

City of Bonney Lake

BID PROPOSAL, CONTRACT DOCUMENTS, AND SPECIFICATIONS FOR:

Lift Station 17 Electrical Equipment Upgrade

Project No. BON 20.0123

SPRING 2021

<p>City of Bonney Lake</p> <p>Public Services Department 9002 Main Street East Bonney Lake, WA 98391 Phone: (253) 862-8602</p> <p>Contact: Doug Budzynski, PE (253) 447-4342</p>	<p>RH2 Engineering, Inc</p> <p>22722 29th Drive SE Suite 210 Bothell, WA 98021</p> <p>Contact: Chris Roberts, PE (425) 951-5358</p>
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Signed: 03/23/2021



Reviewed as Engineer in Responsible Charge

Signed: 03/23/2021

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APPENDIX A – PLAN SET

City of Bonney Lake
Lift Station 17 Electrical Equipment Upgrade
ADVERTISEMENT FOR BIDS

Notice is hereby given that sealed bids will be received by the City of Bonney Lake, 9002 Main Street E., Suite 125, Bonney Lake, Washington 98391, until Wednesday, April 14, 2021 at 10:00 a.m., for the ***Lift Station 17 Electrical Equipment Upgrade***.

The City of Bonney Lake is requesting bids from qualified contractors for the replacement of existing electrical service equipment and motor control centers, installation of proposed electrical service and electrical distribution equipment, installation of proposed variable frequency drives, replacement of a flume open channel flow sensor and transmitter and light fixtures located in the lift station wet well, and mechanical piping modifications to the existing bypass pumping connection.

Bid proposals will be received by the City Clerk at the City of Bonney Lake, 9002 Main Street E., Suite 125, Bonney Lake, Washington 98391 by Wednesday, April 14, 2021 at 10:00 a.m. Arrangements will be made for a person to be posted at the front door of Suite 125 to collect bids up until the bid closing time on April 14, 2021. The bids will be tabulated by City staff and posted to the City's website and provided to every bidder via E-mail. No public bid opening will occur due to the COVID restrictions in place by the City. The Contractors shall clearly identify project name on all submitted bid packages. Proposals received after the time fixed for opening will not be considered.

Contract documents including plan drawings, specifications, addenda, and plan holders list for this project will be available for viewing and downloading on-line through Builders Exchange of Washington, Inc. (BXWA) at <http://www.bxwa.com>. To view the documents on BXWA's website, select the following links: "Posted Projects"; "Public Works"; "City of Bonney Lake"; "Projects Bidding". Bidders are encouraged to "Register as a Bidder" in order to receive automatic e-mail notification of future addenda and be placed on the "Bidders List". Contact the Builders Exchange of Washington at (425) 258-1303 should you require further assistance.

For questions regarding this project, please contact the Project Manager, Douglas Budzynski, PE, at 9002 Main Street E., Suite 300, Bonney Lake, Washington 98391, and (253) 447-4342.

The City of Bonney Lake, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises as defined at 49 CFR Part 23 will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

Each bid proposal shall be accompanied by a bid proposal deposit in cash, certified check, cashier's check, postal money order, or surety bond in an amount equal to at least 5 percent of the amount of such bid proposal. Checks shall be made payable to the City of Bonney Lake. Should the successful bidder fail to enter into such contract and furnish satisfactory performance and payment bond within the time stated in the specifications, the bid proposal deposit shall be forfeited to the City of Bonney Lake.

The City of Bonney Lake reserves the right to reject any or all bids and to waive irregularities in the bid or in the bidding.

No bidder may withdraw his proposal after the hours set for the opening thereof, or before award of contract, unless said award is delayed for a period exceeding sixty (60) calendar days.

Engineers Estimate: \$250,000 to \$350,000

Published: Bonney Lake Courier Herald: Wednesday, March 31, 2021

Wednesday, April 7, 2021

cc:	Neil Johnson, Mayor Members of the City Council Department Heads Newspapers	Posted:	Public Works Center Post Office Bonney Lake Library City Website
	Published: Bonney Lake Courier Herald: Wednesday, March 31, 2021		
			Wednesday, April 7, 2021

***INSTRUCTIONS TO
BIDDERS***

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INSTRUCTIONS TO BIDDERS

01. General

Plans, specifications, and addenda are available for viewing at Justice and Municipal Center, 9002 Main Street E, Bonney Lake, Washington 98391, and (253) 862-8602.

Plans, specifications and addenda are also available for viewing and downloading on-line through Builders Exchange of Washington, Inc (BXWA) at <http://www.bxwa.com>. Contact the Builders Exchange of Washington at 425/258-1303 should you require further assistance.

02. Location

The project is located at 9301 Angeline Rd. E. See Project Location map shown on the plans set.

03. Examination of Plans, Specifications, and Site

The Bidder shall carefully examine the Bid Documents. Submittal of a Bid shall be conclusive evidence that the Bidder has made these examinations and understands all requirements for the performance of the completed Work. The Bidder further warrants, agrees, and acknowledges by submitting a Bid that it:

1. Has taken steps reasonably necessary to ascertain the nature and location of the Work;
2. Has investigated and satisfied itself as to the general and local conditions which can affect the Work or its cost, including acquisition, transportation, and storage of materials; physical conditions at the site; conformation and condition of the ground; character of equipment and facilities needed; and physical hazards;
3. Has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the Work site (including material sites) as well as from the Bid Documents and other information made a part of this Contract; and
4. Has satisfied itself as to the adequacy of time allowed for the completion of the physical Work on the Contract.

Any failure of the Bidder to take the actions described and acknowledged in this clause shall not relieve the Bidder from responsibility for estimating properly the difficulty and cost of successfully performing the Work, or from proceeding to successfully perform the Work without additional expense to the City.

The Bidder agrees that the City shall not be liable to it on any claim for additional payment or additional time or any claim whatsoever if the claim directly or indirectly results from the Bidder's failure to investigate and familiarize itself sufficiently with the conditions under which the Contract is to be performed.

The Bidder shall be familiar and comply with all Federal, State, tribal, and local laws, ordinances, and regulations which might affect those engaged in the Work. The City will not consider any plea of misunderstanding or ignorance of such requirements.

Bid prices shall reflect what the Bidder anticipates to be the cost of completing the Work, including methods, materials, labor, and equipment. Except as the Contract may provide, the Bidder shall receive no payment for any costs that exceed those in the Bid prices.

No Claim shall be allowed because of any ambiguity in the Contract if:

1. The Bidder discovers an ambiguity but fails to notify the City; or
2. The Bidder failed to discover a patent ambiguity that would be discovered by a reasonably prudent Contractor in preparing its Bid.

04. Proposals

Proposals shall be made on the forms included herewith and shall be addressed to: City Clerk, City of Bonney Lake, 9002 Main Street E., Suite 125, Bonney Lake, Washington 98391. Proposals shall be in a sealed envelope, plainly labeled “*Lift Station 17 Electrical Equipment Upgrade*” and shall be delivered to the above address to arrive not later than *10:00 a.m. on Wednesday, April 14, 2021*.

No proposal may be withdrawn after the time set for the bid opening or before award of contract unless said award is delayed for a period exceeding 60 calendar days.

05. Bid Proposal Deposit

As a guarantee of good faith and as required by law, each bid shall be accompanied by a bid proposal deposit in the form of a certified check, cashier's check, or surety bond, payable to the order of City of Bonney Lake, for an amount not less than 5 percent of the total amount of bid. The deposits of the three low bidders will be retained until a contract has been entered into between the successful bidder and the City and until a performance bond in an amount of 100 percent of the contract price has been filed as required under these contract documents.

The deposits of other bidders will be returned as soon as it is determined that they are not one of the three low bidders.

06. Review of Proposals

After opening and reading Proposals, the City will check them for correctness of extensions of the prices per unit and the total price. If a discrepancy exists between the price per unit and the extended amount of any Bid item, the price per unit will control. The total of extensions, corrected where necessary, will be used by the City for Award purposes and to fix the amount of the Contract Bond.

The right is reserved by the City to waive informalities in the bidding, accept a Proposal of the lowest responsible Bidder, reject any or all Bids, republish the call for Bids, revise or cancel the Work, or require the Work to be done in another way if the best interest of the City is served.

The contract will not be awarded until the City is satisfied that, at a minimum, the successful bidder

is reasonably familiar with the class of work contemplated and has the necessary capital, tools and experience to satisfactorily perform the work within the time stated. Completion of the work within the time stated is essential and prior commitments of the bidder, failure to complete other work on time, or reasonable doubt as to whether the bidder would complete the work on time would be cause for the rejection of any bid. The right is reserved by the owner to waive any informalities in the bidding, to reject any or all proposals, to accept any proposal, to re-advertise for new proposals, or to otherwise carry out the work.

07. Bidder Responsibility and Disqualification of Bidders

Before award, the bidder must meet the following bidder responsibility criteria to be considered a responsible bidder. The bidder may be required by the Owner to submit documentation demonstrating compliance with the criteria. 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;
- (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) Until December 31, 2013, not have violated RCW [39.04.370](#) more than one time as determined by the department of labor and industries.

In addition, Bidder may be deemed not responsible and the Proposal rejected if:

1. More than one Proposal is submitted for the same project from a Bidder under the same or different names;
2. Evidence of collusion exists with any other Bidder. Participants in collusion will be restricted from submitting further Bids;
3. An unsatisfactory performance record exists based on past or current Work;

4. There is uncompleted work (City or otherwise) which might hinder or prevent the prompt completion of the Work Bid upon;
5. The Bidder failed to settle bills for labor or materials on past or current contracts;
6. The Bidder has failed to complete a written public contract or has been convicted of a crime arising from a previous public contract;
7. The Bidder is unable, financially or otherwise, to perform the Work;
8. A Bidder is not authorized to do business in the state of Washington; or
9. There are any other reasons deemed proper by the City.

08. Award of Contract

A notice of award will be forwarded by the City to the successful Bidder. The notice of award will be accompanied by the agreement to be signed by the Contractor and returned to the City within twenty (20) days from receipt, along with all the items in the Bidder's Checklist (Item 17 of these Instructions to Bidders).

09. Failure to Execute Contract

In the event the successful bidder fails to execute the contract, including the provision of all required documents, within twenty (20) days after notification of award, bid proposal deposit shall be forfeited to the City as liquidated damages.

10. Corrections, Interpretations, and Addenda

Any prospective Bidder desiring an explanation or interpretation of the Bid Documents, must request the explanation or interpretation in writing soon enough to allow a written reply to reach all prospective Bidders before the submission of their Bids. Oral explanations, interpretations, or instructions given by anyone before the Award of a Contract will not be binding on the City. Any information given a prospective Bidder concerning any of the Bid Documents will be furnished to all prospective Bidders as an Addendum if that information is deemed by the City to be necessary in submitting Bids or if the City concludes that the lack of the information would be prejudicial to other prospective Bidders.

11. Project Engineer

Notices as required in the general conditions shall be mailed to Public Services Department, City of Bonney Lake, 9002 Main Street East, Bonney Lake, Washington 98391, (253) 862-8602.

12. Chemical Hazard Communication

Before starting work under this contract, the Contractor is required to supply information to the City on all chemical hazards that the Contractor is bringing into the work place and thereby creating exposure to City employees and agents.

13. Completion Time

The Contractor(s) shall be required to have all work complete, operational and ready for acceptance within one hundred (100) consecutive working days from the respective date of the Notice to Proceed.

14. Supplementing or Revising Proposals

The original physical Bid Proposal may be supplemented or revised and resubmitted as the official Bid Proposal if the City receives it before the time set for receipt of Proposals.

15. Irregular Proposals

1. A Proposal will be considered irregular and may be rejected if:
 - a. The authorized Proposal Form furnished by the City is not used or is altered;
 - b. The completed Proposal form contains any unauthorized additions, deletions, alternate Bids, or conditions;
 - c. The Bid Proposal does not constitute a definite and unqualified offer to meet the material terms of the Bid invitation, or the Bidder adds provisions reserving the right to reject or accept the Award, or enter into the Contract;
 - d. A price per unit cannot be determined from the Bid Proposal;
 - e. The Proposal form is not properly executed;
 - f. The Bidder fails to submit or properly complete a Subcontractor list, if applicable.
 - g. The Bidder fails to include any Disadvantaged Business Enterprise documentation that may be required.
 - h. The Proposal does not include a unit price for every Bid item;
 - i. Any of the unit prices are excessively unbalanced (either above or below the amount of a reasonable Bid) to the potential detriment of the City;
 - j. Receipt of Addenda is not acknowledged; or
 - k. A member of a joint venture or partnership and the joint venture or partnership submit Proposals for the same project (in such an instance, both Bids may be rejected).

16. Tied Bids

After opening Bids, if two or more lowest responsive Bid totals are exactly equal, two or more slips of paper will be marked as follows: one marked "Winner" and the other(s) marked "unsuccessful." The slips will be folded to make the marking unseen. The slips will be placed inside a box. One authorized representative of each Bidder shall draw a slip from the box. Bidders shall draw in alphabetic order by the name of the firm as registered with the Washington State Department of Licensing. The slips shall be unfolded and the firm with the slip marked "Winner" will be determined to be the successful Bidder and eligible for Award of the Contract. Only those Bidders who submitted a Bid total that is exactly equal to the lowest responsive Bid are eligible to draw.

17. Bidders' Checklist

It is the responsibility of each bidder to ascertain if all the documents listed on the attached index are included in their copy of the bid specifications.

If documents are missing, it is the sole responsibility of the bidder to contact the City of Bonney Lake to obtain the missing documents prior to bid opening time.

18. Business License

Prior to issuing a Notice to Proceed to the Contractor, the City shall require the Contractor to obtain and furnish a copy of a business license to do business in the city or county where the work is located. All subcontractors of the Contractor that perform work on the project site shall also obtain and furnish a copy of a business license to do business in the city or county where the work is located.

BIDDER'S CHECKLIST

The Bidder's attention is especially called to the following forms, which must be completed in full as required and submitted collectively as the Bid Proposal package:

- Non-Collusion Certificate**
- Subcontractor List**
- Bidder's Qualification Certificate**
- Bid Bond Form and Bid Bond**
- Bid Deposit**
- Proposal**
- Schedule of Prices**
- Certification of Compliance with Wage Payment Statutes**

The following forms are to be executed and submitted within 20 calendar days after receiving the Notice To Award of the Contract.

- Contract** (This contract to be executed by the successful bidder in duplicate.)
- Performance and Guaranty Bond**
- Labor and Material Payment Bond**
- Certificate of Insurance**
- Certificate as to Corporate Principal**
- Certificate as to Corporate Seal**
- Contractor's Declaration of Option for Management of Statutory Retained Percentage**
- W-9 Request for Taxpayer Identification Number and Certification**
- Warranty and Defect Bond** (15% of contract amount and is required after Notice of Substantial Completion is issued)

- City of Bonney Lake Business License** (Copy of active business license due prior to Notice to Proceed)

BID FORMS

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SUBCONTRACTOR LIST

Heating, ventilation, air conditioning, plumbing, electrical

As required by RCW 39.30.060, bids of \$1,000,000 or more for any public work contract require each bidder to submit the names of the subcontractors who will be performing the work in areas of heating, ventilation, 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.

If the subcontractors names are not submitted with the bid, or within 1 hour of the bid time, the bid shall be considered nonresponsive and, therefore, void.

Bid Item (s) _____

Subcontractor Name _____

Address _____

Phone No. _____ State Contractor's License No. _____

Bid Item (s) _____

Subcontractor Name _____

Address _____

Phone No. _____ State Contractor's License No. _____

Bid Item (s) _____

Subcontractor Name _____

Address _____

Phone No. _____ State Contractor's License No. _____

Bid Item (s) _____

Subcontractor Name _____

Address _____

Phone No. _____ State Contractor's License No. _____

Bid Item (s) _____

Subcontractor Name _____

Address _____

Phone No. _____ State Contractor's License No. _____

Firm Name: _____

BIDDER'S QUALIFICATION CERTIFICATE

The undersigned hereby certifies and submits the following qualifications:

1. Name and Address

- 2A. State of Washington Tax Registration Number (UBI) _____

- 2B. State of Washington Registration Number and expiration (EIN) _____

3. Number of years in contracting business under present firm name _____

4. Particular types of construction work performed by your company:

5. List most recent construction projects performed:

Amount	Type	Owner	Name	Phone

6. Organizations must have successfully completed at least three interior and exterior coatings of existing steel reservoirs including full containment and removal of existing coating in the last five years. List most recent coating projects performed meeting this criterion:

Amount	Type	Owner	Name	Phone

7. Gross amount of contracts now in hand:

Firm Name: _____

8. Bank reference(s):

By (Authorized Signature): _____

Title: _____

Firm Name: _____

BID BOND FORM

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

Sign Here: _____

BID BOND

Know all men by these presents, that we _____ as Principal and _____ as Surety, are held and firmly bound unto City of Bonney Lake Washington, as obligee in the penal sum of _____ dollars, for the payment of which the principal and the surety binds themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

The condition of the obligation is such that if the obligee shall make any award to the principal for _____, according to the terms of the proposal or bid made by the principal therefore, and the principal shall duly make and enter into a contract with the obligee in accordance with the terms of said proposal or bid 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 _____, in the year of _____.

Principal _____

Surety _____

Return of deposit in the amount of \$ _____

Date _____

By _____

Firm Name: _____

PROPOSAL

Contractor: _____

City: _____, State: _____

Date: _____, in the year of _____

The Honorable City Council
City of Bonney Lake
PO Box 7380
9002 Main Street East
Bonney Lake, WA 98391

Pursuant to and in compliance with your invitation for bids and all other documents relating thereto, the undersigned bidder, having familiarized himself with the terms of the contract, the local conditions affecting the performance of the contract, the cost of the work at the place where the work is to be done, proposes and agrees to perform, within the time stipulated, the contract, if this project is accepted, including all its component parts and everything required to be performed, and to provide and furnish any and all labor, materials, tools, expendable equipment, an all utility and transportation services necessary to perform the contract, complete, in a workmanlike manner, of all the work covered by the contract in connection with the City of Bonney Lake's project designated as ***Lift Station 17 Electrical Equipment Upgrade*** and as required by and in strict conformance with the specifications, contract plans and the standard plans for the following unit prices.

Note: Unit prices of all items; all extensions and total amount of bid must be shown. Show unit prices in both words and figures and, where conflict occurs, the written or typed words prevail.

Firm Name: _____

All bidders shall sign the proposal in the space provided.

The successful bidder shall execute and furnish the attached (no substitution allowed) performance bond and Agreement within twenty (20) calendar days after the date of award of contract unless a written extension is granted by City of Bonney Lake.

The contractor agrees to perform the complete contract work as specified, including corrections, finish and cleanup within **100** consecutive working days, beginning the date given in the notice to proceed by City of Bonney Lake.

The proposal, together with the Contract Documents, when endorsed by City of Bonney Lake shall become a contract binding on both parties thereto, whereby the contractor agrees to perform the complete contract work, as specified, and City of Bonney Lake agrees to make payment to the contractor, as specified, for said completed and accepted work.

Dated this _____ day of _____, in the year of _____

Contractor _____

Address _____

Telephone _____ Washington State License No. _____

By: _____

Title: _____

Attest: (If Corporation)

Witness: (If Individual or Partnership)

Acknowledgement of Receipt of Addenda:

No. _____ Date _____ Initials _____

Firm Name: _____

SCHEDULE OF PRICES				
Lift Station 17 Electrical Equipment Upgrade				
Bid Item	Approx. Quantity	Description	Unit Price	Total Price
1.	1 LS	Mobilization, Demobilization, Site Preparation, and Clean-up \$ _____ (unit price in words)	\$ _____	\$ _____
2.	1 LS	Temporary Pumping \$ _____ (unit price in words)	\$ _____	\$ _____
3.	1 LS	Electrical \$ _____ (unit price in words)	\$ _____	\$ _____
4.	1 LS	Automatic Control \$ _____ (unit price in words)	\$ _____	\$ _____
Subtotal (Items 1 – 4)			\$ _____	
Washington State Sales Tax (9.3%)			\$ _____	
Total Construction Cost			\$ _____	

Firm Name: _____

Certification of Compliance with Wage Payment Statutes

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date (**Wednesday, April 14, 2021**), that the bidder is not a “willful” violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

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

Contractor

Signature of Authorized Official*

Printed Name

Title

Date City State

Check one:

Individual Partnership Joint Venture Corporation

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

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

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

Firm Name: _____

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Firm Name: _____

CONTRACT FORMS

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CITY OF BONNEY LAKE CONTRACT

THIS CONTRACT, is made and entered into this _____ day of _____, 2021 by and between the CITY OF BONNEY LAKE, a Washington municipal corporation, hereinafter referred to as the "Owner" and _____, hereinafter referred to as the "Contractor."

WITNESSETH:

WHEREAS, the Owner desires to have certain work, services and/or tasks performed as set forth below requiring specialized skills and other supportive capabilities; and

WHEREAS, the Contractor represents that the Contractor is qualified and possesses sufficient skills and the necessary capabilities, including technical and professional expertise, to perform the work, services and/or tasks set forth in this Agreement; and

WHEREAS the Owner has heretofore caused to be prepared certain plans and specifications described as the _____ and the Contractor did on the _____ day of _____, 2021, file with the Owner a proposal to construct said work and agreed to accept as payment therefore the sum fully stated and set forth in the proposal; and

WHEREAS, the said Contract Documents fully and accurately described the terms and conditions upon which the Contractor proposes to furnish said equipment, labor, materials, and appurtenances and perform said work, together with the manner and time of furnishing same;

IT IS THEREFORE AGREED, first, the Contractor shall perform such work and accomplish such tasks, including the furnishing of all materials and equipment necessary for full performance thereof, as are identified and designated as Contractor responsibilities throughout this Agreement and as detailed in the plans and specifications described as _____. It is agreed that a copy of said General Conditions and other Contract Documents filed with the Owner, as aforesaid, do, in all particulars, become a part of this Agreement by and between the parties hereto in all matters and things therein set forth and described;

AND FURTHER, that the Owner and the Contractor hereby accept and agree to the terms and conditions of said Contract Documents as filed as completely as if said terms and conditions and plans were herein set out in full.

IN WITNESS WHEREOF the parties hereto have caused this Agreement to be executed the day and year first hereinabove written.

CITY OF BONNEY LAKE

Neil Johnson, Jr., Mayor

CONTRACTOR: _____

By _____
Title _____

Date: _____
City of Bonney Lake

Date: _____

PERFORMANCE AND GUARANTY BOND

We, _____ as the Contractor and _____
as Surety, jointly and severally bind ourselves, our heirs, successors and assigns, as set forth
herein, to

BONNEY LAKE, WASHINGTON

(herein called the City) for payment of the penal sum of _____
dollars (\$_____), lawful money of the United States. The City has awarded the
Contractor a contract for the construction of

Lift Station 17 Electrical Equipment Upgrade

THE CONDITION OF THIS OBLIGATION IS SUCH that if the Contractor shall in all things
abide by and well and truly keep and perform the covenants, and agreements in the said contract,
any part to be kept and performed at the time and in the manner therein specified, and shall
indemnify and save harmless the City from any defects in the workmanship and materials
incorporated into the work for a period of one year after final acceptance of the work, as therein
stipulated, this obligation shall become null and void, otherwise, it shall be and remain in full
force
and effect.

This bond is provided in compliance with the requirements of Chapter 39.08, RCW, and shall be
construed consistent therewith.

Executed in four original
counterparts on

CONTRACTOR

(Attach Acknowledgement of Authorized Representative of Contractor)

Performance and Guaranty Bond – continued

Any claims under this Bond may be addressed to:

(Name and address of SURETY)

if

(Name and address of Surety in WASHINGTON
different from above)

Washington)

(Telephone number of Surety's agent

(Attach Acknowledgement)

SURETY

By:

(Attorney-in-Fact)

APPROVED:

NOTICE:

Sureties must be authorized to do business in and have an agent for service of process in Washington. Certified copy of Power of Attorney must be attached.

LABOR AND MATERIAL PAYMENT BOND

We, _____ as the Contractor and _____ as Surety, jointly and severally bind ourselves, our heirs, successors and assigns, as set forth herein, to

BONNEY LAKE, WASHINGTON

hereinafter "City" for the use and benefit of claimants as herein below defined, in the amount of _____ dollars (\$_____).

Whereas, Contractor has by written agreement entered into a contract with City for

Ponderosa 748 Reservoir Recoat and Upgrades

which contract is by reference made a part hereof;

NOW THEREFORE, the condition of this bond is such that is Contractor shall promptly make payment to all claimants as hereafter defined for all labor and material used or reasonably required for use in the performance of the contract, then this obligation shall be void, otherwise it shall remain in full force and effect.

A claimant is defined as any laborer, mechanic, subcontractor and materialman, and all persons who supply such person or persons or subcontractor with provisions and supplies for the carrying on of such work.

This Bond is issued simultaneously with a Performance Bond in favor of the City conditioned on full and faithful performance of the contract.

This Bond is provided in compliance with the requirements of Chapter 39.08 RCW and shall be construed consistent therewith.

Surety agrees that no change, extension of time, alteration, or addition to the terms of the contract, or the work to be performed thereunder, or the specifications shall in any way affect its obligation on this bond, and it does hereby waive notice thereof.

The Contractor and Surety agree that if the City is required to engage the services of an attorney in connection with the enforcement of this bond, each shall pay the City's reasonable attorney's fees incurred, with or without suit, in addition to the above sum.

Executed in four original counterparts on

_____, 20____

Contractor

(Attach acknowledgement of Authorized Representative of Contractor)

City of Bonney Lake

Labor and Material Payment Bond – Continued

Any claims under this Bond may be addressed to:

(Name and address of SURETY)

(Name and address of Surety in WASHINGTON if
different from above)

(Telephone number of Surety's agent Washington)

(Attach Acknowledgement)

By:

SURETY

(Attorney-in-Fact)

APPROVED:

NOTICE:

Sureties must be authorized to do business in and have an agent for service of process in Washington. Certified copy of Power of Attorney must be attached.

City of Bonney Lake

CERTIFICATE OF INSURANCE

TO: City of Bonney Lake

Return this certificate to:

**City of Bonney Lake
PO Box 7380
9002 Main Street East
Bonney Lake, WA 98391**

This certifies to City of Bonney Lake that the following described policies have been issued to the Insured named below and are in force at this time:

Insured _____

Address _____

Description of operations/locations/products (show contract name and/or number, if any)

Policies and Insureds	Limits		Policy Number	Expiration	Best's Rating
	Bodily Injury	Property Damage			
Comprehensive/General Liability	Each Person	Each Occurrence			
Worker's Compensation	Employer's Liability				
Automotive Liability	Each Person	Each Occurrence			

COMBINED SINGLE LIMIT

All policies are in effect at this time and will not be canceled, limited, or allowed to expire without renewal until after 30 days' written notice has been given to the Certificate Holder named on the top line. Any coverage afforded the Certificate Holder as an additional insured shall apply as primary and not excess to any insurance issued in the name of the Certificate Holder.

Note to Contractor: City of Bonney Lake and its authorized agents shall be named as additional insured for this policy.

ACORD™ CERTIFICATE OF LIABILITY INSURANCE		POLICY ID SU PARIN-1	DATE (MM/DD/YY) 10/02/00
PRODUCER Hurley, Atkins & Stewart, Inc. 1800 Ninth Ave., #1500 Seattle WA 98101 Phone: 206-682-5656	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.		
INSURERS AFFORDING COVERAGE			
INSURED	INSURER A:		
	INSURER B:		
	INSURER C:		
	INSURER D:		
	INSURER E:		

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS								
	GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC				EACH OCCURRENCE \$ FIRE DAMAGE (Any one fire) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$								
	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$								
	GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$								
	EXCESS LIABILITY <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$								
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				<table border="0" style="width:100%;"> <tr> <td style="width: 50%;"><input type="checkbox"/> WC STATUTORY LIMITS</td> <td style="width: 50%;"><input type="checkbox"/> OTHER</td> </tr> <tr> <td>E.L. EACH ACCIDENT</td> <td>\$</td> </tr> <tr> <td>E.L. DISEASE - EA EMPLOYEE</td> <td>\$</td> </tr> <tr> <td>E.L. DISEASE - POLICY LIMIT</td> <td>\$</td> </tr> </table>	<input type="checkbox"/> WC STATUTORY LIMITS	<input type="checkbox"/> OTHER	E.L. EACH ACCIDENT	\$	E.L. DISEASE - EA EMPLOYEE	\$	E.L. DISEASE - POLICY LIMIT	\$
<input type="checkbox"/> WC STATUTORY LIMITS	<input type="checkbox"/> OTHER												
E.L. EACH ACCIDENT	\$												
E.L. DISEASE - EA EMPLOYEE	\$												
E.L. DISEASE - POLICY LIMIT	\$												
	OTHER												

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS

CERTIFICATE HOLDER	N	ADDITIONAL INSURED; INSURER LETTER: _____	CANCELLATION
			SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL _____ DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT. BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

City of Bonney Lake

CERTIFICATE AS TO CORPORATE SEAL

I hereby certify that I am the (Assistant) Secretary of the Corporation named as Principal in the within Bond; that _____ signed the said Bond on behalf of the Principal was _____ of said Corporation; that I know his signature thereto is genuine, and that said Bond was duly signed, sealed, and attested for in behalf of said Corporation by authority of its governing body.

Secretary or Assistant Secretary

A copy of this bond shall be filed with the County Auditor, except in the case where the Contract is with a City or Town.

**CONTRACTOR'S DECLARATION OF OPTION FOR MANAGEMENT OF
STATUTORY RETAINED PERCENTAGE**

PROJECT NAME:

LIFT STATION 17 ELECTRICAL EQUIPMENT UPGRADE

The City shall withhold the retained percentage for this Contract from time-to-time as such retained percentage accrues and in accordance with RCW 60.28.011. I hereby elect to have the retained percentage for this Contract held in a fund by the City until 60 days following final acceptance of the work. (No interest will be earned on the retained percentage amount under this election.)

CONTRACTOR: _____

BY: _____

TITLE: _____

DATE: _____

I hereby elect to have the City deposit the retained percentage for this Contract, from time-to-time, as such retained percentage accrues and in accordance with RCW 60.28.011 (4)(b).

I hereby designate _____ as the depository for said fund, which shall be deposited in an interest earning account subject to joint control by City and the Contractor. All interest earned on said deposits shall belong to the Contractor. If Contractor fails to designate the depository, then the City designates _____, which is the City's depository under contract between said bank and the City of Bonney Lake.

I hereby further agree to be fully responsible for payment of all costs of fees incurred as a result of establishing said depository account and depositing the retained percentage as authorized by statute. The City shall not be liable in any way for any costs or fees in connection therewith.

CONTRACTOR: _____

BY: _____

TITLE: _____

DATE: _____

I hereby elect to submit a bond for all or any portion of the contract retainage in a form acceptable to the City of Bonney Lake and from a bonding company meeting standards established by the City in accordance with RCW 60.28.011(6). The City shall accept a bond meeting these requirements unless the City can demonstrate good cause for refusing to accept it. This bond and any proceeds therefrom are subject to all claims and liens and in the same manner and priority as set forth for retained percentages in this chapter. The City shall release the bonded portion of the retained funds to the contractor within thirty days of accepting the bond from the contractor. Whenever the City 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.

CONTRACTOR: _____

BY: _____

TITLE: _____

DATE: _____

Form W-9 (Rev. October 2018) Department of the Treasury Internal Revenue Service	<h2 style="margin:0;">Request for Taxpayer Identification Number and Certification</h2> <p style="margin:0;">▶ Go to www.irs.gov/FormW9 for instructions and the latest information.</p>	Give Form to the requester. Do not send to the IRS.
1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.		
2 Business name/disregarded entity name, if different from above		
Print or type. See Specific Instructions on page 3.	3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.	
	<input type="checkbox"/> Individual/sole proprietor or single-member LLC	
	<input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate	
	<input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____	
4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ <small>(Applies to accounts maintained outside the U.S.)</small>		
5 Address (number, street, and apt. or suite no.) See instructions.		Requester's name and address (optional)
6 City, state, and ZIP code		
7 List account number(s) here (optional)		

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number										
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 25%; border: 1px solid black; height: 20px;"></td> <td style="width: 5%; text-align: center;">-</td> <td style="width: 25%; border: 1px solid black; height: 20px;"></td> <td style="width: 5%; text-align: center;">-</td> <td style="width: 40%; border: 1px solid black; height: 20px;"></td> </tr> </table>		-		-						
	-		-							
or										
Employer identification number										
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 10%; border: 1px solid black; height: 20px;"></td> <td style="width: 10%; border: 1px solid black; height: 20px;"></td> <td style="width: 10%; border: 1px solid black; height: 20px;"></td> <td style="width: 10%; border: 1px solid black; height: 20px;"></td> <td style="width: 10%; border: 1px solid black; height: 20px;"></td> <td style="width: 10%; border: 1px solid black; height: 20px;"></td> <td style="width: 10%; border: 1px solid black; height: 20px;"></td> <td style="width: 10%; border: 1px solid black; height: 20px;"></td> <td style="width: 10%; border: 1px solid black; height: 20px;"></td> <td style="width: 10%; border: 1px solid black; height: 20px;"></td> </tr> </table>										

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here	Signature of U.S. person ▶ _____	Date ▶ _____
------------------	----------------------------------	--------------

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.

CITY OF BONNEY LAKE
PUBLIC WORKS DEPARTMENT
P.O. BOX 7380
9002 MAIN STREET EAST
BONNEY LAKE, WA 98391
Ph: 253.862.8602

WARRANTY AND DEFECT BOND

NAME OF PROJECT: _____ BOND NO. _____

LOCATION/ADDRESS _____

PROJECT NO.: _____

WE, _____, as Principal, and _____, a corporation organized and existing under and by virtue of the laws of the State of _____, Legally doing business in the State of Washington, as Surety, are held and firmly bound unto the City of Bonney Lake, Pierce County, Washington, as Obligee, in the penal sum of _____ Dollars (\$ _____), for the payment of which we firmly bind ourselves, our legal representatives, successors and assigns, jointly and severally.

WHEREAS, the Principal has completed the project known as **LIFT STATION 17 ELECTRICAL EQUIPMENT UPGRADE**, located in the City of Bonney Lake, Pierce County, Washington, and the Principal has constructed certain improvements in connection with said Project and intends to secure the successful operation of said improvements pursuant to the Project Contract

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION are such that if the improvements constructed by the Principal shall successfully operate for a period of one year from the satisfactory completion of the facility or Final plat approval, whichever is later, and shall remain free of defect in workmanship and materials for the period, then this obligation shall be null and void, otherwise to remain in full force and effect.

IT IS FURTHER EXPRESSLY PROVIDED THAT:

1. Until written release of this obligation by the Obligee, this bond may not be terminated or cancelled by the Principal or Surety for any reason.
2. Damage from expected usage and damage due to construction activities shall be considered "defects" for purposes of this bond.
3. In the event of any failure of the improvements to satisfactorily perform or in the event of a defect in the workmanship or materials, the Principal or Surety shall make prompt and adequate repair to correct the failure or defect. In the event these repairs are not made within 45 days of notice by either the Principal or Surety, the Surety shall, upon demand, tender the total bond amount to the Obligee. After making the repairs, the Obligee will return any unexpected funds, without interest, to the Surety.
4. In the event the Obligee determines that repairs must be performed immediately to prevent risk to person and property, the Obligee may make the repairs and the cost of those repairs shall be paid by the Principal or Surety.
5. The Principal shall be obligated to make the repairs described above, which obligation shall not be limited by the amount of this bond.



State of Washington
Business Licensing Service
PO Box 9034
Olympia WA 98507-9034
1-800-451-7985
business.wa.gov/BLS

UBI
Owner name

City Business License Addendum

This form must be submitted with a completed Business License Application and required fees.

For faster service - Apply online

Online applications are typically processed within two business days. It may take up to 21 days if you file by mail.

Refer to the instructions and list of cities for this form on page 1 & 2.

A All city license applicants must complete this section.

1. Are you registered with the Washington Secretary of State as a nonprofit corporation? Yes No

2. Is your organization tax exempt under IRS code 501(c)(3),(4), or (5)? Yes No
If yes, attach a copy of your IRS tax exemption certificate.

3. Are you a general or specialty construction contractor? Yes No
If yes, provide the Dept. of Labor & Industries registration number (if known): _____

4. If you hold a WA State professional/occupational license, indicate the license type and number.

Type (day care, cosmetology, real estate, etc.)	Number (if known)
---	-------------------

5. Do you provide utility service (telephone/cellular/ISP, cable, gas, electric, garbage)? Yes No

B Complete this section for a city license if your business is physically located inside city limits.

1. From the city names and fees listed on page 1 of this form, indicate the city where your business is physically located and the associated fee amount:

City name	License fee amount \$
Number of employees (at this location)	Total employee fees (if applicable) \$
Number of rental units (for Fife only)	Total rental unit fees (for Fife only) \$

For variable fee cities, see appropriate city "Requirements and Fee Calculation" document for more information.

2. First date of business in the city indicated: _____

3. Have you held a business license in this city? Yes No Prior city license #(if known) _____

4. Check any of the following that can be found at this business location:

- Automatic smoke detection system or fire sprinkler system installed
- Any compressed gases (oxygen, helium, acetylene, propane, nitrous oxide, etc.)
- Discharges to the sewer from the business or business processes other than domestic sanitary discharges
- Any flammable/hazardous/toxic materials (gasoline, oil, cleaning solvents, pesticides, etc.)
Average gallons or pounds kept on premises: _____
- Floor drains other than in restroom/shower facilities
- None of the above

For assistance or to request this document in an alternate format, visit <http://business.wa.gov/BLS> or call 1-800-451-7985. Teletype (TTY) users may use the Washington Relay Service by calling 711.
BLS 700-060 (12/22/15) PAGE 3 OF 4

B Section B continued

5. Is the physical address of the business in a residence?..... Yes No
If yes, how many customers will be visiting the residence per week? _____
Some cities have special home occupation regulations, please contact the city for more information.

6. Square feet of floor space used by your business at this location: _____

7. Will you be making any exterior or interior modifications, including signs, to the proposed business location? Yes No

8. Give the name and phone number of two after-hours Emergency Contact persons for this business location:

Name	Phone number ()
Name	Phone number ()

9. Do you have emergency alarm monitoring service? Yes No
If yes, provide the following information:

Monitoring Company	Company Contact	Contact phone number ()
--------------------	-----------------	---------------------------------

10. Mark any of the following activities that will be conducted at or from this business location:

<input type="checkbox"/> Adult Entertainment	<input type="checkbox"/> Dispensing	<input type="checkbox"/> Repairing
<input type="checkbox"/> Ambulance Service/Dispatch	<input type="checkbox"/> Gambling	<input type="checkbox"/> Retail/Wholesale Sales
<input type="checkbox"/> Amusement Devices/Arcades	<input type="checkbox"/> Health Care/Medical	<input type="checkbox"/> Serve Liquor
<input type="checkbox"/> Buy/Sell Used Goods	<input type="checkbox"/> Manufacturing, Assembling, Producing, Packaging	<input type="checkbox"/> Sexually Oriented Business
<input type="checkbox"/> Care Provider for Adults or Children	<input type="checkbox"/> Painting	<input type="checkbox"/> Storing/Warehousing
<input type="checkbox"/> Charging Admission	<input type="checkbox"/> Recycling	<input type="checkbox"/> Taxi or For Hire Service/Dispatch
<input type="checkbox"/> Civic, Social, Religious Gathering with food/drink consumption, transportation, entertainment, etc.		

C Complete this section only for city licenses if there is no physical location inside the city limits.

1. From the cities and fees shown on page 1, list all the cities that you will travel into to conduct business.

City name	First date of business	Previous city license number (if known)	Number of employees	Employee fees (variable fee cities only)	City license fee	Total fee amount
				\$	\$	\$
				\$	\$	\$
				\$	\$	\$
				\$	\$	\$
				\$	\$	\$
				\$	\$	\$
				\$	\$	\$
				\$	\$	\$
				\$	\$	\$
				\$	\$	\$
Total amount due for non-resident cities						\$

For assistance or to request this document in an alternate format, visit <http://business.wa.gov/BLS> or call 1-800-451-7985. Teletype (TTY) users may use the Washington Relay Service by calling 711.
BLS 700-060 (12/22/15) PAGE 4 OF 4

PREVAILING WAGES

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Department of Labor and Industries
Prevailing Wage
(360) 902-5335
www.lni.wa.gov/TradesLicensing/PrevWage



STATEMENT OF INTENT TO PAY PREVAILING WAGES

Public Works Contract
\$40.00 Filing Fee Required

Intent ID # (Assigned by L&I) _____

- This form **must** be typed or printed in ink.
- **Fill in all blanks or the form will be returned for correction (see instructions).**
- Please allow a **minimum** of 10 working days for processing.
- Once approved, your form will be posted online at <https://fortress.wa.gov/lni/pwiapub/SearchFor.asp>

Your Company Information		
Your Company Name ABC Company, Inc.		
Your Address 1234 Main Street		
City Olympia	State WA	Zip+4 98501-1234
Your Contractor Registration Number ABCCI*0123AA	Your UBI Number 123456789	
Your Industrial Insurance Account Number 111,111-11		
Your Email Address (required for notification of approval) prevailingwage@lni.wa.gov	Your Phone Number (555) 555-5555	
Additional Details		
Your Expected Job Start Date (mm/dd/yyyy) 01/01/2011		
Job Site Address/Directions State Street @ Plum Street		
ARRA Funds		
Does this project utilize American Recovery and Reinvestment Act (ARRA) funds? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Prime Contractor's Company Information		
Prime Contractor's Company Name XYZ Company, Inc.	Prime Contractor's Intent Number 123456	
Prime Contractor's Registration Number XYZIN*0123AA	Prime Contractor's UBI Number 987654321	
Employment Information		
Do you intend to use ANY subcontractors?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will ALL work be subcontracted?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Number of Owner/Operators who own at least 30% of the company who will perform work on the project: <input type="checkbox"/> None (0) <input checked="" type="checkbox"/> One (1) <input type="checkbox"/> Two (2) <input type="checkbox"/> Three (3)		
Crafts/Trades/Occupations – (Do not list apprentices. They are listed on the Affidavit of Wages Paid only.) If an employee works in more than one trade, ensure that all hours worked in each trade are reported below. For additional crafts/trades/occupations please use Addendum A.	Number of Workers	Rate of Hourly Pay
Laborer - Asphalt Raker	2	39.28
Power Equipment Operator - Asphalt Plant Operator	1	48.04
Truck Driver - Asphalt Mix (over 16 Yds)	1	46.47
		Rate of Hourly Usual ("Fringe") Benefits
		5.00
		2.35
		0.00
Signature Block		
I hereby certify that I have read and understand the instructions to complete this form and that the information, including any addenda, are correct and that all workers I employ on this Public Works Project will be paid no less than the Prevailing Wage Rate(s) as determined by the Industrial Statistician of the Department of Labor and Industries.		
Print Name:	Print Title:	Signature:
Date:		
For L&I Use Only		
Approved by signature of the Department of Labor and Industries Industrial Statistician		

Awarding Agency Information		
Project Name Road Repair	Contract Number 2011-01B	
Awarding Agency WA State Department of Transportation		
Awarding Agency Address PO Box 47354		
City Olympia	State WA	Zip+4 98501
Awarding Agency Contact Name John Doe	Phone Number (555) 555-5555	
County Where Work Will Be Performed Thurston	City Where Work Will Be Performed Olympia	
Contract Details		
Bid Due Date (Prime Contractor's) 08/01/2010	Award Date (Prime Contractor's) 08/10/2010	
Indicate Total Dollar Amount of Your Contract (including sales tax) or time and materials, if applicable.		\$1000.00
Weatherization or Energy Efficient Funds		
Does this project utilize any weatherization or energy efficiency upgrade funds (ARRA or otherwise)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Hiring Contractor's Company Information		
Hiring Contractor's Company Name Super Pavers, Inc.		
Hiring Contractor's Contractor Registration Number SUPERPA123AA	Hiring Contractor's UBI Number 321456987	

NOTICE: If the prime contract is at a cost of over one million dollars (\$1,000,000.00), RCW 39.04.370 requires you to complete the EHB 2805 (RCW 39.04.370) Addendum and attach it to your Affidavit of Wages of Paid when your work on the project concludes. This is only a notice. The EHB 2805 Addendum is not submitted with this Intent.
SAMPLE - F700-029-000 Statement of Intent to Pay Prevailing Wages 03-2011

Department of Labor & Industries
Prevailing Wage Program
P.O. Box 44540
Olympia, Washington 98504-4540
Phone (360) 902-5335 / Fax (360) 902-5300



**INSTRUCTIONS
STATEMENT OF INTENT TO PAY
PREVAILING WAGES
FOR PUBLIC WORKS CONTRACTS**

COMPLETE ALL FIELDS ON THE FORM

The numbered blocks in the following instructions correspond to the numbered Statement of Intent to Pay Prevailing Wage above. In addition a completed sample form (without numbers) is included at the end of these instructions.

