commence and continue to make reasonable progress toward the correction of such default or neglect with diligence and promptness, Owner may, without prejudice to other remedies Owner may have, correct such deficiencies, and an appropriate Change Order shall be issued deducting from payments then or thereafter due Contractor the reasonable cost of correcting the deficiencies, including Owner's expenses and compensation for A/E's additional services made necessary by the default, neglect or failure. If payments then or thereafter due Contractor are not sufficient to cover such amounts, Contractor shall pay the difference to Owner.
- C. 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.

## PART 10 – MISCELLANEOUS PROVISIONS

### 10.1 MISCELLANEOUS PROVISIONS

- A. 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 and the City of Kirkland, without regard to its choice-of-law provisions. Venue shall be in King County.
- B. 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 the 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 Contract 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 and City of Kirkland. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations set forth in the Contract Documents.
- C. Meaning of words used in Contract Documents: Unless otherwise stated in the Contract Documents, words that 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 is 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 the 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 items as are shown on the Drawings, or required to complete the installation.

- D. No waiver of rights: Waiver of any provisions of the Contract Documents must be in writing and authorized by Owner. No other waiver is valid on behalf of Owner. No action, delay in acting, or failure to act by Owner or A/E shall constitute a waiver of a right or duty afforded under the Contract Documents, nor shall action, delay in acting, or failure to act constitute approval or an acquiescence in a breach therein, or otherwise prejudice the right of Owner to enforce a right or remedy at any subsequent time, except as may be specifically agreed in writing.
- E. Rights under Contract do not limit other rights: Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.
- F. Severability: If any portion of this Contract is held to be void or unenforceable, the remainder of the Contract shall be enforceable without such portion.
- G. Contractor must be registered and licensed: Pursuant to RCW 39.06, Contractor shall be registered and licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27. Contractor shall also have a current state unified business identifier number; have industrial insurance coverage for Contractor's employees working in Washington as required in Title 51 RCW; have an employment security department number as required in Title 50 RCW; have a state excise tax registration number as required in Title 82 RCW; and not be disqualified from bidding on any public works contract under RCW 39.06.010 (unregistered or unlicensed contractors) or RCW 39.12.065(3) (prevailing wage violations).
- H. Employer contributions: Pursuant to RCW 50.24, "Contributions by Employers," in general and RCW 50.24.130 in particular, Contractor shall pay contributions for wages for personal services performed under this Contract or arrange for a bond acceptable to the Commissioner.
- I. Apprenticeship requirements: If the Contract Sum for the Project exceeds one million dollars, Contractor shall comply with all applicable apprenticeship requirements, including but not limited to RCW 39.04.320. For each Project that has apprenticeship requirements, the Contractor shall submit a "Statement of Apprentice and Journeyman Participation" in a format approved by the City with every request for progress payment. The Contractor shall submit consolidated and cumulative data collected by the Contractor and collected from all subcontractors by the Contractor.
- J. 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.
- K. Six year records retention period: The wage, payroll, and cost records of Contractor, and its Subcontractors, and all records subject to audit, shall be retained for a period of not less than 6 years after the date of Final Acceptance. The Contractor agrees to provide

access to and copies of any records related to this Agreement as required by the City to audit expenditures and charges and/or to comply with the Washington State Public Records Act.

- L. 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.
- M. 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.
- N. 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.
- O. Contractor is independent contractor: Contractor shall be and operate as an independent contractor in the performance of the Work and shall have complete control over and responsibility for all personnel performing the Work. Contractor is not authorized to enter into any agreements or undertakings for or on behalf of Owner or to act as or be an agent or employee of Owner.
- P. Owner's role is limited. Owner will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely Contractor's responsibility under the Contract Documents. The presence of Owner at the Project site shall not in any manner be construed as assurance that the Work is being completed in compliance with the Contract Documents, nor as evidence that any requirement of the Contract Documents of any kind, including Notice, has been met or waived. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Owner will not have control over or charge of and will not be responsible for acts or omissions of Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

**END OF SECTION**

**CONTRACTOR'S AFFIDAVIT OF RELEASE OF CLAIMS AND LIENS**

**To OWNER:** City of Kirkland  
123 5<sup>th</sup> Avenue  
Kirkland, WA 98033  
**Project Name:** \_\_\_\_\_  
**Project Number:** \_\_\_\_\_

**From CONTRACTOR:** [Contractor Name]  
[Address]  
[City, State, Zip Code]

<b>CONDITIONAL RELEASE</b>	<b>UNCONDITIONAL RELEASE</b>
<p>The undersigned does hereby acknowledge and certify that upon receipt by the undersigned of a check from _____, in the sum of \$_____ and when the check has been properly endorsed and has been paid by the bank upon which it was drawn, this document shall become effective to release any and all claims for compensation, impacts, additional time, costs, and rights of Claim or lien which the undersigned has on the above referenced Project for labor, services, equipment, materials furnished and/or claims through (Date:) _____ except it does not cover any retention or items furnished thereafter. Before any recipient of this document relies on it, said party should verify evidence of payment to the undersigned. Items and Claims not waived and released by this Instrument:</p>	<p>The undersigned does hereby acknowledge and certify that the undersigned has been paid and has received progress payments in the sum of \$_____ for labor, services, equipment or materials furnished to the above referenced Project and does hereby release any and all claims for compensation, impacts, additional time, costs and rights of Claim or lien which the undersigned has on the above referenced Project, any state or federal statutory bond right and private bond right, any claim for payment. This release covers all payment for labor services, equipment, materials furnished and/or claims on the above referenced Project through (Date:) _____ only and does not cover any retention or items furnished after that date. Items and Claims not waived and released by this Instrument:</p>
<p>I CERTIFY UNDER PENALTY OF PERJURY UNDER LAWS OF THE STATE OF WASHINGTON THAT THE ABOVE IS A TRUE AND CORRECT STATEMENT.</p>	<p>I CERTIFY UNDER PENALTY OF PERJURY UNDER LAWS OF THE STATE OF WASHINGTON THAT THE ABOVE IS A TRUE AND CORRECT STATEMENT.</p>
<p>Signature: _____</p>	<p>Signature: _____</p>
<p>(Authorized Corporate Officer/Partner/Owner)</p>	<p>(Authorized Corporate Officer/Partner/Owner)</p>
<p>Printed Name: _____</p>	<p>Printed Name: _____</p>
<p>Title: _____</p>	<p>Title: _____</p>
<p>DATED: _____ 20__ at _____</p>	<p>DATED: _____ 20__ at _____</p>
<p>_____ (City, State)</p>	<p>_____ (City, State)</p>

**CITY OF KIRKLAND  
TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP  
STATION**

**SECTION 00 82 75  
CONTRACTOR'S  
AFFIDAVIT OF RELEASE**

**END OF SECTION**

**DEPARTMENT OF LABOR WAGE RATES**

**PART 1 - GENERAL**

1.1 SUMMARY

- A. Prevailing wage rates for the locality or localities of the Work, as described by the Industrial Statistician of the Department of Labor and Industries, are required for this contract. Contractor remains solely responsible for verifying that the rates are accurate, current, and inclusive for all parts of this Work. Any off-site prefabrication may also require prevailing wages and the Contractor should contact the Department of Labor and Industries to ascertain those rates.
  
- B. Contractor to provide the "Notice of Intent to Pay Prevailing Wage Rates", as required by RCW 39.04, 39.12, 43.19, and 49.28 as amended. All paperwork regarding "Notice of Intent to Pay Prevailing Wage Rates" shall be sent directly to the Owner. The rules and regulations of the Department of Labor and Industries and the schedule of prevailing wage rates for the locality or localities where this Contract will be performed as determined by the Industrial Statistician of the Department of Labor and Industries, are by reference made a part of this Contract as though fully set forth herein.

Current prevailing wage rates for King County will apply to this project.  
Current prevailing wage data are available online or at the following:

ADDRESS: Department of Labor and Industries  
Prevailing Wage Section  
P.O. Box 44540  
Olympia, Washington 98504-4540

<http://www.lni.wa.gov/TradesLicensing/PrevailingWage/RateDatabase/default.asp>

The General Contractor and his sub-contractors are to pay for all filing fees for Statements of Intent to Pay Prevailing Wages and Affidavits. Pay for any change in rate during the course of construction.

Submit forms to: Department of Labor and Industries  
Prevailing Wage Section  
P.O. Box 44540  
Olympia, Washington 98504-4540

**END OF SECTION**

# DIVISION 01 – GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
  - 1. Work covered by the Contract Documents.
  - 2. Type of Contract.
  - 3. Use of premises.
  - 4. Specification formats and conventions.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Temporary Regional Booster Pump Station
  - 1. Project Location: Upper Highlands Neighborhood, Kirkland, WA
- B. Owner: City of Kirkland; Contact:
  - 1. Nick Sondergaard, Capital Projects Coordinator. Phone (425) 587-3144
- C. Design Team: RH2 Engineering, Bothell, Washington; Contact:
  - 1. Project Engineer: Ryan Feskens. Phone (425) 518-4431.
- D. The work consists of all labor, materials, and other incidentals for construction of the Temporary Regional Booster Pump Station (TRBPS) including, but not limited to: installation of a block retaining wall; site piping; building slab; installation of Owner provided pump skid; installation of pre-engineered building; site restoration, including sidewalk, curb and gutter, asphalt overlay, sod, and crushed surfacing; mechanical; and electrical improvements.

1.4 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract.

1.5 USE OF PREMISES

- A. Contractor's use of premises for Work and storage is limited to the area shown.
- B. During the entire construction period the Contractor shall have the exclusive use of the designated portion of the premises for construction operations. The Contractor shall limit his use of the premises to the work indicated. Confine operations at the site to the areas permitted. Portions of the site beyond areas on which work is indicated are not to be disturbed.
- C. Hours of Work: Except in the case of emergency, unless otherwise indicated in the Contract Documents, or unless otherwise approved by the owner in advance, the allowable working hours for this Contract Work shall be any consecutive 8-hour period between 7:00 a.m. and 6:00 p.m. of a working day. A maximum 1-hour lunch break is allowable between 7:00 a.m. and 6:00 p.m. and does not count for purposes of the 8-hour working period. The Contract assumes a 5-day work week, exclusive of weekends and holidays observed by the City of Kirkland. The normal straight time 8-hour working period for the contract shall be established at the preconstruction conference or prior to the Contractor commencing the Work. Except in the event of an emergency, unless otherwise indicated in the Contract Documents, or unless otherwise approved in advance by the owner (including the Contractor obtaining approval for all applicable City of Kirkland permits as required by the City of Kirkland Zoning Code), no Work shall be allowed between the hours of 6:00 p.m. and 7:00 a.m., during weekends (except driveway construction), or during holidays observed by the City of Kirkland. The owner may consider specific and limited requests by the Contractor to allow Work during one or more periods in which Work is not allowed by this Section, but approval of these requests is solely at the discretion of the owner as a benefit to the general public. Contractor shall submit a request in writing to the Engineer, including a full and accurate explanation of the type(s) of work to be performed, the period or periods of time outside normal Work hours, and the explanation(s) for why this work cannot be performed during the allowable Work hours. The Engineer will consider requests and determine conditions and limitations as the Engineer deems necessary, in conformance with the conditions of support for local permitting described in Section 1-07.6 of the Standard Specifications and these Special Provisions. These conditions and limitations are additional to any conditions or limitations that may be required by City of Kirkland permits and/or variances.
- D. Security: The Contractor shall maintain general security of the job site during construction.
- E. Parking: The Owner shall not provide any off-site parking or staging for the Contractor.
- F. Staging: The Owner shall not designate an off-site construction staging area. The Contractor shall prepare a staging plan to show locations of construction trailers and material storage within the project site.
- G. Contractor shall install up to two City-provided informational signs at or near the two ends of the project's geographic limits. Contractor will install signs by setting two 4" x 4" x 10' posts (per sign) 36" below grade, set apart consistent with the width of the sign, and backfilling with soil at a location agreed upon by the City and the Contractor. Secure the sign so the top is 7' above ground level. Contractor will remove at substantial completion.
- H. Miscellaneous: The Contractor shall:

1. Assume full responsibility for protection and safekeeping of products stored on premises.
2. Patching existing paving on roads and adjacent properties damaged by the Contractor.
3. Keep roads and sidewalks and the work area clean of dirt and other debris.

#### 1.6 EXISTING UTILITIES

- A. The Owner assumes no responsibility for the completeness or accuracy of existing utility line information provided by the serving utilities and shown on the Drawings. Utility information shall be verified by the Contractor.
- B. Unless otherwise required, maintain all existing water, gas, and irrigation lines, lighting, power, and telephone wires or conduits, plus any other surface or subsurface utilities, and their connections to structures, undisturbed during progress of work unless noted.
- C. Should the Contractor, in the performance of the work, disturb, disconnect, or damage any existing utilities required to remain in service, all expenses arising from such disturbance, replacement, or repair thereof shall be borne by the Contractor.
- D. Maintain and operate utilities systems to assure continuous service, except as otherwise approved by the Owner and the Developer. Give not less than 5 days notice of proposed utility shutdowns.
- E. Obtain approval from the Owner and all utility companies prior to cutting any utility lines.

#### 1.7 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using a modified version of CSI/CSC's "MasterFormat" numbering system. The Divisions have been condensed down from 33 to 18.
  1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
  2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate.

Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
  - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Sections:
  - 1. Division 00 Section "Bid Form" for bidder's statement of unit prices and quantity allowances.
  - 2. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders related to Unit Prices.
  - 3. Division 01 Section "Quality Requirements" for general testing and inspecting requirements.
  - 4. Division 18 Measurement and Payment

1.3 REFERENCES

- A. WSDOT Most Current Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction.

1.4 Geotechnical Memorandum, prepared by RH2 Engineering, dated February 14, 2026.

1.5 DEFINITIONS

- A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.6 PROCEDURES

- A. Unit prices include all necessary material, plus cost for removal, disposal, delivery, installation, protection, measurement, documentation and other related work required for complete installation also to include costs for insurance, applicable taxes, overhead, and profit.

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**SECTION 01 22 00  
UNIT PRICES**

- B. Measurement and Payment: Methods of measurement and payment for unit prices are specified in the description of each unit price item.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in bid proposal and described in Division 18.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used, see Division 18)

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Related Sections include:
  - 1. Division 01 Section "Unit Prices."
  - 2. Division 01 Section "Product Requirements."

1.2 SUMMARY

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

1.3 INITIAL REQUIREMENTS

- A. Designate in writing the names of authorized members of Contractor's organizations who accept changes in the work and are responsible for informing other workers of the authorized changes.
  - 1. At the beginning of the Project, the Contractor shall submit a breakdown of all applicable trade and class wage rates intended to be incorporated into this Project using form provided by the Owner.
- B. Submit verification of the above rates if requested by the Owner.

1.4 DEFINITIONS

- A. Change Order: See General Conditions, Section 00 70 00.
- B. Engineer's Supplemental Instructions: Work order, instructions, or interpretations, signed by Engineer making minor changes in the work not involving a change in Contract Sum or Contract Time.
- C. Construction Change Directive: See General Conditions, Section 00 70 00.

1.5 MINOR CHANGES IN THE WORK

- A. Engineer will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on Engineer's standard form "Engineer's Supplemental Instructions" or similar document as determined by the Owner.

1.6 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within 14 days after receipt of Proposal Request, submit Change Order Proposal with a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
  - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  - c. Include costs of labor and supervision directly attributable to the change.
  - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a Change Order Proposal, request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times,

and activity relationship. Use available total float before requesting an extension of the Contract Time.

6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- C. Change Order Proposal Form: Use Change Order Proposal form, approved by Architect.

#### 1.7 CHANGE ORDERS

- A. On Owner's approval of a Change Order Proposal (COP), Engineer will issue a Change Order for signatures of Owner and Contractor on Architect's standard form, or similar document as determined by the Owner.
- B. Owner-approved Change Order Proposals may be grouped together for processing in a Change Order, as agreed upon by both Owner and Contractor.
- C. Change Order Form: City of Kirkland Change Order Form.
- D. All agreed-upon Change Orders shall be deemed full and final settlement of any and all claims of any kind, including without limitation those for direct or indirect costs or damages or for extension of time, relating to the subject matter of such Change Order.
- E. Contractor shall not undertake any work or incur any expense that Contractor does not believe is included in the work required by the existing project contract documents, unless and until it brings such matter to Owner's attention and such work is authorized by a Construction Change Directive or agreed Change Order. Contractor shall be deemed to have waived any and all claims of any kind with respect to any work undertaken or expense incurred in violation of this provision

#### 1.8 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Engineer may issue a Construction Change Directive (CCD) on Engineer's standard form, or similar document as determined by the Owner. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  1. As the Work progresses, the contractor shall monitor its costs and provide an update to the Owner and Architect on a regular basis of accrued costs.

2. If the CCD includes a Not to Exceed and if the accrued costs indicate they will exceed the NTE prior to being able to complete the work, the Contractor shall immediately notify the Owner and Architect. A decision will be made at that time to either stop the CCD Work, or authorize an increase in the NTE amount.

1.9 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each lump sum proposal quotation and each unit price (not previously established) with sufficient substantiating data.
- B. On request provide additional data to support time and cost computations:
  1. Labor required; hours, hourly rate.
  2. Equipment required.
  3. Products required.
    - a. Recommended source of purchase and unit cost.
    - b. Quantities required of each material.
    - c. Material unit costs and extended price.
  4. Taxes, insurance, and bonds.
  5. Documented credit for work deleted from Contract.
  6. Overhead and profit. (See General Conditions.)
  7. Justification for any change in Contract Time.
- C. Support each claim for additional costs, and time and material/force account work with documentation, as required for lump sum proposal. Include additional information:
  1. Name of Owner's authorized agent who ordered work, and date of order.
  2. Dates and times work was performed, and by whom.
  3. Time record, summary of hours worked, and hourly rates paid.
  4. Receipts and invoices for:
    - a. Equipment used, listing dates and times of use.
    - b. Products used, listing of quantities.
    - c. Subcontracts.
- D. Document requests for substitutions for Products as specified.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
  - 1. 00 70 00 General Conditions
  - 2. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
  - 3. Division 01 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

**1.3 DEFINITIONS**

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

**1.4 SCHEDULE OF VALUES**

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with Continuation Sheets.
    - b. Submittal Schedule.
  - 2. Submit the Schedule of Values to Engineer at earliest possible date but no later than thirty (30) days after the issuance of the Notice to Proceed, and not less than ten (10) days prior to the date scheduled for submittal of initial Application for Payment.
  - 3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
  - 1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project name and location.
    - b. Name of Engineer
    - c. Contractor's name and address.
    - d. Application number
    - e. Date of application for payment.
  - 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
    - a. Related Specification Section or Division.

- b. Description of the Work.
- c. Name of subcontractor.
- d. Name of manufacturer or fabricator.
- e. Name of supplier.
- f. Change Orders (numbers) that affect value.
- g. Dollar value.
  - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Identify bond cost as separate line item.
8. Identify overhead and profit as a separate line item. For each application through final completion, the amount of overhead and profit billed to date shall equal the percent of Work completed.
9. Provide a separate line item for schedule preparation and updates in accordance with Division 01 Section "Construction Progress Documentation" which shall not be less than 1% of the Contract Sum.
10. The Engineer may request additional items to be identified on the schedule of values.
11. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
12. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders(s) result in a change in the Contract Sum.
13. Report recycling costs. Refer to Section 01 74 19, Construction Waste Management and Disposal.
14. The Contractor shall assign 5% of the total contract bid between Substantial Completion and Final Completion.
15. Provide a separate line item for all work to demo and replace existing sanitary plumbing lines below the concrete slab including concrete demo, trenching, and pour backs.

#### 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
- B. Payment Application Times: At regular intervals but no more than once per month to be set in conjunction with the Architect and the Owner.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets, or similar if approved by the Owner, as form for Applications for Payment.

- D. Draft Payment Application: Draft copies shall be provided to Engineer and Owner prior to a final, notarized copy for their review. Once the amounts are reviewed and agreed to by the Architect and Owner, the Contractor shall prepare the actual payment application as required in this section based upon the amounts agreed to.
- E. Application Preparation: Complete every entry on form. Engineer will return incomplete applications without action.
  - 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
  - 2. Include amounts of Change Orders issued before last day of construction period covered by application.
- F. Provide updated recycling costs breakdown with each application for payment.
- G. Transmittal: Submit one (1) signed and notarized original copy of each Application for Payment to Engineer by a method ensuring receipt within 48 hours. The application shall include intent to pay prevailing wages and a running spreadsheet that itemizes both the intent and affidavit of wages paid to date for each subcontractor.
  - 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment (conditional and unconditional).
  - 1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
  - 2. When an application shows completion of an item, submit final or full waivers.
  - 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  - 4. Waiver Delays: Submit each Application for Payment with Contractor's waiver of mechanic's lien for construction period covered by the application.
    - a. Submit final Application for Payment with or proceeded by final waivers from every entity involved with performance of the Work covered by the application that is lawfully entitled to a lien.
  - 5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- I. Initial Application for Payment: Administrative actions and submittals that must precede the first Application for Payment include the following:
  - 1. List of subcontractors (required at pre-construction conference).
  - 2. List of suppliers and fabricators
  - 3. Schedule of Values. (at least 10 days prior to initial submittal)
  - 4. Products list.
  - 5. Schedule of unit prices.
  - 6. Submittals Schedule (preliminary if not final).
  - 7. List of Contractor's staff assignments.
  - 8. List of Contractor's principal consultants (required at pre-construction conference).
  - 9. Copies of permits (required at pre-construction conference).
  - 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work (required at pre-construction conference).
  - 11. Report of pre-construction conference.
  - 12. Certificates of insurance and insurance policies (required prior to contract award).
  - 13. Performance and payment bonds (required prior to contract award).
  - 14. Waste Management Plan

- J. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
1. Completion of Project closeout requirements per section 01 77 00 Closeout Procedures”.
  2. Ensure that unsettled claims will be settled.
  3. Ensure that incomplete Work not accepted, will be completed without undue delay.
  4. Transmittal of required Project construction records to the Owner.
  5. Proof that fees and similar obligations were paid.
  6. Removal of temporary facilities and services.
  7. Removal of surplus materials, rubbish, and similar elements.

1.6 SPECIAL PAYMENT REQUIREMENTS

- A. Payment for completed work will be made in accordance with the applicable sections of the contract documents.
- B. Payment for completed work will include all costs relating to:
1. Furnishing all materials and performing all work under the Contract (including changes in the work, materials, or plans) in a complete and acceptable manner.
  2. All risks, losses, damages, or expense, with the exception of negligence of the contractor, of whatever character arising out of the nature or prosecution of the work.
  3. All expenses incurred in consequence of the suspension or discontinuance of the work.
- C. No payment will be made for:
1. Work that was deleted from the Contract.
  2. Work which was not performed.
  3. Anticipated profit or overhead on work not performed or on work deleted from the Contract.
  4. Extended overhead costs resulting from any authorized extension of contract time.
- D. No separate or special payment will be made for:
1. Samples of materials or equipment submitted for testing by the Engineer or by an authorized agent of the Architect.
  2. Tests carried out by the Contractor, any Subcontractor, supplier, or manufacturer unless specifically identified as an item for payment in the Bid Form or the project documents.
  3. The cost of any permits or fees unless specifically identified as an item for payment in the Bid Form or the project documents.
  4. Supervision by General Superintendents, Project Managers or General Foreman for force account work if required.
- E. Adjustments: Adjustments in the amount to be paid by the Owner under the terms and conditions of the Contract will not be made as a result of any change in laws, ordinances or regulations except as specifically provided by the following:
1. Changes in laws: The Owner will not adjust payment to compensate the Contractor for changes in legal requirements unless those changes are specifically within the scope of RCW 39.04.120, Pollution and Preservation of Natural Resources. For changes under RCW 39.04.120 the Owner will compensate the Contractor by negotiated Change Order or by force account.
  2. Changes in taxes: The Owner will adjust to compensate for tax changes under the following conditions.
    - a. The changes involve Federal or State taxes on materials used in or consumed for the work.
    - b. The changes increase Contractor paid taxes by more than \$100.00.
    - c. For items in the original contract, the tax change must occur after the bid opening date.

- d. The Contractor, if requested by the Architect, certifies in writing that the awarded contract price does not include an extra amount to cover a possible change in taxes.
  - e. The Contractor permits the Owner to audit the Contractor's records to the extent necessary to substantiate and claim for compensation under the provisions of this section. Within the above conditions, the Owner will adjust compensation by the actual dollar amounts of increase caused by the tax changes.
- F. The prices in the Bid Form will be full and just compensation for all direct and indirect costs associated with the provision of labor, materials, supplies, equipment, tools and all things of whatever nature are required for complete removal of the items from the work site, the same as though the items were to read "disposed of". The limits are generally as follows:
- 1. Item No 1 – Mobilization: Mobilization shall consist of pre-construction expenses and costs of preparatory work and operation performed by the Contractor which occurs before 10% of the awarded contract price is earned for work from other bid items.
    - a. Items that are not to be included in the item of mobilization are:
      - 1) Any portion of the work covered by a specific bid item or incidental work that is to be included in a bid item or items.
      - 2) Profit, interest on bond money, overhead or management costs.
    - b. Progress payments for "Mobilization" will be made in accordance with the following schedule:
      - 1) When 5% of the awarded contract price (excluding mobilization and amounts paid for material on hand) is earned, 50% of the amount bid for mobilization will be included in the progress estimate.
      - 2) When 10% of the awarded contract price (excluding mobilization and amounts paid for material on hand) is earned 100% of the amount bid for mobilization will be included in the progress estimate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General project coordination procedures.
  - 2. Conservation.
  - 3. Coordination Drawings.
  - 4. Administrative and supervisory personnel.
  - 5. Project meetings.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 01 Section "Construction Progress Documentation" for preparing and submitting the Contractor's Construction Schedule.
  - 2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 3. Division 01 Section "Closeout Procedures" for coordinating Contract closeout.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, which depend on each other for proper installation, connection, and operation.
- B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Contractor's Construction Schedule.

2. Preparation of the Schedule of Values.
  3. Installation and removal of temporary facilities and controls.
  4. Delivery and processing of submittals.
  5. Progress meetings.
  6. Pre-installation conferences.
  7. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

#### 1.4 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Indicate relationship of components shown on separate Shop Drawings.
  2. Indicate required installation sequences.
  3. Refer to Divisions 11, 15, and 16 for specific Coordination Drawing requirements for mechanical and electrical installations.
- B. Staff Names: Within 5 days of starting construction operations, submit a list of principal staff assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities, list addresses and telephone numbers.

#### 1.5 REQUEST FOR INFORMATION (RFI)

- A. It is the Contractor's responsibility to review Contract Documents in a timely manner so that the Engineer shall have sufficient time to respond to an RFI prior to the start of actual construction of that part of the Work.
- B. When field conditions or Contract Document contents require clarification or verification by the Engineer, a written RFI on a form approved by the Engineer via email is to be submitted as follows:
1. Identify the nature and location of each clarification/verification using a RFI form; provide as a minimum the following information:
    - a. Project name and number.
    - b. Date.
    - c. Date response desired.
    - d. RFI number.
    - e. Subject.
    - f. Initiator of the question.
    - g. Indication of cost and schedule impacts, if known.
    - h. Location on site.
    - i. Contract drawing reference.
    - j. Contract specification section and paragraph reference.

- k. Descriptive text.
    - l. Space for reply on same page as questions.
    - m. Single subject matter, one (1) item each - architectural, civil, structural, mechanical, electrical.
  - 2. Number each RFI sequentially beginning with number 001 (RFI-001). Only one (1) question per RFI.
- C. Uses
  - 1. The RFI form shall be used for interpretation or clarification of the Contract Documents only. Submit an RFI if one of the following occurs:
    - a. The Contractor discovers an unforeseen condition or circumstance that is not described in the Contract Documents.
    - b. The Contractor discovers an apparent conflict or discrepancy between portions of the Contract Documents that appears to be inconsistent or cannot be reasonably inferred from the intent of the Contract Documents.
    - c. The Contractor discovers what appears to be an omission from the Contract Documents that cannot be reasonably inferred from the intent of the Contract Documents.
  - 2. Do not use the RFI form for the following, the Engineer will not reply and the RFI will be returned without action:
    - a. Product or material substitution.
    - b. Questions relating to construction means, methods, techniques, sequences, procedures, or safety precautions. These are the Contractor's responsibilities exclusively.
    - c. Questions relating to construction schedule, coordination between trades, or division of work among subcontractors. These are Contractor's responsibilities exclusively.
    - d. Questions on contract administration procedural matters unless they require interpretation or clarifications of the Contract Documents.
    - e. Dimensions or quantities which are shown on the Contract Documents, which can be measured or calculated from the information contained in the Contract Documents where such measurement or calculation is standard construction industry practice.
    - f. Confirmation of interpretations or clarifications previously provided by the Engineer.
    - g. The Contractor shall not initiate requests for interpretations or clarifications of the Contract Documents which can be reasonably derived from a review of the Contract Documents.
    - h. The Contractor shall not submit an RFI that suggests specific portions of the Contract Documents are assumed to be excluded or by taking an isolated portion of the Contract Documents in part rather than whole.
- D. Route: RFI's in same manner as correspondence.
- E. Clarifications may be discussed on-site or by telephone with Engineer. The essence of these discussions are to be incorporated into a RFI form and submitted for normal RFI processing.
- F. Reply
  - 1. Engineer will endeavor to reply to all RFIs promptly as their work schedule allows and generally no later than fourteen (14) calendar days from the day received. Engineer will

expedite those RFIs indicated by the Contractor as being critical to the construction process.

2. When an RFI involves a complex subject, extensive research or governmental agency contact, the Engineer will inform the Contractor that additional time is required to prepare a reply. The Contractor shall cooperate and agree to reasonable additional time.
3. The reply shall be a clarification or an interpretation of the Contract Documents; the reply is not an authorization of change in the Contract Sum or Time.
4. Should the Contractor proceed with the work affected before receipt of a response from the Engineer, within the response times specified above, Contractor will be proceeding at their own risk.

#### 1.6 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site weekly, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Engineer of scheduled meeting dates and times.
2. Agenda & Minutes will be prepared by the Engineer, reviewed and approved by the Owner.
  - a. As an option, the Owner may have their own project manager prepare the agenda and minutes.

B. Pre-construction Conference: The Engineer will schedule a pre-construction conference before starting construction no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Engineer, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
  - a. Tentative construction schedule.
  - b. Critical work sequencing such as water main tie-in
  - c. Confirm pipe reducer sizing
  - d. Designation of responsible personnel.
  - e. Procedures for processing field decisions and Change Orders.
  - f. Procedures for processing Applications for Payment.
  - g. Procedures for processing Requests for Information (RFI)
  - h. Distribution of the Contract Documents.
  - i. Submittal procedures, and submittal schedule.
  - j. Preparation of Record Documents.
  - k. Project Management Software, access, use, and file share processes.
  - l. Use of the premises.
  - m. Responsibility for temporary facilities and controls.
  - n. Parking availability.
  - o. Office, work, and storage areas.
  - p. Equipment deliveries and priorities.

- q. Contractor's Safety Plan.
  - r. Contractor's Quality Control system or plan.
  - s. First aid.
  - t. Security.
  - u. Progress cleaning.
  - v. Working hours.
3. Contractor shall arrange and conduct pre-construction conference as required by all authorities having jurisdiction.
- C. Progress Meetings: Conduct progress meetings at weekly intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner and Engineer, contractor and active subcontractor, concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule:
      - 1) Review progress since the last meeting
        - a) Determine whether each activity is on time, ahead of schedule, or behind schedule
        - b) Determine how construction behind schedule will be expedited. Secure commitments from parties involved to do so
        - c) Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
    - b. Review Contractor's 3-week look ahead schedule
      - 1) A weekly look ahead schedule is required for each week that work is to be performed on the project.
        - a) The 3-week look ahead schedule shall show Contractor and subcontractor activities for the current week and for the next 2-weeks.
      - 2) The 3-week look ahead schedule shall show:
        - a) Description of work.
        - b) Who is performing the work.
        - c) Duration of work being performed, identifying the days each week the work will occur.
        - d) Sequence of work
        - e) Planned hours of work.
      - 3) The 3-week look ahead schedule is to be submitted by mid-week of the week preceding the scheduled work, or other mutually agreed upon submittal time.
    - c. Review present and future needs of each entity present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.

- 6) Access.
  - 7) Site utilization.
  - 8) Temporary facilities and controls.
  - 9) Work hours.
  - 10) Hazards and risks.
  - 11) Progress cleaning.
  - 12) Quality and work standards.
  - 13) Change Orders.
  - 14) Documentation of information for payment requests.
  - 15) Request for information.
  - 16) Neighborhood issues.
3. Reporting: Engineer shall distribute minutes of the meeting to each party present and to parties who should have been present.
  4. Schedule Updating:
    - a. The contractor shall update the Construction schedule after each progress meeting where revisions to the schedule have been made or recognized.
    - b. The contractor shall update the 3-week look ahead schedule for each weekly meeting.
    - c. The contractor shall issue a revised schedule at the next weekly meeting.
- D. Project Closeout Meetings
1. For the purpose of attaining project closeout, commencing immediately following established date of Substantial Completion, Contractor's project manager and superintendent and all subcontractors who have outstanding punch list items associated with their work, or as otherwise requested and including all subcontractors involved in the building systems commissioning process, shall attend weekly closeout meetings which shall be held at the jobsite.
  2. Such meetings shall be held to review and discuss the resolution of all punch list items in order to attain Final Completion. Closeout meetings shall continue on a weekly basis until all punch list items have been resolved and Final Completion is attained.
- E. Additional Meetings
1. Coordinate weekly site visits for the Engineer and Owner. Provide staff knowledgeable about current progress of the Work during the site visits as needed.
  2. As the construction progresses, additional meetings may be required. These may be called at the direction of or by the Engineer.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Preliminary Construction Schedule.
  - 2. Contractor's Construction Schedule.
  - 3. Submittals Schedule.
  - 4. Daily construction reports.
  - 5. Field condition reports.
- B. Related Sections include the following:
  - 1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
  - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
  - 3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
  - 4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections
  - 5. Division 01 Section "Closeout Procedures" for coordinating Contract closeout and record documents.

**1.3 DEFINITIONS**

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
  - 2. Predecessor activity is an activity that must be completed before a given activity can be started.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- C. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Event: The starting or ending point of an activity.
- E. Float: The measure of leeway in starting and completing an activity.
- F. Milestone: A key or critical point in time for reference or measurement.

**1.4 SUBMITTALS**

- A. Submittals Schedule: Submit two copies of schedule. Arrange the following information in a tabular format:
  - 1. Scheduled date for first submittal.
  - 2. Specification Section number and title.
  - 3. Submittal category (action or informational).
  - 4. Name of subcontractor.
  - 5. Description of the Work covered.
  - 6. Scheduled date for Architect's final release or approval.
- B. A Preliminary Progress Schedule shall be submitted by the Contractor no later than ten (10) days after the issuance of the Notice to Proceed for construction, may be in bar chart format, and shall represent the sequence in which Contractor proposes to perform major portions of work, and shall include all milestones indicated in the Contract Documents. The Preliminary Construction Schedule shall be replaced by the Baseline Construction Schedule, as described in this Section.
- C. Preliminary Construction Schedule: Submit two printed copies and electronic file including a ".PDF" formatted file.
- D. Contractor's Construction Schedule: Submit two printed copies of initial schedule large enough to show entire schedule for entire construction period. Submit additional electronic files in project scheduling program file format and include a ".PDF" formatted file.
- E. Daily Construction Reports: Submit copies at weekly intervals.

**1.5 QUALITY ASSURANCE**

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting.
- B. Pre-scheduling Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:
  - 1. Review software limitations and content and format for reports.
  - 2. Review delivery dates for Owner-furnished products.
  - 3. Review time required for review of submittals and re-submittals.
  - 4. Review requirements for tests and inspections by independent testing and inspecting agencies.
  - 5. Review time required for completion and startup procedures.
  - 6. Review and finalize list of construction activities to be included in schedule.
  - 7. Review submittal requirements and procedures.
  - 8. Review procedures for updating schedule.

**1.6 COORDINATION**

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from parties involved.
  - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

## PART 2 - PRODUCTS

### 2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, re-submittal, shop drawings, ordering, manufacturing, fabrication and delivery when establishing dates.
  - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
  - 2. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

### 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for the "Notice to Proceed" to date of Final Completion.
  - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
  - 1. Activity Duration: Define activities so no activity is longer than 14 days, unless specifically allowed by Architect.
  - 2. Submittal Review Time: Include review and re-submittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.
  - 1. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
  - 2. Owner-Furnished Products: Include a separate activity for each product. Include delivery date. Delivery dates indicated stipulate the earliest possible delivery date.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, 25% Completion, 50% Completion, 75% Completion Substantial Completion and Final Completion.
- F. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules. Acceptable software are:
  - 1. Microsoft; Projects

2. Primavera Systems, Inc.; Sur Trak
3. Asta Powerproject

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. Preliminary Network Diagram: Submit diagram within 7 days of date established for the Notice to Proceed. Outline significant construction activities for the first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- B. CPM Schedule: Prepare Contractor's Construction Schedule using a CPM network analysis diagram.
  1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 15 days after date established the Notice to Proceed.
  2. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
- C. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.
  1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
    - a. Preparation and processing of submittals.
    - b. Purchase of materials.
    - c. Delivery.
    - d. Fabrication.
    - e. Mockups and pre-installation meetings as specified in the various technical specification sections.
    - f. Installation.
    - g. Testing and start up activities.
    - h. All activities for project close-out as specified in Division 01 Section "Closeout Procedures".
    - i. Approvals, coordination and inspections required by inspection agencies, regulatory agencies, commissioning agents, or other third parties.
  2. Processing: Process data to produce output data or a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
  3. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
  4. Software attributes and switches:
    - a. Use retained logic.
    - b. Calculate start-to-start lag from early start.
    - c. Durations are to be calculated as contiguous versus interruptible.
    - d. Calculate total float as finish float.
- D. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:
  1. Contractor or subcontractor and the Work or activity.
  2. Description of activity.
  3. Principal events of activity.
  4. Immediate preceding and succeeding activities.
  5. Early and late start dates.
  6. Early and late finish dates.
  7. Activity duration in workdays.

8. Total float or slack time.

E. Schedule Updating:

1. Schedule to be saved and issued as a tracking schedule. Baseline to be based on notice to proceed date.
2. Contractor to submit electronically updated schedule in PDF and native file formats (such as .xer, .mpp) to Architect and Owner's Project Manager at minimum once per month.
3. Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
  - a. Identification of activities that have changed.
  - b. Changes in early and late start dates.
  - c. Changes in early and late finish dates.
  - d. Changes in activity durations in workdays.
  - e. Changes in the critical path.
  - f. Changes in total float or slack time.
  - g. Changes in the Contract Time.
  - h. Include activities that represent work resulting from an Owner Approved Change Order Proposal. Include the Change Order Proposal Number as part of the activity ID or description.

2.4 DELAYS AND EXTENSIONS

- A. When the Contractor experiences change orders or delays and the Contractor requests an extension of time, the Contractor shall submit to the Owner's Project Manager a Time Impact Analysis illustrating the impact of each change or delay on the current contract schedule completion date.
- B. Extensions of time for performance as allowed under the Contract will be granted only to the extent that such revisions cause the time for the changed activity and related activities to exceed the total float along the affected path of activities at the time of Notice to Proceed of a Change Order or the commencement of any delay or condition for which an adjustment is warranted under the Contract Documents. Time extensions shall be properly apportioned into compensable and non-compensable delays when the Contractor and the Owner concurrently cause the delay. Time extension will be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total float along the most critical path of the activities at the time of actual delay.
- C. Each Time Impact Analysis shall be submitted within ten (10) working days after a delay occurs or notice of direction for proceeding with a Change is given to the Contractor. If the Contractor does not submit a Time Impact Analysis within the specified time period, the Contractor's rights to any additional time and cost are waived.
- D. Approval or rejection of each Time Impact Analysis shall be made within ten (10) working days after receipt, unless subsequent meetings and negotiations are necessary. If the Owner fails to respond within the ten (10) working day period, the Time Impact Analysis shall be considered to be rejected. A copy of the approved Time Impact Analysis shall be incorporated into a Change Order signed by the Architect and Owner. The changes to the schedule will be incorporated into the Progress Schedule during the first update after an agreement is reached on the time extension.
- E. A Time Impact Analysis is an evaluation of the effects of changes in the construction sequence, contract, plans, or site conditions on the Contractor's plan for constructing the project, as represented by the schedule. Time Impact Analysis shall consist of all the steps listed below:
  1. A descriptive summary of the changes

2. Establish the status of the project before the impact using the most recent project schedule update prior to the impact occurrence. Based on the current adjusted schedule, excusable delays for which time extensions may still be pending, job conditions encountered, and the progress achieved up to the point in time when the present delay occurs.
3. Identify all contracting parties who are affected by direct or indirect delay.
4. Predict the effect of the impact on the most recent project schedule update prior to the impact occurrence. This requires estimating the duration of the impact and inserting the impact into the schedule update. The Contractor shall demonstrate how the impact was inserted into the schedule using the fragment. This is the presentation of a fragmentary portion of the schedule network showing the added or modified activities and the added or modified relationships. Any other changes made to the schedule including modifications to the calendars or constraints shall be noted.
5. Track the effects of the impact on the schedule during its occurrence. Note any changes in sequencing and mitigation efforts.
6. Compare the status of the work prior to the impact to the prediction of the effect to the impact, and to the status of the work during and after the effects of the impact are over.

## 2.5 REPORTS

- A. Daily Construction Reports: Submit form and format for review.
  1. Distribute daily construction reports to the Architect on a weekly basis.
  2. Prepare a daily construction report recording the following information concerning events at Project site:
    - (i) List of subcontractors at Project site.
    - (i) List of separate contractors at Project site.
    - (ii) Approximate count of personnel at Project site.
    - (iii) High and low temperatures and general weather conditions.
    - (iv) Accidents.
    - (v) Meetings and significant decisions.
    - (vi) Unusual events (refer to special reports).
    - (vii) Stoppages, delays, shortages, and losses.
    - (viii) Emergency procedures.
    - (ix) Orders and requests of authorities having jurisdiction.
    - (x) Change Orders received and implemented.
    - (xi) Construction Change Directives received.
    - (xii) Services connected and disconnected.
    - (xiii) Equipment or system tests and startups.
    - (xiv) Partial Completions.
    - (xv) Completions authorized.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update baseline schedule to reflect actual construction progress and activities.

1. Save monthly updated schedule as PDF and send electronically to Architect and Owner's Project Manager. Include a copy of the native file format (such as .xer, .mpp).
  2. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  3. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  4. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
  2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

### 3.2 SCHEDULE REVIEW MEETINGS

#### A. CPM PROJECT SCHEDULE REVIEW MEETING

1. A monthly meeting shall be held with the Contractor, Architect, and Owner's Project Manager to reconcile status of the Work and to determine ownership of any negative total float. The Owner's Project Manager shall facilitate the meeting, provide an agenda and shall take and issue meeting minutes. The meeting will be held within seven calendar days after receipt of the Contractor's monthly CPM Schedule update, including the schedule narrative. The purpose of the meeting is to review the following:
  - a. Analysis of the CPM Schedule progress reported
  - b. Present the findings of the Owner's analysis
  - c. Status of work in progress
  - d. Identify any out of sequence work activities
  - e. Evaluate impacts of changes to the schedule as presented by the Contractor
  - f. Evaluate and discuss time impact analysis occurring during the month
  - g. Evaluate and discuss any delays, or potential delays
  - h. Evaluate and discuss mitigation efforts to Owner caused delays
  - i. Evaluate and discuss actions the Contractor could have taken to avoid delays.
  - j. This meeting does not supersede the contract requirements for the Contractor from submitting Time Impact Analysis.

END OF SECTION

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for the following:
1. Preconstruction photographs.
  2. Periodic construction photographs.
  3. Video Construction Monitoring
  4. Final Completion construction photographs.
- B. Related Sections include the following:
1. Division 01 Section "Submittal Procedures" for submitting photographic documentation.
  2. Division 01 Section "Project Management and Coordination" for Contractor's Project Management Software Program photographic documentation requirements.
  3. Division 01 Section "Closeout Procedures" for submitting digital media as Project Record Documents at Project closeout.

**1.3 SUBMITTALS**

- A. Contractor to provide Key Plan and photographs of work progress as described below:
1. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation of construction. Include same label information as corresponding set of photographs.
  2. Construction Photographs: Provide via Contractor's Project Management Software Program.
  3. Format: Digital image ".JPEG" file format. Provide images that have same aspect ratio as the sensor, uncropped
  4. Identification: Identify each file with the following naming:
    - (i) Name of Project. (NAME OF PROJECT)
    - (ii) Photo date (date taken MMDDYY).
    - (iii) Name of Contractor (Acronym).
    - (iv) Description of vantage point, (number from key plan, compass point and elevation).
    - (v) Description of work if not on key plan.
  5. Final Submittal of Digital Images: Submit a complete set of digital image electronic files by transmission method approved by Engineer.

**PART 2 - PRODUCTS**

**2.1 PHOTOGRAPHIC MEDIA**

- A. Photographic quality: Contractor to provide clear and recognizable photographs of a file size noted above to allow viewing of images both in printed form and digitally.

