CONTRACT DOCUMENTS

For the Construction of

MILL CREEK PUMP STATION
PHASE 1 UPGRADES

Project No. 2017-015-38

Bid No. 2018-02

For The

CITY OF WOODBURN

Woodburn, Oregon

March 2019

For Information regarding this project contact:

Pete Gauthier P.E.
Project Engineer
Engineering Division
City of Woodburn
503.982.2429

CITY OF WOODBURN

PUBLIC WORKS DEPT. – ENGINEERING DIV.

BID PACKAGE
AND
CONSTRUCTION SPECIFICATIONS
FOR
MILL CREEK PUMP STATION PHASE 1 UPGRADES

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CITY OF WOODBURN
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INVITATION TO BID

CITY OF WOODBURN

MILL CREEK PUMP STATION
PHASE 1 UPGRADES

PROJECT No. 2017-015-38
BID No. 2018-02

Sealed bids for the ***Mill Creek Pump Station Phase 1 Upgrades*** will be received by the City of Woodburn, OR at City Hall Annex, 190 Garfield St. until **2:00 PM**, **Thursday June 6, 2019** and will thereafter be publicly opened and read.

Proposals shall be addressed to the City Engineer, City of Woodburn, 190 Garfield St., Woodburn, OR 97071. Bids shall be submitted in a plain sealed envelope bearing the Bidder's name, the name of the project and the date and time of the Bid opening, and shall be clearly marked **"Bid No. 2018-02"**, and Bidders shall indicate on the Form of Proposal that ***"Bidder will comply with the provisions of Chapter 279C.800 through 279C.870, Oregon Revised Statutes"***.

DESCRIPTION OF THE PROPOSED WORK:

The major part of the work will include: bypass pumping of sewage for the duration of the project, removal and replacement of two owner provided sluice gate valves and actuators, installing an owner provided Flygt N 3171.095 pump with all valves and pipes as specified, install electrical components and make connections as required to put the pump into operation, rehab inlet pipes, replace access hatch, install manhole steps, and epoxy line the wet-well.

Plans and specifications may be examined on or after **May 10, 2019** at the City Engineer's Office, 190 Garfield Street, Woodburn, OR and on line at http://www.ci.woodburn.or.us/?q=blog-categories/bids-and-rfps . Copies of the Contract Documents may be obtained from the City Engineer's Office upon deposit of a non-refundable fee of fifty dollars ($50.00) for each set. Additionally, electronic plan sets are available for viewing and downloading on the Engineering Division's website at: **http://www.ci.woodburn.or.us/?q=blog-categories/bids-and-rfps** and/or have been downloaded by the following plan centers.

DJC Plan Center – Portland, OR
Contractor's Plan Center – Clackamas, OR
Salem Contractor's Exchange – Salem, OR

There will be an onsite prebid conference, 150 Newberg Hwy (State Hwy 214), at 9:00 AM, May 21, 2019. Refer to the Instructions to Bidders Section 5.A

Bidders must be pre-qualified in accordance with the laws of the State of Oregon. Completed pre-qualification forms or proof of pre-qualification shall conform to the Special Provisions. Only bids from pre-qualified Bidders will be opened.

No bid for a construction contract shall be received or considered unless the bidder is registered with the Construction Contractors Board (CCB). The Contractor and every Subcontractor must have a Public Works Bond filed with the CCB before starting work on the project.

Bidders on this project need not be licensed for asbestos handling pursuant to ORS 468A.720. Each bidder must indicate on the bid form whether they are a resident or nonresident bidder as defined in ORS 279A.120(b).

All proposals shall be made on the proposal forms. All proposals shall be accompanied by a Bid Bond, equal to ten percent (10%) of the total bid. Bid Bond shall be forfeited to the City if the Contractor fails to execute the contract within 7-days after acceptance of the bid and award of the Contract.

Pursuant to ORS 279C.370, bidders on public works projects with a contract value of $100,000 or more are required to disclose, 2-hours after bid opening, the bidders first-tier subcontractors. The bidder shall provide the information as required on City of Woodburn first-tier disclosure form, provided in the contract documents.