1

Your Company Information - Enter the following information:

- a) Your **Company Name and Address**.
- b) Your **Contractor Registration Number** – You can verify this number at:
<https://fortress.wa.gov/lni/bbip/Search.aspx>.
- c) Your **UBI Number** (Unified Business Identifier) – This 9-digit number registers you with several state agencies and allows you to do business in Washington. You can verify this number at:
<https://fortress.wa.gov/dol/dolprod/bpdLicenseQuery/>.
- d) Your **Industrial Insurance Account Number** – You can verify this number at:
<https://fortress.wa.gov/lni/crpsi/MainMenu.aspx?MessageId=2001>.
- e) Please provide your **Email Address** so that L&I can notify you of form approval and/or any required corrections. If you do not provide this information, L&I will use standard mail to send you correction notices. You can access approved forms at: <https://fortress.wa.gov/lni/pwiapub/SearchFor.asp>. No notice of approval will be mailed.
- f) Your company **Phone Number**.

2

Awarding Agency Information – Enter the following information regarding the agency that awarded the contract. This information is available from the Prime Contractor:

- a) **Project Name** – This is the name the Awarding Agency assigned to the project.
- b) **Contract Number** – This is the number the Awarding Agency assigned to the project.
- c) **Awarding Agency** – This is the name of the agency that awarded the contract.
- d) Please enter the **Street Address, City, State and Zip+4** for the Awarding Agency.
- e) **Awarding Agency Contact Name and Phone Number** – Enter the name and phone number of the person the Prime Contractor communicates with at the Awarding Agency.
- f) **County Where Work Will Be Performed** – Enter the name of the county where the work will be performed. If the work will be performed in multiple counties, include the names of all counties where work will be performed.
- g) **City Where Work Will Be Performed** – Enter the name of the city where the work will be performed. If the work will be performed outside the limits of any city, or in multiple cities, include the name of the nearest city.

3

Additional Details

- a) Your **Expected Job Start Date** – This is the date that you expect to begin work on the project.
- b) **Job Site Address/Directions** – Enter the specific address of the project or provide brief details regarding the location of the site, if no specific address exists.

4

Contract Details

- a) **Bid Due Date** – Enter the date the **Prime Contractor** had to submit the bid to the Awarding Agency for this project (mm/dd/yyyy).
 - **What if my contract was not bid?** – If the contract you will be working under was not required to be bid, you will enter the date the contract was awarded.
- b) **Award Date** – This is the date the awarding agency awarded the contract to the **Prime Contractor** (mm/dd/yyyy).
- c) **Indicate the Total Dollar Amount of Your Contract** – Enter the dollar amount of **your** contract, including the applicable sales tax. If this is a “time and materials” contract, please indicate this by checking the box next to “T&M.”

5

ARRA & Weatherization Funding Questions – Enter the information regarding the source of funds. This information should be obtained from the Awarding Agency or the Prime Contractor.

- a) Does this project utilize American Recovery and Reinvestment Act (ARRA) funds?
- b) Does this project utilize any weatherization or energy efficiency upgrade funds (ARRA or otherwise)?

6

Prime Contractor’s Company Information – Enter the information about the contractor who has the direct contract with the Awarding Agency:

- a) **Prime Contractor’s Company Name** – Enter the Prime Contractor’s company name.
- b) **Prime Contractor’s Intent ID Number** – Enter the Prime Contractor’s Approved Intent ID Number.
- c) **Prime Contractor’s Registration Number** – Enter the Contractor Registration Number for the Prime Contractor. You can verify the number at: <https://fortress.wa.gov/lni/bbip/Search.aspx>.
- d) **Prime Contractor’s UBI Number** – Enter the UBI number for the Prime Contractor. You can verify this number at: <https://fortress.wa.gov/dol/dolprod/bpdLicenseQuery/>.

7

Hiring Contractor’s Company Information – Enter the information about the Hiring Contractor. This is the contractor who hired or contracted your firm to perform work on this project:

- a) **Hiring Contractor’s Company Name** – Enter the company name of the contractor who hired or contracted with your firm to perform work on this project.
- b) **Hiring Contractor’s Registration Number** – Enter the Contractor Registration Number for the contractor who hired you. You can verify the number at: <https://fortress.wa.gov/lni/bbip/Search.aspx>.
- c) **Hiring Contractor’s UBI Number** – Enter the UBI Number for the contractor who hired you. You can verify this number at: <https://fortress.wa.gov/dol/dolprod/bpdLicenseQuery/>.

8

Employment Information – Enter information about the individuals who will perform work on this project:

- a) **Do you intend to use subcontractors?** – If **PART** of the work will be performed by subcontractors you will hire, check the “Yes” box.
- b) **Will employees perform work on this project?** - If employees, including apprentices, will perform any work on the project, check the “Yes” box and list each employee’s applicable craft/trade/occupation. Do not list the actual apprentice, just the craft/trade/occupation the apprentice will be working in. Also, please note the information regarding apprentices in “d” below. **If you choose “No” and this changes later, you certify that you will submit a new Intent form listing workers.**
- c) **Will All work be subcontracted?** – If **ALL** work will be performed by subcontractors, check the “Yes” box.
- d) **Do you intend to use apprentice employees?** – If you plan to employ apprentices on this project please be aware:
 - Any workers **NOT** registered with the Washington State Apprenticeship and Training Council (WSATC) must be paid the correct journey-level prevailing rate of wage.
 - Any apprentice **NOT** registered with the WSATC within 60 days of hiring must be paid at the correct journey-level prevailing rate of wage for the time preceding the date of registration.

- You **must** be a registered training agent with the WSATC in order to pay a registered apprentice less than journey-level prevailing rate of wage.
 - To verify apprenticeship and/or registered training agent status call (360) 902-5324.
- e) **Number of Owners/Operators who own at least 30% of the company who will perform work on this project** – Indicate the number of Owners/Operator(s) who will perform work on this project. If no 30%+ Owners/Operators will perform work on the project, check the box “None”.



Crafts/Trades/Occupations – List each craft/trade/occupation of all workers you plan to employ on this project.

❖ **Crafts/Trades/Occupations**

If you indicated above that Owners/Operators will work on this project, and you also indicated above that no employees will perform work on the project, or **ALL** work will be subcontracted, then you do not need to fill in this section. (Individuals who own less than 30% of the company are not considered to be Owners/Operators, and must be listed as employees and paid the correct prevailing rate of wage.)

Use **Addendum A** for additional Crafts/Trades/Occupations that will not fit on this form.

Residential Construction – If you are using any residential classifications (e.g. Residential Carpenter, Residential Laborer, etc.) you must provide information regarding the following questions, on **Addendum C**, in order for L&I to determine if residential rates are being utilized appropriately:

1. Did the Awarding Agency, in compliance with RCW 39.12.030, determine that the project/work contracted for meets the definition of residential construction?
2. Please indicate the type of structure (e.g. single-family dwelling, duplex, apartment, condominium or other residential structure).
3. Including any basement or garage, how many stories or levels does the structure have?
4. What is the facility used for? - Answer “yes” or “no” to each of the following options:
 - a. Permanent residence only?
 - b. Rehabilitation house?
 - c. Transitional housing?
 - d. Communal dining facility?
 - e. Treatment services?
 - f. Counseling?
 - g. Other?
5. Does each dwelling unit have its own full, self-contained kitchen?
6. Does each dwelling unit have its own full bathroom?
7. Is there a community facility or manager’s office on site?
8. Is any part of the facility used by members of the public?

Landscape Construction – If you are using “Landscape Construction” or any of the sub-classifications within Landscape Construction (e.g., Landscape or Planting Laborer, Irrigation or Lawn Sprinkler Installers, or Landscape Equipment Operators or Truck Drivers) you must provide information on **Addendum C** regarding the following aspects of the work in order for L&I to determine if you are appropriately applying Landscape Construction rates:

1. The beautification of a plot of land through addition of or modification to lawns, trees and bushes under the Landscape Construction Scope of Work (WAC 296-127-01346) is a limited universe and has exclusions that may affect its application. Please provide L&I with the following information so we can verify whether the landscape construction wage rates apply to this project.
 - a. Please describe the whole project – not just your part.
 - b. Please describe your part(s) of the project – the tasks you performed, equipment used, and tools used. Please provide as much detail as you can.

- c. If the project involves installing an irrigation system, trenching, installing French drains or other subsurface water collection systems, or spreading top soil or mulch, please tell us the relevant depths.
2. If Operating Engineers and/or Truck Drivers will be used in addition to Landscape Construction, describe the type of equipment used, and list the size or rated capacity of the equipment.

10

Number of Workers – Enter the number of journey-level workers you plan to employ on this project for that craft/trade/occupation.

11

Rate of Hourly Pay – Enter the rate of hourly pay as defined by RCW 39.12.010, that you will actually pay the worker(s) for that craft/trade/occupation. The amount listed for “Rate of Hourly Pay” plus the amount listed for the “Rate of Hourly Fringe Benefits,” if any, must equal or exceed the applicable prevailing rate of wage.

12

Rate of Hourly Usual (“Fringe”) Benefits – Enter the rate of hourly Usual (“fringe”) Benefits for that craft/trade/occupation. This is the cost of usual benefits, as defined by RCW 39.12.010, that you will actually pay the worker(s). The amount listed for “Rate of Hourly Pay” plus the amount listed for “Rate of Hourly Usual (“Fringe”) Benefits,” if any, must equal or exceed the applicable prevailing rate of wage.

If there is not enough space to list all required information on one form, use the appropriate Addendum as needed. No additional fee is required for using Addendums to the form. No other attachments will be accepted.

L&I’s approval of your Statement of Intent to Pay Prevailing Wages is based on the information you provide. Approval of the form does not signify that the classifications of labor you listed on the form are the correct classifications of work for the tasks performed on the public works project. It is your responsibility to pay workers the prevailing rate of wage for the classification of work that correctly applies to the actual work they perform.

Be sure to include your email address on the form. **If you do not provide this information, L&I will use standard mail to send you correction notices. You will be able to access approved forms at: <https://fortress.wa.gov/lni/pwipub/SearchFor.asp> (No notice of approval will be mailed).**

MAILING INSTRUCTIONS

You must mail the completed and signed form with **original signature** (a photocopy of a signature will **not** be accepted) with the \$40 filing fee to:

**Management Services
Department of Labor & Industries
Prevailing Wage Program
PO Box 44835
Olympia, WA 98504-4835**

FURTHER INFORMATION

Make checks payable to:

Department of Labor and Industries

If you have questions or would like assistance in completing the form, please call us at **(360) 902-5335** or email the Prevailing Wage office at pw1@lni.wa.gov.

Prevailing wage rates are available on the Internet at:

<http://www.lni.wa.gov/TradesLicensing/PrevWage/WageRates/default.asp>

Department of Labor and Industries
Prevailing Wage Program
(360) 902-5335
www.Lni.wa.gov/TradesLicensing/PrevWage/default.asp



Affidavit of Wages Paid
Public Works Contract
\$40.00 Filing Fee Required*

*Exemption may apply. See instruction 9.

Affidavit ID # (Assigned by L&I):

WA67554-9090

This form must be typed or printed in ink.
Fill in ALL blanks or the form will be returned for correction (see instructions).
Please allow a **minimum** of 10 business days for processing.
Once approved, your form will be posted online at:
<https://fortress.wa.gov/lni/wagelookup/searchforms.aspx>

Your Company Information				Awarding Agency Information			
Your Company Name ABC Company				Project Name Road Repair		Contract Number 123-456	
Your Company Address 1234 Main Street				Awarding Agency WA St Department of Transportation			
City Olympia		State WA	Zip+4 98501-1234	Awarding Agency Address PO Box 123			
Your Contractor Registration Number ABCCI*0123AA		Your UBI Number 123456789		City Olympia		State WA	Zip+4 98501
Your Industrial Insurance Account Number 111,111-11				Awarding Agency Contact Name John Doe			
Your Email Address (required for notification of approval) prevailingwage@lni.wa.gov		Your Phone Number (555) 555-5555		Awarding Agency Contact Name John Doe		Phone Number (555) 555-5555	
Additional Details				Contract Details			
Your Job Start Date (mm/dd/yyyy) 2/1/2011		Your Date Work Completed (mm/dd/yyyy) 3/1/2011		Bid Due Date (Prime Contractor's) 1/1/2011		Award Date (Prime Contractor's) 1/5/2011	
Job Site Address/Directions Plum and State Street			Your Approved Intent ID # 123456	Indicate Total Dollar Amount of Your Contract (including sales tax).		\$ \$10,000.00	
EHB 2805 (RCW 39.04.370) – Is the Prime Contractor's contract at a cost of over one million dollars (\$1,000,000)?				<input checked="" type="checkbox"/> No If "Yes" to the EHB 2805 question and the Award Date is 9/1/2010 or later <input type="checkbox"/> Yes you must complete and submit the EHB 2805 (RCW 39.04.370) Addendum.			
ARRA Funds				Weatherization or Energy Efficient Funds			
Does this project utilize American Recovery and Reinvestment Act (ARRA) funds? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				Does this project utilize any weatherization or energy efficiency upgrade funds (ARRA or otherwise)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Prime Contractor's Company Information				Hiring Contractor's Company Information			
Prime Contractor's Company Name XYZ Company				Hiring Contractor's Company Name CBA Company			
Prime Contractor's Registration Number XYZCI*0123AA		Prime Contractor's UBI Number 987654321		Hiring Contractor's Registration Number CBACI*0123AA		Hiring Contractor's UBI Number 456789123	
Employment Information							
Did you use ANY subcontractors?		<input type="checkbox"/> Yes (Addendum B Required)		<input checked="" type="checkbox"/> No		Did employees perform work on this project?	
						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Was ALL work subcontracted?		<input type="checkbox"/> Yes (Addendum B Required)		<input checked="" type="checkbox"/> No		Did you use apprentice employees?	
						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Number of Owner/Operators who own at least 30% of the company who performed work on this project: You must list the First and Last Name(s) of any Owner/Operator performing work below						<input type="checkbox"/> None (0) <input checked="" type="checkbox"/> One (1) <input type="checkbox"/> Two (2) <input type="checkbox"/> Three (3)	
List your Crafts/Trades/Occupations Below - For Journey Level Workers you must provide all of the information below. Owner/Operators - must provide their First and Last name no other information required. **Apprentices are not recorded below. You must use Addendum D to list Apprentices.							
				Number of Workers	Total # of Hours Worked	Rate of Hourly Pay	Rate of Hourly Usual ("Fringe") Benefits
General Labor				2	153	41.23	8.54
Carpenter				5	210	52.26	10.13
Signature Block							
I hereby certify that I have read and understand the instructions to complete this form and that the information on the form and any addenda is correct and that all workers I employed on this Public Works Project were paid no less than the Prevailing Wage Rate(s) as determined by the Industrial Statistician of the Department of Labor and Industries.							
Print Name:		Print Title:		Signature:		Date:	

For L&I Use Only	
Department of Labor and Industries	
APPROVED BY: _____	Industrial Statistician

Department of Labor & Industries Prevailing Wage Program P.O. Box 44540 Olympia, Washington 98504-4540 Phone (360) 902-5335 / Fax (360) 902-5300		INSTRUCTIONS AFFIDAVIT OF WAGES PAID FOR PUBLIC WORKS CONTRACTS
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COMPLETE ALL FIELDS ON THE FORM

<p>The numbered blocks in the following instructions correspond to the numbered blocks on the numbered Affidavit of Wages Paid above. In addition, a completed sample form (without numbers) is included at the end of these instructions.</p>	
<p>1</p>	<p>Your Company Information – Enter the following information:</p> <ul style="list-style-type: none"> a) Your Company Name and Address. b) Your Contractor Registration Number – You can verify this number at: http://www.lni.wa.gov/TradesLicensing/Contractors/HireCon/ c) Your UBI Number (Unified Business Identifier) – This 9-digit number registers you with several state agencies and allows you to do business in Washington. You can verify this number at: http://www.bls.dor.wa.gov/LicenseSearch/ d) Your Industrial Insurance Account Number – You can verify this number at: https://fortress.wa.gov/lni/crpsi/MainMenu.aspx?MessageId=2001 e) Please provide your Email Address so that L&I can notify you of form approval and/or any required corrections. If you do not provide this information, L&I will use standard mail to send you correction notices. You can access approved forms at: https://fortress.wa.gov/lni/wagelookup/searchforms.aspx f) No notice of approval will be mailed. g) Your company Phone Number.
<p>2</p>	<p>Awarding Agency Information – Enter the following information regarding the agency that awarded the contract. This information is available from the Prime Contractor:</p> <ul style="list-style-type: none"> a) Project Name – This is the name the Awarding Agency assigned to the project. b) Contract Number – This is the number the Awarding Agency assigned to the project. c) Awarding Agency – This is the name of the agency that awarded the contract. d) Please enter the Street Address, City, State and Zip+4 of the Awarding Agency. e) Awarding Agency Contact Name and Phone Number – Enter the name and phone number of the person the Prime Contractor communicates with at the Awarding Agency. f) County Where Work Was Performed – Enter the name of the county where the work was performed. If the work was performed in multiple counties, include the names of all counties where work was performed. g) City Where Work Was Performed – Enter the name of the city where the work was performed. If the work was performed outside the limits of any city, or in multiple cities, include the name of the nearest city.
<p>3</p>	<p>Additional Details</p> <ul style="list-style-type: none"> a) Your Job Start Date – This is the date that you began work on the project. b) Your Date Work Completed – This is the date you completed work on the project. You cannot have a date in the future. c) Job Site Address/Directions – Enter the specific address of the project or provide brief details regarding the location of the site, if no specific address exists. d) Your Approved Intent ID # – Enter the 6-digit number, assigned by L&I, from the approved Intent form filed for this project.

INSTRUCTIONS (Cont.)

4	<p>Contract Details</p> <p>a) Bid Due Date – Enter the date the Prime Contractor had to submit a bid to the Awarding Agency for this project (mm/dd/yyyy).</p> <ul style="list-style-type: none"> • What if my contract was not bid? – If the contract you are working under was not required to be bid, you will enter the date the contract was awarded. <p>b) Award Date – This is the date the Awarding Agency awarded the contract to the Prime Contractor (mm/dd/yyyy).</p> <p>c) Indicate the Total Dollar Amount of <u>Your</u> Contract – Enter the total amount of your contract, including the applicable sales tax. You must enter the final amount of your contract. You cannot enter Time and Materials on an Affidavit of Wages Paid.</p>
5	<p>EHB 2805 (RCW 39.04.370) - F700-164-000 is an addendum to your Affidavit of Wages Paid Form. RCW 39.04.370 requires you to complete form F700-164-000 for contracts entered into between September 1, 2010 and December 31, 2013 if the Prime's contract is at a cost of over one million dollars (\$1,000,000). If you fail to properly provide the requested information more than one time between September 1, 2010 and December 31, 2013, pursuant to RCW 39.04.350(1)(f) you will not be considered a responsible bidder qualified to be awarded a public works project. Use as many of these forms as you need in order to provide the requested information for all relevant project items. This is an addendum to form F700-007-000.</p>
6	<p>ARRA & Weatherization Funding Questions – Enter the information regarding the source of funds. This information should be obtained from the Awarding Agency or the Prime Contractor.</p> <p>a) Does this project utilize American Recovery and Reinvestment Act (ARRA) funds?</p> <p>b) Does this project utilize any weatherization or energy efficiency upgrade funds (ARRA or otherwise)?</p>
7	<p>Prime Contractor's Company Information – Enter information about the contractor who has the direct contract with the Awarding Agency:</p> <p>a) Prime Contractor's Company Name – Enter the Prime Contractor's company name.</p> <p>b) Prime Contractor's Registration Number – Enter the Contractor Registration Number for the Prime Contractor. You can verify the number at: https://fortress.wa.gov/lni/bbip/Search.aspx.</p> <p>c) Prime Contractor's UBI Number – Enter the UBI number for the Prime Contractor. You can verify this number at: https://fortress.wa.gov/dol/dolprod/bpdLicenseQuery/.</p>
8	<p>Hiring Contractor's Company Information – Enter the information about the Hiring Contractor. This is the contractor who hired or contracted your firm to perform work on this project:</p> <p>a) Hiring Contractor's Company Name – Enter the name of the contractor who hired or contracted your firm to perform work on this project.</p> <p>b) Hiring Contractor's Registration Number – Enter the Contractor Registration Number for the contractor who hired you. You can verify the number at: https://fortress.wa.gov/lni/bbip/Search.aspx.</p> <p>c) Hiring Contractor's UBI Number – Enter the UBI Number for the contractor who hired you. You can verify this number at: https://fortress.wa.gov/dol/dolprod/bpdLicenseQuery/.</p>

9	<p>Employment Information – Enter information about the individuals who performed work on this project:</p> <p>a) Did you use any subcontractors? - If PART of the work was performed by subcontractors you hired, check the “Yes” box and complete Addendum B.</p> <p>b) Did employees perform work on this project? - If employees, including apprentices, performed any work on the project, check the “Yes” box and list each employee’s applicable craft/trade/occupation. If you utilized apprentices on this project you must complete Addendum D.</p> <div style="border: 1px solid black; background-color: #90EE90; padding: 5px; text-align: center;"><p>NOTICE: If no employees performed work subject to Washington’s prevailing wage requirements, check no on this question, and your form may be submitted without payment. For more information, see our website at http://www.lni.wa.gov/TradesLicensing/PrevWage/IntentAffidavits/File/default.asp</p></div> <p>c) Was ALL work subcontracted? - If ALL work was performed by subcontractors, check the “Yes” box and complete Addendum B.</p> <p>d) Did you use apprentice employees? – If you used apprentices on this project please be aware:</p> <ol style="list-style-type: none">1. Any workers NOT registered with the Washington State Apprenticeship and Training Council (WSATC) must be paid the correct journey-level prevailing rate of wage.2. Any apprentice NOT registered with the WSATC within 60 days of hiring must be paid at the correct journey-level prevailing rate of wage for the time preceding the date of registration.3. You MUST be a registered training agent with the WSATC in order to pay a registered apprentice less than journey-level prevailing rate of wage.4. To verify apprenticeship and/or registered training agent status call (360) 902-5324. <p>e) Number of Owners/Operators who own at least 30% of the company who performed work on the project – Indicate the number of Owners/Operators who performed work on the project. If no 30%+ Owners/Operators performed work on the project, check the box “None”.</p>
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10

Crafts/Trades/Occupations and Apprentices – List the craft/trade/occupation of each worker, journey-level and apprentice, employed on this project.

❖ **Crafts/Trades/Occupations**

If you indicated above that Owners/Operators worked on this project, and you also indicated above that no employees performed work on the project, and that **ALL** work was subcontracted, then you do not need to fill in this section. Individuals who own less than 30% of the company are not considered Owner/Operators under RCW 39.12 and must be listed as employees and paid at least the prevailing rate of wage for the work performed

Use **Addendum A** for additional Crafts/Trades/Occupations that will not fit on this form.

Residential Construction - If you are using any residential classifications (e.g. Residential Carpenter, Residential Laborer, etc.) you must provide information regarding the following questions, on **Addendum C**, in order for L&I to determine if residential rates are being utilized appropriately:

1. Did the Awarding Agency, in compliance with RCW 39.12.030, determine that the project meets the definition of residential construction?
2. Please indicate the type of structure (e.g. single-family dwelling, duplex, apartment, condominium or other residential structure).
3. Including any basement or garage, how many stories or levels does the structure have?
4. What is the facility used for (answer "yes" or "no" to each of the following options)?:
 - a. Permanent residence only?
 - b. Rehabilitation house?
 - c. Transitional housing?
 - d. Communal dining facility?
 - e. Treatment services?
 - f. Counseling?
 - g. Other?
5. Does each dwelling unit have its own full, self-contained kitchen?
6. Does each dwelling unit have its own full bathroom?
7. Is there a community facility or manager's office on site?
8. Is any part of the facility used by members of the public?

Landscape Construction - If you are using "Landscape Construction" or any of the sub-classifications within Landscape Construction (e.g. Landscape or Planting Laborer, Irrigation or Lawn Sprinkler Installers, Landscape Equipment Operators or Truck Drivers) you must provide information regarding the following questions, on **Addendum C**, in order for L&I to determine if Landscape Construction rates are being utilized appropriately:

1. The beautification of a plot of land through addition of or modification to lawns, trees and bushes under the Landscape Construction Scope of work (WAC 296-127-01346) is a limited universe and has exclusions that may affect its application. Please provide L&I with more information so we can verify whether the landscape construction wage rates apply to this project.
 - a. Please describe the whole project – not just your part.
 - b. Please describe your part(s) of the project –the tasks you performed, equipment used, and tools used. Please provide as much detail as you can.
 - c. If the project involves installing an irrigation system, trenching, installing French drains or other subsurface water collection systems, or spreading top soil or mulch, please tell us the relevant depths.
2. If Equipment Operators and/or Truck Drivers were used, describe the type, and list the size or rated capacity of the equipment.

	<p>Crafts/Trades/Occupations and Apprentices (Cont.)</p> <p>Apprentices – If you employed apprentices on this project, list each apprentice by Name, Registration Number, Trade, the number of hours the individual had completed in the program when they started work (Beginning Hours) and ended work (Ending Hours) on the project, Beginning and Ending dates of work performed on this project, and Rate of Hourly Pay and Usual (“Fringe”) Benefits.</p> <ol style="list-style-type: none"> Any workers NOT registered with the Washington State Apprenticeship and Training Council (WSATC) must be paid the correct journey-level prevailing rate of wage. Any apprentice NOT registered with the WSATC within 60 days of hiring must be paid at the correct journey-level prevailing rate of wage for the time preceding the date of registration. You MUST be a registered training agent with the WSATC in order to pay a registered apprentice less than journey-level prevailing rate of wage. To verify apprenticeship and/or registered training agent status call (360) 902-5366.
11	Number of Workers – Enter the number of journey-level workers employed on this project for that craft/trade/occupation.
12	Total Number of Hours Worked – Enter the number of hours worked for that Craft/Trade/Occupation.
13	Rate of Hourly Pay – Enter the rate of hourly pay, as defined by RCW 39.12.010, that you actually paid the workers for that Craft/Trade/Occupation. The amount listed for “Rate of Hourly Pay” plus the amount listed for the “Rate of Hourly Fringe Benefits,” if any, must equal or exceed the applicable prevailing rate of wage.
14	Rate of Hourly Usual (“Fringe”) Benefits – Enter the rate of hourly fringe benefits for that Craft/Trade/Occupation. This is the cost of fringe benefits, as defined by RCW 39.12.010, that you actually paid to the workers. The amount listed for “Rate of Hourly Pay” plus the amount listed for “Rate of Hourly Usual (“Fringe”) Benefits,” if any, must equal or exceed the applicable prevailing rate of wage.

If there is not enough space to list all required information on one form, use the appropriate Addendum as needed. No additional fee is required for using Addendums to the form. No other attachments will be accepted.

L&I approval of your Affidavit of Wages Paid is based on the information you provide. Approval of the form does not signify that the classifications of labor you listed on the form are the correct classifications of work for the tasks performed on the public works project. It is your responsibility to pay workers the prevailing rate of wage for the classification of work that correctly applies to the actual work they perform.

Be sure to include your email address on the form. If you do not provide this information, L&I will use standard mail to send you correction notices. You will be able to access approved forms at: <https://fortress.wa.gov/lni/wagelockup/searchforms.aspx>

MAILING INSTRUCTIONS

You must mail the completed and signed form with **original signature** (a photocopy of a signature will **not** be accepted) with the \$40 filing fee, if applicable*, to:
Management Services
Department of Labor & Industries
Prevailing Wage Program
PO Box 44835
Olympia, WA 98504-4835

FURTHER INFORMATION

Make checks payable to:
Department of Labor and Industries
 If you have questions or would like assistance in completing the form, please call us at **(360) 902-5335** or email the Prevailing Wage office at pw1@lni.wa.gov.

Prevailing wage rates are available on the Internet at:
<http://www.lni.wa.gov/TradesLicensing/PrevWage/WageRates/default.asp>
(No notice of approval will be mailed).

REQUEST FOR RELEASE

Department of Labor and Industries
General Administration Building
Olympia, WA 98504

The undersigned Contractor requests that the property Owner/General Contractor be notified of their release from liability for industrial insurance premiums on the following work:

Name of Project _____ Contract No. _____

Location of Project _____

Description of Work _____

Amount of contract	Date Work Started	Date Work Completed	Property Owner/General Contractor

Address of Property Owner/General Contractor _____

Were Subcontractors Used?

Yes No

IF YES, ATTACH A LIST SHOWING NAME, ADDRESS, CURRENT CONTRACTOR REGISTRATION NO., INDUSTRIAL INSURANCE ACCOUNT NO., NATURE OF WORK PERFORMED, AND COMPLETION DATE. SUPPLIERS FOR MATERIALS ONLY ARE NOT TO BE INCLUDED.

This Request Submitted by <input type="checkbox"/> General Contractor <input type="checkbox"/> Subcontractor	Date	Industrial Insurance Account #
	Signed	
Name of Firm	Title	
Address		

ALL WORKER HOURS THROUGH THE COMPLETION DATE OF THIS PROJECT MUST HAVE BEEN REPORTED AND PREMIUM PAID THEREON BEFORE A RELEASE WILL BE ISSUED.

THIS FORM MUST BE COMPLETED AND ALL INFORMATION FURNISHED BY PARTY REQUESTING RELEASE. SEND TO DEPARTMENT OF LABOR AND INDUSTRIES, INDUSTRIAL INSURANCE DIVISION, CONTRACT COMPLIANCE UNIT, OLYMPIA, WA 98504.

Contract Documents.doc PW-3 of 3 216-1611-02

Benefit Code Key – Effective 3/3/2021 thru 8/31/2021

Overtime Codes

Overtime calculations are based on the hourly rate actually paid to the worker. On public works projects, the hourly rate must be not less than the prevailing rate of wage minus the hourly rate of the cost of fringe benefits actually provided for the worker.

1. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.
 - B. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - C. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - D. The first two (2) hours before or after a five-eight (8) hour workweek day or a four-ten (10) hour workweek day and the first eight (8) hours worked the next day after either workweek shall be paid at one and one-half times the hourly rate of wage. All additional hours worked and all worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - E. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - F. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours worked, except Labor Day, shall be paid at double the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.
 - G. The first ten (10) hours worked on Saturdays and the first ten (10) hours worked on a fifth calendar weekday in a four-ten hour schedule, shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day Monday through Saturday and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - H. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions or equipment breakdown) shall be paid at one and one-half times the hourly rate of wage. All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - I. All hours worked on Sundays and holidays shall also be paid at double the hourly rate of wage.
 - J. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked over ten (10) hours Monday through Saturday, Sundays and holidays shall be paid at double the hourly rate of wage.
 - K. All hours worked on Saturdays and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.
 - M. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - N. All hours worked on Saturdays (except makeup days) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

Overtime Codes Continued

1. O. The first ten (10) hours worked on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays, holidays and after twelve (12) hours, Monday through Friday and after ten (10) hours on Saturday shall be paid at double the hourly rate of wage.
- P. All hours worked on Saturdays (except makeup days if circumstances warrant) and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.
- Q. The first two (2) hours after eight (8) regular hours Monday through Friday and up to ten (10) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day Monday through Saturday and all hours worked on Sundays and holidays (except Christmas day) shall be paid at double the hourly rate of wage. All hours worked on Christmas day shall be paid at two and one-half times the hourly rate of wage.
- R. All hours worked on Sundays and holidays shall be paid at two times the hourly rate of wage.
- U. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays (except Labor Day) shall be paid at two times the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.
- V. All hours worked on Sundays and holidays (except Thanksgiving Day and Christmas day) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Thanksgiving Day and Christmas day shall be paid at double the hourly rate of wage.
- W. All hours worked on Saturdays and Sundays (except make-up days due to conditions beyond the control of the employer)) shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.
- X. The first four (4) hours after eight (8) regular hours Monday through Friday and the first twelve (12) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked over twelve (12) hours Monday through Saturday, Sundays and holidays shall be paid at double the hourly rate of wage. When holiday falls on Saturday or Sunday, the day before Saturday, Friday, and the day after Sunday, Monday, shall be considered the holiday and all work performed shall be paid at double the hourly rate of wage.
- Y. All hours worked outside the hours of 5:00 am and 5:00 pm (or such other hours as may be agreed upon by any employer and the employee) and all hours worked in excess of eight (8) hours per day (10 hours per day for a 4 x 10 workweek) and on Saturdays and holidays (except labor day) shall be paid at one and one-half times the hourly rate of wage. (except for employees who are absent from work without prior approval on a scheduled workday during the workweek shall be paid at the straight-time rate until they have worked 8 hours in a day (10 in a 4 x 10 workweek) or 40 hours during that workweek.) All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and Labor Day shall be paid at double the hourly rate of wage.
- Z. All hours worked on Saturdays and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid the straight time rate of pay in addition to holiday pay.

Overtime Codes Continued

2. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

- B. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage.
- F. The first eight (8) hours worked on holidays shall be paid at the straight hourly rate of wage in addition to the holiday pay. All hours worked in excess of eight (8) hours on holidays shall be paid at double the hourly rate of wage.
- M. This code appears to be missing. All hours worked on Saturdays, Sundays and holidays shall be paid at double the hourly rate of wage.
- O. All hours worked on Sundays and holidays shall be paid at one and one-half times the hourly rate of wage.
- R. All hours worked on Sundays and holidays and all hours worked over sixty (60) in one week shall be paid at double the hourly rate of wage.
- U. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked over 12 hours in a day or on Sundays and holidays shall be paid at double the hourly rate of wage.

3. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

- F. All hours worked on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sunday shall be paid at two times the hourly rate of wage. All hours worked on paid holidays shall be paid at two and one-half times the hourly rate of wage including holiday pay.
- H. All work performed on Sundays between March 16th and October 14th and all Holidays shall be compensated for at two (2) times the regular rate of pay. Work performed on Sundays between October 15th and March 15th shall be compensated at one and one half (1-1/2) times the regular rate of pay.
- J. All hours worked between the hours of 10:00 pm and 5:00 am, Monday through Friday, and all hours worked on Saturdays shall be paid at a one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- K. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage. All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more. When an employee returns to work without at least eight (8) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the eight (8) hours rest period.

4. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

- A. All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at double the hourly rate of wage. All hours worked on Saturdays, Sundays and holidays shall be paid at double the hourly rate of wage.

Overtime Codes Continued

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

D. All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at double the hourly rate of wage. All hours worked on Saturday, Sundays and holidays shall be paid at double the hourly rate of pay. Rates include all members of the assigned crew.

EXCEPTION:

On all multipole structures and steel transmission lines, switching stations, regulating, capacitor stations, generating plants, industrial plants, associated installations and substations, except those substations whose primary function is to feed a distribution system, will be paid overtime under the following rates:

The first two (2) hours after eight (8) regular hours Monday through Friday of overtime on a regular workday, shall be paid at one and one-half times the hourly rate of wage. All hours in excess of ten (10) hours will be at two (2) times the hourly rate of wage. The first eight (8) hours worked on Saturday will be paid at one and one-half (1-1/2) times the hourly rate of wage. All hours worked in excess of eight (8) hours on Saturday, and all hours worked on Sundays and holidays will be at the double the hourly rate of wage.

All overtime eligible hours performed on the above described work that is energized, shall be paid at the double the hourly rate of wage.

E. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

On a four-day, ten-hour weekly schedule, either Monday thru Thursday or Tuesday thru Friday schedule, all hours worked after ten shall be paid at double the hourly rate of wage. The Monday or Friday not utilized in the normal four-day, ten hour work week, and Saturday shall be paid at one and one half (1½) times the regular shift rate for the first eight (8) hours. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

G. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

H. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours worked, except Labor Day, and all hours on Sunday shall be paid at double the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.

I. The First eight (8) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of eight (8) per day on Saturdays shall be paid at double the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

Overtime Codes Continued

4. J. The first eight (8) hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of eight (8) hours on a Saturday shall be paid at double the hourly rate of wage. All hours worked over twelve (12) in a day, and all hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.
- K. All hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage, so long as Saturday is the sixth consecutive day worked. All hours worked over twelve (12) in a day Monday through Saturday, and all hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.
- L. The first twelve (12) hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on a Saturday in excess of twelve (12) hours shall be paid at double the hourly rate of pay. All hours worked over twelve (12) in a day Monday through Friday, and all hours worked on Sundays shall be paid at double the hourly rate of wage. All hours worked on a holiday shall be paid at one and one-half times the hourly rate of wage, except that all hours worked on Labor Day shall be paid at double the hourly rate of pay.
- U. The first four (4) hours after eight (8) regular hours Monday through Friday and the first twelve (12) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. (Except on makeup days if work is lost due to inclement weather, then the first eight (8) hours on Saturday may be paid the regular rate.) All hours worked over twelve (12) hours Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- V. Work performed in excess of ten (10) hours of straight time per day when four ten (10) hour shifts are established or outside the normal shift (5 am to 6pm), and all work on Saturdays, except for make-up days shall be paid at time and one-half (1 ½) the straight time rate.

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

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

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

- W. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

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

Overtime Codes Continued

4. X. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage. Work performed outside the normal shift of 6 am to 6pm shall be paid at one and one-half the straight time rate, (except for special shifts or three shift operations). All work performed on Sundays and holidays shall be paid at double the hourly rate of wage. Shifts may be established when considered necessary by the Employer.

The Employer may establish shifts consisting of eight (8) or ten (10) hours of work (subject to WAC 296-127-022), that shall constitute a normal forty (40) hour work week. The Employer can change from a 5-eight to a 4-ten hour schedule or back to the other. All hours of work on these shifts shall be paid for at the straight time hourly rate. Work performed in excess of eight hours (or ten hours per day (subject to WAC 296-127-022) shall be paid at one and one-half the straight time rate.

When due to conditions beyond the control of the Employer, or when contract specifications require that work can only be performed outside the regular day shift, then by mutual agreement a special shift may be worked at the straight time rate, eight (8) hours work for eight (8) hours pay. The starting time shall be arranged to fit such conditions of work.

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

- Y. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal shift, and all work on Saturdays shall be paid at time and one-half the straight time rate. All work performed after 6:00 pm Saturday to 6:00 am Monday and holidays shall be paid at double the straight time rate of pay.

Any shift starting between the hours of 6:00 pm and midnight shall receive an additional one dollar (\$1.00) per hour for all hours worked that shift.

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

- Z. All hours worked between the hours of 6:00 pm and 6:00 am, Monday through Saturday, shall be paid at a premium rate of 20% over the hourly rate of wage. Work performed on Sundays may be paid at double time. All hours worked on holidays shall be paid at double the hourly rate of wage.

11. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

- A. The first ten (10) hours worked on Saturday and all hours worked on holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked over twelve (12) hours Monday through Saturday, and all hours worked on Sundays shall be paid at double the hourly rate of wage.

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

Benefit Code Key – Effective 3/3/2021 thru 8/31/2021

Holiday Codes

- 5. A. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, and Christmas Day (7).
- B. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, the day before Christmas, and Christmas Day (8).
- C. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8).
- D. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8).
- H. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Day after Thanksgiving Day, And Christmas (6).
- I. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6).
- J. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, Friday after Thanksgiving Day, Christmas Eve Day, And Christmas Day (7).
- K. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday After Thanksgiving Day, The Day Before Christmas, And Christmas Day (9).
- L. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (8).
- N. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, The Friday After Thanksgiving Day, And Christmas Day (9).
- P. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday And Saturday After Thanksgiving Day, The Day Before Christmas, And Christmas Day (9). If A Holiday Falls On Sunday, The Following Monday Shall Be Considered As A Holiday.
- Q. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6).
- R. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Day After Thanksgiving Day, One-Half Day Before Christmas Day, And Christmas Day. (7 1/2).
- S. Paid Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, And Christmas Day (7).
- Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8).
- 6. G. Paid Holidays: New Year's Day, Martin Luther King Jr. Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and Christmas Eve Day (11).
- H. Paid Holidays: New Year's Day, New Year's Eve Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday After Thanksgiving Day, Christmas Day, The Day After Christmas, And A Floating Holiday (10).

Holiday Codes Continued

- T. Paid Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Last Working Day Before Christmas Day, And Christmas Day (9).
- Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (7). If a holiday falls on Saturday, the preceding Friday shall be considered as the holiday. If a holiday falls on Sunday, the following Monday shall be considered as the holiday.
- 7. A. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any Holiday Which Falls On A Sunday Shall Be Observed As A Holiday On The Following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.
- B. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- C. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- D. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8). Unpaid Holidays: President's Day. Any paid holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any paid holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- E. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- F. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the last working day before Christmas day and Christmas day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- G. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.
- H. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- I. Holidays: New Year's Day, President's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Day Before Christmas Day And Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

Holiday Codes Continued

7. J. Holidays: New Year's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- K. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- L. Holidays: New Year's Day, Memorial Day, Labor Day, Independence Day, Thanksgiving Day, the Last Work Day before Christmas Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- N. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. When Christmas falls on a Saturday, the preceding Friday shall be observed as a holiday.
- P. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.
- Q. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.
- S. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, Christmas Day, the Day after Christmas, and A Floating Holiday (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.
- V. Holidays: New Year's Day, President's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, the day before or after Christmas, and the day before or after New Year's Day. If any of the above listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.
- W. Holidays: New Year's Day, Day After New Year's, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Eve Day, Christmas Day, the day after Christmas, the day before New Year's Day, and a Floating Holiday.
- X. Holidays: New Year's Day, Day before or after New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and the day before or after Christmas day. If a holiday falls on a Saturday or on a Friday that is the normal day off, then the holiday will be taken on the last normal workday. If the holiday falls on a Monday that is the normal day off or on a Sunday, then the holiday will be taken on the next normal workday.
- Y. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day. (8) If the holiday falls on a Sunday, then the day observed by the federal government shall be considered a holiday and compensated accordingly.