**PART 3 - EXECUTION**

3.1 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
- B. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
  - 1. Date and Time: Include date and time in filename for each image.
- D. Preconstruction Photographs: Before commencement of Work or other site work, take digital photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Engineer.
  - 1. Flag construction limits before taking construction photographs.
  - 2. Take photographs of existing conditions on or adjoining property to accurately record physical conditions at start of construction.
- E. Periodic Construction Photographs: Take daily, coinciding with the cutoff date associated with each Application for Payment. Vantage points indicated on Key plan to show status of construction and progress since last photographs were taken.
- F. Take photos of unusual conditions or areas requiring additional information associated with Contractor's Request for Information, Engineers Supplemental Information, Engineer's Proposal Requests, and Change Orders.
- G. Final Completion Construction Photographs: Take at least 36 digital photographs after date of Substantial Completion for submission as Project Record Documents.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections:
  - 1. See Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule.
  - 2. See Division 01 Section "Quality Requirements" for submitting test and inspection reports and for mockup requirements.
  - 3. See Division 01 Section "Closeout Procedures" for submitting warranties; for submitting Record Drawings, Record Specifications, and Record Product Data; and for submitting operation and maintenance manuals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. General: Issue complete Submittals at the earliest possible date.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

- a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 21 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be withheld for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow 14 days for review of each resubmittal.
- E. Electronic Submittals: Identify and incorporate information as follows:
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Name file with submittal number or other unique identifier, including revision identifier.
    - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., Project Name-09 10 00.01). Re-submittals shall include an alphabetic suffix after another decimal point (e.g., Project Name-09 10 00.01.A).
  3. Provide a means for insertion to record Contractor's review and approval markings and action taken by Engineer.
  4. Transmittal Form for Electronic Submittals: Use software-generated form from the Project Management Software Program or electronic form acceptable to Engineer, containing the following information::
    - a. Project name.
    - b. Date.
    - c. Name and address of Engineer.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Submittal number or other unique identifier, including revision identifier.
      - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).
    - i. Number and title of appropriate Specification Section.
    - j. Drawing number and detail references, as appropriate.
    - k. Location(s) where product is to be installed, as appropriate.
    - l. Other necessary identification.
- F. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

- G. Additional Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
1. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using its own transmittal form. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item. Engineer will return submittals, without review, received from sources other than Contractor.
1. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
- I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
  2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  3. Note on the transmittal the page numbers of the submittal that were modified in any way from the previous submittal or those pages that have been added.
  4. Resubmit submittals until they are marked "Approved as noted."
- J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating "Reviewed as noted" or "Reviewed" taken by Engineer.

#### 1.5 CONTRACTOR'S USE OF ENGINEER'S ELECTRONIC DRAWING FILES

- A. General: At Contractor's written request, copies of Engineer's electronic drawing files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:
1. Release of electronic drawing files will be restricted to the following categories:
    - a. Floor plans.
    - b. Site plan.
    - c. Reflected ceiling plans.
    - d. Exterior elevations.
    - e. Requests for additional files will be considered by the Engineer.
  2. Request documents by submitting an executed copy of the Electronic Transfer Form, as provided by the Engineer. Use of such documents implies Contractor's and subcontractors' agreement to the terms described on the form. Fully describe requirements for each request.
  3. The Engineer's Stamp will not be included with the transferred electronic files.

4. The Owner nor Engineer shall make no warranties regarding the accuracy transferred electronic file data. The electronic files are not Contract Documents. Where discrepancies exist between the electronic files and the Contract Documents, the Contract Documents shall solely be relied upon.

## PART 2 - PRODUCTS

### 2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Manufacturer's catalog cuts.
    - e. Wiring diagrams showing factory-installed wiring.
    - f. Printed performance curves.
    - g. Operational range diagrams.
    - h. Compliance with specified referenced standards.
    - i. Testing by recognized testing agency.
  4. Number of Copies: Submit at least four copies of Product Data, unless otherwise indicated. Engineer will return three copies, Contractor to retain one returned mark up copy as a Project Record Document to be included with final closeout documents.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal of Engineer's CAD Drawings is otherwise permitted.
  1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - f. Shopwork manufacturing instructions.
    - g. Templates and patterns.
    - h. Schedules.
    - i. Notation of coordination requirements.
    - j. Notation of dimensions established by field measurement.

- k. Relationship to adjoining construction clearly indicated.
      - l. Seal and signature of professional engineer if specified.
      - m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
    2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
    3. Number of Copies: Submit one (1) electronic copy.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
  1. Submit samples for color selection concurrent with all other product submittals requiring color submittals for comparison and selection. Engineer maintains the right to hold on to color sample submittals until all color submittals are received.
  2. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  3. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of appropriate Specification Section.
  4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
  5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit two (2) full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Engineer will return submittal with options selected.
    - b. Quality of Samples: Manufacturer color charts, brochures or sample rings must be in their original physical form. Due to the color variance of computer monitors and printers, color selections will not be made from reproductions of manufacturer color charts including, but not limited to photocopies, photographs, PDF's, websites, or other virtual forms.
    - c. Color Selection: The Contractor shall submit all color related product information prior to the Engineer's review and selection of colors. Items required prior to color selection include, but are not limited to, floor covering, paint, stain, plastic laminate, rubber base, storefront and windows, rigid sheet panel, tile, etc. The Contractor shall allow for time in their schedule for selection of colors.
  6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Number of Samples: Submit three sets of Samples. Engineer will retain two Sample sets; remainder will be returned.

- E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.
  - 1. Number of Copies: Submit three copies of product schedule or list, unless otherwise indicated. Engineer will return two copies.
- F. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."
- H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."
- I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.
  - 1. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Engineer will return two copies.

## 2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
  - 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Engineer will not return copies.
  - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  - 3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Engineers and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure

Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Closeout Procedures."

- Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- R. Certificates: Written certification, signed by the manufacturer's representative, supplier or contractor. Indicate that the material or product conforms to or exceeds specific requirements including LEED criteria.
- S. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- T. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Statement on condition of substrates and their acceptability for installation of product.
  2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
- U. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- V. Safety Data Sheets (SDSs): Submit information directly to Owner; do not submit to Engineer.
1. Engineer will not review submittals that include SDSs and will return them for resubmittal.

### 2.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
  - 1. Contractor's shall sign and stamp each submittal utilizing the following stamp language to certify review and compliance with the Contract Documents:
    - a. "Contractor has reviewed and certified this submittal for compliance with the requirements of the Work and Contract Documents, including product verification, related Work and information coordination. Contractor shall field verify related dimensions prior to fabrication"
  - 2. Deviations: Highlight, encircle or otherwise identify deviations from the Contract Documents on submittals.

3.2 ENGINEER'S ACTION

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- C. Informational Submittals: Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
- D. **Partial submittals are not acceptable**, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality-control services.
- B. Quality control services include monitoring, inspections, tests and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Engineer.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services DO NOT relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
  - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified inspections, tests and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 01 Section "Submittal Procedures" specifies requirements for development of a schedule of required tests and inspections.

1.3 RESPONSIBILITIES

- A. Owner Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, the owner will employ and pay a qualified independent testing agency to perform inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are not included in the Contract Sum.

1. Owner Testing Laboratory inspection, sampling and testing is required, per International Building Code and/or Washington State Building and Energy Codes, in the following sections, and as noted on the Engineering, Structural and Civil Drawings:
  - a. Division 02 - Earthwork.
  - b. Division 02 - Paving.
  - c. Division 03 - Concrete.
  
- B. Contractor Responsibilities: The contractor shall cooperate with agencies performing required inspections, tests and similar services, and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to, the following:
  1. Provide access to the Work, including to the shops where work is in preparation as needed for inspections which require such access.
  2. Conduct preconstruction meetings with each agency with the Owner and A/E present.
  3. Conduct preinstallation meetings as required by specification sections. Agencies shall attend when work is related to the agency's services.
  4. Furnish incidental labor and facilities necessary to facilitate inspections and tests.
  5. Take adequate quantities of representative samples of materials that require testing or assist the agency in taking samples.
  6. Provide facilities for storage and curing of test samples.
  7. Deliver samples to testing laboratories.
  8. Provide the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
  9. Provide security and protection of samples and test equipment at the Project Site.
  10. At Contractor's expense, uncover any portion of the Work that was covered prior to inspection for which an inspection or other testing is required by the Contract Documents.
  
- C. Material Safety Data: The Contractor is responsible for the provision of adequate written substantiation of the physical properties and proper handling of specified materials and products prior to use. Such written substantiation shall be maintained on site in an orderly manner. The cost of providing such substantiation shall be paid by the Contractor.
  
- D. Coordination: The contractor shall coordinate the sequence of activities to accommodate required services with a minimum of delay. Coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
  1. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities. Testing requirements shall be determined by the Engineer in accordance with the International Building Code, and all Authorities Having Jurisdiction.
  2. Contractor shall include a schedule of required inspections on the project schedule

3. Re-inspections shall be documented and will be billed back to the Contractor by change order

#### 1.4 SUBMITTALS

- A. The independent testing agency shall submit a certified written report of each inspection, test or similar service to the Engineer, Project Manager, Owner, Building Official, Contractor and Structural Engineer.
  1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
  2. Report Data: Written reports of each inspection, test or similar service include, but are not limited to, the following:
    - a. Date of issue.
    - b. Project title and number.
    - c. Name, address and telephone number of testing agency.
    - d. Dates and locations of samples and tests or inspections.
    - e. Names of individuals making the inspection or test.
    - f. Designation of the Work and test method.
    - g. Identification of product and Specification Section.
    - h. Complete inspection or test data.
    - i. Test results and an interpretation of test results.
    - j. Ambient conditions at the time of sample taking and testing.
    - k. Comments or professional opinion on whether inspected or tested Work complies with Contract Document requirements.
    - l. Name and signature of laboratory inspector.
    - m. Recommendations on re-testing.

#### 1.5 QUALITY ASSURANCE

- A. Qualifications for Service Agencies: The Owner shall engage inspection and testing service agencies, including independent testing laboratories, that are pre-qualified as complying with the American Council of Independent Laboratories' "Recommended Requirements for Independent Laboratory Qualification" and that specialize in the types of inspections and tests to be performed.
  1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

#### 1.6 CONTRACTOR QUALITY CONTROL PLAN

- A. Quality Control Plan: The Contractor shall submit its quality control plan to the Engineer and Owner for review prior to the Preconstruction Meeting as described in Division 01 Section "Project Management and Coordination." Allow fifteen (15) working days after receipt for Owner review and comments. The plan shall include the following elements:

1. A statement of how the plan will operate and a supporting organization chart to show the individual on the Contractor's staff responsible for implementing and controlling the plan and staffing of the testing and inspection activities.
2. A coordination plan showing how the efforts of the Contractor's quality control staff will be coordinated with the Owner's retained special inspectors, and engineers.
3. Procedures for tracking Contractor identified construction deficiencies, from identification through corrective action and establishing verification that deficiencies have been corrected.
4. Draft copy of Contractor's Quality Control Daily Report: Report shall include entries for identifying weather conditions (temperature, dry, wet, amount of rain), trade activities (classification of workers within the trade, staffing number for each trade, what work trade was performing on the project), equipment on site (rented and Contractor owned, what equipment was being used for each day), important communications with Owner, A/E, Inspectors, Supplier or specific Trade, factual record containing specification reference for the Work being performed, and quality control activities.
5. Procedure for tracking and inspecting "As-Built" plans.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for Division 01 Section "Cutting and Patching".
- B. Protect construction exposed by or for quality-control service activities and protect repaired construction.
- C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.
- D. Repairs or corrective work due to a failing test is the responsibility of the Contractor at no additional cost to the owner.
- E. Additional testing for failed tests is the responsibility of the Contractor at no additional cost to the Owner until all tests are completed successfully.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Comply with and give notices as required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work.
- B. Regulatory requirements include modifications, amendments, additions, and the like, current as of the date of these documents.
- C. Referenced codes establish minimum requirement levels. Where provisions of various codes or standards conflict, more stringent provisions govern. Promptly submit to the Engineer written notice of observed variations from legal requirements in Contract Documents.
- D. Compliance requirements include, but are not necessarily limited to:
  - 1. Washington Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction
  - 2. City of Kirkland Pre-approved Plans
  - 3. International Building Code (IBC), International Existing Building Code (IEBC) and related Standards, applicable editions, published by International Conference of Building Officials, and amended by the local Authorities Having Jurisdiction (AHJ).
    - a. Washington state amendments (WAC 51-50)
  - 4. Mechanical Work:
    - a. International Mechanical Code (IMC), applicable edition and state amendments (WAC 51-52).
    - b. Uniform Plumbing Code, applicable edition and state amendments (WAC 51-56).
      - 1) Uniform Plumbing Code Appendix A, B, and Appendix I, applicable edition state amendments (WAC 51-57)
    - c. International Fuel & Gas Code (IFGC), applicable edition and state amendments (WAC 51-52).
  - 5. Electrical Work:
    - a. Underwriters' Laboratories (UL).
    - b. National Electrical Manufacturers Association (NEMA).
    - c. NFPA 70, National Electrical Code (NEC), National Electrical Safety Code, and above listings as applicable.

- d. State Electrical Construction Code (WAC 296-46B).
  6. International Fire Code (IFC), applicable edition and state amendments (WAC 51-54).
  7. Life Safety Code, NFPA 101.
  8. Local County Ordinances and Codes
  9. Energy Requirements: Washington State Energy Code (WSEC), applicable Edition. Comply with insulation and energy conservation requirements of local State and City Authorities Having Jurisdiction.
    - a. Washington state amendments (WAC 51-11)
  10. National Fire Protection Association (NFPA) Codes.
  11. ICC/ANSI 117.1-2017 (Accessible Standards + Chapter 10&11 of the IBC)
  12. Americans with Disabilities Act of 1994.
  13. Fire Doors/Windows, NFPA 80-2013.
  14. Rules and Regulations for the Washington State Department of Health.
  15. Department of Labor and Industries Regulations, (WAC 296) including General Safety and Health Standards, (WAC 296-24).
  16. OSHA regulations and standards.
  17. Washington Survey and Rating Board.
  18. Environmental Requirements: Work to be performed in compliance with relevant statutes and regulations dealing with prevention of environmental pollution and preservation of public natural resources.
  19. Washington State Department of Ecology. (DOE)
  20. Applicable State Department of Transportation Codes and Specifications.
  21. American Society for Testing and Materials (ASTM).
  22. Factory Mutual (FM).
- E. Drawings and Specifications govern whenever Drawings and Specifications require higher standards than are required by governing codes, regulations, and ordinances.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Engineer's action on Contractor's submittals, applications, and requests, "approved" is limited to Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Engineer. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Engineerural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
ADAAG	Americans with Disabilities Act (ADA) Engineerural Barriers Act (ABA)
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers
AI	Asphalt Institute
AIA	American Institute of Engineers (The)
AISC	American Institute of Steel Construction

AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	APA - The Engineered Wood Association
APA	Engineerural Precast Association
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industry International)
AWCMA	American Window Covering Manufacturers Association (Now WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
BIFMA	BIFMA International

(Business and Institutional Furniture Manufacturer's Association International)

CCC	Carpet Cushion Council
CDA	Copper Development Association
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Construction Specifications Institute (The)
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA	Electronic Industries Alliance
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
FMG	FM Global (Formerly: FM - Factory Mutual System)
FMRC	Factory Mutual Research (Now FMG)
FSA	Fluid Sealing Association
GA	Gypsum Association
GANA	Glass Association of North America
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)

HPVA	Hardwood Plywood & Veneer Association
IAS	International Approval Services (Now CSA International)
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek
ITU	International Telecommunication Union
LEED	Leadership in Energy & Environmental Design
LMA	Laminating Materials Association (Now part of CPA)
LPI	Lightning Protection Institute
MFMA	Metal Framing Manufacturers Association
MH	Material Handling (Now MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Engineeural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAIMA	North American Insulation Manufacturers Association

NBGQA	National Building Granite Quarries Association, Inc.
NCMA	National Concrete Masonry Association
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association
NFPA	National Fire Protection Association
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute

SDI	Steel Deck Institute
SDI	Steel Door Institute
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SSINA	Specialty Steel Industry of North America
SSPC	The Society for Protective Coatings
STI	Steel Tank Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society
TRI	Tile Roofing Institute (Formerly: RTI - Roof Tile Institute)
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
WAC	Washington Administrative Code
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association (Now WCSC)
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WHI	Warnock – Hersey (now ETL Semco or InterTek)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WIC	Woodwork Institute of California (Now WI)

**CITY OF KIRKLAND  
TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION**

**SECTION 01 42 00  
REFERENCES**

WMMPA Wood Moulding & Millwork Producers Association  
WSRCA Western States Roofing Contractors Association  
WWPA Western Wood Products Association  
IAPMO International Association of Plumbing and Mechanical Officials  
ICBO International Conference of Building Officials (See ICC)  
ICBO ES ICBO Evaluation Service, Inc. (See ICC-ES)  
ICC International Code Council  
ICC-ES ICC Evaluation Service, Inc.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. See Division 01 Section "Execution" for progress cleaning requirements.
- C. See Divisions 02 through 18 Sections for temporary heat, ventilation, and humidity requirements for products in those Sections.

1.3 DEFINITIONS

- A. Permanent Enclosure: As determined by Engineer, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Engineer, testing agencies, and authorities having jurisdiction.

1.5 SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
  - 1. Contractor to review site plan lay down areas, fencing, staging, access, use of site and other site related uses with Owner and Design Team at pre-construction meeting prior to start of work.

1.6 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.7 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.
- B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
  - 1. Keep temporary services and facilities clean and neat.
  - 2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portable Chain-Link Fencing and Entry/Access Gates: Minimum 2-inch, 9-gauge, galvanized steel, chain-link fabric fencing; minimum 6-feet high with galvanized steel pipe posts and rails and concrete bases for supporting posts.
- B. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- C. Water: Potable.

2.2 TEMPORARY FACILITIES

- A. General: Provide equipment suitable for use intended.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations as necessary.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
  - 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filters, in addition to air handling equipment filters, with MERV of 8 at each return air grille in system and remove at end of construction.
    - a. If HVAC system is used by Contractor the HVAC warranty shall start on the date the project is substantially complete and project has received either a certificate of occupancy or a temporary certificate of occupancy from the governing agency.
- C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully-enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water, drinking-water units, including paper cup supply.
- E. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110-to-120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
- F. Power Distribution System Circuits: Where permitted, and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- C. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
  - 1. Enclose and dry building by use of heaters/fans/etc. as required.
  - 2. Maintain a minimum temperature of 50 deg F in permanently enclosed portions of building for normal construction activities, and 65 deg F for finishing activities and areas where finished Work has been installed.
- D. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- E. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
  - 1. Install electric power service overhead, unless otherwise indicated.
  - 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
  - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas in same location as permanent roads and paved areas. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

**TEMPORARY REGIONAL BOOSTER PUMP STATION    TEMPORARY FACILITIES AND CONTROLS  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION**

1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
  2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Division 2 "Earthwork."
  3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
- C. Parking: Provide temporary parking areas for construction personnel.
- D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
1. Comply with the requirements of specification section 01 57 00.
  2. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
  3. Remove snow and ice as required to minimize accumulations.
- E. Project Identification and Temporary Signs: Provide Project identification and other signs as required by the Authorities Having Jurisdiction, or the Contract Documents. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
1. Provide temporary, directional signs for construction personnel and visitors.
  2. Maintain and touchup signs so they are legible at all times.
- F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Such facilities shall be in accordance with the requirements of specification Section 01 74 19 and shall comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements.
- G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION
- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

**TEMPORARY REGIONAL BOOSTER PUMP STATION    TEMPORARY FACILITIES AND CONTROLS  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION**

- B. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction, and specification Section 01 57 13.
- C. Stormwater Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- D. Site Enclosure Fence: Before construction operations begin, inspect site enclosure fence to assure that it will prevent people and animals from easily entering site except by entrance gates.
  - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations and protection.
    - a. Refer to Section 01 56 39 "Temporary tree and plant protection" for additional requirements.
  - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with one set of keys.
- E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
  - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

**3.5 OPERATION, TERMINATION, AND REMOVAL**

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
  - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may

have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section includes the following administrative and procedural requirements: application of traffic control measures.

**1.3 SUBMITTALS**

- A. Submit Traffic Control Plan or Plans showing a method of handling traffic, including pedestrian and bicycle traffic. All construction signs, flaggers, spotters and other traffic control devices shall be shown on the traffic control plan(s) except for emergency situations.

**1.4 QUALITY ASSURANCE**

- A. Any traffic control activities required during construction shall be consistent with the Uniform Traffic Control Manual, latest edition and applicable local codes.
- B. If flaggers are used, orientation meetings per WAC 296-155-305 of the Standard Specifications shall be held each time a new flagger is introduced to the site or if site conditions change significantly. The Contractor is responsible for scheduling such meetings.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION**

**3.1 TRAFFIC CONTROL EXECUTION**

- A. The Contractor shall limit delay of traffic to 4 minutes.
- B. Two Portable Changeable Message Signs (PCMS) shall be provided for the duration of the project. Proposed locations shall be shown on Traffic Control Plan(s) submitted by the contractor. Contractor shall submit proposed message(s) to be displayed and receive approval by the Engineer prior to placement. Contractor is responsible for programming of the approved message into the PCMS('s), set-up, placement, and removal upon project completion.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
  - 1. Division 02-18 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process, as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

- D. **Manufacturer's Warranty:** Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
- E. **Special Warranty:** Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

#### 1.4 SUBMITTALS

- A. **Substitution Requests:** Submit one (1) copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
- B. It is the contractor's responsibility to show and prove to the Engineer that the product substitution being requested is equal or better than that specified. Sending product brochures and product data by itself is not acceptable. Contractor to show a clear side by side comparison of specified products with proposed substituted products.
  - 1. Substitution requests received that do not clearly show the comparisons referenced above will be rejected.
  - 2. Substitution Request Form: Use form provided at end of Section.
  - 3. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified material or product cannot be provided.
    - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified.
      - 1) Provide a single sheet matrix comparing significant qualities or attributes of the specified product and proposed substitution.
      - 2) Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
    - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    - e. Samples, where applicable or requested.
    - f. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners.
    - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.

- i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
  - j. Cost information, including a proposal of credit, if any, in the Contract Sum.
  - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
  - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
4. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Engineer will notify Contractor of acceptance or rejection of proposed substitution within 21 days of receipt of request, or 15 days of receipt of additional information or documentation, whichever is later.
- a. Form of Acceptance: Engineer's Acceptance.
  - b. Use product specified if Engineer is unable to make a decision on use of a proposed substitution within time allocated.
- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures". Show compliance with requirements.

#### 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  2. If a dispute arises between contractors over concurrently selectable but incompatible products, Engineer will determine which products shall be used.

#### 1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration and loss, including theft. Comply with manufacturer's written instructions.
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged or sensitive to deterioration, theft, and other losses.

3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
5. Store products to allow for inspection and measurement of quantity or counting of units.
6. Store materials in a manner that will not endanger Project structure.
7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation and weather-protection requirements for storage.
9. Protect stored products from damage.

- B. Storage: Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

#### 1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
  3. Refer to Division 01 Section "Closeout Procedures" for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

## PART 2 - PRODUCTS

### 2.1 PRODUCT OPTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners and other items needed for a complete installation and indicated use and effect.
  2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Where products are accompanied by the term "as selected," Engineer will make selection.
  5. Where products are accompanied by the term "match sample," sample to be matched is Engineer's.
  6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
  7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures: Procedures for product selection include the following:
1. Product: Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the product named.
    - a. Substitutions may be considered, unless otherwise indicated.
  2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.
    - a. Substitutions may be considered, unless otherwise indicated.
  3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
    - a. Substitutions may be considered, unless otherwise indicated.
  4. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
    - a. Substitutions may be considered, unless otherwise indicated.
  5. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements. Comply with

provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.

6. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product, by a named manufacturer. For a product by an unnamed manufacturer, submit a "substitution request" complying with the contract documents.
7. Product Options: Where Specification paragraphs titled "Product Options" indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide either the specific product or system indicated or a comparable product or system by another manufacturer. Comply with provisions in "Product Substitutions" Article.
8. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Product[s]" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product by a named manufacturer.
  - a. Substitutions may be considered, unless otherwise indicated.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Engineer's sample. Engineer's decision will be final on whether a proposed product matches satisfactorily.
  - a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on "substitutions" for selection of a matching product.
10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.
  - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Engineer will select color, pattern or texture from manufacturer's product line that does not include premium items.
  - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Engineer will select color, pattern or texture from manufacturer's product line that includes both standard and premium items.
11. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 01 for allowances that control product selection and for procedures required for processing such selections.

## 2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Engineer will consider requests for substitution if received within 45 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Engineer.
  
- B. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
  - 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, sustainability, compliance with intent and requirements, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Owner and similar considerations.
  - 2. Requested substitution does not require extensive revisions to the Contract Documents.
  - 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
  - 4. Substitution request is fully documented and properly submitted.
  - 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
  - 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
  - 7. Requested substitution is compatible with other portions of the Work.
  - 8. Requested substitution has been coordinated with other portions of the Work.
  - 9. Requested substitution provides specified warranty.
  - 10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products and is acceptable to all contractors involved.

### 2.3 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product (where a manufacturer is not named, the product substitution process is required):
  - 1. Evidence that the proposed product does not require extensive revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  - 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, sustainability, weight, size, durability, visual effect, and specific features and requirements indicated.

3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION

**SUBSTITUTION REQUEST**

Project: \_\_\_\_\_ Substitution Request Number: \_\_\_\_\_

From: \_\_\_\_\_

To: \_\_\_\_\_ Date: \_\_\_\_\_

A/E Project Number: \_\_\_\_\_

Re: \_\_\_\_\_ Contract For: \_\_\_\_\_

Specification Title: \_\_\_\_\_ Description: \_\_\_\_\_

Section: \_\_\_\_\_ Page: \_\_\_\_\_ Article/Paragraph: \_\_\_\_\_

Proposed Substitution: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Trade Name: \_\_\_\_\_ Model No.: \_\_\_\_\_

Installer: \_\_\_\_\_ Address: \_\_\_\_\_ Phone: \_\_\_\_\_

History: \_\_ New product \_\_ 2-5 years old \_\_ 5-10 years old \_\_ More than 10 years old

Differences between proposed substitution and specified product: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Point-by-point comparative data attached – REQUIRED BY A/E

Reason for not providing specified item: \_\_\_\_\_

\_\_\_\_\_

Similar Installation:

Project: \_\_\_\_\_ Architect: \_\_\_\_\_

Address: \_\_\_\_\_ Owner: \_\_\_\_\_

\_\_\_\_\_ Date Installed: \_\_\_\_\_

Proposed substitution affects other parts of Work: \_\_ No \_\_ Yes; explain \_\_\_\_\_

\_\_\_\_\_

**CITY OF KIRKLAND  
TEMPORARY REGIONAL BOOSTER PUMP STATION  
HIGHLANDS TEMPORARY REGIONAL BOOSTER PUMP STATION**

**SECTION 01 61 00  
SUBSTITUTION REQUEST FORM**

Savings to Owner for accepting substitution: \_\_\_\_\_ (\$ \_\_\_\_\_)

Proposed substitution changes Contract Time: \_\_No \_\_Yes (Add) (Deduct) \_\_\_\_\_ days.

Supporting Data Attached: \_\_Drawings \_\_Product Data \_\_Tests \_\_Reports \_\_Other \_\_\_\_\_

The undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E, detailing, and construction costs caused by the substitution.
- Coordination, installation and changes in the work as necessary for accepted substitution will be complete in all respects.
- The undersigned agrees to pay costs associated with acceptance of proposed substitution necessitating changes to design, details, and construction, including associated architectural, engineering and consultant fees.

Submitted by: \_\_\_\_\_

Signed by: \_\_\_\_\_

Firm: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Attachments: \_\_\_\_\_

**A/E – REVIEW AND ACTION**

- Substitution approved – Make submittals in accordance with Specification Section 01 3300.
- Substitution approved as noted – Make submittals in accordance with Specification Section 01 3300.
- Substitution rejected – Use specified materials.
- Substitution Request received too late – Use specified materials.

Signed by: \_\_\_\_\_ Date: \_\_\_\_\_

Additional Comments: \_\_Contractor \_\_Subcontractor \_\_Supplier \_\_Manufacturer \_\_A/E \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

END OF SUBSTITUTION REQUEST FORM

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

- 1. Construction layout.
- 2. Field engineering and surveying.
- 3. General installation of products.
- 4. Coordination of Owner-installed products.
- 5. Progress cleaning.
- 6. Starting and adjusting.
- 7. Protection of installed construction.
- 8. Correction of the Work.

- B. Related Sections include the following:

- 1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
- 2. Division 01 Section "Closeout Procedures" for submitting final Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels and final cleaning.

**1.3 QUALITY ASSURANCE**

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
  - 1. Before construction, verify the location and points of connection of utility services.
  
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
  - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, infiltration system, and water-service piping; and underground electrical services.
  - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
  
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

**3.2 PREPARATION**

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
  
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Engineer and Owner not less than fourteen (14) days in advance of proposed utility interruptions.
  
- C. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  
- D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
  
- E. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Engineer. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

- F. It is the contractor's responsibility to pre-plan for construction staging, access, site maintenance and compliance with applicable codes, laws and local governing jurisdictions for working at an on the site.

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Engineer promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project. Maintain benchmarks throughout construction.
  - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 3. Inform installers of lines and levels to which they must comply.
  - 4. Check the location, level and plumb, of every major element as the Work progresses.
  - 5. Notify Engineer when deviations from required lines and levels exceed allowable tolerances.
  - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including but not limited to temporary and permanent access, pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer.

### 3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Engineer. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Engineer before proceeding.
  2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework. Include with record documents.

### 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
  2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise directed in writing by Engineer.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Engineer.
  2. Allow for building movement, including thermal expansion and contraction.
- G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

**3.6 OWNER-INSTALLED PRODUCTS**

- A. Site Access: Provide access to Project site for Owner's construction forces.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.
  - 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.

**3.7 PROGRESS CLEANING**

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

- G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
  - 1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.8 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

### 3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

### 3.10 CORRECTION OF THE WORK

- A. Repair or remove and replace defective or poorly installed work as it occurs. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, properly adjusting operating equipment and poorly installed work per the Engineers discretion.

- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
  - 1. Divisions 02 through 18 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
    - a. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 15, 16, and 17, Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

**1.3 DEFINITIONS**

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

**1.4 QUALITY ASSURANCE**

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety.
  - 1. Primary operational systems and equipment.
  - 2. Electrical wiring systems.
- C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, which results in reducing their capacity

to perform as intended, or that result in increased maintenance or decreased operational life or safety.

1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Equipment supports.
4. Piping, ductwork, vessels, and equipment.
5. Noise- and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Engineer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1. If possible, retain original Installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced and specialized firm.
  - a. Wood siding

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

## 1.5 WARRANTY

A. Existing Warranties: Remove, replace, patch and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
  1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
  - 1. **Compatibility:** Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. **Temporary Support:** Provide temporary support of Work to be cut.
- B. **Protection:** Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. **Adjoining Areas:** Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. **Existing Services:** Where existing services are required to be removed, relocated or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

**3.3 PERFORMANCE**

- A. **General:** Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. **Cutting:** Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Concrete: Cut using a cutting machine, such as a diamond blade saw or a diamond-core drill. Make concrete repair cuts at locations that blend with concrete joint design.
  4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
  5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
  3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

END OF SECTION

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for the following:
  - 1. Salvaging nonhazardous demolition and construction waste.
  - 2. Recycling nonhazardous demolition and construction waste.
  - 3. Disposing of nonhazardous demolition and construction waste.

**1.3 DEFINITIONS**

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work as indicated.
- G. Material Waste Stream: A flow of materials coming from a job site into markets for building materials. Including either 1) a specific material category that is diverted in a specific way or 2) a mixture of several material categories that are diverted in a specific way. A waste stream must constitute a minimum of 5% (by weight or volume) of total diverted materials.

**1.4 PERFORMANCE REQUIREMENTS**

- A. General: Achieve end-of-Project rates for salvage/recycling of 75 percent by weight of total non-hazardous solid waste generated by the Work. Materials salvaged or recycled from demolition and construction waste must come from a minimum of 4 (four) different material waste streams. Facilitate recycling and salvage of materials including the following:

1. Demolition Waste:
  - a. Asphalt paving.
2. Construction Waste:
  - a. Masonry.
  - b. Lumber.
  - c. Wood sheet materials.
  - d. Wood trim.
  - e. Metals.
  - f. Roofing.
  - g. Insulation.
  - h. Gypsum board.
  - i. Piping.
  - j. Electrical conduit.
  - k. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
    - 1) Paper.
    - 2) Cardboard.
    - 3) Boxes.
    - 4) Plastic sheet and film.
    - 5) Polystyrene packaging.
    - 6) Wood crates.
    - 7) Plastic pails.

#### 1.5 ACTION SUBMITTALS

- A. Waste Management Plan: Submit plan within 7 days of date established for the Notice to Proceed.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:
  1. Material category.
  2. Generation point of waste.
  3. Total quantity of waste in tons (tonnes).
  4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
  5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
  6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
  7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

- C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Qualification Data: For waste management coordinator and refrigerant recovery technician.
- H. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

#### 1.7 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Waste Management Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
  - 1. Review and discuss waste management plan including responsibilities of waste management coordinator.
  - 2. Review requirements for documenting quantities of each type of waste and its disposition.
  - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
  - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
  - 5. Review waste management requirements for each trade.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Receivers and Processors: List below is provided for information only; available recycling receivers and processors include, but are not limited to, the following:
  - 1. <https://kingcounty.gov/depts/dnrp/solid-waste/programs/green-building/construction-demolition.aspx>
  - 2. "Seattle/King County Construction Recycling Directory."
- C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- D. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- E. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
  - 1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
    - a. Inspect containers and bins for contamination and remove contaminated materials if found.
  - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
  - 4. Store components off the ground and protect from the weather.
  - 5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.
- F. Materials salvaged or recycled from demolition and construction waste must come from a minimum of 4 (four) different material waste streams

3.2 RECYCLING DEMOLITION WASTE

- A. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.

### 3.3 RECYCLING CONSTRUCTION WASTE

#### A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

#### B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

#### C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

### 3.4 DISPOSAL OF WASTE

#### A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

#### B. Burning: Do not burn waste materials.

#### C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

- 1. Substantial and Final Completion Inspection Procedures.
- 2. Project Record Documents.
- 3. Operation and maintenance Manuals.
- 4. Warranties.
- 5. Instruction of Owner's personnel.
- 6. Final cleaning.

- B. Related Sections include the following:

- 1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
- 2. Division 01 Section "Execution" for progress cleaning of Project site.
- 3. Division 01 Section "General Commissioning Requirements" for Commissioning requirements and documentation.
- 4. Divisions 2 through 17 Sections for specific closeout and special cleaning requirements for products of those Sections.

**1.3 SUBSTANTIAL COMPLETION**

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

- 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
- 2. Advise Owner of pending insurance changeover requirements and submit evidence of final continuing insurance coverage.
- 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications and similar documents for Engineers review.
- 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates and similar releases.
- 5. Complete startup testing of systems.
- 6. Submit test records.
- 7. Submit Commissioning reports as required.

8. Prepare and submit operation and maintenance manuals, and similar final record information.
9. Deliver tools, spare parts, extra materials and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  - a. Submit a receipt to the Owner identifying the product and quantity that is being provided.
  - b. Obtain Owner's signature on the receipt.
  - c. Send original receipt to Owner and include a copy of the signed receipt in the Operations and Maintenance manuals.
  - d. Maintenance materials transferred to the Owner shall not be used either to remedy punch list items or be incorporated into Work not completed at the time of Substantial Completion.
10. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
11. Terminate and remove temporary facilities from Project site, along with mockups, construction tools and similar elements.
12. Advise Owner of changeover in heat and other utilities.
13. Submit changeover information related to Owner's occupancy, use, operation and maintenance.
14. Complete final cleaning requirements, including touchup painting.
15. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Owner and Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Owner/Engineer, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. The Owner and Engineer will repeat inspection one time when requested and assured that the Work is substantially complete.
3. Time spent reviewing items not completed will be billed and paid to the Engineer or Consultant at their customarily hourly rates by the Contractor through the Owner. Any additional site visits for reviewing uncompleted items will be subject to the same conditions above.
4. Results of the completed inspection(s) will form the basis of requirements for final acceptance.

#### 1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. All requirements of Substantial Completion must have been met.
2. Submit Final Change Order.
3. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."

4. Submit certified copy of the Substantial Completion inspection list of items to be completed or corrected (punchlist). The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  5. Submit "Affidavit of Payments of Debts and Claims" from the contractor. AIA form G706 or equivalent.
  6. Submit "Affidavit of Release of Liens" AIA form G706A or equivalent.
  7. Submit evidence of final, continuing insurance coverage complying with insurance requirements will remain in force after final payment, is currently in effect and will not be cancelled or allowed to expire at least 30 days after written cancellation notice has been given to the owner.
  8. Submit a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the contract documents.
  9. Submit a "Consent of Surety to Final Payment". AIA form G707 or equivalent form
  10. Submit affidavits of wages paid pursuant with RCW 39.12.040.
  11. Submit certification that all materials used are Lead and Asbestos free.
  12. Complete final cleaning
  13. All Warranties, Guarantees, training, manuals, operation instructions, certificates, as-built drawings and other Project Record Documents, maintenance manuals, training or items required by the Contract Documents or local governmental entities have been provided.
  14. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
  15. Submit final meter readings for utilities, a measured record of stored fuel and similar data as of the date of Substantial Completion or when the Owner took possession of and assumed responsibility for corresponding elements of the Work.
- B. Final Inspection: Contractor shall submit a written request for final inspection for acceptance. On receipt of request, Owner and Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. After inspection the Owner will either prepare a final letter of acceptance or will notify Contractor of construction that must be completed or corrected before acceptance will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspection(s) as incomplete is completed or corrected.
- C. Final Letter of Acceptance: After final inspection is approved, Engineer will prepare a letter stating that the work is complete and recommends final acceptance and will certify the final application for payment may be issued.
- 1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)
- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, starting with exterior areas.
  2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  3. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Engineer.

- d. Name of Contractor.
- e. Page number.

1.6 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.
- B. Submit the approved permit set of plans with Project Record Documents.
- C. Record Drawings (As-built Drawings): Maintain one set of Contract Drawings and Shop Drawings through email. Submit one set of (24" x 36") black and white Contract Drawings .
  - 1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity that obtained record data, whether individual or entity is Installer, subcontractor or similar entity, to prepare the marked-up Record Prints.
    - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
    - b. Accurately record information in an understandable drawing technique, clearly and legibly.
    - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
    - d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.
  - 2. Mark electronic record sets a clear, legible manner, in red. Use other colors to distinguish between changes for different categories of the Work at the same location.
  - 3. Mark important additional information that was either shown schematically or omitted from original Drawings.
  - 4. Mark Record prints with information regarding location of all existing or new underground piping, valves, conduit, cabling and utilities, as located during the course of construction activity. Identify any electrical or mechanical deviations from original drawings.
  - 5. Record Drawing shop drawings shall be easily reproducible, i.e., in common digital format such as CAD or PDF, or when printed in standard copy machine size, as appropriate and approved.
  - 6. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
  - 7. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
  - 8. Record Digital Data Files: Before inspection for Certificate of Substantial Completion, review marked-up record prints with Engineer. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
    - a. Format: Annotated, bookmarked PDF electronic file with comment function enabled.
    - b. Incorporate changes and additional information previously marked on record prints. Delete, redraw and add details and notations where applicable.

- c. Refer instances of uncertainty to Engineer for resolution.
  - d. Record markups in separate layers.
  - e. Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
- D. Record Specifications: Submit one paper copy and one scanned electronic copy submitted electronically of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Mark copy with the proprietary name and model number of products, materials and equipment furnished, including substitutions and product options selected.
  3. Note related Change Orders and Record Drawings where applicable.
- E. Record Product Data: Submit one paper copy and one electronic copy submitted electronically of each Product Data submittal. For each substitution mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  3. Note related Change Orders and Record Drawings where applicable.
- F. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference. Provide one scanned electronic copy.

## 1.7 OPERATION AND MAINTENANCE MANUALS

- A. Assemble one complete printed sets and one set submitted electronically, of operation and maintenance data indicating the operation and maintenance of each system, subsystem and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
1. Operation Data:
    - a. Emergency instructions and procedures.
    - b. System, subsystem, and equipment descriptions, including operating standards.
    - c. Detailed operating procedures, including startup, shutdown, seasonal and weekend operations.
    - d. Description of controls and sequence of operations.
    - e. Test data and performance curves.
    - f. Piping diagrams.
    - g. Mechanical systems Testing and balancing report
    - h. Commissioning report
  2. Maintenance Data:

- a. Manufacturer's information, product information, including list of spare parts.
  - b. Name, address, and telephone number of Installer or supplier.
  - c. Maintenance procedures.
  - d. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
  - e. Maintenance and service schedules for preventive and routine maintenance.
  - f. Maintenance record forms.
  - g. Routine procedures and guide for preventative maintenance and troubleshooting, including a schedule of recommended checks, disassembly, repair, and reassembly instructions.
  - h. Safety precautions and safety features.
  - i. Sources of spare parts and maintenance materials. Include complete nomenclature and model number of replaceable parts.
  - j. Copies of maintenance service agreements.
  - k. Copies of warranties and bonds.
  - l. Safety Data Sheets (SDS) for each product used on the Project.
  - m. Color and paint selections with associated product numbers and manufacturers.
- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.
- C. Prepare an electronic version of the Operation and Maintenance Manuals. Assemble complete manual into a single indexed file incorporating the requirements for the printed binders and additionally include a Table of Contents with links enabling navigation to each section.

## 1.8 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, and thicknesses as necessary to accommodate contents and sized to receive 8-1/2-by-11-inch paper.
  2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address and telephone number of Installer.
  3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name and name of Contractor.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

- D. Prepare an electronic version of the Warranty Manual(s). Assemble complete manual into a single indexed file incorporating the requirements for the printed binders and additionally include a Table of Contents with links enabling navigation to each section.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

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

## PART 3 - EXECUTION

### 3.1 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate and maintain systems, subsystems and equipment not part of a system.
  - 1. Provide instructors experienced in operation and maintenance procedures.
  - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
  - 3. Schedule training with Owner, with at least fourteen (14) days' advance notice.
  - 4. Coordinate instructors, including providing notification of dates, times, length of instruction and course content.
  - 5. Digitally record all training sessions. Review recording for audio and visual quality and provide copy of the recorded information electronically to Owner in ".MOV" format with the date of recording and the system in which the training occurred in the filename. Any recordings submitted that are distorted or of inaudible sound quality will be required to be re-recorded.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
  - 1. System design and operational philosophy.
  - 2. Review of documentation.
  - 3. Operations.
  - 4. Adjustments.
  - 5. Troubleshooting.
  - 6. Maintenance.
  - 7. Repair.

### 3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and anti-pollution regulations. Adhere to ASTM E1971 – 05 Standard Guide for Stewardship for the Cleaning of Commercial and Institutional Buildings for final cleaning.
  
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.
    - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
    - j. Remove labels that are not permanent.
    - k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
      - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
    - l. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings and other foreign substances.
    - m. Replace parts subject to unusual operating conditions.
    - n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
    - o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers and grills.
    - p. Clean light fixtures, lamps, globes and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
    - q. Leave Project clean and ready for occupancy.

- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.
  
- D. Repeat cleaning operations as required resulting from repairs and continued work performed prior to requesting final inspection.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

- 1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.

- B. Related Sections: The following Sections contain requirements that relate to this Section:

- 1. Division 01 Section "Submittal Procedures" specifies procedures for submitting warranties.
  - 2. Division 01 Section "Closeout Procedures" specifies contract closeout procedures.
  - 3. Divisions 02 – 17 for specific requirements for warranties on products and installations specified to be warranted.
  - 4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

- C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers and subcontractors required to countersign special warranties with the Contractor.

1.3 DEFINITIONS

- A. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

- B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.4 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Nor shall warranty periods be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.
  - 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
- E. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

#### 1.5 SUBMITTALS

- A. Submit written warranties to the Engineer prior to the date of Completion.
- B. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Engineer, for approval prior to final execution.
- C. Form of Submittal: At Final Completion compile copies of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual. Provide an additional electronic copy.
- D. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  - 1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the

- product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.
  3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

# Warranty Repair Request

City of Kirkland - Highlands Temporary Regional Booster Pump Station

Directions: Please complete the information request blocks below electronically transmit to \_\_\_\_\_ for action.  
DO NOT send this form to any of the subcontractors or suppliers as we will be unable to track the warranty and respond to you. You will be contacted to provide access and/or with the disposition.