At the discretion of the Project Manager Addenda(um) and Contract clarifications shall either be posted on the City, Engineering Division website and/or delivered to Plan Holders via email. Potential Bidders should check the website on a daily basis the last week before the Bid Opening date. Website can be found at http://www.ci.woodburn.or.us/?q=blog-categories/bids-and-rfps. Addenda must be signed and submitted with the Proposal to be considered a responsive bid offer.

Contract award is expected to be made by the City Council on **June 24, 2019** the City of Woodburn reserves the right to reject any and all bids not in compliance with prescribed bidding procedures and requirements, and may reject for good cause any and all bids upon a finding of the Agency if it is in the public interest to do so. The three (3) lowest bidders may not withdraw or modify his bid prior to the lapse of 35-days after the bid opening.

Due to environmental conditions, by pass pumping shall not commence without approval by the Engineer which will likely be early May. The project must be completed within **ninety (90)** calendar days after "Notice to Proceed".

For further information on this project please contact:
Pete Gauthier P.E., Project Engineer
P 503.980.2429
F 503.982.5242
pete.gauthier@ci.woodburn.or.us

_____
Heather Pierson
City Recorder
City of Woodburn, OR 97071

INSTRUCTIONS TO BIDDERS
BID #2018-02

1. GENERAL:

A. SPECIFICATIONS – The Specifications that is applicable to the Work on this Project is the 2018 edition of the "Oregon Standard Specifications for Construction" and as modified by Special Provisions.

B. This is a formal procure. Faxed bids will not be accepted.

C. Bidding requirements and obligations shall comply and conform to Part 00100 of the General Conditions of the Standard Specifications or as modified by the Special Provisions or herein.

2. SECURING CONTRACT DOCUMENTS:

A. Copies of the Contract Documents are available online at http://www.ci.woodburn.or.us/?q=blog-categories/bids-and-rfps and at the Public Works Department - Engineering Division, located at:

City Hall Annex
190 Garfield Street
Woodburn, OR 97071.

B. Questions regarding bidding, materials or technical requirements should be directed to the Project Manager at:

Pete Gauthier,
190 Garfield St.
Woodburn, OR 97071
Phone: 503.980.2429
Email: pete.gauthier@ci.woodburn.or.us

Or

Eric Liljequist, PE, Public Works Director
190 Garfield St.
Woodburn, OR 97071
Phone: 503.982.5241
Email: Eric.Liljequist@ci.woodburn.or.us

C. Bidder is responsible for completing and returning all page(s), attachment(s) which require a response.

D. Plan Holder's List – An electronic copy of the "Plan Holders List" is provided on the Agency website and will be periodically updated. Contractors, suppliers and others wishing to be added to this list should contact the Project Manager as identified in 2.B.

E. Project Notifications – Addenda, clarifications, etc. shall be posted on the Agency website and are the responsibility of the Contractor to download before submission of bids. Contractor shall sign and submit with offer all Addenda associated (posted on website) with the project.

3. PROJECT FINANCING:

A. This project is financed and paid for by the City of Woodburn.

C. The Engineer's cost estimated range for the construction of this project is between $130,000 and $200,000.

D. This project is subject to the prevailing wages rates under the Oregon Prevailing Wages Law (BOLI).

E. This project is subject to prevailing wage rates available at:

www.oregon.gov/boli/WHD/PWR/Pages/pwr_state.aspx and listed as " Prevailing Wage Rates for Public Works Contracts in Oregon effective January 1, 2019**"** and "Prevailing Wage Rates Amendment Effective April 1, 2019**.**

4. CONSTRUCTION AGREEMENT

A. The construction contract between Owner and Contractor shall be provided by The City of Woodburn. A sample Agreement is included in these documents.

5. PREBID CONFERENCE:

A. A non-mandatory pre-bid conference is scheduled for this project at 9:00 am on **May 21, 2019,** at 150 Newberg Hwy (State Hwy 214).