Holiday Codes Continued

7. G. New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, the last scheduled workday before Christmas, and Christmas Day (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.
- H. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- I. Holidays: New Year's Day, President's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Day Before Christmas Day And Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- J. Holidays: New Year's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- K. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- L. Holidays: New Year's Day, Memorial Day, Labor Day, Independence Day, Thanksgiving Day, the Last Work Day before Christmas Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- N. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. When Christmas falls on a Saturday, the preceding Friday shall be observed as a holiday.
- P. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.
- Q. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.
- S. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, Christmas Day, the Day after Christmas, and A Floating Holiday (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.
- V. Holidays: New Year's Day, President's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, the day before or after Christmas, and the day before or after New Year's Day. If any of the above listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.

Holiday Codes Continued

7. W. Holidays: New Year's Day, Day After New Year's, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Eve Day, Christmas Day, the day after Christmas, the day before New Year's Day, and a Floating Holiday.
- X. Holidays: New Year's Day, Day before or after New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and the day before or after Christmas day. If a holiday falls on a Saturday or on a Friday that is the normal day off, then the holiday will be taken on the last normal workday. If the holiday falls on a Monday that is the normal day off or on a Sunday, then the holiday will be taken on the next normal workday.
- Y. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day. (8) If the holiday falls on a Sunday, then the day observed by the federal government shall be considered a holiday and compensated accordingly.
15. F. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, the last scheduled workday before Christmas, and Christmas Day (8). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.
- G. New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, the last scheduled workday before Christmas, and Christmas Day (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.

Note Codes

8. D. Workers working with supplied air on hazmat projects receive an additional \$1.00 per hour.
- L. Workers on hazmat projects receive additional hourly premiums as follows -Level A: \$0.75, Level B: \$0.50, And Level C: \$0.25.
- M. Workers on hazmat projects receive additional hourly premiums as follows: Levels A & B: \$1.00, Levels C & D: \$0.50.
- N. Workers on hazmat projects receive additional hourly premiums as follows -Level A: \$1.00, Level B: \$0.75, Level C: \$0.50, And Level D: \$0.25.
- S. Effective August 31, 2012 – A Traffic Control Supervisor shall be present on the project whenever flagging or spotting or other traffic control labor is being utilized. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. This classification is only effective on or after August 31, 2012.

Note Codes Continued

8. T. Effective August 31, 2012 – A Traffic Control Laborer performs the setup, maintenance and removal of all temporary traffic control devices and construction signs necessary to control vehicular, bicycle, and pedestrian traffic during construction operations. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. This classification is only effective on or after August 31, 2012.
- U. Workers on hazmat projects receive additional hourly premiums as follows – Class A Suit: \$2.00, Class B Suit: \$1.50, And Class C Suit: \$1.00. Workers performing underground work receive an additional \$0.40 per hour for any and all work performed underground, including operating, servicing and repairing of equipment. The premium for underground work shall be paid for the entire shift worked. Workers who work suspended by a rope or cable receive an additional \$0.50 per hour. The premium for work suspended shall be paid for the entire shift worked. Workers who do “pioneer” work (break open a cut, build road, etc.) more than one hundred fifty (150) feet above grade elevation receive an additional \$0.50 per hour.
- V. In addition to the hourly wage and fringe benefits, the following depth and enclosure premiums shall be paid. The premiums are to be calculated for the maximum depth and distance into an enclosure that a diver reaches in a day. The premiums are to be paid one time for the day and are not used in calculating overtime pay.
- Depth premiums apply to depths of fifty feet or more. Over 50' to 100' - \$2.00 per foot for each foot over 50 feet. Over 101' to 150' - \$3.00 per foot for each foot over 101 feet. Over 151' to 220' - \$4.00 per foot for each foot over 220 feet. Over 221' - \$5.00 per foot for each foot over 221 feet.
- Enclosure premiums apply when divers enter enclosures (such as pipes or tunnels) where there is no vertical ascent and is measured by the distance travelled from the entrance. 25' to 300' - \$1.00 per foot from entrance. 300' to 600' - \$1.50 per foot beginning at 300'. Over 600' - \$2.00 per foot beginning at 600'.
- W. Meter Installers work on single phase 120/240V self-contained residential meters. The Lineman/Groundmen rates would apply to meters not fitting this description.
- X. Workers on hazmat projects receive additional hourly premiums as follows - Class A Suit: \$2.00, Class B Suit: \$1.50, Class C Suit: \$1.00, and Class D Suit: \$0.50. Special Shift Premium: Basic hourly rate plus \$2.00 per hour.
- When due to conditions beyond the control of the Employer or when an owner (not acting as the contractor), a government agency or the contract specifications requires that work can only be performed outside the normal 5 am to 6pm shift, then the special shift premium will be applied to the basic hourly rate. When an employee works on a special shift, they shall be paid a special shift premium for each hour worked unless they are in OT or Double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)
- Y. Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay.
- Swinging Stage/Boatswains Chair: Employees working on a swinging state or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents (\$0.75) per hour above the classification rate.

Note Codes Continued

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

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

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

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

Certified Crane Operator Premium: Crane operators requiring certifications shall be paid \$0.50 per hour above their classification rate.

Boom Pay Premium: All cranes including tower shall be paid as follows based on boom length:

- (A) – 130' to 199' – \$0.50 per hour over their classification rate.
- (B) – 200' to 299' – \$0.80 per hour over their classification rate.
- (C) – 300' and over – \$1.00 per hour over their classification rate.

- B. The highest pressure registered on the gauge for an accumulated time of more than fifteen (15) minutes during the shift shall be used in determining the scale paid.

Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay. Swinging Stage/Boatswains Chair: Employees working on a swinging stage or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents (\$0.75) per hour above the classification rate.

- C. Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay. Swinging Stage/Boatswains Chair: Employees working on a swinging stage or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents (\$0.75) per hour above the classification rate.

Effective August 31, 2012 – A Traffic Control Supervisor shall be present on the project whenever flagging or spotting or other traffic control labor is being utilized. A Traffic Control Laborer performs the setup, maintenance and removal of all temporary traffic control devices and construction signs necessary to control vehicular, bicycle, and pedestrian traffic during construction operations. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. These classifications are only effective on or after August 31, 2012.

Note Codes Continued

9. D. Industrial Painter wages are required for painting within industrial facilities such as treatment plants, pipelines, towers, dams, bridges, power generation facilities and manufacturing facilities such as chemical plants, etc., or anywhere abrasive blasting is necessary to prepare surfaces, or hazardous materials encapsulation is required.
- E. Heavy Construction includes construction, repair, alteration or additions to the production, fabrication or manufacturing portions of industrial or manufacturing plants, hydroelectric or nuclear power plants and atomic reactor construction. Workers on hazmat projects receive additional hourly premiums as follows -Level A: \$1.00, Level B: \$0.75, Level C: \$0.50, And Level D: \$0.25.
- F. Industrial Painter wages are required for painting within industrial facilities such as treatment plants, pipelines, towers, dams, power generation facilities and manufacturing facilities such as chemical plants, etc., or anywhere abrasive blasting is necessary to prepare surfaces, or hazardous materials encapsulation is required.

State of Washington
Department of Labor & Industries
Prevailing Wage Section - Telephone 360-902-5335
PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Journey Level Prevailing Wage Rates for the Effective Date: 04/21/2021

<u>County</u>	<u>Trade</u>	<u>Job Classification</u>	<u>Wage</u>	<u>Holiday</u>	<u>Overtime</u>	<u>Note</u>	<u>*Risk Class</u>
Pierce	Asbestos Abatement Workers	Journey Level	\$52.39	5D	1H		View
Pierce	Boilermakers	Journey Level	\$70.79	5N	1C		View
Pierce	Brick Mason	Journey Level	\$60.57	7E	1N		View
Pierce	Brick Mason	Pointer-Caulker-Cleaner	\$60.57	7E	1N		View
Pierce	Building Service Employees	Janitor	\$20.69	5S	2F		View
Pierce	Building Service Employees	Traveling Waxer / Shampooer	\$21.24	5S	2F		View
Pierce	Building Service Employees	Window Cleaner (High Time)	\$28.74	5S	2F		View
Pierce	Building Service Employees	Window Cleaner (Non-High Time)	\$27.74	5S	2F		View
Pierce	Cabinet Makers (In Shop)	Journey Level	\$28.36		1		View
Pierce	Carpenters	Acoustical Worker	\$64.94	7A	4C		View
Pierce	Carpenters	Carpenter	\$64.94	7A	4C		View
Pierce	Carpenters	Carpenters on Stationary Tools	\$65.07	7A	4C		View
Pierce	Carpenters	Creosoted Material	\$65.07	7A	4C		View
Pierce	Carpenters	Floor Finisher	\$64.94	7A	4C		View
Pierce	Carpenters	Floor Layer	\$64.94	7A	4C		View
Pierce	Carpenters	Scaffold Erector	\$64.94	7A	4C		View
Pierce	Cement Masons	Application of all Composition Mastic	\$64.84	7A	4U		View
Pierce	Cement Masons	Application of all Epoxy Material	\$64.34	7A	4U		View
Pierce	Cement Masons	Application of all Plastic Material	\$64.84	7A	4U		View
Pierce	Cement Masons	Application of Sealing Compound	\$64.34	7A	4U		View
Pierce	Cement Masons	Application of Underlayment	\$64.84	7A	4U		View
Pierce	Cement Masons	Building General	\$64.34	7A	4U		View
Pierce	Cement Masons	Composition or Kalman Floors	\$64.84	7A	4U		View
Pierce	Cement Masons	Concrete Paving	\$64.34	7A	4U		View
Pierce	Cement Masons	Curb & Gutter Machine	\$64.84	7A	4U		View
Pierce	Cement Masons	Curb & Gutter, Sidewalks	\$64.34	7A	4U		View

Pierce	Cement Masons	Curing Concrete	\$64.34	7A	4U		View
Pierce	Cement Masons	Finish Colored Concrete	\$64.84	7A	4U		View
Pierce	Cement Masons	Floor Grinding	\$64.84	7A	4U		View
Pierce	Cement Masons	Floor Grinding/Polisher	\$64.34	7A	4U		View
Pierce	Cement Masons	Green Concrete Saw, self-powered	\$64.84	7A	4U		View
Pierce	Cement Masons	Grouting of all Plates	\$64.34	7A	4U		View
Pierce	Cement Masons	Grouting of all Tilt-up Panels	\$64.34	7A	4U		View
Pierce	Cement Masons	Guniting Nozzlemans	\$64.84	7A	4U		View
Pierce	Cement Masons	Hand Powered Grinder	\$64.84	7A	4U		View
Pierce	Cement Masons	Journey Level	\$64.34	7A	4U		View
Pierce	Cement Masons	Patching Concrete	\$64.34	7A	4U		View
Pierce	Cement Masons	Pneumatic Power Tools	\$64.84	7A	4U		View
Pierce	Cement Masons	Power Chipping & Brushing	\$64.84	7A	4U		View
Pierce	Cement Masons	Sand Blasting Architectural Finish	\$64.84	7A	4U		View
Pierce	Cement Masons	Screed & Rodding Machine	\$64.84	7A	4U		View
Pierce	Cement Masons	Spackling or Skim Coat Concrete	\$64.34	7A	4U		View
Pierce	Cement Masons	Troweling Machine Operator	\$64.84	7A	4U		View
Pierce	Cement Masons	Troweling Machine Operator on Colored Slabs	\$64.84	7A	4U		View
Pierce	Cement Masons	Tunnel Workers	\$64.84	7A	4U		View
Pierce	Divers & Tenders	Bell/Vehicle or Submersible Operator (Not Under Pressure)	\$118.80	7A	4C		View
Pierce	Divers & Tenders	Dive Supervisor/Master	\$81.98	7A	4C		View
Pierce	Divers & Tenders	Diver	\$118.80	7A	4C	8V	View
Pierce	Divers & Tenders	Diver On Standby	\$76.98	7A	4C		View
Pierce	Divers & Tenders	Diver Tender	\$69.91	7A	4C		View
Pierce	Divers & Tenders	Manifold Operator	\$69.91	7A	4C		View
Pierce	Divers & Tenders	Manifold Operator Mixed Gas	\$74.91	7A	4C		View
Pierce	Divers & Tenders	Remote Operated Vehicle Operator/Technician	\$69.91	7A	4C		View
Pierce	Divers & Tenders	Remote Operated Vehicle Tender	\$65.19	7A	4C		View
Pierce	Dredge Workers	Assistant Engineer	\$70.62	5D	3F		View
Pierce	Dredge Workers	Assistant Mate (Deckhand)	\$70.07	5D	3F		View
Pierce	Dredge Workers	Boatmen	\$70.62	5D	3F		View
Pierce	Dredge Workers	Engineer Welder	\$71.97	5D	3F		View
Pierce	Dredge Workers	Leverman, Hydraulic	\$73.41	5D	3F		View
Pierce	Dredge Workers	Mates	\$70.62	5D	3F		View
Pierce	Dredge Workers	Oiler	\$70.07	5D	3F		View
Pierce	Drywall Applicator	Journey Level	\$64.94	5D	1H		View
Pierce	Drywall Tapers	Journey Level	\$65.31	5P	1E		View
Pierce	Electrical Fixture Maintenance Workers	Journey Level	\$17.76		1		View
Pierce	Electricians - Inside	Cable Splicer	\$77.53	5C	1G		View
Pierce	Electricians - Inside	Journey Level	\$72.56	5C	1G		View

Pierce	Electricians - Inside	Lead Covered Cable Splicer	\$82.51	5C	1G		View
Pierce	Electricians - Inside	Welder	\$77.53	5C	1G		View
Pierce	Electricians - Motor Shop	Craftsman	\$15.37		1		View
Pierce	Electricians - Motor Shop	Journey Level	\$14.69		1		View
Pierce	Electricians - Powerline Construction	Cable Splicer	\$82.39	5A	4D		View
Pierce	Electricians - Powerline Construction	Certified Line Welder	\$75.64	5A	4D		View
Pierce	Electricians - Powerline Construction	Groundperson	\$49.17	5A	4D		View
Pierce	Electricians - Powerline Construction	Heavy Line Equipment Operator	\$75.64	5A	4D		View
Pierce	Electricians - Powerline Construction	Journey Level Lineperson	\$75.64	5A	4D		View
Pierce	Electricians - Powerline Construction	Line Equipment Operator	\$64.54	5A	4D		View
Pierce	Electricians - Powerline Construction	Meter Installer	\$49.17	5A	4D	8W	View
Pierce	Electricians - Powerline Construction	Pole Sprayer	\$75.64	5A	4D		View
Pierce	Electricians - Powerline Construction	Powderperson	\$56.49	5A	4D		View
Pierce	Electronic Technicians	Journey Level	\$46.47	6Z	1B		View
Pierce	Elevator Constructors	Mechanic	\$100.51	7D	4A		View
Pierce	Elevator Constructors	Mechanic In Charge	\$108.53	7D	4A		View
Pierce	Fabricated Precast Concrete Products	Journey Level	\$15.00		1		View
Pierce	Fence Erectors	Fence Erector	\$44.40	7A	4V	8Y	View
Pierce	Fence Erectors	Fence Laborer	\$44.40	7A	4V	8Y	View
Pierce	Flaggers	Journey Level	\$44.40	7A	4V	8Y	View
Pierce	Glaziers	Journey Level	\$69.26	7L	1Y		View
Pierce	Heat & Frost Insulators And Asbestos Workers	Journeyman	\$79.43	5J	4H		View
Pierce	Heating Equipment Mechanics	Journey Level	\$89.61	7F	1E		View
Pierce	Hod Carriers & Mason Tenders	Journey Level	\$54.01	7A	4V	8Y	View
Pierce	Industrial Power Vacuum Cleaner	Journey Level	\$13.69		1		View
Pierce	Inland Boatmen	Boat Operator	\$61.41	5B	1K		View
Pierce	Inland Boatmen	Cook	\$56.48	5B	1K		View
Pierce	Inland Boatmen	Deckhand	\$57.48	5B	1K		View
Pierce	Inland Boatmen	Deckhand Engineer	\$58.81	5B	1K		View
Pierce	Inland Boatmen	Launch Operator	\$58.89	5B	1K		View
Pierce	Inland Boatmen	Mate	\$57.31	5B	1K		View
Pierce	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Cleaner Operator, Foamer Operator	\$13.69		1		View
Pierce	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Grout Truck Operator	\$13.69		1		View
Pierce	Inspection/Cleaning/Sealing Of	Head Operator	\$13.69		1		View

	Sewer & Water Systems By Remote Control						
Pierce	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Technician	\$13.69		1		View
Pierce	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Tv Truck Operator	\$13.69		1		View
Pierce	Insulation Applicators	Journey Level	\$64.94	7A	4C		View
Pierce	Ironworkers	Journeyman	\$76.78	7N	10		View
Pierce	Laborers	Air, Gas Or Electric Vibrating Screed	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Airtrac Drill Operator	\$54.01	7A	4V	8Y	View
Pierce	Laborers	Ballast Regular Machine	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Batch Weighman	\$44.40	7A	4V	8Y	View
Pierce	Laborers	Brick Pavers	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Brush Cutter	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Brush Hog Feeder	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Burner	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Caisson Worker	\$54.01	7A	4V	8Y	View
Pierce	Laborers	Carpenter Tender	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Cement Dumper-paving	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Cement Finisher Tender	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Change House Or Dry Shack	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Chipping Gun (30 Lbs. And Over)	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Chipping Gun (Under 30 Lbs.)	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Choker Setter	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Chuck Tender	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Clary Power Spreader	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Clean-up Laborer	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Concrete Dumper/Chute Operator	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Concrete Form Stripper	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Concrete Placement Crew	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Concrete Saw Operator/Core Driller	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Crusher Feeder	\$44.40	7A	4V	8Y	View
Pierce	Laborers	Curing Laborer	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Demolition: Wrecking & Moving (Incl. Charred Material)	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Ditch Digger	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Diver	\$54.01	7A	4V	8Y	View
Pierce	Laborers	Drill Operator (Hydraulic, Diamond)	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Dry Stack Walls	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Dump Person	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Epoxy Technician	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Erosion Control Worker	\$52.39	7A	4V	8Y	View

Pierce	Laborers	Faller & Bucker Chain Saw	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Fine Graders	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Firewatch	\$44.40	7A	4V	8Y	View
Pierce	Laborers	Form Setter	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Gabian Basket Builders	\$52.39	7A	4V	8Y	View
Pierce	Laborers	General Laborer	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Grade Checker & Transit Person	\$54.01	7A	4V	8Y	View
Pierce	Laborers	Grinders	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Grout Machine Tender	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Groutmen (Pressure) Including Post Tension Beams	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Guardrail Erector	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Hazardous Waste Worker (Level A)	\$54.01	7A	4V	8Y	View
Pierce	Laborers	Hazardous Waste Worker (Level B)	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Hazardous Waste Worker (Level C)	\$52.39	7A	4V	8Y	View
Pierce	Laborers	High Scaler	\$54.01	7A	4V	8Y	View
Pierce	Laborers	Jackhammer	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Laserbeam Operator	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Maintenance Person	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Manhole Builder-Mudman	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Material Yard Person	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Motorman-Dinky Locomotive	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Nozzleman (Concrete Pump, Green Cutter When Using Combination Of High Pressure Air & Water On Concrete & Rock, Sandblast, Gunite, Shotcrete, Water Blaster, Vacuum Blaster)	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Pavement Breaker	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Pilot Car	\$44.40	7A	4V	8Y	View
Pierce	Laborers	Pipe Layer Lead	\$54.01	7A	4V	8Y	View
Pierce	Laborers	Pipe Layer/Tailor	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Pipe Pot Tender	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Pipe Reliner	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Pipe Wrapper	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Pot Tender	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Powderman	\$54.01	7A	4V	8Y	View
Pierce	Laborers	Powderman's Helper	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Power Jacks	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Railroad Spike Puller - Power	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Raker - Asphalt	\$54.01	7A	4V	8Y	View
Pierce	Laborers	Re-timberman	\$54.01	7A	4V	8Y	View
Pierce	Laborers	Remote Equipment Operator	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Rigger/Signal Person	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Rip Rap Person	\$52.39	7A	4V	8Y	View

Pierce	Laborers	Rivet Buster	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Rodder	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Scaffold Erector	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Scale Person	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Sloper (Over 20")	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Sloper Sprayer	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Spreader (Concrete)	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Stake Hopper	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Stock Piler	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Swinging Stage/Boatswain Chair	\$44.40	7A	4V	8Y	View
Pierce	Laborers	Tamper & Similar Electric, Air & Gas Operated Tools	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Tamper (Multiple & Self-propelled)	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Timber Person - Sewer (Lagger, Shorer & Cribber)	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Toolroom Person (at Jobsite)	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Topper	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Track Laborer	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Track Liner (Power)	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Traffic Control Laborer	\$47.48	7A	4V	9C	View
Pierce	Laborers	Traffic Control Supervisor	\$50.31	7A	4V	9C	View
Pierce	Laborers	Truck Spotter	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Tugger Operator	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Tunnel Work-Compressed Air Worker 0-30 psi	\$129.67	7A	4V	9B	View
Pierce	Laborers	Tunnel Work-Compressed Air Worker 30.01-44.00 psi	\$134.70	7A	4V	9B	View
Pierce	Laborers	Tunnel Work-Compressed Air Worker 44.01-54.00 psi	\$138.38	7A	4V	9B	View
Pierce	Laborers	Tunnel Work-Compressed Air Worker 54.01-60.00 psi	\$144.08	7A	4V	9B	View
Pierce	Laborers	Tunnel Work-Compressed Air Worker 60.01-64.00 psi	\$146.20	7A	4V	9B	View
Pierce	Laborers	Tunnel Work-Compressed Air Worker 64.01-68.00 psi	\$151.30	7A	4V	9B	View
Pierce	Laborers	Tunnel Work-Compressed Air Worker 68.01-70.00 psi	\$153.20	7A	4V	9B	View
Pierce	Laborers	Tunnel Work-Compressed Air Worker 70.01-72.00 psi	\$155.20	7A	4V	9B	View
Pierce	Laborers	Tunnel Work-Compressed Air Worker 72.01-74.00 psi	\$157.20	7A	4V	9B	View
Pierce	Laborers	Tunnel Work-Guage and Lock Tender	\$54.11	7A	4V	8Y	View
Pierce	Laborers	Tunnel Work-Miner	\$54.11	7A	4V	8Y	View
Pierce	Laborers	Vibrator	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Vinyl Seamer	\$52.39	7A	4V	8Y	View
Pierce	Laborers	Watchman	\$40.36	7A	4V	8Y	View
Pierce	Laborers	Welder	\$53.35	7A	4V	8Y	View

Pierce	Laborers	Well Point Laborer	\$53.35	7A	4V	8Y	View
Pierce	Laborers	Window Washer/Cleaner	\$40.36	7A	4V	8Y	View
Pierce	Laborers - Underground Sewer & Water	General Laborer & Topman	\$52.39	7A	4V	8Y	View
Pierce	Laborers - Underground Sewer & Water	Pipe Layer	\$53.35	7A	4V	8Y	View
Pierce	Landscape Construction	Landscape Construction/Landscaping Or Planting Laborers	\$40.36	7A	4V	8Y	View
Pierce	Landscape Construction	Landscape Operator	\$70.07	7A	3K	8X	View
Pierce	Landscape Maintenance	Groundskeeper	\$17.07		1		View
Pierce	Lathers	Journey Level	\$64.94	5D	1H		View
Pierce	Marble Setters	Journey Level	\$60.57	7E	1N		View
Pierce	Metal Fabrication (In Shop)	Fitter	\$15.25		1		View
Pierce	Metal Fabrication (In Shop)	Journey Level	\$36.54		1		View
Pierce	Metal Fabrication (In Shop)	Laborer	\$13.69		1		View
Pierce	Metal Fabrication (In Shop)	Machine Operator	\$13.98		1		View
Pierce	Metal Fabrication (In Shop)	Welder	\$13.98		1		View
Pierce	Millwright	Journey Level	\$66.44	7A	4C		View
Pierce	Modular Buildings	Journey Level	\$13.69		1		View
Pierce	Painters	Journey Level	\$45.40	6Z	2B		View
Pierce	Pile Driver	Crew Tender	\$69.91	7A	4C		View
Pierce	Pile Driver	Crew Tender/Technician	\$69.91	7A	4C		View
Pierce	Pile Driver	Hyperbaric Worker - Compressed Air Worker 0-30.00 PSI	\$80.76	7A	4C		View
Pierce	Pile Driver	Hyperbaric Worker - Compressed Air Worker 30.01 - 44.00 PSI	\$85.76	7A	4C		View
Pierce	Pile Driver	Hyperbaric Worker - Compressed Air Worker 44.01 - 54.00 PSI	\$89.76	7A	4C		View
Pierce	Pile Driver	Hyperbaric Worker - Compressed Air Worker 54.01 - 60.00 PSI	\$94.76	7A	4C		View
Pierce	Pile Driver	Hyperbaric Worker - Compressed Air Worker 60.01 - 64.00 PSI	\$97.26	7A	4C		View
Pierce	Pile Driver	Hyperbaric Worker - Compressed Air Worker 64.01 - 68.00 PSI	\$102.26	7A	4C		View
Pierce	Pile Driver	Hyperbaric Worker - Compressed Air Worker 68.01 - 70.00 PSI	\$104.26	7A	4C		View
Pierce	Pile Driver	Hyperbaric Worker - Compressed Air Worker 70.01 - 72.00 PSI	\$106.26	7A	4C		View
Pierce	Pile Driver	Hyperbaric Worker - Compressed Air Worker 72.01 - 74.00 PSI	\$108.26	7A	4C		View
Pierce	Pile Driver	Journey Level	\$65.19	7A	4C		View
Pierce	Plasterers	Journey Level	\$61.67	7Q	1R		View

Pierce	Playground & Park Equipment Installers	Journey Level	\$13.69		1		View
Pierce	Plumbers & Pipefitters	Journey Level	\$79.47	5A	1G		View
Pierce	Power Equipment Operators	Asphalt Plant Operator	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Assistant Engineer	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators	Barrier Machine (zipper)	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Batch Plant Operator: Concrete	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Bobcat	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Brokk - Remote Demolition Equipment	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Brooms	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Bump Cutter	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Cableways	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Chipper	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Compressor	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Concrete Pump: Truck Mount With Boom Attachment Over 42m	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Concrete Finish Machine -laser Screed	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Concrete Pump: Truck Mount With Boom Attachment Up To 42m	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Conveyors	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Cranes Friction: 200 tons and over	\$75.72	7A	3K	8X	View
Pierce	Power Equipment Operators	Cranes, A-frame: 10 tons and under	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators	Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)	\$74.22	7A	3K	8X	View
Pierce	Power Equipment Operators	Cranes: 20 tons through 44 tons with attachments	\$72.84	7A	3K	8X	View
Pierce	Power Equipment Operators	Cranes: 200 tons- 299 tons, or 250' of boom including jib with attachments	\$74.99	7A	3K	8X	View
Pierce	Power Equipment Operators	Cranes: 300 tons and over or 300' of boom including jib with attachments	\$75.72	7A	3K	8X	View
Pierce	Power Equipment Operators	Cranes: 45 tons through 99 tons, under 150' of boom(including jib with attachments)	\$73.49	7A	3K	8X	View
Pierce	Power Equipment Operators	Cranes: Friction cranes through 199 tons	\$74.99	7A	3K	8X	View
Pierce	Power Equipment Operators	Cranes: through 19 tons with attachments, A-frame over 10 tons	\$72.28	7A	3K	8X	View

Pierce	Power Equipment Operators	Crusher	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Deck Engineer/ deck Winches (power)	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Derricks: on building work	\$73.49	7A	3K	8X	View
Pierce	Power Equipment Operators	Dozers D-9 & Under	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Drill Oilers: Auger Type, Truck Or Crane Mount	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Drilling Machine	\$71.97	7A	3K	8X	View
Pierce	Power Equipment Operators	Elevator and man-lift: permanent and shaft type	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators	Finishing Machine, Bidwell And Gamaco & Similar Equipment	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Forklift: 3000 lbs and over with attachments	\$72.28	7A	3K	8X	View
Pierce	Power Equipment Operators	Forklifts: under 3000 lbs. with attachments	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators	Grade Engineer: Using Blueprints, Cut Sheets, etc.	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Gradechecker/stakeman	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Guardrail punch/Auger	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Hard Tail End Dump Articulating Off- Road Equipment 45 Yards. & Over	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Hard Tail End Dump Articulating Off-road Equipment Under 45 Yards	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Horizontal/directional Drill Locator	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Horizontal/directional Drill Operator	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Hydralifts/boom trucks: 10 tons and under	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators	Hydralifts/boom trucks: over 10 tons	\$72.28	7A	3K	8X	View
Pierce	Power Equipment Operators	Loader, Overhead 8 Yards. & Over	\$71.97	7A	3K	8X	View
Pierce	Power Equipment Operators	Loader, Overhead, 6 Yards. But Not Including 8 Yards	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Loaders, Overhead Under 6 Yards	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Loaders, Plant Feed	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Loaders: Elevating Type Belt	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Locomotives, All	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Material Transfer Device	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Mechanics: all (Leadmen - \$0.50 per hour over mechanic)	\$74.22	7A	3K	8X	View
Pierce	Power Equipment Operators	Motor patrol graders	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Oil Distributors, Blower	\$67.02	7A	3K	8X	View

		Distribution & Mulch Seeding Operator					
Pierce	Power Equipment Operators	Outside Hoists (elevators and manlifts), Air Tuggers, Strato	\$72.28	7A	3K	8X	View
Pierce	Power Equipment Operators	Overhead, bridge type Crane: 20 tons through 44 tons	\$72.84	7A	3K	8X	View
Pierce	Power Equipment Operators	Overhead, Bridge Type Crane: 20 Tons Through 44 Tons	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Overhead, bridge type: 100 tons and over	\$74.22	7A	3K	8X	View
Pierce	Power Equipment Operators	Overhead, bridge type: 45 tons through 99 tons	\$73.49	7A	3K	8X	View
Pierce	Power Equipment Operators	Pavement Breaker	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Pile Driver (other Than Crane Mount)	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Plant Oiler - Asphalt, Crusher	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Posthole Digger, Mechanical	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Power Plant	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Pumps - Water	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Quad 9, HD 41, D10 And Over	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Quick Tower: no cab, under 100 feet in height based to boom	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators	Remote Control Operator On Rubber Tired Earth Moving Equipment	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Rigger and Bellman	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators	Rigger/Signal Person, Bellman(Certified)	\$72.28	7A	3K	8X	View
Pierce	Power Equipment Operators	Rollagon	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Roller, Other Than Plant Mix	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Roller, Plant Mix Or Multi-lift Materials	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Roto-mill, Roto-grinder	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Saws - Concrete	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Scraper, Self Propelled Under 45 Yards	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Scrapers - Concrete & Carry All	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Scrapers, Self-propelled: 45 Yards And Over	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Service Engineers: equipment	\$72.28	7A	3K	8X	View
Pierce	Power Equipment Operators	Shotcrete/gunite Equipment	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Shovel, Excavator, Backhoe, Tractors Under 15 Metric Tons	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90	\$71.97	7A	3K	8X	View

		Metric Tons					
Pierce	Power Equipment Operators	Shovel, Excavator, Backhoes: Over 90 Metric Tons	\$72.69	7A	3K	8X	View
Pierce	Power Equipment Operators	Slipform Pavers	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Spreader, Topsider & Screedman	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Subgrader Trimmer	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Tower Bucket Elevators	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Tower Crane: over 175' through 250' in height, base to boom	\$74.99	7A	3K	8X	View
Pierce	Power Equipment Operators	Tower crane: up to 175' in height base to boom	\$74.22	7A	3K	8X	View
Pierce	Power Equipment Operators	Tower Cranes: over 250' in height from base to boom.	\$75.72	7A	3K	8X	View
Pierce	Power Equipment Operators	Transporters, All Track Or Truck Type	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators	Trenching Machines	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators	Truck Crane Oiler/Driver: 100 tons and over	\$72.84	7A	3K	8X	View
Pierce	Power Equipment Operators	Truck crane oiler/driver: under 100 tons	\$72.28	7A	3K	8X	View
Pierce	Power Equipment Operators	Truck Mount Portable Conveyor	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators	Welder	\$73.49	7A	3K	8X	View
Pierce	Power Equipment Operators	Wheel Tractors, Farmall Type	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators	Yo Yo Pay Dozer	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Asphalt Plant Operator	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Assistant Engineer	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Barrier Machine (zipper)	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Batch Plant Operator: Concrete	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Bobcat	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Brokk - Remote Demolition Equipment	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Brooms	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Bump Cutter	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Cableways	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Chipper	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Compressor	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Concrete Pump: Truck Mount With Boom Attachment Over 42m	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Concrete Finish Machine -laser Screed	\$67.02	7A	3K	8X	View

Pierce	Power Equipment Operators-Underground Sewer & Water	Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Concrete Pump: Truck Mount With Boom Attachment Up To 42m	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Conveyors	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Cranes Friction: 200 tons and over	\$75.72	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Cranes, A-frame: 10 tons and under	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)	\$74.22	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Cranes: 20 tons through 44 tons with attachments	\$72.84	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Cranes: 200 tons- 299 tons, or 250' of boom including jib with attachments	\$74.99	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Cranes: 300 tons and over or 300' of boom including jib with attachments	\$75.72	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Cranes: 45 tons through 99 tons, under 150' of boom(including jib with attachments)	\$73.49	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Cranes: Friction cranes through 199 tons	\$74.99	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Cranes: through 19 tons with attachments, A-frame over 10 tons	\$72.28	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Crusher	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Deck Engineer /deck Winches (power)	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Derricks: on building work	\$73.49	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Dozers D-9 & Under	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Drill Oilers: Auger Type, Truck Or Crane Mount	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Drilling Machine	\$71.97	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Elevator and man-lift: permanent and shaft type	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Finishing Machine, Bidwell And Gamaco & Similar Equipment	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Forklift: 3000 lbs and over with attachments	\$72.28	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Forklifts: under 3000 lbs. with attachments	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Grade Engineer: Using	\$70.62	7A	3K	8X	View

	Underground Sewer & Water	Blueprints, Cut Sheets,etc.					
Pierce	Power Equipment Operators-Underground Sewer & Water	Gradechecker/stakeman	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Guardrail punch/Auger	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Hard Tail End Dump Articulating Off- Road Equipment 45 Yards. & Over	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Hard Tail End Dump Articulating Off-road Equipment Under 45 Yards	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Horizontal/directional Drill Locator	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Horizontal/directional Drill Operator	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Hydralifts/boom trucks: 10 tons and under	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Hydralifts/boom trucks: over 10 tons	\$72.28	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Loader, Overhead 8 Yards. & Over	\$71.97	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Loader, Overhead, 6 Yards. But Not Including 8 Yards	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Loaders, Overhead Under 6 Yards	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Loaders, Plant Feed	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Loaders: Elevating Type Belt	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Locomotives, All	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Material Transfer Device	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Mechanics: all (Leadmen - \$0.50 per hour over mechanic)	\$74.22	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Motor patrol graders	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Oil Distributors, Blower Distribution & Mulch Seeding Operator	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Outside Hoists (elevators and manlifts), Air Tuggers, Strato	\$72.28	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Overhead, bridge type Crane: 20 tons through 44 tons	\$72.84	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Overhead, Bridge Type Crane: 20 Tons Through 44 Tons	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Overhead, bridge type: 100 tons and over	\$74.22	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Overhead, bridge type: 45 tons through 99 tons	\$73.49	7A	3K	8X	View

Pierce	Power Equipment Operators-Underground Sewer & Water	Pavement Breaker	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Pile Driver (other Than Crane Mount)	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Plant Oiler - Asphalt, Crusher	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Posthole Digger, Mechanical	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Power Plant	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Pumps - Water	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Quad 9, HD 41, D10 And Over	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Quick Tower: no cab, under 100 feet in height based to boom	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Remote Control Operator On Rubber Tired Earth Moving Equipment	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Rigger and Bellman	\$69.12	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Rigger/Signal Person, Bellman(Certified)	\$72.28	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Rollagon	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Roller, Other Than Plant Mix	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Roller, Plant Mix Or Multi-lift Materials	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Roto-mill, Roto-grinder	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Saws - Concrete	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Scraper, Self Propelled Under 45 Yards	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Scrapers - Concrete & Carry All	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Scrapers, Self-propelled: 45 Yards And Over	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Service Engineers: equipment	\$72.28	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Shotcrete/gunite Equipment	\$67.02	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoe, Tractors Under 15 Metric Tons	\$70.07	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons	\$71.24	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons	\$70.62	7A	3K	8X	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90	\$71.97	7A	3K	8X	View

		Metric Tons					
Pierce	Power Equipment Operators-Underground Sewer & Water	Slipform Pavers	\$71.24	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Spreader, Topsider & Screedman	\$71.24	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Subgrader Trimmer	\$70.62	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Tower Bucket Elevators	\$70.07	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Tower Crane: over 175' through 250' in height, base to boom	\$74.99	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Tower crane: up to 175' in height base to boom	\$74.22	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Tower Cranes: over 250' in height from base to boom.	\$75.72	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Transporters, All Track Or Truck Type	\$71.24	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Trenching Machines	\$70.07	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Truck Crane Oiler/Driver: 100 tons and over	\$72.84	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Truck crane oiler/driver: under 100 tons	\$72.28	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Truck Mount Portable Conveyor	\$70.62	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Welder	\$73.49	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Wheel Tractors, Farmall Type	\$67.02	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Equipment Operators-Underground Sewer & Water	Yo Yo Pay Dozer	\$70.62	<u>7A</u>	<u>3K</u>	<u>8X</u>	View
Pierce	Power Line Clearance Tree Trimmers	Journey Level In Charge	\$55.03	<u>5A</u>	<u>4A</u>		View
Pierce	Power Line Clearance Tree Trimmers	Spray Person	\$52.24	<u>5A</u>	<u>4A</u>		View
Pierce	Power Line Clearance Tree Trimmers	Tree Equipment Operator	\$55.03	<u>5A</u>	<u>4A</u>		View
Pierce	Power Line Clearance Tree Trimmers	Tree Trimmer	\$49.21	<u>5A</u>	<u>4A</u>		View
Pierce	Power Line Clearance Tree Trimmers	Tree Trimmer Groundperson	\$37.47	<u>5A</u>	<u>4A</u>		View
Pierce	Refrigeration & Air Conditioning Mechanics	Journey Level	\$79.46	<u>5A</u>	<u>1G</u>		View
Pierce	Residential Brick Mason	Journey Level	\$27.02		<u>1</u>		View
Pierce	Residential Carpenters	Journey Level	\$48.17	<u>7A</u>	<u>4C</u>		View
Pierce	Residential Cement Masons	Journey Level	\$45.99		<u>1</u>		View
Pierce	Residential Drywall Applicators	Journey Level	\$64.94	<u>7A</u>	<u>4C</u>		View
Pierce	Residential Drywall Tapers	Journey Level	\$65.31	<u>5P</u>	<u>1E</u>		View
Pierce	Residential Electricians	Journey Level	\$44.11		<u>1</u>		View
Pierce	Residential Glaziers	Journey Level	\$69.26	<u>7L</u>	<u>1Y</u>		View
Pierce	Residential Insulation Applicators	Journey Level	\$24.52		<u>1</u>		View

Pierce	Residential Laborers	Journey Level	\$33.97		1	View
Pierce	Residential Marble Setters	Journey Level	\$29.29		1	View
Pierce	Residential Painters	Journey Level	\$45.40	6Z	2B	View
Pierce	Residential Plumbers & Pipefitters	Journey Level	\$79.47	5A	1G	View
Pierce	Residential Refrigeration & Air Conditioning Mechanics	Journey Level	\$79.47	5A	1G	View
Pierce	Residential Sheet Metal Workers	Journey Level	\$89.61	7F	1E	View
Pierce	Residential Soft Floor Layers	Journey Level	\$51.91	5A	3J	View
Pierce	Residential Sprinkler Fitters (Fire Protection)	Journey Level	\$53.04	5C	2R	View
Pierce	Residential Stone Masons	Journey Level	\$29.29		1	View
Pierce	Residential Terrazzo Workers	Journey Level	\$14.86		1	View
Pierce	Residential Terrazzo/Tile Finishers	Journey Level	\$21.96		1	View
Pierce	Residential Tile Setters	Journey Level	\$25.98		1	View
Pierce	Roofers	Journey Level	\$56.95	5A	2O	View
Pierce	Roofers	Using Irritable Bituminous Materials	\$59.95	5A	2O	View
Pierce	Sheet Metal Workers	Journey Level (Field or Shop)	\$89.61	7F	1E	View
Pierce	Shipbuilding & Ship Repair	New Construction Boilermaker	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Carpenter	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Crane Operator	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Electrician	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Heat & Frost Insulator	\$79.43	5J	4H	View
Pierce	Shipbuilding & Ship Repair	New Construction Laborer	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Machinist	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Operating Engineer	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Painter	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Pipefitter	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Rigger	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Sheet Metal	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Shipfitter	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Warehouse/Teamster	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	New Construction Welder / Burner	\$38.54	7V	1	View
Pierce	Shipbuilding & Ship Repair	Ship Repair Boilermaker	\$47.35	7X	4J	View
Pierce	Shipbuilding & Ship Repair	Ship Repair Carpenter	\$47.35	7X	4J	View
Pierce	Shipbuilding & Ship Repair	Ship Repair Crane Operator	\$45.06	7Y	4K	View
Pierce	Shipbuilding & Ship Repair	Ship Repair Electrician	\$47.42	7X	4J	View
Pierce	Shipbuilding & Ship Repair	Ship Repair Heat & Frost Insulator	\$79.43	5J	4H	View
Pierce	Shipbuilding & Ship Repair	Ship Repair Laborer	\$47.35	7X	4J	View
Pierce	Shipbuilding & Ship Repair	Ship Repair Machinist	\$47.35	7X	4J	View

Pierce	Shipbuilding & Ship Repair	Ship Repair Operating Engineer	\$45.06	7Y	4K		View
Pierce	Shipbuilding & Ship Repair	Ship Repair Painter	\$47.35	7X	4J		View
Pierce	Shipbuilding & Ship Repair	Ship Repair Pipefitter	\$47.35	7X	4J		View
Pierce	Shipbuilding & Ship Repair	Ship Repair Rigger	\$47.35	7X	4J		View
Pierce	Shipbuilding & Ship Repair	Ship Repair Sheet Metal	\$47.35	7X	4J		View
Pierce	Shipbuilding & Ship Repair	Ship Repair Shipwright	\$47.35	7X	4J		View
Pierce	Shipbuilding & Ship Repair	Ship Repair Warehouse / Teamster	\$45.06	7Y	4K		View
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Pierce	Sign Makers & Installers (Electrical)	Sign Maker	\$20.33		1		View
Pierce	Sign Makers & Installers (Non-Electrical)	Sign Installer	\$33.43		1		View
Pierce	Sign Makers & Installers (Non-Electrical)	Sign Maker	\$22.79		1		View
Pierce	Soft Floor Layers	Journey Level	\$51.91	5A	3J		View
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GENERAL CONDITIONS

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GENERAL CONDITIONS

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A. GENERAL PROVISIONS

1. Intent of Contract and Coordination of Contract Documents

The intent of the Contract is to prescribe a complete Work. Omissions from the Contract of details of Work that are necessary to carry out the intent of the Contract shall not relieve the Contractor from performing the omitted Work. The Contractor shall provide all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all Work for the items included in the Proposal.