<b>Date Issued:</b>	<b>Time:</b>
---------------------	--------------

<b>Incident #:</b>
--------------------

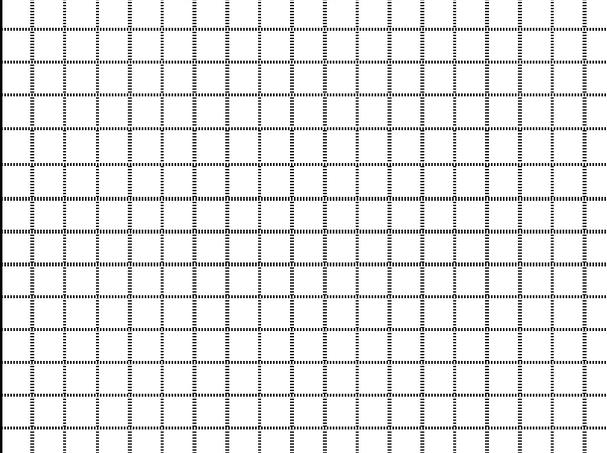
<b>Initiated by</b>
Name: _____
Organization: _____
Phone: _____
E-Mail: _____

<b>Warranty Item (short name):</b>

<b>Location of warranty item:</b>

<b>Draw a diagram if necessary:</b>
-------------------------------------

<b>Description of problem and indications (detailed):</b>


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## Subcontractor / Contractor Response

<b>Describe Repair made:</b>

<b>Work Performed by:</b>	<b>Date work Performed:</b>
---------------------------	-----------------------------

## Owner Response


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**APPENDIX A: TEMPORARY REGIONAL BOOSTER PUMP STATION VALVE VAULT SOIL INVESTIGATION  
TECHNICAL MEMORANDUM**

**APPENDIX B: PUMP SYSTEM PRE-PURCHASE**

**APPENDIX C: CHECK VALVE STATIONS SPECS-BID**

**APPENDIX D: METER SOCKET CATALOG NUMBERS**

# Division 1

## General

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### **1.70 EXECUTION AND CLOSEOUT REQUIREMENTS**

*[CSI 01 70 00]*

#### **1.75 Starting and Adjusting**

*[CSI 01 75 00]*

##### **1.75.16 Startup Procedures**

*[CSI 01 75 16]*

###### **1.75.16.10 Startup**

*[CSI 01 75 16 10]*

Startup shall consist of a simulated operation of all equipment and controls. The purpose of startup shall be to check that all equipment will function under operating conditions, that all interlocking controls and sequences are properly set, and that the facility will function as an operating unit.

Startup shall not occur on a Saturday, Sunday, Monday, Friday, on an Owner recognized holiday, or the day before or after an Owner recognized holiday unless approved in advance by the Owner.

Technically qualified product representatives shall be present for the startup phase. All representatives shall be trained, qualified, and have experience in troubleshooting and fixing field issues. The startup shall continue until it is demonstrated that all functions, controls, and equipment are functioning correctly.

Authorized manufacturer's representatives shall be provided for the following items:

- Packaged pumping system

###### **1.75.16.12 Startup and Testing Coordination**

*[CSI 01 75 16 12]*

The Contractor shall conduct all testing and startup. Testing and startup shall not be a cause for claims for delay by the Contractor and all expenses for testing and startup shall be incidental to this contract.

The placing of all improvements in service shall consist of three parts: "testing", "startup", and "operation". Not less than 21 calendar days before the anticipated time for beginning testing, the Contractor shall notify and submit to the Owner for approval, a complete plan for the following:

1. Schedules for tests:
  - A. Packaged pumping system (provided by Owner)
2. Detailed schedule of procedures for startup.

3. Complete schedule of events to be accomplished during testing.
4. An outline of work remaining under the contract that will be carried out concurrently with the operation phases.

Failure to provide proper notification to the Owner may lead to liquidated damages if schedule cannot be maintained. If rescheduling is required because components are not ready for testing, the notification requirements are reset as needed to provide 21 calendar days advance notice to reserve the Owner Representatives' time.

The Contractor shall arrange for all materials, supplies, and labor necessary to efficiently complete the testing, startup, and operation. Measuring devices must be functional, accurate, legible, and scaled appropriately for the test. The Owner has the right to reject or require verification for any measuring device the Owner suspects in its accuracy.

At a minimum, the Contractor shall provide:

- Calibrated pressure gauge(s) (max scale of 120% to 200% of test pressure)
- Disinfection products and equipment

Work under other contracts will occur concurrently with this project. The Contractor shall incorporate the schedules of the other work. Work by others includes:

- Delivery of packaged pumping system: On or before May 18, 2026.

### **1.75.16.20 Testing**

*[CSI 01 75 16 20]*

The Contractor may periodically request preliminary testing for items that must be covered or tested before other work can proceed. In these cases, do not cover up or test the work without timely notice to the Owner of its readiness for testing. Should any work be covered up without notice, approval, or consent, it must, if required by the Owner, be uncovered for examination at the Contractor's expense. All necessary equipment shall be set up and the work given a preliminary test so that defects may be discovered and repaired prior to calling out the Owner to witness the test.

Final testing consists of individual tests and checks made on equipment intended to provide proof of performance, operation, and control in the presence of the Owner. Assure proper alignment, size, condition, capability, strength, adjustment, lubrication, pressure, hydraulic test, leakage test, and all other tests deemed necessary by the Owner to determine that all materials and equipment are of specified quality, properly situated, anchored, and in all respects ready for use. Any certificates required in these specifications by the manufacturer's representatives shall be supplied to the Owner prior to startup.

All equipment shall be tested as required by specifications and applicable codes. Tests on individual items of equipment shall be as necessary to show proper system operation. During testing, the Contractor shall correct any defective work discovered. Startup shall not begin until all tests required by these specifications have been completed and approved by the Owner.

Not less than five working days before the anticipated time for beginning the testing, the Contractor shall provide a list of representatives that will be attending the testing. The Owner may request additional representatives at no additional cost if said representatives are identified in these specifications.

Qualified product representatives to be on site for the following equipment, at a minimum:

- Packaged pumping system

Additional representatives required may be identified elsewhere in these specifications.

### **1.75.16.22 Scheduling of Owner Review for Testing**

*[CSI 01 75 16 22]*

See Division 1.75.16.12 for scheduling and notification requirements.

The Contractor shall provide notification two working days and two working hours (to confirm readiness) of the scheduled test(s) to the Owner confirming that the Contractor has successfully completed all preliminary testing and that all equipment, tools, materials, labor, subcontractors, manufacturer’s representatives, and all other items required for witnessed testing are available and fully functional. Failure to provide advance notification and confirmation or meet any of the testing requirements will constitute a failed test in accordance with the section Inspection and Tests of the General Conditions.

A detailed testing schedule shall be provided by the Contractor and updated as needed to be at least 48 hours ahead of actual testing. If testing requires downtime in order to perform repairs due to failed test, the Contractor shall pay the Owner in the amount of \$200 per hour per Owner Representative on site (minimum of \$400 per scheduled visit) for downtime lasting longer than 2-hours required to complete repairs to verify the complete construction is ready for startup and operation. This amount will be deducted from the appropriate bid item that relates to the finished construction and documented by the Owner at their discretion. The Contractor must have all systems pre-tested prior to calling the Owner for formal testing.

Schedule shall include control system testing starting on Mondays or Tuesdays so that the remainder of the week can be used to identify the stability of the control system for the packaged pumping system. Control system testing shall not start on a Thursday, Friday, or the day before an Owner recognized holiday.

### **1.75.16.32 Pump Testing**

*[CSI 01 75 16 32 or 33 08 00]*

See the applicable pump sections of these specifications for pump testing requirements.

## **1.80 PERFORMANCE REQUIREMENTS**

*[CSI 01 80 00]*

### **1.81 Facility Performance Requirements**

*[CSI 01 81 00]*

#### **1.81.30 Seismic Restraint and Anchorage**

*[CSI 01 81 30]*

Contractor shall furnish seismic restraint for all pressure tanks, piping, valves, conduit, and other mechanical and electrical components. Seismic restraint shall be designed to meet IBC (ASCE 7 Chapter 13 – “Seismic Design Requirements for Nonstructural Components”) code requirements. The following design values shall be used in calculating seismic forces:

$I_p = 1.5$	$S_{ds} = 0.84$	Seismic Design Category = D
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A complete seismic restraint system shall be provided including struts, straps, bolts, nuts, washers, etc. as required for secure attachment to foundations, pads, ceilings, floors, and/or walls.

Contractor shall submit either of the following in accordance with ASCE 7, 13.2.1 for all components:

1. Project-specific design and documentation prepared and submitted by a registered design professional.
2. Submittal of the manufacturer's certification that the component is seismically qualified by
  - a. Analysis
  - b. Testing in accordance with the alternative set forth in ASCE 7, Section 13.2.5.
  - c. Experience data in accordance with the alternative set forth in ASCE 7, Section 13.2.6.

Special Certifications are required for the following systems for Seismic Design Categories C, D, E, and F. Systems shall be certified in accordance with ASCE 7, 13.2.2.

1. Mechanical and electrical equipment that must remain operable following the design earthquake. All mechanical and electrical equipment installed under this project falls under this category.
2. Components with hazardous contents.

All materials and fabrication shall be as required in these specifications. Contractor shall submit this information to the Owner for review prior to fabrication and installation.

Install seismic restraints when called for in the contract or recommended by the product manufacturer. Install in accordance with the manufacturer's requirements as applicable.

Seismic restraint systems shall be installed so as not to interfere with normal operations and maintenance of the equipment and other components as shown on the plans. Interference with normal operations and maintenance shall be as determined by the Owner. Drilled-in anchors for non-rotating equipment shall be Concrete Anchors unless otherwise specified.

### **1.81.40 Pressure Ratings**

*[CSI 01 81 40]*

Fittings, valves, pipe, and other fluid systems shall have pressure ratings equal to or greater than the pressures identified herein, unless specifically called out otherwise in the plans or specifications. Pressures listed are gauge pressure, unless specified otherwise.

The pressure class of pipelines and appurtenances shall comply with the Owner's standards for minimum pressure class or the pressure class that meets the requirements of this section, whichever is greater.

Equipment Type or Function	Working Pressure	Test Pressure
Water piping	90 psi	250 psi

Working Pressure: Manufacturer's rating of maximum pressure during extended operation.

Test Pressure: Maximum pressure during project specific testing.

## **1.81.50 Materials in Contact with Domestic Water**

*[CSI 01 81 50]*

All devices, components, and materials substantially in contact with potable water shall be certified by NSF International to comply with NSF/ANSI 61 (leachable materials) and NSF/ANSI 372 (lead content). Certification of compliance shall be supplied in writing at the time of the submittal process. See exceptions in WAC 246-290-220(1).

# Division 2

## Sitework

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### 2.00 GENERAL

*[CSI 32 00 00]*

Sections in these specifications titled “*Common Work for . . .*” shall apply to all following subsections whether directly referenced or not.

### 2.05 Common Work for Exterior Improvements

*[CSI 32 05 00]*

This division covers the work for providing materials and performing all sitework as described in these specifications and as shown on the Plans.

#### Part 1 - General

##### Submittals

Submittal information shall be provided to the Owner for the following items:

- Erosion and Sedimentation Control Plan
- Dewatering Plan
- Shoring Plan and Calculations
- Dump Site Permits
- Structural Fill
- Pipe Bedding
- Trench Backfill
- Gravel Backfill for Drains
- Crushed Surfacing
- MSE Retaining wall systems
- Paving
- Fencing

Other items listed in this section or required by the Owner.

### 2.07 Geotechnical Investigations

*[CSI 02 32 00]*

An exploration of subsurface soil and groundwater conditions at the project site were performed by RH2 Engineering, Inc. The results of the investigation are included in this document as an appendix.

## 2.10 SITE PREPARATION

### 2.10.2 Clearing and Grubbing

*[CSI 31 11 00]*

#### Part 3 - Execution

##### Construction

Clearing and grubbing shall be performed by the Contractor to remove and dispose of unwanted debris, vegetative matter, and other items noted on the Plans within the construction limits and shall conform to Section 2-01 of the Standard Specifications.

Protect trees and tree roots, structures and foundations, utilities, fences, and all other existing improvements not being removed regardless if shown to be protected on the Plans.

Remove and relocate permanent improvements that are within the construction limits, such as mailboxes and traffic signs. Locate mailboxes to preserve mail service during construction. Return facilities to original location, or plan location, at completion of local work.

Do not remove organic material including plants, grasses, trees, and native topsoil unless directed on the Plans. Where the Contractor is allowed to clear areas to facilitate construction but is not required to, restore any areas disturbed by construction to existing or better condition including matching surface restoration with seed, sod, or plantings as shown in adjacent areas required to be modified by the Plans. Restoration shall be completed at no additional cost to the Owner.

### 2.10.5 Dewatering

*[CSI 31 23 19]*

#### Part 1 - General

##### Submittals

The Contractor is to determine the scope, type, size, quantity, method of installation, operation, and removal of the dewatering system necessary to keep excavations de-watered to an elevation below the base of the excavation sufficient to stabilize the soils in the excavation and the surrounding areas, and to prevent flotation of partially completed structures. Prepare a detailed dewatering system plan and submit to the Owner for review prior to the installation of any dewatering system. This plan shall include, as a minimum, the scope, type, size, quantity, method of installation, operation, and removal of all dewatering systems.

#### Part 3 - Execution

##### Installation/Construction

Dewatering systems must be positioned away from all building and utility construction so as to not become a part of the permanent facility.

Furnish, install, and operate all necessary machinery, appliances, and equipment to meet these water control requirements. De-water and dispose of the water so as not to cause injury to

property or a nuisance to the public. Maintain sufficient pumping equipment and machinery in good working condition for all ordinary emergencies, including power outages, and have competent personnel available at all times to operate the equipment. The dewatering system shall not be shut down between shifts, on holidays, weekends, or during work stoppages.

### **Field Quality Control**

The quality of all water discharged from the site shall meet all State and local requirements. Employ all means necessary to remove suspended solids, oils, trash, and other deleterious materials from water prior to discharging.

Control groundwater and surface water to prevent the softening of the bottom of excavations, or formation of quick conditions or boils during excavation. Lower ground water to 3 feet below the base of the excavation. The Owner will determine if soil conditions are unsuitable for supporting the improvements. The Contractor will determine soil conditions are unsuitable for performing work, placing materials, and proceeding with construction activities. When the dewatering system does not meet the specified requirements, and as a consequence there is a loosening or disturbance of the foundation soils, instability for the slopes, or damage to the foundation or structures occur, the Contractor shall at its own expense, supply all materials, labor, and equipment, and perform all work required for the restoration of foundation soil, slopes, or structure to the satisfaction of the Owner.

### **Restoration**

Remove and backfill dewatering wells in accordance with applicable Federal and State regulations.

## **2.11 EARTHWORK**

### **2.11.1 Common Work for Earthwork**

*[CSI 31 05 00]*

#### **Part 2 - Products**

##### **Source Quality Control**

All imported fill material shall be free of hydrocarbons (e.g. gasoline, diesel, oil, etc.), pesticides, herbicides, hazardous volatile organic compounds (VOCs) and synthetic organic chemicals (SOCs). Provide certification to the Owner that the fill is free of these chemicals.

#### **Part 3 – Execution**

##### **Field Quality Control**

The Contractor shall schedule with Owner for visual and probe review of earthwork activity. Contractor shall schedule with Owner and special inspection agency for nuclear densometer testing. Deliver test results to the Owner and to the roadway jurisdiction if different than the Owner.

Special inspections including visual, probing of subgrade, and compaction effort (nuclear densometer or probe) are required for the following locations:

- Trench backfill (visual, probe and nuclear densometer testing)
- Road fill and native subgrade (visual, probe, and nuclear densometer testing if found necessary by the Owner)
- Crushed surfacing under roads, and structures (visual, probe, and nuclear densometer testing)
- Native (and fill if any) subgrade of footings, foundations, and floors (visual and probe)

Areas where fill (either native or non-native) is being placed shall be tested for compaction compliance by a special inspector. The Owner will pay for the initial testing. If tests indicate failure of compaction requirements, the Contractor shall pay for subsequent tests until tests indicate compliance with the specifications. Areas of native undisturbed subgrade shall be visually inspected by the Owner prior to placement of any material overtop. Contractor shall coordinate with the Owner a minimum of two (2) full working days prior to inspection being needed.

The Contractor shall fully cooperate with the special inspector, including providing safe access to the testing areas. No extra compensation will be provided for cooperation with and facilitation of inspections.

## 2.11.2 General Fill

*[CSI 31 05 13.20]*

### Part 1 – General

#### Summary

All fill not specifically defined as another type shall be “General Fill”.

#### References

Section 9-03.14(3) Common Borrow of the Standard Specifications.

### Part 2 – Products

#### Components

General fill shall be soil free of organics, debris, and other deleterious materials, with no individual particles having a maximum dimension larger than 5 inches. The moisture content of the material and weather conditions at the time of placement will be used to determine the suitability of native materials for backfill as general fill.

### Part 3 – Execution

#### Installation/Construction

Compact general fill in uniform layers not exceeding 12 inches in loose thickness and to at least 90 percent maximum dry density based on the ASTM D-1557 (modified) test procedure or 95 percent maximum dry density based on the ASTM D-698 (standard) test procedure.

## 2.11.3 Structural Fill

*[CSI 31 05 13.21]*

### Part 1 – General

#### Summary

All fill placed below and against building components, building structures, vaults, manholes, handholes, slabs, sidewalks, and drives shall be “Structural Fill” unless other fill materials are specifically shown on the Plans. The structural fill material has been selected to support the weight of the structure in combination with the existing native material and to prevent adverse movement during an earthquake. Take particular care to maintain the integrity of the design by using structural fill where shown.

#### References

Where free draining material for structural fill is required as indicated on the Plans or needed to maintain compaction in adverse weather conditions, it shall conform with Section 9-03.14(1), “Gravel Borrow” of the Standard Specifications.

### Part 2 – Products

#### Components

When structural fill will be used around pipes, 100-percent of the material shall pass a 1-inch sieve.

Structural fill shall be soil free of organics, debris, and other deleterious materials. The Owner will determine if native on-site materials are suitable for use as structural fill.

### Part 3 – Execution

#### Installation/Construction

The moisture content of the material and weather conditions at the time of placement will be used to determine the suitability of native materials for backfill as structural fill. Structural fill shall bear on firm base and be placed in uniform layers not exceeding 12 inches in loose thickness. The backfill area must be free of standing water and the subgrade soils must be stable. Each layer of structural fill shall be compacted to at least 95 percent of its maximum dry density based on the ASTM D-1557 (modified) test procedure or 98 percent of its maximum dry density based on the ASTM D-698 (standard) test procedure.

## 2.11.4 Pipe Bedding

*[CSI 31 05 16.20]*

### Part 1 – General

#### Summary

Fill placed below and around buried utilities. The bedding material has been selected to support the weight of the utility by distributing the load so that the completed utility and

backfill system does not weigh more than the native material. The grain size has been selected so that the bedding will not migrate into the bottom of the trench. Maintain the integrity of the utility design by using the appropriate pipe bedding material.

### Submittals

Recent aggregate gradations.

WSDOT Aggregate Source Approval.

### Definitions:

Unrestrained: Push-on joints or similar.

Fully restrained: All pipes and fittings are restrained.

Partially restrained: Some pipes and fittings are restrained.

## Part 2 – Products

### Materials

Use the following gradations unless shown otherwise on the plans. Recycled material is not allowed for pipe bedding.

#### Pressurized pipe, fittings, and valves.

The following bedding materials are approved if provided with WSDOT Aggregate Source Approval documentation.

- 9-03.4(2) Aggregate for BST: ¾”-½””; 5/8”-No.4, ½”-No. 4 (4” and larger pipe).
- 9-03.4(2) Aggregate for BST: 3/8”-No. 4 (3” and smaller pipe).
- 9-03.8(6) HMA Proportions of Materials: ¾-inch (4” and larger non-metallic pipe and poly-bagged metallic pipe) (see Note 1).
- 9-03.9(4) Maintenance Rock (3” and smaller non-metallic pipe, unrestrained or fully restrained).
- 9-03.12(4) Gravel Backfill for Drains (4” and larger pipe).
- 9-03.13 Backfill for Sand Drains (3” and smaller non-metallic pipe, unrestrained or fully restrained).

For bedding materials other than those listed above:

- Non-metallic pipes (unrestrained or fully restrained): Table 1 or Table 2.
- Non-metallic pipes (partially restrained): Table 1.
- Non-metallic pipes (partially restrained): Table 2 (see Note 1)
- Metallic pipes (all restrained types, no poly-bags): Table 1.
- Metallic pipes with poly-bags (unrestrained or fully restrained). Table 1 or Table 2.

- Metallic pipes with poly-bags (partially restrained). Table 1 or Table 2 (see Note 1)

Note 1: If either No. 40 sieve exceeds 25% or No. 200 sieve exceeds 5% then additional restrained joint lengths may be required unless the restrained lengths were calculated using silty-sand or finer material.

Sieve Size	Table 1 % Passing by Weight		Table 2 % Passing by Weight	
	Pipe ≥ 4"	Pipe < 4"	Pipe ≥ 4"	Pipe < 4"
1"	99 – 100	100	99 – 100	100
3/4"	80 – 100	100	75 – 100	100
5/8"	70 – 100	99 – 100	50 – 100	99 – 100
3/8"	50 – 100	99 – 100	40 - 100	99 – 100
U.S. No. 4	30 – 100	30 – 100	20 - 100	20 – 100
U.S. No. 10	15 – 85	15 – 85	10 – 85	10 - 85
U.S. No. 40	2 – 25	2 – 25	3 – 50	3 – 50
U.S. No. 200	0 – 5	0 – 5	0 – 10	0 – 10
Sand equivalent	50 min	50 min	35 min	35 min

### Part 3 – Execution

#### Installation/Construction

Bedding material shall bear on firm subgrade, surround the pipe and conduits to the limits shown on the Plans, and provide uniform support along the entire length. Excavate holes for pipe bells to prevent concentrated loading at joints or bridging of the pipe.

#### 2.11.5 Trench Backfill

*[CSI 31 05 13.22, 31 23 23.54 or 31 23 33]*

#### Part 1 – General

##### Summary

All fill placed above the pipe bedding in a trench shall be “Trench Backfill”. The trench backfill material has been selected to distribute surface loads over the utility. The grain size has been selected so that the trench backfill will not migrate into the pipe bedding or trench walls. Take particular care to maintain the integrity of the utility design by using the appropriate trench backfill material where shown.

##### References

Trench backfill shall consist of materials conforming to Section 9-03.19 “Bank Run Gravel for Trench Backfill” of the Standard Specifications or as approved by the Owner.

## **Part 3 – Execution**

### **Installation/Construction**

Trench backfill shall follow the requirements of WSDOT 7-09.3(10) and 7-09.3(11).

### **2.11.6 Gravel Backfill for Drains**

*[CSI 31 05 16.21]*

#### **Part 1 – General**

##### **Summary**

All fill placed around drain pipes in a trench shall be “Gravel Backfill for Drains” to provide drainage for stormwater runoff.

##### **References**

Gravel backfill for drains shall conform with Section 9-03.12(4) of the Standard Specifications.

### **2.11.7 Crushed Rock Base Course**

*[CSI 32 11 23.31]*

#### **Part 1 – General**

##### **Summary**

All fill placed directly under and against paving, foundations, and structures unless otherwise called out on the Plans.

##### **References**

Aggregate for gravel base course under structures, and foundations shall conform to Section 9-03.10 Aggregate for Gravel Base or 9-03.9(3) Crushed Surfacing Base Course of the Standard Specifications.

Aggregate for gravel base course under roadways, paved areas, sidewalks, and for gravel areas shall conform to Section 9-03.9(3) Crushed Surfacing Base Course of the Standard Specifications.

### **2.11.8 Crushed Rock Top Course**

*[CSI 32 11 23.32]*

#### **Part 1 – General**

##### **Summary**

Gravel travelled surfaces shown on the Plans. May also be required directly under paving by the road jurisdiction or if shown on the plans.

## References

Aggregate for gravel top course shall conform to Section 9-03.9(3) Crushed Surfacing Top Course and Keystone of the Standard Specifications.

## 2.12 Road Surfacing

*[CSI 32 10 00]*

### 2.12.3 Hot Mix Asphalt (HMA) / Asphalt Concrete Pavement (ACP)

*[CSI 32 12 16]*

#### Part 1 – General

##### Definitions

The Plans and specifications may call out Hot Mix Asphalt (HMA) or Asphalt Concrete Pavement (ACP). The terms are synonymous.

##### References

Hot Mix Asphalt (HMA) shall comply with Section 5-04 of the APWA General Special Provisions. All HMA shown on the Plans shall be Commercial HMA unless otherwise noted. Furnish, place, spread, and compact to the thickness shown on the Plans.

### 2.12.10 Pavement Marking/Striping

*[CSI 32.17.23]*

#### Part 1 – General

##### References

Install pavement marking in accordance with 8-22 of the Standard Specifications and any Owner standards more stringent than the Standard Specifications.

#### Part 3 – Execution

##### Repair/Restoration

Replace pavement marking damaged or removed during construction. Cost is incidental to the contract unless a pay item is provided.

##### Installation/Construction

Provide markings on all new pavement per the local traffic agency's requirements.

Pavement marking shall match existing marking at the site unless noted otherwise on the Plans or within these specifications.

## 2.13 Tree and Shrub Preservation

*[CSI 31 13 12]*

### Part 1 - General

#### Warranty

Trees or shrubs to be protected that become damaged or die within one year of acceptance shall be remedied or replaced by the Contractor at the discretion of the Owner with plants of the same species and size.

### Part 3 – Execution

#### Installation/Construction

Individual trees and areas shown to remain shall be protected by high visibility construction fence.

Install fencing before site preparation, grading and clearing and grubbing operations. Under no circumstances shall the Contractor, for convenience, or ease of construction, or any other reason not approved by the Owner, remove existing trees that are not designated to be removed.

No work may commence until protective fencing is in place and approved by Owner's Representative. Prior to installation, stake the location of protection fencing for approval by the Owner. Location stakes or marking shall be placed not greater than 20 (twenty) feet on center.

Fencing shall be constructed and located to protect vegetation from physical or chemical damage, flame, smoke, heat, and damage to, or compaction of roots.

Construction access, vehicle or equipment parking, material storage or material disposal will not be allowed within drip lines of existing trees to remain.

Excavate within drip line of trees only where shown. Where trenching for utilities is required within drip line, tunnel under or around roots by methods that do not tear or compromise the health of the roots. Do not cut main lateral roots or tap roots.

Where pruning is shown on the plans, or allowed by the Owner, cut branches with sharp and clean pruning instruments and do not break or chop. Prune flush with trunk surface.

#### Field Quality Control

The Contractor shall notify the Owner prior to cutting roots over 4 inches in diameter. Treat cut roots over 1-inch in diameter and cut branches 2-inch and larger with asphaltic pruning paint.

## 2.20 EARTH MOVING

*[CSI 31 20 00]*

## 2.23 Excavation

*[CSI 31 23 16]*

### Part 2 – Products

#### Materials

Remove all excavated material from the project site unless approved as backfill by the Owner. Approval of material as backfill will be made the moment before placement of the material as backfill. Weather conditions may make previously excavated material unsuitable for backfill requiring the material to be removed from the project site.

### Part 3 – Execution

#### Construction

Perform excavation necessary to complete the work.

Excavation includes the digging, moving, and removing existing native material, abandoned or interfering utilities, abandoned or interfering structures, and any other obstacles necessary for the construction of the improvements.

Perform structural excavation to the limits shown and established by the Owner. Extend the base of the excavation laterally a minimum of 2 feet beyond the structure or formwork unless specified otherwise on Plans.

#### Field Inspection

The Owner will evaluate the base of the excavation to determine if it is suitable for backfilling. The Owner will evaluate the stability of the base of excavation by determining if all significant organic soils or other unsuitable materials have been removed.

## 2.25 Temporary Erosion and Sedimentation Control

*[CSI 01 57 13]*

### 2.25.2 Contractor Provided Certified Erosion and Sedimentation Control Lead

*[CSI 01 57 13.10]*

#### Part 1 – General

##### Summary

Provide a Certified Erosion and Sedimentation Control Lead (CESCL) as part of the regular work force for the project. This person shall be a site superintendent, project manager, or site laborer regularly on the project site during earthwork operations.

##### Submittals

Provide documentation of the Certification to the Owner and reviewing authority if applicable with a copy of such certification always available in the job shack. State Department of Ecology

Certification shall be valid and up to date for this person throughout the duration of the earthwork operations of the project.

## **2.25.3 Temporary Erosion and Sedimentation Control**

*[CSI 01 57 13.13]*

### **Part 1 – General**

#### **Quality Assurance**

The Temporary Erosion and Sedimentation Control (TESC) plans shown on the construction Plans are the minimum requirements for the anticipated site conditions. The Contractor shall add additional TESC facilities or processes as necessary to ensure that erosion and sedimentation problems do not occur. The Contractor shall inspect the TESC facilities daily and maintain the systems as necessary to prevent off-site damage.

### **Part 2 – Products**

#### **Materials**

Straw or mulch shall be applied to exposed surfaces to minimize erosion and filter surface water runoff. Where straw or mulch is required for erosion control, apply to a minimum thickness of 2-inches. Straw shall not include Reed Canary grass.

### **Part 3 – Execution**

#### **Installation/Construction**

All TESC systems including; fencing, earth berms, grasses, straw, mulch, culverts, drain pipe, outfalls, and other items required by for this project, must be installed prior to any clearing, grubbing, excavation, grading work, or other work that could result in off-site stormwater or material flows. TESC systems must remain in place throughout the duration of the construction activities. The systems may be relocated to complete construction activities if their location impedes the associated work. If the systems are relocated to complete any work, they must be reinstalled to protect the construction and surrounding areas prior to commencing work on other portions of the project.

Install systems such as mulch, plastic sheeting and hydroseed as soon as clearing, grading and excavation are complete if sites are 1-acre or less. For sites larger than 1-acre, complete temporary and/or final surface restoration as clearing, grading and excavation progresses so that no more than 1/2-acre is exposed at any one time. Take care and diligence to minimize erosion exposure and provide TESC measures as shown on the Plans and required by construction practice.

Install stabilized construction entrances and wash pads at the beginning of construction activities and maintain for the duration of the project. Keep wash pads clean to prevent the transport of sediment onto adjoining roads.

Install earth berms as necessary to prevent surface water migration into excavations or off the project site. Route surface water intercepted by earth berms to an approved stormwater conveyance system. Ensure that the concentration of surface water at the earth berm does not

erode the adjoining or downstream properties. Remove sediment deposited against the earth berm so surface water can flow freely. Do not remove the earth berm before the stabilization of the surface downhill from the berm.

## 2.25.4 Temporary Storm Water Pollution Control

*[CSI 01 57 23]*

### Part 3 – Execution

#### Field Quality Control

The Contractor shall be responsible for meeting all construction stormwater discharge water quality requirements including State of Washington (WAC 173-220-020) Construction Stormwater Permit requirements and local requirements regardless of weather conditions.

If the project is fined by the permitting authority, that fine shall be paid by the Contractor at no additional cost to the Owner.

## 2.30 SITE IMPROVEMENTS

*[CSI 32 30 00]*

### 2.31 Fencing and Gates

*[CSI 32 31 00]*

#### 2.31.1 Common Work for Fencing

*[CSI 32 31 05]*

#### Part 1 – General

##### Related Sections

- Division 1.52.20 Locks and Keys
- Division 3 Concrete
- Division 10.14.23 Signage
- Division 11.40 Gates

#### Part 3 – Execution

##### Preparation

Clear the area along the fence path, remove surface irregularities and grade earth smooth and continuous prior to fence installation.

## 2.31.3 Chainlink Fence

*[CSI 32 31 13]*

### Part 1- General

#### Summary

This section describes the requirements for the chainlink fence located as shown and detailed on the Plans and these specifications.

#### Related Sections

- Division 2.31.1 Common Work for Fences
- Division 3.31.3 Post Footings
- Division 9.06 Color Schedule

#### References

Chainlink Fence Manufacturers Institute Product Manual Specifications

DOT Standard Specifications Section 8-12

ASTM F626, A392, A817, F668, F1043, F1083, A121, F567

#### Submittals

Galvanizing information, steel quality standards, hardware quality standards.

Dimensional drawings including details, finishes, accessories and foundations.

Color samples for polymer coating (when used).

### Part 2 - Products

#### Materials

Obtain chain link fences and gates, including accessories, fittings, and fastenings, from a single source.

Chain-Link (woven wire fabric) fencing shall be commercial grade, as detailed on the Plans and in accordance with Section 8-12 of the Standard Specifications except as modified herein.

#### Components

Fence Fabric: Polymer coated galvanized wire: ASTM F668 class 2b, fused and adhered.

Size: Helically wound and woven to height of as indicated on drawings with 2-inch diamond mesh and core wire gauge of 11. Polymer coating gauge of 10, if required, shall not be included in the wire size measurement.

Selvage of fabric: Twisted and barbed at top and twisted at bottom unless noted otherwise on the Plans. Knuckled when using polymer coating.

Steel Fence Framework: Steel pipe - Type I: ASTM F1043 Group IC; minimum yield strength of 50,000 psi. Outside diameter (OD) sizes as shown on the Plans. Type B external coating,

hot dip galvanized zinc 0.9 oz/ ft<sup>2</sup> with a clear polymeric overcoat, Type D interior 90% zinc-rich coating having a minimum thickness of 0.30 mils.

### **Accessories**

Chain link fence accessories per ASTM F626 Provide items required to complete fence system. Galvanize each ferrous metal item and finish to match framing.

Post caps: Formed steel weather tight closure cap for pipe posts. Provide one cap for each post. Cap to have provision for barbed wire when necessary.

Top rail and rail ends: Pressed steel per ASTM F626, for connection of rail and brace to terminal posts.

Top rail sleeves: 6-inch (178 mm) expansion sleeve with a minimum 0.137-inch wire diameter and 1.80-inch length spring, allowing for expansion and contraction of top rail.

Wire ties: 9-gauge galvanized steel wire for attachment of fabric to line posts. Thirteen gauge for rails and braces.

Brace and tension (stretcher bar) bands: Pressed steel, minimum 300-degree profile curvature for secure fence post attachment.

Tension (stretcher) bars: One piece lengths equal to 2 inches less than full height of fabric with a minimum cross-section of  $\frac{3}{16}$  inch by  $\frac{3}{4}$ -inch. Provide tension (stretcher) bars where chain link fabric meets terminal posts.

Tension wire (used when top rails are not required): Polymer Steel Tension Wire ASTM F1664 class 2B, fused and adhered, 6 gauge, with tensile strength of 75,000 psi. Hog ties are permissible.

Tie rod, truss rods, and tightener: Steel rods with minimum diameter of  $\frac{3}{8}$ -inch. Capable of withstanding a tension of minimum 2,000 lbs.

Nuts and bolts to be galvanized.

### **Finishes**

Colors shall be available for owner selection including dark green, olive green, brown, and black in compliance with ASTM F934. All fence components shall be coated including mesh, posts, caps, clips, and rails.

### **Fabrication**

Fence frames that require welding shall be hot dipped galvanized in the shop unless approved otherwise by the Owner.

## **Part 3 - Execution**

### **Installers**

Installers shall have a minimum of two years of experience. References from three previous projects shall be submitted for review during shop drawing submittal.

## Examination

Verify areas to receive fencing are completed to final grades and elevations.

Ensure property lines and legal boundaries of work are clearly established.

Perform complete utility locates within the areas of fencing to verify conflicting utilities. Fence posts may require adjustment to avoid utilities by a minimum of 2-feet.

## Installation/Construction

Chainlink Fence Framing Installation:

- A. Install chain link fence in accordance with ASTM F567 and manufacturer's instructions.
- B. Locate terminal post at each fence termination and change in horizontal or vertical direction of 30 degrees or more.
- C. Space line posts uniformly at 10-feet on center maximum and to avoid utilities by 2-foot minimum.
- D. Concrete set terminal and gate posts: Drill holes in firm, undisturbed or compacted soil. Trowel finish around post. Slope to direct water away from posts. Footings shall be sized per schedule on the Plans or, if not shown per WSDOT Type 3 Chain Link fence.
- E. Check each post for vertical and top alignment and maintain in position during placement and finishing operations.
- F. Bracing: Install horizontal pipe brace at mid-height for fences 8-feet tall and over, on each side of terminal posts. Firmly attach with fittings. Install diagonal truss rods at these points. Adjust truss rod, ensuring posts remain plumb.
- G. Tension wire: If shown on the Plans, install tension wire before stretching fabric and attach to each post with ties. Secure tension wire to fabric with 12½ gauge hog rings 24 inches O.C.
- H. Top rail: If shown on the Plans, install lengths, 21-feet. Connect joints with sleeves for rigid connections for expansion/contraction.
- I. Brace Rails for fabric height 8-feet and over. Install brace rails between terminal posts and adjacent line posts with fittings and accessories. Install brace rails at each gate post and each corner post with angle change exceeding 30 degrees.

Chain Link Fabric Installation

- A. Fabric: Install fabric on side facing outward from site and attach so that fabric remains in tension after pulling force is released. Leave no more than 3-inches between finish grade and bottom selvage. Attach fabric with wire ties to line posts and tension wire at 15-inches on center and to rails and horizontal braces at 24-inches on center.
- B. Tension (stretcher) bars: Pull fabric taut; thread tension bar through fabric and attach to terminal posts with bands or clips spaced maximum of 15-inches on center. Hog ties are allowed.

Accessories

- A. Tie wires: Bend ends of wire to minimize hazard to persons and clothing.
- B. Fasteners: Install nuts on side of fence opposite fabric side for added security.

## **2.60 CONTAMINATED & WASTE MATERIALS HANDLING**

### **2.60.2 Waste Material Control**

*[CSI 01 74 19]*

#### **Part 1 – General**

##### **Quality Assurance**

Adhere to all requirements of federal, state, and local statutes and regulations dealing with pollution. Permit no public nuisances.

Use only dump sites that are approved by the regulatory agency having jurisdiction, and present proof of approval upon request.

Follow all requirements and guidelines of the Puget Sound Air Pollution Control Agency (PSAPCA) and other associated agencies.

#### **Part 3 – Execution**

##### **Installation/Construction**

The Contractor shall take precautions to warn, protect, and prevent the public from all hazards that exist on site due to demolition or construction operations. Surround stockpiled debris with yellow warning tape attached to lath, stakes, poles, or fencing to warn the public of any potential hazard.

Use water sprinkling, temporary enclosures, or other methods to limit dust and dirt from rising and scattering in the air. Collect and clean surface water runoff that is contaminated with site debris, silt, or other material that adversely affects water quality prior to discharge. On-site collection ponds may not be used to keep silt laden water from entering the storm water collection system.

Do not use water to control dust when its use may create hazardous or objectionable conditions such as ice formation, flooding, or pollution.

Minimize the amount of dust and other airborne particles caused by any demolition, excavation, stockpiling, or removal activities. Implement dust control measures prior to the beginning of work activities. Exposed soil may be wetted with water or covered to minimize dust creation. Water runoff from the wetting procedure shall be accumulated and cleaned prior to disposal. Remove water runoff accumulation from the site prior to project completion.

##### **Cleaning**

Keep the construction area clean and orderly. Upon completion of the work, leave buildings broom clean and all parts of the work clean and free of rubbish and excess material of any kind. Leave fixtures, equipment, walls, and floors clean and free of stains, paint, roofing

splashes, or other marks or defects. Upon completion, restore site and all work or equipment and material storage areas to their original conditions. Remove all miscellaneous unused material resulting from work and dispose of it in a manner satisfactory to the Owner. The site, through the progress of construction, shall be kept as clean as possible and in a neat condition.

## **2.90 LANDSCAPING**

*[CSI 32 90 00]*

### **2.90.1 Common Work for Landscaping**

*[CSI 32 90 05]*

#### **Part 1 – General**

##### **Submittals**

In addition to Division 2.05, provide the following information.

- Composition of compost.
- Written maintenance instructions recommending proper procedures for maintenance of plant materials.
- Top Soil - Submit the data for topsoil to be used as determined by an approved testing lab. Data shall include percentage of organic content as determined by incineration process and recommendations on type and quality of additives required to establish satisfactory pH factor, organic content, and supply of nutrients to bring the soil to a satisfactory level for planting.

##### **Delivery, Storage, and Handling**

Deliver fertilizers in original, unopened and undamaged containers that list weight, analysis, and name of manufacturer. Store in such a manner as to prevent wetting and deterioration. Take all precautions customary in good trade practice in preparing plants for transplanting. Spray deciduous plants in foliage with an approved “Anti-Desiccant” immediately after digging to prevent dehydration. Dig, pack, transport, and handle plants with care to ensure protection against injury. If plants cannot be planted immediately upon delivery, properly protect them with soil, wet peat moss, or in a manner acceptable to the Owner. Water plantings as necessary to keep them alive and in healthy condition. Provide dry, loose topsoil for planting bed mixes.

##### **Project/Site Conditions**

Prevent damage to existing features, pavement, utility lines, areas to receive planting and other features remaining as part of final landscaping and/or site improvements.

##### **Quality Assurance**

The Contractor, with the approval of the Owner will select a qualified testing laboratory to test and inspect operations under this Section at the Contractor’s expense. Notify testing laboratory of times for inspections.

Notify Owner if any undesirable conditions are met during construction so that supplemental recommendations can be made.

Comply with sizing and grading standards of the latest edition of “American Standard for Nursery Stock.” A plant shall be dimensioned as it stands in its natural position.

### **Warranty**

Warrant trees, shrubs and ground cover for the period as stated in the Warranty section of Division 1 against defects including death and unsatisfactory growth, except for defects resulting from negligence by Owner, abuse or damage by others or unusual phenomena or incidents beyond the Contractor’s control.

Replace, in size and kind and in accordance with the Plans and Specifications, all plants that are dead or, as determined by the Owner, in an unhealthy or unsightly condition, or have lost their natural shape due to dead branches or other causes due to the Contractor’s negligence. Such replacement(s) will be at Contractor’s expense.

Warranty shall not include damage or loss of trees, plants, or ground covers caused by fires, unusual floods, freezing rains, lightning storms, sustained winds over 75 miles per hour, or other catastrophic “Acts of God”. Winter kill caused by extreme cold and severe winter conditions not typical of planting area, unanticipated acts of vandalism or negligence on the part of the Owner and damage caused by wildlife, shall not be covered under this warranty.

### **Maintenance**

The plant establishment period is 365 days.

Maintenance of landscaping installed as part of this contract is fully the responsibility of the Contractor during the plant establishment period.

During the plant establishment period, it shall be the Contractor’s responsibility to ensure the continued growth of all plant materials. This care shall include, but not be limited to, the following: labor and materials necessary for removal of foreign materials, weeds, dead or rejected plant materials and lawn; the replacement of all unsatisfactory plant materials planted under this Contract in kind and size; and fertilizing to maintain a healthy growing condition and visually pleasing site.

Water trees, plants, and groundcover within the first 24 hours of initial planting, and in sufficient amounts thereafter to keep plant materials in a healthy growing condition.

Provide maintenance reports to Owner’s Authorized Representative monthly, indicating procedures, fertilizing, defective material, etc.

## **Part 2 – Products**

### **Materials**

A complete list of plants, including a schedule of sizes, quantities and other requirements is shown on the Plans. If quantity discrepancies or material omissions occur in the plant materials list, the planting Plans shall govern.

All plants shall be nursery grown under climatic conditions similar to those in the project locale for a minimum of 2 years or transplanted from on-site. All potted plants shall be grown in the containers in which they are sold for a minimum of one year.

Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional cost, providing that the larger plants will not be cut back to size indicated. Provide plants indicated by two measurements so that only a maximum of 25 percent are of the minimum size indicated and 75 percent are of the maximum size indicated.

### **Part 3 – Execution**

#### **Examination**

Examine proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected and approved by the Owner's Authorized Representative.

Notify Owner's Authorized Representative at least 7 working days prior to installation of plant material.

The Owner will make final inspection to determine acceptance of planted areas, upon Contractor's request. Provide notification at least 10 working days before requested inspection date. Planted areas will be accepted, provided all requirements, including maintenance, have been complied with and plant materials are alive and in a healthy, vigorous condition after final acceptance of the project.

Upon one year after Substantial Completion, the Owner will assume plant maintenance.

#### **Repair/Restoration**

Replace all dead plant materials within thirty (30) days of discovery.

Re-set settled plants to proper grade and position. Restore planting saucer and adjacent material and remove dead material.

Tighten and repair guy wires and stakes as required.

Correct defective work as soon as possible after deficiencies become apparent and weather and season permit.

#### **Field Quality Control**

Provide plant material record Plans legibly recording actual construction indicating horizontal and vertical locations, referenced to permanent surface improvements. Identify field changes of dimension and detail any changes.

#### **Cleaning**

During landscape work, keep adjacent areas clean and work area in an orderly condition.

Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris, and equipment as instructed by Owner. Repair damage resulting from planting operations.

Remove temporary irrigation systems when no longer needed and approval by the Owner.

## 2.90.2 Landscape Grading

*[CSI 32 91 19]*

### Part 3 – Execution

#### Installation/Construction

Perform fine grading within Contract limits, including adjacent transition areas, to new elevations, levels, profiles and contours indicated. Provide subgrade surfaces parallel to finished surface grades, unless specified otherwise. Provide uniform levels and slopes between new elevations and existing grades. All fills required to achieve subgrades shall be compacted per requirements of the fill type as noted above. For landscaping areas, all fill shall be compacted between 80 to 85 percent of modified proctor (ASTM D-1557) unless noted otherwise on the Plans.

Perform grading, within branch spread of existing trees scheduled to remain, by hand methods to elevations indicated. Cut roots cleanly to depth 3 inches below proposed finish grade. Treat cut roots over 1-inch in diameter with asphaltic pruning paint.

## 2.90.3 Soil Amendments

### 2.90.10 Topsoil

*[32 91 19.13]*

#### Part 2 – Products

##### Materials

Protect existing topsoil in seeding/planting areas or remove and stockpile for later use. Existing topsoils that are contaminated or degraded due to the Contractor's activities shall be replaced by the Contractor at no cost to the Owner.