6. AWARD OF THE CONTRACT:

A. Award of the Contract, by the Contract Review Board (City Council), will be by recommendation of the Public Works Department, based on the lowest cost offer of the responsive and responsible Bidder in accordance with Section 00130 of the Oregon Standard Construction Specifications and all modifications by Special Provisions.

7. SPECIAL CONCERNS:

A. Bypass pumping will be designed for the highest estimated flow for the duration on the work.

8. TIME OF COMPLETION AND WORKING HOURS:

A. All project work shall be completed within ninety (90) calendar days after the dated 'Notice to proceed".
B. Working hours are Monday through Friday between 7:00am and 7:00pm.
C. Work during other hours possible with approval of the Project Engineer.

CITY OF WOODBURN
MILL CREEK PUMP STATION
PHASE 1 UPGRADES

PART II

BID FORMS

CERTIFICATION PAGE
FORM OF PROPOSAL
FIRST TIER SUBCONTRACTORS DISCLOSURE FORM
BID SUBMITTAL CHECKLIST

CERTIFICATION PAGE

Each Bidder (offeror) must read and comply with the following Sections. Failure to do so may result in bid/proposal (offer) rejection.

RESIDENCY INFORMATION

ORS 279A.120 (2) states "For the purposes of awarding a public contract, a contracting agency shall: (a) Give preference to goods or services that have been manufactured or produced in this state if price, fitness, availability and quality are otherwise equal; and (b) Add a percent increase to the bid of a nonresident bidder equal to the percent, if any, of the preference given to the bidder in the state in which the bidder resides."

"Resident bidder" means a bidder that has paid unemployment taxes or income taxes in this state during the 12 calendar months immediately preceding submission of the bid, has a business address in this state and has stated in the bid whether the bidder is a "resident bidder" [ORS 279A.120(1)(b)].

"Non-resident bidder" means a bidder who is not a "resident bidder" as defined above [ORS 279A.120 (1)(b)].

Check one: Bidder is a (☐) RESIDENT bidder (☐) NON-RESIDENT bidder.

CERTIFICATION OF COMPLIANCE WITH DISCRIMINATION LAWS

By my signature in Form of Proposal, I hereby attest or affirm under penalty of perjury that I am authorized to act on behalf of Contractor in this matter, and to the best of my knowledge the Contractor has not discriminated against minority, women or emerging small business enterprises certified under ORS 200.055, in obtaining any required subcontract or against a business enterprise that is owned or controlled by or that employs a disable veteran as defined in ORS 408.225.

CERTIFICATION OF COMPLIANCE WITH OREGON TAX LAWS

By my signature in Form of Proposal, I hereby attest or affirm under penalty of perjury that I am authorized to act on behalf of Contractor in this matter that I have authority and knowledge regarding the payment of taxes, and that Contractor is, to the best of my knowledge, not in violation of any Oregon Tax Laws.

For purposes of this certificate, 'Oregon Tax Laws' means those programs listed in ORS 305.380(4) which is incorporated herein by this reference. Examples include the state inheritance tax, personal income tax, withholding tax, corporation income and excise taxes, amusement device tax, timber taxes, cigarette tax, other tobacco tax, 9-1-1 emergency communications tax, the homeowners and renters property tax relief program and local taxes administered by the Department of Revenue.

VERIFICATION OF RESPONSIBILITY

The City reserves the right, pursuant to ORS 279C.375 and OAR 137-049-0390, to investigate and evaluate, at any time prior to award and execution of the contract, the lowest bidder's (apparent successful offeror's) ability to perform the contract. Submission of a signed offer shall constitute approval for the City to obtain any information the City deems necessary to conduct the evaluation. The City shall notify the apparent successful offeror, in writing, of any other documentation required. Being a responsible bidder may include having the appropriate financial, material, equipment, facility and personnel resources and expertise, or ability to obtain the resources and expertise to perform the contract. Contractor shall have a satisfactory record of contract performance. The Contractor shall also have a satisfactory record of integrity. An unsatisfactory record of integrity may include previous violations of state environmental laws or a false certifications made to any Public Agency. The Contractor is to be qualified legally to contract with the City of Woodburn. Failure to promptly provide any requested information may result in bid/proposal rejection.