The parts of the Contract complement each other in describing a complete Work. Any requirement in one part binds as if stated in all parts. The Contractor shall provide any Work or materials clearly implied in the Contract even if the Contract does not mention it specifically.

Any inconsistency in the Contract documents shall be resolved in the following order (from highest to lowest priority):

- Change Orders after they are Approved
- Addenda
- Contract
- Measurement and Payment
- Plans
- Standard Details
- Supplemental Provisions
- Technical Provisions
- Owner's Development Standards
- General Conditions
- Instructions to Bidders
- Reference Specifications
- Proposal
- Performance Bond

If any part of the Contract requires Work that does not include a description for how the Work is to be performed, the Work shall be performed in accordance with standard trade practice(s). For purposes of the Contract, a standard trade practice is one having such regularity of observance in the trade as to justify an expectation that it will be observed by the Contractor in doing the Work.

In case of any ambiguity or dispute over interpreting the Contract, the Engineer's decision will be final as provided in Section 13.

2. Definitions

Addendum

A written or graphic document, issued to all Bidders and identified as an Addendum prior to Bid opening, which modifies or supplements the Bid Documents and becomes a part of the Contract.

Auxiliary Lane

The part of the Roadway next to Traveled Ways for parking, speed changes, turning, weaving, truck climbing or for anything that adds to through traffic movement.

Award

The formal decision of the City to accept the lowest responsible and responsive Bidder for the Work.

Bid, Proposal

The offer of a Bidder on a properly completed Proposal Form to perform the Contract.

Bid Documents

The component parts of the proposed Contract which may include, but are not limited to, the Proposal Form, the Instructions to Bidders, the proposed Contract Provisions, the proposed Contract Plans, Addenda, and subsurface boring logs (if any).

Call for Bids (Advertisement for Bids)

The published public notice soliciting Proposals or Bids for Work stating, among other things, the time, place, and date for receiving and opening the Bids.

Completion Dates

Substantial Completion Date is the day the Engineer determines the City has full and unrestricted use and benefit of the facilities, both from the operational and safety standpoint, all the initial plantings are completed and only minor incidental work, replacement of temporary substitute facilities, plant establishment periods, or correction or repair remains for the Physical Completion of the total Contract.

Physical Completion Date is the day all of the Work is physically completed on the project. All documentation required by the Contract and required by law does not necessarily need to be furnished by the Contractor by this date.

Completion Date is the day all the Work specified in the Contract is completed and all the obligations of the Contractor under the Contract are fulfilled by the Contractor. All documentation required by the Contract and required by law must be furnished by the Contractor before establishment of this date.

Contract

The written agreement between the City and the Contractor. It describes, among other things:

1. What work will be done, and by when;
2. Who provides labor and materials; and
3. How Contractors will be paid.

The Contract includes the Contract (agreement) Form, Bidder's completed Proposal Form, Contract Provisions, Instructions to Bidders, Contract Plans, Standard Specifications, Standard Plans, Technical Provisions, Owner's Development Standards, General Conditions, Addenda, Reference Specifications, various certifications and affidavits, supplemental agreements, change orders, and subsurface boring logs (if any).

Contract Bond

The approved form of security furnished by the Contractor and the Contractor's Surety as required by the Contract, that guarantees performance of all the Work required by the Contract and payment to anyone who provides supplies or labor for the performance of the Work.

Contract Form (Agreement Form)

The form provided by the City that requires the authorized signatures of the Contractor and the City to result in formal execution of the Contract.

Contractor

The individual, partnership, firm, corporation, or joint venture, Contracting with the City to do prescribed Work.

Contract Plans

A publication addressing the Work required for an individual project. At the time of the call for Bids, the Contract Plans may include, but are not limited to, the following: a vicinity map, a summary of quantities, structure notes, signing information, traffic control plans, and detailed drawings; all for a specific individual project. At the time of the Contract execution date, the Contract Plans include any Addenda.

Contract Provisions

A publication addressing the Work required for an individual project. At the time of the call for Bids, the Contract Provisions may include, for a specific individual project, the amendments to the standard Specifications, the Special Provisions, a listing of the applicable Standard Plans, the prevailing minimum hourly wage rates, and an informational Proposal Form with the listing of Bid items. The proposed Contract Provisions may also include, for a specific individual project, the Required Contract Provisions Federal-aid Construction Contracts, and various required certifications or declarations. At the time of the Contract execution date, the Contract Provisions include the proposed Contract Provisions and include any Addenda, a copy of the Contract Form, and a copy of the Proposal Form with the Contract prices and extensions.

Engineer

The City's representative who administers the construction program for the City.

Frontage Road

A local street or road usually next to an arterial Highway that serves abutting property and adjacent areas and controls access.

Inspector

The Engineer's representative who inspects Contract performance in detail.

Laboratory

The laboratories of the City, or other laboratories the City authorizes to test Work, soils, and materials.

Plans

The Contract Plans or Standard Plans which show location, character, and dimensions of prescribed Work including layouts, profiles, cross-sections, and other details.

Proposal Form

The form provided to Bidders by the City for submittal of a Proposal or Bid to the City for a specific project. The form includes the item number, estimated plan quantity, and item description of the Bid items along with blank spaces to be completed by the Bidder for the unit prices, extensions, the total Bid amount, signatures, date, acknowledgment of Addenda, and the Bidder's address. The required certifications and declarations are part of the form.

Right of Way

Land, property, or property interest, usually in a strip, acquired for or devoted to transportation purposes.

Roadbed

The graded part of the Roadway within top and side slopes, prepared as a foundation for the pavement structure and Shoulders.

Roadway

The portion of the Right of Way within the outside limits of the side slopes.

Shoulder

The part of the Roadway next to the Traveled Way or Auxiliary Lanes. It provides lateral support of base and surface courses and is an emergency stopping area for vehicles.

Specifications

Provisions and requirements for the prescribed Work.

Standard Plans

A manual of specific plans or drawings adopted by the City which show frequently recurring components of Work that have been standardized for use.

Structures

Bridges, culverts, catch basins, drop inlets, retaining walls, cribbing, manholes, endwalls, buildings, service pipes, sewers, underdrains, foundation drains, and other features found during Work that the Contract may or may not classify as a Structure.

Subcontractor

An individual, partnership, firm, corporation, or joint venture who is sublet part of the Contract by the Contractor.

Subgrade

The top surface of the Roadbed on which subbase, base, surfacing, pavement, or layers of similar materials are placed.

Surety

A company that is bound with the Contractor to ensure performance of the Contract, payment of all obligations pertaining to the Work, and fulfillment of such other conditions as are specified in the Contract, Contract Bond, or otherwise required by law.

Titles (or Headings)

The titles or headings of the sections and subsections herein are intended for convenience of reference and shall not be considered as having any bearing on their interpretation.

Traveled Way

That part of the Roadway made for vehicle travel excluding Shoulders and Auxiliary Lanes.

Work

The provision of all labor, materials, tools, equipment, and everything needed to successfully complete a project according to the Contract.

Working Drawings

Shop drawings, shop plans, erection plans, falsework plans, framework plans, cofferdam, cribbing and shoring plans, bending diagrams for reinforcing steel, or any other supplementary plans or similar data, including a schedule of submittal dates for Working Drawings where specified, which the Contractor must submit to the Engineer for approval.

3. Abbreviations

Whenever the following abbreviations are used on the plans, specifications, proposals and contracts, they shall be construed to mean the words and terms as listed below:

AAA	American Arbitration Association
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AGC	Associated General Contractors of America
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMS	Aerospace Material Specification
ANLA	American Nursery and Landscape Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ARA	American Railway Association
AREMA	American Railway Engineering and Maintenance Association
ARTBA	American Road & Transportation Builders Association
ASA	American Standards Association
ASCE	American Society of Civil Engineers

ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASNT	American Society for Nondestructive Testing
ASTM	American Society for Testing and Materials International
AWPA	American Wood Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
CFR	Code of Federal Regulations
CLI	Chain Link Institute
CRAB	County Road Administration Board
CRSI	Concrete Reinforcing Steel Institute
DIPRA	Ductile Iron Pipe Research Association
EEI	Edison Electric Institute
EPA	Environmental Protection Agency
ESAL	Equivalent Single Axle Loads
FHWA	Federal Highway Administration
FOP	Field Operating Procedure
FSS	Federal Specifications and Standards, General Services Administration
HUD	United States Department of Housing and Urban Development
ICEA	Insulated Cable Engineers Association
IEEE	Institute of Electrical and Electronics Engineers
ITE	Institute of Transportation Engineers
IES	Illumination Engineering Society
IMSA	International Municipal Signal Association
LID	Local Improvement District
LPI	Lighting Protection Institute
MSHA	Mine Safety and Health Act
MUTCD	Manual on Uniform Traffic Control Devices
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NRMCA	National Ready Mix Concrete Association
OMWBE	Office of Minority and Women's Business Enterprises
OSHA	Occupational Safety and Health Administration

PCA	Portland Cement Association
PPI	Plastic Pipe Institute
P/PCI	Precast/Prestressed Concrete Institute
QPL	Qualified Products List
RAM	Request for Approval of Material
RCW	Revised Code of Washington (Laws of the State)
RID	Road Improvement District
SAE	Society of Automotive Engineers
SEPA	State Environmental Policy Act
SOP	Standard Operating Procedure
SSPC	Steel Structures Painting Council
TIB	Transportation Improvement Board
UL	Underwriters Laboratories
ULID	Utility Local Improvement District
UMTA	Urban Mass Transit Administration
WAC	Washington Administrative Code
WAQTC	Western Alliance for Quality Transportation Construction
WCLIB	West Coast Lumber Inspection Bureau
WISHA	Washington Industrial Safety and Health Administration
WRI	Wire Reinforcement Institute
WSDOE	Washington State Department of Ecology
WSDOT	Washington State Department of Transportation
WWPA	Western Wood Products Association

4. Insurance

The Contractor shall procure and maintain for the duration of the Agreement, insurance against claims for injuries to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Contractor, their agents, representatives, employees or subcontractors.

No Limitation

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 City's recourse to any remedy available at law or in equity.

A. Minimum Scope of Insurance

Contractor shall obtain insurance of the types described below:

1. Automobile Liability insurance covering all owned, non-owned, hired and leased vehicles. Coverage shall be written on Insurance Services Office (ISO) form CA 00 01 or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage.

2. Commercial General Liability insurance shall be written on ISO occurrence form CG 00 01 and shall cover liability arising from premises, operations, independent contractors, products-completed operations, stop gap liability, personal injury and advertising injury, and liability assumed under an insured contract. The Commercial General Liability insurance shall be endorsed to provide the Aggregate Per Project Endorsement ISO form CG 25 03 11 85 or an equivalent endorsement. There shall be no endorsement or modification of the Commercial General Liability Insurance for liability arising from explosion, collapse or underground property damage. The City shall be named as an insured under the Contractor's Commercial General Liability insurance policy with respect to the work performed for the City 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 equivalent coverage.

3. Workers' Compensation coverage as required by the Industrial Insurance laws of the State of Washington.

B. Minimum Amounts of Insurance

Contractor shall maintain the following insurance limits:

1. Automobile Liability insurance with a minimum combined single limit for bodily injury and property damage of \$1,000,000 per accident.

2. Commercial General Liability insurance shall be written with limits no less than \$1,000,000 each occurrence, \$2,000,000 general aggregate and \$2,000,000 products completed operations aggregate limit.

C. Other Insurance Provision

The Contractor's Automobile Liability and Commercial General Liability insurance policies are to contain, or be endorsed to contain that they shall be primary insurance as respect the City. Any insurance, self-insurance, or insurance pool coverage maintained by the City shall be excess of the Contractor's insurance and shall not contribute with it.

D. Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best rating of not less than A: VII.

E. Verification of Coverage

Contractor shall furnish the City with original certificates and a copy of the amendatory endorsements, including but not necessarily limited to the additional insured endorsement, evidencing the insurance requirements of the Contractor before commencement of the work.

F. Subcontractors

The Contractor shall have sole responsibility for determining the insurance coverage and limits required, if any, to be obtained by subcontractors, which determination shall be made in accordance with reasonable and prudent business practices.

G. Notice of Cancellation

The Contractor shall provide the City and all Additional Insureds for this work with written notice of any policy cancellation, within two business days of their receipt of such notice.

H. 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 City 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 City on demand, or at the sole discretion of the City, offset against funds due the Contractor from the City.

5. Indemnification/ Hold Harmless

Contractor shall defend, indemnify and hold the City, its officers, officials, employees and volunteers harmless from any and all claims, injuries, damages, losses or suits including attorney fees arising out of or resulting from the negligent acts, errors or omissions of the Contractor in performance of this Agreement, except for injuries and damages caused by the sole negligence of the City. 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 City, its officers, officials, employees, and volunteers, the Contractor's liability, including the duty and cost to defend, 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.

6. Washington State Sales Tax

The Contractor shall include all Contractor-paid taxes in the unit Bid prices or other Contract amounts. The City will not adjust its payment if the Contractor bases a Bid on a misunderstood tax liability.

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

7. Independent Contractor Relationship

The parties intend that an independent Contractor/City relationship will be created by this Agreement. The City is interested primarily in the results to be achieved; subject to paragraphs herein, the implementation of work and/or services will lie solely with the discretion of the Contractor. No agent, employee, servant or representative of the Contractor shall be deemed to be an employee, agent, servant or representative of the City for any purpose, and the employees of the Contractor are not entitled to any of the benefits the City provides for its employees. The Contractor will be solely and entirely responsible for its acts and for the acts of its agents, employees, servants, subcontractors or representatives during the performance of this Agreement.

In the performance of the work herein contemplated the Contractor is an independent contractor with the authority to control and direct the performance of the details of the work, however, the results of the work contemplated herein must meet the approval of the City and shall be subject to the City's general rights of inspection and review to secure the satisfactory completion thereof.

8. Compliance with Laws

The Contractor shall always comply with all Federal, State, tribal or local laws, ordinances, and regulations that affect Work under the Contract. The Contractor shall indemnify, defend, and hold harmless the City against any claims that may arise because the Contractor (or any employee of the Contractor or Subcontractor or material person) violated a legal requirement.

The Contractor shall be responsible to immediately report to the Engineer any deviation from the contract provisions pertaining to environmental compliance, including but not limited to spills, unauthorized fill in waters of the State including wetlands, water quality standards, noise, air quality, etc.

The Contractor shall be responsible for the safety of all workers and shall comply with all appropriate state safety and health standards, codes, rules, and regulations, including, but not

limited to, those promulgated under the Washington Industry Safety and Health Act RCW Chapter 49.17 (WISHA) and as set forth in Title 296 WAC (Department of Labor and Industries). The Contractor shall likewise be obligated to comply with all federal safety and health standards, codes, rules, and regulations that may be applicable to the Contract Work.

Without usurping the authority of other agencies, the City will cooperate with them in their efforts to enforce legal requirements. Upon awareness of a violation of a legal requirement, the Engineer will notify the Contractor in an effort to achieve compliance. The Engineer may also notify the agency responsible for enforcement if the Engineer deems that action is necessary to achieve compliance with legal requirements. The Engineer will also assist the enforcement agency to obtain Contractor compliance to the extent such assistance is consistent with the provisions of the Contract.

Under certain conditions, the City will adjust payment to compensate for tax changes. First, the changes shall involve federal or state taxes on materials or fuel used in or consumed for the project. Second, the changes shall increase or decrease Contractor-paid taxes by more than \$500. For items in the original Contract, the tax change must occur after the Bid opening date. For negotiated Contracts or items in a supplemental agreement, the tax change must take place after the execution date of the Contract or agreement. Within these conditions, the City will adjust compensation by the actual dollar amounts of increase or decrease caused by the tax changes. If the Engineer requests it, the Contractor shall certify in writing that the Contract price does not include any extra amount to cover a possible change in taxes.

The City may audit the records of the Contractor to verify any claim for compensation because of changes in laws or taxes.

B. Bidding and Award of Contract

9. Bidder Qualifications – Previous Experience

To be considered qualified, the Bidder itself must have successfully completed at least three interior and exterior coatings of existing steel reservoirs including full containment and removal of existing coating in the last five years.

10. Examination of Site of Work – Differing Site Conditions

The Contractor shall examine the site of work prior to submitting the bid. During the progress of the Work, if preexisting subsurface or latent physical conditions are encountered at the site, differing materially from those indicated in the Contract, or if preexisting unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the Work provided for in the Contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of

the specific differing site conditions before they are disturbed and before the affected Work is performed.

Upon written notification, the Engineer will investigate the conditions and if he/she determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any Work under the Contract, an adjustment, excluding loss of anticipated profits, will be made and the Contract modified in writing accordingly. The Engineer will notify the Contractor of his/her determination whether or not an adjustment of the Contract is warranted.

No Contract adjustment which results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.

The equitable adjustment will be by agreement with the Contractor. However, if the parties are unable to agree, the Engineer will determine the amount of the equitable adjustment.

If the Engineer determines that different site conditions do not exist and no adjustment in costs or time is warranted, such determination shall be final.

If there is a decrease in the costs or time required to perform the Work, failure of the Contractor to notify the Engineer of the differing site conditions shall not affect the City's right to make an adjustment in the costs or time.

No claim by the Contractor shall be allowed unless the Contractor has followed the procedures provided in Sections 46 and 47.

11. Plans and Specifications – Omissions and Discrepancies

The Contractor shall carefully study and compare all drawings, specifications and other instructions, and shall, prior to ordering material or performing work, report in writing to the Engineer any error, inconsistency or omission in respect to design, mode of construction or cost which he or she may discover. If the Contractor, in the course of this study or in the accomplishment of the work, finds any discrepancy between the drawings and the physical condition of the locality as represented in the drawings, or any such errors or omissions in respect to design, mode of construction or cost in drawings or in the layout given by points and instructions, it shall be the Contractor's duty to inform the Engineer immediately in writing and the Engineer shall promptly check the same. Any work done after such discovery, until correction of drawings or authorization of extra work is given, if the Engineer finds that extra work is involved, will be done at the Contractor's risk. If extra work is involved, the procedure shall be as provided in changes in the work.

12. Pre-construction Conference

A Pre-construction Conference shall be held at a time and place fixed by the Engineer after receipt of documents required to follow with the Notice to Award. The Contractor must be prepared for a thorough discussion and review, as well as revision which may be deemed necessary in the opinion of the Engineer, of the following:

- Progress Schedule
- Materials List
- Product Data
- Equipment List
- Job Procedures
- Inspection Procedures
- Plans and Specifications
- Shop Drawings
- Supplemental Drawings
- Schedule of Value of Lump Sum Work
- Subcontractor Lists
- Other Matters Pertaining to Performance of the Work

The Contractor shall file a material and equipment list with the Engineer prior to the Pre-construction Conference. This list shall include the quantity, manufacturer, and model number, if applicable, of materials and equipment to be installed under the contract. This list will be checked by the Engineer as to conformity with the plans and specifications. The Engineer will pass upon the lists with reasonable promptness, making required corrections. The Contractor shall make any required corrections and file two (2) corrected copies with the Engineer within one week after receipt of the required corrections. The Engineer's review and acceptance of the lists shall not relieve the Contractor from responsibility for suitability for the intended purpose nor for deviations from the drawings and specifications unless the Contractor has in writing called the Engineer's attention to such deviations at the time of submittal, and secured the Engineer's written approval for such deviation.

13. Commencement and Prosecution of Work

No Work shall be performed until after the Contractor's receipt of the Notice to Proceed.

The Contractor shall begin Work within 21-calendar days from the date of execution of the Contract by the City, unless otherwise approved in writing. The Contractor shall diligently pursue the Work to the Physical Completion Date within the time specified in the Contract. Voluntary shutdown or slowing of operations by the Contractor shall not relieve the Contractor of the responsibility to complete the Work within the time(s) specified in the Contract.

C. Scope and Responsibility for Work

14. Status of Engineer

The Contract and Specifications give the Engineer authority over the Work. Whenever it is so provided in this Contract, the decision of the Engineer shall be final: provided, however, that if an action is brought within the time allowed in this Contract challenging the Engineer's decision, that decision shall be subject to the scope of judicial review provided in such cases under Washington case law.

The Engineer's decisions will be final on all questions including, but not limited to, the following:

1. Quality and acceptability of materials and Work,
2. Measurement of unit price Work,
3. Acceptability of rates of progress on the Work,
4. Interpretation of Plans and Specifications,
5. Determination as to the existence of changed or differing site conditions,
6. Fulfillment of the Contract by the Contractor,
7. Payments under the Contract including equitable adjustment,
8. Suspension(s) of Work,
9. Termination of the Contract,
10. Determination as to unworkable days, and
11. Approval of Working Drawings.

If the Contractor fails to respond promptly to the requirements of the Contract or orders from the Engineer:

1. The Engineer may use City resources, other contractors, or other means to accomplish the Work, and
2. The City will not be obligated to pay the Contractor, and will deduct from the Contractor's payments any costs that result when any other means are used to carry out the Contract requirements or Engineer's orders.

Nothing in these Specifications or in the Contract requires the Engineer to provide the Contractor with direction or advice on how to do the Work. If the Engineer approves or recommends any method or manner for doing the Work or producing materials, the approval or recommendation shall not:

1. Guarantee that following the method or manner will result in compliance with the Contract,

2. Relieve the Contractor of any risks or obligations under the Contract, or
3. Create any City liability.

15. Inspections and Tests

The Engineer may inspect all Work and materials for conformity with Contract terms. To ensure the Engineer's safety and access during these inspections, the Contractor shall provide any equipment needed, such as walkways, railings, ladders, and platforms.

When the Engineer requests, the Contractor shall (without charge) provide samples of materials used or to be used in the Work. The Engineer may order the Contractor to remove and replace, and bear the cost of doing so, any materials used without inspection.

Any inspections, tests, measurements, or other actions by City employees serve only one purpose: to assure the Engineer that Work, materials, progress rate, and quantities comply with Contract terms. Such work by City employees shall not relieve the Contractor from doing any Contract-assigned Work or from determining whether Contract requirements are being met. The Contractor shall correct any substandard Work or materials. The Engineer will reject unsuitable Work or materials even though inspected or paid for in a progress estimate.

If the Engineer requests, the Contractor shall remove or uncover any area of the completed Work. After the Engineer inspects it, the Contractor shall restore the area to the standard the Contract requires. The Contractor shall bear the cost of uncovering, removing, and restoring the exposed Work: (a) if it proves unacceptable, or (b) if it was placed without authority or without due notice to the Engineer. The City will pay these costs by agreed price or by force account if the Work proves to be acceptable and the Contractor had performed the original Work with the authority of and due notice to the Engineer.

The Contractor, if advised to do so by the Engineer, shall permit representatives from other agencies to inspect the Work when it is to be done:

1. On any railroad, utility, or facility of a public agency; or
2. To the satisfaction of any federal, state, or municipal agency.

Should the Contractor elect to work more than eight (8) hours per day during the course of the stated Contract time limit, all costs of Engineering and inspection requiring during overtime will be charged to the Contractor, at two (2) times payroll costs. Such charges will be billed directly to the Contractor by the City. In the event the Contractor fails to pay said bill or bills by the 30th day of the month billed, the amount due may be deducted from any payment owed the Contractor or from any funds held in retainage. In addition to the above, where the inspector furnished for the project is an employee of the City, the Contractor shall reimburse the City at

two (2) times payroll costs for all inspection time required on holidays which are a part of the City's normal holiday schedule.

16. Time for Completion

The Contractor shall complete all physical Contract Work within the number of “working days” stated in the Contract Provisions or as extended by the Engineer in accordance with Section 48. Every day will be counted as a “working day” unless it is a nonworking day or an Engineer determined unworkable day. A nonworking day is defined as a Saturday, a Sunday, a whole or half day on which the Contract specifically prohibits Work on the critical path of the Contractor’s approved progress schedule, or one of these holidays: January 1, the third Monday of January, the third Monday of February, Memorial Day, July 4, Labor Day, November 11, Thanksgiving Day, the day after Thanksgiving, Christmas Eve, and Christmas Day. When any of these holidays fall on a Sunday, the following Monday shall be counted a nonworking day. When the holiday falls on a Saturday, the preceding Friday shall be counted a nonworking day. The days between December 25 and January 1 will be classified as nonworking days.

An unworkable day is defined as a half or whole day the Engineer declares to be unworkable because of weather or conditions caused by the weather that prevents satisfactory and timely performance of the Work shown on the critical path of the Contractor’s approved progress schedule. Other conditions beyond the control of the Contractor may qualify for an extension of time in accordance with Section 48.

Contract time shall begin on the first day of work as indicated on the Notice to Proceed. Each working day shall be charged to the Contract as it occurs, until the Contract Work is physically complete. If Substantial Completion has been granted and all the authorized working days have been used, charging of working days will cease. Each week the Engineer will provide the Contractor a statement that shows the number of working days: (1) charged to the Contract the week before; (2) specified for the Physical Completion of the Contract; and (3) remaining for the Physical Completion of the Contract. The statement will also show the nonworking days and any half or whole day the Engineer declares as unworkable. Within 10-calendar days after the date of each statement, the Contractor shall file a written protest of any alleged discrepancies in it. To be considered by the Engineer, the protest shall be in sufficient detail to enable the Engineer to ascertain the basis and amount of time disputed. By not filing such detailed protest in that period, the Contractor shall be deemed as having accepted the statement as correct.

The Engineer will give the Contractor written notice of the Physical Completion Date for all Work the Contract requires. That date shall constitute the Physical Completion Date of the Contract, but shall not imply the City’s acceptance of the Work or the Contract.

17. Progress Schedule

The Contractor shall submit Progress Schedules and Schedule Updates to the Engineer for approval. Schedules shall show Work that complies with all time and order of Work requirements in the Contract. The schedule may be a critical path method (CPM) schedule, bar chart, or other standard schedule format. Regardless of which format is used, the schedule shall identify the critical path. Schedules shall meet these General Requirements and provide the following information:

1. Include all activities necessary to physically complete the project.
2. Show the planned order of Work activities in a logical sequence.
3. Show durations of Work activities in working days.
4. Show activities in durations that are reasonable for the intended Work.
5. Define activity durations in sufficient detail to evaluate the progress of individual activities on a daily basis.
6. Show the Physical Completion of all Work within the authorized Contract time.

The City allocates its resources to a Contract based on the total time allowed in the Contract. The City may accept a Progress Schedule indicating an early Physical Completion Date but cannot guarantee the City's resources will be available to meet an accelerated schedule. No additional compensation will be allowed if the Contractor is not able to meet their accelerated schedule due to the unavailability of City's resources or for other reasons beyond the City's control.

If the Engineer determines that the Progress Schedule or any necessary Schedule Update does not provide the required information, then the schedule will be returned to the Contractor for correction and resubmittal.

The Engineer's approval of any schedule shall not transfer any of the Contractor's responsibilities to the City. The Contractor alone shall remain responsible for adjusting forces, equipment, and Work schedules to ensure completion of the Work within the time(s) specified in the Contract.

The Engineer may request a Schedule Update when any of the following events occur:

1. The project has experienced a change that affects the critical path.
2. The sequence of Work is changed from that in the approved schedule.

3. The project is significantly delayed.
4. Upon receiving an extension of Contract time.

18. Alternate Designs

The Contractor shall not deviate from the Plans and Specifications without written approval from the Engineer. In the event that the Contractor shall request, or submit, an alternate design, or designs for some portions of his work, the Engineer will consider such alternate designs with reasonable promptness. Such request for either a design review from alternate plans submitted by the Contractor, or request for a redesign initiated by the Contractor as set forth above shall be made in writing to the Engineer. When the Contractor submits plans for an alternate design it shall be in the form of reproducible drawings.

Provided that such proposed alternate design or requested redesign appears reasonable and satisfactory to the Engineer, the Engineer will perform an engineering review of the proposed alternate design or if requested by the Contractor, the Engineer will perform an engineering redesign of the work to assure its compatibility within the framework of the complete operating unit or system ready for use between the Contract limits.

The cost of engineering review of the proposed alternate, or the cost of an engineering redesign as requested by the Contractor will be billed to the Contractor by the Engineer at the rate of two times the Engineer's direct payroll costs, plus direct expenses directly attributable to the work.

19. Shop Drawings

To detail and illustrate the Work, the Engineer may furnish to the Contractor additional plans and explanations consistent with the original plans. The Contractor shall perform the Work according to these additional plans and explanations.

The Contractor shall submit supplemental Working Drawings as required for the performance of the Work. Except as noted, all drawings and other submittals shall be delivered directly to the Engineer. The drawings shall be provided far enough in advance of actual need to allow for the review process by the City or other agencies. This may involve resubmittals because of revisions or rejections. After a plan or drawing has been approved and returned to the Contractor, all changes that the Contractor proposes shall be submitted to the Engineer for review and approval.

The Contractor shall obtain the Engineer's written approval of the drawings before proceeding with the Work they represent. This approval shall neither confer upon the City nor relieve the Contractor of any responsibility for the accuracy of the drawings or their conformity with the Contract. The Contractor shall bear all risk and all costs of any Work delays caused by nonapproval of these drawings or plans.

Unit Bid prices shall cover all costs of Working Drawings.

20. Ownership of Drawings

All drawings, specifications and copies thereof prepared or furnished by the City are its property. They are not to be used on other work, and with the exception of the signed Contract set, are to be returned upon completion of the work.

21. Surveys, Permits, Points, and Instructions

The City shall furnish all property boundary surveys unless otherwise specified. Permits, permission under franchises, licenses and bonds of a temporary nature necessary for and during the prosecution of the work, and inspection fees in connection therewith, shall be secured and paid for by the Contractor. Where the City is required to secure such permits, permission under franchises, licenses and bonds and pay the fees, the costs will be incurred by the City. The following permits are anticipated to be needed for this project:

City provided:

- Clearing & Grading
- Critical Areas/Wetland Mitigation
- SEPA
- NPDS/Stormwater Review
- ROW – Water Main Connection

Contractor Provided, but not limited to:

- L&I
- Business License
- Haul Route and Traffic Control Plan
- Construction SWPP

The Contractor shall provide reasonable and necessary opportunities and facilities for setting points and making measurements by the Engineer as set forth in the special provisions. The Contractor shall not proceed with the work until timely demand in writing has been made upon the Engineer for, and the Contractor has received from the Engineer, such points and instructions. The work shall be done in strict conformity with such points and instructions.

Contractor shall preserve benchmarks, reference points and stakes, and, in case of destruction or removal thereof for any reason, Contractor is responsible for the resulting costs for replacement and shall be responsible for any mistakes and loss or damage arising therefrom which may be caused by the absence, destruction, removal or disturbance thereof.

22. Records Retention

A. The Contractor shall keep at least one copy of the of the plans and specifications constantly accessible at the construction site.

B. Where shop drawings or as-builts are required to be submitted for acceptance, one copy of the approved shop drawings and as-builts shall be kept constantly accessible at the construction site.

C. All records must be retained by the Contractor for a period of three years following acceptance of the Contract Work. All records shall be available at reasonable times and places for inspection by authorized representatives of the City.

23. Final Inspection and Acceptance

Prior to the City's contract acceptance, all materials and completed work are subject to final inspection by the Engineer. The Engineer will not make the final inspection until the physical Work required by the Contract, including final cleanup and all extra Work ordered by the Engineer, has been completed.

The Engineer may require and shall have the right to subject all machinery and equipment and work to such inspection, as in his/her opinion, will assist in determining whether the Contract has been performed in accordance with the Contract Documents. All such tests shall be at the expense of the Contractor. In addition, all easements shall be restored and signed releases secured from property owners shall be submitted to the Engineer by the Contractor.

Failure of the Contractor to perform all the obligations under the Contract shall not bar the City from unilaterally accepting the Contract as provided in Section 54. Progress estimates or payments shall not be construed as acceptance of any Work under the Contract.

The Contractor agrees that neither completion nor final acceptance shall relieve the Contractor of the responsibility to indemnify, defend, and protect the City against any claim or loss resulting from the failure of the Contractor (or the Subcontractors or lower tier subcontractors) to pay all laborers, mechanics, Subcontractors, materialpersons, or any other person who provides labor, supplies, or provisions for carrying out the Work or for any payments required for unemployment compensation under Title 50 RCW or for industrial insurance and medical aid required under Title 51 RCW.

Final acceptance shall not constitute acceptance of any unauthorized or defective work or material. The City shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized or defective work or material or from recovering damages for any such work or material.

The City shall have the right to take possession of and use completed or partially completed portions of the work, notwithstanding that the time may not have expired for completing the entire work. Such taking possession and use shall not be deemed to be completion of the Contract in respect to such work nor shall the same be deemed to be any acceptance of any work not completed in accordance with the Contract Documents.

24. Assignment and Subcontracting

The Contractor shall not assign all or any part of the Work unless the Engineer approves in writing. The Engineer will not approve any proposed assignment that would relieve the original Contractor or Surety of responsibility under the Contract.

Money due (or that will become due) to the Contractor may be assigned. If given written notice, the City will honor such an assignment to the extent the law permits. But the assignment shall be subject to all setoffs, withholdings, and deductions required by law and the Contract.

The Contractor shall not subcontract Work unless the Engineer approves in writing. Each request to subcontract shall be on the form the Engineer provides. If the Engineer requests, the Contractor shall provide proof that the Subcontractor has the experience, ability, and equipment the Work requires. The Contractor shall require each Subcontractor to comply with prevailing wage laws and to furnish all certificates and statements required by the Contract.

Prior to subcontracting any Work, the Contractor shall verify that every first tier Subcontractor meets the responsibility criteria stated below at the time of subcontract execution. The Contractor shall include these responsibility criteria in every subcontract, and require every Subcontractor to:

1. Possess any electrical contractor license required by 19.28 RCW or elevator contractor license required by 70.87 RCW, if applicable;
2. Have a certificate of registration in compliance with chapter 18.27 RCW;
3. Have a current State unified business identifier number;
4. If applicable, have
 - a. Industrial insurance coverage for the bidder's employees working in Washington (Title 51 RCW);
 - b. An employment security department number (Title 50 RCW);
 - c. A State excise tax registration number (Title 82 RCW);
5. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or RCW 39.12.065(3).
6. Verify these responsibility criteria for every lower tier subcontractor at the time of subcontract execution; and,

7. Include these responsibility criteria in every lower tier subcontract.

The Engineer will approve the request to subcontract only if satisfied with the proposed Subcontractor's record, equipment, experience, and ability. Approval to subcontract shall not:

1. Relieve the Contractor of any responsibility to carry out the Contract,
2. Relieve the Contractor of any obligations or liability under the Contract and the Contractor's bond,
3. Create any contract between the City and the Subcontractor, or
4. Convey to the Subcontractor any rights against the City.

If dissatisfied with any part of the subcontracted Work, the Engineer may request in writing that the Subcontractor be removed. The Contractor shall comply with this request at once and shall not employ the Subcontractor for any further Work under the Contract.

The Contractor will be solely responsible for any additional costs involved in paying retainage to the Subcontractors prior to total project completion. Those costs shall be incidental to the respective Bid items.

25. Work on City Streets

Following the procurement of a City of Bonney Lake (City) right-of-way permit, all Work shall be performed in compliance with said permit. Workers shall wear proper personal safety equipment, hardhats, fluorescent vests, etc., in accordance with City, WISHA and OSHA regulations.

26. Existing Utilities or Obstructions

The Contractor's work shall be confined to the City's premises, including easements and construction permit limits, whenever possible. The Contractor shall not enter upon or place materials on other property except by written consent of the individual owners, and shall defend, indemnify, and hold the City harmless from all suits and actions of every kind and description that might result from the Contractor's use of property other than that of the City.

The Contractor shall protect all private and public utilities from damage resulting from the Work. Among others, these utilities include: telephone, telegraph, and power lines; pipelines, sewer and water lines; railroad tracks and equipment; and highway lighting and signing systems, and intelligent transportation systems (ITS). All costs required to protect public and private utilities shall be at the Contractor's expense, except as provided otherwise in this section.

Chapter 19.122 of the Revised Code of Washington (RCW) relates to underground utilities. In accordance with this RCW, the Contractor shall call the One-Number Locator Service for field location of utilities. If no locator service is available for the area, notice shall be provided individually to those owners of utilities known to, or suspected of, having underground facilities within the area of the proposed excavation.

Existing utilities indicated anywhere on the drawings have been plotted from the best information available to the Engineer. Neither the City nor the Engineer guarantees the accuracy or completeness of this information and assumes no responsibility for improper locations or failure to show utility locations on the construction plans; and it is to be understood that other above- ground or underground facilities not shown on the drawings may be encountered during the course of the work.

If the Work requires removing or relocating a utility, the Contract will assign the task to the Contractor or the utility owner. When the task is assigned to the Contractor it shall be performed in accordance with the Plans and Special Provisions. New utility construction shall be performed according to the appropriate Contract requirements.

To ease or streamline the Work for its own convenience, the Contractor may desire to ask utility owners to move, remove, or alter their equipment in ways other than those listed in the Plans or Special Provisions. The Contractor shall make the arrangements and pay all costs that arise from work performed by the utility owner at the Contractor's request. Two weeks prior to implementing any such utility work, the Contractor shall submit plans and details to the Project Engineer for approval describing the scope and schedule of all work performed at the Contractor's request by the utility owner.

If the Contract provides notice that utility work (including furnishing, adjusting, relocating, replacing, or constructing utilities) will be performed by others during the prosecution of the Work, the Special Provisions will establish the utility owner's anticipated completion. The Contractor shall carry out the Work in a way that will minimize interference and delay for all forces involved. Any costs incurred prior to the utility owners anticipated completion (or if no completion is specified, within a reasonable period of time) that results from the coordination and prosecution of the Work regarding utility adjustment, relocation, replacement, or construction shall be at the Contractor's expense.

When others delay the Work through late performance of utility work, the Contractor shall adhere to the requirements of Section 46. The City will either suspend Work, or order the Contractor to coordinate the Work with the work of the utility owner. When ordered to coordinate the Work with the work of the utility owner, the Contractor shall prosecute the Work in a way that will minimize interference and delay for all forces involved.

The Contractor shall take adequate precautions to protect existing lawns, trees and shrubs outside rights-of-way, sidewalks, curbs, pavements, utilities, adjoining property, and structures, and to avoid damage thereto. The Contractor shall, at its own expense, completely repair any damage thereto caused by his operations to the satisfaction of the Engineer, except as otherwise provided in other sections of the Contract.

27. Replacing Improvements

Whenever it is necessary in the course of construction to remove or disturb culverts, driveways, roadways, pipelines, property stakes or other existing improvements, without limiting the generality thereof and whether on private or public property, they shall be replaced to a condition equal to that existing before they were so removed and disturbed, and all such costs for this replacement shall be borne by the Contractor and considered incidental to the construction and work covered by these specifications unless specific unit or lump sum pay items have been established in the Contract to cover any of the above work.

28. Traffic Maintenance and Protection

The following special provisions shall apply to traffic regulation during the extent of this Contract:

There shall be at all times adequate vehicle and pedestrian access to and egress from the properties adjacent to the Project.

During non-working hours, the Contractor shall keep the existing traffic lanes clear for traffic without interference from his operations including all approaches and intersections.

Where hazardous conditions exist, proper signing and barricading shall be provided by the Contractor. Whenever directed by the Engineer, supplemental signs and barricades, including lanterns and/or high rise warning devices, shall be provided at the expense of the Contractor.

Before the beginning of his operations, the Contractor shall notify affect public agencies, such as East Pierce Fire & Rescue, the Bonney Lake Police Department, and the Sumner and/or White River School Districts by phone or in writing before the beginning of his operations so that these agencies may re-route their emergency and service vehicles around the construction zone.

Any temporary asphalt concrete pavement, crushed surfacing or gravel base required for maintaining traffic during the life of this Contract shall be furnished and placed by the Contractor immediately upon request by the Engineer in amounts designated and shall be at no additional cost to the City.

Continuous one-way traffic shall be maintained during working hours at all times during the project unless a detour plan has been submitted and approved by the City Engineer at least 24 hours in advance. The City Engineer shall only approve detours which can be shown to not

significantly impede traffic flow, cause unreasonable amounts of delay or cause a significant traffic safety problem. All barricades, signs and warning devices necessary for detours shall be furnished, installed and maintained by the Contractor. The Contractor shall be held liable for all claims resulting from improper installation and/or maintenance of these traffic control devices.

The Contract shall defend, indemnify, and hold the City harmless from any claims arising from accidents or damages caused by the Contractor's failure to comply with traffic and public safety regulations during the construction period.

If operations of the Contractor are shown to significantly impede traffic flow during peak hours of traffic, the Engineer shall have the authority to restrict the Contractor to time of operation on the street.

29. Separate Contract – Interference with Other Contractors

The City may perform other work at or near the site, including any material site, with other forces than those of the Contractor. This work may be done with or without a contract. If such work takes place within or next to this project, the Contractor shall cooperate with all other contractors or forces. The Contractor shall carry out Work under this project in a way that will minimize interference and delay for all forces involved. The Engineer will resolve any disagreements that may arise among the contractors or the Contractor and the City over the method or order of doing the Work. The Engineer's decision in these matters shall be final.

The coordination of the Work shall be taken into account by the Contractor as part of the site investigation and any resulting costs shall be incidental and included within the unit Bid prices in the Contract.

30. Cleanup

The Contractor shall perform final cleanup as provided in this section to the Engineer's satisfaction. The Engineer will not establish the Physical Completion Date until this is done. The City rights-of-way, material sites, and all ground the Contractor occupied to do the Work shall be left neat and presentable. The Contractor shall:

1. Remove all rubbish, surplus materials, discarded materials, falsework, camp buildings, temporary structures, equipment, and debris; and
2. Deposit in embankments, or remove from the project, all unneeded, oversized rock left from grading, surfacing, or paving.

The Contractor shall not remove warning, regulatory, or guide signs unless the Engineer approves.

D. Materials and Equipment

31. Materials and Equipment Used in Work

The Contractor shall provide and pay for all materials, water, tools, equipment, light, power, transportation, and other facilities necessary for the execution and completion of the work, except as otherwise stipulated in the Contract Documents. At the Engineer's request, the Contractor shall provide an operating and maintenance manual for each model or type of mixing, placing, or processing equipment before using it in the Work. The Contractor shall also provide test instruments to confirm whether the equipment meets operating requirements, such as vibration rate, revolutions-per-minute, or any other requirements.

The Engineer will reject equipment that repeatedly breaks down or fails to produce results within the required tolerances. The Contractor shall have no claim for additional payment or for extension of time due to rejection and replacement of any equipment. The Contractor shall keep all machinery and equipment in good, workable condition. It shall be adequate for its purpose and used by competent operators.

32. Materials and Equipment Incorporated into Work

A. All equipment, materials, and articles incorporated into the permanent Work:

1. Shall be new, unless the Contract permits otherwise;
2. Shall meet the requirements of the Contract and be approved by the Engineer;
3. May be inspected or tested at any time during their preparation and use; and
4. Shall not be used in the Work if they become unfit after being previously approved.

The Contractor shall furnish to the City any guarantee or warranty furnished as a customary trade practice in connection with the purchase of any equipment, materials, or items incorporated into the project. The Contractor shall also provide to the Engineer all owners manuals and operating instructions furnished by the equipment or material manufacturer.

33. Materials and Equipment Furnished by City

The Contractor shall protect materials against damage from careless handling, from exposure to weather, from mixture with foreign matter, and from all other causes. The Engineer will reject and refuse to test materials improperly handled or stored.