#### Part 3 – Execution

##### Installation

In planter areas, soil excavated shall be mixed with organic compost in a ratio of  $\frac{1}{3}$  organic compost to  $\frac{2}{3}$  sandy loam.

In seeding areas, place topsoil and rake or blade to a smooth, consistent surface. Do not compact. Install 2-inch depth topsoil unless specified otherwise on the plans or within the specific seeding/planting specification section.

Dispose of excess soil per the Owner's instructions.

## 2.90.13 Sod

*[CSI 32 92 23]*

### Part 1 - General

#### Maintenance

Keep sod areas moist until well-established.

### Part 2 – Products

#### Materials

Sod shall be a blend of 70-percent merion bluegrass and 30 percent red fescue and contain no more than 1-percent of other grasses, none of which shall be of a coarse undesirable variety. Sod shall not be less than 10 months old nor more than 30 months old and shall be healthy and have a dense, vigorous, well-developed root structure. Sod shall be delivered to the job site within 24 hours of being harvested and installed before roots dry.

### Part 3 – Execution

#### Preparation

Spread 200 lbs. of lime per 1,000 square foot, thoroughly incorporate and bring to grades indicated. Rake entire surface to a smooth and even grade; remove all rocks over 1/2-inch in diameter, grass roots, debris, and roll.

#### Installation

Use tight, staggered joints.

## 2.90.20 Landscape Accessories

*[CSI 32 94 00]*

### Part 2 – Products

#### Materials

Stakes and guys shall be made from new hardwood, treated softwood, or redwood, free of knot holes and other defects. Provide and install wire ties and guying hose as shown on Plans and as specified for the tree type.

Anti-Desiccant: Protective film emulsion providing a protective film over plant surfaces, permeable to permit transpiration; mixed and applied in accordance with manufacturer's instructions.

Weed Barrier Fabric: 5 oz. minimum (1.6 sf/oz.), woven polypropylene, needle punched fabric. DeWitt Pro-5 Weed Barrier or approved equal.

## **Part 3 – Execution**

### **Installation**

Anchor weed barrier with 8-gauge (minimum), 6-inch long (minimum) steel anchor pins spaced no more than 3 feet apart. In areas without wind screening, secure prevailing wind side of fabric by burying leading edge 3-inches into the soil.

## **2.92 Landscape Irrigation**

*[CSI 32 80 00]*

### **2.92.30 Weed Control**

*[CSI 32 05 34]*

#### **Part 1 – General**

##### **Definitions**

Weeds are defined as the common definition. An undesired plant.

Grasses (other than ornamental grasses) growing within planter areas shall also be considered a weed.

Weed Control means eradication of weeds by mechanical, chemical, or biological means that prevents regrowth for no less than 6 months.

##### **Performance Requirements**

Control weeds within the construction limits and any areas disturbed by construction activities.

##### **Submittals**

Submit on chemicals or biological processes proposed for weed control.

##### **Scheduling**

Intermittent weed control activities should be expected during construction. Final weed control shall occur after final site cleanup and prior to project acceptance.

## **Part 3 – Execution**

### **Installers**

Products used that are not consumer-purchasable at public retail stores may only be applied by an applicator with a Commercial Applicator or Commercial Operator license.

### **Field Quality Control**

The Contractor is responsible for confining weed control products to the site.

# Division 3

## Concrete

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### 3.00 GENERAL

Sections in these specifications titled “*Common Work for . . .*” apply to all following subsections whether directly referenced or not.

### 3.05 Common Work for Concrete

*[CSI 03 05 00]*

#### Part 1 - General

This division covers that work necessary for furnishing and installing all concrete as described in these specifications and as shown on the Plans.

#### References

Materials shall conform to the following standards:

- Cement - ASTM C150 and C595
- Coarse aggregate - ASTM C33
- Fine aggregate - ASTM C33
- Admixtures - ASTM C494
- Air-entraining admixtures – ASTM C260
- Fly Ash – ASTM C618
- Admixture and products in contact with potable water – NSF 61/600

#### Submittals

Submittal information shall be provided to the Owner for the following items:

- Concrete mix design including aggregate gradation and substantiating strength data.
- Alkali-Silica Reactivity (ASR) test data or Source Approval documentation for aggregates.
- Admixture Data
- Construction Joint Plan
- Concrete anchors
- Concrete anchor installer certification per ACI/CRSI Adhesive Anchor Installer Certification Program.
- Schedule of surface finishes
- Rebar mill certifications
- Rebar placement shop drawings
- Precast concrete items
- Schedule of form inserts
- Grouts
- Embedded items

Concrete mix designs shall be submitted to the engineer for approval a minimum of two weeks prior to placing any concrete. The mix design shall include the amounts of cement, fine and coarse aggregate, water and admixtures, as well as the water cement ratio, slump, concrete yield, aggregate gradation, and substantiating strength data in accordance with ACI 318, Chapter 5. A batch plant inspection may be required, the cost of which shall be paid by the Contractor. Review of mix submittals by the engineer of record indicates only that information presented conforms generally with contract documents. Contractor or supplier maintains full responsibility for specified performance.

## **Part 2 - Products**

### **Components**

Nominal maximum size for aggregates is the smallest standard sieve opening through which the entire amount of aggregate is permitted to pass. Provide intermediate aggregate grades as required to achieve a well-graded mix.

All concrete surfaces exposed to weather or standing water shall be air entrained. Total air content shall be in accordance with IBC requirements unless specified otherwise herein. Air shall be measured at the truck, unless otherwise agreed to.

Water used in concrete shall be potable.

Fly ash may be substituted for up to 15 percent of the required cement, except where noted.

### **Mixes**

Concrete shall be mixed, conveyed, and proportioned in accordance with IBC section 1905.

The concrete mix shall include the amount of cement, fine and coarse aggregate, including aggregate gradations, water, and admixtures as well as water cement ratio, slump, concrete yield, and sustaining strength data in accordance with these specifications, the requirements of the International Building Code Section 1905, and the requirements of ACI 318.

### **Finishes**

Coat all aluminum in contact with concrete as specified in Division 9.

## **Part 3 - Execution**

### **Inspection**

See Statement of Special Inspections on the Drawings for special inspection requirements. Provide two (2) full working day notice to Owner prior to needing the required inspections.

Also comply with local building department and permit requirements for inspection and notification.

The Contractor shall repair, replace or modify, as appropriate, any items noted in the Special Inspector's inspection or the building department inspection.

## Testing

The Contractor will coordinate all concrete testing with the testing agency. Costs will be paid by the Owner.

Give the Owner and testing agency 48-hour notice prior to concrete placement. If Contractor fails to provide the required notice, the Owner may elect to cancel the affected concrete placement. Contractor shall be responsible for costs and delays due to improper notification.

If the Contractor schedules a concrete placement and does not notify the Owner and testing agency of a cancellation within 24 hours of the scheduled placement, the Contractor shall pay the testing agency costs for an unnecessary trip. If the Contractor fails to provide the testing agency with adequate notification and testing agency cannot attend concrete placement, Contractor shall reschedule placement. Contractor shall be responsible for all associated delays.

The Contractor shall provide all assistance and cooperation necessary to testing personnel to obtain the required concrete tests. Contractor and Owner will have access to testing results as soon as they are available.

Concrete samples shall be taken in the field per ASTM C31 or AASHTO T23 and tested per ASTM C39. The Engineer shall be furnished with copies of all inspection reports and test results.

Cylinders used for concrete strength tests shall be 4 by 8. Six by 12 cylinders must be used for mixes with aggregates over 1-inch. When 4 by 8 cylinders are utilized ASTM C39 requirements shall be followed, and the retainer used with neoprene pads when testing for compressive strength shall be constructed according to ASTM C1231.

The testing agency shall take a minimum of:

- For 4x8 cylinders: five samples for every 50 yards of concrete placed (and a minimum of five per pour); one for a 7-day test, three for 28-day tests, and one for backup testing in case the other two samples do not meet design strength.
- For 6x12 cylinders: four samples for every 50 yards of concrete placed (and a minimum of four per pour); one for a 7-day test, two for 28-day tests, and one for backup testing in case the other two samples do not meet design strength.

Additional samples may be taken to verify strength prior to form removal at the Contractor's expense.

## 3.10 FORMING AND ACCESSORIES

*[CSI 03 10 00]*

## 3.11 Formwork

*[CSI 03 11 00]*

### 3.11.13 Structural Cast in Place Forming

*[CSI 03 11 13]*

#### Part 1 – General

The Contractor shall submit a construction joint plan to the Engineer for review prior to formwork and rebar installation if altered from that shown on the Plans. Modifications to the construction joints shall be submitted to the Engineer no less than 7 working days prior to placing the forms and rebar.

#### Part 2 – Products

##### Materials

Unless otherwise directed, coat contact surface of forms with colorless, non-staining, mineral oil that is free from kerosene, or other approved suitable material, to permit satisfactory removal of forms without concrete damage. Form-release agent for interior of potable water storage structures shall be National Sanitation Foundation Standard (NSF) No. 61 approved for use in direct contact with potable water.

Form construction for surfaces covered with backfill shall be made of steel, plywood, or dressed, matched lumber. Form construction for exposed surfaces shall be made of new plywood or steel without surface markings.

#### Part 3 - Execution

##### Installation/Construction

Concrete forms shall be sufficiently tight to prevent leakage of concrete or mortar and shall be properly braced or tied together to maintain desired position and shape until removed.

Conduits, pipes and sleeves of any material not harmful to concrete and within the limitations of ACI 318, Section 6.3 are permitted to be embedded in concrete with approval of the Engineer. Provide a 3/4-inch chamfer or radius at all exposed corners and edges, unless specifically stated otherwise on the Plans.

Forms shall remain in place until the concrete has developed sufficient strength to withstand imposed loads without damage or deflection. Wall and slab forms shall remain in place for a minimum of 24 hours after completion of the pour. Forms for beams and suspended slabs shall remain in place for a minimum of 14 days AND until concrete has developed 28-day design strength, unless approved by the Engineer. The Contractor shall coordinate with the testing lab to verify concrete strength prior to form removal.

Do not allow water to flow through areas where forms are to be placed. During form construction and prior to placement of concrete, keep footings and floor slab areas free of standing water.

## Field Quality Control

Variations from plumb, specified grade, conspicuous lines, and walls shall not exceed plus or minus ¼-inch in any 10-foot length, and shall not exceed one inch over the entire length. Variations from dimensions shall not exceed plus or minus ½-inch. Closer tolerances shall be achieved by the Contractor as necessary to accommodate equipment and other permanent materials.

## 3.15 Concrete Accessories

*[CSI 03 15 00]*

### 3.15.02 Premolded Joint Filler

*[CSI 07 91 26]*

#### Part 1 – General

##### References

Premolded joint filler for expansion or through joint applications shall conform to the specifications for “Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction”, AASHTO M 213, except the requirement for water absorption is not applicable.

#### Part 2 – Products

##### Materials

The thickness and width of premolded joint filler shall be as indicated on the Plans. Where no premolded filler thickness is indicated, the thickness shall be ¾-inch.

### 3.15.03 Concrete Expansion Joints

*[CSI 03 15 17]*

#### Part 2 - Products

##### Materials

Expansion Joint Dowels shall be epoxy-coated plain steel bars of the dimensions as shown on the Plans and shall meet the requirements of Section 9-07.5 of the Standard Specifications.

Joint Sealant shall be MasterSeal CR 195 by as manufactured by Master Builders Technology and as provided by Degussa Construction Chemicals, or equal. Color to match concrete. Surface preparation and prime for water immersion shall be as recommended by the manufacturer. Provide backer rod as recommended by the sealant manufacturer.

The ends of the dowel bars embedded in the expansion side of the joint shall be coated with a parting compound such as grease, or other approved parting compound prior to concrete placement.

### 3.15.05 Pipe Penetrations through Concrete

*[CSI 03 15 35]*

#### Part 1 - General

##### Summary

Water holding structures and structures buried and subject to groundwater contact: As shown on the Plans.

Structures not holding water or subject to exterior groundwater: Unless identified otherwise on the Plans, all pipes larger than 2-inch diameter passing through poured-in-place concrete shall be isolated from the concrete as described herein.

#### Part 2 - Products

##### Materials

Provide a Sch 40 or thicker PVC pipe as a sleeve. Size the sleeve so its inside diameter is 1/2-inch to 2-inches larger than the carrier pipe outside diameter.

Seal the annular space between the pipe and the sleeve with a foam backer rod appropriately sized for the gap followed by butyl rubber caulking.

Spray applied expansion foam in lieu of caulking may be allowed for rigid carrier pipes (ductile iron, steel, hard copper, DR18 or thicker PVC) but requires the Owner's approval. Applications that will be considered for foam are where differential movement more than 1/8-inch between the pipe and the concrete is neither expected nor desired. Use an outdoor or pest-block foam rated to fill a 1.5-inch or smaller gap, do not use wide-gap style foam.

#### Part 3 - Execution

##### Preparation

Protect sleeves that will be cast into concrete from intrusion of concrete slurry. Thoroughly clean surfaces that will be in contact with caulking.

##### Installation

Center the sleeve on the carrier pipe in the concrete formwork. Extend the sleeve a minimum of 2-inches below the concrete base for horizontal pours. Set the top of sleeve no lower than flush with the finished concrete surface unless directed by the Owner to set higher than the surface. If the sleeve extends above the finished surface, following curing contact the Owner for directions on the distance above the surface to cut the finished top of sleeve. Cut plumb with the concrete surface and debur edges.

Install backer rod and caulking at both ends of the sleeve if both are accessible.

If using expansion foam, cut and sand flush with the surface after the foam is cured.

Coring of the finished concrete in lieu of a sleeve will be only allowed with prior written approval by the Owner.

### 3.15.19 Concrete Anchors

*[CSI 03 15 19 (cast-in) or 05 05 19 (drilled), 04 05 19.16 (masonry)]*

#### Part 1 - General

##### Quality Assurance

See Special Inspection notes on plans.

#### Part 2 - Products

##### Materials

Concrete Anchors shall be Hilti HIT-RE 500-V3, Simpson SET-3G, Simpson AT-3G (for water saturated applications or cold weather applications where fast cure is desired). For horizontal or overhead applications, retaining caps are required.

Threaded rod shall be stainless steel except in dry locations.

#### Part 3 - Execution

##### Installation

Install in accordance with Manufacturer's recommendations. Special Inspection in accordance with IBC, Section 17, must be provided. Provide a minimum of 48 hours' notice to Engineer prior to starting installation. Concrete anchors shall not be used to resist tension or fatigue loading without Owner's evaluation and approval.

Use threaded rod or reinforcing bar as shown on the drawing, and meeting Manufacturer's recommendations. Provide minimum embedment as shown. Holes shall be drilled with carbide-tipped drill bit. Holes shall be cleaned of dust and debris. Adhesive shall be inserted with a mixing nozzle.

### 3.15.23 Vapor Barrier / Vapor Retarder

*[CSI 03 15 23]*

#### Part 1 - General

##### Summary

Vapor retarder (also referred to as a vapor barrier) for installation under concrete slabs.

##### Related Sections

- Division 9 – Flooring

##### References

American Society for Testing and Materials (ASTM):

1. ASTM E 1745 Standard Specifications for plastic water vapor retarders used in contact with soil or granular fill under concrete slab.

2. ASTM E 154 Standard Test Methods for water vapor retarders used in contact with earth under concrete slabs, on walls, or as ground cover.
3. ASTM E 96 Standard Test Methods for water vapor transmission of materials.
4. ASTM F 1249 Standard Test Method for water vapor transmission rate through the plastic film and sheeting using a modulated infrared sensor.
5. ASTM E 1643 Selection, Design, Installation and Inspection of water vapor retarders used in contact with earth or granular fill under concrete slabs.

American Concrete Institute (ACI):

1. ACI 302.2R-06 Guide for concrete slabs that receive moisture-sensitive flooring materials.

### **Submittals**

Product information including manufacturer's recommended tapes and/or sealants for joints and penetrations. Include manufacturer's instructions for installation and for repairs.

## **Part 2 - Products**

### **Materials**

Vapor Barrier/Retarder must exceed the ASTM E 1745 Class A requirements:

1. Water vapor permeance: ASTM F 1249 or ASTM E 96:
  - a. 0.01 perm.
2. Puncture resistance:
  - a. 2,200 grams or more.
3. Tensile Strength:
  - a. 45.0 lb/cubic in.
4. Life expectancy: ASTM 154
  - a. Indefinite
5. 100-percent virgin resin polyethylene/polyolefin.

Minimum thickness of 15 mil.

Xtreme Vapor Barrier (15-Mil) by Tex-Trude LP or equal.

## **Part 3 - Execution**

### **Installation**

Follow the manufacturer's instructions and in accordance with ASTM E 1643.

1. Place sheeting with longest dimension parallel with direction of pour.

2. Lap joints 6-inches or as required by the manufacturer, whichever is greater. Seal joints as recommended by the manufacturer.
3. Lap vapor barrier over footings and/or seal to foundation walls, unless otherwise noted on the plans.
4. Seal all penetrations (including pipes) per manufacturer's instructions.
5. Repair damaged areas by manufacturer's recommendations.

## **3.20 REINFORCING**

*[CSI 03 20 00]*

### **3.21 Reinforcement Bars**

*[CSI 03 21 00]*

#### **3.21.11 Plain Steel Reinforcement Bars**

*[CSI 03 21 11]*

##### **Part 1 - General**

###### **References**

ACI – American Concrete Institute- latest edition  
CRSI Manual of Standard Practice – latest edition

##### **Part 2 - Products**

###### **Materials**

Grade – ASTM A706, Grade 60

ASTM A615, Grade 60 shall be permitted if:

- (a) The actual yield strength based on mill tests does not exceed  $f_y$  by more than 18,000 psi; and,
- (b) The ratio of actual tensile strength to the actual yield strength is not less than 1.25.

Detailing - ACI 318 and ACI 315

Lap requirements - See schedule on Plans or as required by ACI 318

Tie wire - 16 gauge minimum

Bar supports shall conform to “Bar Support Specification” CRSI Manual of Standard Practice, MSP-1-80. Provide Class 1, plastic protected bar supports. Use pre-cast concrete blocks to support bars off ground. Bar supports in water holding and buried structures shall be non-metallic.

Bar supports for the bottom rebar mat of suspended slabs or beams in water holding structures must be point supports (chairs or dobbies), not continuous.

## **Part 3 - Execution**

### **Installation**

Reinforcing steel shall be detailed in accordance with ACI 315 and 318 and as shown on the Plans. Lap all reinforcements in accordance with “the reinforcing splice and development length schedule”. Provide corner bars at all wall and footing intersections. Bend wire bar ties away from formwork to provide the same concrete clearance as shown on the Plans to the bars.

Welding of reinforcing steel shall not be performed unless specifically approved by the Engineer. If approved, Contractor will arrange and pay for all required Special Inspections associated with welding of reinforcing steel.

### **Field Quality Control**

Reinforcing steel shall be free of rust and loose scale at time of concrete placement. Bars with kinks, improper bends, or reduced cross-section due to any cause will not be used. Bars shall not be field bent. Bars may not be tack-welded or otherwise heated.

If, within the project warranty period, rust spots appear on the concrete due to failure to achieve proper clearance on the rebar or wire ties, the Contractor shall grind out and patch the areas using a method satisfactory to the engineer.

## **3.30 CAST-IN-PLACE CONCRETE**

*[CSI 03 30 00]*

### **3.30.05 Common Work for Cast in Place Concrete**

*[CSI 03 30 05]*

#### **Part 1 - General**

##### **Delivery**

Concrete shall be transported in a truck mixer to the jobsite and discharged within 1.5 hours after cement has been added to water or aggregates. Rejected concrete will be at Contractor's expense.

#### **Part 2 - Products**

##### **Components**

If allowed, curing materials shall conform to ASTM C171 and liquid membrane-forming compounds shall conform to ASTM C309. When concrete is to be coated or stained, use UV-dissipating form release and curing compounds.

## Part 3 - Execution

### Preparation

Do not place concrete during rain, sleet, or snow until water and freezing protection is provided.

Position embedded items accurately, and support against displacement or movement during placement. Secure reinforcement in position to prevent movement during concrete placement.

Fill voids in sleeves, insets, anchor slots, etc., temporarily with readily removable materials to prevent entry of concrete into voids.

Before depositing concrete, remove hardened concrete and foreign materials from inner surface of mixing and conveying equipment, remove all debris from space to be occupied by the concrete, and bend wire ties so none are within 1½-inch of the finished surface.

At the beginning of the concrete pour for walls taller than 8 feet, place a 1½ to 2½-inch thick grout pad prior to placing the concrete for the wall. Grout mix shall consist of fine aggregates, concrete and water in the same ratios as used in the wall concrete. The placement of the concrete shall proceed immediately after the grout placement so as to prevent any cold joints.

At construction joints, thoroughly clean surface of existing concrete to remove laitance. Roughen existing concrete surface to expose aggregate uniformly and apply approved bonding agent to existing concrete in accordance with manufacturer's recommendations. Prior to placing fresh concrete, dampen joint and coat with grout mixture in accordance with ACI 301, Section 8.5.

### Installation

Placement shall be in accordance with IBC, Section 1905.

Place no concrete when air temperature is below or expected to be below 40 degrees during the 28-day curing period unless a low temperature concrete mix has been approved by the Owner. Provide adequate equipment for heating materials and protecting concrete during freezing or near freezing weather. Keep materials, reinforcement, forms, and ground in contact with concrete free from frost at time of placement. Heat mixing water as required. Use no materials containing ice.

Place no concrete when air temperature exceeds or is expected to exceed 85 degrees during the 28-day curing period unless a high temperature placement plan has been approved, and unless adequate precautions are taken to protect work. Cool ingredients prior to mixing. Flake ice or crushed ice of a size that will melt completely during mixing may be substituted for all or part of water. Cool forms and reinforcing prior to placing concrete.

Handle concrete from mixer, ready-mixed truck, or from transporting vehicle to place of final deposit by methods which prevent separation or loss of ingredients. Under no circumstances shall concrete that has partially hardened be deposited.

Place concrete in maximum lifts of 3 feet. Deposit concrete continuously so that no concrete will be deposited on concrete which has hardened sufficiently to cause formation of seams and planes of weakness within the section. If a section cannot be placed continuously, locate and reinforce construction joints at points as provided for in the Plans or as approved by the Owner. Maximum concrete drop shall be 5 feet.

Consolidate concrete by vibration, supplemented by hand spading, rodding, forking, or tamping. Thoroughly work concrete around reinforcement, around embedded items, and into corners of forms to eliminate air or rock pockets which may cause honeycombing, pitting, or planes of weakness. Insert and withdraw internal vibrators at points approximately 18 inches in each direction and extend into the lower concrete lifts. At each insertion, the duration shall be sufficient to consolidate the concrete; but not sufficient to cause segregation. Do not use vibrators to transport concrete within forms. Consolidate slabs by utilizing vibrating screeds, roller pipe screeds, internal vibrators, or other approved methods. Have a spare vibrator available at jobsite during concrete placing operations.

After removal of forms, cut out and patch defects in concrete surfaces. Remove form tie cones. Cut or snap off form ties to a depth of  $\frac{3}{4}$ -inch. Chip out rock pockets, holes from form tie removal, and other defects to solid concrete. Repair defects in accordance with 3.06.30.71.

#### *Curing*

See section 3.39.

### **3.31 Structural Concrete**

*[CSI 03 31 13]*

#### **Part 1 - General**

##### **Summary**

All concrete shown in the contract documents including below-grade structures, ringwalls, and all other concrete items not specifically called out otherwise. Hydraulic Concrete may be substituted.

##### **Performance Requirements**

28-day compressive strength – 4,500 psi minimum

Slump - Without plasticizers; 4 inches for floor and roof slabs, 7 inches for walls. With plasticizers, maximum 9 inches or as desired for placement. Use water reducers as required to achieve slump.

#### **Part 2 - Products**

##### **Mixes**

Water/cement ratio - 0.40 maximum

Nominal maximum aggregate size –  $\frac{3}{4}$ -inch (AASHTO Grading No. 67)

Entrained air ratio – 3.5 percent minimum to 6.5 percent maximum

### **3.31.30 Thrust Blocks, Driveways, Curb, Gutter, Sidewalks, Equipment Pads, and Fence Posts**

*[CSI 03 31 13.10]*

#### **Part 1 - General**

##### **Summary**

All concrete for non-structural applications including thrust blocks, driveways, sidewalks, equipment pads, and fence post foundations. Hydraulic or Structural Concrete may be substituted.

##### **Performance Requirements**

28-day compressive strength – 4,500 psi minimum

#### **Part 2 - Products**

##### **Mixes**

Water/cement ratio - 0.45 maximum

Nominal maximum aggregate size – ¾-inch (AASHTO Grading No. 67)

Entrained air ratio – 3.5 percent minimum to 6.5 percent maximum

### **3.35 Concrete Finishing**

*[CSI 03 35 00]*

#### **3.35.05 Common Work for Concrete Finishing**

*[CSI 03 35 05]*

#### **Part 3 - Execution**

##### **Preparation**

Do not place concrete which requires finishing until the materials, tools, and labor necessary for finishing the wet concrete are on the job and acceptable to the Owner. If rainfall is possible, tent the work area prior to the pour and maintain protection until the concrete is cured sufficiently to resist damage.

##### **Application**

Each concrete area that requires finishing shall conform to one of the following requirements:

- Interior Floors - Floated
- Equipment Pads - Sacked Wall
- Sidewalks – Light Brushed

### 3.35.54 Floated Finish

*[CSI 03 35 54]*

#### Part 3 - Execution

##### Construction

Consolidate, strike off, and level concrete; but do not work further until ready for floating. Begin floating when water sheen has disappeared and surface has stiffened sufficiently to permit floating operations. Consolidate surface with power-driven floats. Hand floating may be used if area is small or inaccessible to power units.

##### Field Quality Control

Check surface planeness during or after first floating. Cut down high spots and fill low spots to produce surface with tolerance of 1/4-inch in 10 feet in any direction. Refloat to a uniform, smooth, sandy texture immediately after leveling.

### 3.35.56 Light Brushed Finish

*[CSI 03 35 56]*

#### Part 2 – Products

##### Finish

When concrete has appropriately set, finish with light soft broom finish. Brush perpendicular to slab slope.

#### Part 3 - Execution

##### Construction

Consolidate, strike off, and level concrete; but do not work further until ready for floating. Begin floating when water sheen has disappeared and surface has stiffened sufficiently to permit floating operations. Consolidate surface with power-driven floats. Hand floating may be used if area is small or inaccessible to power units.

##### Field Quality Control

Check surface planeness during or after first floating. Cut down high spots and fill low spots to produce surface with tolerance of 1/4-inch in 10 feet in any direction. Re-float to a uniform, smooth, sweat finish concrete.

### **3.35.58 Sacked Wall Finish**

*[CSI 03 35 58]*

#### **Part 1 – General**

##### **References**

Provide sacked finish in accordance with Section 6-02.3(14)A of the Standard Specifications.

### **3.39 Concrete Curing**

*[CSI 03 39 00]*

#### **Part 2 - Products**

##### **Materials**

Curing compounds are not permitted on surfaces that will receive coatings.

#### **Part 3 - Execution**

##### **Installation**

All concrete for structures, sidewalks, drives, curbs, shotcrete (see section 3.37), and where directed by the Owner, shall be water-cured in accordance with ACI 308.1 unless approved in advance by the Owner. If allowed, curing compound shall be applied immediately after finishing or form removal. When plastic or burlap covers are used to augment or protect curing, extend sheeting beyond the edges of the concrete and secure against wind lift. Inspect and adjust curing systems daily, including over weekends and holidays.

Concrete structures that require differential backfill as shown on the Plans or as required for construction shall cure for a minimum of the following prior to placing backfill:

- Backfill equal or greater than 24 inches: 7 days AND 28-day strength requirements.
- Backfill between 6 and 24 inches: 3 days AND 80-percent of the 28-day strength requirements.

All exposed surfaces of mass concrete structures shall be cured using an approved curing compound. Curing compound shall be sprayed on the concrete surface in a uniform manner and according to the manufacturer's recommendations immediately after the concrete has reached sufficient strength to support a person's weight without creating a visible footprint.

### **3.60 GROUTING**

*[CSI 03 60 00]*

### **3.62 Non-Shrink Grouting**

*[CSI 03 62 00]*

### 3.62.13 Non-Metallic Non-Shrink Grout

*[CSI 03 62 13]*

#### Part 1 - General

##### Summary

Use Precision Non-Shrink Grout for grouting all equipment base plates, pipe supports, and base plates for metalwork. Precision Non-Shrink grout may also be used for all other non-shrink grouting operations. General Purpose Non-Shrink grout may be used for any applications other than those noted for Precision Non-shrink Grout. Non-shrink grout shall be used to seal all new pipe and conduit penetrations (watertight) into and out of all concrete and CMU block walled structures.

##### Storage and Handling

Stockpile grout to prevent contamination from foreign materials and store admixtures to prevent contamination or damage from excess temperature change

#### Part 2 - Products

##### Materials

###### Precision Non-Shrink Grout:

Provide a high-precision, fluid, non-shrink, quartz or non-catalyzed metallic aggregate grouting material. Provide a ready-to-use grout that hardens free from bleeding, settlement, or drying shrinkage when mixed, placed and cured at any consistency – fluid, flowable, plastic or damp-pack.

Provide precision, non-shrink natural aggregate grout that when cured produces the following properties:

- A. Compressive Strength at fluid consistency (ASTM C109-Modified): 3500 psi (24 MPa) at 1 day, 7500 psi (52 MPa) at 28 days.
- B. Passes ASTM C1107 as a grade B grout when tested as temperature minimum and maximums of 45 degrees Fahrenheit to 90 degrees Fahrenheit (8 degrees Celsius to 32 degrees Celsius) at a working time of 30 minutes. Grout must be tested at a fluid consistency per ASTM C939 and remain fluid at temperature range minimum and maximums for the 30-minute working time. All materials including water must be mixed and tested at temperature minimum/maximums.
- C. Modulus of Elasticity at 28 days at fluid consistency (ASTM C469):  $3.0 \times 10^6$  psi (20.7 GPa) minimum,  $3.9 \times 10^6$  (27.0 GPa) maximum.
- D. Coefficient of Thermal Expansion for fluid consistency (ASTM C531):  $7.5 \times 10^{-6}$ /degrees Fahrenheit maximum ( $13.5 \times 10^{-6}$ /degrees Celsius).
- E. Flexural strength at 28 days for fluid consistency (ASTM C78): 1300 psi (7.9 MPa).

- F. Resistance to rapid freezing – thawing (ASTM C666, Procedure A): 300 cycles- min RDF 90 percent.
- G. Split tensile strength at 28 days at fluid consistency (ASTM C496): 450 psi (3.1 MPa).
- H. Pass 24-hour grout test under stated temperature, time and fluidity constraints. See MBT Protection and Repair 24-hour Grout Form.

Precision non-shrink grout shall be MasterFlow 928 or 885 Grout or approved equal.

General Purpose Non-Shrink Grout:

General Purpose Non-shrink grout shall meet the compressive strength and nonshrink requirements of CRD-C 621, Grades B and C; Corp of Engineers Specification for Non-shrink grout; and ASTM C1107, Grades B and C. General Purpose Non-shrink grout shall be MasterFlow 713, Dayton Superior 1107 Advantage, or approved equal.

Provide curing compounds as recommended by the grout manufacturer.

Water to be used in mixing the grout shall be potable.

**Mixes**

Comply with grout manufacturer’s recommendations for mixing procedures.

Adjust water temperature to keep mixed grout temperature in the range of 45 degrees Fahrenheit (7 degrees Celsius) and 90 degrees Fahrenheit (32 degrees Celsius) minimum/maximum.

Use cold or iced water to extend working time in hot weather or in large placements.

Use warm water in cold conditions to achieve minimum as mixed temperatures.

**Part 3 - Installation**

**Preparation**

Mechanically remove unsound concrete within the limits of the grout placement.

Remove at least ¼-inch (6mm) of existing concrete facing and continue removal as required to expose sound aggregate.

Thoroughly clean the roughened surface of dirt, loose chips, and dust. Maintain substrate in a saturated condition for 24 hours prior to grouting. Surface should be saturated surface dry at time of grouting.

Clean baseplates and other metal surfaces to be grouted to obtain maximum adhesion. Remove loose rust and scale by grinding or sanding.

Comply with grout manufacturer’s recommendations for form construction. Construct forms to be liquid tight.

## Installation

Place grout mixture into prepared areas from one side to the other. Avoid placing grout from opposite sides in order to prevent voids. Work material firmly into the bottom and sides to assure good bond and to eliminate voids.

Ensure that foundation and baseplate are within maximum/minimum placement temperatures. Shade foundation from summer sunlight under hot conditions. Warm foundation when foundation temperature is below 45 degrees Fahrenheit (7 degrees Celsius).

Wet cure exposed shoulders for 48 hours followed by two coats of curing compound for best results. The minimal requirement is to wet cure until grout has reached final set, followed by two coats of curing compounds.

Division 4  
**Masonry (This Division Not Used)**

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# Division 5

## Metals

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### 5.00 GENERAL

This division covers that work necessary for furnishing and installing metalwork as described in these specifications and as shown on the Plans.

Sections in these specifications titled “*Common Work for . . .*” apply to all following subsections whether directly referenced or not.

### 5.05 Common Work for Metals

*[CSI 05 05 00]*

#### Part 1 - General

#### Part 2 - Products

#### Materials

##### Structural Steel

Structural steel shall conform to the following requirements:

Plates, shapes, angles, rods - ASTM A36 and A992,  $F_y \geq 36$  ksi

Special shapes, plates - ASTM A572,  $F_y \geq 50$  ksi

Pipe Columns - ASTM A53, Grade B Type E or S,  $F_y \geq 35$  ksi (see Division 15.22 for steel pipe carrying fluids).

Structural Tubing - ASTM A500, Grade B,  $F_y \geq 46$  ksi

##### Stainless Steel

Stainless steel shall be type 316 (non-welded) or type 316L (welded) or as called out.

Plates - ASTM A240

Fasteners - ASTM F593

Extruded Structural Shapes - ASTM A276

Pipe - ASTM A240 or higher grade or as called out.

See Section 15.22.4 for information on pipe used for mechanical applications.

All stainless steel shall have a standard mill finish where concealed or No. 4 finish where exposed and shall be cleaned of all foreign matter before delivery to the job site.

##### Aluminum

Plates - ASTM B209, Type 6061-T6

Extruded Shapes - ASTM B308, Type 6061-T6

Pipe - ASTM B210 Type 6061

Architectural Applications - ASTM B210, Type 6063

### Galvanized Steel

Base metal shall be as specified for Mild Steel.

Hot-dip galvanized after fabrication in accordance with ASTM A 924/A 924M.

Finishes: For pieces that will NOT be painted, galvanize with zinc coating in accordance with ASTM A 653/A 653M. For pieces that WILL be painted, galvanneal with zinc/10 percent iron coating in accordance with ASTM A 653/A 653M.

### **Manufactured Units**

Design of Contractor- or Manufacturer-designed components or assemblies shall meet the specific component requirements as provided here-in, as well as all applicable state and federal codes. Design shall include gravity loads and seismic loads in accordance with ASCE 7-10 Chapter 13 "Seismic Design Requirements for Nonstructural Components". Design criteria shall be as provided herein for components, and as provided on the Plans.

Contractor-designed components and assemblies shall be shop welded and field bolted if possible. Field welding will NOT be allowed unless specifically shown, or there is no reasonable alternative.

### **Finishes**

Isolate and coat dissimilar metals to prevent galvanic corrosion.

Stainless steel: Uncoated

## **5.05.23 Bolts and Other Connectors For Structural Elements**

*[CSI 05 05 23, 06 05 23]*

### **Part 2 - Products**

#### **Materials**

Bolts and other connectors not specifically called out otherwise shall be in accordance with the following.

Under no circumstances shall the fasteners be of lesser strength or higher corrosion potential than the materials being connected.

Connection bolts, nuts and washers for all materials in wet, damp or corrosive locations shall be Stainless Steel, alloy 304 in raw domestic or treated domestic water, alloy 316 in treatment process and sewage applications, and alloy 317 for acidic transport. Bolts and nuts shall meet ASTM F593B (bolts 1/4-inch to 1 1/2-inch in diameter with 30 ksi yield) and F594B (nuts). Use Nitronic 60 bolts and nuts for strong chlorine environments.

Steel and cast-iron fabrications: Connection bolts for dry locations shall be ASTM A307 galvanized or zinc plated bolts.

Structural Plastic Fabrications: Connection bolts shall be ASTM A307 galvanized in dry applications and Stainless Steel in wet, damp or corrosive locations.

Aluminum Fabrications: Connection bolts shall be ASTM A307 galvanized. Aluminum fasteners may be allowed where high strength is not needed (e.g. mounting expanded metal screens, or louver fins), confirm with Engineer prior to use. Steel screws must be galvanized, or zinc plated. 300 Series stainless steel fasteners allowed only with the use of isolating washers.

Stainless steel fabrications: Fasteners to match same stainless series as structure (e.g. 300 series fasteners with 300 series structure)

Bolts installed into hardened concrete shall be Concrete Anchors per section 3.15.19.

Bolts and studs shall be long enough that at least two threads extend beyond the face of the tightened nut.

For pump anchor bolts, see Division 11.

For mechanical pipe (non-structural) connections, see Division 15.21, "Common Work for Pipe and Fittings".

### **Part 3 - Execution**

#### **Installation**

All materials to be joined together shall be connected as shown on the Plans, specifications, as recommended by the manufacturer, or as required by standard industry practices if not otherwise specified.

#### Dissimilar metals:

In damp locations, isolate dissimilar metals using nylon isolation sleeves and washers, Cooper B-Line Nylon Headed Sleeve Kit or equal.

For wet locations: avoid dissimilar metals unless specifically approved or shown. Use similar metals with welded connections. If approved or shown, use galvanized mild steel bolts installed into prepped and coated holes with additional field coating over the top of bolt.

Division 6  
**Wood, Plastics, and Composites (This Division Not  
Used)**

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# Division 7

## Thermal and Moisture Protection

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### 7.00 GENERAL

This division covers furnishing all labor, materials, and equipment for providing a structure that is completely weather-tight.

Sections in these specifications titled “*Common Work for . . .*” shall apply to all following subsections whether directly referenced or not.

### 7.05 Common Work for Thermal and Moisture Protection

*[CSI 07 05 00]*

#### Part 1 - General

##### Submittals

Submittal information shall be provided to the Owner for the following items:

- Sheet waterproofing
- Thermal insulation
- Ceiling insulation
- Vapor barrier
- Caulk

### 7.20 THERMAL PROTECTION

*[CSI 07 20 00]*

#### 7.21 Thermal Insulation

*[CSI 07 21 00]*

##### 7.21.16 Blanket Insulation

*[CSI 07 21 16]*

#### Part 1 – General

##### Performance Requirements

Insulation shall be Kraft-paper-faced batt with a minimum R value of 21 or as indicated on the Plans.

#### Part 2 – Products

##### Manufacturers

Ceiling insulation shall be equal to Owens Corning.

## Part 3 – Execution

### Installation

Provide and install ceiling insulation as shown on the project Plans. Place insulation with craft paper face down and as recommended by the manufacturer. Insulation shall be placed to the extents possible to cover the attic. Place baffles above the insulation as the slope of the roof meets the building edge as needed to provide a 1-inch minimum air gap between the top of insulation and the underside of the roof sheathing.

Provide and install wall insulation as shown on the project Plans. Place insulation with craft paper face out and as recommended by the manufacturer. Fit insulation tightly in cavities. At wood framing, place vapor retarder indicated side of insulation by stapling at 6 inches on center. Lap and seal sheet retarder joints over member face.

## 7.90 JOINT PROTECTION

*[CSI 07 90 00]*

### 7.92.13 Elastomeric Joint Sealants

*[CSI 07 92 13]*

#### Part 1 – General

##### Submittals

Submit schedule for caulk used on the project for approval prior to application.

#### Part 2 – Products

##### Materials

###### Kitchen, Bath, Laboratory, and Other Wet Areas

DAP® KWIK SEAL PLUS® Premium Kitchen & Bath Adhesive Caulk w/MICROBAN® or equal.

###### Concrete and Masonry

DAP® Premium Polyurethane Concrete & Masonry Sealant or equal.

###### Wood or Concrete Board Siding

DAP® ALEX PLUS® Acrylic Latex Caulk Plus Silicone or equal.

###### Doors and Windows

DAP® DYNAFLEX 230® Premium Elastomeric Sealant or equal. Where necessary to provide a suitable backstop and bond breaker, tightly pack with polyethylene foam. Rope the back of grooves, leaving a minimum depth of 1/4-inch for sealant. Prime surfaces as recommended by manufacturer.

Other Surfaces

Contractor shall provide caulk appropriate to surface and reason for caulk application.  
Caulk shall be the most durable available (longest warranty) by DAP®, or equal.

**Part 3 – Execution**

**Installation**

Caulk all joints and spaces necessary to provide a completely weather-tight product.

Apply caulking in strict accordance with manufacturer's directions with regard to temperature at application and curing times, surface condition, moisture, and cleanliness.

Apply after surfacing prime and prior to final coatings if surface is to be coated. If surface will not be coated, provide color choices to the Owner for approval prior to application.

Clean all adjoining surfaces of excess sealant, smears, or marking due to application and leave joints with neat, uniformly-filled surfaces.

# Division 8

## Openings

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### 8.00 GENERAL

Sections in these specifications titled “*Common Work for . . .*” apply to all following subsections whether directly referenced or not.

### 8.90 LOUVERS AND VENTS

*[CSI 08 90 00]*

#### 8.90.05 Common Work for Louvers and Vents

*[CSI 08 90 05]*

##### Part 1 – General

##### Related Sections

See Louver and Damper Schedule on the Plans.

##### Design Criteria

Dimensions of louver assemblies shall be as shown on the Plans.

##### Submittals

Submit detailed product information including specifications, performance information, dimensional drawings, coating systems, available colors, and accessories.

##### Part 2 – Products

##### Manufacturers

The following manufacturers are considered to be acceptable “or equals” unless otherwise noted on the Plans or elsewhere herein.

- Pottorff
- Cesco
- Louvers & Dampers, Inc.

##### Components

Provide all accessories needed for a complete installation including wall and roof thimbles, backguards, and mounting sleeves.

Provide as follows unless shown otherwise on the Plans.

Smooth mounting surfaces: Louver shall include mounting flange to be attached to the outside of wall.

Provide a filter frame and an insect screen on the interior side of intake louvers. The filter frame shall allow for easy installation and removal of standard size filters. Provide two sets of filters.

Provide a rodent/bird mesh on the outdoor side of all louvers. Mesh shall not impede rotation of dampers, if any. The screen shall be corrosion resistant with maximum 1/4-inch openings.

### **Finishes**

All louvers shall be coated with factory Kynar, or powder coat finish, color to match exterior color scheme.

Mesh shall be factory coated to match louver/damper color.

## **Part 3 – Execution**

### **Installation**

Unless shown otherwise on the plans, set louver frame flush with the wall exterior. Mount weather heads or acoustic shields on the exterior wall face.

Install so that blade linkages are accessible after installation to permit service and lubrication without requiring removal of wallboard or other structures.

Operate all moving parts prior to installation. Any non-functional or binding parts shall be repaired or replaced prior to installation.

## **8.91.32 Combination Louver**

*[CSI 08 91 32]*

### **Part 2 – Products**

Combination louvers to include front fixed blades and movable rear blades.

Frames shall be mil finish extruded aluminum, exterior flange mounted unless shown otherwise on the Plans. Frame to be welded or assembled using plated steel mounting fasteners. Fixed blades shall be extruded aluminum profiles and shall not be less than 0.06 inch thick. Rear adjustable blades shall be extruded aluminum no less than 0.1 inch thick.

Blade and frame seals shall be of extruded silicone or vinyl and shall be secured in an integral slot within the aluminum extrusions. Blade and frame seals are to be mechanically fastened to eliminate shrinkage and movement over the life of the damper. Adhesive or clip-on type blade seals are not allowed.

Adjustable blades to be connected by an integral linkage system that can be attached to an automatic actuator.

When an actuator is not used, include a light tension spring or adjustable counterweight to prevent blades from opening due to wind pressure.

# Division 9

## Finishes

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### 9.00 GENERAL

This division covers work necessary for providing all materials, equipment, and labor to coat all items in accordance with these specifications.

Sections in these specifications titled “*Common Work for . . .*” apply to all following subsections whether directly referenced or not.

### 9.20 PLASTER AND GYPSUM BOARD

[CSI 09 20 00]

#### 9.21.23 Gypsum Board for Low Occupancy Areas

[CSI 09 29 13]

##### Part 1 - General

###### Summary

This section covers work within infrequently occupied facilities, process, or industrial buildings. This section includes the following areas:

1. Pump Room

###### Related Sections

- Division 9.21.21 Gypsum Board for High Occupancy Areas
- Division 9.21.23.10 Interior Painting – Gypsum Wallboard

##### Part 2 - Products

###### Components

Gypsum board shall be selected based on the installed application (see below) and as recommended by the Gypsum Association GA-223-96. Gypsum board shall be 5/8-inch thick, unless otherwise noted.

Type	Application	ASTM
Regular	Interior Walls and Ceilings	C1396
Type X or C	Fire-Rated Construction	C1396
Soffit Board	Exterior Soffits and Ceilings	C931
Water-Resistant Gypsum Backing Board	Tile Base	C630

Joint treatment: U.S. Gypsum Company Perm-a-Tape or equivalent. Protect exposed corners with U.S. Gypsum Company Perm-a-Tape or equivalent moldings embedded in joint compound per manufacturer’s recommendations.