The City may postpone the award of the contract after announcement of the apparent successful offeror in order to complete its investigation and evaluation. Failure of the apparent successful offeror to demonstrate responsibility, as required under ORS 279C.375 and OAR 137-049-0390, may render the offeror non-responsible and shall constitute grounds for offer rejection.

DRUG TESTING POLICY CERTIFICATION

DRUG-TESTING POLICY CERTIFICATION:

By my signature in Form of Proposal, I hereby attest or affirm under penalty of perjury that I am authorized to act on behalf of Contractor in the matter, and to the best of my knowledge the Contractor has a drug-testing program in place which applies to all employees. Contractor shall maintain a drug-testing program at all times during the performance of the Contract awarded. Failure to maintain such a program shall constitute a material breach of contract. [ORS 279C.505J

BID PROPOSAL

Honorable Mayor and City Council
City Hall
Woodburn, Oregon 97071

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Proposal are those named herein, that the Proposal is in all respects fair and without fraud, which it is made without any connection or collusion with any person making another Proposal on this Contract.

The Bidder further declares that he has carefully examined the Contract Documents for the construction of the proposed improvements; that he has personally inspected the site; that he has satisfied himself as to the quantities of materials, items of equipment, and conditions or work involved, including the fact that the description of work and materials as included herein, is brief and is intended only to indicate the general nature of such items and to identify the said quantities with the detailed requirements of the Contract Documents; and that this Proposal is made according to the provisions and the terms of the Contract Documents, which Documents are herein attached and are hereby made a part of this Proposal.

The Bidder further agrees to complete construction of all work in all respects in accordance with the Special Provisions incorporated herein.

In the event the Bidder is awarded the Contract and shall fail to complete the work within the time limit set under Specifications of this document or extended time limit agreed upon, as more particularly set forth in the Contract Documents, liquidated damages shall be paid to the City of Woodburn, Oregon, using the rate formula outlined in the Special Provisions, and not less than $150.00 per day, until the work shall have been finished, as provided by the Contract Documents.

The Bidder further proposes to accept as full payment for the work proposed herein the amount computed under the provisions of the Contract Documents and based on the following unit price amounts, it being expressly understood that the unit prices are independent of the exact quantities involved, that they represent a true measure of the labor and material required to perform the work, including all allowance for overhead and profit for each type and unit of work called for in these Contract Documents.

The amounts shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.

It is declared that the Bidder will comply with all the provisions of ORS 279C.840. The workmen on the project will be paid not less than the prevailing rates of wages.

It is agreed that if the Bidder is awarded the Contract for the work herein proposed and shall fail or refuse to execute the Contract and furnish the specified Performance Bond within ten (10) calendar days after receipt of notification of acceptance of his Proposal, then, in that event, the bid security in the sum of:

(In Words):_____

(In Numbers): $_____

deposited herewith according to the conditions of the Advertisement for Bids and Information to Bidders, shall be retained by the City of Woodburn, Oregon, as liquidated damages; and it is agreed that the said sum is a fair measure of the amount of damage the City of Woodburn will sustain in case the Bidder shall fail or refuse to enter into the contract for the said work and to furnish the Performance Bond as specified in the Contract Documents. Bid security in the form of a certified check shall be subject to the same requirements as a bid bond.

If the Bidder is awarded a construction contract on this proposal, the surety who will provide the Performance Bond will be:

_____ whose address is:

_____, _____, _____
Street City State Zip

Agents Name: _____ Phone No._____

The address for all communications concerned with this Proposal and where the Contract shall be sent is:

Contractor: _____ doing business at:

_____ , _____, _____
Street City State Zip

BID PROPOSAL

Mill Creek Pump Station Phase 1 Upgrade

Item No.	Description	QNTY.	UNITS	UNIT PRICE	TOTAL
1	Mobilization and Cleanup	1	LS	$	$
2	Pump Installation Complete	1	LS	$	$
3	Misc Discharge Piping Complete	1	LS	$	$
4	Install 24" & 30" Sluice Gates Complete	1	LS	$	$
5	Maintain Existing Wastewater Flow	1	LS	$	$
6	Eqiupment Demolition & Salvage	1	LS	$	$
7	Wet Well Liner and Pipe Repair	2400	$/ft²	$	$
8	Install Utility Sink and tankless water heater	1	LS	$	$
9	Electrical	1	LS	$	$
		Total:		$	$