The Contractor shall repair, replace, or make good all City-provided materials that are damaged or lost due to the Contractor's operation or while in the Contractor's possession, at no expense to the City.

The Contractor shall bear the risk of loss or damage for all finished or partially finished work until the entire Contract is accepted by the City.

34. Cutting and Fitting

The Contractor shall do all cutting and fitting of his work that may be required to make its several parts come together properly, and fit it to receive or be received by work of other contractors shown or reasonably implied by the drawings and specifications for the completed structure. The Contractor shall restore all surfaces damaged by cutting and fitting as the Engineer may direct.

35. Determination of "Or Equal"

The Engineer shall be the sole judge in the question of "or equal" of any supplies or materials proposed by the Contractor. The Contractor shall pay the City the cost of tests and evaluations by the Engineer to determine acceptability of alternates proposed by the Contractor, in accordance with the established rates of the Engineer for time and expense work, the total cost of which may be offset by the City against the Contract price.

The Engineer may accept certain materials on the basis of a Manufacturer's Certificate of Compliance as an alternative to material inspection and testing. The Contractor may request, in writing, authority from the Engineer to install such materials prior to submitting the required certification; however, no payment will be made for the Work in the absence of an acceptable Manufacturer's Certificate of Compliance. The City reserves the right to deny the request for good cause.

The Manufacturer's Certificate of Compliance must identify the manufacturer, the type and quantity of material being certified, the applicable Specifications being affirmed, and the signature of a responsible corporate official of the manufacturer and include supporting mill tests or documents. A Manufacturer's Certificate of Compliance shall be furnished with each lot of material delivered to the Work and the lot so certified shall be clearly identified in the certificate.

All materials used on the basis of a Manufacturer's Certificate of Compliance may be sampled and tested at any time. Any material not conforming to the requirements will be subject to rejection whether in place or not. The City reserves the right to refuse to accept materials on the basis of a Manufacturer's Certificate of Compliance.

36. Royalties and Patents

The Contractor shall defend, indemnify, and hold the City harmless against all claims brought against the City by reason of infringement of patent rights or licenses on any materials,

machine, appliance or process he may use on the work or incorporate into the finished job, except where specifically exempted by special provisions. Prices named in the proposal shall include payment of royalties, if any.

E. Workers

37. Workers and Supervision

At the Engineer's written request, the Contractor shall immediately remove and replace any incompetent, careless, or negligent employee. Noncompliance with the Engineer's request to remove and replace personnel at any level shall be grounds for terminating the Contract.

Either the Contractor in person or an authorized representative shall remain on site whenever the Work is underway. Before the Work begins, the Contractor shall name in writing an experienced superintendent who understands the Contract and is able to supervise the Work. This superintendent shall have full authority to represent and act for the Contractor. Any superintendent who repeatedly fails to follow the Engineer's written or oral orders, directions, instructions, or determinations, shall be subject to removal from the project. Upon the written request of the Engineer, the Contractor shall immediately remove such superintendent and name a replacement in writing. Competent supervisors experienced in the task being performed shall continuously oversee the Contract Work.

The Contractor shall take all necessary precautions for the safety of employees on the work site and shall comply with all applicable provisions of federal, state and municipal safety laws and building codes. The Contractor shall erect and properly maintain, at all times, as required by the conditions and progress of the work, all necessary safeguards for protection of workers and the public; shall post danger signs warning against known or unusual hazards; and shall designate a responsible member of the organization on the construction site whose duty shall be the prevention of accidents. The name and position of such person so designated shall be reported in writing to the Engineer by the Contractor.

Necessary sanitation conveniences for the use of workers on the job properly secluded from public observation shall be provided and maintained by the Contractor.

38. Payment of Prevailing Wages

This Contract is subject to the minimum wage requirements of RCW 39.12 and to RCW 49.28 (as amended or supplemented).

The Contractor, any Subcontractor, and all individuals or firms required by RCW 39.12, or WAC 296-127 to pay minimum prevailing wages, shall not pay any worker less than the minimum hourly wage rates and fringe benefits required by RCW 39.12. Higher wages and benefits may be paid.

By including the hourly minimum rates for wages and fringe benefits in the Contract Provisions, the City does not imply that the Contractor will find labor available at those rates. The Contractor shall be responsible for any amounts above the minimums that will actually have to be paid. The Contractor shall bear the cost of paying wages above those shown in the Contract Provisions.

If employing labor in a class not listed in the Contract Provisions, the Contractor shall request a determination of the correct wage and benefits rate for that class and locality from the Industrial Statistician, Washington State Department of Labor and Industries (State L&I), and provide a copy of those determinations to the Engineer.

The Contractor shall ensure that any firm (Supplier, Manufacturer, or Fabricator) that falls under the provisions of RCW 39.12 because of the definition "Contractor" in WAC 296-127-010, complies with all the requirements of RCW 39.12.

The Contractor shall be responsible for compliance by all firms (Subcontractors, lower tier subcontractors, Suppliers, Manufacturers, or Fabricators) engaged in any part of the Work necessary to complete this Contract. Therefore, should a violation of this subsection occur by any firm that is providing Work or materials for completion of this Contract whether directly or indirectly responsible to the Contractor, the City will take action against the Contractor, as provided by the provisions of the Contract, to achieve compliance, including but not limited to, withholding payment on the Contract until compliance is achieved.

In the event the City has an error (omissions are not errors) in the listing of the hourly minimum rates for wages and fringe benefits in the Contract Provisions, the Contractor, any Subcontractor, any lower tier subcontractor, or any other firm that is required to pay prevailing wages, shall be required to pay the rates as determined to be correct by State L&I. A change order will be prepared to ensure that this occurs. The City will reimburse the Contractor for the actual cost to pay the difference between the correct rates and the rates included in the Contract Provisions, subject to the following conditions:

1. The affected firm relied upon the rates included in the Contract Provisions to prepare its Bid and certifies that it did so;
2. The allowable amount of reimbursement will be the difference between the rates listed and rates later determined to be correct plus only appropriate payroll markup the employer must pay, such as social security and other payments the employer must make to the Federal or State Government;

3. The allowable amount of reimbursement may also include some overhead cost, such as the cost for bond, insurance, and making supplemental payrolls and new checks to the employees because of underpayment for previously performed Work; and

4. Profit will not be an allowable markup.

Firms that anticipated, when they prepared their Bids, paying a rate equal to, or higher than, the correct rate as finally determined will not be eligible for reimbursement.

In a location acceptable to State L&I, the Contractor shall ensure the following is posted:

1. One copy of the approved “Statement of Intent to Pay Prevailing Wages” for the Contractor, each Subcontractor, each lower tier subcontractor, and any other firm (Supplier, Manufacturer, or Fabricator) that falls under the provisions of RCW 39.12 because of the definition of “Contractor” in WAC 296-127-010;
2. One copy of the prevailing wage rates for the project;
3. The address and telephone number of the Industrial Statistician for State L&I (along with notice that complaints or questions about wage rates may be directed there); and

If labor and management cannot agree in a dispute over the proper prevailing wage rates, the Contractor shall refer the matter to the Director of State L&I. The Director’s decision shall be final, conclusive, and binding on all parties.

On forms provided by the Industrial Statistician of State L&I, the Contractor shall submit to the Engineer the following for itself and for each firm covered under RCW 39.12 that provided Work and materials for the Contract:

1. A copy of an approved “Statement of Intent to Pay Prevailing Wages” State L&I’s form number F700-029-000. The City will make no payment under this Contract for the Work performed until this statement has been approved by State L&I and a copy of the approved form has been submitted to the Engineer.
2. A copy of an approved “Affidavit of Prevailing Wages Paid,” State L&I’s form number F700-007-000. The City will not release to the Contractor any funds retained under RCW 60.28.011 until all of the “Affidavit of Prevailing Wages Paid” forms have been approved by State L&I and a copy of all the approved forms have been submitted to the Engineer.

The Contractor shall be responsible for requesting these forms from State L&I and for paying any approval fees required by State L&I.

39. Worker Benefits

The Contractor shall make all payments required for unemployment compensation under Title 50 RCW and for industrial insurance and medical aid required under Title 51 RCW. If any payment required by Title 50 or Title 51 is not made when due, the City may retain such payments from any money due the Contractor and pay the same into the appropriate fund. Such payment will be made only after giving the Contractor 15 days prior written notice of the City's intent to disburse the funds to the Washington State Department of Labor and Industries or Washington State Employment Security Department as applicable. The payment will be made upon expiration of the 15-calendar day period if no legal action has been commenced to resolve the validity of the claim. If legal action is instituted to determine the validity of the claim prior to the expiration of the 15-day period, the City will hold the funds until determination of the action or written settlement agreement of the appropriate parties.

The Contractor shall include in the various items in the Bid Proposal all costs for payment of unemployment compensation and for providing either or both of the insurance coverages. The Contractor will not be entitled to any additional payment for: (1) failure to include such costs, or (2) determinations made by the U.S. Department of Labor or the Washington State Department of Labor and Industries regarding the insurance coverage.

The Public Works Contract Division of the Washington State Department of Labor and Industries will provide the Contractor with applicable industrial insurance and medical aid classification and premium rates. After receipt of a *Revenue Release* from the Washington State Department of Revenue, the City will verify through the Department of Labor and Industries that the Contractor is current with respect to the payments of industrial insurance and medical aid premiums.

F. Payment

40. Application for Payment

A. By the final working day of each month, the Contractor shall submit to the Engineer an itemized application for payment, supported to the extent required by the Engineer by receipts or other vouchers showing payment for materials and labors, payments to subcontractors, and such other evidence of the Contractor's right to payment as the Engineer may direct.

B. The Contractor shall be entitled to monthly progress payments corresponding to the stage of the work. Progress estimates will be prepared by the Contractor and reviewed by the Engineer according to the schedule provided by the City. These shall be based upon an approximate estimate of quantities of work completed and considered acceptable, as extended by the unit prices established in the Contract or as provided by the schedule of lump sum payments. The City shall deduct from each monthly progress payment an amount of retainage provided for by law and by this Contract and also for any charges against the Contractor authorized by this contract.

C. Cost of materials, properly stored, protected and insured at the site of the work will be paid on monthly estimates only when provided for in the special provisions, and then only for specific materials listed therein for partial payment. Payment for materials will not constitute acceptance, and any faulty material will be condemned although payment may have been made for same in the estimates. All materials for which costs are allowed under this subparagraph must be substantiated by written documentation from the material supplier that the material has been paid for.

D. Quantities used for progress estimates shall be considered only as approximate and provisional, and shall be subject to recalculation, adjustment and correction by the Engineer in subsequent progress estimates and in final estimates. Inclusion of any quantities in progress estimates, or failure to disapprove the work at the time of progress estimates, shall not be construed as acceptance of corresponding work or materials.

E. Retained percentages shall be withheld by the City according to Chapter 60.28 RCW.

41. Schedule for Values of Lump Sum Work

If payments are to be made on lump sum items, the Contractor shall submit a schedule of values of the various parts of work, including quantities, aggregating the total sum of the contract, made out in such form as the Engineer may require, and if required, supported by such evidence as to its correctness as the Engineer may direct. This schedule, when approved by the Engineer, shall be used as the basis for certificates for payments for lump sum work, the Contractor shall submit estimates of the percentage of work completed, and payment will be based upon the schedule of values for lump sum work.

42. Payments Withheld

The City may withhold any payment or portion of payment or recover any payment theretofore made, to such extent as may be necessary to protect itself from loss on account of:

- A. Defective work not remedied.
- B. Liquidated damages, inspection and engineering charges, or other claims against the Contractor by the City.
- C. Failure of the Contractor to furnish invoices to support application for payment for materials not incorporated in the work but delivered and suitably stored at the site.
- D. Damages to another contractor.
- E. Expenses, including court costs and legal fees, whether or not incident to suit, incurred by the City due to any default of the Contractor.
- F. Failure to furnish any documents required by the City to process payments.

G. Force Account

The terms of the Contract or of a change order may call for Work or material to be paid for by force account. If so, then the objective shall be to reimburse the Contractor for all costs associated with the Work, including costs of labor, small tools, supplies, equipment, specialized services, materials, applicable taxes and overhead and to include a profit commensurate with those costs. The amount to be paid shall be determined as described in this section.

1. **For Labor:** Labor reimbursement calculations shall be based on a “Project Labor List” (List,) prepared and submitted by the Contractor and by any Subcontractor before that firm commences force account Work. Once a List is approved by the Engineer, it shall be used to calculate force account labor payment until a new List is submitted and approved. The Engineer may compare the List to payrolls and other documents and may, at any time, require the Contractor to submit a new List. The Contractor may submit a new List at any time without such a requirement. Prior payment calculations shall not be adjusted as a result of a new List.

To be approved, the List must be accurate and meet the requirements of this section. It shall include regular time and overtime rates for all employees (or work classifications) expected to participate in force account Work. The rates shall include the basic wage and fringe benefits, the current rates for Federal Insurance Compensation Act (FICA), Federal Unemployment Tax Act (FUTA) and State Unemployment Tax Act (SUTA), the company’s present rates for Medical Aid and Industrial Insurance premiums and the planned payments for travel and per diem compensation.

In the event that an acceptable initial List or requested revised List is not received by the time that force account calculations are begun, the Engineer will develop a List unilaterally, utilizing the best data available, that will be used until a Contractor’s List is received and approved. Again, prior calculations, prepared using the Engineer’s List, will not be revised as a result of differences with the Contractor’s List.

In addition to compensation for direct labor costs defined above, the City will pay Contractor 29-percent of the sum of the costs calculated for labor reimbursement to cover project overhead, general company overhead, profit, bonding, insurance, Business & Occupation tax, and any other costs incurred. This amount will include any costs of safety training and health tests, but will not include such costs for unique force account Work that is different from typical Work and which could not have been anticipated at time of Bid.

2. **For Materials:** The City will reimburse invoice cost for Contractor-supplied materials. For the purpose of this provision, “Materials” shall include those items incorporated into

the Work, supplies used during the Work and items consumed. This cost shall include freight and handling charges and applicable taxes. Before Work is started, the Engineer may require the Contractor to obtain multiple quotations for the materials to be utilized and select the vendor with prices and terms most advantageous to the City.

The City will provide a list of the types and quantities of Contractor-supplied materials witnessed by the City as being utilized in force account Work. The list will be furnished promptly after the material is incorporated, on a daily basis unless agreed otherwise. The Contractor may propose corrections to the list and will supply prices for the materials and other costs and return the list to the City. To support the prices, the Contractor shall attach valid copies of vendor invoices. If invoices are not available for materials from the Contractor's stocks, the Contractor shall certify actual costs (at a reasonable level) by affidavit. The Engineer will review the prices and any Contractor-proposed corrections and, if reasonable, approve the completed list. Once approved, the prices will be utilized in the calculation of force account reimbursement for materials.

If, in the case of non-invoiced materials supported by Contractor affidavit, the price appears to be unreasonable, the Engineer will determine the cost for all or part of those materials, utilizing the best data available.

The City reserves the right to provide materials. In this case, the Contractor will receive no payment for any costs, overhead, or profit arising from the value of the materials themselves. Additional costs to handle and place the Agency-furnished material shall be compensated as described in this Specification.

In addition to compensation for direct materials cost, the City will pay the Contractor 21-percent of the sum of the costs calculated for materials reimbursement to cover project overhead, general company overhead, profit, bonding, insurance, Business & Occupation tax, and any other costs incurred.

- 3. For Equipment:** The City will reimburse the Contractor for the cost of equipment utilized in the Work. The equipment provided by the Contractor shall be of modern design and in good working condition. For the purpose of this provision, "provided" shall mean that the equipment is owned (either through outright ownership or through a long-term lease) and operated by the Contractor or Subcontractor or that the equipment is rented and operated by the Contractor or Subcontractor. Equipment that is rented with operator shall not be included here, but shall be considered a service and addressed according to subsection 4 of this provision.

The amount of payment for any Contractor-owned equipment that is utilized shall be determined according to the version of the AGC/WSDOT Equipment Rental Agreement

which is in effect at the time the force account is authorized. The rates listed in the Rental Rate Blue Book (as modified by the current AGC/WSDOT Equipment Rental Agreement) shall be full compensation for all fuel, oil, lubrication, ordinary repairs, maintenance, and all other costs incidental to furnishing and operating the equipment except labor for operation.

Payment for rented equipment will be made on the basis of a valid invoice, covering the time period of the Work. Before Work is started, the Engineer may require the Contractor to obtain multiple quotations for the rental of equipment to be utilized and select the vendor with prices and terms most advantageous to the City. In the event that prior quotations are not obtained and the vendor is not a firm independent from the Contractor or Subcontractor, then after-the-fact quotations may be obtained by the Engineer from the open market in the vicinity and the lowest such quotation may be used in place of submitted invoice.

In addition to the payments for Contractor-owned and rented equipment, one or more lump-sum payments may be made for small tools. The amount to be paid shall be determined as outlined in the AGC/WSDOT Equipment Rental Agreement.

The City will add 21-percent to equipment costs to cover project overhead, general company overhead, profit, bonding, insurance, Business & Occupation tax, and any other costs incurred. This markup will be over and above those equipment costs and will not be adjusted for any equipment overhead amounts included in the Blue Book rates.

4. **For Services:** Compensation under force account for specialized services shall be made on the basis of an invoice from the providing entity. A “specialized service” shall be one that is typically billed through invoice in standard industry practice. Before Work is started, the Engineer may require the Contractor to obtain multiple quotations for the service to be utilized and select the provider with prices and terms most advantageous to the City. In the event that prior quotations are not obtained and the service invoice is submitted by a Subcontractor, then after-the-fact quotations may be obtained by the Engineer from the open market in the vicinity and the lowest such quotation may be used in place of the submitted invoice.

Except as noted below, the City will pay the Contractor an additional 21-percent of the sum of the costs included on invoices for specialized services to cover project overhead, general company overhead, profit, bonding, insurance, Business & Occupation tax, and any other costs incurred.

When a supplier of services is compensated through invoice, but acts in the manner of a Subcontractor, as described in subsection 6 of this provision, markup for that invoice shall be according to subsection 6, “Contractor Markup on Subcontractors’ Work”.

5. **For Mobilization:** Force account mobilization is defined as the preparatory Work performed by the Contractor including procurement, loading and transportation of tools and equipment, and personal travel time (when such travel time is a contractual obligation of the Contractor or a customary payment for the Contractor to all employees). Mobilization also includes the costs incurred during demobilization. Pro-rata adjustments may be made when the mobilization applies to both force account and other Contract Work. The City will pay for mobilization for off-site preparatory Work for force account items provided that notice has been provided sufficiently in advance to allow the Engineer to witness the activity, if desired.

Any costs experienced during mobilization activities for labor, equipment, materials or services shall be listed in those sections of the force account summary and paid accordingly.

6. **For Contractor Markup on Subcontractor’s Work:** When Work is performed on a force account basis by one or more approved Subcontractors, by lower-tier subcontractors or suppliers, or through invoice by firm(s) acting in the manner of a Subcontractor, the Contractor will be allowed an additional markup, from the table below, applied to the costs computed for Work done by each Subcontractor through subsections 1, 2, 3, and 4, to compensate for all administrative costs, including project overhead, general company overhead, profit, bonding, insurance, Business & Occupation tax, and any other costs incurred.

A firm may be considered to be acting as a Subcontractor when the Engineer observes one or more of the following characteristics:

- a. The person in charge of the firm’s activities takes an active role in managing the overall project, including extensive coordination, interpretation of Plans, interaction with the City or management of a complex and interrelated operation.
- b. Rented equipment is provided fueled, operated and maintained by the firm. Operators of rented equipment are supervised directly by the firm’s representative. There is little interaction between the Contractor and the employees of the firm.
- c. The firm appears to be holding the risk of performance and quality of the Work.
- d. The firm appears to be responsible for liability arising from the Work.

Markups on Work Performed by Subcontractor(s):

- | | |
|---|------------|
| (1) On amounts paid for Work performed by each Subcontractor on each force account and calculated through subsections 1-4, up to \$25,000 | 12 percent |
| (2) On amounts greater than \$25,000 up to \$100,000 | 10 percent |
| (3) On amounts greater than \$100,000 | 7 percent |

The amounts and markup rates shall be calculated separately for each Subcontractor on each force account item established.

The payments provided above shall be full payment for all Work done on a force account basis. The calculated payment shall cover all expenses of every nature, kind, and description, including those listed above and any others incurred on the Work being paid through force account. Nothing in this provision shall preclude the Contractor from seeking an extension of time or time-related damages to unchanged Work arising as a result of the force account Work. The amount and costs of any Work to be paid by force account shall be computed by the Engineer, and the result shall be final.

An item that has been Bid at a unit price or lump sum in the Proposal will not be paid as force account unless a change has occurred and the provisions require a payment adjustment. Items which are included in the Proposal as Force Account or which are added by change order as Force Account may, by agreement of the parties at any time, be converted to agreed unit prices or lump sums applicable to the remaining Work.

H. Changes and Disputes

43. Changes in the Work

The Engineer reserves the right to make, at any time during the Work, such changes in quantities and such alterations in the Work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the Contract nor release the Surety, and the Contractor agrees to perform the Work as altered. Among others, these changes and alterations may include:

1. Deleting any part of the Work,
2. Increasing or decreasing quantities,
3. Altering Specifications, designs, or both,

4. Altering the way the Work is to be done,
5. Adding new Work,
6. Altering facilities, equipment, materials, services, or sites, provided by the City.
7. Ordering the Contractor to speed up or delay the Work.

The Engineer will issue a written change order for any change unless the remainder of this section provides otherwise.

If the alterations or changes in quantities significantly change the character of the Work under the Contract, whether or not changed by any such different quantities or alterations, an adjustment, excluding loss of anticipated profits, will be made to the Contract. The basis for the adjustment shall be agreed upon prior to the performance of the Work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the Contractor in such amount as the Engineer may determine to be fair and equitable. If the alterations or changes in quantities do not significantly change the character of the Work to be performed under the Contract, the altered Work will be paid for as provided elsewhere in the Contract. The term *significant change* shall be construed to apply only to the following circumstances:

- A. When the character of the Work as altered differs materially in kind or nature from that involved or included in the original proposed construction or
- B. When an item of Work, as defined elsewhere in the Contract, is increased in excess of 125-percent or decreased below 75-percent of the original Contract quantity (see Section 44).

For any changes except deleted Work or increasing or decreasing quantities, the Engineer will determine if the change should be paid for at unit Contract price(s). If the Engineer determines that the change increased or decreased the Contractor's costs or time to do any of the Work including unchanged Work, the Engineer will make an equitable adjustment to the Contract. The equitable adjustment will be by agreement with the Contractor. However, if the parties are unable to agree, the Engineer will determine the amount of the equitable adjustment. The Engineer's decision concerning equitable adjustment and extension of time shall be final.

The Contractor shall proceed with the Work upon receiving:

1. A written change order approved by the Engineer, or
2. An oral order from the Engineer before actually receiving the written change order.

Changes normally noted on field stakes or variations from estimated quantities will not require a written change order. These changes shall be made at the unit prices that apply. The Contractor shall respond immediately to changes shown on field stakes without waiting for further notice.

The Contractor shall obtain written consent of the Surety or Sureties before proceeding with Work under a change order if the Engineer requests such consent.

44. Minor Changes

Payments or credits for changes amounting to \$15,000 or less may be made under the Bid Item "Minor Change". At the discretion of the City, this procedure for Minor Changes may be used in lieu of the more formal procedure as outlined in Section 42.

The Contractor will be provided a copy of the completed order for Minor Change. The agreement for the Minor Change will be documented by signature of the Contractor, or notation of verbal agreement. If the Contractor is in disagreement with anything required by the order for Minor Change, the Contractor may protest the order as provided in Section 46.

Payments or credits will be determined in accordance with Section 44.

45. Variation in Estimated Quantities

The quantities shown in the Proposal Form and the Contract Forms are estimates and are stated only for Bid comparison purposes. The City does not warrant expressly or by implication, that the actual quantities of Work will correspond with those estimates. Payment will be made on the basis of the actual quantities of each item of Work completed in accordance with the Contract requirements.

Payment to the Contractor will be made only for the actual quantities of Work performed and accepted in conformance with the Contract. When the accepted quantity of Work performed under a unit item varies from the original Proposal quantity, payment will be at the unit Contract price for all Work unless the total accepted quantity of any Contract item, adjusted to exclude added or deleted amounts included in change orders accepted by both parties, increases or decreases by more than 25-percent from the original Proposal quantity. In that case, payment for Contract Work may be adjusted as described herein.

The adjusted final quantity shall be determined by starting with the final accepted quantity measured after all Work under an item has been completed. From this amount, subtract any quantities included in additive change orders accepted by both parties. Then, to the resulting amount, add any quantities included in deductive change orders accepted by both parties. The

final result of this calculation shall become the adjusted final quantity and the basis for comparison to the original Proposal quantity.

1. Increased Quantities.

Either party to the Contract will be entitled to renegotiate the price for that portion of the adjusted final quantity in excess of 1.25 times the original Proposal quantity. The price for excessive increased quantities will be determined by agreement of the parties, or, where the parties cannot agree, the price will be determined by the Engineer based upon the actual costs to perform the Work, including reasonable markup for overhead and profit.

2. Decreased Quantities.

Either party to the Contract will be entitled to an equitable adjustment if the adjusted final quantity of Work performed is less than 75-percent of the original Bid quantity. The equitable adjustment shall be based upon and limited to three factors:

- a. Any increase or decrease in unit costs of labor, materials or equipment, utilized for Work actually performed, resulting solely from the reduction in quantity;
- b. Changes in production rates or methods of performing Work actually done to the extent that the nature of the Work actually performed differs from the nature of the Work included in the original plan; and
- c. An adjustment for the anticipated contribution to unavoidable fixed cost and overhead from the units representing the difference between the adjusted final quantity and 75-percent of the original Plan quantity.

The following limitations shall apply to renegotiated prices for increases and/or equitable adjustments for decreases:

1. The equipment rates shall be actual cost but shall not exceed the rates set forth in the AGC/WSDOT Equipment Rental Agreement that is in effect at the time the Work is performed.
2. No payment will be made for extended or unabsorbed home office overhead and field overhead expenses to the extent that there is an unbalanced allocation of such expenses among the Contract Bid items.

3. No payment for consequential damages or loss of anticipated profits will be allowed because of any variance in quantities from those originally shown in the Proposal form, Contract Provisions, and Contract Plans.
4. The total payment (including the adjustment amount and unit prices for Work performed) for any item that experiences an equitable adjustment for decreased quantity shall not exceed 75 percent of the amount originally Bid for the item.

If the adjusted final quantity of any item does not vary from the quantity shown in the Proposal by more than 25-percent, then the Contractor and the City agree that all Work under that item will be performed at the original Contract unit price.

When ordered by the Engineer, the Contractor shall proceed with the Work pending determination of the cost or time adjustment for the variation in quantities.

The Contractor and the City agree that there will be no cost adjustment for decreases if the City has entered the amount for the item in the Proposal form only to provide a common Proposal for Bidders.

46. Equitable Adjustments

The equitable adjustment provided for elsewhere in the Contract shall be determined in one or more of the following ways:

1. If the parties are able to agree, the price will be determined by using:
 - a. Unit prices, or
 - b. Other agreed upon prices;
2. If the parties cannot agree, the price will be determined by the Engineer using:
 - a. Unit prices, or
 - b. Other means to establish costs.

The following limitations shall apply in determining the amount of the equitable adjustment:

1. The equipment rates shall be actual cost but shall not exceed the rates set forth in the AGC/WSDOT Equipment Rental Agreement, and
2. To the extent any delay or failure of performance was concurrently caused by the City and the Contractor, the Contractor shall be entitled to a time extension for the portion of the delay or failure of performance concurrently caused, provided it make such a request pursuant to Section 48; however, the Contractor shall not be entitled to any adjustment in Contract price.
3. No claim for anticipated profits on deleted, terminated, or uncompleted Work will be allowed.
4. No claim for consequential damages of any kind will be allowed.

When the Contract specifies Work that has no Bid item, and the Work is not specified as being included with or incidental to other Bid items, an equitable adjustment will be made unless that Work is customarily considered as incidental to other items.

The City will make an equitable adjustment in the form of a credit or payment for qualifying changes in the reference cost of asphalt binder. The Base Cost is the reference cost posted on the Washington State Department of Transportation website for the period immediately preceding the bid opening date. The Reference Cost is the most current reference cost posted on the WSDOT website at the time of the Work. The adjustment will be calculated as follows (where Q = total tons of asphalt emulsion used in progress payment period).

Reference cost within 5% of base cost = no adjustment.

Reference cost is greater than or equal to 105% of base cost = $(1.05 \times \text{Base Cost}) \times (Q \times 0.65)$

Reference cost is less than or equal to 95% of base cost = $(0.95 \times \text{Base Cost}) \times (Q \times 0.65)$

47. Protests

The Contractor accepts all requirements of a change order by: (1) endorsing it, (2) writing a separate acceptance, or (3) not protesting in the way this section provides. A change order that is not protested as provided in this section shall be full payment and final settlement of all claims for Contract time and for all costs of any kind, including costs of delays, related to any Work either covered or affected by the change. By not protesting as this section provides, the Contractor also waives any additional entitlement and accepts from the Engineer any written or oral order (including directions, instructions, interpretations, and determinations).

If in disagreement with anything required in a change order, another written order, or an oral order from the Engineer, including any direction, instruction, interpretation, or determination by the Engineer, the Contractor shall:

1. Immediately give a signed written notice of protest to the Engineer or the Engineer's field Inspectors before doing the Work;
2. Supplement the written protest within **14**-calendar days with a written statement and supporting documents providing the following:
 - a. The date and nature of the protested order, direction, instruction, interpretation or determination;

- b. A full discussion of the circumstances which caused the protest, including names of persons involved, time, duration and nature of the Work involved, and a review of the Plans and Contract Provisions referenced to support the protest;
- c. The estimated dollar cost, if any, of the protested Work and a detailed breakdown showing how that estimate was determined; and
- d. An analysis of the progress schedule showing the schedule change or disruption if the Contractor is asserting a schedule change or disruption; and
- e. If the protest is continuing, the information required above shall be supplemented upon request by the Engineer until the protest is resolved.

Throughout any protested Work, the Contractor shall keep complete records of extra costs and time incurred. The Contractor shall permit the Engineer access to these and any other records related to the protested Work as determined by the Engineer.

The Engineer will evaluate all protests provided the procedures in this section are followed. If the Engineer determines that a protest is valid, the Engineer will adjust payment for Work or time by an equitable adjustment. No adjustment will be made for an invalid protest.

If the Engineer determines that the protest is invalid, that determination and the reasons for it will be provided in writing to the Contractor. The determination will be provided within 14-calendar days after receipt of the Contractor's supplemental written statement (including any additional information requested by the Engineer to support a continuing protest) described in item 2 above.

If the Contractor does not accept the Engineer's determination then the Contractor shall pursue the dispute and claims procedures set forth in Section 47. In spite of any protest or dispute, the Contractor shall proceed promptly with the Work as the Engineer orders.

By failing to follow the procedures of this Section 46 and Section 47, the Contractor completely waives any claims for protested Work.

48. Disputes

A. If the Contractor claims that additional payment is due and the Contractor has pursued and exhausted all the means provided in Sections 46 and 47 to resolve a dispute, including the use of a Disputes Review Board if one was established, the Contractor may file a claim as provided in this section. The Contractor agrees to waive any claim for additional payment if the written notifications provided in Section 46 are not given, or if the Engineer is not afforded reasonable access by the Contractor to complete records of actual cost and additional

time incurred as required by Section 46, or if a claim is not filed as provided in this section. The fact that the Contractor has provided a proper notification, provided a properly filed claim, or provided the Engineer access to records of actual cost, shall not in any way be construed as proving or substantiating the validity of the claim. If the claim, after consideration by the Engineer, is found to have merit, the Engineer will make an equitable adjustment either in the amount of costs to be paid or in the time required for the Work, or both. If the Engineer finds the claim to be without merit, no adjustment will be made.

All claims filed by the Contractor shall be in writing and in sufficient detail to enable the Engineer to ascertain the basis and amount of the claim. All claims shall be submitted to the Engineer. As a minimum, the following information must accompany each claim submitted:

1. A detailed factual statement of the claim for additional compensation and time, if any, providing all necessary dates, locations, and items of Work affected by the claim.
2. The date on which facts arose which gave rise to the claim.
3. The name of each City individual, official, or employee involved in or knowledgeable about the claim.
4. The specific provisions of the Contract which support the claim and a statement of the reasons why such provisions support the claim.
5. If the claim relates to a decision of the Engineer which the Contract leaves to the Engineer's discretion or as to which the Contract provides that the Engineer's decision is final, the Contractor shall set out in detail all facts supporting its position relating to the decision of the Engineer.
6. The identification of any documents and the substance of any oral communications that support the claim.
7. Copies of any identified documents, other than City documents and documents previously furnished to the City by the Contractor, that support the claim (manuals which are standard to the industry, used by the Contractor, may be included by reference).
8. If an extension of time is sought:
 - a. The specific days and dates for which it is sought,
 - b. The specific reasons the Contractor believes a time extension should be granted,
 - c. The specific provisions of Section 48 under which it is sought, and

- d. The Contractor's analysis of its progress schedule to demonstrate the reason for a time extension.
9. If additional compensation is sought, the exact amount sought and a breakdown of that amount into the following categories:
- a. Labor;
 - b. Materials;
 - c. Direct equipment. The actual cost for each piece of equipment for which a claim is made or in the absence of actual cost, the rates established by the AGC/WSDOT Equipment Rental Agreement which was in effect when the Work was performed. In no case shall the amounts claimed for each piece of equipment exceed the rates established by the AGC/WSDOT Equipment Rental Agreement even if the actual cost for such equipment is higher. The City may audit the Contractor's cost records to determine actual equipment cost. The following information shall be provided for each piece of equipment:
 - (1) Detailed description;
 - (2) The hours of use or standby; and
 - (3) The specific day and dates of use or standby;
 - d. Job overhead;
 - e. Overhead (general and administrative);
 - f. Subcontractor's claims (in the same level of detail as specified herein is required for any Subcontractor's claims); and
 - g. Other categories as specified by the Contractor or the City.
10. A notarized statement shall be submitted to the Engineer certifying that the claim for extra compensation and time, if any, made herein for Work on the Contract is a true statement of the actual costs incurred and time sought, and is fully documented and supported under the Contract between the parties.

It will be the responsibility of the Contractor to keep full and complete records of the costs and additional time incurred for any alleged claim. The Contractor shall permit the Engineer to have access to those records and any other records as may be required by the Engineer to

determine the facts or contentions involved in the claim. The Contractor shall retain those records for a period of not less than three years after final acceptance.

All claims must be submitted to the Engineer no later than submission of the final pay estimate. Full compliance by the Contractor with the provisions of this section is a contractual condition precedent to the Contractor's right to seek judicial relief.

49. Delays and Extension of Time

The Contractor shall submit any requests for time extensions to the Engineer in writing no later than 10-working days after the delay occurs. The requests for time extension shall be limited to the effect on the critical path of the Contractor's approved schedule attributable to the change or event giving rise to the request.

To be considered by the Engineer, the request shall be in sufficient detail (as determined by the Engineer) to enable the Engineer to ascertain the basis and amount of the time requested. The request shall include an updated schedule that supports the request and demonstrates that the change or event: (1) had a specific impact on the critical path, and except in cases of concurrent delay, was the sole cause of such impact, and (2) could not have been avoided by resequencing of the Work or by using other reasonable alternatives. If a request, combined with previous extension requests, equals 20-percent or more of the original Contract time, the Contractor's letter of request must bear consent of Surety. In evaluating any request, the Engineer will consider how well the Contractor used the time from Contract execution up to the point of the delay and the effect the delay has on any completion times included in the Contract. The Engineer will evaluate and respond within 15-calendar days of receiving the request.

The authorized time for Physical Completion will be extended for a period equal to the time the Engineer determines the Work was delayed because of:

1. Adverse weather causing the time requested to be unworkable, provided that the Engineer had not already declared the time to be unworkable and the Contractor has filed a written protest.
2. Any action, neglect, or default of the City, its officers, or employees, or of any other contractor employed by the City.
3. Fire or other casualty for which the Contractor is not responsible.
4. Strikes.
5. Any other conditions for which these Specifications permit time extensions such as:

- a. If a change increases the time to do any of the Work including unchanged Work.
 - b. If increased time is part of a protest that is found to be a valid protest.
 - c. If a changed condition caused a delay in completing the Contract.
 - d. If the City does not approve properly prepared and acceptable drawings within 30-calendar days.
 - e. If the performance of the Work is delayed as a result of damage by others.
 - f. If the removal or the relocation of any utility by forces other than the Contractor caused a delay.
 - g. If the performance of the Work is suspended, delayed, or interrupted for an unreasonable period of time that proves to be the responsibility of the City.
 - h. If a dispute or claim also involves a delay in completing the Contract and the dispute or claim proves to be valid.
 - i. For Work performed on a force account basis.
6. If the actual quantity of Work performed for a Bid item was more than the original Plan quantity and increased the duration of a critical activity. Extensions of time will be limited to only that quantity exceeding the original Plan quantity.
 7. Exceptional causes not specifically identified in items 1 through 6, provided the request letter proves the Contractor had no control over the cause of the delay and could have done nothing to avoid or shorten it.

The Engineer will not allow a time extension for any cause listed above if it resulted from the Contractor's default, collusion, action or inaction, or failure to comply with the Contract.

The City considers the time specified in the Special Provisions as sufficient to do all the Work. For this reason, the City will not grant a time extension for:

1. Failure to obtain all materials and workers unless the failure was the result of exceptional causes as provided above in subsection 7;
2. Changes, protests, increased quantities, or changed conditions that do not delay the completion of the Contract or prove to be an invalid or inappropriate time extension request;

3. Delays caused by nonapproval of drawings or plans;
4. Rejection of faulty or inappropriate equipment;

The Engineer will determine whether the time extension should be granted, the reasons for the extension, and the duration of the extension, if any. Such determination will be final.

50. Unauthorized or Defective Work

The City will not pay for unauthorized or defective Work. Unauthorized or defective Work includes: Work and materials that do not conform to Contract requirements; Work done beyond the lines and grades set by the Plans or the Engineer; and extra Work and materials furnished without the Engineer's written approval. At the Engineer's order, the Contractor shall immediately remedy, remove, replace, or dispose of unauthorized or defective Work or materials and bear all costs of doing so.

The Contractor shall promptly remove from the construction site all materials condemned by the Engineer as failing to conform to the contract, whether incorporated in the work or not. The Contractor shall promptly replace and re-execute his own work in accordance with the intent of the Contract and without expense to the City and shall bear the expense of making good all work of other Contractors destroyed or damaged by such removal or replacement.

If the Contractor does not remove such condemned work and material within 10 days of notice to the Contractor to remove, the City may remove and store any such materials at the expense of the Contractor. The City may deduct the costs of such removal from any funds otherwise due the Contractor.

51. Defects Arising in One Year and Remedies

The Contractor shall be responsible for correcting all defects in workmanship and material arising within one year after acceptance of this work. When corrections of defects are made, the Contractor shall be responsible for correcting all defects in workmanship and/or materials in the corrected work arising within one year after acceptance of the corrections by the City.

52. Suspension of Work

The Engineer may order suspension of all or any part of the Work if:

1. Unsuitable weather prevents satisfactory and timely performance of the Work; or
2. The Contractor does not comply with the Contract; or
3. It is in the public interest.

When ordered by the Engineer to suspend or resume Work, the Contractor shall do so immediately.

If the Work is suspended for reason (1) above, the period of Work stoppage will be counted as unworkable days. But if the Engineer believes the Contractor should have completed the suspended Work before the suspension, all or part of the suspension period may be counted as working days. The Engineer will set the number of unworkable days (or parts of days) by deciding how long the suspension delayed the entire project.

If the Work is suspended for reason (2) above, the period of Work stoppage will be counted as working days. The lost Work time, however, shall not relieve the Contractor from any Contract responsibility.

If the performance of all or any part of the Work is suspended, delayed, or interrupted for an unreasonable period of time by an act of the City in the administration of the Contract, or by failure to act within the time specified in the Contract (or if no time is specified, within a reasonable time), the Engineer will make an adjustment for any increase in the cost or time for the performance of the Contract (excluding profit) necessarily caused by the suspension, delay, or interruption. However, no adjustment will be made for any suspension, delay, or interruption if (1) the performance would have been suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or (2) an equitable adjustment is provided for or excluded under any other provision of the Contract.

If the Contractor believes that the performance of the Work is suspended, delayed, or interrupted for an unreasonable period of time and such suspension, delay, or interruption is the responsibility of the City, the Contractor shall immediately submit a written notice of protest to the Engineer as provided in Section 46. No adjustment shall be allowed for any costs incurred more than 10-calendar days before the date the Engineer receives the Contractor's written notice of protest. If the Contractor contends damages have been suffered as a result of such suspension, delay, or interruption, the protest shall not be allowed unless the protest (stating the amount of damages) is asserted in writing as soon as practicable. The Contractor shall keep full and complete records of the costs and additional time of such suspension, delay, or interruption and shall permit the Engineer to have access to those records and any other records as may be deemed necessary by the Engineer to assist in evaluating the protest.

The Engineer will determine if an equitable adjustment in cost or time is due as provided in this section. The equitable adjustment for increase in costs, if due, shall be subject to the limitations provided in Section 44, provided that no profit of any kind will be allowed on any increase in cost necessarily caused by the suspension, delay, or interruption.

53. Termination of Contract

The City may terminate the Contract upon the occurrence of any one or more of the following events:

1. If the Contractor fails to supply sufficient skilled workers or suitable materials or equipment;
2. If the Contractor refuses or fails to prosecute the Work with such diligence as will ensure its Physical Completion within the original Physical Completion time and any extensions of time which may have been granted to the Contractor by change order or otherwise;
3. If the Contractor is adjudged bankrupt or insolvent, or makes a general assignment for the benefit of creditors, or if the Contractor or a third party files a petition to take advantage of any debtor's act or to reorganize under the bankruptcy or similar laws concerning the Contractor, or if a trustee or receiver is appointed for the Contractor or for any of the Contractor's property on account of the Contractor's insolvency, and the Contractor or its successor in interest does not provide adequate assurance of future performance in accordance with the Contract within 15-calendar days of receipt of a request for assurance from the City;
4. If the Contractor disregards laws, ordinances, rules, codes, regulations, orders or similar requirements of any public entity having jurisdiction;
5. If the Contractor disregards the authority of the City;
6. If the Contractor performs Work which deviates from the Contract, and neglects or refuses to correct rejected Work; or
7. If the Contractor otherwise violates in any material way any provisions or requirements of the Contract.

Once the City determines that sufficient cause exists to terminate the Contract, written notice shall be given to the Contractor and its Surety indicating that the Contractor is in breach of the Contract and that the Contractor is to remedy the breach within 15-calendar days after the notice is sent. In case of an emergency such as potential damage to life or property, the response time to remedy the breach after the notice may be shortened. If the remedy does not take place to the satisfaction of the City, the Engineer may, by serving written notice to the Contractor and Surety either:

1. Transfer the performance of the Work from the Contractor to the Surety; or

2. Terminate the Contract and at the City's option prosecute it to completion by contract or otherwise. Any extra costs or damages to the City shall be deducted from any money due or coming due to the Contractor under the Contract.