## Part 3 - Execution

### Installation

Finish-sand all areas to smooth, even surfaces suitable for paintings.

Provide and install all necessary components, including furring, as necessary to install gypsum board in accordance with local building code and Gypsum Associations standards (GA-216 and GA-600). Install gypsum board as needed to maintain fire and sound transmission rating.

Apply square edge with the long dimension parallel with supports. Abut sides and edges to vertical framing members, top and bottom plates, or headers. Attach using nails spaced at 8 inches O.C. at all edges, and 8 inches O.C. on intermediate support.

## 9.90 PAINTING AND COATING

*[CSI 09 90 00]*

### 9.90.05 Common Work for Painting and Coating

*[CSI 09 90 05]*

#### Part 1 – General

##### Scope

The work specified in this Section covers the furnishing and installation of protective coating, complete in place. Shop coating and/or factory applied finishes on manufactured or fabricated items may be specified elsewhere. Regardless of the number of coats previously applied, at least two coats of paint shall be applied in the field to all coated surfaces unless otherwise specified herein.

##### Definitions

Applicator: When used to describe work, the applicator is the party who is qualified for and performs the coating work. When used to describe contract requirements, the Contractor has responsibility as the applicator unless specifically stated otherwise. Contract requirements include but are not limited to submittals, warranties, insurance, etc.

##### Submittals

- Products: Before beginning any painting or coating, submit a list of coatings and manufacturers for review by the Owner. Do not provide an indiscriminate collection of data sheets. Include the application each coating is intended for, any surface preparation, number of coats, method of application, and coating thickness. If submitted products are manufactured by a company other than the specified reference standard, provide complete comparison to specified projects including application procedures, coverage rates, and verification that product is appropriate for intended use. Provide information that demonstrates the submitted products are equal to the performance standards of products manufactured by Tnemec Corporation, which is the reference standard.

- Colors: Provide color choices with physical cards prepared by the coating manufacturer. Electronic (PDF, jpg, etc.) charts, and charts made from office printers or copiers are not acceptable. If the Owner elects to make preliminary selection from an electronic or printed chart, the Contractor must provide physical samples of the colors selected for the Owner's approval.
- Safety Data Sheets (SDS) for all materials including solvents.
- NSF certification for finishes in potential contact with potable water.
- Schedule: Provide a schedule of coating operations and inspection timing. Owner may adjust the schedule based on Owner's personnel availability.

### **Performance Requirements**

All finishes potentially in contact with potable water shall be National Sanitation Foundation (NSF) 61 or 600 certified for contact with potable water. Certification from the NSF or UL shall be supplied in writing at the time of the submittal process for Finishes. Verify the submitted coatings' current NSF requirements, restrictions, and applicability to the coated items. Verify finishes used on the project are compliant with primary and secondary standards of the Safe Drinking Water Act. Any violation shall be remedied at the Contractor's expense.

The completed coating shall produce a minimum dry film thickness in accordance with the specifications as determined by the microtest thickness gauge or comparable instrument. In areas where this thickness is not developed, sufficient additional coats shall be applied to produce it.

### **Quality Assurance**

The Contractor is responsible for compatibility of all shop and field applied paint products including the use of primer, intermediate, and top coats by different manufacturers if applicable. For any Contractor initiated substitutions, the Contractor shall verify complete compatibility between coatings provided for the project. If coatings are not compatible per manufacturer's review it is the Contractor's responsibility to remove incompatible coatings fully and replace with compatible coating systems.

Paint used in the first field coat over shop painted or previously painted surfaces shall cause no wrinkling, lifting, or other damage to the underlying paint.

The Contractor is responsible for obtaining written documentation from equipment/material manufacturers regarding the date at which shop prime coatings are applied and shall strictly adhere to the coating manufacturer's recommendations for recoat time intervals. The Contractor shall submit to the Owner such documentation upon request.

### **Storage and Handling**

Bring all materials to the job site in the original sealed and labeled containers of the paint manufacturer. Materials are subject to inspection by the Owner. Store paint supplies as recommended by the manufacturer and as approved by the Owner.

## Part 2 – Products

### Manufacturers

The following coating system manufacturers are approved subject to compliance with the Specifications contained herein:

1. Tnemec Company
2. Sherwin Williams
3. Or Equal

The specified coating establishes the type and quality of the coating desired. Other manufacturers' products will be accepted provided sufficient information is submitted to allow the Owner to determine that the coatings proposed are equivalent to those named. Proposed coating shall be submitted for review in accordance with Division 1. Requests for review of equivalency will not be accepted from anyone except the Contractor.

Substitutions of the coatings of other manufacturers will be considered only if equivalent systems of coatings can be provided and only if a record of satisfactory experience with the system in equivalent applications is available. Offers for substitutions will not be considered which decrease film thickness, solids by volume or the number of coats to be applied, or which propose a change from the generic type of coating specified herein. All substitutions shall include complete test reports to prove compliance with specified performance criteria.

## Part 3 – Execution

### Preparation

Take any measures necessary to prevent over-spray of structures and/or components in the field from both preparation and coating work. Should over-spray occur, the Contractor is responsible for all costs associated with any damage resulting from over-spray.

### Installers

Contractor is responsible for quality assurance including the retention of a coating applicator with experience necessary to complete the work as specified. Applicator's personnel shall be adequately trained for application of specified coatings. Applicator must prove adequate experience with the coatings specified for this project.

### Preparation

Prepare surfaces in accordance with the recommendations of the manufacturer of the coating to be applied to the surface, or the surface preparation requirements of these specifications, whichever are stricter.

Apply coatings only during weather meeting the coating manufacturer's recommendations. Air and surface temperatures, humidity, and all other environmental conditions shall be within limits prescribed by the manufacturer for the coating being applied, and work areas shall be reasonably free of airborne dust at the time of application and while coating is drying.

Materials shall be mixed, thinned, and applied according to the manufacturer's printed instructions. Dry Film Thickness (DFT) shall be as stated herein or applied based on coverage rates of square feet per gallon (sq. ft./gal).

### **Installation/Construction**

Apply paint in strict accordance with manufacturer's printed instructions except that coating thickness specified herein shall govern. Finished coating on all items shall be clean, undamaged, and of uniform thickness and color.

Coat in a manner satisfactory to the Owner. The DFT listed in these specifications must be met, regardless of the applied film thickness or number of coats.

Observe all safety precautions stated in the manufacturer's printed instructions. Provide adequate ventilation and lighting at all times.

The manufacturer's recommended drying time shall be construed to mean "under normal conditions". Where conditions are other than normal because of weather, confined spaces, or other reason, longer drying times may be necessary. The manufacturer's recommendation for recoating time intervals shall be strictly adhered to.

### **Field Quality Control**

The prime Contractor shall be completely responsible for coating quality. The Contractor shall provide both wet and dry film gauges and make such available to the Owner when requested.

Use the Pictorial Surface Preparation Standards for Painting Steel Surfaces (VIS-1) by the Steel Structures Painting Council (SSPC) as a visual standard for inspection of surface preparation of metal surfaces. Test-Tex Tape may also be used to verify surface profile.

Acceptance of the completed coatings shall be based on the proper application and proper preparation of the coated surfaces, and a finished product that meets minimum thickness and does not contain runs, drips, surface irregularities, overspray, color variations, scratches, pinholes, holidays, and other surface signs that detract from the overall performance and/or appearance of the finished project.

### **Inspections**

For metals exposed to exterior atmospheric conditions, first coat of paint or primer must be placed within four hours of passing inspection. Bare steel must be reblasted and reinspected if not successfully coated within this four-hour time frame, at the Contractor's expense.

Inspect each coat prior to application of the next coat. Areas found to contain runs, overspray, roughness, streaks, laps, sags, or other signs of improper application shall be repaired or recoated in accordance with the manufacturer's recommendations. Finish coats shall be uniform in color and sheen. Surface preparations and coatings not inspected and approved by the Owner due to insufficient notice will be uncovered for inspection and approval at no additional cost to the Owner.

The Owner shall inspect and approve all surface preparations prior to application of any coating. For coatings not requiring AMPP inspection per these specifications, provide 24-hour notice prior to surface inspection needs.

### **Non-Conforming Work**

Scratched, chipped, or otherwise damaged coatings, including factory coatings, shall be repaired before final acceptance will be given.

If, in the Owner's sole opinion, the finished color does not match that of the submitted and approved colors, the Contractor will recoat as necessary to achieve the approved color at no additional cost to the Owner.

If the Owner or coating inspector finds anomalies and/or defects, the Contractor shall re-prepare and recoat those areas per the coating manufacturer's instructions.

### **Cleaning**

If any cleaning of equipment at the site is performed with solvents, such work shall be done over leak-proof linings. Preparation or coating materials may not be disposed of onsite.

Collect, contain, transport, and dispose all waste products generated for this project. Cleaning and disposal shall comply with all federal, state, and local pollution control laws. Provide acceptable containers for collection and disposal of waste materials, debris, and rubbish.

## **9.90.06 Product and Color Schedule**

### *[CSI 09 06 90]*

Field, shop, and manufacturer applied coatings shall conform to the following schedule unless specifically stated otherwise. All finishes shall be satin unless otherwise specified. Factory coatings which are damaged shall be recoated in the field in accordance with these specifications.

Items of similar purpose shall be painted the same color. If items come with a factory applied coating that does not match said color, they shall be field coated to match unless stated otherwise in the respective product specification section.

The contractor shall allow no less than 15 working days from the time the Owner is provided with color selections for the Owner to make color choices.

The Owner will develop a color schedule for painted items after award of the contract. Provide a pallet of colors from the manufacturer of not less than 30 color choices.

## **9.90.13 Unpainted Items**

### *[CSI 09 90 13]*

#### **Part 1 – General**

##### **Summary**

Do not coat the following items unless specifically directed otherwise in these specifications or on the Plans.

- Aluminum, plastic, or stainless-steel items.
- Brass and copper pipe, valves, and fittings for plumbing fixtures.

- Nameplates, labels, or identification tags.
- Sensors, switches, transmitters.
- Pipe joint bolts, shackles, washers, and nuts.

Field painting is not required for equipment listed below if they come with a factory finish epoxy, polyurethane, or powder coat. Items supplied with only a factory prime coat must be field coated.

- Motors
- Control valve pilot systems
- Sensor piping systems
- Valves
- Flow meters
- Machinery and blowers
- Electrical panels

### 9.91.13 Exterior Painting

*[CSI 09 91 13]*

#### 9.91.13.10 - System 1: Wood – Exterior, Painted

*[CSI 09 91 13 17]*

##### Part 1 - General

Exterior wood, cement fiber siding, and/or durable engineered wood surfaces, including, but not limited to trim, soffit, siding, and other similar surfaces.

##### Part 2 - Products

1. Tnemec
  - a. Prime Coat:
    - i. Rough or open grain wood: Series 115 Uni-Bond or 151-1051 Elasto-Grip (250 to 300 square feet per gallon)
    - ii. Smooth wood: Series 115 Uni-Bond (250 to 300 square feet per gallon)
  - b. Intermediate Coat: Series 156 EnviroCrete (4 to 6 Mil DFT)
  - c. Finish Coat: Series 1029 Enduratone (4 to 6 Mil DFT)
2. Sherwin Williams
  - a. Primer: Exterior Latex Wood Primer (250 to 300 square feet per gallon)
  - b. Intermediate Coat: Loxon XP (4.0 to 6.0 Mil DFT)

- c. Finish Coat: Loxon XP (4.0 to 6.0 Mil DFT)

### **Part 3 - Execution**

#### Surface Preparation

1. Surface clean, dry, and free of contaminates.

### **9.91.23 Interior Painting**

*[CSI 09 91 23]*

#### **9.91.23.10 - System 1: Gypsum Wallboard – Interior, Painted**

*[CSI 09 91 23 17]*

#### **Part 1 - General**

1. Gypsum wallboard ceilings, walls, and other similar surfaces located in a conditioned environment (i.e. building).

#### **Part 2 - Products**

1. Tnemec
  - a. Primer: Tnemec Series 289 Enviro-Pox, applied at 2.0-4.0 mils DFT
  - b. Finish Coat: Tnemec Series 289 Enviro-Pox, applied at 4.0-6.0 mils DFT:
2. Sherwin Williams
  - a. Primer: PrepRite ProBlock Int/Ext Latex Primer Sealer B51 Series (180 – 200 square feet per gallon)
  - b. Finish Coat: Pro-Industrial Water Based Catalyzed Epoxy B73 Series (4 to 6 Mil DFT)

### **Part 3 - Execution**

#### Surface Preparation

Surface clean, dry and free of contaminants.

# Division 10 Specialties

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## 10.00 GENERAL

This division covers that work necessary for fabricating and installing all furnishings and accessories as described in these specifications and as shown on the Plans.

Sections in these specifications titled “*Common Work for . . .*” apply to all following subsections whether directly referenced or not.

## 10.05 Common Work for Specialties

*[CSI 10 05 00]*

### Part 1 - General

#### Submittals

Submittal information shall be provided to the Owner for the following items:

- Equipment Signs

## 10.06.10 Schedules for Signage

*[CSI 10 06 10.13,.16]*

### Part 2 - Products

#### Materials

Unless otherwise specified, text shall be white on a background color shown below.

Purpose	Plate Color
General	Black
Warning	Red
Electrical	Black
Domestic Water	Blue

## 10.10 INFORMATION SPECIALTIES

*[CSI 10 10 00]*

## 10.14.23 Panel Signage

*[CSI 10 14 23]*

### Part 2 - Products

#### Materials

##### *Equipment Signage*

1. Equipment signs shall be plastic-laminated 1-inch high, by required length, by 1/8-inch thick, with 1/2-inch high letters in N-2 Standard Gothic characters.

##### *Pump Signage*

1. Provide a 2-inch high, temperature resistant metal or vinyl number or name on each pump or pump motor. Number shall face the pump control panels and be placed so as not to be obscured from other equipment. Confirm with Engineer the proper numbering or naming of each pump.

##### *Construction Fence Perimeter Signage*

1. Signs shall be made of polyethylene and be 1/8-inch thick minimum. Sign shall have a white background with construction orange print. Font shall be readable from 100 feet.
2. During construction, if construction site is to be partially or completely enclosed, signs stating "Construction Area, Keep Out" shall be placed so that at any location around the construction site within 100 feet of a sign can be read from that distance. Upon removal of temporary construction fencing, remove signs from fencing and deliver to Owner.

##### *Electrical and Control Equipment*

1. See Division 16.

# Division 11

## Equipment

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### 11.00 GENERAL

Sections in these specifications titled “*Common Work for . . .*” apply to all following subsections whether directly referenced or not.

### 11.05 Common Work for Equipment

*[CSI 11 05 00]*

#### Part 1 - General

##### Related Sections

- Division 1.81.30 Seismic Restraint Requirements

##### Submittals

Provide submittal information to the Owner for the following items:

- Pump Anchor Bolts

### 11.10 PUMPS

*[CSI 43 20 00]*

### 11.10.5 Common Work for Pumps

*[CSI 43 05 20]*

#### Part 1 – General

##### Summary

This section covers work necessary to install the packaged pumping system, complete with motors and accessories, described herein and as shown on the Plans. The Owner has pre-purchased the packaged pumping system complete with pump, discharge header, motor and suction header. See **Appendix B** for preliminary submittal information from the supplier.

#### Part 3 – Execution

##### Preparation

Domestic water pumps shall be disinfected per AWWA A-100 prior to installation. After disinfecting, immediately flush and rinse the pumps with clean water to remove the high chlorine concentration solution.

##### Installation/Construction

Install pump units in accordance with manufacturer’s specifications and direction. Delivery and installation shall be coordinated and installation shall be approved by manufacturer’s representative prior to operating or field testing units.

Adjust pump assemblies so that driving units are properly aligned, plumb, and level with the driven units and all interconnecting shafts and couplings. Flexible couplings shall not be used to compensate for any misalignment.

Connect suction and discharge piping to the headers in a manner which prevents strain on pump flanges. Provide fittings, pipe and appurtenances necessary, whether shown on the Plans or not, to make all systems complete, tested and ready for operation.

### **Field Quality Control**

*See Division 1.75.1 Scheduling for scheduling and notification requirements.*

The pump supplier will provide a qualified and authorized representative of the pump manufacturer to conduct and/or supervise the field testing. Prior to acceptance of installed pumps, manufacturer's representative shall demonstrate proper operation of pumps at capacities stated. The Contractor shall coordinate all activities with the manufacturer's representatives and assist with modifications as necessary. Upon completion of pump installation and testing, manufacturer's representative shall provide written certification that equipment is installed correctly and fully warranted.

Contractor shall be responsible for calibration, startup, and initial performance to meet specifications herein. A field test shall be made to give an indication of the performance of the new pump when it is operating under actual field conditions and to establish the acceptance of the pump furnished and installed. The field test shall be performed in the presence of the Engineer and Owner after the piping and controls have been installed.

A performance test similar to those described in the latest edition of Hydraulic Institute's (HI) Pump Tests (ANSI/HI 14.6 centrifugal and vertical, ANSI/HI 11.6 Submersible) shall be performed, submitted to the Engineer and approved for each pump.

The field test shall be performed to the accuracy obtainable with the testing equipment installed as a part of the piping and instrumentation. If sufficient field devices are not available, the Contractor shall provide testing gauges and meters as needed. At a minimum, the following are needed:

- Suction pressure gauge, or water level probe
- Discharge pressure gauge
- Flow meter
- Electric current (Amp) meter(s), per phase

### **11.11.13 Packaged Pump Station**

*[CSI 33 14 43]*

#### **Part 1 - General**

##### **Summary**

The Contractor shall install the Owner provided packaged pumping system, complete with motors and accessories (outlined in **Appendix B**) described herein and as shown on the Plans.

## 11.19 Pump Anchor Bolts

*[CSI 03 15 19.13 (cast-in) or 05 05 19 (drilled)]*

### Part 2 - Products

#### Materials

Pump anchor bolts to be epoxy anchors equal to Hilti HIT-RE 500-SD or Simpson Strong Tie SET-XP using 316 stainless steel threaded rod. Rod diameter to be the largest that will fit in the pre-drilled pump mounting base, unless approved otherwise by the Engineer.

Rod Diameter	$\frac{3}{8}$ -inch	$\frac{1}{2}$ -inch	$\frac{5}{8}$ -inch	$\frac{3}{4}$ -inch
Minimum Embedment	3.5-inch	4.25-inch	5-inch	6.625-inch
Minimum Edge Distance	5.25-inch	6.5-inch	7.5-inch	10-inch

Pump manufacturer or authorized representative shall size the pump anchor bolts. Contractor to supply.

Division 12  
**Furnishings (This Division is Not Used)**

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# Division 13

## Special Construction

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### 13.00 GENERAL

This division covers that work necessary for supplying, fabricating and installing all furnishings and accessories as described in these specifications and as shown on the Plans.

Sections in these specifications titled “*Common Work for . . .*” apply to all following subsections whether directly referenced or not.

### 13.30 SPECIAL STRUCTURES

*[CSI 13 30 00]*

#### 13.34 Fabricated Engineered Structures

*[CSI 13 34 00]*

##### Part 1 – General

###### Summary

This specification covers the Tuff Shed shown on the plans. Contractor may submit an “or equal” or field built equivalent so long as it meets the requirements outlined below.

###### Design Criteria

Structure shall be of the dimensions shown on the Plans.

Structure shall consist of 2x6 wood framing.

Structure shall have a 6' wide x 7' tall roll-up door.

Structure shall have house wrap.

Structure shall be painted in a color chosen by the Owner.

Structure shall have a ridge vent.

Structure shall have a shingle roof.

Structure shall have no floor such that it can be directly placed and anchored to the cast-in-place concrete floor.

Structure shall have wood panel siding.

Structure shall have insulation installed in the roof and walls.

Structure shall have vapor barrier installed between the building walls and insulation.

##### Part 2 – Products

###### Manufactured Units

Structure shall be Tuff Shed Premier Pro Tall Ranch with options as outlined above, or equal.

### **Part 3 – Execution**

#### **Installation**

Structure may be pre-fabricated or assembled on site.

Division 14  
**Conveying Systems (This Division Is Not Used)**

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# Division 15

## Mechanical

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### 15.00 GENERAL

This division covers the work necessary for furnishing and installing mechanical appurtenances and accessories as described in these Specifications and shown on the Plans.

Sections in these specifications titled “*Common Work for . . .*” shall apply to all following subsections whether directly referenced or not.

### 15.05 Common Work for Mechanical

*[CSI 33 05 00]*

#### Part 1 - General

##### Summary

Provide the necessary piping, plumbing, fittings, and appurtenances to make all piping systems complete, tested, and ready for operation as specified herein and as shown on the Plans. Some fittings that are necessary for the complete piping system installation and operation may not have been shown. Provide fittings, pipe, and appurtenances necessary, whether shown on the Plans or not, to make all piping systems complete, tested, and ready for operation.

Some pipe supports, thrust blocking, and tie rods are not shown on the Plans. Provide pipe supports, thrust blocking, and tie rods for pipes as required by accepted design criteria to support and restrain the loads encountered.

##### Related Sections

- Division 1.81.30 Seismic Restraint and Anchorage
- Division 1.81.40 Pressure Ratings
- Division 1.81.50 Materials in Contact with Drinking Water
- Division 10.14.23 Panel Signage

##### References

All products in contact with drinking water to be low-lead (less than 0.25 percent) content in compliance with NSF/ANSI 372.

##### Submittals

Submittal information shall be provided to the Owner for the following items:

- Ductile iron pipe
- Ductile iron fittings
- Copper pipe and fittings
- Brass/Bronze pipe and fittings
- Isolation valves
- Other mechanical components listed in this division or required by the Engineer

## **Part 2 – Products**

### **Materials**

All valves, meters, hydrants, specialties, appurtenances, and other such mechanical and plumbing components that are of similar purpose shall be of a single manufacturer and model line. Do not “mix and match” unless specifically stated otherwise or allowed by the Engineer. The intention of this requirement is to maintain consistency across all components installed on the project for function, maintenance, aesthetics, and details of installation.

## **Part 3 - Execution**

### **Field Quality Control**

Provide all work and complete all tests required to demonstrate the integrity of the finished installation for the approval of the Owner and all agencies having jurisdiction.

### **Tests/Cleaning**

Test and clean the water main per City of Kirkland pre-approved plans.

## **15.10 BURIED PIPE INSTALLATION**

*[CSI 33 05 05]*

### **Part 1 – General**

#### **Site Conditions**

Existing soils are unclassified except where specifically identified on the Plans or specification.

### **Part 3 - Execution**

#### **Preparation**

Stringing of pipes in advance of pipelaying may occur but may not create a traffic hazard or block access to roads, driveways, or private property without approval from the local traffic authority and affected property owners. Pipe shall not be strung out more than two weeks in advance of installation. Any pipe or materials that will not be installed for two weeks must be stockpiled at a site procured by the Contractor or as provided in this contract.

Pothole ahead of pipe-laying a sufficient distance at located utility crossings and where noted on the plans to allow room to make vertical adjustments as necessary to avoid existing utilities. Should the Contractor fail to pothole identified utility crossings, any subsequent adjustments necessary shall not be cause for cost or time claim. If the area potholed is in a travelled area and will be reopened to traffic more than one day in advance of pipelaying through the zone, the hole shall be patched with hot or cold mix, the cost of which shall be incidental.

Provide the results of potholing to the Owner no less than two working days in advance of utility installation. Provide a written record of size, materials, and locations for found utilities to an accuracy of 0.5 foot horizontal and 0.1 foot vertical. Failure to record locations clearly and legibly will result in non-payment.

## Installation

Install pipes to the depth shown on the trench detail, unless superseded by depth shown on the profile. Unless specified otherwise, install pipe to the following tolerances:

- Pressure pipes: 0.5 feet horizontal, 0.2 feet vertical. Regardless of vertical tolerance, do not create new high points not otherwise shown on the plans.
- Gravity pipes: 0.5 feet horizontal, 0.03 feet vertical. Regardless of vertical tolerance, do not lay pipe with reverse slope.

All non-metallic pipe, including service and air valve lines, shall include a tracer wire taped every 5 feet to the top of the pipe. Loop tracer wire to the surface in accessible locations such as valve boxes, meter vaults, or other surface access. If no access is available for more than 1,500 feet, provide a valve box specifically for the tracer wire. Wire shall be solid UF, 12AWG minimum for 2,000 foot runs and less, or 10AWG for runs longer than 2,000 feet.

Keep openings in pipe closed during the progress of work. Install plugs to prevent water and debris from entering pipe. No payment will be made to clean pipes.

### 15.11.11 Pressure Pipe Installation

*[CSI 33 05 05.22]*

#### Part 1 - General

##### References

Use materials and installation methods in accordance with the latest edition of the Uniform Plumbing Code and local codes and regulations that are applicable.

##### Scheduling

Schedule of connections shall be per City of Kirkland pre-approved plans.

#### Part 3 - Execution

##### Installation

Install pipes in accordance with the manufacturer's recommendations. Use types and sizes of pipes as specified herein and/or as shown on the Plans. Where small pipe sizes are omitted from the Plans and not mentioned in the specifications, use sizes corresponding to code requirements and as required by equipment and plumbing fixtures and appurtenances. Properly size any undesignated pipe sizes for the functions to be performed.

Lay pipe and supports at proper lines and grades. Follow the piping runs shown on the Plans as closely as possible, except for minor adjustments to avoid architectural and structural features. Make major relocations, if required, in a manner acceptable to the Owner.

Keep openings in pipes closed during progress of work.

Form thrust blocking so that bolts, joints, gaskets, and flanges of adjacent joints are clear of concrete allowing bolts and joints to be dismantled without removing concrete. All concrete

blocking shall have a minimum compressive strength of 4,000 psi unless identified otherwise in Division 3 or on the Plans.

Pipe passing through concrete walls or slabs shall be made watertight.

Trenches shall be excavated to a sufficient width to allow for pipe installation, compaction equipment, and shoring when necessary. Maximum trench width shall not exceed 36-inch plus OD for 4-inch and larger pipe, or 24-inch plus OD for 3-inch and smaller pipe for pay items or related materials including but limited to crushed surfacing, patching, import bedding, import backfill, and rock excavation.

Bedding shall be mechanically compacted in lifts no greater than 8-inches from base to springline and from springline to top of pipe using a jumping jack or sheepsfoot. Hoe-packs, sheepsfoots, and vibratory rollers shall not be used within 12-inches directly above the pipe. Compact trench backfill in lifts not exceeding 18-inches loose-thickness.

#### *Flanged Joint Assembly*

1. Bolt holes of flanges shall straddle the horizontal and vertical centerlines of the pipe. Clean flanges by wire brushing before assembling. Clean flange bolts and nuts by wire brushing; lubricate bolts with graphite or oil.
2. Insert the nuts and bolts (or studs), finger tighten, and progressively tighten diametrically opposite bolts uniformly around the flange to the proper tension. Bolts shall have minimum of two threads showing beyond the nut.
3. Tighten joints carefully to prevent strain upon valves, pumps, and other equipment.
4. If flanges leak under pressure testing, loosen or remove the nuts and bolts, reset or replace the gasket, reinstall or re-tighten the bolts and nuts, and retest the joints. Replace the gasket if damaged.

#### **Field Quality Control**

Make no permanent connections to the existing water system until the new water main has been tested and approved by the Owner. No temporary connections of the untested, unapproved new water main to the existing water system shall be made without the installation of a double check valve assembly between the new water main and the existing water system. The Contractor shall verify the size, material, and location of the existing main at the connection point prior to installing the new water main.

The Contractor shall provide all labor and equipment for earthwork, traffic control, trench safety, and materials for connections. The Contractor will provide the labor to make the final connection to the existing water system.

## 15.13 Above Grade Mechanical Installation

### 15.13.02 Exposed Piping Installation

*[CSI 40 05 05]*

#### Part 1 – General

##### Summary

This section is for exposed major pressure pipe systems such as booster stations, lift stations, treatment facilities, control valve vaults, etc. Testing of minor service plumbing systems shall follow the IPC/UPC.

#### Part 3 - Execution

##### Installation

When systems include drain ports that operate automatically, provide ancillary drainage plumbing. Route pilot, air valve, pump seal, and other drains to the structure drain using schedule 40 PVC with diameter equal to the device drain outlet diameter, but no smaller than ½-inch. Copper pipe may be used only with Owner approval. Multiple drain lines may be connected together if approved by the Owner. Secure to fixed structures or large pipe using pipe clamps or plastic zip ties. Do not install drain pipe where it will be a tripping hazard or interfere with normal maintenance. Slope downwards to termination. Terminate the outlet two times the drain pipe diameter above the drain grate or funnel and cover end with #24 stainless or aluminum screen. Install a union near the start of each drain pipe to allow disassembly without cutting.

##### Preparation

Secure the pipe and fittings to prevent movement under pressure. Furnish and install temporary blocking where permanent blocking is not required and remove it after testing.

##### Tests/Inspection

Test the water main per City of Kirkland pre-approved plans.

### 15.18.02 Buried Pressure Pipe Testing

*[CSI 33 05 05.31]*

#### Part 3 - Execution

##### Preparation

See also section 15.05, Part 3.

Provide all required personnel and equipment and complete all tests required to demonstrate the integrity of the finished installation for the approval of the Owner and all agencies having jurisdiction.

Backfill the pipeline trench sufficiently to prevent movement of the pipe under pressure. All thrust blocks shall be in place and sufficiently cured to reach design strength before testing.

Furnish, install, and remove temporary blocking where permanent blocking is not required and remove it after testing.

### **Tests/Inspection**

Test the water main per City of Kirkland pre-approved plans.

## **15.18.03 Valve Testing**

*[CSI 33 05 05.32]*

### **Part 3 - Execution**

#### **Preparation**

Pre-assemble valve clusters and test as a unit. Provide end plugs, blind flanges, assembly kits, and all appurtenances necessary for pressure testing. Check all valve bonnet fasteners for tightness.

#### **Testing**

All valves shall be pressure tested. Do not exceed the rated working pressure of the valve when operating the valve. Bleed off test pressure prior to operating.

#### *Post-Installation*

Test all valves for water tightness under differential working pressure. Pressurize pipe section with valve in place, close valve and relieve pressure on seat side of the valve. The valve shall not pass water during a 5-minute test period.

Operate all valves at least once from closed-to-open-to-closed positions while valve is under working (not test) pressure.

## **15.20 PIPE AND FITTINGS**

### **15.21 Common Work for Pipe and Fittings**

*[CSI 33 05 00 or 40 05]*

#### **Part 2 - Products**

#### **Components**

Under no circumstance shall the fasteners be of lesser strength or higher corrosive potential than the materials being connected. If dissimilar metals are adjacent (for example: stainless steel flange connecting to ductile iron flange) a dielectric insulation kit shall be used.

Fasteners for pipe and fittings: Per AWWA standards unless otherwise specified. All relevant subsections of AWWA C100, C200, and C500. All bolts and studs shall be long enough so that no less than two threads extend beyond the face of the nut. Non-submerged flange bolts to be ASTM A307 Grade A, zinc plated.

## Finishes

For conditions other than submerged, all nuts and bolts shall be zinc plated, and suitable for above and below grade locations as required. Where above grade/exposed piping is specially coated, the connecting nuts and bolts shall be coated using the same system unless directed otherwise by the Owner.

## Part 3 - Execution

### Construction

All piping and related equipment to be joined shall be connected as shown on the Plans, specifications, as recommended by the manufacturer or as required by standard industry practices if not otherwise specified.

## 15.22 Metal Pipe and Fittings

### 15.22.02 Ductile Iron Pipe and Fittings

*[CSI 33 05 19]*

#### Part 1 - General

##### Design Requirements

Ductile iron pipe shall have thickness designed in accordance with ANSI/AWWA C150/A21.50 and shall be based on laying conditions and internal pressures to meet the requirements of Division 1.81.40 unless listed as more stringent below.

The pipe thickness shall not be less than that of Class 52 pipe for non-flanged pipe.

Flanged joints shall conform to ANSI Standard B16.1 and be of the class shown on the plans.

#### Part 2 - Products

##### Manufactured Units

Pipe shall be cement-lined and asphaltic coated in accordance with ANSI Standard A21.4 (AWWA C104) unless otherwise specified and shall conform to ANSI Standard A21.51 (AWWA C151).

Rubber gasket pipe joints are to be push-on-joint (Tyton) or mechanical joint (MJ) in accordance with ANSI Standard A21.11 (AWWA C-111), unless otherwise specified.

When requested, furnish certification from the manufacturer of the pipe and gasket being supplied that inspection and all of the specified tests have been made, and the results comply with requirements of this standard.

##### Ductile Iron Fittings

All fittings shall be ductile iron where possible. Steel fittings will not be accepted where ductile iron is called out on the plans. Ductile iron fittings shall be short-body, cement-lined, and for the pressure rating noted in Division 1.81.40. Metal thickness and manufacturing processes shall conform to applicable portions of ANSI Standards A21.20, A21.11, B16.2, and B16.4.

Standard cement lining shall be in accordance with ANSI Standard A21.4 (AWWA C104).

Mechanical joint (MJ), ductile iron, compact fittings 3-inches through 64-inches shall be in accordance with AWWA C153.

Flanged pipe spools shall be fabricated from minimum Class 53 wall thickness pipe and conform to ANSI/AWWA C115/A21.15 with the exception that flanges shall be fabricated from ductile iron unless otherwise specified in the Contract Documents. Interior shall be cement lined.

Ductile iron flange (FL) fittings shall be in accordance with AWWA C110 unless otherwise specified in the Contract Documents with a bolt pattern to match adjacent pipe. Gasket material for flanges shall be Styrene Butadiene Rubber (SBR, Buna-S), neoprene, nitrile rubber (NBR, Buna-N), chlorinated butyl, or cloth-inserted rubber. Gaskets shall be full-face type. Gaskets shall be a minimum 1/8-inch thick.

*Do not use SBR, nitrile, or neoprene in fittings used for air transport in wastewater treatment systems.*

Type of ends shall be specified as mechanical joint (MJ), restrained joint (RJ), true restrained joint (TRJ), plain end (PE), or flanged (FL).

### **Part 3 - Execution**

#### **Installation**

Install ductile iron water mains in accordance with AWWA C600. Provide tools and equipment, including any special tools required for installing each type of pipe used.

The amount of deflection at each pipe joint shall not exceed 3-degrees per joint (11 inches over 18 feet), or the manufacturer's printed recommended deflections, whichever is less.

Pipe that has been cut and will be joined in a push-on joint connection shall be beveled by methods recommended by the pipe manufacturer. If the cut end is not round enough to insert into a joint, the Contractor may attempt to re-round the pipe using a method approved by the manufacturer and the Owner. Do not point load the pipe when applying pressure nor over-correct in an attempt to permanently set the new shape. Once rounded, install into the next joint before relieving pressure on the re-rounding equipment. The Owner will not provide compensation to re-round pipe.

### **15.22.06 Copper Pipe and Fittings**

*[CSI 33 05 17]*

#### **Part 1 - General**

##### **Design Requirements**

Copper piping and tubing shall meet the requirements of ASTM B-88. Solder fittings shall meet the requirements of ANSI B16.22. Flared fittings per ANSI B16.26 and allowed only for working pressure less than 150 psi. Lead content of solder shall be no more than 0.2 percent.

## Part 2 - Products

### Materials

Exposed, interior:

Type K or L hard pipe with soldered fittings.

Soft pipe may be used only where approved by the Owner or shown on the plans.  
Soldered fittings for all sizes. Flared fittings only on 1/2-inch and smaller soft pipe.

## Part 3 - Execution

### Installation

Runs shall be parallel and perpendicular with floors and walls unless positive drainage is required. When Owner allows soft copper for exposed pipe, straighten any curved or bent pipe for straight sections longer than 6-inches.

### 15.22.08 Brass/Bronze Pipe and Fittings

*[CSI 33 05 12]*

#### Part 1 - General

##### References

Brass to be low-lead content in compliance with NSF/ANSI 372 to have no more than 0.25 percent lead content.

Brass nipples: ASTM B687

Brass fittings: ANSI/ASME B16.15 (threaded) Class 125 lb. (up to 200 psi water), 250 lb. (up to 400 psi water); B16.18 (soldered).

#### Part 2 - Products

##### Materials

Brass pipe, nipples, and fittings to have threaded ends.

### 15.23 Non-Metal Pipe and Fittings

#### 15.23.05 PVC Pipe and Fittings – Solvent Weld

*[CSI 33 05 31.13]*

#### Part 2 - Products

##### Materials

Polyvinyl chloride (PVC) material for pipe fittings and couplings shall conform to ASTM D-1784, Type 1, Grade 1, with 2,000 psi design stress. Pipe shall be Schedule 40 or 80 in accordance with ASTM D-1785, as shown on the Plans.

There is no pipe color preference or requirement.

## Part 3 - Execution

### Installation

For exposed locations that will not be painted, primer and glue must be applied carefully and not allowed to run. Areas where primer/glue has run more than 1/4-inch past the joint will be cleaned, painted, or replaced by the Contractor at the discretion of the Owner.

## 15.30 VALVES

### 15.31 Common Work for Valves

*[CSI 40 05 51]*

#### Part 1 – General

##### Design and Performance Requirements

Valves noted on the Plans or in other parts of the Specifications shall meet the requirements herein. Valves shall be designed for the intended service.

Valve suppliers shall review the design and certify that the valve provided in the submittal is appropriate for the application and will operate as shown and described. Any discrepancies from the design and the valves shall be brought to the Engineer's attention during the bidding process. Valves that do not operate as specified and per normal industry standards shall be replaced or modified so that they operate within the design parameters at the Contractor's expense.

Pressure rating shall be per Division 1.81.40 unless shown otherwise.

#### Part 2 – Products

##### Components

If shear pins are installed with any valve, the manufacturer shall certify the shear pin(s) to fail between 95 to 99 percent of the operator shaft failure torque. Provide concrete supports for operators where required, as shown on the Plans.

Buried valves shall be equipped with an AWWA 2-inch wrench nut. Exposed valves shall be equipped with lever actuator for valves 3 inches and smaller, or handwheel actuator for valves 4 inches and larger, unless otherwise noted on Plans. Valves located at elevations higher than 6 feet above the finished floor shall be equipped with chainwheel operator.

Buried valves where the operator nut is more than 3 feet below the valve box lid shall be provided with a solid shaft valve nut extension to reach between 18-inches and 30-inches of the ground surface. Extension shall attach to the nut with a set screw. Diameter of extension shall be appropriate for the valve size and length of extension, but under no circumstances shall be less than 1 inch for 4-foot-long extension rods, or 1.25 inch for rods longer than 4 feet. Extension shall function without excessive twisting.

## **Part 3 - Execution**

### **Installation**

Install valves in strict accordance with the manufacturer's instructions and as shown on the Plans. Verify alignment and adjustments after installation. Provide buried valves with all operators or valves boxes installed so that wrenches or operators perform freely and without binding or other interference. Bed and backfill buried valves according to the requirements of the pipe to which they are attached.

### **15.32 Isolation Valves**

#### **15.32.02 Resilient Wedge (Seat) Gate Valves**

*[CSI 40 05 61.23]*

##### **Part 1 – General**

###### **Design Requirements**

All gate valves for water lines 3-inches to 48-inches shall be of the resilient, wedge-type, and shall meet or exceed the performance requirements of AWWA C509 or AWWA C515-Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service, unless shown otherwise. Valves shall be suitable for installation with the type and class of pipe being installed. Valve opening direction shall be counter-clockwise. Valves shall be rated for 250 psi working pressure.

##### **Part 2 – Products**

###### **Components**

The wedge shall be fully encapsulated with vulcanized SBR rubber or EPDM. Ends as shown on the plans. All exterior valve body bolting (bonnet, stuffing box, gear box) shall use Cor-Ten, 304 (18-8) SS, or 316 SS bolts and nuts. Buried valves shall have a non-rising stem (NRS). Non-buried valves on fire protection systems shall have outside stem and yoke (OS&Y). Other valves as shown on the plans.

##### **Part 3 - Execution**

###### **Field Quality Control**

Where buried valves will be installed in a horizontal orientation and for buried valves 16-inch and larger in any orientation, operate the valve over the full range of travel in both directions prior to installation in the presence of the Owner to verify gate travels smoothly and without binding. Service or replace valves that do not travel smoothly.

###### **Installation**

Install valves in strict accordance with manufacturer's instructions and as shown on the Plans. Verify alignment and adjustments after installation. Provide buried valves with all operators or valve boxes installed so that wrenches and operators perform freely and without binding

or other interference. Bed and backfill buried valves according to requirements of the pipe to which they are attached.

### **15.32.07 Gate Valves – Small Diameter**

*[CSI 40 05 61.13]*

#### **Part 2 – Products**

##### **Manufactured Units**

Gate valves 2 inches and smaller for steel or brass pipe shall be Crane No. 438 or equal with non-rising stem, screwed bonnet, solid wedge disc, bronze construction and threaded ends.

Gate valves 2 inches and smaller for copper piping shall be Crane No. 1320 or equal with stem, screwed bonnet, solid wedge disc, bronze construction and solder or screw ends.

### **15.35 Air Valves**

*[CSI 40 05 78]*

#### **15.35.02 Air Valves – Clean Water**

##### **15.35.02.01 Combination Air and Vacuum Valves – Clean Water**

*[CSI 40 05 78.19]*

#### **Part 2 – Products**

##### **Manufacturers**

Combination air and vacuum valves shall be equal to APCO 140C series.

##### **Manufactured Units**

Provide air valve's body and cover fabricated from cast iron. Provide internal parts, including float, seat, needle, linkage, level pins, retaining rings and screws fabricated from either stainless steel or bronze. Size as shown on the Plans.

#### **Part 3 – Execution**

##### **Installation**

If not detailed on the Plans, valves shall be attached to water main via tap, brass pipe, and an isolation ball valve and fittings as necessary. Outlet shall be provided with a brass male by female threaded return bend to direct air away from any mechanical or electrical components.

## 15.70 PLUMBING

*[CSI 22 00 00]*

### 15.70.05 Common Work for Plumbing

*[CSI 22 05 00]*

#### Part 2 – Products

##### Components

##### Joints and Connections

- Steel and Brass: Use factory-cut pipe threads where possible; otherwise, cut pipe ends square, remove all fins and burrs, and cut full-depth tapered threads. Apply joint compound to male threads only and engage so that no more than three threads remain exposed.
- Hubless: Install a neoprene gasket and stainless steel clamp and shield coupling joint assemblies with bolts alternatively and incrementally tightened to a minimum 60 inch-pounds torque. Use a single set-point torque wrench manufactured specifically for this purpose. Do not use screwdrivers or other types of wrenches. Re-torque bolts after 24 hours.
- Solvent cement: Use solvent cement approved by pipe and fitting manufacturer and apply in accordance with the manufacturer's installation procedures.

#### Part 3 - Execution

##### Examination

Prior to work of this section, carefully inspect installed work of other trades and verify that such work is complete to the point where this installation may properly commence. Verify that plumbing may be installed in strict accordance with all pertinent codes and regulations. In the event of a discrepancy, do not proceed with the installation and immediately notify the Owner.

##### Installation

Install and locate pipe, fittings and accessories as shown on the Plans.

##### Inspection

Test all plumbing fixtures for proper and smooth operation when in use.

Make sure fixtures are thoroughly clean and free of any foreign material.

## 15.72 Pressure Tank

*[CSI 22 12 00 or 43 42 00]*

### 15.72.02 Bladder Tank

*[CSI 22 12 23.13]*

#### Part 1 – General

##### Design Criteria

Full Acceptance bladder style pressure tank.

Minimum 2-inch diameter piping connection.

106-gallon minimum total capacity. 150-psi working pressure rated. ASME rated.

Pressure tanks must include a ASME Section VIII pressure relief valve

Air connection for pre-charging.

#### Part 2 – Products

##### Manufactured Units

Amtrol Well-X-Trol or approved equal.

#### Part 3 – Execution

##### Installation

Provide and install union and ball valve for removal of tank without taking water system out of service. Locate valve, union, and air fitting on accessible side of tank.

If not shown otherwise on plans, anchor tank to floor using two 2"x2"x1/2" "L" bracket and 1/2-inch concrete anchors.

Follow manufacturer's instructions for setting air pressure. Do not connect tank to active water supply unless instructions are on site. Failure to follow instructions may damage the bladder.

# Division 16

## Electrical

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### 16.00 GENERAL

The Contractor shall provide all labor, material, tools, equipment and services required to complete the furnishing, installation, wiring, connection, calibration, adjustment, testing and operation of all electrical equipment, devices and components as indicated and implied by the plans and specifications.

Sections in these specifications titled “*Common Work for . . .*” shall apply to all following sections whether directly referenced or not.

The Contractor shall reference Division 1.25 regarding substitutes and “or-equals”.

### 16.05 Common Work for Electrical

*[CSI 26 05 00]*

#### Part 1 - General

##### Summary

Plans are diagrammatic and indicate general arrangements of systems and equipment, except when specifically, dimensioned or detailed. The intention of the plans is to show size, capacity, approximated location, direction and general relationship of one work phase to another, but not exact detail or arrangement.

##### Regulatory Requirements

The Contractor shall coordinate and provide all permits, licenses, approvals, inspections by the authority having jurisdiction and other arrangements for work on this project and all fees shall be paid for by the Contractor. The Contractor shall include these fees in the bid price.