If the Engineer elects to pursue one remedy, it will not bar the Engineer from pursuing other remedies on the same or subsequent breaches.

Upon receipt of a notice that the Work is being transferred to the Surety, the Surety shall enter upon the premises and take possession of all materials, tools, and appliances for the purpose of completing the Work included under the Contract and employ by contract or otherwise any person or persons satisfactory to the Engineer to finish the Work and provide the materials without termination of the Contract. Such employment shall not relieve the Surety of its obligations under the Contract and the bond. If there is a transfer to the Surety, payments on estimates covering Work subsequent to the transfer shall be made to the extent permitted under law to the Surety or its agent without any right of the Contractor to make any claim.

If the Engineer terminates the Contract or provides such sufficiency of labor or materials as required to complete the Work, the Contractor shall not be entitled to receive any further payments on the Contract until all the Work contemplated by the Contract has been fully performed. The Contractor shall bear any extra expenses incurred by the City in completing the Work, including all increased costs for completing the Work, and all damages sustained, or which may be sustained, by the City by reason of such refusal, neglect, failure, or discontinuance of Work by the Contractor. If liquidated damages are provided in the Contract, the Contractor shall be liable for such liquidated damages until such reasonable time as may be required for Physical Completion of the Work. After all the Work contemplated by the Contract has been completed, the Engineer will calculate the total expenses and damages for the completed Work. If the total expenses and damages are less than any unpaid balance due the Contractor, the excess will be paid by the City to the Contractor. If the total expenses and damages exceed the unpaid balance, the Contractor and the Surety shall be jointly and severally liable to the City and shall pay the difference to the City on demand.

In exercising the City's right to prosecute the Physical Completion of the Work, the City shall have the right to exercise its sole discretion as to the manner, method, and reasonableness of the costs of completing the Work. In the event that the City takes Bids for remedial Work or Physical Completion of the project, the Contractor shall not be eligible for the Award of such Contracts.

In the event the Contract is terminated, the termination shall not affect any rights of the City against the Contractor. The rights and remedies of the City under the Termination Clause are in addition to any other rights and remedies provided by law or under this Contract. Any retention or payment of monies to the Contractor by the City will not release the Contractor from liability.

In case of the termination of this Contract before completion for any cause whatever, the Contractor, if notified to do so by the City, shall promptly remove any part or all of his equipment and supplies from the property of the City; the City shall have the right to remove such equipment and supplies at the expense of the Contractor, deducting the cost thereof from any funds otherwise due to the Contractor.

54. Liquidated Damages

Time is of the essence of the Contract. Delays inconvenience the traveling public, obstruct traffic, interfere with and delay commerce, and increase risk to Highway users. Delays also cost tax payers undue sums of money, adding time needed for administration, engineering, inspection, and supervision.

Because the City finds it impractical to calculate the actual cost of delays, it has adopted the following formula to calculate liquidated damages for failure to complete the physical Work of a Contract on time.

Accordingly, the Contractor agrees:

1. To pay (according to the following formula) liquidated damages for each working day beyond the number of working days established for Physical Completion, and
2. To authorize the Engineer to deduct these liquidated damages from any money due or coming due to the Contractor.

Liquidated Damages Formula

$$LD = \frac{0.15C}{T}$$

where: LD = liquidated damages per working day
(rounded to the nearest dollar)

C = original Contract amount

T = original time for Physical Completion

When the Contract Work has progressed to the extent that the City has full use and benefit of the facilities, both from the operational and safety standpoint, all the initial plantings are completed and only minor incidental Work, replacement of temporary substitute facilities, plant establishment periods, or correction or repair remains to physically complete the total Contract, the Engineer may determine the Contract Work is substantially complete. The Engineer will notify the Contractor in writing of the Substantial Completion Date. For overruns in Contract time occurring after the date so established, the formula for liquidated damages shown above will not apply. For overruns in Contract time occurring after the Substantial Completion Date,

liquidated damages shall be assessed on the basis of direct engineering and related costs assignable to the project until the actual Physical Completion Date of all the Contract Work. The Contractor shall complete the remaining Work as promptly as possible. Upon request by the Engineer, the Contractor shall furnish a written schedule for completing the physical Work on the Contract.

Liquidated damages will not be assessed for any days for which an extension of time is granted. No deduction or payment of liquidated damages will, in any degree, release the Contractor from further obligations and liabilities to complete the entire Contract.

55. Unilateral Acceptance

If the Contractor fails, refuses, or is unable to sign and return any documentation required for completion and final acceptance of the Contract, the City reserves the right to establish a Completion Date (for the purpose of meeting the requirements of RCW 60.28) and unilaterally accept the Contract. Unilateral final acceptance will occur only after the Contractor has been provided the opportunity, by written request from the Engineer, to voluntarily submit such documents. If voluntary compliance is not achieved, formal notification of the impending establishment of a Completion Date and unilateral final acceptance will be provided by certified letter to the Contractor. The reservation by the City to unilaterally accept the Contract will apply to Contracts that are Physically Completed, or for Contracts that are terminated. Unilateral final acceptance of the Contract by the City does not in any way relieve the Contractor of its responsibility to comply with all Federal, State, tribal, or local laws, ordinances, and regulations that affect the Work under the Contract.

56. Jurisdiction, Venue, and Time Limitation for Claims

This Agreement has been and shall be construed as having been made and delivered with the State of Washington, and it is agreed by each party hereto that this Agreement shall be governed by laws of the State of Washington, both as to interpretation and performance.

Any action of law, suit in equity, or judicial proceeding for the enforcement of this Agreement or any provisions thereof, shall be instituted and maintained only in any of the courts of competent jurisdiction in Pierce County, Washington.

Any claims or causes of action which the Contractor has against the City arising from the Contract shall be brought within 180-calendar days from the date of final acceptance of the Contract. The parties understand and agree that the Contractor's failure to bring suit within the time period provided, shall be a complete bar to any such claims or causes of action.

SPECIAL PROVISIONS

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Division 1

General

1.10 GENERAL

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

Sections in these specifications titled “*Related Sections*” shall be read as integral to the specification as if they were fully detailed within. All work and materials described in such sections shall be provided and performed by the Contractor.

1.11.00 Summary of Work

The Lift Station No. 17 Electrical Equipment Upgrade project consists of the replacement of existing electrical service equipment and motor control centers, installation of proposed electrical service and electrical distribution equipment, installation of proposed variable frequency drives, replacement of a flume open channel flow sensor and transmitter and light fixtures located in the lift station wet well, and mechanical piping modifications to the existing bypass pumping connection.

1.11.02 Reuse of Documents

Contractor and any Subcontractor or Supplier shall not:

1. Have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
2. Reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
3. The prohibitions of this Paragraph will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

1.11.03 Electronic Data

1. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner to Contractor, or by Contractor to Owner, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user’s sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
2. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data’s creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 30 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 30-day acceptance period will be corrected by the transferring party.

3. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.
4. Computer Aided Design (CAD) files will not be made available to the Contractor. This includes AutoCAD™, Civil3D™, or other similar file types. Only printed hard copies or electronic representations of hard copies (e.g. PDF) will be provided.

1.13 Permits and Licenses

The Contractor shall acquire and pay for all necessary permits which may include:

- Electrical Permit

1.20 PRICE AND PAYMENT PROCEDURES

1.21.29 Quantity Allowances

If more or fewer materials are needed when the construction quantity is within plus or minus 25 percent of the bid quantity, costs for restocking of unused materials, or handling and delivery costs on additional materials shall be incidental to the bid price and no additional payment will be made.

1.21.55 Cost Increases for Materials

There will be no allowance for additional payment should the cost of any materials go up during the original contract timeframe, or during any approved contract time extensions. The Contractor is responsible for securing prices at the time of bid.

1.25.00 Substitution Procedures

Any product or construction method that does not meet these specifications will be considered a substitution. Substitutions must be approved prior to their installation or use on this project.

No guarantee is made that product model numbers included in the specifications or on the plans are current at the time of bidding. The bidder shall provide pricing in their proposal for current versions of discontinued models. If the bidder is uncertain of the correct replacement model, or feels there is a price discrepancy, the bidder shall request a substitution following the requirements of section 1.25.13.10 Substitutions Prior to Bid Opening. Requests for price increases after award will not be accepted.

1.25.13.10 Substitutions Prior to Bid Opening

Before opening bids, the Owner may consider written requests from product suppliers or prime bidders for substitutions. All requests for substitution must be received by Owner a minimum of 7 working days prior to bid opening. Requests shall be accompanied by drawings and specifications in sufficient detail to allow the Owner to determine whether or not the substitute proposed is equal to that specified. All requests shall include a listing of any significant variations in material or methods from those specified. If there are no variations, a statement to that fact shall be included in the request for approval. The determination as to

whether or not a proposed substitute is acceptable shall rest solely with the Owner. Approval of substitutions will be only by addendum. The bidder shall include, in the proposal, all costs for any modifications required to adopt the substitute.

1.25.13.15 Substitutions After Contract Execution

Within 30 calendar days after the date of the contract, the Owner shall consider formal requests from the Contractor for a substitution of products in place of those specified. Submit two copies of each request for a substitution. Data shall include the necessary change in construction methods, including a detailed description of the proposed method and related drawings illustrating the methods. An itemized comparison of each proposed substitution with product or method specified shall be provided.

In making a request for a substitution, the Contractor represents that they have investigated the proposed product or method and has determined that it is equal or superior to the product specified. The Contractor shall coordinate the installation of accepted substitutions into the work, making changes that may be required for the work to be completed. The Contractor waives all claims for additional costs related to substitutions.

1.30 ADMINISTRATIVE

1.31 Project Management and Coordination

1.31.01 Contractor's Responsibility

The work included in this contract is shown on the contract plans and described in these project specifications. All work incidental and necessary to the completion of the work described and shown shall be performed by the Contractor. In submitting a bid for this project, the Bidder warrants that they are an expert in this and related work, that they understand the process and functions shown, and that various work and processes not shown but necessary for the successful operation of this project will be provided by the Contractor.

The General (or Prime) Contractor is fully responsible for providing the subcontractors and suppliers with all relevant portions of the plans and specifications necessary to bid and construct the improvements.

Damage to existing utilities or property shall be repaired or replaced by the Contractor at the discretion of the Owner.

The Contractor and each of the Subcontractors are responsible for coordinating the required inspections. There are specific requirements for inspection responsibilities and the advance notice that must be given to minimize construction delays. It is the Contractor's responsibility to be familiar with these requirements, include the coordination necessary in this estimate of project costs and schedule, and to comply with the requirements during construction. Failure to follow proper inspection and notification procedures may result in on-site work stoppages and removal or demolition of unapproved structures or systems, all at the Contractor's expense. See Starting and Adjusting section for details.

Do not start work on this project or on any public or private right-of-way or easement until clearance is given by the Owner. It will be the responsibility of the Contractor to comply with the requirements of any permit for the project. Do not hinder private property access without

a 24-hour notice to the private property owner, and do not hinder access for more than an 8-hour period. Do not disrupt emergency aid access to private property.

The Contractor is solely responsible for all elements of site safety. Inspections performed by the Owner are only to monitor and record that project plans and specifications are being complied with and construction is consistent with the design intent.

The Contractor shall be responsible for managing, coordinating, and overseeing his subcontractors, suppliers, manufacturers' representatives, or any other persons performing Work. The Contractor shall have a competent representative, familiar with the project and work being performed, on-site at all times.

1.31.10 COVID-19 Scheduling Provisions

Exclusion from Force Majeure. A force majeure event does not include the COVID-19 Pandemic. See Section 2, below, for information on how Contractor shall notify the Owner if Contractor desires to claim additional Time due to events attributable to the COVID-19 Pandemic.

Waiver. Contractor shall provide notice to the Owner of any delay attributable to the COVID-19 Pandemic in the manner specified in Section 2. Failure to provide notice to the Owner with regard to delays attributable to the COVID-19 Pandemic as required by Section 2 constitutes a waiver of Contractor's right to later make such a request.

Adjustment of Time for COVID-19.

1. Definitions.
 - a. "COVID-19" means the novel coronavirus respiratory disease.
 - b. "COVID-19 Pandemic" means the pandemic declared by the World Health Organization on March 11, 2020.
 - c. "Executive Order" means any order signed by a governor restricting or prohibiting certain activities of businesses, schools, and individuals to mitigate the spread of COVID-19.
 - d. "Labor shortage" means a shortage of Contractor's qualified personnel because they are on leave due to COVID-19.
 - e. "Governmental health regulation" means any state or local health regulation aimed to mitigate the spread of COVID-19, including the social distancing regulation.
 - f. "Supply chain disruption" means the Contractor's inability to obtain goods used to perform the Work contemplated under the Contract due to COVID-19.
 - g. "Time" means any term used to define the duration the Agreement is in effect, including, but not limited to "Term" or "Contract Time."
2. Contractor's Request Required. In the event the Contractor believes that additional Time is required due to the COVID-19 Pandemic due to delays resulting from a labor shortage, a supply chain disruption, or mandated compliance with Executive Orders

- or governmental health regulations, the Contractor shall submit to the Owner a timely request for adjustment of Time. A request is presumed to be timely if it occurs within seven calendar days after the Contractor becomes aware of any delay caused by a reason stated in this Section. The Owner will only consider requests for adjustment of Time if the Contractor's request provides the following information:
- a. The date the delay began as a result of the COVID-19 Pandemic.
 - b. The cause of the delay. The Contractor must identify in the request whether the delay is due to a labor shortage, a supply chain disruption, or compliance with an Executive Order or governmental health regulation and the specific circumstances surrounding the delay.
 - c. The specific actions and efforts the Contractor is doing to limit the impact of the delay.
 - d. The date Contractor expects the delay will end, if known. If not known, Contractor shall promptly notify the Owner within seven calendar days after the delay ends.
 - e. The Owner shall be entitled to request from the Contractor all documentation necessary to evaluate Contractor's request for more Time under this Section.
3. Basis for Adjustment of Time. The Owner will consider causes that include delays that affect the Contractor's performance of Work directly attributable to the COVID-19 Pandemic such as an Executive Order, a governmental health regulation, a labor shortage, or a supply chain disruption that could not be mitigated by the Contractor's specific actions and efforts, or by the reasonable actions and efforts the Contractor should have taken, to minimize the delay.
4. Consideration and Response by Owner. The Owner will only consider a Contractor's request for additional Time if Contractor supplied all the required information described in Section 3(b). The Owner will review a properly submitted request for Time adjustment related to COVID-19, and within a reasonable time, will advise the Contractor of the Owner's findings. If the findings determine that Contractor is entitled to additional Time, then Owner and Contractor shall execute a written change order extending the Time equal to the length of the actual delay in performance.

Termination. In addition to the termination rights in the Agreement, the Agreement may be terminated by either party by giving notice as required in the Agreement if: 1) federal or state laws, regulations, or guidelines are modified or interpreted in a way that the Work under the Agreement is prohibited; 2) recommendations, declarations or orders by state or local governments, including local health authorities and local officials, discourage or prohibit the event or scope of work that was to be performed under the Agreement; or 3) Owner is prohibited from paying for the work from the planned funding source.

1.31.11 COVID-19 Health and Safety Plan

The Contractor shall prepare a project specific COVID-19 health and safety plan (CHSP) prior to beginning physical Work.

The Contractor shall update and resubmit the CHSP as the work progresses and new activities appear on the look ahead schedule. If the conditions change on the project, or a particular activity, the Contractor shall update and resubmit the CHSP. Work on any activity shall cease if conditions prevent full compliance with the CHSP.

The CHSP shall address the health and safety of all people associated with the project including State workers in the field, Contractor personnel, consultants, project staff, subcontractors, suppliers and anyone on the project site, staging areas, or yards. The plan shall contain the following minimum elements:

1. The CHSP shall identify all standards, guidance, publications, and sources on which it is based. Those standards may include references to OSHA, WISHA, and CDC publications that are current at the time the CHSP is prepared.
2. The CHSP shall identify a responsible individual from the Contractor who is responsible for implementation of the CHSP. The individual(s) contact information shall be listed in the CHSP.
3. The CHSP shall specifically identify the project for which it is applicable, and if applicable, shall address project work areas outside the project limits such as staging areas or yards.
4. The CHSP shall identify the PPE and administrative and engineered controls necessary to maintain a safe site. This includes but is not limited to: sanitation resources, screening stations, safety briefings, controlling access, and personal protective equipment (PPE) needed to protect workers from COVID-19.
5. The CHSP shall identify measures for screening and managing workers or visitors to areas identified in the CHSP. The plan shall include procedures should a person exhibit symptoms of COVID-19.
6. The CHSP shall identify how the plan will be updated as new work activities are added with each two week look-ahead schedule. The CHSP updates shall identify the number of workers, crews, work tasks, and the degree of congestion or confinement workers will experience for the work activities in the two week look-ahead schedule.
7. The CHSP shall include how the Contractor will ensure everyone on the site has been trained on the CHSP requirements. This includes subcontractors, suppliers, and anyone on the project site.

The Contractor shall grant full and unrestricted access to the Engineer for CHSP Inspections. The Engineer (or designee) may conduct periodic compliance inspections on the project site, staging areas, or yards to verify that any ongoing work activity is following the CHSP plan. If the Engineer becomes aware of a noncompliance incident either through a site inspection or other means, the Contractor will be notified immediately (within 1 hour). The Contractor shall immediately remedy the noncompliance incident or suspend all or part of the associated work activity. The Contractor shall satisfy the Engineer that the noncompliance incident has been corrected before the suspension will end.

1.31.19 Progress Meetings

The Contractor shall schedule and hold regular on-site progress meetings at least every two weeks while on-site construction is ongoing and at other times as requested by the Owner or as required by progress of the work. The Contractor, Owner, and all Subcontractors active on the site must attend each meeting.

Contractor to provide an agenda covering the following items at a minimum, as applicable.

1. Review minutes of previous meetings.
2. Review of work progress.
3. Field observations, problems, and decisions.
4. Identification of problems that impede planned schedule.
5. Review of submittals schedule and status of submittals.
6. Review of off-site fabrication and delivery schedules.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Discussion of upcoming required inspections/approvals.
12. Maintenance of quality and work standards.
13. Effect of proposed changes on progress schedule and coordination.
14. Safety issues relating to work.
15. Other business relating to work.

1.32.13 Scheduling of Work

Refer also to the Completion Time section under the Instructions to Bidders.

Where the plans or specifications mention notification periods in hours or days, these time periods are assumed to be working days unless specifically stated otherwise. For example, a requirement of 48-hours notification for work desired to be performed at 1:00 pm Monday requires notification be provided no later than 1:00 pm the preceding Thursday.

1.32.16 Construction Progress Schedule

Contractor is responsible for providing an up to date construction schedule with each monthly pay estimate and at other times as requested by the Owner or as required by progress of the work. If the current schedule is still in-line with the previous schedule, the Contractor shall inform the Owner with each pay estimate. Non-working day requests shall also be submitted by the Contractor with each monthly pay estimate. Owner may delay monthly progress payments if Contractor fails to submit updated schedule and non-working day requests.

1.32.29 Periodic Work Observation

The Owner may elect to have an inspector on site to monitor, observe and record construction progress. The Contractor maintains complete responsibility to verify construction is meeting the design intent and is being constructed in accordance with the plans and specifications. It is not the responsibility of the Owner's inspector to address neither means and methods issues on site nor direct safety issues on site. The Owner's inspector does not have the authority to stop work if unsafe conditions are observed.

1.33 Submittals

1.33.23 Shop Drawings, Product Data, and Samples

Submittals are required for all items installed on this contract. Submittals shall be addressed to:

RH2 Engineering, Inc.
22722 29th Dr. SE, Suite 210
Bothell, WA 98021

Attn: Chris Roberts, P.E.

Email: croberts@rh2.com

Submittals may be provided in electronic format (preferred) or hard copy. Owner reserves the right to require the Contractor to provide hard-copy submittals at no additional cost to the Owner. Where hard-copy submittals are provided, Contractor shall submit three (3) copies; one set will be returned to the Contractor after review.

Electronic submittal via email is acceptable, however the Contractor shall follow up with the Owner to verify that the submittal was received. The Owner assumes no responsibility for emails that do not make it to the recipient. In the case of electronic submittals, only one copy will be returned to the Contractor, either electronically or hard copy at the Owner's discretion.

Submittal data for each item shall contain sufficient information on each item to determine if it is in compliance with the contract requirements. Submittal cutsheets and datasheets shall be annotated by the Contractor and shall clearly indicate the equipment and materials that will be provided, including any options or additive items. No generic cutsheets or datasheets will be accepted.

Items that are installed in the work that have not been approved through the submittal process shall be removed and an approved product shall be furnished, all at the Contractor's expense.

Shop drawing review will be limited to general design requirements only, and shall not relieve the Contractor from responsibility for errors or omissions, or responsibility for consequences due to deviations from the contract documents. No changes may be made in any submittal after it has been reviewed except with written notice and approval from the Owner.

Shop drawings shall be submitted on 8½-inch by 11-inch, 11-inch by 17-inch, or 22-inch by 34-inch sheets and shall contain the following information:

- Project Name as it appears on the Document Cover.
- Prime Contractor and Applicable Subcontractor.

- RH2 Engineering.
- Owner's Name (City of Bonney Lake).
- Applicable Specification and Drawings Reference.
- A stamp or statement that the Contractor has checked the equipment for conformance with the contract requirements, coordination with other work on the job, and dimensional suitability.
- A place for the Engineer to respond. (Engineer may elect to respond using the Engineer's standard forms.)

Submittals that do not comply with these requirements may be returned to the Contractor for re-submittal. The Contractor shall revise and resubmit as necessary. Acceptable submittals will be reviewed as promptly as possible and transmitted to the Contractor not later than 20 working days after receipt by the Engineer. Delays caused by the need for re-submittal shall not be a basis for an extension of contract time or delay damages.

Shop drawings and submittals shall contain the following information:

1. Shop or equipment drawings, dimensions, and weights.
2. Catalog information.
3. Model number, including descriptions for option and accessory codes.
4. Manufacturer's specifications.
5. Special handling instructions.
6. Maintenance requirements.
7. Wiring and control diagrams.
8. List of contract exceptions.

For integrated or package systems (see also 1.61.31), the components, shop drawings, instructions, and other elements may be submitted and reviewed individually. But the initial submittal must include the complete proposed system, and the final submittal must also be for the complete system clearly indicating all changes made during the submittal process.

By approving and submitting shop drawings and samples, the Contractor warrants that they have determined and verified all field measurements, field construction criteria, materials, catalog numbers, and similar data, and have checked and coordinated each shop drawing with the requirements of the work and of the contract documents.

The Owner will pay the costs and provide review services for a first and second review of each submittal item. Additional reviews shall be paid by Contractor by withholding the appropriate amounts from each payment estimate.

The Contractor is responsible for identifying the shop drawings and submittals required for this project. Specific submittal requirements are listed in each section of these specifications. Contractor shall keep a complete and up to date copy of all submittals and review responses at the job site readily available to the Owner for inspection.

1.40 QUALITY REQUIREMENTS

1.42.19 Reference Standards

Work under this contract shall be performed in accordance with applicable sections of the current Standard Specifications for Road, Bridge and Municipal Construction, Washington, American Public Works Association, and Washington State Department of Transportation, hereafter referred to as the Standard Specifications.

Certain other referenced standards used in this specification are from the latest editions of:

- IBC International Building Code
- UPC Uniform Plumbing Code
- IMC International Mechanical Code
- IFC International Fire Code
- NEC National Electrical Code
- AWWA American Water Works Association
- ANSI American National Standards Institute
- ASA American Standards Association
- ASTM American Society for Testing and Materials
- WSEC Washington State Energy Code

1.43.20 Warranty

The Contractor shall warrant all work and products for a period of one (1) year following project acceptance except for those components and listed warrantees below. The date of project acceptance is defined as the date the final payment is sent to the Contractor from the Owner.

Warranty does not cover damage due to misuse by the Owner or conditions outside of the Owner or Contractor's control or exceptional events (force majeure) including war, strikes, floods (water exceeding normal high water mark), rainfall in excess of 100 year storm event, fire, earthquakes, high winds (over 85 mph for 3 seconds peak gust), freezes below 10 degrees Fahrenheit (Western Washington), freezes below minus 10 degrees Fahrenheit (Eastern Washington), governmental restrictions, vandalism, and power failures or surges. The Contractor has control over workmanship, third party subcontractors and parts and materials used to complete the project.

Warranties in addition to this warranty are listed in the following sections:

- Division 17.05 and 17.90.1 Telemetry systems

1.45.16 Field Quality Control Procedures

Unless otherwise noted on the plans or within these specifications, 48-hour prior notice shall be given to the Owner and appropriate reviewing agency for all inspections required for the

construction of the project. Forty-eight-hour notice is defined as two complete working day notice. Time is not counted on weekends and holidays (inspections required on a Monday or the day after a holiday shall be scheduled a minimum of 48 hours in advance not including the holiday hours or weekend hours.)

1.50 TEMPORARY FACILITIES AND CONTROLS

1.51 Temporary Utilities

Sanitary facilities adequate for all workers shall comply with all codes and regulations.

Temporary electrical power is available at the site. The Contractor may use existing receptacles when available for powering tools and equipment.

The Contractor shall make all arrangements for the required construction power. Power is available at some locations on the construction site. The Contractor is responsible for reviewing what is available and providing what is required.

1.52.00 Construction Facilities

The Contractor is responsible for construction and location of all field offices, all necessary gates and barricades, fences, handrails, guard rails, and securities required by this contract, or by laws and regulations. There shall be shelters and dry facilities for the workers as required. The Contractor shall provide all guards, marks, shields, protective clothing, rain gear, and other equipment required by law, ordinance, labor contracts, Occupational Safety and Health Administration (OSHA) regulations, and other regulations for the maintenance of health and safety. First aid kits and equipment as required by law shall also be supplied.

1.52.20 Locks and Keys

If the Owner provides a key to the Contractor for existing Owner locks, the Contractor will be responsible for the key until returning it to the Owner. If the Contractor loses the key, the Contractor will pay for re-coring of all Owner locks that use that key.

1.54 Construction Aids

The Contractor or product manufacturer may include work, materials, or components to aid in shipping, storage, installation, or other work for their convenience. Such items shall be removed prior to final project acceptance if they may interfere with the operation or maintenance of permanent work. Some examples include, but are not limited to:

- Lifting eyes (remove only if a safety concern or obstruction)
- Picking holes (plug)
- Intermediate or shipping bracing (remove)
- Protective shipping adhesives, coatings or covers (remove and clean residue)

1.70 EXECUTION AND CLOSEOUT REQUIREMENTS

1.74 Cleaning and Waste Management

1.74.13 Progress Cleaning

All areas impacted by the work shall be restored to at least original condition, unless specifically identified otherwise in the plans or specifications. All costs are incidental.

If an area of the project will be left idle, or minimal work performed for more than two weeks, the Contractor shall clean up the area prior to moving. In this context, clean-up means: stockpiles and materials shall be removed so as not to be obstructions or hazards; surfaces graded smooth as to their purpose; traffic control systems removed, and traffic restored to the satisfaction of the local road agency.

1.74.23 Final Cleaning

Clean up debris and unused material, and remove from the site and any buildings. If vehicle traffic causes ruts, repair asphalt (new or existing) in paved areas, in other areas back track with dozer or excavator and repair to proposed surface condition including necessary hydroseed, mulch, and landscaping. Eliminate weeds within the construction area prior to project closeout.

Buildings shall be broom clean and all foreign damage or markings removed or repaired.

Equipment shall be washed clean using appropriate methods.

Unpainted exposed concrete structures shall be cleaned to a consistent bare concrete surface finish. Remove extraneous substances such as efflorescence, leakage residue, and excess repair materials.

Remove existing equipment or materials identified in the contract documents or that interfere with the work. Dispose of all such existing equipment or materials unless the Owner requests items to be salvaged for their use. Owner has first right of salvage.

Should the Owner identify salvageable items of their property prior to removal, the Contractor shall protect said items from damage during the work, and will be responsible for reimbursing the Owner should the Contractor damage the items. In addition, remove the following items, intact and operational, and set aside for the Owner:

- Transformers
- Pump Motor Starters
- Circuit Breakers
- Automatic Transfer Switch
- Relays

1.75 Starting and Adjusting

1.75.16 Startup Procedures

1.75.16.10 Startup

See the Automatic Control section for control system startup.

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.

Technically qualified factory 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 machinery are functioning correctly.

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

- Variable frequency drives
- Inlet Flume Flowmeter

1.75.16.12 Startup and Testing Coordination

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. Factory Demonstration Test (at panel shop)
 - B. Variable Frequency Drives
 - C. Electrical Distribution Equipment
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 and shall provide for 21 calendar days advance notice in order to reserve Engineer's and/or Owner Representatives' time.

The Contractor shall make arrangements 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:

- Voltmeter
- Amp meter.

1.75.16.20 Testing

The Contractor may periodically request preliminary testing for items that must be covered or tested before other work can proceed. In these cases, the work shall not be tested or covered up 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. Where work is to be tested, all necessary equipment shall be set up and the work given a preliminary test so that any and all defects may be discovered and repaired prior to calling out the Owner for the test.

Final testing shall consist of individual tests and checks made on equipment intended to provide proof of performance of unit and proper operation of unit control together with necessary tests to show system operation in the presence of the Owner. Assure proper alignment, size, condition, capability, strength, proper 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 by these specifications by the manufacturer's representatives shall be supplied to the Owner prior to startup.

All piping shall be tested as required by specifications and applicable codes. Tests on individual items of equipment, such as pipelines, structures, controls, and other items 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:

- Variable frequency drives
- Inlet Flume Flowmeter

Additional representatives required may be identified elsewhere in these specifications.

1.75.16.22 Scheduling of Owner Review for Testing

See Division 1.75.16.10 for scheduling and notification requirements.

In addition, the Contractor shall provide further notification two working days and two working hours (to confirm schedule) of the scheduled test 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 shall 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 at the project site. 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 1 hour 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 is required to have all systems pre-tested to their satisfaction prior to calling the Owner for formal testing.

1.75.16.40 Electrical and Control Systems Testing

See also the applicable electrical sections for electrical system testing.

See also the applicable automation sections for automatic control system testing.

The following is a list of components that shall be tested prior to project completion. This list is intended as a general guide and is not necessarily complete:

- Flow sensors and alarms
- Local control
- Automatic control
- Variable speed drives

1.78 Closeout Submittals

1.78.23 Operation and Maintenance Data

Failure to provide acceptable final documentation including O&M manuals and as-built drawings will result in non-payment of the appropriate bid item in the schedule of prices.

See also the Automatic Controls section for additional requirements for automatic control systems manuals. Detailed requirements for specific equipment and systems may also be included in their respective specification sections.

The Contractor shall remove and preserve all tags and instructions that come packaged with or attached to equipment used on the project. Deliver all such documents to the Owner bound in a three-ring binder or with the Operation and Maintenance Manual. Insert documents in sleeves if they cannot be punched. Scan all such documents to Adobe PDF format and provide with the Operation and Maintenance (O&M) Manual.

Prior to the receipt of payment for more than 90 percent of the work, the Contractor shall deliver to the Owner acceptable manufacturer's operating and maintenance instructions

covering equipment and systems installed on the Project requiring operational and/or maintenance procedures and for any additional items indicated by the Owner, including coatings furnished under this contract.

The operating and maintenance instructions shall include, as a minimum, the following data for each coating and item of mechanical and electrical equipment:

Products

- A. Equipment Identification including brand name, model number and serial numbers.
- B. Date of manufacture and date of installation on job site.
- C. Complete as-built elementary wiring and one-line diagrams.
- D. Complete parts list, by generic title and identification number, complete with exploded views of each assembly.

Maintenance

- A. Recommended spare parts.
- B. Recommended preventive maintenance procedures and schedules. Schedule shall be provided for daily, weekly, monthly, quarterly, semi-annually and annually maintenance.
- C. Disassembly and re-assembly instructions including parts identification and a complete parts breakdown for all equipment.
- D. Weights of individual components of each item of equipment weighing over 50 pounds.
- E. Name, location, and telephone number of the nearest suppliers and spare parts warehouses.
- F. All manufacturers' warranties. Include name, address, and telephone number of the manufacturer's representative to be contacted for warranty, parts, or service information.
- G. Provide USB flash drive or DVDs utilized in the manufacturer's instruction program for the owner.

Operation

- A. Recommended trouble-shooting and startup procedures.
- B. Recommended step-by-step operating procedures.
- C. Emergency operation modes, if applicable.
- D. Normal shutdown procedures.
- E. Long term shutdown (mothballing) procedures.
- F. Equipment specifications and guaranteed performance data.
- G. General manuals which describe several items not in the contract will not be accepted unless all references to irrelevant equipment are neatly eradicated or blocked out.

Provide 2 hard copies of O&M manuals and 2 electronic sets on flash drives.

Each set of instructions shall be bound into multiple volumes; each volume to be complete with an index and bound in a suitable, hard-covered binder. Binders shall be of hardback construction with full-length metal hinge. Capacity shall be 3-inch to 5-inch as appropriate for the quantity of O&M documentation. More than one binder may be required for large projects. Binders shall be equal to Wilson-Jones WLJ344 series or WLJ369 series or Specialty Loose Leaf models 87784, 98085, 98086, or 98984.

Manuals shall be assembled and indexed so that information on each coating and piece of equipment can be readily found.

Progress payments for the total contract work in excess of 90 percent completion may not be made until the operation and maintenance manual has been delivered and approved by the Owner, at their discretion.

The Contractor shall secure and deliver to the Owner all equipment warranties and other warranties and guarantees required for all equipment and processes. Delivery shall be done at one time covering all major and minor equipment warranties. Copies of the warranties shall be included in each O&M Manual.

See Division 1.43.20 for details regarding required warranties for specific components.

1.78.39 Project Record Documents

Prior to receiving final payment for the work, the Contractor shall deliver a complete set of acceptable “As-Constructed” records to the Owner. Plans shall be made on clean, unmarked prints for this project in accordance with the following standards:

- Yellow markings or highlights = deleted items
- Red markings = new or modified items

The Contractor shall provide “as-built” information on all items and work shown on the plans showing details of the finished product including dimensions, locations, outlines, changes, manufacturers, etc. The information must be in sufficient detail to allow the Owner’s personnel to locate, maintain, and operate the finished product and its various components.

See also electrical plan requirements in Division 16.05.

1.79 Demonstration and Training

1.79.10 Training

See the Automatic Control section for automatic control systems training.

At the time that the facility is ready to be put into operation, the Contractor is to conduct an operation and maintenance training meeting with the owner to explain in detail the operation and maintenance requirements of each of the facility’s components. The training meeting shall not occur on the same date(s) as a startup.

Operation of the facility shall commence immediately after completion of testing, startup, and owner training and after satisfactory repairs and adjustments have been made.

1.80 PERFORMANCE REQUIREMENTS

1.81 Facility Performance Requirements

1.81.30 Seismic Restraint and Anchorage

Contractor shall 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.

1.81.45 Location Designations

The following location designations shall be used except where otherwise noted on the plans:

Dry Locations: Indoor continually dry areas including office, laboratory, blower, and electrical rooms.

Wet Locations: All locations exposed to the weather, whether under a roof or not, or within channels, basins or tanks.

Damp Locations: Process areas; areas containing pumps, valves, and major piping; all spaces wholly or partially underground, or having a wall or ceiling forming part of a channel or tank, unless otherwise designated on the Plans. Any areas which do not fall within the definitions for dry, wet, or corrosive shall be considered damp.

Corrosive Locations: Areas where chlorine gas under pressure, sulfuric acid, or liquid polymer are stored or processed, sewer wetwells and sewer manholes.

Immersed or Submerged Locations: Areas which are periodically, or continuously submerged in, or contain a liquid.

Division 11

Equipment

11.00 GENERAL

This division covers that work necessary for providing and installing all equipment as described in these specifications and as shown on the plans.

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

11.05 Common Work for Equipment

Part 1 – General

Submittals

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

- Temporary Bypass Sewage Pumping System

11.10 PUMPS

11.11 Temporary Bypass Sewage Pumping System

Part 1 – General

Summary

It is the intent of this specification to procure a complete temporary bypass sewage pumping system (Bypass System or System), from a locally represented supplier, for taking the City’s Lift Station 17 offline for the electrical equipment upgrades.

Submittals

The Contractor shall submit three copies of the following project data, from the System supplier, to the Engineer for review. One copy will be returned to the supplier.

- System schematic diagrams, including details of the connections to the existing system, with all components indicated.
- Technical data sheets for all components, including but not limited to:
 - Pumps and Motors
 - Check Valves
 - Isolation Valves
 - Sensors and Gauges
 - Control Panel
 - Pressure Transmitter
 - Level Transducer
 - Generators (if required)
 - Automatic Transfer Switches (if required)

- Dimensional drawings of the System with all devices and equipment indicated. Include weight of the assembled System.
- Control panel schematic.
- Interior and exterior control panel layout drawing.
- Description of pump control functions.
- Calculations of System headloss.

Project Conditions

The Bypass System shall be designed for the following requirements:

- Minimum of 1,900 gpm @ 132 feet TDH
- Maximum sewage level is 4 feet above the invert of the temporary pumping manhole.
- Level transducer control system for automated pump operation
- Temporary pumping shall be supervised at all times, 24 hours a day.

The number of pump run cycles shall not exceed 10 runs in any given hour.

Sound attenuation shall be provided, as necessary, for the pumping equipment to meet applicable noise ordinances.

It is anticipated that the bypass pumping system will be individually powered by a diesel engine. If bypass pumping system is powered from temporary construction grid power, an emergency generator with block heater and automatic transfer switch shall be provided to operate the System in the event of a power or System failure. Noise generated from routine generator exercise shall comply with the applicable noise ordinances and generator shall be a noise reduction model

The existing lift station shall remain fully functional until the Engineer has approved in writing the Bypass System for continuous operation. Further, the Bypass System shall remain fully functional until the electrical equipment upgrades have been approved to the satisfaction of the Engineer. The Contractor shall provide all necessary mechanical, electrical, and telemetry components necessary for transitioning between the operations of the existing lift station and the Bypass System. An Owner representative will adjust the elevation set points for operation of the existing lift station as needed prior to bringing the Bypass System online. The adjustment to the existing lift station will allow for the Bypass System to be operated as the primary system while the existing station provides backup should the Bypass System fail to meet system requirements during the testing period as described below. An Owner representative will be on-site to provide the Contractor with the necessary information to make said operational adjustments and to verify the changes.

Engineer approval of startup and testing for the Bypass System shall be based on, but not limited to, the following criteria: continuous, uninterrupted operations, wet well levels, pump run cycle times and number, and overall system performance. The Engineer reserves the right to simulate operational variables and equipment failures, in the presence of the Contractor, to verify the functional integrity of the pumping system. The Owner shall provide a certified operator during this period to provide operational decisions only. The Contractor shall provide equipment operation and maintenance; respond and repair any problems or failures

that occur during this period. Any shut downs due to equipment or systems failures shall be corrected immediately by the Contractor. The Owner will provide contact information for on-call operations personnel during the pre-construction meeting.

The Contractor is allowed 3-feet of sewage height storage in the upstream manhole for temporary pumping before pumping shall turn on to empty out the manhole. Temporary bypass pumping shall be in operation with the existing pump station in a standby mode for 3 days (72 hours) within the work week (Monday thru Friday) with the 72 hour period ending at the latest by 5 PM Friday local time before the existing pump station can be taken off line.

The Contractor shall supervise and be responsible for the proper maintenance and care of the Bypass System until the Engineer has approved the electrical improvements are ready for permanent operation.

For an emergency last resort option, the existing wet well can be used for storing the incoming sewage. Contractor shall not use the existing lift station pumps to empty the wet well if this situation occurs. All work associated with additional cleanup and reconstructing the proposed improvements shall be the sole responsibility of the Contractor.

Contractor shall protect the existing inlet pipes for the Lift Station 17 pumps and associated sumps. Contractor is responsible if there is any damage to the existing pumps because of construction debris.

Part 2 – Products

Manufacturer/Supplier

The Contractor shall retain a supplier who is a pump system manufacturer who specializes in the sales, maintenance, and repair of pumps and pumping systems. The retained supplier shall have been continuously engaged in business for at least ten (10) years and have similar experience providing temporary bypass pumping systems for sewage collection systems. The Contractor shall ensure that the supplier has replacement pumps available within 4 hours from the time of a failed component and personnel available 24 hours per day, seven (7) days a week to address any and all equipment issues.

Components

Pumping Equipment

The Contractor shall provide sewage pump(s) for meeting the minimum discharge requirements.

Emergency Generator

The Contractor shall provide an emergency generator sized to operate the Bypass System at full capacity in the event of a power failure. Generator shall have adequate supply of fuel to provide a minimum of 48 hours of uninterrupted temporary service.

Piping and Appurtenances

Piping and all pertinent components shall be pressure rated to a minimum of 100 psi and shall be pressure tested to 150 psi.

A dual port discharge assembly, as shown on the plans, shall be provided by the contractor such that the City can have its own temporary bypass pump connected and in standby in case of emergency.

A sewage air release and vacuum valve shall be provided on the discharge side of the temporary pumps. Valve(s) shall be sized for maximum station pumping capacity.

A check valve shall be provided on each pump discharge.

Part 3 – Execution

Installation

The Contractor shall procure the pump and controls from the pump manufacturer as a package. The manufacturer's representative is required to be on site to assist the Contractor with the installation of the Bypass System.

Field Quality Control

Contractor shall be responsible for calibration, startup, and initial and continued operation and performance to meet specifications herein during the time the Bypass System is in operation. Supplier shall provide a trained, qualified manufacturer's representative to check installation and connection, perform field tests as indicated, and certify to Engineer that performance meets all specifications.

Division 16

Electrical

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

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.

Related Sections

See the following sections for items that may be provided and/or installed with other electrical equipment.

- Division 17 Automatic Control

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

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. Class 1, Division 1 and 2 Locations: NEMA Type 7
2. Indoors Unclassified Locations: NEMA Type 12
3. Corrosive Locations: NEMA Type 4X
4. Outdoors and/or Wet Locations: NEMA Type 4X
5. Electrical Rooms: NEMA Type 1

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. This plan or plans shall include all of the 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. This diagram shall show all external connections between terminals of equipment and outside points, such as motors and auxiliary devices. References shall be shown to all connection diagrams which interface to the interconnection diagrams. Interconnection diagrams shall be of the continuous line type. Bundled wires shall be shown on a single line with the direction of entry/exit of the individual wires clearly shown. All devices and equipment shall be identified. Terminal blocks shall be shown 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. Spare wires and cables shall be shown.

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

1. Service Disconnect
2. Surge Protective Device (SPD)
3. Distribution Panelboards
4. Variable Frequency Drives
5. Distribution Transformers
6. Branch Circuit Panelboards
7. Circuit Breakers

8. Conduit and Fittings
9. Outlet and Junction Boxes
10. Wire and Cables
11. Light Fixtures
12. Automatic Transfer Switch
13. 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 Engineer.

Identification of Listed Products

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 equipment to walls, floors, and the like shall be either hot-dip galvanized after fabrication or stainless steel. Provide stainless steel fasteners in corrosive locations. When fastening to existing walls, floors, and the like, provide capsule anchors, not expansion shields. Size capsule anchors to meet load requirements. Minimum size capsule anchor bolt is $\frac{3}{8}$ -inch.

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 ¼-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. On the basis of 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 Engineer for review at the completion of the project 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. Exercise care at all times 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.

16.15 Grounding and Bonding for Electrical Systems

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 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.