##### Codes and Standards

Provide all electrical work in accordance with latest edition of National Electrical Code, National Electrical Safety Code, Washington State Electrical Code, and local ordinances. If any conflict occurs between government adopted code rules and these specifications, the codes are to govern. All electrical products shall bear a label from a certified testing laboratory recognized by the State of Washington. Recognized labels in the State of Washington are UL, ETL, and CSA-US.

##### Definitions

**Dry Locations:** All those indoor areas which do not fall within the definitions below for wet, damp, or corrosive locations and which are not otherwise designated on the Plans.

**Wet Locations:** All locations exposed to the weather, whether under a roof or not, unless otherwise designated on the Plans.

The words “plans” and “drawings” are used interchangeably in this specification and in all cases shall be interpreted to mean “Plans”.

The word “provide” shall be interpreted to mean furnish and install.

## Design Requirements

Unless otherwise noted, provide enclosures as follows:

1. Indoors Unclassified Locations: NEMA Type 12
2. Outdoors and/or Wet Locations: NEMA Type 4X

## Submittals

Provide submittals of each item specified in this division to engineer for approval in accordance with Division 1 of these specifications. Submittals for motor control centers, motor control panels, control panels, instrumentation panels, and pump control panels shall include at a minimum: a wiring diagram or connection schematic, and an interconnection diagram.

### Wiring Diagram or Connection Schematic

1. Include all devices in a system and show their physical relationship to each other including terminals and interconnecting wiring in assembly. This diagram shall be in a form showing interconnecting wiring only by terminal designations (wireless diagram).

### Interconnection Diagram

1. Show all external connections between terminals of equipment and outside points, such as motors and auxiliary devices. Show references to all connection diagrams which interface to the interconnection diagrams. Interconnection diagrams shall be of the continuous line type. Show bundled wires on a single line with the direction of entry/exit of the individual wires clearly shown. Identify all devices and equipment. Show terminal blocks as actually installed and identified in the equipment complete with individual terminal identification. All jumpers, shielding and grounding termination details not shown on the equipment connection diagrams shall be shown on the interconnection diagrams. Show spare wires and cables.

Provide submittal information for the following items:

1. Utility Meter Enclosure
2. Mini Power-Zone
3. Branch Circuit Panelboard
4. Circuit Breakers
5. Conduit and Fittings
6. Outlet and Junction Boxes
7. Wire and Cables
8. Switches and Receptacles
9. Light Fixtures
10. Other Electrical Components listed in this Division and/or required by the Engineer.

## Project Conditions

Contractor shall keep all power shutdown periods to a minimum. Carry out shutdowns only after a shutdown schedule has been submitted and approved by both the Owner and the Engineer.

## Construction Power

See Division 1.51

## Part 2 - Products

### Source Quality Control

Provide adequate space and fit for the electrical installation, including, but not limited to, determination of access-ways and doorways, shipping sections, wall and floor space, and space occupied by mechanical equipment. Provide electrical equipment that fits in the areas shown on the Plans. All equipment shall be readily accessible for maintenance, shall have electrical clearances in accordance with National Electric Code (NEC) and shall be installed in locations which will provide adequate cooling.

Do not use equipment exceeding dimensions indicated or equipment or arrangements that reduce required clearances or exceed specified maximum dimensions unless approved by the Owner.

Electrical equipment and materials shall be listed for the purpose for which they are to be used, by an independent testing laboratory. When a product is not available with a testing laboratory listing for the purpose for which it is to serve, the inspection authority may require the product to undergo a special inspection at the manufacturer's place of assembly. All costs and expenses incurred for such inspections shall be included in the original contract price.

### Materials

Use equipment, materials and wiring methods suitable for the types of locations in which they will be located, as defined in Definitions above.

All materials and equipment specified herein shall, within the scope of UL Examination Services, be approved by the Underwriter's Laboratories for the purpose for which they are used and shall bear the UL label.

### Components

Fasteners for securing to walls, floors, and the like shall meet the requirements of Division 5.05.23.

### Accessories

#### Wire Identification

1. Identify each wire or cable at each termination and in each pull-box using numbered and lettered wire markers. All electrically common conductors shall have the same number. Each electrically different conductor shall be uniquely numbered. Identify panelboard circuits using the panelboard identification and circuit number. Identify motor control circuits using the equipment identification number assigned to the control unit by the

motor control center manufacturer and the motor control unit terminal number. Identify other circuits as approved by the Engineer. Identify each wire or cable in each pull-box with plastic sleeves having permanent markings. Conductors between terminals of different numbers shall have both terminal numbers shown at each conductor end. The terminal number closest to the end of the wire shall be the same as the terminal number.

## **Finishes**

Refer to each electrical equipment section of these specifications for painting requirements of equipment enclosures.

## **Part 3 - Execution**

### **Installation**

#### General

1. Complete the wiring, connection, adjustment, calibration, testing and operation of mechanical equipment having electrical motors and/or built-in or furnished electrical components in accordance with electrical code, UL listing requirements and manufacturer's instructions. Install electrical components that are furnished with mechanical equipment.
2. Provide the size, type and rating of motor control devices, equipment and wiring necessary to match the ratings of motors furnished with mechanical equipment.
3. Complete the procurement, installation, wiring, connection, calibration, adjustment, testing and operation of all electrical devices, components accessories and equipment which is not shown or specified but which is nonetheless required to make the systems shown and specified properly functional.

#### Workmanship

1. Assign a qualified representative who shall supervise the electrical construction work from beginning to completion and final acceptance.
2. Provide all labor using qualified craftsmen, who have had experience on similar projects.
3. Ensure that all equipment and materials fit properly in their installations.

#### Field Services

1. Provide field services of qualified technicians to supervise and check out the installation of the equipment, to supervise and check out interconnecting wiring, to conduct start-up and operation of the equipment, and to correct any problems which occur during testing and start-up.

#### Installing Equipment

1. Provide the required inserts, bolts and anchors, and securely attach all equipment and materials to their supports.
2. Install all floor-mounted equipment on 3½-inch high reinforced concrete pads.
3. Install all equipment and junction boxes to permit easy access for normal maintenance.

Cutting, Drilling, and Welding

1. Provide any cutting, drilling, and welding that is required for the electrical construction work.
2. Structural members shall not be cut or drilled, except when approved by the Engineer. Use a core drill wherever it is necessary to drill through concrete or masonry. Perform patch work with the same materials as the surrounding area and finish to match.

Metal Panels

1. Mount all metal panels, which are mounted on, or abutting concrete walls in damp locations or any outside walls 1/4-inch from the wall and paint the back side of the panels with a high build epoxy primer with the exception of stainless-steel panels. Film thickness shall be 10 Mils minimum.

Seismic Requirements

1. See Division 1.81.30

Load Balance

1. Balance electrical load between phases as nearly as possible on panelboards, motor control centers, and other equipment where balancing is required.
2. When loads must be reconnected to different circuits to balance phase loads, maintain accurate record of changes made, and provide circuit directory that lists final circuit arrangement.

**Field Quality Control**

Minor Deviations

1. The electrical plans are diagrammatic in nature and the location of devices, fixtures, and equipment is approximate unless dimensioned. Based on this, the right is reserved by the owner to provide for minor adjustments and deviations from the locations shown on the Plans without any extra cost. Deviations from the Plans and/or specifications required by code shall also be done, subsequent to Owner's approval, without extra cost.
2. Plans indicate the general location and number of the electrical equipment items. When raceway, boxes, and ground connections are shown, they are shown diagrammatically only and indicate the general character and approximate location. Layout does not necessarily show the total number of raceways or boxes for the circuits required. Furnish, install, and place in satisfactory condition all raceways, boxes, conductors, and connections, and all of the materials required for the electrical systems shown or noted in the contract documents complete, fully operational, and fully tested upon the completion of the project.

Project Record Plans

1. A set of Plans shall be maintained at the job site showing any deviations in the electrical systems from the original design. A set of electrical Plans, marked in red to indicate the routing of concealed conduit runs and any deviations from the original design, shall be submitted to the Owner for review prior to final acceptance.

2. After testing and acceptance of the project the Contractor shall furnish in the O&M manuals an accurate connection schematic and interconnection diagram for every service entrance panel, pump control panel, motor control center, and instrumentation panel provided this project.

## **Cleanup and Equipment Protection**

### Equipment Protection

1. Always exercise care after installation of equipment, motor control centers, control panels, etc., to keep out foreign matter, dust debris, and moisture. Use protective sheet metal covers, canvas, heat lamps, etc., as needed to ensure equipment protection.

### Cleaning Equipment

1. Thoroughly clean all soiled surfaces of installed equipment and materials upon completion of the project. Clean out and vacuum all construction debris from the bottom of all equipment enclosures.

### Painting

1. Repaint any electrical equipment or materials scratched or marred in shipment or installation, using paint furnished by the equipment manufacturer.

### Final Cleanup

1. Upon completion of the electrical work, remove all surplus materials, rubbish, and debris that accumulated during the construction work. Leave the entire area neat, clean and acceptable to the Owner.
2. Lamps and fluorescent tubes shall be cleaned, and defective units replaced at the time of final acceptance.

## **16.10 ELECTRICAL SITE WORK**

### **16.10.1 Common Work for Electrical Site Work**

*[CSI 26 05 01]*

#### **Part 1 – General**

##### **Summary**

The work included in this section consists of furnishing and installing conduit, fittings, handholes, pull vaults, warning tape, cables, wires, and related items, complete as specified herein and as indicated on the Plans for a complete and functional underground electrical system. Special vaults, grounding, trench backfill requirements may be specified with the particular equipment or electrical system involved.

##### **Design Requirements**

Materials and equipment shall conform to the respective specifications and standards; and to be the specifications herein. Electrical rating shall be as indicated on Plans.

## Part 3 – Execution

### Construction

Provide all excavation, trenching, backfill, and surface restoration required for the electrical work.

Excavate to depths as required by Code, particular installation, or as shown on the Plans. Trench width and length as required by the installation or as shown. Trench bottom shall be free of debris and graded smooth. Where trench bottom is rock or rocky or contains debris larger than 1 inch or material with sharp edges, over excavate 3 inches and fill with 3 inches of sand. Separation between new electrical utilities and other utilities shall be 12 inches horizontal and 6 inches vertical minimum, except gas line separation shall be 12 inches both vertical and horizontal. Cross concrete or asphalt only after surface material has been saw cut to required width and removed.

Backfill around raceways shall be 3-inches of pea gravel or sand for systems of 600 volt or less. Provide red marker tape over raceways below grade. Place backfill material to obtain a minimum degree of compaction of 95 percent of maximum density at optimum moisture content. Moisten backfill material as required to obtain proper compaction. Do not use broken pavement, concrete, sod, roots or debris for backfill.

### 16.10.2 Underground Marking Tape (Detectable Type)

*[CSI 33 05 97.23]*

#### Part 2 – Products

##### Manufacturers

Tape shall be Brady “Detectable Identoline – Buried Underground Tape”, or equal.

##### Materials

Underground marking tape shall be for location and early warning protection of buried power and communication lines. Tape shall be detectable by a pipe/cable locator or metal detector from above the undisturbed ground. Tape shall be nominally 2 inches wide with a type B721 aluminum foil core laminated between two layers of 5 Mil thickness polyester plastic. The plastic color shall be red for electrical lines and orange for telephone lines.

#### Part 3 – Execution

##### Installation

Unless noted otherwise on Plans, install approved underground marking tape 12 inches above and directly over the conduit or raceway in all trenches.

## 16.15 Grounding and Bonding for Electrical Systems

*[CSI 26 05 26]*

### Part 1 - General

#### References

Service and equipment grounding shall be per Article 250 of the NEC.

#### Performance Requirements

Verify that a low-resistance ground path is provided for all circuits so an accidental contact to ground of any live conductor will instantly trip the circuit.

### Part 2 - Products

#### Components

The grounding systems shall consist of the ground rods, grounding conductors, ground bus, ground fittings and clamps, and bonding conductors to water piping and structural steel as shown on the Plans.

System components shall be as allowed in the NEC unless specified otherwise below:

1. Ground Rods: Ground rods shall be cone pointed copper clad Grade 40 HS steel rods conforming to ASTM B228. The welded copper encased steel rod shall have a conductivity of not less than 27 percent of pure copper.
2. Ground Conductors: Buried conductors shall be medium-hard drawn bare copper; other conductors shall be soft drawn copper. Sizes over No. 6 AWG shall be stranded. Coat all ground connections except the exothermic welds with electrical joint compound, non-petroleum type, UL listed for copper and aluminum applications.
3. Ground Rod Boxes: Boxes shall be a 9-inch diameter precast concrete unit with hot-dip galvanized traffic cover. Boxes shall be 12-inches deep minimum. Covers shall be embossed with the wording "Ground Rod".

#### Ground Connections

1. Above grade ground connections shall be exothermic weld, mechanical, or compression-type connectors; or brazing.
2. Below grade ground connections shall be exothermic weld.

### Part 3 - Execution

Install ground connections in strict accordance with the manufacturer's recommendations and methods.

#### General Grounding Installation

When available a UFER ground per latest edition of NEC shall be provided as the primary means to ground the electrical system.

Ground electrical service neutral at service entrance equipment to supplementary grounding electrodes.

Ground each separately derived system neutral to nearest effectively grounded building structural steel member or separate grounding electrode.

Provide a ground rod box for each ground rod to permit ready access to facilitate testing.

Provide a ground wire in every conduit carrying a circuit of over 110 volts to ground.

Make embedded or buried ground connections, taps and splices with exothermic welds. Coat ground connections.

Bond metallic water piping at its entrance into each building.

### **Motor Grounding Installation**

Extend equipment ground bus via grounding conductor installed in motor feeder raceway. Connect to motor frame.

When using nonmetallic flexible tubing install an equipment grounding conductor connected at both ends to noncurrent-carrying grounding bus.

### **Testing**

Following completion of the grounding electrode system, if installed, measure ground resistance at each ground rod using the three-rod method. Submit results to engineer prior to final acceptance by the Owner.

Perform testing per NETA Standard ATS paragraph 7.13. Testing methods shall conform to NETA Standard ATS using the three-electrode method for large systems. Conduct tests only after a period of not less than 48 hours of dry weather.

Furnish to the Engineer a test report with recorded data of each ground rod location. See Division 16.95.4.

## **16.20 UTILITY SERVICE**

### **16.21 Electrical Service**

*[CSI 26 05 02]*

#### **Part 1 – General**

##### **Description of Work**

Work consists of installation of new 100-amp, 480-volt, 3-phase underground service, pad-mounted transformer and service entrance equipment.

##### **Scheduling Work with the Utility Company**

The Contractor shall be fully and completely responsible for all scheduling and coordination with the utility company. The Contractor shall coordinate and schedule power outages, power service for operation and construction, and power service as may be required prior to Certification of Occupancy.

The Contractor shall make all necessary coordination with the utility and shall notify the Owner in writing of any obligations or forms that the Owner must fulfill for service to be started, installed, or modified.

### **Payment**

The Contractor shall meet all the standard requirements for working in the right-of-way which includes a utility representative on site during work within the right-of-way. The Contractor shall be responsible for paying all cost for the representative to be on site and include the bid price.

All utility charges for and related to the final permanent service to the facility will be paid by the Owner, directly to the utility company and not be included in the Contractor's bid price.

### **Contractor/Utility Interface Responsibilities**

The electrical utility providing service to these facilities is Puget Sound Energy. The Contractor shall comply with all utility company standards and requirements.

During design, contact was made with Project Manager, Rebekah Hedahl, who can be contacted by telephoning 425-941-2310. The division of responsibilities stated below has been determined by coordination with the serving utility.

#### **The Contractor shall:**

Notify the Owner of any changes to the responsibilities between the electrical utility and the Contractor as outlined in these specifications prior to submitting a bid. Any change(s) in responsibilities not brought to the attention of the Owner prior to bidding will not be cause for additional payment.

Provide and install transformer pad for utility provided transformer.

Install new raceway and conductors for secondary service from the new pad-mount transformer location to the new service entrance panel including trenching, backfill, and restoration. Terminate service conductors at the service entrance panel.

Install the Service Entrance panel as shown on the Plans.

Install utility meter enclosure, raceway, and conductors for utility revenue metering as shown on the Plans.

Provide trench, backfill, and restoration for installment of the underground primary power from the utility pole to the new pad-mount transformer.

Provide excavation, backfill, and restoration required for installment of the electrical handholes and vaults.

#### **The Utility Company shall:**

Extend proposed overhead primary power from the existing primary service connection point to the existing utility pole.

Install new primary raceway and conductors from the primary service to the new pad-mount transformer including all raceways, conductors, and cable terminators. Trench, backfill, and restoration shall be provided by the Contractor.

Install new pad-mount transformer and transformer base with vault. Excavation and restoration shall be provided by the Contractor.

Terminate conductors on the primary and secondary side of the transformer.

Install a utility revenue meter in the new main revenue metering enclosure installed by the Contractor.

### **Project Conditions**

Before submitting a bid, the Contractor shall become familiar with all the electrical service requirements that may affect the execution of their work.

### **Standards and Codes**

Work involving service installation shall be done in accordance with the service utilities standards and the NEC.

Service equipment shall be listed and labeled by UL as “suitable for use as service equipment”.

## **16.21.2 Electrical Utility Meter Enclosure**

*[CSI 26 27 13]*

### **Manufacturers**

Meter enclosure shall be a Circle AW or equal and as required to meet the requirement of the serving utility. Installation shall be in vandal proof NEMA 3R enclosure with a lockable hinged door. Meter shall include a metal vandal screen that can be purchased from serving utility.

### **Materials**

Contractor shall coordinate with Puget Sound Energy on the type of metering required and shall provide all labor and material necessary to meet Puget Sound Energy requirements.

## **16.30 BASIC PANEL EQUIPMENT AND DEVICES**

### **16.35.2 Identification for Electrical Systems**

*[CSI 26 05 53]*

#### **Part 2 – Products**

### **Materials**

Standard nameplates shall be made of machine engraved laminated phenolic having black letters not less than  $\frac{5}{16}$ -inch high on white background. One-inch high lettering shall be used for the large nameplates required for the panels. Tags shall be securely attached. Adhesive backed tags shall also have at least two brass screws for positive fastening.

## Part 3 – Execution

### Installation

Nameplates shall be provided on all electrical devices including but not limited to motor control equipment, , panels, motors, switches, meters, and all electrical equipment enclosures. Data shall be as shown on the Plans and reviewed via the submittal process. Nameplates shall have name, number and/or function as is applicable for clear identification.

Nameplates on steel panels shall be secured with stainless steel drive screws. Where it is proposed that nameplates will be secured with pressure sensitive tape or bonding cement, the process and samples shall be submitted to the Engineer for acceptance.

Nameplates shall be provided for identifying all operator interface (lights, switches, etc.) and other devices that are located outside or inside the panels.

Warning nameplates shall be provided on all panels and equipment which contain multiple power sources which may have energized circuits with the main disconnecting means in the off position. Lettering shall be white on red background.

## 16.50 PANELBOARDS

*[CSI 26 24 00]*

### 16.52 Panelboards

*[CSI 26 24 16]*

#### Part 1 - General

##### Description of Work

This section covers the furnishing and installation of all panelboard equipment complete.

##### Quality Assurance

Provide products specified in this Section that are listed and labeled as defined in NEC Article 100.

##### Standards and Codes

All materials and equipment specified herein shall, within the scope of UL Examination Services, be approved by the Underwriter's Laboratories for the purpose for which they are used and shall bear the UL label.

All material and equipment specified herein shall conform with all applicable NEMA, ANSI, and IEEE standards.

All materials and equipment specified herein, and their installation methods shall conform to the latest published version of the NEC.

## Part 2 – Products

### Manufacturers

Materials, equipment, and accessories specified in this section shall be products of:

- Eaton/Cutler-Hammer
- Schneider Electric/Square D Company
- Siemens

### Components

#### Panelboard Type

1. Panelboards shall be rated at proper voltage and current for intended use with bus bars of copper. Panels shall be 3-phase, 4-wire, 100 percent neutral, with equipment ground bar unless noted otherwise. Panelboards shall be dead front.

#### Wire Terminations

1. Panelboard assemblies, including protective devices, shall be suitable for use with 75 degrees Celsius or greater wire insulation systems at NEC 7 degrees Celsius conductor ampacity in accordance with UL 486E.

#### Load Current Ratings

1. Unless otherwise indicated, load current ratings for panelboard assemblies, including bus and circuit breakers, are non-continuous as defined by NEC. Continuous rating shall be 80 percent of non-continuous rating.
2. Where indicated “continuous”, “100 percent”, etc., selected components and protective devices shall be rated for continuous load value shown.
3. The following interrupting capacity shall be considered minimum. Other ratings shall be as specified on the Plans.

240V and 208Y/120V Panelboards	22,000 AIC symmetrical
480V/277V Panelboards	40,000 AIC symmetrical

#### Overcurrent Protective Devices

1. In accordance with NEMA AB 1, NEMA KS 1, UL 98 and UL 489, protective devices shall be adapted to panelboard installation.
2. Panelboards shall be capable of device replacement without disturbing adjacent devices and without removing main bus.
3. Spare Spaces: Cover openings with easily removable cover.
4. When not identified on Plans, provide minimum of 18 single-pole breaker spaces.

Circuit Breakers

1. Provide thermal-magnetic unless otherwise indicated, quick-make, quick-break, molded case, of indicating type showing ON/OFF and TRIPPED positions of operating handle. Mount breakers in all panelboards so that the breaker handles operate in a horizontal plan.
2. The bus connection shall be bolt-on circuit breakers in all panelboards. In power distribution panelboards, 225-ampere frame sizes and greater may be plug-in type where individual positive locking device requires mechanical release for removal.
3. Trip Mechanism:
  - a) Individual permanent thermal and magnetic trip elements in each pole.
  - b) Test button on cover.
  - c) Variable magnetic trip elements with a single continuous adjustment 3X to 10X for frames greater than 100 amps.
  - d) Two and three pole breakers shall have common trip.
  - e) Automatic opens all poles when overcurrent occurs on one pole.
  - f) Calibrated for 40 degrees C ambient, unless shown otherwise.

Ground Fault Circuit Interrupter (GFCI)

1. Where indicated, equip breaker as specified above with ground fault sensor rated to trip on 5-mA ground fault with 0.025 second (UL 943, class A sensitivity, for protection for personnel).
2. Ground fault sensor shall be rated same as circuit breaker.
3. GFCI shall have a push-to-test button and a reset button.

Equipment Ground Fault Interrupter (EGFI)

1. Where indicated, equip breaker as specified above with ground fault sensor rated to trip on 30-mA ground fault (UL listed for equipment ground fault protection).

Cabinets for Each Panelboard

1. Cabinets shall be flush, or surface mounted as indicated on the Plans with tight closing doors without play when latched. Where two cabinets are located adjacent to each other in finished areas, provide matching trim of the same height.
2. Provide cabinets of sufficient dimensions to allow for future expansion and addition of circuit breakers within the panelboards as indicated on the Plans.
3. Provide locks for each cabinet door. All electrical distribution equipment locks are to be keyed identically.
4. Fasten panelboard with machine screws with oval countersunk heads, finish hardware quality, with escutcheons or approved trim clamps. Clamps assessable only when dead front door is open are acceptable. Surface mounted panelboards with fronts greater than

48 inches vertical dimension shall have trim hinged at the right side in addition to the hinged door over dead front.

5. Material for Type 1, Type 3R, and Type 3S cabinets shall be code-gauge, hot-dip galvanized sheet steel with reinforced steel frame.
6. Finish all enclosures with rust inhibitor primer followed by manufacturer's standard gray baked enamel or lacquer.

#### Bus

1. Material for internal bus shall be full size copper throughout length. Provide for mounting of future protective devices along full length of bus regardless of number of units and spaces shown. Machine, drill and tap as required for current and future positions.

#### Feeder Lugs

1. Main and neutral feeder lugs shall be replaceable, bolted mechanical or crimp compression type.

#### Equipment Ground Terminal Bus

1. Provide copper equipment ground terminal bus with suitably sized provisions for termination of ground conductors. The terminal bus shall be bonded to the enclosure.
2. Provide individual mechanical termination points no less than the quantity of breaker pole positions.
3. Provide individual termination points for all other grounding conductors such as feeder, grounding electrodes, etc.

#### Neutral Terminal Bus

1. Provide copper neutral terminal bus with suitably sized provisions for termination of neutral conductors. The neutral bus shall be isolated from the enclosure.
2. Provide individual mechanical termination points no less than the quantity of breaker pole positions.
3. Provide individual termination points for all other neutral conductors.
4. Termination points shall be bolted crimp compression lugs for conductors 6 AWG or larger.

### **Part 3 – Execution**

#### **General**

Install in accordance with NECA 407, NEMP PB 1.2 and manufacturers' written installation instructions.

#### **Installation**

Install securely, plumb, in-line and square with walls.

Install top of panelboard trim 72 inches above floor, unless otherwise shown. Install panelboard so tops of protective device operating handles are no more than 72 inches above the floor.

Install filler plates in unused spaces.

### **System of Numbering and Bus Arrangement**

System numbering and bus arrangement shall be as shown on the panel schedule on the Plans.

### **Panelboard Nameplate**

Provide engraved plastic nameplate with 1/2-inch high characters for panel identifications (for panel name) attached with screws to each panelboard front. Include voltage, phase and wire (i.e., 208Y/120, 3-phase, 4-wire) in 3/8-inch characters.

### **Circuit Index**

Provide as-built information for each branch circuit panelboard by circuit with its proper load designation.

### **Ground Fault Protection**

Install panelboard ground fault circuit interrupter devices in accordance with installation guidelines of NEMA 289.

## **16.55 Switches and Protective Devices**

*[CSI 26 18 00 (medium voltage) 26 28 00 (low voltage)]*

### **16.55.16 Enclosed Circuit Breakers**

*[CSI 26 28 16]*

#### **Part 1 - General**

##### **Design Requirements**

Molded Case breakers shall have the interrupting rating and trip rating indicated on the Plans. All breakers shall be calibrated for operation in an ambient temperature of 40 degrees Celsius.

Instantaneous Magnetic Trip breakers shall be adjustable and accessible from the front of all breakers.

#### **Part 2 - Products**

##### **Manufactured Units**

Molded case circuit breakers shall be quick-make and quick-break type with wiping type contacts. Each breaker shall be provided with arc chutes and individual trip mechanisms on each pole consisting of both thermal and magnetic trip elements. Two and three pole breakers shall be common trip. Molded case circuit breakers shall be trip-free. Each breaker shall have trip indication independent of the "ON" or "OFF" positions.

Instantaneous Magnetic Trip breakers in motor circuits which are indicated but not sized, shall be provided with Manufacturer's recommended size based on the actual motor installed. Where indicated on the Plans and in the combination motor starter/motor control center schedule, furnish instantaneous magnetic trip only circuit breakers for motor short circuit protection.

## 16.60 CONDUCTORS

### 16.61 Low Voltage Wire and Cable

*[CSI 26 05 19]*

#### Part 1 - General

##### Design Requirements

This section is for power and control conductors for 600 volts or less.

All conductors shall be copper. Wire or cable not shown on the Plans or specified, but required, shall be of the type and size required for the application and in conformance with the applicable code.

#### Part 2 - Products

##### Materials

###### Conductors

1. Solid and stranded copper wire shall be 600-volt Type THW, THWN, or THHW, Class B stranding, sizes #14 AWG, #12 AWG, and #10 AWG only. Use of THHN insulation shall not be allowed. Aluminum conductors shall not be allowed.
2. Stranded copper wire shall be 600-volt Type XHHW, Class B stranding, sizes #8 AWG and larger. Aluminum conductors shall not be allowed.

###### Splices

1. For Lighting Systems and Power Outlets: Wire nuts shall be twist-on type insulated connectors utilizing an outer insulating cover and a means for connecting and holding the conductors firmly.
2. All Equipment: Crimp type connectors shall be insulated type, suitable for the size and material of the wires and the number of wires to be spliced and for use with either solid or stranded conductors.
3. Division 16 Equipment and Power Conductors: Bolted pressure connectors shall be suitable for the size and material of the conductors to be spliced.
4. All Equipment: Epoxy splice kits shall include epoxy resin, hardener, mold, and shall be suitable for use in wet and hazardous locations.

### Terminations

1. Crimp type terminals shall be self-insulating sleeve type, with ring or rectangular type tongue, suitable for the size and material of the wire to be terminated, and for use with either solid or stranded conductors.
2. Terminal lugs shall be split bolt or bolted split sleeve type in which the bolt or set screw does not bear directly on the conductor.
3. Wire Markers shall be plastic sleeve type. Wire numbers shall be permanently imprinted on the markers.

### **Finishes**

Color Coding: Provide color coding for all circuit conductors. Insulation color shall be white for neutrals and green for grounding conductors. An isolated ground conductor shall be identified with an orange tracer in the green body. Ungrounded conductor colors shall be as follows:

1. 277/480 Volt, 3 Phase: Yellow, brown and orange.
2. 120/240 Volt, 1 Phase: Red and black.

## **Part 3 – Execution**

### **Location (Installment) Schedule**

Provide the following conductors for the following applications:

1. Use stranded copper conductors for all power and control circuits unless noted otherwise on plans or below. Size as noted on the Plans.
2. Contractor may use solid copper conductors for lighting and receptacle circuits using screw-type terminals. Size as noted on the Plans.
3. Size #14 AWG wire or smaller shall not be allowed on power circuits.

### **Installation**

#### Conductor Splices

1. Splices: Install all conductors without splices unless necessary for installation, as determined by the Engineer. Splices when permitted shall be completed using an approved splice kit intended for the type of conductor and the application. The splice shall be in accordance with the splice kit manufacturer's instructions.
2. Underground Splices: All underground outdoor splices when approved by Engineer shall be completed in an accessible pullbox or handhole using an approved watertight epoxy resin splice kit rated for the application up to 600 volts. Splices will not be allowed to be direct buried.

#### Conductor Identification

1. Except for interior lighting and receptacle circuits, identify each wire or cable at each termination and in each pullbox, junction box, handhole, and manhole using numbered and lettered wire markers. All electrically common conductors shall have the same number.

Each electrically different conductor shall be uniquely numbered. Identify panelboard circuits using the panelboard identification and circuit number. Identify other circuits as shown in the circuit schedule as favorably by the Engineer.

2. Conductors between terminals of different numbers shall have both terminal numbers shown at each conductor end. The terminal number closest to the end of the wire shall be the same as the terminal number.

### Testing

Insulation Resistance Tests: For all circuits 150 volts to ground or more and for all motor circuits over ½ horsepower, test cables per NETA Paragraph 7.3.1. The insulation resistance shall be 20 megohms or more. Submit results to Engineer for review.

## 16.70 RACEWAYS, BOXES, AND FITTINGS

*[CSI 26 05 33]*

### 16.71 Raceways

*[CSI 26 05 33.21]*

#### Part 1 – General

##### Design Requirements

Conduit sizes not noted on Plans shall be in accordance with NEC requirements for the quantities and sizes of wire installed therein.

Grounding of the raceway, junction boxes, fittings and any other boxes is the responsibility of the Contractor. Ground conductors, bushings, connections, clamps and other materials as needed to ground the raceway system is the responsibility of the Contractor. All raceways shall be grounded in accordance with the NEC.

#### Part 2 – Products

##### Components

###### Conduit and Fittings

1. Galvanized Rigid Steel (GRS): Rigid conduit shall be steel, hot dipped galvanized inside and out. The GRS must meet USA Standards Institute C80-1 Underwriters Laboratories Standard UL6 and carry a UL label. Use cast threaded hub fittings and junction boxes for all rigid conduit except in locations not permitted by the NEC.
2. PVC Coated Rigid Steel Conduit (PVC-GRS): PVC coated conduit shall meet the GRS standard above plus have a 40 Mil PVC factory applied PVC coating.
3. Nonmetallic Conduit: Nonmetallic Conduit shall be rigid PVC, Schedule 40 (PVC-40) or 80 (PVC-80). PVC conduit installed above grade shall be Schedule 80 extra heavy wall 90 degree Celsius. UL listed for aboveground use and UV resistant. Conduit shall be gray in color. Fittings shall be of the same material as the raceway and installed with solvent

per the Manufacturer's instructions. Conduit, fittings, and solvent shall all be manufactured by the same Manufacturer.

4. Flexible Metal Conduit (Flex-LT): Flexible conduit shall be interlocking single strip, hot dipped galvanized and shall have a polyvinyl chloride jacket extruded over the outside to form a flexible watertight raceway. Flexible conduit shall be American Brass Company Sealtite Type VA, General Electric Type UA or equal.
5. Electrical Metallic Tubing (EMT): EMT shall be UL 797 and ANSI C80.3; steel tubing, hot dipped galvanized. EMT fittings shall be ANSI/NEMA FB 1; steel, rain tight, insulated throat, compression type.

#### Conduit and Cable Supports

1. Conduit Supports: Hot dipped galvanized framing channel shall be used to support groups of conduit. Individual conduit supports shall be one-hole galvanized malleable iron pipe straps used with galvanized clamp backs and nesting backs where required. Conduit support for PVC or PVC coated rigid steel shall be one-hole PVC or epoxy coated clamps or PVC conduit wall hangers.
2. Ceiling Hangers: Ceiling hangers shall be adjustable galvanized carbon steel rod hangers. Unless otherwise specified, hanger rods shall be 1/2-inch all-thread rod and shall meet ASTM A193. Hanger rods in corrosive areas and those exposed to weather or moisture shall be stainless steel.

#### Conduit Sealants

1. Moisture Barrier Types: Sealant shall be a non-toxic, non-shrink, non-hardening, putty type hand applied material providing an effective barrier under submerged conditions.
2. Fire Retardant Types: Fire stop material shall be a reusable, non-toxic, asbestos-free, expanding, putty type material with a 3-hour rating in accordance with UL 1479. Provide products indicated by the manufacturer to be suitable for the type and size of penetration.

### **Part 3 - Installation**

#### **Raceway Applications**

Galvanized Rigid Steel (GRS) conduit shall be used in all locations unless noted otherwise below or on the Plans.

ABOVE GRADE CONDUITS (non-corrosive areas) shall be:

1. GRS
2. EMT for above-grade lighting circuits.

ABOVE GRADE CONDUITS (wet or corrosive areas, NFPA 70 hazardous areas) shall be:

1. PVC-GRS

BELOW GRADE CONDUITS IN DIRECT EARTH (not under slabs-on-grade) shall be:

1. PVC-40

- a) Sweeps and risers for transition of PVC from below grade to above grade shall be PVC-GRS.

ALL CONNECTIONS TO VIBRATING EQUIPMENT OR MOTORS shall be:

1. Liquidtight flexible metallic conduit for indoor, non-corrosive areas and all motor leads from VFDs.

### **Installation**

All conduits shall be concealed in the floor, walls, ceiling slab, or beneath the floor slab. Surface mounted conduit will not be accepted unless noted otherwise on the construction Plans.

#### Size of Raceways:

1. Raceway sizes as shown on the Plans, if not shown on the Plans, then size in accordance with NFPA 70.
2. Unless specifically indicated otherwise, the minimum raceway size shall be:
  - a) Conduit:  $\frac{3}{4}$ -inch
  - b) Wireway: 4-inch by 4-inch

All raceways shall contain a separate grounding conductor.

Spare conduits shall contain one  $\frac{3}{16}$ -inch diameter nylon pull rope.

Conduit routing is shown diagrammatic on the Plans. Contractor is responsible for routing the conduits in a neat manner, parallel and perpendicular to walls and ceilings.

Location of conduit ends are shown approximately. Contractor is responsible for ending conduits in location that will not conflict with electrical equipment. Route conduit ends to facilitate ease of equipment maintenance. Conduits extending from the floor to a device shall be located as close as possible to avoid creating a hazard.

Where water cannot drain to openings, provide drain fittings in the low spots of the conduit run.

Securely fasten raceways at intervals and locations required by NEC, or the type of raceway employed.

Provide all required openings in walls, floors and ceilings for conduit penetration.

1. Do not install one (1) inch and larger raceways in or through structural members (beams, slabs, etc.) unless approved by Engineer.
2. New Construction: Avoid cutting openings, where possible, by setting sleeves or frames in masonry and concrete, and by requesting openings in advance.
3. Existing Construction: Core drill openings in masonry and concrete. Avoid structural members and rebar.

Conduit encasement or embedment in the earth shall be separated from the earth by at least 3-inches of concrete unless otherwise shown on the Plans. Plastic conduit spacers shall be

located five feet on centers. The spacers shall be secured to the conduits by wire ties. The conduits shall be watertight.

Plastic raceway joints shall be solvent cemented in accordance with recommendations of raceway manufacturer.

All conduit openings not encased in a panel shall be sealed with duct seal.

### Wireway Installation

1. Straight sections and fittings shall be solidly bolted together to be mechanically rigid and electrically continuous. Dead ends shall be closed. Unused conduit openings shall be plugged.
2. Wireways shall be supported every 5 feet minimum.

## **16.72 Boxes and Enclosures**

### **16.72.2 Outlet and Junction Boxes**

*[CSI 26 05 33.16]*

#### **Part 1 – General**

##### **Design Requirements**

Outlet boxes and switch boxes shall be designed for mounting flush wiring devices.

Outlet boxes shall not be less than 4-inch square and 1½-inch deep. Ceiling boxes shall withstand a vertical force of 200 pounds for five minutes. Wall boxes shall withstand a vertical downward force of 50 pounds for five minutes.

#### **Part 2 – Products**

##### **Materials**

Use cast boxes with threaded hubs for all rigid and intermediate conduits. Steel boxes may be used with rigid and intermediate conduits where cast boxes are not allowed by the NEC. All boxes shall be of proper size to accommodate devices, connectors, and number of wires present in the box. Boxes shall be readily accessible.

Cast box bodies and cover shall be cast or malleable iron with a minimum wall thickness of ⅛-inch at every point, and not less than ¼-inch at tapped holes for rigid conduit. Bosses are not acceptable. Mounting lugs shall be provided at the back or bottom corners of the body. Covers shall be secured to the box body with No. 6 or larger brass or bronze flathead screws. Boxes shall be provided with neoprene cover gaskets. Outlet boxes shall be of the FS types. Boxes shall conform to FS W-C-586C and UL 514.

Sheet metal boxes shall conform to UL 50, with a hot-dipped galvanized finish conforming to ASTM A123. Boxes and box extension rings shall be provided with knockouts. Boxes shall be formed in one piece from carbon-steel sheets.

Non-metallic boxes shall be hot-compressed fiberglass, one-piece, molded with reinforcing of polyester material, with a minimum wall thickness of ⅛-inch.

## Finishes

Where only cast aluminum is available for certain types of fixture boxes, an epoxy finish shall be provided.

## 16.75 Wiring Devices

*[CSI 26 27 26]*

### 16.75.1 Common Work for Wiring Devices

*[CSI 26 27 26]*

#### Part 3 - Execution

##### Installation

###### Wiring Devices

1. Position of Outlets: All outlets shall be centered with regard to building lines, furring and trim, symmetrically arranged in the room or outside the structure. Device outlets shall be set plumb and shall extend flush to the finished surface of the wall, ceiling or floor without projecting beyond the same.
2. Unless otherwise noted, wall mounted outlet devices shall generally be 24-inches above the floor, 18 inches in architecturally treated areas, above process piping near process valve boards. Switches shall be 48 inches above the finished floor unless otherwise noted.

###### Installation of Wall Plates

1. Interior Dry Locations: Install plates so that all four edges are in continuous contact with the finished wall surfaces. Plaster filled will not be permitted. Do not use oversize plates or sectional plates.

##### Testing

After installation of receptacles, circuits shall be energized, and each receptacle tested for proper ground continuity, reversed polarity, and/or open neutral condition.

GFI receptacles shall be tested with the circuits energized. Devices shall be tested with a portable GFI receptacle tester capable of circulating 7.5 milliamperes of current, when plugged in, between the "hot" line and "ground" to produce tripping of the receptacle. Resetting and tripping shall be checked at least twice at each GFI receptacle.

Submit results of all field testing to the Engineer for review.

## 16.75.2 Receptacles

*[CSI 26 27 26.25]*

### Part 1 – General

#### Design Requirements

Receptacles shall be heavy duty, high abuse, grounding type conforming to NEMA configurations, NEMA WD1 and UL 514 Standards.

### Part 2 – Products

#### Materials

##### Single and Duplex Receptacles

1. Indoor Clean Areas: Receptacles shall be duplex, 20 amp, NEMA 5-20R, and shall accept NEMA 5-15P and 5-15P plug caps. Receptacles shall be Hubbel 5362, General Electric 4108-2, or equal. Color shall be brown.

##### GFI Receptacles

1. Device shall be rated 20 amp, 2-pole, 3-wire, 120-volt, conforming to NEMA WD1.10 configuration. Device shall have a test and reset push buttons. GFI device shall be Hubbell 5362 or equal.

##### Surface Multiple Outlet Assemblies

1. Units shall have outlets on center-to-center spacing as shown on the Plans. Assembly shall conform to Article 353 of the NEC.

## 16.75.3 Line Voltage Switches

*[CSI 26 27 26.21]*

### Part 2 – Products

#### Manufacturers

- Sierra Electric
- Monumental Grade, Catalog No. 5721
- Daniel Woodhead 1900 series
- Or Equal

#### Materials

Line Voltage Types: Switches shall be rated 20 amps at 120 or 277 volts AC only. Units shall be flush mounted, self-grounding, quiet operating toggle devices. Handle color shall be brown. Units shall conform to Federal Specifications W-S-896 D and E, UL 20, and NEMA WD1 standards.

## 16.75.4 HOA (Hand-Off-Auto) Lighting Switches

*[CSI 26 27 26.23]*

### Part 2 – Products

#### Manufacturers

- Bryant No. 4925 or Equal

#### Materials

HOA Switch (Lighting): Switches shall be rated 20 amps at 120 volts AC, 3-position toggle, positive action with “center-off” maintained contact, double pole.

## 16.75.5 Plates

*[CSI 26 27 26.31]*

### Part 1 – General

#### Design Requirements

Plates shall be of the style and color to match the wiring devices, and of the required number of gangs. Plates shall conform to NEMA WD1, UL 514, and ANSI C73. In noncorrosive indoor areas, device plates shall be made of sheet steel, zinc electroplated with chrome finish.

### Part 2 – Products

#### Manufacturers

As manufactured by

- Crouse-Hinds
- Appleton
- Or Equal

#### Components

Device plates shall be provided with engraved laminated phenolic nameplates with 1/8-inch white characters on black background. Nameplates for switches shall identify panel and circuit number and area served. Nameplates for receptacles shall identify circuit and voltage if other than 120 volts, single-phase.

## 16.85 Lighting

*[CSI 26 50 00]*

### 16.85.1 Common Work for Lighting and Fixtures

*[CSI 26 50 05]*

#### Part 1 - General

##### Design Requirements

Fixtures as shown on the Lighting Fixture Schedule on the plans.

Fixtures shall be of the types, wattages, and voltages shown on the Plans, comply with UL 57, and shall be UL classified and labeled for intended use. Provide suitable supports and mountings.

##### Warranty

Fixtures that fail within 90 days after acceptance by the Owner shall be replaced at no cost to the Owner.

#### Part 2 – Products

##### Manufacturers

Approved manufacturers:

- Westinghouse
- Sylvania
- G.E.
- As shown on the plans or approved equals.

## 16.95 Testing

*[CSI 26 08 00]*

### 16.95.1 Common Work for Testing

*[CSI 26 08 05]*

#### Part 1 - General

##### Submittals

Test reports shall be submitted to the Engineer prior to final acceptance in accordance with Division 1.33 of these specifications.

##### Scheduling and Coordination

The Contractor shall inform the Engineer in advance of testing in accordance with the requirements listed in Division 1 of these specifications.

Prior to scheduling the testing, the Contractor shall have satisfied themselves that the project area is properly cleaned up; all patching and painting deemed necessary properly completed; and all systems, equipment and controls are functioning as intended.

## **Part 2 - Products**

### **Source Quality Control**

Submit reports of factory tests and adjustments performed by equipment manufacturers to the Engineer prior to field testing and adjustment of equipment. These reports shall identify the equipment and show dates, results of test, measured values and final adjustment settings. Provide factory tests and adjustments for equipment where factory tests are specified in the equipment specifications. The Engineer may inspect the fabricated equipment at the factory before shipment to job site. Provide the Engineer with sufficient prior notice so that an inspection can be arranged at the factory.

## **Part 3 – Execution**

### **Site Testing**

Test all circuits for continuity, freedom from ground, and proper operation during progress of the work.

Insulation Resistance, Continuity, and Rotation: Perform routine insulation resistance, continuity and rotation tests for all distribution and utilization equipment prior and in addition to tests performed by the testing laboratory specified herein.

Electric Motors: Perform voltage, current and resistance tests on all motors ½ horsepower and larger installed this project. Insulation resistance readings shall be taken with a 500-volt megger for 30 seconds with the circuit conductors connected to the motor. Verify that an overload condition does not exist.

Conduct special test as required for service and/or system ground.

## **16.95.2 Arc Flash Study, Protection Device Coordination, and Short Circuit Analysis**

*[CSI 26 05 73.13, 26 05 73.16, 26 05 73.19]*

### **Part 3 - Execution**

#### **Field Quality Control**

Contractor to provide the services of a recognized independent testing laboratory or coordination analysis consultant for the proper system coordination of the protective devices furnished on this project. Submit the name and the qualifications of the laboratory or consultant for review by the Engineer; qualifications must include professional registration of proposed personnel as electrical engineers.