Part 3 - Execution

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 wire in every conduit carrying a circuit of over 110 volts to ground.

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.

Ground Connections

Above grade ground connections shall be exothermic weld, mechanical, or compression-type connectors; or brazing.

Below grade ground connections shall be exothermic weld.

Install all ground connections in strict accordance with connector manufacturer's recommendations and methods.

16.21.4 Circuit Breaker Service Disconnect Switch

Design

The switch shall be heavy duty type, shall be quick-make, quick break, and shall be horsepower rated. The switch shall have blades as required to open all ungrounded conductors. The disconnect shall have a minimum available fault current withstand rating of 42,000 amperes unless noted otherwise on the Plans.

Service equipment shall meet the requirements of the serving utility and shall be suitable for use as service equipment. Service entrance disconnect shall be furnished with a UL service entrance label.

Manufacturers

Materials, equipment, and accessories specified in this section for the service disconnect switch shall be products of:

- Eaton (Cutler Hammer)
- General Electric
- Schneider Electric (Square D)
- Siemens
- Or approved equal

Materials

The switch shall be pad-lockable in both the OFF or ON position.

The enclosure shall be NEMA 1 rated unless noted otherwise on the Plans. The enclosure shall have interlocking cover to prevent opening door when switch is closed. The interlock shall include a defeating scheme. The enclosure shall be pad-lockable.

Circuit breakers shall be electronic trip type and meet molded case circuit breaker specifications covered in Division 16.55.16.

16.30 BASIC PANEL EQUIPMENT AND DEVICES

16.31 Operating and Indicating Devices

Part 1 - General

Operating and indicating devices minimum rating shall be NEMA 13. Operator devices mounted in outdoor panels, corrosive areas or where exposed to moisture shall be NEMA 4X.

16.31.4 Indicating Lights

Manufacturers

Heavy-Duty, Watertight, and Corrosion-Resistant Type:

- Eaton/Cutler-Hammer, Type E34

- Square D Co., Type SK
- Allen Bradley, Type 800H
- General Electric Co., Type CR 104P

Manufactured Units

Indicating lights shall be NEMA type 4/4X/13, corrosion resistant, water-tight, oil-tight, full voltage, push-to-test, high visibility 28 chips LED type. Pilot lights shall be rated for the proper operating voltage. Appropriate lens caps shall be provided as shown on Plans.

16.32 Panel Relays

Part 1 – General

General

Relays shall be provided as necessary to perform switching functions required of control panels and other control circuits as shown on the Plans and described in the technical specifications. Appropriate relay type and associated contacts shall be selected based on the application from the control wiring diagrams or the functional description. Where timing relays and control relays require additional contacts, provide auxiliary control relays properly sized for the application.

All contacts and relays shall be NEMA rated and UL recognized.

The electrical life expectancy for the relay shall be over 500,000 operations at 120V AC, 10 amp; (over 200,000 operations at 120V AC, 10 amp for SPDT, 3PDT, and 4PDT). The mechanical life expectancy for the relay shall be over 50,000,000 operations.

16.32.1 Control Relays

Manufacturers

- Square D Class 8501, Type K or R
- Allen Bradley 700 Type HA or HB
- IDEC RH Series; or equal

Manufactured Units

Relays for general purpose use shall be DPDT or 3PDT, 10-amp contacts with the appropriate coil voltage for the application. Relays shall be plug-in type with matching socket. All relays shall have LED indicators to signal when the coil is energized. Relay coils shall be rated for continuous duty.

16.32.3 Time Delay Relays

Manufacturers

- Allen-Bradley 700 Type HR
- IDEC GE1, RTE or GT3 Series; or equal

Manufactured Units

Time delay relays shall be multi-function, multi-range with plug-in base, pin style terminations timing and timed out LED indicators, and calibrated scales. Relays shall have minimum 0.5 seconds to 60 minutes, 8 selectable timing ranges, 5-amp contacts. Select coil voltage for the application. Units shall be sealed to prevent entry of contamination in the form of dust, dirt, or moisture.

Appropriate relay shall be selected based on application from the control wiring diagrams.

Minimum accuracy (plus or minus) shall be as follows:

1. Repeat accuracy – ½ percent.
2. Timing change over full voltage range – ½ percent change over full temperature range.
3. Scale tolerance – 5-percent.

16.35 Control Panel Accessories

16.35.1 Terminal Blocks

Part 2 – Products

Manufactured Units

Terminal blocks shall be one-piece, molded, plastic blocks with screw-type terminals and barriers rated for 600 volts. Terminals shall be double-sided and supplied with removable covers to prevent accidental contact with live circuits. Terminals shall have permanent, legible identification, clearly visible with the protection cover removed.

Part 3 – Execution

Installation

All wires between panel-mounted equipment and other equipment shall be terminated at terminal blocks. Switches shall be terminated at the terminal blocks with crimp-type, pre-insulated, ring-tongue lugs. Lugs shall be of the appropriate size for their terminal block screws and for the number and size of the wires terminated. All wires shall be labeled with the circuit number and common function.

16.35.2 Nameplates

Part 2 – Products

Manufactured Units

Standard nameplates shall be made of $\frac{1}{16}$ -inch thick machine engraved laminated phenolic having black letters not less than $\frac{3}{16}$ -inch high on white background. One-inch high lettering shall be used for the large nameplates required for the control panels and motor control centers.

Part 3 – Execution

Installation

Nameplates shall be provided on all electrical devices including but not limited to motor control equipment, MCC cubicles, control stations, junction boxes, panels, motors, instruments, switches, indicating lights, meters, and all electrical equipment enclosures. Each motor control center compartment and control panel shall have a nameplate designating the equipment and its identifying number and size or rating. 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.

Provide one large nameplate for each motor control center and/or control panel identifying the equipment as indicated on the Plans.

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.

Nameplates shall be provided for identifying all relays and devices that are located inside the panels.

Special Functions

Provide warning nameplates on all panels and equipment, which contain multiple power sources. Lettering shall be white on red background.

16.36.1 Surge Protection Device (SPD)

Part 2 – Products

General

The SPD shall be compatible with the electrical system voltage, current, system configuration, and intended applications.

Manufacturers

The SPD shall be manufactured by the distribution panelboard manufacturer.

Manufactured Units

Protect the electrical service with an SPD device as shown on the Plans. The SPD shall be bus-mounted in the distribution panelboard. The SPD shall meet the following:

1. Provide surge current withstand up to 160 kA per phase.
2. Short circuit current rating of 200 kAIC.
3. A ten-year free replacement warranty.
4. Enhanced UL 1283 Transient Tracking Filter.

5. NEMA 4 – weatherproof steel enclosure
6. Status indicator lights for each phase and one service LED.

16.40 LOW VOLTAGE MOTOR CONTROL EQUIPMENT

16.45 Variable Frequency Drive (Provided by Control System Integrator)

Part 1 - General

Summary

The Variable Frequency Drive (VFD) system shall contain all components required to meet the performance, protection, safety, and certification criteria of this specification.

Related Sections

- Division 16.30 Basic Panel Equipment and Devices
- Division 17 Automatic Control

References

- National Fire Protection Association - NFPA 70 - US National Electrical Code.
- National Electrical Manufacturers Association - NEMA 250 - Enclosures for Electrical Equipment.
- Underwriters Laboratory Inc. – UL 508.
- Canadian Standards Association International – CAN/CSA-C22.2 No. 14-05.
- International Electrical Code - IEC 146.
- Institute of Electrical and Electronics Engineers, Inc. - IEEE 519 - IEEE Standard Practices and Requirements for Harmonic Control in Electrical Power Systems.
- Seismic Standards ASCE 7-10, IBC, CBC, ICC_ESAC156, IEEE 693 and California OSHPD.

Submittals

Submit under provisions of Sections 1.33 and 16.05.

Shop Drawings - Approval

1. Elevation Drawings: Include dimensional information and conduit routing locations.
2. Unit Descriptions: Include amperage ratings, enclosure ratings, fault ratings, nameplate information, and so on, as required for approval.
3. Wiring Diagrams:
 - a) Power Diagram: Include amperage ratings, circuit breaker frame sizes, circuit breaker continuous amp ratings, and so on, as required for approval.

- b) Control Diagram: Include disconnect devices, pilot devices, and so on.
- 4. Major components list.

Product Data Sheets

- 1. VFD and Operator Interface publications.
- 2. Data sheets and publications on all major components including, but not limited to, the following:
 - a) Contactors
 - b) Circuit breaker and fuse (power and control)
 - c) Control power transformers
 - d) Pilot devices
 - e) Relays/Timers

Test procedures shall be per the manufacturer's standards.

Closeout Submittals (Operation and Maintenance Manuals)

Submit under provisions of Sections 1.79.2 and 17.94.

Shop Drawings – Final as shipped

- 1. Elevation Drawings: Include dimensional information and conduit routing locations.
- 2. Unit Descriptions: Include amperage ratings, enclosure ratings, fault ratings, nameplate information, and so on, as required for approval.
- 3. Wiring Diagrams:
 - a) Power Diagram: Include amperage ratings, circuit breaker frame sizes, circuit breaker continuous amp ratings, and so on, as required for approval.
 - b) Control Diagram: Include disconnect devices, pilot devices, and so on.
 - c) Diagrams shall updated based on field modifications and shall be accurate depicting point-to-point wiring.
- 4. Major components list.

Product Data Sheets

- 1. VFD and Operator Interface publications.
- 2. Data sheets and publications on all major components including, but not limited to, the following:
 - a) Contactors
 - b) Circuit breaker and fuse (power and control)
 - c) Control power transformers
 - d) Pilot devices
 - e) Relays/Timers

Test procedures shall be per the manufacturer's standards.

Operation and Maintenance Data

1. Service and Contact information
2. VFD and Operator Interface User Manuals
3. Troubleshooting / Service Manuals

Quality Assurance

Qualifications:

1. Manufacturers:
 - a) The VFD and all associated optional equipment shall be UL listed or recognized.
 - b) The VFD shall contain a UL label attached on the inside of the enclosure cabinet.
2. Suppliers:
 - a) All inspection and testing procedures shall be developed and controlled under the guidelines of the Supplier's quality system and must be registered to ISO 9001 and regularly reviewed and audited by a third-party registrar.
 - b) The VFD shall be factory pre-wired, assembled and tested as a complete package.

Delivery, Storage, and Handling

Contractor shall coordinate the shipping of equipment with the manufacturer.

Contractor shall store the equipment in a clean and dry space at an ambient temperature range of -25 degrees Celsius to 55 degrees Celsius (-13 degrees Fahrenheit to 130 degrees Fahrenheit).

The Contractor shall protect the units from dirt, water, construction debris, and traffic.

Design Requirements

Drive(s) shall be of the size, capacity and quantity as shown on the Plans. VFD supplier shall confirm motor HP, amperage, service factor and operating requirements with motor supplier.

The VFD motor controller shall convert 480 Volt, 3-phase, 60 Hertz utility power to adjustable voltage (0 - 460V) and frequency (0 - 60 Hz.) 3-phase, AC power for stepless motor speed control with a capability of 10:1 speed range. All general options and modifications shall mount within the standard adjustable frequency controller enclosure.

The controller(s) shall be suitable for use with any standard NEMA-B squirrel-cage induction motor(s) having a 1.15 Service factor. At any time in the future, it shall be possible to substitute any standard motor (equivalent horsepower, voltage, and current) in the field.

The variable frequency control shall operate satisfactorily when connected to a bus supplying other solid-state power conversion equipment which may be causing up to 10 percent total harmonic voltage distortion and commutation notches up to 36,500-volt microseconds, or when other VFDs are operated from the same bus. Manufacturers shall certify at submittal time that their equipment will function satisfactorily under these circumstances.

Individual or simultaneous operation of the VFDs shall not add more than 5 percent total harmonic current distortion to the normal bus, nor more than 10 percent while operating from standby generator per IEEE 519, 2014. Prior to project completion, the Contractor shall provide verification through both measurement and calculations that the system is compliant with IEEE 519, 2014.

Part 2 – Products

Manufacturers

The VFD shall be an Allen-Bradley Powerflex 753 model VFD with EtherNet/IP communication interface or pre-approved equal. Approved manufacturers and models are as follows:

- Allen-Bradley – Powerflex 753
- Schneider Electric – ATV900 Series
- Eaton – PowerXL DG1

All drives shall be supplied by one manufacturer.

Manufactured Units

The variable frequency control shall include transient voltage suppression to allow reliable operation on a typical industrial or commercial power distribution system.

Hardware

1. Utilize diode bridge or SCR bridge on the input rectifier.
2. Utilize DC bus inductor on all six-pulse VFDs only.
3. Utilize switching logic power supply operating from the DC bus.
4. Incorporate phase to phase and phase to ground MOV protection on the AC input line.
5. Microprocessor based inverter logic shall be isolated from power circuits.
6. Utilize latest generation IGBT inverter section.
7. Battery receptacle for Lithium battery power to the Real Time Clock.
8. Additional DPI port for handheld and remote HIM options.
9. Dedicated Digital Input for hardware enable.
10. Conformal coated printed circular boards.
11. Informal coated printed circuit boards.
12. Optional onboard 24V DC Auxiliary Control Power Supply.
13. The drive shall have the following specific features to enable integration with a Rockwell Automation ControlLogix™ or CompactLogix™ Automation Controller.
 - a) Shall have Add on Profile available for use with Rockwell Automation Studio 5000 programming software.

- b) Shall support Rockwell Automation controller's Automatic Device Configuration functionality.

Control Logic

1. Ability to operate with motor disconnected when in V/Hz mode.
2. Provide a controlled shut down, when properly protected, with no component failure in the event of an output phase to phase or phase to ground short circuit. Provide annunciation of the fault condition.
3. Provide multiple programmable stop modes including Ramp, Coast, DC-Brake, Ramp-to-Hold, Fast Braking, and Current Limit Stop.
4. Provide multiple acceleration and deceleration rates.
5. Adjustable output frequency up to 650 Hz.
6. Ability to control outputs and manage status information locally within the VFD.
7. Ability to function stand-alone or complementary to supervisory control.
8. Ability to provide scaling, selector switches, or other data manipulations not already built into the VFD.

Motor Control Modes

1. Selectable Sensorless Vector, Flux Vector, V/Hz, and Adjustable Voltage Control modes selectable through programming.
2. The drive shall be supplied with a Start-up and Auto-tune mode.
3. The V/Hz mode shall be programmable for fan curve or full custom patterns.
4. Capable of Open Loop V/Hz.

Current Limit

1. Programmable current limit from 20 percent to 160 percent of rated output current.
2. Current limit shall be active for all drive states: accelerating, constant speed and decelerating.
3. The drive shall employ PI regulation with an adjustable gain for smooth transition in and out of current limit.

Acceleration / Deceleration

1. Accel/Decel settings shall provide separate adjustments to allow either setting to be adjusted from 0 to 3600 seconds.
2. A second set of remotely selectable accel/decel settings shall be accessible through digital inputs.
3. S Curve profiles shall be adjustable.

Adjustments

1. A digital interface can be used for all set-up, operation and adjustment settings.
2. All adjustments shall be stored in nonvolatile memory (EEPROM).
3. No potentiometer adjustments shall be required.
4. EEPROM memory for factory default values shall be provided.
5. Software must be available for trending and diagnostics, as well as online and offline programming functionality.

Process PID Control

1. The drive shall incorporate an internal process PI regulator with proportional and integral gain adjustments as well as error inversion and output clamping functions.
2. The feedback shall be configurable for normal or square root functions. If the feedback indicates that the process is moving away from the set-point, the regulator shall adjust the drive output until the feedback equals the reference.
3. Process control shall be capable of being enabled or disabled with a hardwire input. Transitioning in and out of process control shall be capable of being tuned for faster response by preloading the integrator.
4. Protection shall be provided for a loss of feedback or reference signal.

Skip Frequencies

1. Three adjustable set points that lock out continuous operation at frequencies which may produce mechanical resonance shall be provided.
2. The set points shall have a bandwidth adjustable from Maximum Reverse Speed to Maximum Forward Speed.

Fault Memory

1. The last 100 fault codes shall be stored and time stamped in a fault buffer.
2. Information about the drive's condition at the time of the last fault such as operating frequency, output current, dc bus voltage and twenty-seven other status conditions shall be stored.
3. A power-up marker shall be provided at each power-up time to aid in analyzing fault data.
4. The last 100 alarm codes shall be stored and time stamped for additional troubleshooting reference.

Fault Reset / Run

1. The drive shall provide up to nine automatic fault reset and restarts following a fault condition before locking out and requiring manual restart.
2. The automatic mode shall not be applicable to a ground fault, shorted output faults and other internal microprocessor faults.
3. The time between restarts shall be adjustable from 0.5 seconds to 30 seconds.

Run on Power Up

1. A user programmable restart function shall be provided to allow restart of the equipment after restoration of power after long duration power outages. Restart time dependent on presence of incoming signal.

Overload Protection

1. The drive shall provide internal class 10 adjustable overload protection.
2. Overload protection shall be speed sensitive and adjustable.
3. A viewable parameter shall store the overload usage.

Auto Economizer

1. An auto economizer feature shall be available to automatically reduce the output voltage when the drive is operating in an idle mode (drive output current less than programmed motor FLA). The voltage shall be reduced to minimize flux current in a lightly loaded motor thus reducing kW usage.
2. When the load increases, the drive shall automatically return to normal operation.

Terminal Blocks

1. Separate terminal blocks shall be provided for control and power wiring.
2. I/O terminal blocks shall be removable with wiring in place.
3. For frames 8 to 10 power wiring is landed on robust L-brackets behind the drive unit. This wiring remains in-place if the drive unit is removed.

Flying Start

1. The drive shall be capable of determining the speed and direction of a spinning motor and adjust its output to "pick-up" the motor at the rotating speed. This feature is disabled by default.

Inputs and Outputs

1. The Input / Output option modules shall consist of both analog and digital I/O.
2. No jumpers or switches shall be required to configure digital inputs and outputs.
3. All digital input and output functions shall be fully programmable.
4. The control terminal blocks shall be rated for 115V AC.
5. Inputs shall be optically isolated from the drive control logic.
6. The control interface card shall provide input terminals for access to fixed drive functions that include start, stop, external fault, speed, and enable.
7. The VFD shall be capable of supporting up to 7 analog inputs, 7 analog outputs, 21 digital inputs, 7 relay outputs, 7 transistor outputs, and 3 positive temperature coefficient (PTC) inputs.

8. The Input / Output option modules shall have the following features:
- a) Analog Inputs:
 - i. Quantity two (2) differentially isolated, $\pm 10V$ (bi-polar), 88k ohm input impedance, 4-20 mA, 11 bit plus sign.
 - ii. Analog inputs shall be user programmable for a variety of uses including frequency command and process loop input. Analog inputs shall be user programmable for function scaling (including invert), offset, signal loss detect, and square root.
 - b) Analog Outputs:
 - i. Quantity two (2) $\pm 10V$ (bi-polar) / 11 bit and sign, 2 k ohm minimum load, 4-20 mA, 11 bit plus sign, 400 ohm maximum load.
 - ii. The analog output shall be user programmable to be proportional to one of fourteen process parameters including output frequency, output current, encoder feedback, output power.
 - iii. Programming shall be available to select either absolute or signed values of these parameters.
 - c) Digital Inputs:
 - i. Quantity of six (6) digital inputs rated 24V DC/115V AC.
 - ii. All inputs shall be individually programmable for multiple functions including: Start, Run, Stop, Auxiliary Fault, Speed Select, Jog and Process PI functions.
 - d) Digital Outputs:
 - i. At least one (1) relay output (N.O. or N.C.).
 - ii. For 240V AC or 24V DC, N.O. contact output ratings shall be 2-amp maximum, general purpose (inductive)/resistive. N.C. contact output ratings shall be 2-amp maximum, resistive only.
 - iii. Relays shall be programmable to multiple conditions including: Fault, Alarm, At Speed, Drive Ready, and PI Excess Error.
 - iv. Timers shall be available for each output to control the amount of time, after the occurring event, that the output relay actually changes state.
 - v. At least one (1) transistor output.
 - vi. For 24V DC, transistor output rating shall be 1-amp maximum, Resistive.

Reference Signals

1. The drive shall be capable of using the following input reference signals:
- a) Analog Inputs
 - b) Preset Speeds
 - c) Remote Potentiometer
 - d) Digital MOP

- e) Human Interface Module
- f) Communication Modules

Loss of Reference

1. The drive shall be capable of sensing reference loss conditions.
2. In the event of loss of the reference signal, the drive shall be user programmable to the following:
 - a) Fault the drive and coast to stop.
 - b) Issue a minor fault - allows the drive to continue running while some types of faults are present.
 - c) Alarm and maintain last reference.
3. When using a communications network to control the drive, the communications adapter shall have these configurable responses to network disruptions and controller idle (fault or program) conditions:
 - a) Fault
 - b) Stop
 - c) Zero Data
 - d) Hold Last State
 - e) Send Fault Configuration

Metering

1. At a minimum, the following parameters shall be accessible through the Human Interface Module, if installed:
 - a) Output Current in Amps
 - b) Output Voltage in Volts
 - c) Output Power in kW
 - d) Elapsed MWh
 - e) DC Bus Voltage
 - f) Frequency
 - g) Heatsink Temperature
 - h) Last eight (32) faults
 - i) Elapsed Run Time
 - j) IGBT Temperature
 - k) Blown fuses, including specific fuse locations communicated to the host system

Faults

1. At a minimum, the following faults shall be accessible through the Human Interface Module:
 - a) Power Loss
 - b) Undervoltage
 - c) Overvoltage
 - d) Motor Overload
 - e) Heat Sink Over-temperature
 - f) Maximum Retries
 - g) Phase to Phase and Phase to Ground Faults

Predictive Maintenance Features

1. At a minimum, the following predictive diagnostic features shall be provided, and a parameter showing the remaining lifetime expressed as hours of the following components will be available:
 - a) Relay Output Life Cycles based on load type and amps.
 - b) Hours of Fan Life based on load and ambient temperature.
 - c) Motor Bearing life based on expected hours of use.
 - d) Motor Lubrication schedule based on hours of use.
 - e) Machine Bearing life based on expected hours of use.
 - f) DC Bus Capacitors based on actual use (temperature, current, and ripple).
 - g) IGBTs based on actual load and temperature.
 - h) LCL filter Capacitors based on actual use.

Real-Time Clock

1. Shall be capable of providing time stamped events.
2. Shall have the ability to be set locally or via a remote controller.
3. Shall provide the ability to be programmable for month, day, year and local time zones in HH:MM:SS.

VFD Packaged System

Basic Features

1. Ratings
 - a) Voltage
 - i. Capable of accepting nominal power of 480V AC at 60 Hz.
 - ii. The supply input voltage tolerance shall be ± 10 percent of nominal line voltage.

- b) Displacement Power Factor
 - i. Six-pulse VFD shall be capable of maintaining a minimum true power factor (Displacement P.F. X Distortion P.F.) of 0.95 or better at rated load and nominal line voltage, over the entire speed range.
 - c) Efficiency
 - i. A minimum of 96.5 percent (+/- 1 percent) at 100 percent speed and 100 percent motor load at nominal line voltage.
 - ii. Control power supplies, control circuits, and cooling fans shall be included in all loss calculations.
 - d) Operating ambient temperature range without derating: 0 degrees Celsius to 40 degrees Celsius (32 degrees Fahrenheit to 104 degrees Fahrenheit).
 - e) Operating relative humidity range shall be 5 percent to 95 percent non-condensing.
 - f) Operating elevation shall be up to 1,000 Meters (3,300 ft) without derating.
2. Sizing
- a) Systems rated at Normal Duty loads shall provide 110 percent overload capability for up to one minute and 150 percent for up to 3 seconds.
 - b) Systems rated at Heavy Duty loads shall provide 150 percent overload capability for up to one minute and 180 percent for up to 3 seconds.
3. Auto Reset/Run
- a) For faults other than those caused by a loss of power or any other non-critical fault, the drive system shall provide a means to automatically clear the fault and resume operation.
4. Ride-Through
- a) The VFD system shall attempt to ride through power dips up to 20 percent of nominal. The duration of ride-through shall be inversely proportional to load. For outages greater than 20 percent, the drive shall stop the motor and issue a power loss alarm signal to a process controller, which may be forwarded to an external alarm signaling device.
5. Run on Power Up
- a) The VFD system shall provide circuitry to allow for remote restart of equipment after a power outage. Unless indicated in the contact drawings, faults due to power outages shall be remotely resettable. The VFD system shall indicate a loss of power to a process controller, which may be forwarded to an external alarm signaling device. Upon indication of power restoration the process controller will attempt to clear any faults and issue a run command, if desired.
6. Communications
- a) VFD shall be capable of communicating on multiple networks.
 - b) The VFD shall provide a Dual Port EtherNet/IP interface.

- c) VFD shall be capable of supporting the following network options:
 - i. DeviceNet
 - ii. EtherNet/IP
 - iii. ControlNet Coax
 - iv. ControlNet Fiber
 - v. Interbus
 - vi. CANopen
 - vii. Modbus/TCP
 - viii. Modbus RTU
 - ix. Profibus DP
 - x. RS-485 DF1
 - xi. RS-485 HVAC
 - xii. Remote I/O
- 7. Enclosure Door Mounted Human Interface Module (HIM)
 - a) VFD shall provide a HIM with integral LCD display, operating keys and programming keys.
 - b) An enclosure door-mounted HIM, rated NEMA/UL Type 4/12, shall be provided
 - c) The HIM shall have the following features:
 - i. A seven (7) line by twenty-one (21) character backlit LCD display with graphics capability.
 - ii. Shall indicate drive operating conditions, adjustments, and fault indications.
 - iii. Shall be configured to display in the following three distinct zones:
 - a. The top zone shall display the status of direction, drive condition, fault / alarm conditions, and Auto / Manual mode.
 - b. The middle zone shall display drive output frequency.
 - c. The bottom zone shall be configurable as a display for either programming menus / information or as a two-line user display for two additional values utilizing scaled units.
 - iv. Shall provide digital speed control.
 - v. The keypad shall include programming keys, drive operating keys (Start, Stop, Direction, Jog, and Speed Control), and numeric keys for direct entry.

Enclosure

- 1. Shall be rated NEMA/UL Type 12.
- 2. Shall be painted per the manufacturer's standard.

3. Shall provide entry and exit locations for power cables.
4. Shall contain a label for UL508.
5. The drive system nameplate shall be marked with system Short Circuit Current Rating (SCCR).

Drive Enclosure Input Disconnect

1. Provide an enclosure door interlocked disconnect with disconnect.
2. Operator Handles
 - a) Provide externally operated main disconnect handle.
 - b) Handles shall be lockable with up to three lockout / tagout padlock positions.

Branch Circuit Protection

1. Input inverse time circuit breaker shall be provided.

Control Power Transformer

1. Provide a control power transformer mounted and wired inside of the drive system enclosure.
2. The transformer shall be rated for the VFD power requirements.

Harmonic Mitigation Techniques

1. The drive system shall be compliant with IEEE 519-2014 standards at the input VFD terminals based upon the input power phase imbalance within 0.5 percent of nominal line voltage and under full VFD output current ratings
2. Passive Harmonic Filter
 - a) VFDs shown with passive harmonic line filters shall be supplied with an input AC line harmonic filter compensated reactor with minimum 5 percent impedance unless noted otherwise on the one-line diagram. Line reactor shall be designed to address performance issues of NEMA MG1-20.55 and to provide proper transient protection of the VFD input power devices. Harmonic line filters shall be MTE Matrix Series AP Harmonic Filters or equal, with Capacitor Contactor for disconnecting the filter capacitor bank when the drive is not running.

Auxiliary Relays

1. Provide relays for Drive Alarm, Drive Ready, Drive Fault, Drive Run, and System Status Faults (as required).
2. See section 16.32.1 Relays.

Control Interface

1. The control terminals shall be rated for 115V AC.
2. The control interface shall provide input terminals for access to VFD functions that include start, stop, external fault, speed select, and enable, as required.

Pilot Lights

1. Provide LED pilot lights, mounted on the enclosure door, for indication of the following status:
 - a) Drive Fault
2. See section 16.31.6 Indicating Lights.

Output Filtering

1. DV/DT output filter.

Part 3 – Execution

Setup

VFD Manufacturer shall program:

1. All fault settings to reset after fault condition returns to normal
2. Minimum and maximum motor speeds provided by motor manufacturer.
3. Hertz change per second.
4. Hand speed control shall be set to 95 percent of full range for panel mounted HOA switch.
5. EtherNet/IP and HIM module communication faults/alarms to “No Action”. Communication errors should not shut down the VFD.
6. Parameter 150 (Digital In Cfg) to “Run Level”, not “Run Edge”.
7. Parameter 292 and I/O card parameters 106 and 116 (Life Event Parameter Settings) to “No Action” so that these life event alarms do not fault the VFD.

VFD Supplier shall provide documentation on how to control the drive over EtherNet/IP. This information should include a unique list of parameter, relay, setpoint, input/output, and control addressing as shown on the Plans and detailed in these specifications. A generic list does not meet this requirement. An Add-on-instruction or profile compatible with Rockwell Automation Studio 5000 programming would meet this requirement.

Examination

Verify that location is ready to receive equipment.

Verify that the building environment can be maintained within the service conditions required by the manufacturer of the VFD.

Testing

This equipment shall be tested and placed into operation by a qualified factory representative trained in start-up and troubleshooting procedures for equipment being installed.

All components shall be factory tested both by the manufacturer at the manufacturer’s facility and in the presence of the Engineer by the manufacturer or manufacturer’s representative at the manufacturer’s facility or at a Control System Integrator’s shop located within 100 miles of the job site. Factory testing shall be witnessed by the Engineer. If factory witness testing is

to occur at the manufacturer's facility, the manufacturer's facility where testing takes place shall be located within the United States of America. Shipment of VFD to the job site shall not be allowed until the Engineer has witnessed factory testing and approved the VFD for shipment to the job site.

Installation

Installation shall be in compliance with all manufacturer requirements, instructions, and drawings.

Startup

At a minimum, the start-up service shall include:

1. Perform pre-Power Check
2. Megger Motor Resistances: Phase-to-Phase and Phase-to-Ground
3. Verify system grounding per manufacturer's specifications
4. Verify power and signal grounds
5. Check connections
6. Check environment

Drive Power-up and Commissioning:

1. Measure Incoming Power Phase-to-Phase and Phase-to-Ground
2. Measure DC Bus Voltage
3. Measure AC Current Unloaded and Loaded
4. Measure Output Voltage Phase-to-Phase and Phase-to-Ground
5. Verify input reference signal

All measurements shall be recorded.

Drive shall be tuned for system operation.

Drive parameter listing shall be provided.

The line side converter shall be configured and tuned for the local input power conditions.

The motor side inverter shall be tuned for system operation.

Training

Manufacturer to provide a quantity of one 4-hour sessions of on-site instruction.

The instruction shall include the operational and maintenance requirements of the variable frequency drive.

The basis of the training shall be the variable frequency drive, the engineered drawings and the user manual. At a minimum, the training shall:

1. Review the engineered drawings identifying the components shown on the drawings.
2. Review starting / stopping and speed control options for the controller.

3. Review operation of the HIM for programming and monitoring of the variable frequency drive.
4. Review the maintenance requirements of the variable frequency drive.
5. Review safety concerns with operating the variable frequency drive.

16.50 PANELBOARDS

16.52 Panelboards

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 75 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	42,000 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

16.55.1 Common Work for Switches and Protective Devices

Part 1 - General

Design Requirements

Overcurrent devices shall be NEMA rated.

Extra Materials

Provide one fuse for each ungrounded conductor and a minimum of one spare fuse per phase of each ampacity and voltage used on the project. Deliver fuses to Owner at the completion of the project.

Part 3 – Execution

Installation

Overcurrent protection devices and safety switches shall be centered 60 inches above the finished floor unless noted otherwise on the Plans.

16.55.13 Fuses

Part 1 - General

Design Requirements

Fuses shall be of the type and amperage indicated on the Plans. The voltage rating shall be appropriate for the application indicated. The fuse types indicated on the Plans imply a certain set of fuse characteristics. No substitutions of fuse types will be allowed without Engineer approval.

Part 2 - Products

Manufacturers

Fuses shall be:

- Bussman,
- Gould Shawmut
- Littlefuse
- Reliance
- Or Equal

Materials

Fuses in motor circuits which are indicated but not sized, shall be provided with Manufacturer's recommended size based on the actual motor installed. In-line or integrally-mounted fuse clips shall be provided on all control power or low-voltage transformers.

16.55.16 Molded Case Circuit Breakers

Part 1 - General

Design Requirements

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.

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.

16.55.17 Instantaneous Magnetic Trip Breakers

Part 1 - General

Design Requirements

The magnetic trips shall be adjustable and accessible from the front of all these breakers.

Part 2 - Products

Manufactured Units

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

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. 120/208 Volt, 3 Phase: Red, black and blue.
2. 277/480 Volt, 3 Phase: Yellow, brown and orange.
3. 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 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 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.

16.63 Signal Cable

Part 2 - Products

Materials

Twisted Shielded Pairs (TSP)

1. Cable shall conform to IEEE 383, UL 13, and UL 83 and shall be type PLTC cable suitable for direct burial. Each TSP shall consist of two #16 AWG, 7-strand copper conductors per ASTM B8 with 15 Mils PVC insulation and individual conductor jacket of nylon. Conductors shall be twisted with 2-inch or shorter lay, with 100 percent foil shielding and tinned copper drain wires. The cable shall have an overall PVC jacket with a thickness of 35 Mils. The insulation system shall be rated at 90 degrees Celsius and for operation at 600 volts.

Cat 5E Ethernet Cable

1. The Ethernet cable shall be shielded 600V UL rated. The use of a 300V rated cable is not acceptable. All Ethernet cable terminating outside of a telemetry panel shall be grounded at the telemetry panel only.
2. Ethernet cables shall be industrial type Ethernet cable and UL listed for installation in the Motor Control Center. Ethernet cables shall be Allen-Bradley Ethernet Cable with metal In-cabinet RJ45 Connectors, no substitutions.

Part 3 - Execution

Installation

Cable Installation

1. Cables shall be continuous from initiation to termination without splices.
2. Cable shielding shall be grounded at one end of the cable only. Bonding shall be to a single ground point only. Bonding from cable to cable in multiple run installations shall not be permitted.
3. Install instrumentation cables in separate raceway systems with voltages not to exceed 30 volts DC.

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 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 shown in the circuit schedule as determined 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: Perform insulation resistance on all circuits. Make these tests before any equipment has been connected. Test the insulation with a 500 Vdc insulation resistance tester with a scale reading 100 mega ohms. The insulation resistance shall be 20 mega ohms or more. Submit results to Engineer for review.

16.70 RACEWAYS, BOXES, AND FITTINGS

16.71 Raceways

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.

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.

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.

Wireways

1. General: Wireways shall consist of prefabricated channel-shaped, lay-in trough with hinged covers, associated fittings and supports. Straight section shall not be longer than 5 feet. Use 45-degree elbow and tees at all transition points. Cross-sectional dimensions shall be as indicated on the Plans. Fittings shall consist of elbows, tees, crosses and closing plates as required. Wireways shall be designed for continuous grounding.
2. Finish: Rust inhibiting primer and manufacturers standard paint inside and out except of stainless-steel type.
3. Standards: UL 870, NEMA 520
4. Watertight (NEMA 4X rated) Wireway
 - a) 14-gauge Type 304 or 316 stainless steel bodies and covers without knockouts and 10-gauge stainless steel flanges.
 - b) Cover: Fully gasketed and held in place with captive clamp type latches.
 - c) Flanges: Fully gasketed and bolted.
5. Dust-tight (NEMA 12 rated) Wireway
 - a) 14-gauge steel bodies and covers without knockouts and 10-gauge steel flanges.
 - b) Cover: Fully gasketed and held in place with captive clamp type latches.
 - c) Flanges: Fully gasketed and bolted.

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 for power and control wiring.

2. GRS for instrumentation and telecommunications wiring.
3. GRS for motor leads from VFDs.

ABOVE GRADE CONDUITS (wet or corrosive areas, NFPA 70 hazardous areas) shall be:

1. PVC-GRS for power and control wiring.
2. PVC-GRS for instrumentation and telecommunications wiring.
3. PVC-GRS for motor leads from VFDs.

CONCEALED ABOVE GRADE CONDUITS shall be:

1. GRS for all wire and cable types in wood stud frame walls.
2. PVC-40 for power and control wiring in concrete block or brick walls.
3. PVC-40 for instrumentation and telecommunications wiring in CMU or brick walls.
4. GRS for motor leads from VFDs in CMU or brick walls.

BELOW GRADE CONDUITS IN DIRECT EARTH (not under slabs-on-grade) shall be:

1. PVC-40 for power and control wiring.
 - a) Sweeps and risers for transition of PVC from below grade to above grade shall be PVC-GRS.
2. PVC-GRS for instrumentation and telecommunications wiring.
3. PVC-GRS for motor leads from VFDs.

UNDER SLABS-ON-GRADE CONDUIT shall be:

1. PVC-40 for power and control wiring
 - a) Sweeps and risers for transition of PVC from below grade to above grade shall be PVC-GRS.
2. PVC-GRS for instrumentation and telecommunications wiring.
3. PVC-GRS for motor leads from VFDs.

CONCRETE-ENCASED CONDUITS shall be:

1. PVC-40 for power and control wiring
 - a) Sweeps and risers for transition of PVC from below grade to above grade shall be PVC-GRS.
2. PVC-40 for instrumentation and telecommunications wiring.
 - a) Sweeps and risers for transition of PVC from concrete-encasement to above grade shall be PVC-GRS.
3. PVC-GRS for motor leads from VFDs.

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.
2. Connection to equipment outdoors or in corrosive areas shall be with non-metallic liquidtight flexible conduit (except for motor leads from VFDs shall be flexible metallic.)

Installation

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.

Conduit shall not be routed on exterior of structures except as specifically indicated on the Plans.

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.

Analog signal conduits shall be separated from power or control conduits. The separation shall be a minimum of 12-inches for metallic conduits and 24-inches for nonmetallic conduits.

Install explosion-proof seal-offs in hazardous areas shown on the Plans and as required by the NEC.

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

Part 1 – General

Design Requirements

In corrosive areas, all junction boxes shall be NEMA 4X.

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 1/8-inch.

Finishes

Where only cast aluminum is available for certain types of fixture boxes, an epoxy finish shall be provided.

16.72.3 Watertight Enclosures

Part 2 – Products

Manufacturers

The watertight enclosure shall be equal to Hoffman.

Materials

Watertight enclosures for vault electrical outlets shall be molded from fiberglass reinforced polyester material. A hinged cover shall be gasketed and opened with quick release latches. The conduit penetrations shall be sealed watertight.

Part 3 – Execution

Installation

An epoxy plug shall be installed in the conduit to prevent the migration of water into the conduit. The enclosure shall be NEMA rated and installed per all applicable codes.

16.85 Lighting

16.85.1 Common Work for Lighting Fixtures

Part 1 - General

Design Requirements

Fixtures shall be a standard, cataloged item general description as called for on the Plans. All fixtures shall be UL approved and so labeled. Provide suitable supports and mountings.

Part 2 – Products

Manufacturers

As shown on Plans. Equals will be accepted.

16.85.2 Lamps

Part 1 - General

Design Requirements

Provide all lamps as specified. Refer to the Lighting Fixture Schedule on the Plans for the ordering information on lamps. Fluorescent lamps shall be standard type, not energy efficient type due to low temperature conditions. Lamps shall be new at the time of acceptance.

Lamps shall be provided for all lighting fixtures.

Warranty

Lamps 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.

16.85.3 Fixtures

Part 1 - General

Design Requirements

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. Fixtures for use in hazardous locations shall be UL listed per UL Standard 844.

16.85.4 Ballast

Part 1 - General

Design Requirements

Fluorescent lamp ballast shall be UL “P” rated. Ballast shall be CBM certified and bear the UL label. Ballast shall be General Electric Maxi-Miser II, Advance Mark II, or equal.

Ballasts in luminaries for exterior use shall provide reliable starting of lamps at 0 degrees Fahrenheit at 90 percent of the nominal line voltage. All locations, other than totally enclosed rooms, shall be considered exterior.

Warranty

Ballasts producing excessive noise (above 36 dB) or vibration will be rejected and shall be replaced at no expense to the Owner.

16.90 POWER GENERATION

16.92 Transfer Switches

16.92.2 Automatic Transfer Switch

Part 1 - General

Design Criteria

The transfer switch shall be NEMA 1 rated and equipped with three poles for normal and emergency service of 480 volts, 60 hertz, 3-phase. Transfer switch shall be rated for a minimum of 800 Amps.

The transfer switch shall be mechanically and electrically held and rated to 480 volts for all classes of load and continuous inductive duty.

The transfer switch shall conform to UL 1008 provisions for Withstand Current Ratings and Closing Ratings. The transfer switch shall be rated at a minimum Withstand Rating of 42,000 Amps.

The switch shall be capable of enduring 6,000 cycles of complete opening and closing at rated current and voltage at a rate of 6 cycles per minute without failure.

The switch shall be double throw inherently interlocked mechanically and electrically to prevent supplying the load from both sources simultaneously. The operating current shall be obtained from the source to which the load is to be transferred. The transfer mechanism shall be of the double break design with solid silver cadmium surface contacts and individual heat resistant arc chambers.

Arc barriers and magnetic blowout coils will also be acceptable if single break contacts are used. The contacts shall be capable of carrying 20 times the continuous rating for interrupting current.

All contacts, coils, etc. shall be readily accessible for replacement from front of panel without major disassembly of associated parts.

Part 2 – Products

Manufactured Units

The automatic transfer switch shall be a Cummins model OTPC automatic transfer switch, no substitutions.

Components

The transfer switch shall include the following accessories:

Undervoltage Sensor

1. Adjustable solid-state low voltage sensing relays (pick up 85 to 98 percent of normal voltage set at 98 percent; drop out 75 to 100 percent set of 90 percent of pickup setting). Provide for each phase on both utility and backup power sources.

Time Delay Start and Stop on Drop Out

1. Solid state adjustable time delay on start (0 to 15 seconds). Set start delay for 15 seconds. Timer will send start signal to gen set CP, where louver timer will allow 15 second delay for louvers to open prior to starting gen set.

Time Delay Stop

1. Solid state adjustable time delay (0 to 10 minutes) to allow generator cooldown after normal power is restored and retransfer occurs. Set at 5 minutes.

Time Delay Transfer and Retransfer

1. Solid state time delay relay adjustable 2 to 120 seconds for transfer to emergency and 0 to 30 minutes for retransfer to normal. Set at 5 minutes for retransfer to normal. Set at 3 seconds for transfer to emergency.

With or Without Load Selector Switch

1. Switch to select exercise with or without station load.

Normal-Test Switch

1. Switch such that in the “Normal” mode the transfer switch will operate automatically and in the “Test” mode the generator will start for test purposes. This switch shall work in conjunction with the “With” or “Without” load switch.

Exerciser Clock

1. Provide solid state exerciser clock to set the day, time, and duration of generator set exercise/test period. Provide “With” or “Without” load selector switch for the exercise period.

Programmed Transition

1. The load transfer control shall be capable of remaining in the neutral position for an adjustable time of 0.5 to 60 seconds when transferring from on-line power source to the other to allow residual voltages to decay before application of the source. Set at 60 seconds.
 - a) Position lights for normal and emergency positions indication and for normal and emergency power available.
 - b) Switch position indication limit switches for normal and generator positions.
 - c) Provide dry contacts wired to terminal strip for 1) ATS in emergency position, 2) ATS common trouble alarm, 3) Normal Position.