The protective device on the line side closest to the fault or abnormal conditions shall isolate the problem portion of the system and minimize damage in that portion. The rest of the system

shall be maintained in normal service. The coordination shall be in conformance with the recommendations of latest IEEE Standard 242.

Provide an Arc Flash Hazard Study for the electrical distribution system shown on the Plans. The intent of the Arc Flash Hazard Study is to determine hazards that exist at each major piece of electrical equipment shown on the one-line diagrams. This includes switchgear, switchboards, panelboards, motor control centers, generators, transfer switches, and transformers. The study will include creation of Arc Flash Hazard Warning Labels listing all items as required in NFPA 70E-2018. These labels serve as a guide to assist technicians and others in the selection of proper Personal Protective Equipment when working around exposed and energized conductors. The electrical contractor will install the labels. The arc flash hazard study shall consider all operating scenarios during normal conditions alternate operations, emergency power conditions, and any other operations, which could result in maximum arc flash hazard. The label shall list the maximum incidental energy calculated and the scenario number and description on the label.

Submit the analysis that shall include arc flash, impedance, and short circuit calculations, list of any assumptions made and the analysis, the recommended settings of the protective devices, and the system time/current characteristic curves. The submittal shall be completed and submitted in conjunction with the circuit breaker submittal to allow time for review and re-submittal, if necessary, before the implementation of final settings and adjustments by the testing laboratory.

#### General

1. Conduct final test in the presence of Owner and/or their authorized representative. Contractor shall provide all testing instrumentation and labor required to demonstrate satisfactory operation of systems, equipment and controls.

#### Operational Tests

1. Operational test all circuits to demonstrate that the circuits and equipment have been properly installed, adjusted and are ready for full-time service. Demonstrate the proper functioning of circuits in all modes of operation, and including alarm conditions, and demonstrate satisfactory interfacing with the data acquisition and alarm systems.

### 16.95.3 Conductor Test Report

[CSI 26 08 13]

Conductor Test Report Page 1 of 1															
PROJECT:								OWNER:							
Contractor Co. Name:								Phone Number:							
Tested by:								Test Date:							
Race-way	V	C	Operating Load Voltage						Insulation Resistance - OHMS						
Label	(1)	(2)	(3)	VAB	VCB	VCA	VAN	VBN	VCN	A-B	B-C	C-A	A-G	B-G	C-G
A															
B															
C															
D															
E															
F															
G															

1. Refer to raceway and wire schedule and one-line diagram for description of feeder identified by label shown on this report
2. Visual Inspection – Check when completed
3. Continuity Test – Check when completed

## 16.95.4 Ground Electrode Resistance Test Report

*[CSI 26 08 15]*

Ground Electrode Resistance Test Report	
PROJECT:	OWNER:
Contractor Co. Name:	Phone Number:
Tested by:	Test Date:
Test Meter Type:	
Test Distance-D:	
Soil Conditions:	
Measured Resistance:	
DESCRIPTION OF TEST PROCEDURE, CONDITIONS, RESULTS:	

Division 17  
**Automatic Control (This Division is Not Used)**

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# Division 18

## Measurement and Payment

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### 18.0 GENERAL

It is the intention of these specifications that performance of work under bid items shall result in complete construction, in proper operating condition, of improvements identified in these written specifications and accompanying plans. Work and material not specifically listed herein but required according to the plans and specifications and general practice shall be included in Contractor's bid price in the most closely applicable bid item.

If a minimum bid amount has been established for any item and the bidder's entry is less than the minimum specified amount, the Owner will unilaterally revise the price to the minimum specified amount and recalculate the total. The recalculated total will be used by the Owner for award purposes and to fix the contract price amount and the amount of the contract bond.

If a maximum or fixed bid amount has been established for any item and the bidder's entry exceeds the maximum or fixed specified amount, the Owner will reduce the bid item price to the maximum or fixed specified amount and relocate the offsetting amounts to bid items of the Owner's choosing.

#### **Bid Item 1 – Mobilization, Demobilization, Site Preparation, and Cleanup**

Lump sum price covers complete cost of furnishing, installing and testing, complete and in-place, all work and materials necessary to: move and organize equipment and personnel onto the job site; secure job site; traffic control for deliveries; provide and maintain necessary support facilities; obtain all necessary permits and licenses; prepare site for construction operations; maintain site and surrounding areas during construction; move all personnel and equipment off site after contract completion, and provide as-built data; cleanup site prior to final acceptance; and accomplish all other items of work not specifically listed in other divisions.

No more than 70-percent of bid amount for this item will be paid before final payment request, and this bid amount may not be more than 15-percent of value of total contract.

#### **Bid Item 2 – Excavation Safety and Shoring**

Lump sum price shown shall cover the complete cost of excavation safety and shoring including: all labor, materials, and equipment for the installation of the safety and shoring work as shown on the Plans, and detailed in the contract specifications, or as required by governing safety codes. Price includes design of the shoring system as required by applicable codes and standards, whether shown on the Plans or not.

#### **Bid Item 3 – Site and Utilities Work**

Lump sum price shown shall cover the complete cost of providing all site work relating to construction of improvements as shown on the Plans and specified herein. Work includes, but is not limited to: structure excavation, backfill, and compaction; trenching; select bedding; import backfill; compaction; materials and appurtenances for water, electrical, and other underground utilities; site grading; temporary construction/site security fencing

maintenance; temporary erosion and sedimentation control; disposal of excess material; control of water; excavation; removal of unsuitable materials; dewatering; restoration for underground utilities; landscaping, including sod; permanent fencing; retaining wall, including drain pipe; final restoration, including crushed surfacing; and all other work necessary for a complete installation of all site work and underground utilities. The cost associated with coordination with utility companies shall be included in this bid item.

### **Bid Item 4 – Unscheduled Excavation**

The unit price shown shall cover the complete cost of providing all materials, equipment, and labor necessary for excavation and disposal that is beyond the limits shown on the project plans and is performed at the Owner's request. Excavated material shall be replaced with import crushed rock.

Price includes haul and disposal of excavated material, and replacement with import. Measurement shall be per ton of imported material.

### **Bid Item 5 – Grind and Overlay**

The unit price bid per square yard of Grind and Overlay, shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental for planing of asphalt surface in preparation of overlay, and overlaying the roadway as shown on the Plans and details. This shall include, but not be limited to the following:

1. Lowering of existing utility covers to below the proposed planing depth prior to planing.
2. Surface preparation, including removal and lawful disposal of ground asphalt as necessary.
3. Planing to a depth of 2-inches along a neat and straight line to the limits shown on the Plans where full width planing is required.
4. Surface preparation prior to overlay placement, including leveling courses, crack and hole repair, tack coat, and sweeping or brooming
5. Furnishing, placing and compacting asphalt overlay, per the asphalt specifications of the permitting agency.
6. Re-striping of the traffic lanes, including thermoplastic striping and all road lines and arrows, and replacement of signs and traffic buttons.
7. Adjusting all valve boxes, gratings, monument cases, sewer manholes, catch basins and any other improvements to the final grades of the completed pavement.

Payment will be made based on the actual number of square yard of asphalt ground and overlaid within the limits shown on the plans. Any other asphalt damaged by the Contractor's operations will be the Contractor's responsibility and will be considered incidental to construction and must be restored by the Contractor to the satisfaction of the City.

## **Bid Item 6 – Concrete Curb and Gutter**

The unit price bid per linear foot for Concrete Curb and Gutter shall be full compensation for all labor, material, tools and equipment necessary and incidental to the complete restoration, repair or replacement of concrete curbs as shown on the plans. This item shall include, but not be limited to, the following: Sawcut, removal, and proper disposal of asphalt, forming of curb and gutter, and all other work necessary for complete and finished concrete curb and gutter as shown on the Plans.

## **Bid Item 7 – Concrete Sidewalk**

The unit price bid per square yard for Concrete Sidewalk shall be full compensation for all labor, material, tools and equipment necessary and incidental to the complete restoration, repair or replacement of concrete sidewalks as shown on the plans. This item shall include, but not be limited to, the following: Sawcut, removal, and proper disposal of asphalt, forming of sidewalk, and all other work necessary for complete and finished concrete sidewalk as shown on the Plans.

## **Bid Item 8 – Traffic Control**

Lump sum price shown shall cover the complete cost of providing all work, materials, and equipment necessary for traffic control as shown in the Plans and detailed in the technical specifications.

## **Bid Item 9 – Structural**

Lump sum price shown shall cover the complete cost of providing all materials, equipment and labor necessary for constructing and/or assembling the pump station structure complete as shown on the Plans and detailed in the contract specifications including: cast-in-place concrete, including building slab and pump pads; supply and installation of pre-engineered structure; wall and ceiling insulation; carpentry; ceilings; walls; waterproofing; patching; repairing and all other work necessary for a complete structure as shown on the Plans and detailed in the Specifications.

## **Bid Item 10 – Mechanical**

Lump sum price shown shall cover the complete cost of providing all materials, equipment and labor necessary for constructing the piping and appurtenances below and within the pump station complete as shown on the Plans and detailed in the contract specifications, including: installation of the pre-purchased pump skid, including pump anchors; mechanical piping and appurtenances; pressure tank installation, including seismic anchorage; and all other work necessary for a complete mechanical system as shown on the Plans and detailed in the Specifications.

## **Bid Item 11 – Electrical**

The lump sum price shown shall cover the complete cost of providing all labor, materials, and equipment necessary for the electrical work, excluding installation of the primary power work, as shown on the Plans, and detailed in the contract specifications.

## **Bid Item 12 – Testing, Startup and Training**

Lump sum price shown shall cover the complete cost of providing all labor and materials necessary for testing and startup of the project as shown on the Plans, and detailed in the contract specifications. Payment shall be lump sum. Partial payment of up to 50 percent of the total bid item cost is allowed no earlier than first Contractor initiated testing date. Final 50 percent of payment shall not be paid until testing of the station is complete, and the pump station is completely operational, and staff trained as determined by the Owner and Engineer. Minimum cost for this bid item shall be \$2,000.

## **Bid Item 13 – Minor Change**

The unit price shown shall cover the complete cost of performing work not shown or described in the contract documents but directed by the Owner. Work authorized by the Owner will be paid using the Force Account methodology described in the General Conditions and section 1-09.6 of the Standard Specifications. The bid includes a fixed amount for all bidders and may not represent the actual amount performed during the project.

APPENDIX A: TEMPORARY REGIONAL BOOSTER PUMP  
STATION VALVE VAULT SOIL INVESTIGATION  
TECHNICAL MEMORANDUM



# TECHNICAL MEMORANDUM

**Client:** City of Kirkland  
**Project:** KIR 0260018.00.0002  
**Project File:** Temporary Regional Booster Pump Station  
**Project Manager:** Ryan Feskens, PE  
**Composed by:** Steve Nelson, PE  
**Reviewed by:** Ryan Feskens, PE  
**Subject:** Temporary Regional Booster Pump Station Valve Vault Soil Investigation  
**Date:** February 13, 2026



STEPHEN ERIC NELSON

Signed: 02/13/2026

## Introduction

The City of Kirkland (City) intends to install a Temporary Regional Booster Pump Station (TRBPS) to reinstate a smaller, closed Upper Highlands pressure zone. The City retained RH2 Engineering, Inc., (RH2) to design the TRBPS ahead of the 2026 peak demand season. The proposed TRBPS project also includes two new valve vaults and other minor system changes that will be confirmed during predesign and included in the design and construction of the TRBPS facility. This technical memorandum summarizes a limited soil investigation at the two valve vault locations with recommendations for design and construction. The vaults will be 8 feet wide by 10 feet long by 8 feet deep, and placed within excavations that are approximately 10 feet deep.

## Activities

On December 30, 2025, City staff used a Vactor truck to advance two 12-inch-diameter boreholes at proposed locations for the pre-cast concrete vaults. At the north site, the Vactor hole reached a depth of approximately 8 feet below ground surface (bgs). At the south site, the Vactor hole reached a depth of approximately 3 feet bgs.

The north Vactor borehole (**Photo 1**) encountered dense gravelly sand with silt with few cobbles and occasional tree roots. The soil was moist, but not saturated. The soil density appeared to increase with depth. The soil composition and density is likely to be consistent to the proposed 10-foot depth of the north station vault excavation.



*Photo 1. North station Vactor hole.*

The south Vactor hole encountered very dense cobbly sandy gravel with silt to a depth of 3 feet bgs (**Photo 2**). Buried pipe was observed at a depth of 2.5 feet bgs. The Vactor hole was discontinued due to the very dense soil condition, which resisted Vactor excavation. The soil composition and density is likely to be consistent to the proposed 10-foot depth of the south station vault excavation.



*Photo 2. South station Vector hole.*

## Recommendations

The soil at both locations exhibited dense, moderate to low permeability soil. There are no constructability issues at either location; excavations for both vaults may be achieved with typical excavation equipment capable of reaching depths of 10 feet bgs. The soil may have limited drainage capacity, and the excavations may retain incidental precipitation and shallow groundwater seepage at a rate faster than the native soil at the bottom of the excavation can exfiltrate the seepage. Consequently, the excavation backfill may fill with water, creating a buoyancy condition during the winter months. This condition should be mitigated by using a thickened concrete base to resist buoyant uplift that is designed with the conservative assumption that groundwater in the vault backfill may rise to within 2 feet of the ground surface.

The native soil at the base of the excavation should be compacted to a firm and unyielding condition before placing a 12-inch-thick layer of crushed surfacing base course compacted to 95 percent maximum dry density per modified Proctor methods.

**APPENDIX B: PUMP SYSTEM PRE-PURCHASE**

## Pump Performance Datasheet

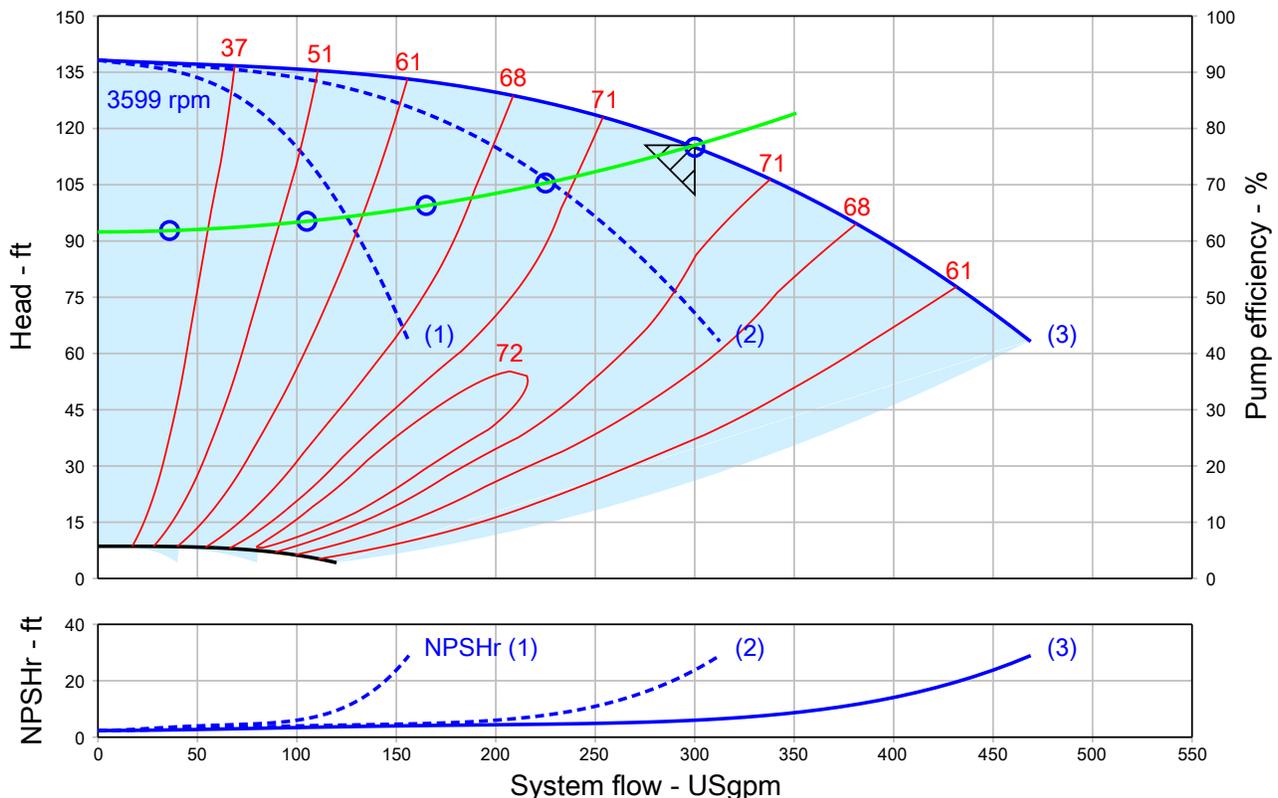
Customer :	Quote Number / ID :	2813913
Customer ref. / PO :	Model :	HYDRO MULTI-E 3CRE 20-2 3x460V
Tag Number : 004		60Hz
Service :	Part Number :	99761449
Quantity : 1	Stages :	2
Quantity of pumps : 3 active + 0 standby	Based on curve number :	RC10438
	Date last saved :	02/26/2026 4:44 PM

Operating Conditions		Liquid	
System flowrate	: 300.0 USgpm	Liquid type	: Cold Water
Flowrate per pump	: 100.00 USgpm	Additional liquid description	:
Differential head / pressure, rated (requested)	: 115.5 ft	Temperature, max	: 68.00 deg F
Differential head / pressure, rated (actual)	: 115.0 ft	Fluid density, rated / max	: 1.000 / 1.000 SG
Suction pressure, min / max	: 20.00 / 20.00 psi.g	Viscosity, rated	: 1.00 cP
NPSH available, rated	: Ample	Vapor pressure, rated	: 0.34 psi.a
Site Supply Frequency	: 60 Hz		
Power Supply	: 3ph 460V		

Performance		Material	
Speed, rated	: 3599 rpm	Material selected	: Standard - Cast Iron / 304 Stainless Steel
Speed, maximum	: 3599 rpm		
Speed, minimum	: 904 rpm		
Pump efficiency	: 71.87 %		
NPSH required / margin required	: 6.01 / 0.00 ft		
Ns (imp. eye flow) / Nss (imp. eye flow)	: 1,705 / 9,465 US Units		
Head maximum, rated speed	: 138.2 ft		
Head rise to shutoff	: 20.21 %		
Flow, best eff. point	: 98.77 USgpm		
Flow ratio, rated / BEP	: 101.25 %		
Speed ratio (rated / max)	: 100.00 %		
Head ratio (rated speed / max speed)	: 100.00 %		
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00 / 1.34		
Selection status	: Near miss		

Pressure Data		Driver & Power Data (@Max density) (Per Pump)	
Pump shut off pressure	: 79.82 psi.g	Motor sizing specification	: Max power (non-overloading)
Maximum allowable suction pressure	: 145.0 psi.g	Margin over specification	: 0.00 %
		Service factor	: 1.00
		Rated power (based on duty point)	: 4.04 hp
		Max power (non-overloading)	: 4.75 hp
		Motor rating	: 5.00 hp / 3.73 kW (Fixed)

Energy Indexes	
PEI (VL)	: 0.41
ER (VL)	: 59



## Hydro Multi-E with CRE pumps

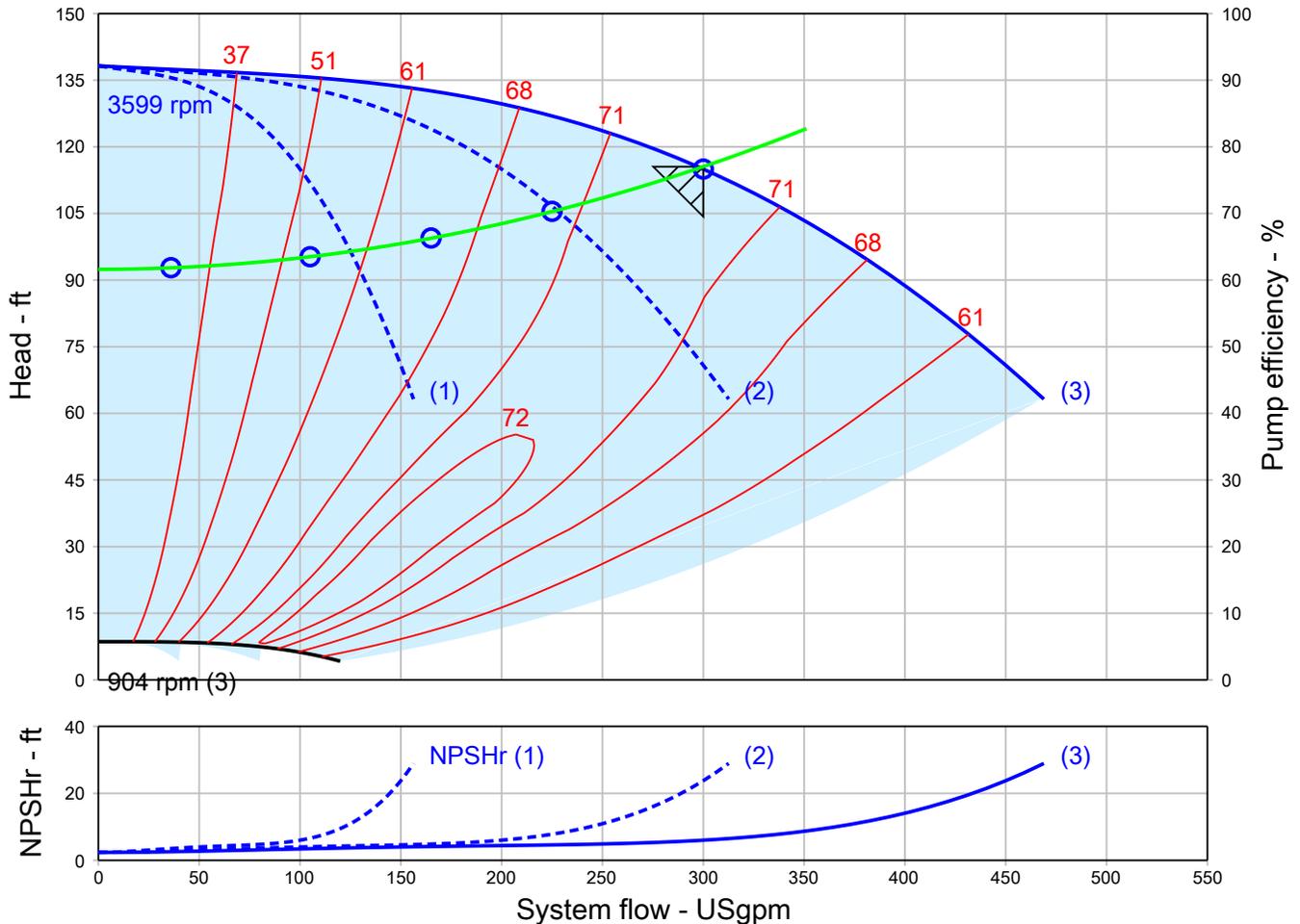
QUOTE NUMBER / ID 2813913	UNIT TAG 004	QUANTITY 1
REPRESENTATIVE	SERVICE	
ENGINEER	SUBMITTED BY	DATE
CONTRACTOR	APPROVED BY	DATE
	ORDER #	DATE



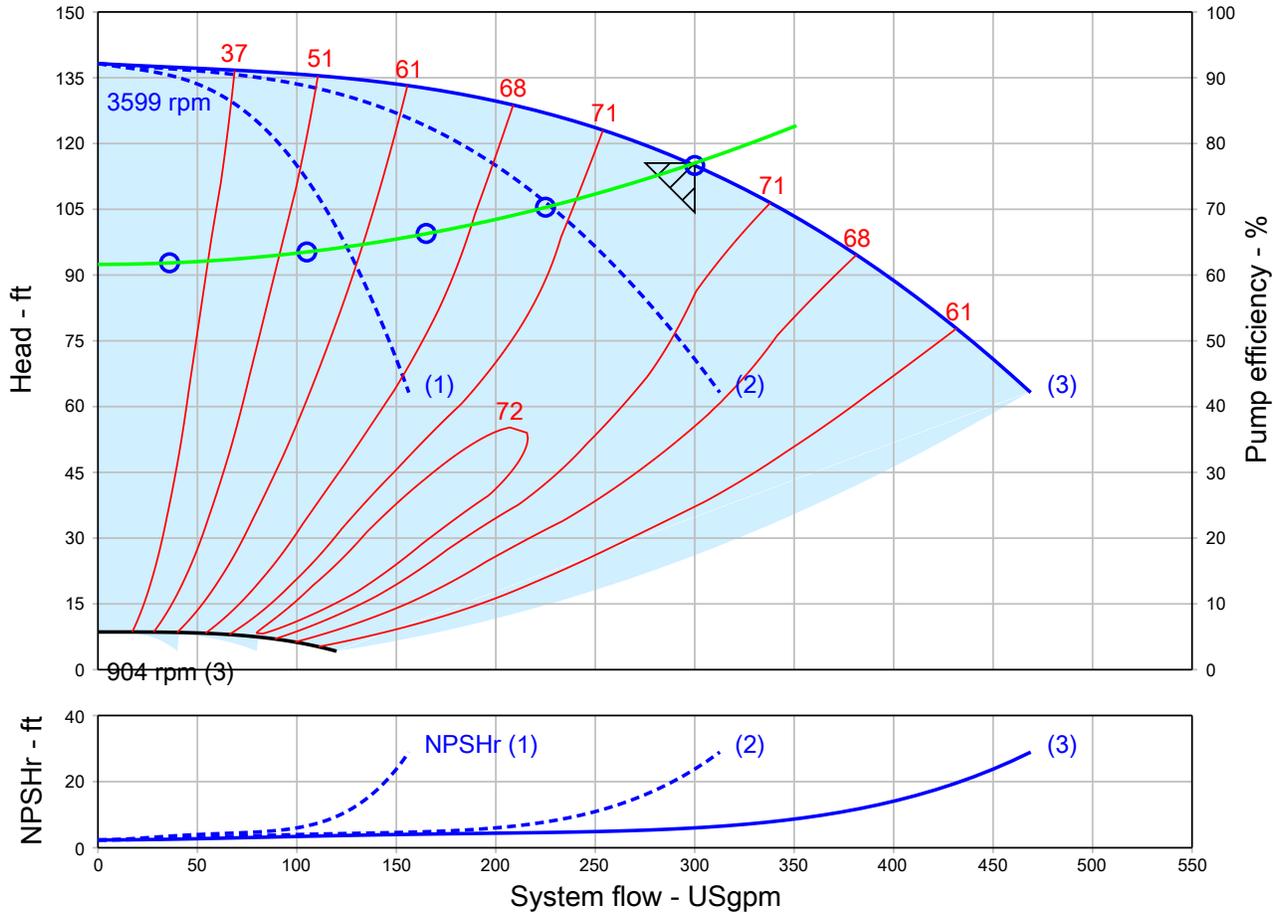
### HYDRO MULTI-E 3CRE 20-2 3x460V 60Hz 3599 rpm

Part Number 99761449

Conditions of Service		Pump Data		Motor Data	
Flow	100.00 USgpm	Material	Standard - Cast	Motor HP	5 HP
Head	115.5 ft		Iron / 304 Stainless	BHP	4.04 HP
Liquid	Cold Water		Steel	Enclosure	TEFC
Temperature	68.00 deg F	Pump shut off pressure	79.82 psi.g	Voltage	460-480 V
NPSHr	6.01 ft	Max Allowable Suction	145.0 psi.g	Phase	3 Phase
Viscosity	1.00 cP	Pressure			
Specific Gravity	1.000 SG	Pump Efficiency	71.87 %		
		PEI (VL)	0.41		
		ER (VL)	59		

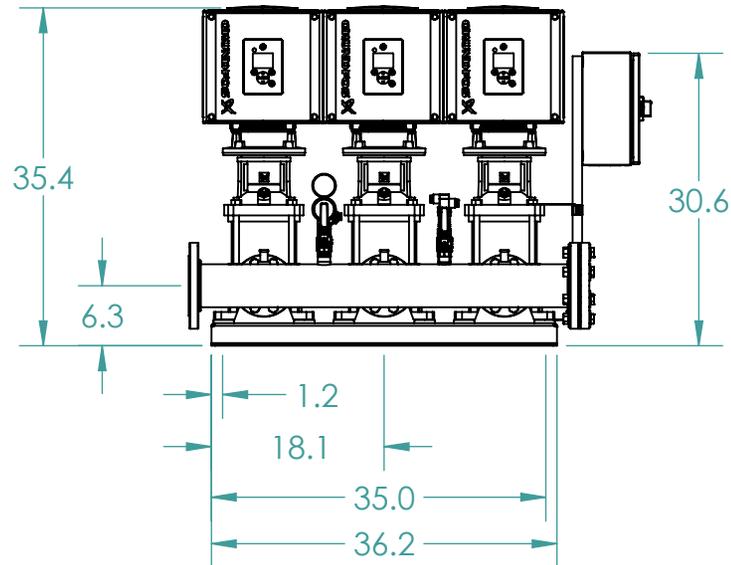
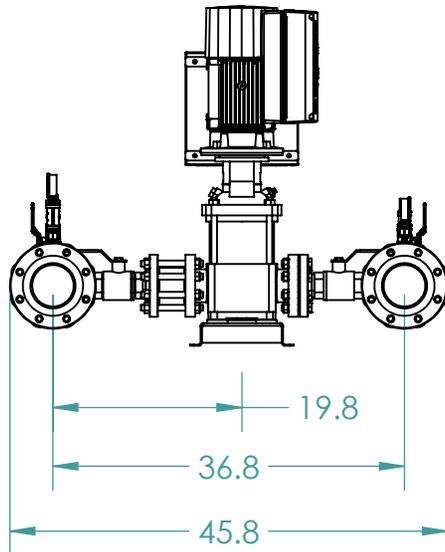
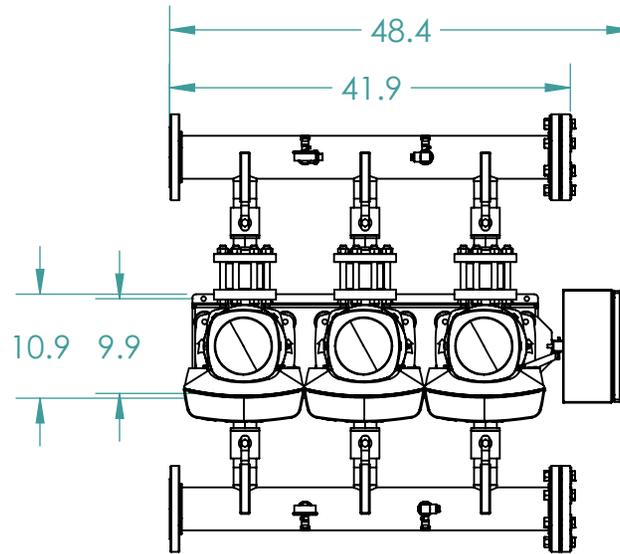
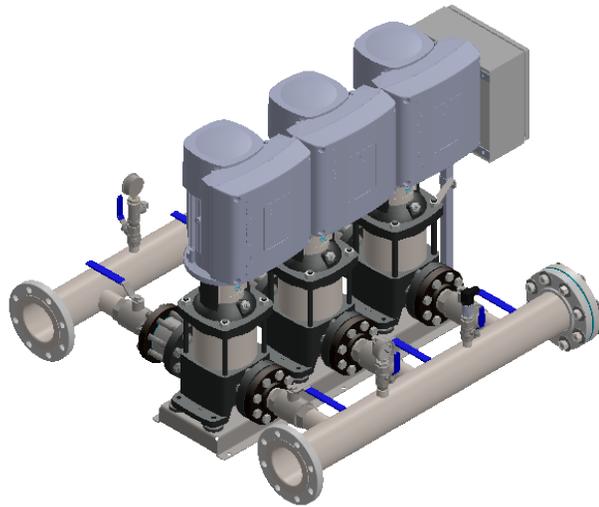


**Pump Performance Curve**



Customer :	Model :	HYDRO MULTI-E 3CRE 20-2
Customer ref. / PO :		3x460V 60Hz
Tag Number : 004	Stages :	2
Service :	Speed, rated :	3599 rpm
Quantity : 1	Based on curve number :	RC10438
Quote Number / ID : 2813913	Pump efficiency :	71.87 %
Date last saved : 02/26/2026 4:44 PM	Rated power (based on duty point) :	3 x 4.04 hp
System flowrate : 300.0 USgpm	NPSH required :	6.01 ft
Flowrate per pump : 100.00 USgpm	Fluid density, rated / max :	1.000 / 1.000 SG
Differential head / pressure, rated : 115.5 ft	Viscosity :	1.00 cP
Pressure control curve : Quadratic control curve		

1. Manifolds 4" ANSI Class 150 AISI 316SS Schedule 10s ASTM A312 or  $\varnothing$  114.3mm x2mm
2. Base/Frame AISI 304SS
3. Full port ball valve ASTM
4. UL Type 3R Fuse Box



**GRUNDFOS**   
 FRESNO, CALIFORNIA 93727 USA

Note:  
 All dimensions are  $\pm 0.5"$   
 Not for Construction  
 All dimensions subject to  
 changewithout notice.

BoosterpaQ Model: HYDRO MULTI-E 3CRE20-2

Power: 3x460 60HZ 3x5HP

Job:

Scale: 1:20

Dwg No: 99334056

Rev: 0

Date: 5/24/2018

Drawer 71999

Page: 1 of 1

Ball Valves

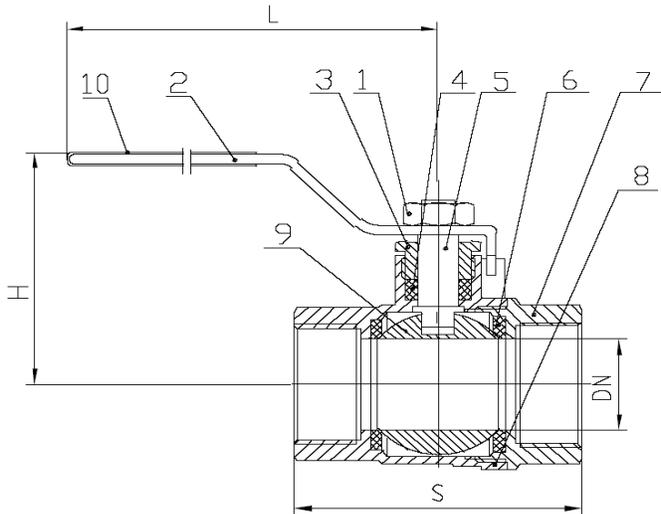


General

- Threaded Ends
- Blow Out Proof Stem
- 600 WOG
- 2-Piece Body
- Teflon Seats
- Teflon Packing

Dimensions & Weights

Size	DN (in)	S (in)	H (in)	L (in)	WT. (lb)
1/4"	0.39	1.76	1.75	3.54	0.35
3/4"	0.75	2.50	2.18	3.94	0.79
1-1/4"	1.26	3.42	2.87	4.80	1.75
1-1/2"	1.57	3.76	3.48	5.91	2.47
2"	1.97	4.25	3.82	5.91	3.46

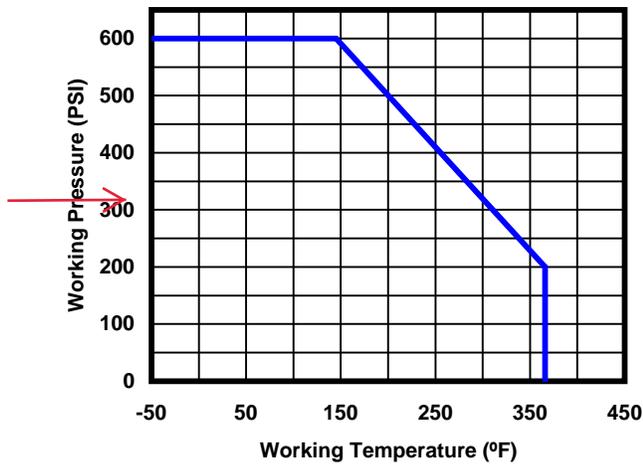


MATERIAL SPECIFICATIONS

NO. PART	MATERIAL (ASTM)
1 NUT	ZINC PLATED STEEL
2 HANDLE	ZINC PLATED STEEL
3 BONNET	BRASS (C37000)
4 PACKING	TEFLON
5 STEM	BRASS (C37000)
6 BALL SEAT	TEFLON
7 END PIECE	LOW LEAD BRASS (LTN60-6)
8 BODY	LOW LEAD BRASS (LTN60-6)
9 BALL	LOW LEAD BRASS (LTN60-6)
10 SLEEVE	PVC

APPROVALS

- NSF 61, IAPMO - N4359
- AB1953, IAPMO - 5653

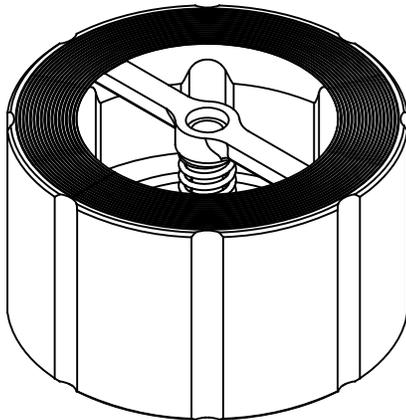
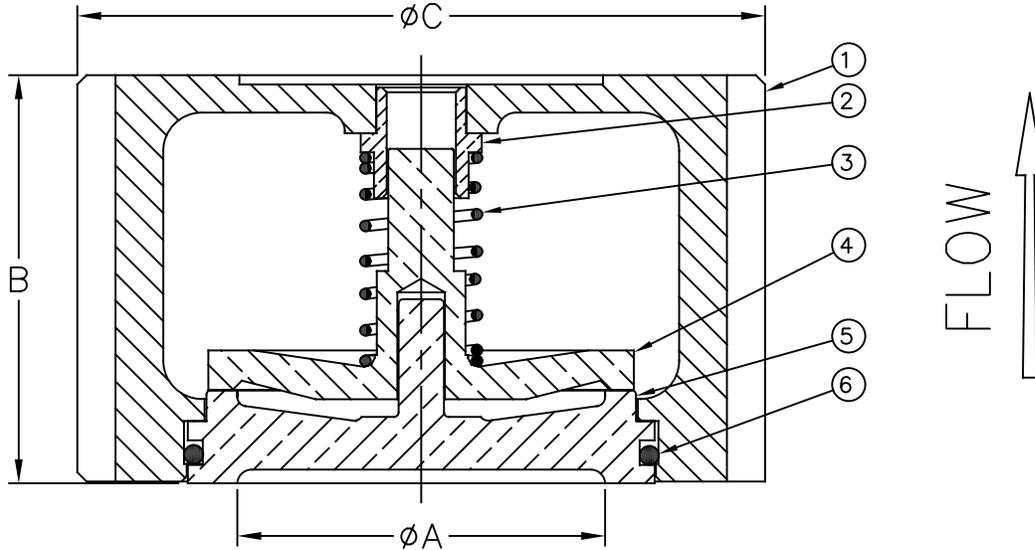


# Wafer Check Valve    Silent Check    Model 888

Sizes 2", 3" , 4" & 5" / 50 mm, 80mm, 100mm & 125 mm



## Materials (Ductile Iron Body)



Item #	Qty	Description	Material	ASTM
1	1	Body (Epoxy Coated)	Ductile Iron	A536 65-45-12
2	1	Bushing	Bronze	C95400
3	1	Spring	Stainless Steel	302
4	1	Poppet	Silicon Brass	C87800
5	1	Seat Ring*	Silicon Brass	C87800
6	1	O'Ring	EPDM	5778-70

\*OPTIONAL RESILIENT SEAT AVAILABLE, ADD "R" TO THE PART NUMBER

Max Temp 250°F (121°C)

Max Inlet Pressure @ 150° F (65°C) 150# 300 psi (21bar)

Max Inlet Pressure @ 150° F (65°C) 300# 500 psi (34bar)

5" VALVE IS NOT NSF APPROVED

PATENT # 6,024,121

## Dimensions

Size		Part #	A		B		C		Weight		# of Bolts		Bolt Size by Flange	
inch	mm		inch	mm	inch	mm	inch	mm	lbs	kg	150#	300#	150#	300#
2	50	2434	2-13/32	61	2-5/8	67	4-1/4	108	5	2.5	4	8	5/8 x 5-1/4	5/8 x 5-1/2
3	80	2435	3-1/4	83	3-1/8	79	5-3/4	146	11	5	4	8	5/8 x 6-1/4	3/4 x 7
4	100	2436	4-3/8	111	4	102	7	178	18	8	8	8	5/8 x 7	3/4 x 8
5	125	2433	5-1/4	133	4-3/4	121	8-3/8	213	25	11.5	8	8	3/4 x 7-3/4	3/4 x 9

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April 4, 1995  
Dwg No: S888-1 Rev W (7/19)

FLOMATIC CORPORATION  
GLENS FALLS, N.Y. 12801  
PHONE (518) 761-9797  
FAX (518) 761-9798

# Silent Check Valve

# Seating Detail

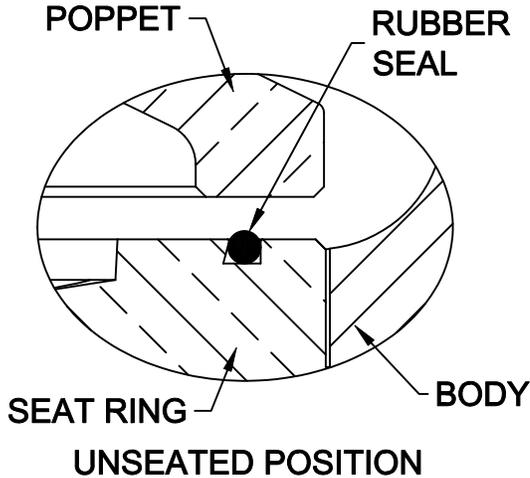


Flomatic Corporation

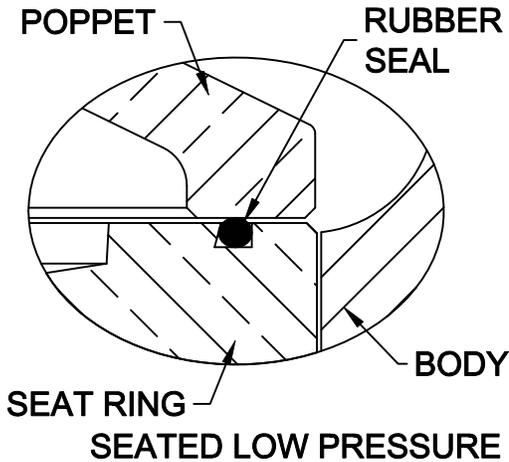
Models 888R,STR,S6R & 402BTR,STR, S6R



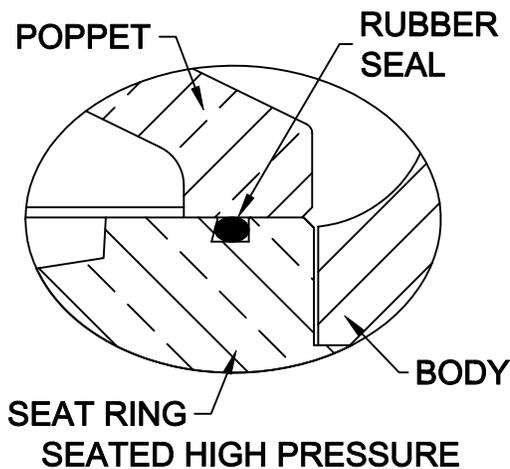
## Materials



PROVIDES DRIP-TIGHT SEATING AT LOW PRESSURES WITHOUT DAMAGE TO SEAL AT HIGHER PRESSURES.



THE UNIQUE SEATING ACTION STARTS WITH INITIAL CONTACT BETWEEN THE POPPET AND SEAL. AS PRESSURE INCREASES, THE SEAL IS COMPRESSED AND ALLOWS THE POPPET TO MAKE CONTACT WITH THE SEAT RING. THIS PREVENTS ANY FURTHER COMPRESSION OF THE SEAL.



THE SEATING ACTION PROVIDES BOTH, DRIP-TIGHT SEATING AT LOW PRESSURE AND METAL-TO-METAL SEATING WITH SEAL SUPPORT FOR HIGHER PRESSURES.

EPDM SEAL  
Patent # 6,024,121

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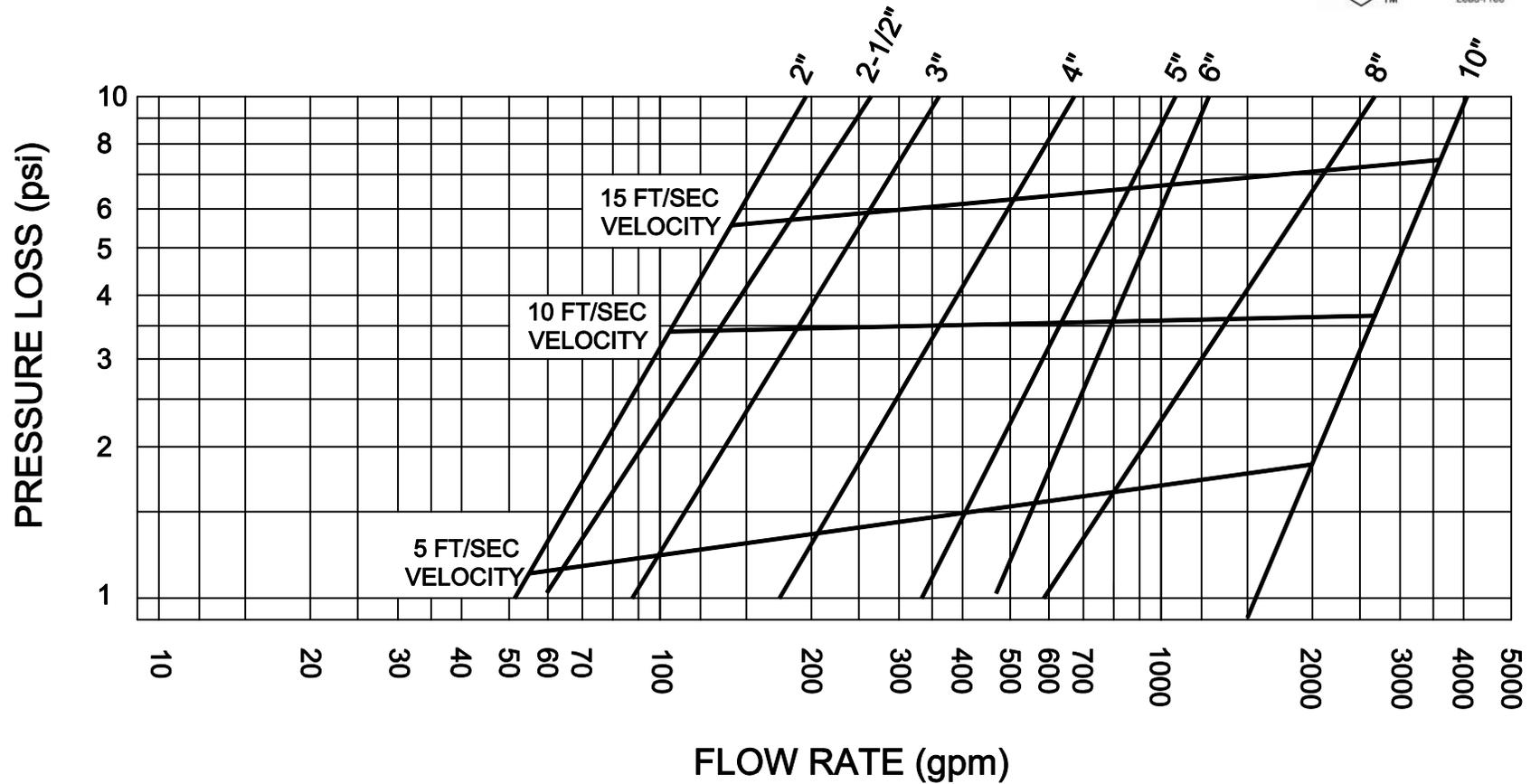
# Wafer Check Valve

# Headloss Chart

# Model 888/888R



Sizes 2" thru 10"/ 50 mm thru 250 mm



PATENT # 6,024,121

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December 28, 1994  
Dwg No: S888HL Rev: E (6/13)

FLOMATIC CORPORATION  
GLENS FALLS, N.Y. 12801  
PHONE (518) 761-9797  
FAX (518) 761-9798

# D80 Series

Dry or Liquid Filled • Stainless Steel Case

UTILITY GAUGES



D82LFB shown



Standard

Optional

- ▶ 1 1/2", 2", 2 1/2", 4" Dial Sizes
- ▶ ±1.6% Accuracy (1% Optional)
- ▶ Stainless Steel Case
- ▶ Glycerine Fill Standard

The Trerice **D80 Series** Industrial Gauge is designed for rugged performance requirements at an economical cost. This liquid filled gauge is furnished with a stainless steel case and crimped ring. Wetted parts are either bronze tube with Lead-Free (PBF) brass socket or stainless steel.

- Optional features and case style variations available: Please consult the Options & Accessories Section for details.
- For correct use and application of all pressure gauges, please refer to: Pressure Gauge Standard ASME B40.100.

## Specifications

Models		Wetted Parts
D82B	(dry)	Bronze tube, brass socket
D82LFB	(liquid filled)	Lead-Free (PBF) Meets NSF/ANSI Standards 372 and 61
D83SS	(dry)	316 Stainless steel tube & socket
D83LFSS	(liquid filled)	
Dial Sizes	1 1/2", 2", 2 1/2", 4"	
Fill	Glycerine, other fills available See Optional Features Section	
Movement	D82: Brass D83: 316 Stainless steel	
Connection	Lower male or center back male, (Lower back male 4" Dial only)	
Case	304 stainless steel, stem-mounted flangeless	
Ring	Crimped 304 stainless steel	
Window	Acrylic	
Pointer	Plain, black finished	
Dial Face	Aluminum, white background with black graduations and markings	
Accuracy	±1.6% Full Scale (1% available as an option)	
Maximum Temperature	150°F (65°C)	

### Approximate Shipping Weight

- 1 1/2" Dial Size: 0.4 lbs [0.18 kg]
- 2" Dial Size: 0.4 lbs [0.18 kg]
- 2 1/2" Dial Size: 0.5 lbs [0.23 kg]
- 4" Dial Size: 1.0 lbs [0.45 kg]

## HOW TO ORDER

Sample Order Number: **D82LFB 25 02 L A 110**

Model	Dial Size	Connection Size	Connection Location	Units of Measure	Range Code
D82LFB	15 1 1/2"	01 1/8 NPT*	L Lower	A psi	See Standard Ranges
D83LFSS	20 2"	02 1/4 NPT**	B Back	D psi/kPa	
D82B	25 2 1/2"	04 1/2 NPT***			
D83SS	40 4"				

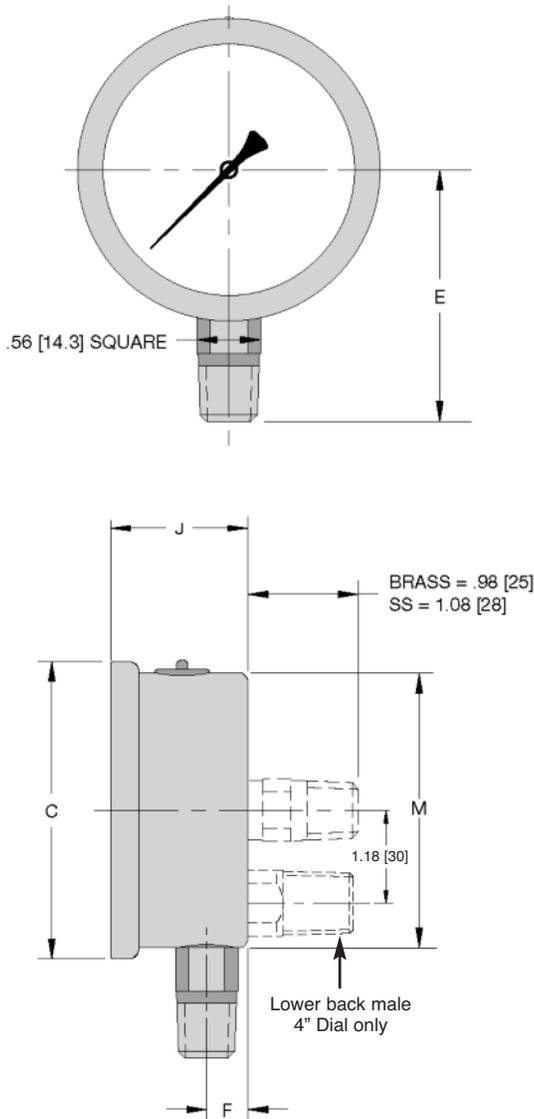
- \* 1/8 NPT connection size not available with 4" dial size.
- \*\* 1/4 NPT connection size not available with 1 1/2" dial size.
- \*\*\* 1/2 NPT connection size only available with 4" dial size.

# D80 Series

## Dry or Liquid Filled • Stainless Steel Case

All dimensions are nominal. Dimensions in [ ] are in millimeters.

UTILITY GAUGES



### Standard Ranges

psi Ranges (A)		D82		D83	
Range Code	Specific Range (psi)	Figure Intervals	Minor Divisions	Figure Intervals	Minor Divisions
010	30" Hg to 0	5	0.5	5	0.5
020	30" Hg to 15 psi	10/5	1/0.5	10/5	1/0.5
030	30" Hg to 30 psi	10/5	1/1	10/5	1/1
040	30" Hg to 60 psi	10/10	2/1	10/10	2/1
050	30" Hg to 100 psi	30/20	2/2	30/20	2/2
060	30" Hg to 150 psi	30/30	5/2	30/30	5/2
070	30" Hg to 300 psi	30/50	5/5	30/50	5/5
080	0 to 15 psi	3	0.2	3	0.2
090	0 to 30 psi	5	0.5	5	0.5
100	0 to 60 psi	10	1	10	1
110	0 to 100 psi	10	1	10	1
120	0 to 160 psi	20	2	20	2
130	0 to 200 psi	20	2	20	2
140	0 to 300 psi	50	5	50	5
150	0 to 400 psi	50	5	50	5
160	0 to 600 psi	100	10	100	10
180	0 to 1000 psi	100	20	100	20
190	0 to 1500 psi	300	20	300	20
200	0 to 2000 psi	200	20	200	20
210	0 to 3000 psi	500	50	500	50
220	0 to 5000 psi	1000	100	1000	100

Ranges over 5000 PSI are not available on D82LFB.

230	0 to 10000 psi	N/A	N/A	2000	200
240	0 to 15000 psi	N/A	N/A	3000	200

For dual scale ranges specify the appropriate **Units of Measure: D** (psi/kPa) followed by the corresponding **A** (psi) **Range Code**

Dial Size	C	E	F	J	M
1 1/2" D82	1.85 [47]	1.50 [38]	0.32 [8]	1.06 [27]	1.61 [41]
1 1/2" D83	1.85 [47]	1.50 [38]	0.32 [8]	1.06 [27]	1.61 [41]
2" D82	2.28 [58]	1.89 [48]	0.39 [10]	1.14 [29]	2.05 [52]
2" D83	2.28 [58]	2.05 [52]	0.35 [9]	1.18 [30]	2.05 [52]
2 1/2" D82	2.68 [68]	2.24 [57]	0.39 [10]	1.18 [30]	2.44 [62]
2 1/2" D83	2.68 [68]	2.32 [59]	0.51 [13]	1.38 [35]	2.44 [62]
4" D82	4.29 [109]	3.07 [78]	0.47 [12]	1.42 [36]	3.90 [99]
4" D83	4.29 [109]	3.94 [100]	0.75 [19]	1.93 [49]	3.94 [100]

## General Data



TM082269

Grundfos ISP44 is a robust industrial pressure sensor that offers outstanding performance in a compact and durable stainless-steel package. This type of sensor is perfectly engineered for use in industrial applications like booster pumps. With its integrated leak seal guard, the ISP44 ensures that no leakage through the cable is possible. Furthermore, the pressure transmitter has a wide temperature range, and is designed to handle a certain degree of hydraulic shock. ISP44 is applicable in a wide range including corrosive media that are compatible with AISI 316L stainless steel.

## Application

- Harsh environments where AISI 316L stainless steel is required
- Industrial applications
- Booster pumps.

## Features and benefits

- Wetted parts:
  - Material in contact with media: AISI 316L stainless steel
- hermetically sealed media interface (fully welded stainless steel)
- compact and cost-effective design for OEM applications
- superior shock and vibration resistance
- high overload and burst pressure
- robust electronics platform for harsh electrical environments.

## Specifications

### System conditions and environment

Media temperature range (See table below for higher media temperatures)	-40 to +212 °F (-40 °C to +100 °C)
Ambient temperature range	-40 to +185 °F (-40 °C to +85 °C)
Storage temperature range	-58 to +302 °F
Nom. output signal (short circuit protected)	4 to 20 mA
Supply voltage	8 to 28 V
Accuracy at 20°C	≤ ±0.5% FS
Total error band	-40 to +266 °F: 3% 0 to +212 °F: 2%
Response time	< 2ms
Pressure range	0 to 362 psi (0 to 25 Bar)
Overload pressure	4 x FS
Burst pressure	5 x FS
Weight (depending on pressure connection and electrical connection)	0.22 lbs

### Materials

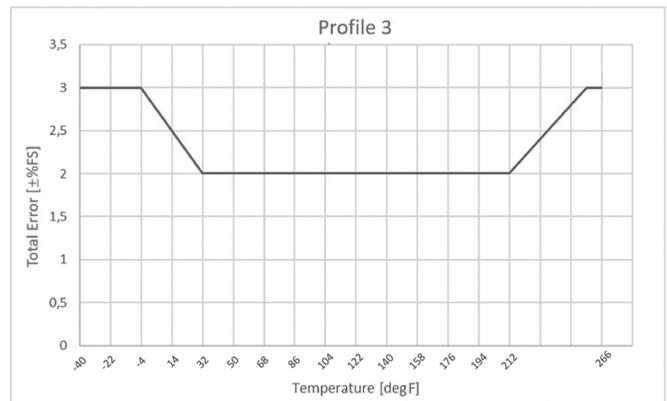
Wetted parts	AISI 316L stainless steel
--------------	---------------------------

### Environmental standards

Enclosure class	IP67 including connector
-----------------	--------------------------

## Temperature vs total error band

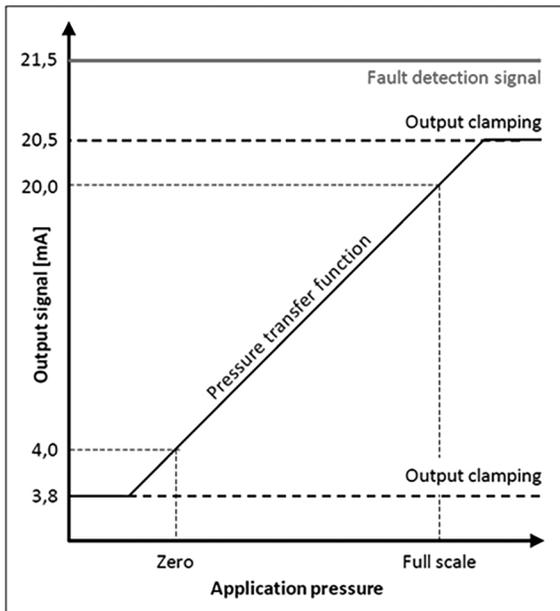
### Max. media temperature based on ≤ 24V supply



Media temperature	230 °F (110 °C)	248 °F (120 °C)	266 °F (130 °C)
Ambient temperature	< 149 °F (65 °C)	< 113 °F (45 °C)	< 77 °F (25 °C)

## Output and diagnostics

Example: 4-20mA



TM1040367

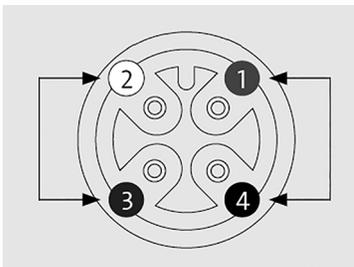
### Output clamping levels

- Limit the output signal if the pressure rises above or falls below the normal range.

### Fault detection signal level

- Placed above the pressure output range. Output at this level signals a sensor fault.

## Electrical connection



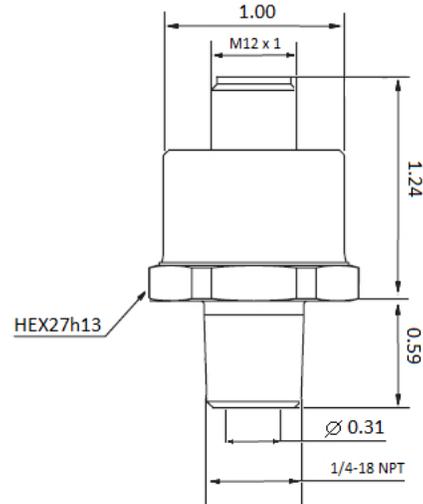
TM1040364

PIN	Function
1	+ Supply
2	N/A
3	GND / Iout / 4-20mA
4	N/A

92751646 06.2022

ECM: 1345279

## Dimensions



TM082270

(Displayed dimensions are measured in inches.)

## Product range

### Product range for ISP44 US

Description	Range psi (bar)	Connections			Product number
		Electrical	Mechanical	Type	
PRESS. TR. ISP44 0-87 P 1/4"N 4-20 M12	0-87 (0-6)	M12	1/4	NPT	99970220
PRESS. TR. ISP44 0-145 P 1/4"N 4-20 M12	0-145 (0-10)	M12	1/4	NPT	99970234
PRESS. TR. ISP44 0-232 P 1/4"N 4-20 M12	0-232 (0-16)	M12	1/4	NPT	99970236
PRESS. TR. ISP44 0-362 P 1/4"N 4-20 M12	0-362 (0-25)	M12	1/4	NPT	99970238

# GRUNDFOS

Panel Part Number:  
99554822

Description  
Multi-E  
3 X 5HP  
3 X 480V

Selected Options: Standard

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Date	03/18/2021			EDW-WD-GPC-1550		SHEET: 1/8
Status	Approved					

### Feeder Circuit Protection:

Feeder circuit protection to be provided by others.  
Type and size to be based on local, state and national electrical codes

**SCCR Rating:** 5 kA RMS Symmetric,  
480V

**UL Type Rating:** 3R

### Largest Motor FLA and Panel Maximum FLA:

Motor Horsepower	5HP
Motor FLA	6.2FLA
Panel Max. FLA	18.6FLA

Wire Type	Color	Abbr.
+12/24VDC Power/PLC Input(s)	Blue	BU
-12/24VDC Power/PLC Input(s)	Blue w/White Stripe	BUWH
115VAC Primary Line Power	Black	BK
115VAC Neutral	White	WH
Ground/PE	Green/Yellow Stripe	GNYE
Analog Inputs	Orange	OG
Analog Outputs	Orange	OG
Digital Inputs (CU Components)	Violet	VT
Ground for Digital Inputs (CU Components)	Violet w/White Stripe	VTWH
Digital Outputs	Yellow	YE
Power L1	Black	BK
Power L2	Orange	OG
Power L3	Red	RD
Power Neutral	White	WH
All Other Wiring	Brown	BN

### Safety / Application Notes:

**\*\* Please Reference the "HYDRO Multi-E"**

**Installation and Operation Instructions "BEFORE" Applying power to Panel.**

\*\* Power supply wires in front of main disconnect switch have dangerous voltage even though the main disconnect switch is off.

\*\* Control panel must be connected professionally to the earth / ground.

\*\* GRUNDFOS MLE motors have an integrated variable frequency drive (VFD) which provides motor overload protection. If a system utilizes MLE motors, the motor overload protection is provided by the VFD and does not require any additional motor overload protection.

#### Cross Reference Definition

(##-##)  
Sheet-Row

#### Wire Types

Internal Panel Wire   
External Wire 

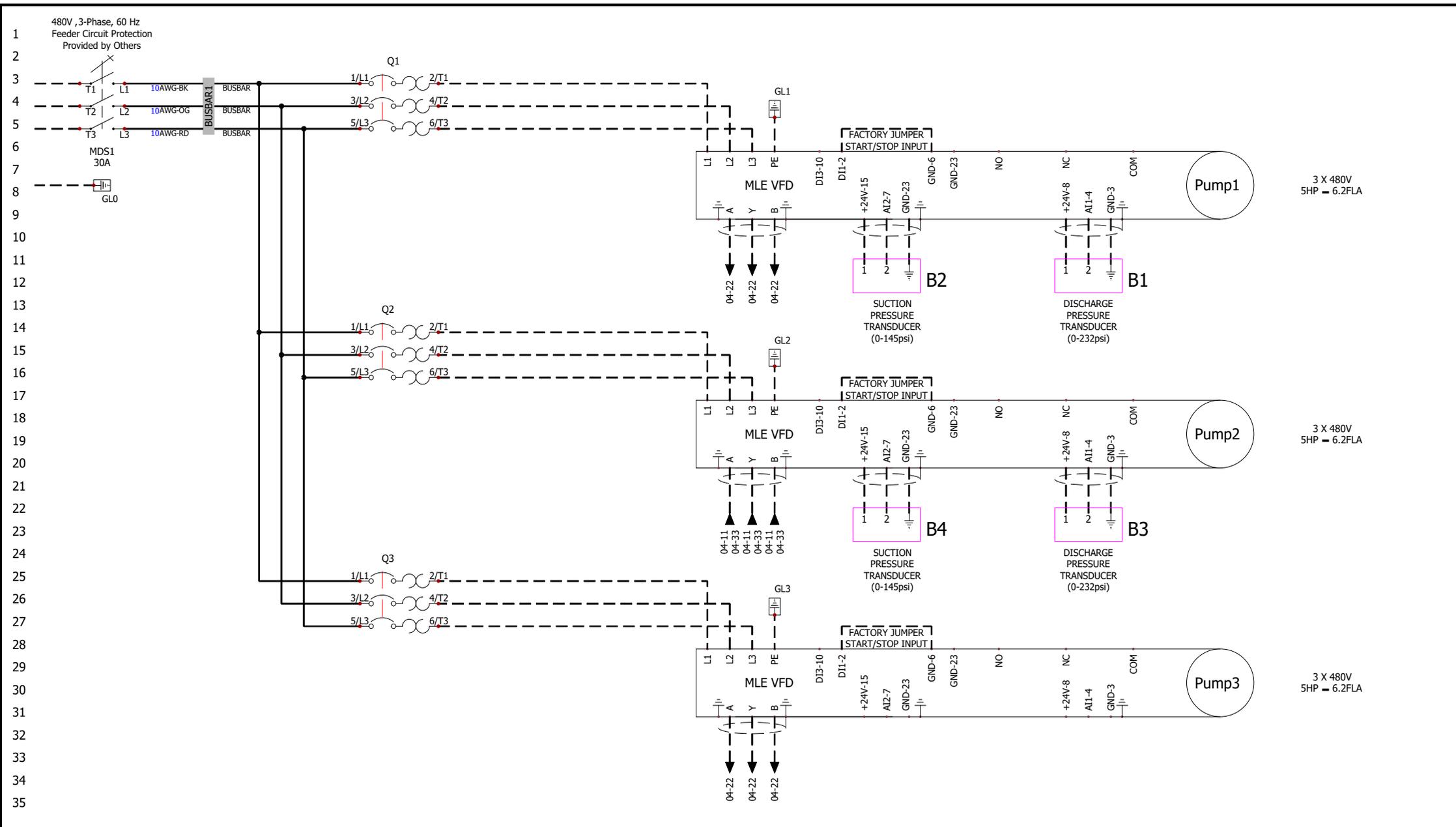
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<a href="#">02</a>	0	11/3/2020	kharen	Cover Page 02
<a href="#">03</a>	0	11/3/2020	kharen	Drawings list
<a href="#">04</a>	0	11/3/2020	kharen	Power 01
<a href="#">05</a>	0	3/17/2021	kharen	Power 02
<a href="#">06</a>	0	11/3/2020	kharen	Panel Layout
<a href="#">07</a>	0	11/3/2020	kharen	Panel Views
<a href="#">08</a>	0	11/3/2020	kharen	Bill Of Materials grouped by manufacturer Rev1.0 (Components)
09	0	11/3/2020	kharen	Main electrical closet

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Multi-E  
3 X 5HP  
3 X 480V

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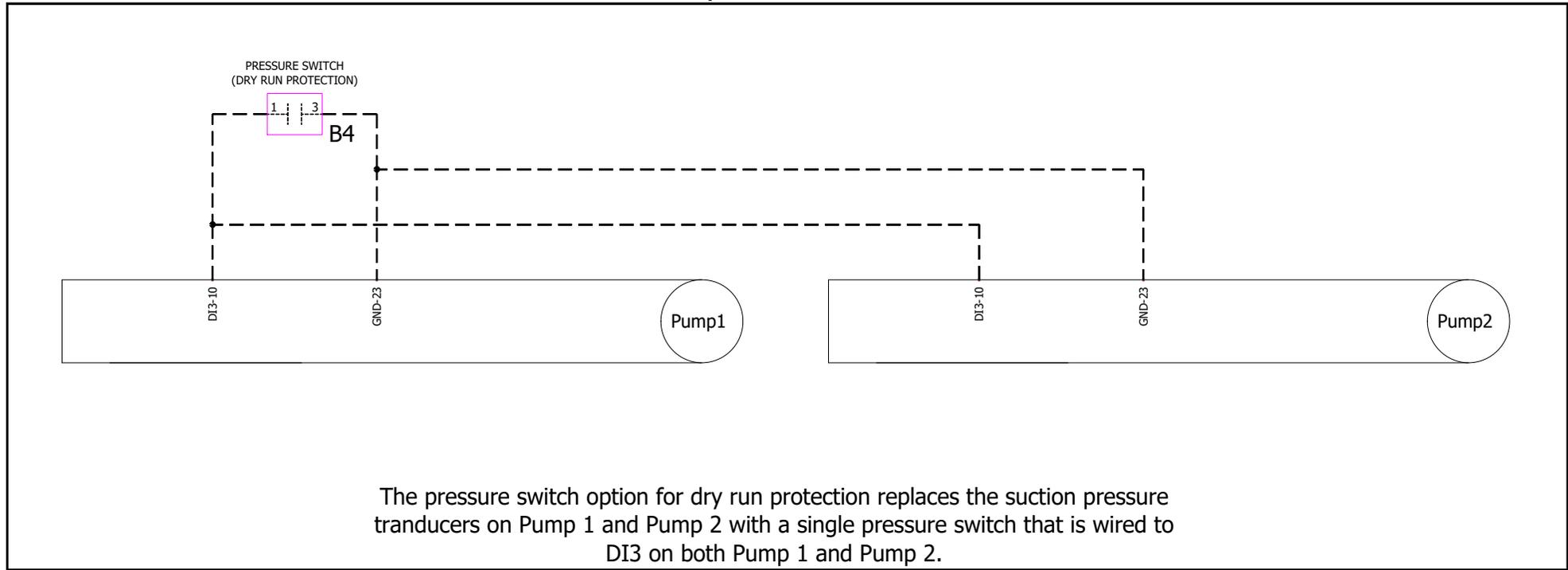
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**GRUNDFOS**

Panel Part Number: 99554822

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# Pressure Switch Option For Dry Run Protection



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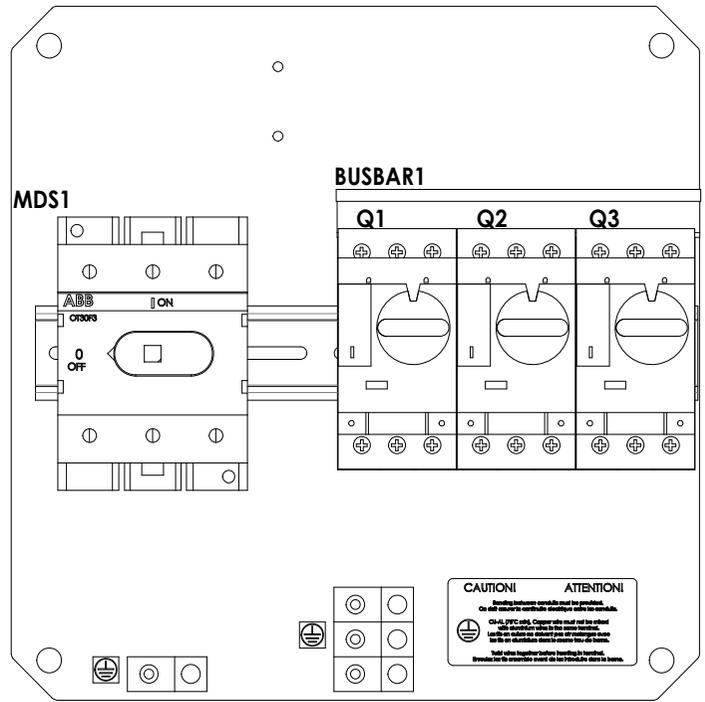
Multi-E
3 X 5HP
3 X 480V

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<b>GRUNDFOS</b>	
Panel Part Number: 99554822	SHEET: 5/8

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Multi-E  
 3 X 5HP  
 3 X 480V

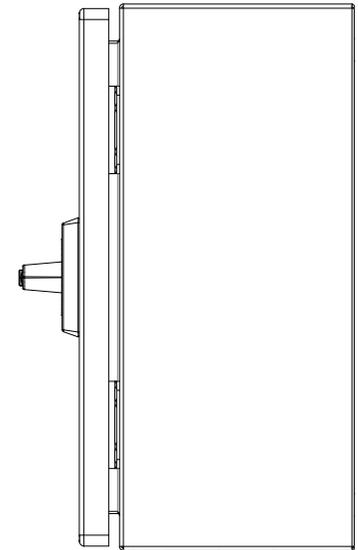
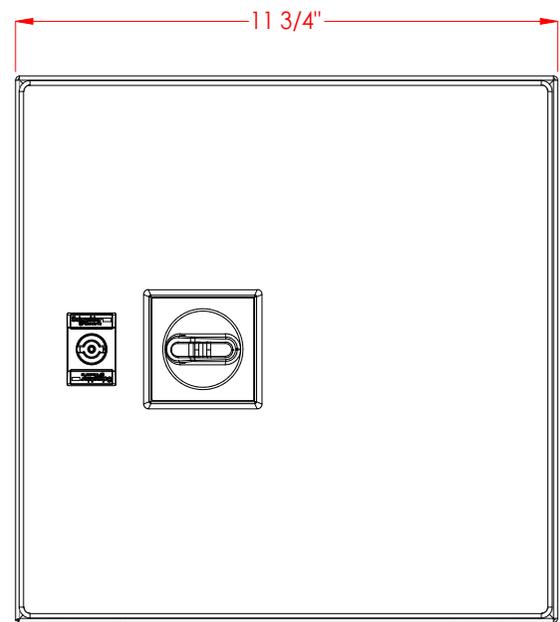
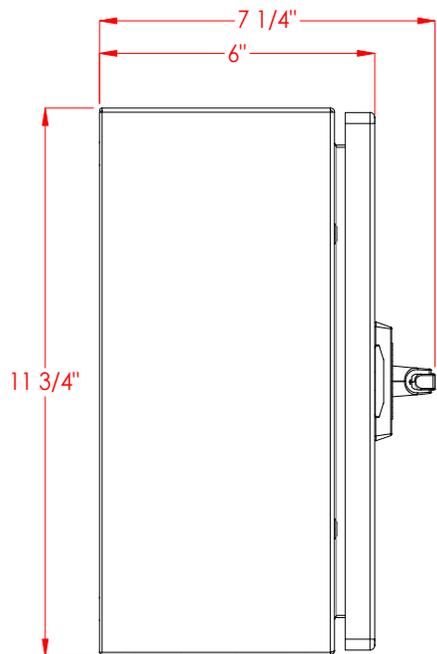
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**GRUNDFOS** 

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CLEARANCE FROM FRONT OF ENCLOSURE MUST BE 36"

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Multi-E  
3 X 5HP  
3 X 480V

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**GRUNDFOS** 

Panel Part Number: 99554822      SHEET: 7/8

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Article Number	Mark	Manufacturer	Reference	Description	Quantity	Component Type
13-16-66-1227	<a href="#">MDS1</a>	ABB	OHBS2AJ	Disconnect Handle; Black/Red, for Side Mount, Type 3R, 12	1	Main Disconnect
13-16-66-1370	<a href="#">MDS1</a>	ABB	OT30F3	Disconnect Switch; 30A, 600V, 3-Pole, UL98	1	Main Disconnect
13-16-66-1356	<a href="#">MDS1</a>	ABB	OXS6X250 (Old# OXS5X250)	Disconnect Shaft; 9.8", 6x250	1	Main Disconnect
65-BP-GF12-01	L1	Orenco	65-BP-GF12-01	Backplate; 12X12, Aluminum, Pre-Drilled, Layout 01	1	Main electrical closet
65-ENCL-1212-2p-Black	L1	Orenco	65-ENCL-1212-2p-Black	Pre-Drill Enclosure; 12"x12, 2pumps, Black	1	Main electrical closet
13-16-86-1680	Field GL1, Field GL2, Field GL3, Field GL4, GL0, GL1, GL2, GL3	Raco	TA2-Bulk	Ground Lug; 2AWG, Burndy	8	Ground Lug
13-16-11-1457	<a href="#">BUSBAR1</a>	Schneider Electric	GV2G345	Busbar; 63A, 3 Tap-Offs, 45mm Pitch, 600V, For Manual Starters	1	
13-16-11-1622	Q1, Q2, Q3	Schneider Electric	GV2P14	Motor; Circuit Breaker, 6-10 Amp, IEC, 600 VAC	3	

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Multi-E  
3 X 5HP  
3 X 480V

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**GRUNDFOS** 

Panel Part Number: 99554822 SHEET: 8 / 8

## APPENDIX C: CHECK VALVE STATIONS SPECS-BID

Available upon request.

# **APPENDIX D: METER SOCKET CATALOG NUMBERS**

# Meter socket catalog numbers (FORM 7517)

## Table of contents

- Eaton Cooper B-Line, page 2
- Eaton Cooper B-Line Meter Combo Units, page 3
- Milbank, page 4
- Milbank Meter Combo Units, page 5
- Schneider Square-D, page 6
- Schneider Square-D Meter Combo Units, page 7
- Siemens (TALON), page 8
- Siemens (TALON) Meter Combo Units, page 9

## Questions?

Please contact your Project Manager.

If you are just starting a project and/or have general questions, call Customer Construction Services at 1-888-321-7779.

## General notes

- Meter socket requirements are detailed in the PSE service handbooks. The sockets and CT enclosures listed meet PSE minimum requirements for typical applications.
- Refer to the service handbook for requirements on meter posts and meter pedestals for residential services and mobile homes. Meter pedestals for commercial services must meet EUSERC requirements and require PSE Meter Department review and approval.
- Refer to the service handbook for requirements on services greater than 800 amps (switchboard required) and for multi-meter stacks. PSE Meter Department review and approval is required.
- For products not listed in this document, please contact your Project Manager to arrange for a product review by the PSE Meter Department.
- If you are using a meter/panel combo unit:  
In addition to providing manufacturers drawings to PSE for review, please check with your local or municipal inspector to determine if the meter/panel combo unit would meet the new NEC code requirements regarding disconnects on the exterior of the building/residence.

# Meter socket catalog numbers

## Eaton Cooper B-Line

Residential sockets (note 1)	100 Amp	200 Amp	320 Amp	400 Amp	600/800 Amp
Single Phase, 120/240V, OH only	011	204	324N	12146	
Single Phase, 120/240V, OH or UG	N/A	U204			
Single Phase, 120/208V, OH only (note 2, 3)	011	204			
Single Phase, 120/208V, OH or UG (note 2, 3)	N/A	U204			
3 Phase, 4 Wire, 120/208V, OH only (note 3)	927 (note 4)	U207 (note 4)		121413	
3 Phase, 4 Wire, 120/208V, OH or UG (note 3)	N/A				

Commercial and industrial sockets (note 1)	100 Amp	200 Amp	320 Amp	400 Amp	600/800 Amp
Single Phase, Street, Hwy, & Traffic Light (note 2)	114TB	124TB			
Single Phase, 120/240V, OH only	U121314	U264	324N	12146	
Single Phase, 120/240V, OH or UG	N/A				
Single Phase, 120/208V, OH only (note 2)	U121315	U264			
Single Phase, 120/208V, OH or UG (note 2)	N/A				
3 Phase, 4 Wire, 120/208V or 120/240V (note 5)	U121317	U267		121413	
3 Phase, 4 Wire, 277/480V	117TB (note 6)	127TB (note 6)		121413	

Current transformer applications	400 Amp	600/800 Amp
Single Phase CT Cabinet	244811-RTCT or -HRTCT	
Single Phase CT Mounting Base	6019HA 6019HAL	6019HE 6019HEL
3 Phase CT Cabinet, 4 Wire	364811-HRTCT	
3 Phase CT Mounting Base	6067HA 6067HAL	6067HEE 6067HEEL

## Socket notes

1. All meter sockets shall have anodized screw-type rings (add B-Line part number 25016D, if not included with socket).
2. Add fifth jaw in 9 o'clock position (add B-Line part number 50365).
3. "House meters" on multi-family residential are commercial services and require the commercial 120/208 volt socket.
4. This is not a block bypass socket. Block bypass sockets are **required** for all Commercial sockets. On residential 3P4W 120/208 volt 200 amp or less, the block bypass is not strictly required, but is still **recommended** (use the commercial socket).
5. 120/240 volt 3P4W service restricted use application; not for new services.
6. Self-contained 277/480 volt meter sockets require a disconnect ahead (line side) of the meter (cold sequence metering).



# Meter socket catalog numbers

## Eaton Cooper B-Line Meter Combo Units

Residential sockets	100 Amp	200 Amp	320 Amp
Single Phase, 120/240V	U217 MTBL	U2M2R	U4042MCC
	<del> </del>	CMBEB200BTS	U40411230MCC (note 1)
	<del> </del>	CMBE88B200BTS (note 1)	<del> </del>
	<del> </del>	CMBEB200BTF	<del> </del>
	<del> </del>	MBE4040B200BTS (note 1)	<del> </del>
Commercial and industrial sockets	100 Amp	200 Amp	320 Amp
Single Phase, 120/240V	<del> </del>	U224MTB	U4042MCC
	<del> </del>	U214MTBL	U40411230MCC (note 1)
	<del> </del>	U214MTBPL	<del> </del>

### Socket note

1. Included Panel Load Center.

# Meter socket catalog numbers

## Milbank

Residential sockets (note 1)	100 Amp	200 Amp	320 Amp	400 Amp	600/800 Amp
Single Phase, 120/240V, OH only	U7490-RL	U4517-RL-M4	U3548-X	UC3436-XL	
Single Phase, 120/240V, OH or UG	N/A	U4518-XL-W			
Single Phase, 120/208V, OH only (note 2, 3)	U7490-RL	U4517-RL-M4			
Single Phase, 120/208V, OH or UG (note 2, 3)	N/A	U4518-XL-W			
3 Phase, 4 Wire, 120/208V, OH only (note 3)	U1681-RL (note 4)	U3328-RXL (note 4)		UC3433-XL	
3 Phase, 4 Wire, 120/208V, OH or UG (note 3)	N/A				

Commercial and industrial sockets (note 1)	100 Amp	200 Amp	320 Amp	400 Amp	600/800 Amp
Single Phase, Street, Hwy, & Traffic Light (note 2)	114TB	124TB			
Single Phase, 120/240V, OH only	U3504-XL	U3514-XL	U3548-X	UC3436-XL	
Single Phase, 120/240V, OH or UG	N/A				
Single Phase, 120/208V, OH only (note 2)	U3504-XL	U3514-XL			
Single Phase, 120/208V, OH or UG (note 2)	N/A				
3 Phase, 4 Wire, 120/208V or 120/240V (note 5)	U3507-XL	U3517-XL		UC3433-XL	
3 Phase, 4 Wire, 277/480V	117TB (note 6)	127TB (note 6)		UC3433-XL	

Current transformer applications	400 Amp	600/800 Amp
Single Phase CT Cabinet	CT244811-SC or -HC	
Single Phase CT Mounting Base	K4797	K4729
3 Phase CT Cabinet, 4 Wire	CT364811-HC	
3 Phase CT Mounting Base	K4798	K4722

## Socket notes

1. All meter sockets shall have anodized screw-type rings (add Milbank part number MR-4, if not included with socket).
2. Add fifth jaw in 9 o'clock position (add Milbank part number K5T for U4517, U4518, add Milbank part number 5T8K2 for U7490).
3. "House meters" on multi-family residential are commercial services and require the commercial 120/208 volt socket.
4. This is not a block bypass socket. Block bypass sockets are **required** for all commercial sockets. On residential 3P4W 120/208 volt 200 amp or less, the block bypass is not strictly required, but is still **recommended** (use the commercial socket).
5. 120/240 volt 3P4W service restricted use application; not for new services.
6. Self-contained 277/480 volt meter sockets require a disconnect ahead (line side) of the meter (cold sequence metering).



# Meter socket catalog numbers

## Milbank Meter Combo Units

Residential sockets	100 Amp	200 Amp	320 Amp
Single Phase, 120/240V	<del> </del>	<del> </del>	U-3251-0-200-CB

Commercial and industrial sockets	100 Amp	200 Amp	320 Amp
Single Phase, 120/240V	<del> </del>	U224MTB	U-3251-0-200-CB

# Meter socket catalog numbers

## Schneider Square-D

Residential sockets (note 1)	100 Amp	200 Amp	320 Amp	400 Amp	600/800 Amp
Single Phase, 120/240V, OH only	URTRS101B	URTRS213B			
Single Phase, 120/240V, OH or UG	N/A				
Single Phase, 120/208V, OH only (note 2, 3)	URTRS101B	URTRS213B			
Single Phase, 120/208V, OH or UG (note 2, 3)	N/A				
3 Phase, 4 Wire, 120/208V, OH only (note 3)					
3 Phase, 4 Wire, 120/208V, OH or UG (note 3)					

Commercial and industrial sockets (note 1)	100 Amp	200 Amp	320 Amp	400 Amp	600/800 Amp
Single Phase, Street, Hwy, & Traffic Light (note 2)					
Single Phase, 120/240V, OH only					
Single Phase, 120/240V, OH or UG					
Single Phase, 120/208V, OH only (note 2)					
Single Phase, 120/208V, OH or UG (note 2)					
3 Phase, 4 Wire, 120/208V or 120/240V (note 5)					
3 Phase, 4 Wire, 277/480V					

Current transformer applications	400 Amp	600/800 Amp
Single Phase CT Cabinet		
Single Phase CT Mounting Base		
3 Phase CT Cabinet, 4 Wire		
3 Phase CT Mounting Base		

## Socket notes

1. All meter sockets shall have anodized screw-type rings (add Square-D part number 29008W, if not included with socket).
2. Add fifth jaw in 9 o'clock position (add Schneider Square-D part number A5J).
3. "House meters" on multi-family residential are commercial services and require the commercial 120/208 volt socket.
4. This is not a block bypass socket. Block bypass sockets are **required** for all commercial sockets. On residential 3P4W 120/208 volt 200 amp or less, the block bypass is not strictly required, but is still **recommended** (use the commercial socket).
5. 120/240 volt 3P4W service restricted use application; not for new services.
6. Self-contained 277/480 volt meter sockets require a disconnect ahead (line side) of the meter (cold sequence metering).

# Meter socket catalog numbers

## Schneider Square-D Meter Combo Units

Residential sockets	100 Amp	200 Amp	320 Amp
Single Phase, 120/240V	SC816D150C (note 1)	SC816D200C (note 1)	SU3040D400CB (note 1)
	SC1624M100S	SC2040M200C (note 1)	CU816D400CB (note 1)
		SC816F200PS (note 1)	
		SU816F200PS (note 1)	

Commercial and industrial sockets	100 Amp	200 Amp	320 Amp
Single Phase, 120/240V			SU3040D400CB (note 1)
			CU816D400CB (note 1)

### Socket note

1. Included Panel Load Center.

# Meter socket catalog numbers

## Siemens (TALON)

Residential sockets (note 1)	100 Amp	200 Amp	320 Amp	400 Amp	600/800 Amp
Single Phase, 120/240V, OH only	SUAT121 (UAT121)	SUAT327 (UAT327)		9837-8215	
Single Phase, 120/240V, OH or UG	N/A	SUAT427 (UAT 427)			
Single Phase, 120/208V, OH only (note 2, 3)	SUAT121 (UAT121)	SUAT327 (UAT327)			
Single Phase, 120/208V, OH or UG (note 2, 3)	N/A	SUAT427 (UAT427)			
3 Phase, 4 Wire, 120/208V, OH only (note 3)					
3 Phase, 4 Wire, 120/208V, OH or UG (note 3)					

Commercial and industrial sockets (note 1)	100 Amp	200 Amp	320 Amp	400 Amp	600/800 Amp
Single Phase, Street, Hwy, & Traffic Light (note 2)	MS14TB	MS24TB			
Single Phase, 120/240V, OH only				9837-8215	
Single Phase, 120/240V, OH or UG					
Single Phase, 120/208V, OH only (note 2)					
Single Phase, 120/208V, OH or UG (note 2)					
3 Phase, 4 Wire, 120/208V or 120/240V (note 5)					
3 Phase, 4 Wire, 277/480V	MS17TB (note 6)	MS27TB (note 6)			

Current transformer applications	400 Amp	600/800 Amp
Single Phase CT Cabinet		
Single Phase CT Mounting Base	RT6019HA	
3 Phase CT Cabinet, 4 Wire		
3 Phase CT Mounting Base	RT6067HA	

## Socket notes

1. All meter sockets shall have anodized screw-type rings (add Siemens part number SX001M, if not included with socket).
2. Add fifth jaw in 9 o'clock position (add Siemens part number EC659-0121, EC5J, or UX005B, as appropriate).
3. "House meters" on multi-family residential are commercial services and require the commercial 120/208 volt socket.
4. This is not a block bypass socket. Block bypass sockets are **required** for all commercial sockets. On residential 3P4W 120/208 volt 200 amp or less, the block bypass is not strictly required, but is still **recommended** (use the commercial socket).
5. 120/240 volt 3P4W service restricted use application; not for new services.
6. Self-contained 277/480 volt meter sockets require a disconnect ahead (line side) of the meter (cold sequence metering).



# Meter socket catalog numbers

## Siemens (TALON) Meter Combo Units

Residential sockets	100 Amp	200 Amp	320 Amp
Single Phase, 120/240V	<del> </del>	MM0406L1200ESC (note 1)	MM0404L1400SCS
	<del> </del>	MC0816B1200EST (note 1)	MC0816B1400SCS (note 1)
Commercial and industrial sockets	100 Amp	200 Amp	320 Amp
Single Phase, 120/240V	<del> </del>	<del> </del>	<del> </del>

### Socket note

1. Included Panel Load Center.