Power Meters

1. Provide an AC Voltmeter, an Ammeter, and a Frequency meter; 2.5-inch, analog, 2-percent accuracy. Provide a phase selector switch to read L-L voltage and current of both power sources.

Operator Interface Display

1. Provide operator interface display that allows operators to adjust all settings and see all values.

Control Board

1. Provide current generation hardware and firmware for the control board.

Provide manual override switch to bypass the control system and transfer load from source to source when control is disabled.

16.95 Testing

16.95.1 Common Work for Testing

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 $\frac{1}{2}$ 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.

Field Quality Control

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

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

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Division 17

Automatic Control

17.00 GENERAL

This division covers all work necessary for furnishing, installing, adjusting, testing, documenting, and starting-up the Instrumentation and Control (I&C) and Telemetry System. Programmable logic controller (PLC) shall provide local, automatic control of on-site pumps and control valves. Computer-based telemetry system will provide remote control, alarm presentation, and data logging activities at the Owner's public works building.

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

These specifications are an integral part of the contract documents for the I&C and Telemetry portion of this contract. The written descriptions of system performance contained herein are given to assist the Contractor in interpreting the contract plans but are not intended to be all-inclusive. The Contractor shall be aware that all automatic control systems do not require the same components and accessories for complete system operation. Therefore, these specifications do not include all accessories and appurtenances required for a complete system. The Contractor shall, however, provide all accessories and appurtenances to result in a completely operational system as required to meet the functional requirements of these documents. Where specific equipment specifications are given, they are used to represent the level of quality required by these documents.

17.05 Common Work for Automatic Control

Part 1 - General

Summary

The work under this division covers construction specifically described in these specifications. Project Plans will be provided for this project. All work incidental and necessary to the completion of the project described herein shall be completed under the bid item listed in the bid proposal, and no other compensation will be allowed. The work generally consists of the following:

- Detailed system layout and design for the particular equipment bid in accordance with these functional specifications.
- Furnishing of I&C equipment including delivery, storage, software, programming, installation, testing, startup, and documentation.
- Providing operator maintenance manuals for all equipment and devices provided by this Contract.
- Providing system training to the operators of the proposed equipment.

Related Sections

- Division 16 Electrical

References

The project Plans are based on Instrument Society of America (ISA) standards numbers S5.1, S5.2, S5.3, and S5.4. The Contractor is encouraged to be familiar with these standards since the project plans do not contain wiring or ladder diagrams, but are based on the functional requirements of the ISA format.

All equipment and materials shall conform to the latest revised editions of applicable standards published by the following organizations:

- American National Standards Institute (ANSI).
- Institute of Electrical and Electronic Engineers (IEEE).
- National Electrical Manufacturers Association (NEMA).
- Underwriters' Laboratories (U/L).
- Instrument Society of America (ISA)

All equipment and materials, and the design, construction, installation, and application thereof shall comply with all applicable provisions of the National Electrical Code (NEC), the Occupational Safety and Health Act (OSHA), and any applicable Federal, State, and local ordinances, rules and regulations. All materials and equipment specified herein shall be within the scope of Underwriter's Laboratory (UL) examination services, be approved by the UL for the purpose for which they are used and shall bear the UL label.

All control panels shall bear a label by UL or by an approved testing authority for the completed assembled panel.

Definitions

Contractor: The Contractor, as distinct from the Control System Integrator, shall install panels and other materials furnished by the Control System Integrator and provide all materials and work necessary and thereby, satisfy all requirements that are within the scope of this section.

Control System Integrator: A single company subcontracted by the Contractor, who shall design and furnish the system, provide the instrument panels; provide the variable frequency drives, startup, training services, and other instrument components.

Control System Programmer: A single firm, pre-selected and contracted by the owner, who shall furnish all programming, startup and training services related to programming. The Control System Programmer shall be RH2 Engineering, Inc.

Submittals

All submittals shall be complete, neat, orderly and indexed. Partial submittals will not be accepted. Submittal information shall be provided to the Owner for the following items:

- Variable Frequency Drives
- Flume Flow Meter Sensor and Transmitter
- Telemetry Panel Modification Hardware
- Operation and Maintenance Manuals per Division 1.79.2 and Division 17.94

- Full size nameplate wording schedules, in lettering style proposed for use.

In addition to the requirements of Division 1.33, the Contractor shall develop and submit the following information provided by the Control System Integrator.

Hardware Submittals

Before any components are fabricated, and/or integrated into assemblies, or shipped to the site, the Contractor shall prepare a complete hardware submittal. The Engineer shall require five (5) sets, including fully detailed shop drawing, catalog cuts, wiring connections, and such other descriptive matter and documentation as may be required to fully describe the equipment and to demonstrate its conformity to these Specifications. The decision of the Engineer, upon the acceptability of any submittal, shall be final. Catalog information shall be submitted for all components and equipment, regardless of whether or not it is of the same manufacture as that listed in the Specifications.

System Plan Submittals

Following approval of the hardware submittal, the Control System Integrator shall prepare complete system interconnect wiring diagrams and panel layout plans for approval.

Plans

The Control System Integrator shall develop all shop drawings required for design, fabrication, assembly and installation of the control system. Shop drawings shall include all plans required in manufacture of specialized components and for assembly and installation of them.

Plans shall be prepared with a CAD program capable of exporting to AutoCAD format, and printed on 11-inch by 17-inch media. Plans shall have borders and title blocks identifying the project system, revisions to the plans, and type of plan. Each revision of a plan shall carry a date and brief description of the revisions. Diagrams shall carry a date and brief description of the revisions. Diagrams shall carry a uniform and coordinated set of wire numbers and terminal block numbers in compliance with panel work wiring. Additionally, one set of electronic .DWG files shall be provided to the Owner.

Elementary Diagrams

The Contractor shall provide elementary diagrams for all discrete loops. Loop diagrams shall be prepared in compliance with ISA S5.4 and shall be provided for all analog loops. Elementary diagrams and loop diagrams shall show circuits and devices of a system. These diagrams shall be arranged to emphasize device elements and their functions as an aid to understanding the operation of a system and maintaining or troubleshooting that system. Elementary and loop diagrams shall also show wire numbers, wire color codes, signal polarities, and terminal block numbers.

Panel Fabrication and Arrangements Plans

The Contractor shall provide arrangement plans of all panel front- and internal-mounted instruments, switches, devices, and equipment indicated. All panel mounting details shall be shown. Outer dimensions of all panels shall be included on the plan. Deviations from approved arrangements require approval prior to installation.

Arrangement plans shall be drawn to scale using standard Architectural or Engineering scales.

Site Conditions

Specified instrumentation and control equipment shall be modified, if necessary, to make it suitable for operation in the ambient conditions specified in Division 1.

Warranty

In addition to any other warranties required by the specifications, the entire PLC system will be warranted against defects in materials, workmanship, and software functions for a period of one (1) calendar year following the successful completion of the Functional Acceptance Test (FAT). The Contractor or designated service organization will be available on 24-hour notice to correct any system problems without charge to the Owner during the warranty period. In addition, the Contractor will provide four 2-day site visits during the warranty period to perform inspection and calibration of the equipment or other work at the request of the Owner.

Extra Materials

The Contractor shall supply sufficient spare parts, components, and assemblies to replace *any* defective or malfunctioning control component provided in this system. Control components are considered any device or combination of devices without which normal automatic control as outlined in this specification cannot be accomplished, and includes:

1. Two (2) spares of each part, component, or assembly, if more than ten (10) of those components are normally in use in the system.
2. One (1) box of each fuse type provided on this project. If ten (10) or more of a fuse type is provided for the project, then two (2) spare boxes shall be provided.
3. One (1) spare relay of each rating type provided on this project.

Spare part components shall be packaged for at ease of field installation by non-trained personnel, so that no soldering or special skills are required for installation. All spare parts shall be delivered in a hinged plastic box that is purposefully made for this contract. The box shall have a parts list permanently attached to the inside lid which lists all parts and refers to them by numbered code visible on the outside of the package. Fragile components shall be adequately protected with cut foam. Electronic components shall be wrapped in ultra-violet inhibiting file. The exterior of the box shall be labeled "Telemetry Spare Parts – Sewer Department." Provide the box with lifting handles.

Part 2 – Products

Components

These Specifications list major instruments required to provide the process instrumentation system. All instrument functions specified on this list shall be provided by the Control System Integrator. Any additional instruments required to complete the instrument loops because of certain characteristics of the particular equipment selected by the Control System Integrator shall be provided. Such additional instruments shall be provided and included in the original contract price even though not specified in the instrument index or on the Plans.

The following systems utilize automatic control:

- Pump controls

Accessories

Provide all accessories required to furnish a complete control system that meets the requirements of the Plans and Specifications.

Source Quality Control

Material shall be new, free from defects, and of the quality specified. All equipment and materials utilized in the system shall be the products of Manufacturers with at least five (5) years of experience in the manufacture of similar equipment. Similar items in the system shall be the products of the same Manufacturer. All equipment shall be of industrial grade and of standard construction, shall be capable of long, reliable, trouble-free service, and shall be specifically intended for control and monitoring of operation of motor-driven pumps and equipment. All equipment shall be of modular design to facilitate interchangeability of parts and to assure ease of servicing.

Part 3 - Execution

Installers

Installation shall be performed by the workers who are skilled and experienced in the installation of I&C and Telemetry systems.

Installation

Installation and testing procedures shall be as specified in these and subsequent sections of this division.

The control system shall be installed in accordance with the installation plans and instructions prepared by the Control System Integrator.

Installation shall include all elements and components of control system and all conduit and interconnecting wiring between all elements, components, sensors, and valve operators.

Equipment shall be located so that it is readily accessible for operation and maintenance.

Field Equipment

Equipment shall be provided as specified on the Plans such that ports and adjustments are accessible for in-place testing and calibration. Where possible, equipment shall be located between 48 inches and 60 inches, unless specified otherwise on the Plans, above the floor or a permanent work platform. Instrumentation equipment shall be mounted for unobstructed access, but mounting shall not obstruct walkways. Equipment shall be mounted where shock or vibration will not impair its operation. Support systems shall not be attached to handrails, process piping or mechanical equipment except for measuring elements and valve positioners. Instruments and cabinets supported directly by concrete or concrete block walls shall be spaced out not less than $\frac{5}{8}$ -inch by framing channel between instrument and wall.

Steel used for support of equipment shall be hot-dip galvanized after fabrication. Support systems including panels shall be designed in accordance with the Seismic Restraint and Anchorage section of Division 1.81 of these specifications and to prevent deformation greater than $\frac{1}{8}$ -inch under the attached equipment load and an external load of 200 pounds in any direction.

Electrical Power Connection

Electric power wiring and equipment shall be in compliance with Division 16. Power disconnect switches shall be provided within sight of equipment and shall be labeled to indicate opened and closed positions and specific equipment served. "Within sight of" is defined as having a clear unobstructed view from the equipment served and within 50 feet of the equipment served. Disconnect switches shall be mounted between 36 inches and 72 inches above the floor or permanent work platform. Where equipment location is such that the above requirements cannot be met by a single disconnect switch, two switches, one at the equipment and one at the work platform, shall be provided.

Signal Connection

Electrical signal connections to equipment shall be made on terminal blocks or by locking plug and receptacle assemblies. Jacketed flexible conduit shall be used between equipment and rigid raceway systems except that flexible cable assemblies may be used where plug and receptacle assemblies are provided and the installation is not subject to mechanical damage in normal use. The length of flexible conduit or cord assemblies shall not exceed 2 feet. Flexible cable, receptacle and plug assemblies shall be used only where specified.

17.06 Control System Integrator

Part 1 - General

Division of Responsibility

All instrumentation and industrial electronic systems shall be provided under the supervision of a single Control System Integrator, chosen by the Contractor, which is regularly engaged in the design and installation of such systems of similar scope and complexity. The Control Systems Integrator shall be enjoined by the Contractor as a Subcontractor. The assignment of specific responsibilities herein to the Control System Integrator shall not, in any way and under any conditions, diminish the Contractor's full and complete responsibility for all work performed and all materials installed under the contract. The contract between the Contractor and the Control System Integrator shall specifically require that the Control System Integrator conform to and meet all requirements specified in the contract documents.

The assignment of a Control System Integrator that is an equipment supplier shall not be acceptable.

Control System Integrator's Responsibility

The Control System Integrator shall be solely and completely responsible for the final design and assembly of the entire control system. Responsibilities include:

- Provision of, and the detailed design of, custom control panels and the variable frequency drives. The plans show general layout of the control panels. The Integrator shall provide detailed scaled design of all components on and in the control panels and determine specific requirements.
- The design of all interconnecting wiring of control equipment including remote control panels, packaged equipment panels, mechanical equipment with control components, etc.

- Testing of the control panels in the Control System Integrator's shop.
- Coordinate with the Contractor for specific requirements and locations of raceway penetrations and field wiring in control panels.
- The Control System Integrator shall supply the Contractor with all necessary detailed installation plans and/or written instruction for installation of all control components and sensing devices for proper system operation.
- Coordinate with the Control System Programmer who has been selected by the Owner and are under separate contract with the Owner, to allow in-shop testing of the programming of all control devices and to execute the functions listed in the control strategies.
- Develop an assembly and testing schedule, with the Control System Programmer to allow for testing of all new programs in the Control System Integrator's shop.
- Provide installation assistance.
- Provide Startup and Training Services.

General and Electrical Contractor's Responsibilities

The General and Electrical Contractor shall be responsible for the following equipment and services:

- Review of the Control System Integrator's submittals and wiring diagrams for coordination with space requirements, raceway requirements of field wiring, etc.
- Supply the Integrator with submittals of equipment related to the control system that the Integrator must include in their submittals and integrate. Such as motors, packaged control panels that the Integrator does not build, etc.
- Installation of the control panels provided by the Control System Integrator.
- Installation of the interconnecting wiring in accordance with these documents and the Control System Integrators wiring diagrams.
- Installation of I&C and Telemetry System components in accordance with these documents and plans or instructions of the Control System Integrator.

Part 3 – Execution

Installers

The Control System shall be designed, constructed, programmed and commissioned by full time employees with a minimum of 5 years of experience (minimum of 1 year with Integrator).

Integrators List

The Control System Integrator shall be selected by the Contractor from the following acceptable companies (Alphabetical Listing):

- L2 Systems LLC – Everett, Washington
- Quality Control Corporation (QCC) – Lynnwood, Washington

- S&B Inc. (Stead & Associates) – Bellevue, Washington
- Systems Interface Inc. – Mukilteo, Washington
- Taurus Power and Controls, Inc. – Kent, Washington
- Technical Systems, Inc. – Lynnwood, Washington

Alternative Integrators

Alternate Control System Integrators not listed above shall be considered for acceptability by the Owner based on following qualifications:

1. The Control System Integrator shall be an instrument and control system manufacturing company.
2. The Control System Integrator's manufacturing and assembly facility shall be located within a 100-mile drive from the City of Bonney Lake.
3. The Control System Integrator shall be specialized in the design, assembly, testing, installation and service of municipal water and wastewater control and communication systems in the Pacific Northwest for at least five years.
4. The Control System Integrator shall employ technicians and engineers with documented experience in the design, assembly, testing, installation, operation, calibration, trouble-shooting, service and repair of control, and communication systems for municipal water and wastewater utilities.
5. The Control System Integrator shall have completed the design, assembly, testing and installation of control systems that include the instruments and devices cited on the Plans by specific manufacturer's name.

An alternate Control System Integrator selected by the Contractor shall be subject to the approval by the Owner. Prior to placement of purchase orders for services and equipment, the Contractor shall provide the following information about the selected alternate Control System Integrator for review by the Owner:

1. Description of ownership and organization of Integrator.
2. Resumes of principals and/or key employees who will be working directly in the engineering, assembly, testing and commissioning of the system for this project.
3. Description of expertise in design, assembly, testing and installation of control systems for municipal utility facilities.
4. Description of municipal control systems designed, assembled and installed in the last 5 years. Description shall include:
 - Names of employees involved in each system.
 - Detailed description and plans of each system.
 - Cost of each system.
 - Names and telephone numbers of persons involved in operation and maintenance of each system.

- Description of the service capabilities normally provided by the company including resumes of employees assigned to field service and listing of service equipment.
- Additional information that may assist the Owner in ascertaining the company's general ability to perform the work. The acceptability of the Integrator will be determined solely by the Owner.

Approval of Personnel and Alternatives

The Contractor and the selected Control System Integrator shall anticipate that the Owner may withhold approval of the selected Integrator or employee if, in the opinion of the Owner, the Control System Integrator or employee does not have the experience, capability or an acceptable performance and execution record of similar projects in the past.

Neither the Contractor or Control System Integrator or employee not approved by the Owner, shall be entitled to an extension of time or to any claim for damages because of extra and unanticipated costs, hindrances, delays or complications caused by or resulting from the Owner not approving any Control System Integrator or employee for whatever reason.

17.07 Control System Programmer (Control System Programmer Contracted Directly by Owner)

Part 1 - General

Division of Responsibility

The Control System Programmer shall be selected and Contracted for the control system programming by the Owner. The Control System Programmer Contracted by the Owner is RH2 Engineering, Inc., who may be contacted at (425) 951-5358. It is the responsibility of the Control System Programmer to provide PLC programming that will accomplish control of the proposed and modified systems as described in the Specifications and Plans.

Control System Programmer's Responsibility:

The Control System Programmer Responsibilities include:

- Develop a testing schedule to allow for testing of all new telemetry panel programs.
- Notify the Control System Integrator of all components needed to test equipment panels.
- Software testing of the control panels in the Control System Integrator's shop.
- Programming of the PLC, operator interface, and HMI Computer System.
- Provide required software startup, troubleshooting, and commissioning services needed to complete implementation of programs.

17.08 System Description

Part 1 – General

Summary

The I&C and Telemetry system functions required are specified on the Plans and in subsequent sections of this Division.

Design and Performance Requirements

The system shall be designed to provide the control capabilities and functions indicated and implied by the Plans and these Specifications and to provide trouble-free operation with minimum maintenance. The system shall readily enable manual operation of any and all functions in the event of failure of any one component.

The control system shall be designed and assembled by the Control System Integrator to provide:

- Control of motor driven pumps, equipment, and processes.
- Monitoring of operation of motor driven pumps, equipment, and processes.
- Indication of operating status of motor driven pumps, equipment, and processes.
- Monitoring and indication of pressures, temperatures, levels, and flows, as indicated and implied by the Plans and Specifications.
- The capabilities indicated and implied by the Plans and Specifications.

The I&C and Telemetry System shall be designed and assembled by the Control System Integrator to be an integrated system composed completely of components which are specifically designed and used for and in conjunction with control and operation of motor-driven pumps and process control equipment. The Control System Integrator shall supply all interfacing equipment, appurtenances and accessories and all such devices that may be required for proper interfacing as part of the control system.

Project Conditions

The control system for the Lift Station 17 shall be a Remote Telemetry Unit (RTU) based system that consists of existing and new RTUs linked to the existing Master Telemetry Unit (MTU) via radio communications. The MTU is located at the public works building with a computer based Human Machine Interface (HMI).

RTU sites included in this project are:

1. Lift Station No. 17

Part 2 – Products

Manufacturers

The telemetry components of the RTU shall be manufactured by Allen-Bradley to be consistent with the Owner's existing system.

Components

The I&C and Telemetry System shall include the instruments, control devices, Remote Telemetry Unit, Human Machine Interface, input and output devices, sensors, interfacing devices, cabinets, enclosures and other components indicated and implied by the Plans and Specifications.

The following is a list of the RTUs, Control Panels, Pressure and Level Assemblies, and Variable Frequency Drives to be provided by the Control System Integrator:

- Telemetry Panel Hardware Modifications
- Variable Frequency Drives (Total of 4)
- Flume Flow Meter Sensor and Transmitter

Part 3 – Execution

Preparation

The Control System Integrator shall be responsible for the coordination and integration of control system with the motor control and other related equipment. The Control System Integrator shall communicate directly with the Manufacturer(s) and Supplier(s) of all related equipment to determine all details of the equipment, which may influence or affect the control system. The Control System Integrator shall determine all requirements for and shall cause integration of the control system into a unified operating system. The Control System Integrator shall define all requirements for all interfacing equipment and shall supply all appurtenances, accessories and all such devices, which may be required for proper interfacing as part of the control system.

The Control System Integrator shall be responsible to obtain submittal information on equipment supplied by other disciplines and to integrate them into the control system to form a complete working package as outlined by the contract documents.

Installation

The system shall be completely assembled in the shop by the Control System Integrator. All components and equipment shall be prewired to the maximum extent possible.

All Process Control shall be done within the control panels unless specifically listed on the Plans as other.

17.10 PANELS

17.12 Equipment Panels

Part 1 – General

Related Sections

All panels shall be labeled.

References

Panels shall meet the requirements of UL-508 for water systems and UL-913 for sewer systems. All panels shall bear the appropriate label. The provider of the panels shall be a UL-508A certified facility. All field modifications shall be in conformance with UL-508 or UL-913.

Design Requirements

Control equipment panels shall be enclosures conforming to the requirements of the National Electrical Manufacturers Association (NEMA) and shall be NEMA 12 for indoor use.

Part 2 – Products

Components

- Enclosure shall be constructed of steel.
- Minimal metal thickness shall be 14-gauge.
- All doors shall be rubber-gasketed with continuous hinge and key locking latch mechanism.
- Wherever practical, enclosures shall be a manufactured item.
- All doors shall be provided with quick-release latches to secure cover.
- Panels shall be sized to adequately dissipate heat generated by equipment mounted in or on the panel.
- Enclosure shall include a backpan.
- Enclosure shall be finished in ANSI 61 gray polyester powder coating inside and out over phosphatized surfaces.
- The enclosure shall be oversized to accommodate future racks and auxiliary devices as required.
- All outdoor enclosures shall be provided with a control panel heater and ventilation fan and filter with built-in thermostat to provide adequate climate control.

Fabrication

Panels should be completely fabricated, and instruments installed and wired in the manufacturer's factory (where possible). All wiring shall be completed and tested prior to shipment. All external connections shall be by way of numbered terminal blocks. Panel cutouts for instruments and devices shall be cut, punched or drilled and smoothly finished with rounded edges.

17.20 PANEL COMPONENTS

Part 1 - General

Design Requirements

All components shall be suitable for installation inside the I&C and Telemetry system panel enclosure.

17.20.3 Terminal Blocks

Part 1 - General

Design Requirements

Terminal blocks shall be one-piece molded plastic blocks with screw-type terminals and barriers rated for 600 volts. Terminals shall be double-sided and supplied with removable covers to prevent accidental contact with live circuits. Terminals shall have permanent, legible identification, and be clearly visible with the protective cover removed.

Fusible terminal blocks shall be provided with a LED blown fuse indicator for each terminal.

Part 3 - Execution

Installation

All wires between panel-mounted equipment and other equipment shall be terminated at terminal blocks. Switches shall be terminated at the terminal blocks with crimp-type, pre-insulated, ring-tongue lugs. Lugs shall be of the appropriate size for their terminal block screws and for the number and size of the wires terminated.

17.22 Wire and Cable

17.22.2 Wiring

Part 1 - General

References

All electrical wiring shall be in accordance with the NEC.

Design Requirements

Wires shall be 600-volt class, PVC insulated, stranded copper and shall be the sizes required for the current to be carried but not less than No. 14 AWG conductor size.

Wires for signal circuits shall be twisted shielded pairs not smaller than No. 18 AWG.

Part 3 – Execution

Installation

All power wiring shall be supported on a sheet metal raceway or enclosed in a plastic wiring duct. Wiring for signal circuits shall be separated at least 6-inch from any power wiring.

17.22.3 Cables

Part 1 - General

Design Requirements

Cables and connectors shall be industry standard, shielded, and shall be provided to connect all peripherals and equipment.

17.24 Switches and Relays

17.24.4 Panel Relays

Part 1 – General

Design Criteria

Relays shall be provided as necessary to perform switching functions required of control panels and other control circuits as shown on the Plans and described in the technical specifications. Appropriate relay type and associated contacts shall be selected based on the application from the control wiring diagrams or the functional description. Where timing relays and control relays require additional contacts, provide auxiliary control relays properly sized for the application.

All contacts and relays shall be NEMA rated and UL recognized.

The electrical life expectancy for the relay shall be over 500,000 operations at 120V AC, 10 amps; (over 200,000 operations at 120V AC, 10 amp for SPDT, 3PDT, and 4PDT). The mechanical life expectancy for the relay shall be over 50,000,000 operations.

Part 2 – Products

Manufacturers

Control Relays

Square D Class 8501, Type K or R; Allen Bradley 700 Type HA or HB; IDEC RH Series; or equal.

Time Delay and Timing Relays

Allen Bradley 700 Type HR; IDEC GE1, RTE or GT3 Series; or equal.

Manufactured Units

Control Relays

Relays for general purpose use shall be DPDT or 3PDT, 10 amp contacts with the appropriate coil voltage for the application. Relays shall be plug-in type with matching socket. All relays shall have LED indicators to signal when the coil is energized. Relay coils shall be rated for continuous duty.

Time Delay Relays

Time delay relays shall be multi-function, multi-range with plug-in base, pin style terminations timing and timed out LED indicators, and calibrated scales. Relays shall have minimum

0.5 seconds to 60 minutes, 8 selectable timing ranges, 5 amp contacts. Select coil voltage for the application. Units shall be sealed to prevent entry of contamination in the form of dust, dirt, or moisture.

Appropriate relay shall be selected based on application from the control wiring diagrams.

Minimum accuracy (plus or minus) shall be as follows:

1. Repeat accuracy – ½ percent.
2. Timing change over full voltage range – ½ percent change over full temperature range.
3. Scale tolerance – 5-percent.

Part 3 – Execution

Installation

Provide adjustable time relays on all alarm and shut down circuits to prevent nuisance tripping of other alarm points. Time delay relays for these functions may not be shown on the Plans; however, provide as required on all circuits.

Provide additional form C contacts over and above the number indicated on the Plans for all relays provided.

120 VAC relays shall not be interchangeable with other voltages to prevent a hazardous interchange of relay voltages.

Provide DIN mounted or panel mounted type depending on application.

17.25 Indicating Lights and Readouts

17.25.2 Pilot Lights

Part 2 – Products

Manufacturers

Heavy-Duty, Watertight, and Corrosion-Resistant Type: Eaton/Cutler-Hammer, Type E34; Square D Co., Type SK; Allen Bradley, Type 800H; General Electric Co., Type CR 104P.

Manufactured Units

Indicating lights shall be NEMA type 4/4X/13, corrosion resistant, water-tight, oil-tight, full voltage, push-to-test, high visibility 28 chips LED type. Pilot lights shall be rated for the proper operating voltage. Appropriate lens caps shall be provided as shown on Plans.

17.33 Network Equipment and Computers

17.33.1 Industrial Network Equipment

Part 1 – General

Design Requirements

All specified “industrial network equipment” shall comply with the following minimum specifications:

1. Rated for a 5-30VDC power supply.
2. UL listed.
3. Designed for an industrial environment.
4. Operating temperature of -40 degrees Fahrenheit to 176 degrees Fahrenheit.
5. IP66 rated water and dust resistant.
6. Control network device shall be capable of remote monitoring using OPC protocol.
7. All devices on fiber backbone shall have a minimum of two sets of transmit/receive ports.
8. Twisted pair network speed shall be a minimum of 100Base-TX.
9. Fiber optic network speed shall be a minimum of 100Base-FX.

These requirements do not apply to non-industrial network equipment.

Part 2 - Products

Control Network Equipment

Data highway communications shall be accomplished on a control network consisting of nodes, one at each PLC or computer workstation and a physical link layer consisting of cables and all interfacing hardware. Control Network equipment shall consist of the following devices.

Unmanaged Ethernet Switch

One (1) N-Tron 316TX Ethernet Switch, or equal.

Part 3 – Execution

Installation

All network equipment in Control Panels shall be installed as per Plans, specifications and product installation instructions. All components shall be suitable for installation in the environment where installed. All devices shall be installed as specified by the manufacturer. All devices shall be installed to be field serviceable without taking the facility out of service. Device displays shall be positioned to be easily read when viewing directly into control panels.

17.50 SENSORS AND CONTROLS

17.50.1 Common Work for Sensors and Controls

Part 1 – General

Design Requirements

Provide sensors and controls scaled and rated for their intended application.

Part 3 – Execution

Installation

All devices shall be installed to be field serviceable without taking the facility out of service. Readouts shall be positioned to be easily read from a standing position, central to the room unless allowed otherwise by the Engineer.

17.52 Pressure, Flow, and Level Sensors and Controls

17.52.14 Ultrasonic Flume Open Channel Flow Transmitter

Part 1 – General

Design Requirements

The ultrasonic flow sensor and flow transmitter shall have an operating range as required for the installation shown on the Plans, shall incorporate an integral temperature sensor, and shall be completely encapsulated in a corrosion resistant housing. The complete flow transmitter assembly shall be completely rated for the environment for which it will be installed. The flow sensor shall be equipped with a submergence shield. Integral flow sensor cables shall be long enough to reach the termination locations as shown on the Plans. The transmitter shall be 24 VDC powered.

Performance Requirements

The flow sensor and transmitter shall provide a 4-20 mA signal proportional to the flow reading. The flow sensor and transmitter shall have an accuracy of 0.25 percent. Sensor range of 1 foot to 33 feet.

Part 2 – Products

Manufacturers

The ultrasonic level sensor assembly shall be a Endress-Hauser Prosonic S FDU91 or equal mounted as shown on the Plans. The ultrasonic sensor shall be connected to a compatible transmitter which shall be a Endress-Hauser FMU90 Transmitter or equal.

Part 3 – Execution

Installation

Furnish and install ultrasonic flow sensor and transmitter as shown on the Plans and according to manufacturer's recommendations and requirements. Manufacturers representative shall provide on-site setup, calibration, and testing of the flow meter. Manufacturers representative

shall not be the control system integrator and shall instead come directly from the manufacturer or the manufacturer's distributor.

17.90 TESTING, STARTUP, AND TRAINING

17.90.1 Common Work for Testing, Startup, and Training

Part 1 – General

Summary

Total system hardware start-up is the responsibility of the Control System Integrator.

Maintenance

The Control System Integrator shall be solely and completely responsible for all hardware maintenance of the system from time of start-up to the date of acceptance, by formal action of the Owner, of all work under the contract. The Control System Integrator shall perform all such work required or considered to be required by the Owner to cause and maintain proper operation of the system and to properly maintain the system.

Warranty

The Contractor shall cause the Control System Integrator to make any and all repairs, replacements, modifications and adjustments required to eliminate any and all defects in design, materials and workmanship which are disclosed within the one year guarantee period. The Control System Integrator shall begin all repairs, replacements, modifications and adjustments within twenty-four (24) hours of notification by telephone by the Owner and shall complete such repairs, replacements, modifications and adjustments within forty-eight (48) hours of notification. Should the Control System Integrator fail to begin the work within 24 hours or complete the work within 48 hours, the Owner may proceed to undertake or complete the work. In such event, the Contractor and his surety shall be liable for all costs incurred by the Owner.

Part 3 – Execution

Field Quality Control

Equipment Manufacturer's Support

1. The Control System Integrator shall pay for services of equipment manufacturer's field service representative(s) to:
 - a. Inspect equipment covered by these Specifications.
 - b. Supervise adjustments and installation checks.
 - c. Conduct start-up of equipment and perform operational checks.
 - d. Provide Owner with a written statement that manufacturer's equipment has been installed properly, started up and is ready for operation by Owner's personnel.

Repairs

The Control System Integrator shall correct all deficiencies and defects and make any and all repairs, replacements, modifications, and adjustments as malfunctions or failures occur.

The Contractor and the Control System Integrator shall anticipate that the Owner may delay acceptance of all work under the contract if, in the judgment of the Owner, malfunctions or failures in operation of the control system repeatedly occur after start-up. Both the Contractor and the Control System Integrator shall not be entitled to an extension of time or to any claim for damages because of hindrances, delays or complications caused by or resulting from delay by the Owner in accepting the work because of malfunctions or failures in operation of the control system.

17.91 Tests and Inspections

Part 1 - General

Summary

Materials, equipment, and construction included under this specification shall be inspected in accordance with the specifications. Testing shall be performed by the Control System Integrator in accordance with Division 16, and this and subsequent sections of this division. Testing shall be required to determine if installed equipment and system(s) will operate in the manner in which they are intended to operate. The decision of the Owner upon the acceptability of the test procedures and conformance shall be final. The work will not be accepted until all testing has been satisfactorily performed.

Scheduling

The Contractor shall prepare factory and field test procedures to demonstrate conformance of the complete system to this specification. The Contractor shall submit the detailed test procedures within four weeks after the notice to proceed for the Engineer's review and approval.

The Contractor shall furnish all labor, materials, tools, equipment, instruments and services necessary to perform all specific functional testing of all installed equipment and systems at no additional cost.

The Control System Integrator and Contractor shall notify the Owner and Engineer (Control System Programmer) of the factory testing date 30 days before testing.

The Control System Integrator and Contractor shall submit to the Engineer (Control System Programmer) a detailed field testing schedule identifying each day that both the Control System Integrator and Control System Programmer will need to be on site for field testing of equipment. A preliminary schedule shall be submitted to the Engineer for review 60 days before testing. A final schedule shall be submitted to the Engineer for review 30 days before testing.

Part 2 – Products

Factory Testing

All factory testing of control panels and computer systems shall be performed at the Control System Integrator's shop.

The completed control system shall be tested in the shop by the Control System Integrator and the Control System Programmer. All motor control centers and VFD's supplied by the Control System Integrator shall be interconnected with the control system and powered with rated incoming voltage. Testing shall be conducted in two phases. The initial hardware testing shall include, but not be limited to, operation of all input and output (I/O) points, control devices and motor controllers. The subsequent testing shall include, but not be limited to, testing of RTU programming and Operator Interface provided by the Control System Programmer.

The initial hardware testing of the control system shall include the following:

1. The entire assembled panels shall be meggered and tested to be free from grounds and shorts.
2. Energize each discrete input and output and simulating each analog input and output using a loop simulator and calibrator. Circuits not energized shall be tested for continuity. Discrete input signals shall be tested in both the "on" and "off" state. Analog signals shall be tested at a minimum of three values (4 mA, 12 mA, and 20 mA). The test results shall be documented by the Control System Integrator in checklist format. The final test results shall be signed by both the Engineer and Control System Integrator prior to shipment of equipment to the job site.
3. Provide signal generators, multimeters, and other test equipment as required to verify proper operation of the assembled panels.
4. The Control System Integrator shall interconnect the control panels with the motor control centers and VFD's for both hardware and software testing phases. Control panels shall initially be hardware tested in one group. Similarly, the motor control centers and VFD's shall be hardware tested in another group. After both groups of hardware are confirmed to be operating correctly, the Control System Integrator shall interconnect the equipment with Ethernet cables and analog and discrete wiring as shown on the Plans. The equipment shall remain connected for the remainder of the factory testing period.
5. Correct, replace, or repair control panel and motor control center wiring, and/or components until testing demonstrates proper operation. Control panels and motor control centers shall not be shipped to the job site until testing has demonstrated complete operation of the panels.
6. Provide updated and complete as-built drawings for the control panels and motor control centers at the time of final factory testing. The Engineer shall review the drawings against the panel construction at the time of final factory testing. Drawings which do not reflect the actual construction of the panel shall be revised and reviewed again by the Engineer. As-built drawings that require revisions shall be submitted to the Engineer for review prior to shipment of equipment to the job site. This review

process shall be repeated as necessary so that as-built drawings reflect the actual construction of the panels and motor control centers at the time of shipment. Panels and motor control centers shall not be shipped to the job site until the as-built drawings are updated, complete, and reflect the actual as-shipped status of the equipment.

Upon completion of the initial hardware testing, Control System Programmer shall conduct software testing for final inspection by the Owner. The Control System Integrator shall provide for time, equipment and support in their shop for Control System Programmer to completely demonstrate the functions of the entire control system. All control functions and all status and alarm monitoring and indication shall be demonstrated under simulated operating conditions. Simulating equipment shall be provided and wired into the control system for this testing. Testing shall be continued for the time period required by the Owner to observe and verify any revisions and as described above in the scheduling portion of this specification.

Part 3 – Execution

Field Quality Control

Following installation by the Contractor, the Control System Integrator will verify the correctness of the interconnecting wiring and energize all control equipment in the field. Each point at the controller(s) shall be checked for proper functional operation through communication with the central computer.

Field Tests

The Control System Integrator in conjunction with the Contractor shall conduct field tests of all panels, motor control centers, VFD's, and instrumentation in the presence of the Engineer after installation of the equipment at the site. Testing shall be conducted by physically actuating signaling devices, installing temporary jumpers, or artificially imposing signals on the field wiring. This shall be done to establish proper operation of the field devices, the integrity of the field wiring, and the proper connection of field devices to the panels. The Contractor and Control System Integrator shall coordinate with the Engineer to provide for as complete testing of the control system as is practical prior to placing the equipment on line for actual control and monitoring. The Contractor and Control System Integrator shall make corrections or repairs to the wiring and/or devices as necessary to provide proper operation of the system.

After the initial testing is complete, commissioning shall be accomplished by the Control Systems Integrator, Control System Programmer, and Contractor, with the Owner and Engineer present. Commissioning shall include operation and verification of all control components and features of the entire control system. Each function shall be demonstrated to the satisfaction of the Owner.

Repairs

Should any part of the system fail during the test, the test shall be rescheduled and repeated to the satisfaction of the Owner after repairs.

17.92 Startup

Part 1 – General

Summary

All testing, startup and operation shall not be cause for claims for delay by the Contractor, and all expenses accruing therefrom shall be deemed to be incidental to this contract. The Contractor shall make arrangement for all materials, supplies and labor necessary to efficiently complete the testing, startup and operation.

Startup shall consist of testing, by a simulated operation, all operational equipment and controls. The purpose of these tests 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.

Scheduling

Factory representatives of all major units shall be present for the startup phase. The test shall continue until it is demonstrated that all functions of controls and machinery are correct.

Part 3 - Execution

Field Quality Control

When the installation of the Control System is substantially complete, the Contractor shall commence with calibration and field testing. Testing shall determine that all system components connect up correctly to each other so that the system works as designed. Refer to section 17.91 for field testing requirements.

All components of the control system shall be calibrated by the Control System Integrator after completion of installation. Each component shall be adjusted to be within the Manufacturer's required range and for the specific application.

Components that cannot be properly calibrated or that are found to exceed the Manufacturer's specified range or accuracy shall be removed and replaced at no additional cost to the Owner.

The control system shall be placed into operation by the Control Systems Integrator and Control System Programmer.

The Control System Integrator shall calibrate all instruments, indicators, recorders, loops, etc. and shall provide a five-point calibration test results sheet for each calibrated instrument supplied by the Control System Integrator. The five-point calibration shall include one point at: Minimum input range value, Maximum input range value, Midrange input value, no other point less than 25 percent of span to any other point. Test forms shall identify each instrument tested, input conditions vs. output signal results in tabulated form, and shall be submitted to the Engineer prior to final commissioning.

Repairs

All deficiencies observed during the start-up will be corrected by the Contractor.

17.93 Training

Part 1 – General

Submittals

Submit index of all training offered by PLC system equipment manufacturers including operation and maintenance.

The Control System Integrator shall prepare and assemble specific instruction materials for each training session and shall supply such materials to the Owner at least 2 weeks prior to the time of the training.

The Control System Programmer will provide additional training that is separate from this contract.

Part 3 – Execution

Hands-On Training

The Control System Integrator shall conduct specifically organized training sessions in operation and maintenance of the control system for personnel employed by the Owner. The training sessions shall be conducted to educate and train the personnel in maintenance and operation of all components of the control system. Training shall include, but not be limited to, the following:

1. Preventative maintenance procedures
2. Trouble-shooting
3. Calibration
4. Testing
5. Replacement of components

At least two separate training sessions, each at least 4 hours in duration, shall be conducted at the facility after start-up of the system.

17.94 Documentation

17.94.2 Operations and Maintenance Manuals

Part 1 – General

Summary

Two types of operation and maintenance manuals (O&M) will be required for the contract:

1. General manuals for use by the Water Department staff for daily operation, maintenance and troubleshooting.
2. Technical manuals for use by trained electronics technicians for technical and “board level” maintenance and repair.

Submittals

Prior to the receipt of payment for more than 50 percent of the work, the Contractor shall deliver to the Owner five sets of acceptable manufacturer's operating and maintenance instructions covering each piece of mechanical and electrical equipment, or equipment assembly, furnished under this contract. Each set of instructions shall be bound into multiple volumes; each volume to be complete with an index and bound in a suitable hard-cover binder. Manuals shall be assembled and indexed so that information on each piece of equipment can be readily found. Any additional operating and maintenance instructions from the Control Systems Programmer will be submitted separately.

Quality Assurance

Manuals shall be purposefully made for this installation, and general manuals which are vague or have limited applicability will not be accepted. The manuals shall be written in a non-technical format suitable for reading by water system operators with no previous automatic control equipment experience. The decision of the Owner on the acceptability of the manual shall be final.

Part 2 – Products

Materials

The Control System Integrator shall prepare and assemble detailed operation and maintenance manuals in accordance with the project general requirements. The manuals shall include, but not be limited to, the following:

1. Name, location and phone number of nearest supplier and spare part warehouse.
2. Step by step operating procedures.
3. Narrative of overall system performance and operation.
4. Listing of all equipment setpoints.
5. Preventative maintenance procedures
6. Trouble-shooting of master and remote equipment.
7. Calibration
8. Testing
9. Replacement of components
10. System schematics / shop drawings
11. As-built elementary and one-line diagrams
12. Catalog data and complete parts list for all equipment and control devices
13. Listing of recommended spare parts.
14. Listing of recommended maintenance tools and equipment.
15. Warranties.
16. Disassembly and reassembly instructions.

All plans shall be provided on hard copy and in electronic form on disk. Electronic drawing files shall be provided in AutoCAD .DWG format with all “xrefs” bound. If “xrefs” are not bound, all “xref”.DWG files shall be provided unlinked with instructions to reestablish the links. Files shall be in AutoCAD 2010 or later format.

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Division 18

Measurement and Payment

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 in the proposal, but required according to the plans and specifications and general practice, shall be included in Contractor's bid price.

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; provide and maintain necessary support facilities; obtain all necessary permits and licenses; prepare site for construction operations; maintain site and surrounding areas during construction; provide system testing, 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. Payment shall be lump sum.

No more than 80-percent of bid amount for this item will be paid before final payment request, and this bid amount may not be more than 10-percent of value of total contract.

Bid Item 2 – Temporary Pumping

Lump sum price shown shall cover the complete cost of providing all labor and acquiring temporary pumping equipment, piping, and other appurtenances as necessary to perform temporary pumping during the wet well repair. Payment shall be lump sum.

Bid Item 3 – Electrical

The lump sum price shown shall cover the complete cost of providing all labor, materials, and equipment necessary for the electrical work shown on the Plans, and detailed in the contract specifications. Payment shall be lump sum.

Bid Item 4 – Automatic Control

Lump sum price shown shall cover the complete cost of providing all labor, materials, and equipment necessary for the automatic control system as shown on the Plans, and detailed in the contract specifications. Payment shall be lump sum.

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