Bid Item 1 includes, but not limited to, all cost of bringing materials into and removing from the site, supplies, equipment, and manpower to the jobsite and leaving the site in as good or better condition than before work was started.
Bid Item 2 includes all Labor and miscellaneous material and supplies to install owner provided Flyght pump including all appurtenances and mechanical connections.
Bid Item 3 Includes materials and labor to install and all discharge pipes, fittings, valves, supports and miscellaneous supplies to connect the Flyght pump to the 18" force main in the pig vault.
Bid Item 4 Includes all material and labor to install, complete and operational, two (2) owner provided sluice gates and actuators.
Bid Item 5 Include all equipment, material, and Labor to pump sewage from two (2) gravity manholes to the force main in the pig vault, bypassing wet well at the highest expected flow for the duration of the work in the wet well.
Bid Item 6 Include all equipment, material, and Labor to remove and discard all structures and components indicated on plans and/or required to do the work.
Bid Item 7 Include all equipment, material, and Labor to prepare for, and apply a high solids epoxy liner to the wet well per section 10700 of the project specifications.
Bid Item 8 Include all equipment, materials, and labor to install the utility sink and point of use, tankless water heater shown on sheet E-2 of the drawings.
Bid Item 9 Include all equipment, material, and Labor to connect the pump and controls to make a complete and operating pump.

The names of the principal officers of the corporation submitting this Proposal, or of the partnership, or of all persons interested in this Proposal as principals are as follows:

_____

_____

_____

_____

(If Sole Proprietor or Partnership)

In witness hereto the undersigned has set his (its) hand this_____ day of _____, 20___.

_____ _____

Signature of Bidder Title (If Corporation)

In witness whereof the undersigned corporation has caused this instrument to be executed and its seal affixed by its duly authorized officers this_____ day of _____, 20___.

Name of Corporation_____

By:_____

Title_____

Construction Contractor's Board No. _____

Attest:_____

Secretary

_____*"Bidder will comply with the provisions of ORS 279C.840.*

Initial

In accordance with ORS 279A.120(b) and as specified in the Invitation to Bid, I hereby affirm that I [__] ***am*** *[__]* ***am not*** *(check appropriate box) a "resident bidder". Resident Bidder means a bidder that has paid unemployment taxes or income taxes to the State of Oregon during the 12-month period preceding submission of this bid and has a business address in this state.*

Attest:_____

Bidder

CITY OF WOODBURN, OR

FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM

PROJECT NAME:	**Mill Creek Pump Station Phase 1 Upgrades**		
PROJECT No:	**2017-015-38**	BID No:	**2018-02**
BID CLOSING DATE:	**June 6, 2019**	TIME:	**2:00 PM**
DISCLOSURE DEADLINE DATE:	**June 6, 2019**	TIME:	**4:00 PM**

This form must be submitted at the location specified in the Invitation to Bid on the advertised bid closing date with in two working hours after the advertised bid closing.

List below the name of each subcontractor that will be furnishing labor or materials and that is required to be disclosed, the category of work that the subcontractor will be performing and the dollar value of the subcontract. Enter "None" if there are no subcontractors that need to be disclosed. (IF NEEDED, ATTACH ADDITIONAL SHEETS.)

	NAME	DOLLAR VALUE	CATEGORY OF WORK
1		$	
2		$	
3		$	
4		$	
5		$	

The above listed first-tier subcontractor(s) are providing labor and/or materials with a Dollar Value equal to or greater than:

a. 5% of the total contract price or $15,000 (including all alternates), whichever is greater; or

b. $350,000.00 regardless of the percentage of the total Contract Price.

FAILURE TO SUBMIT THIS FORM FILLED OUT BY THE DISCLOSURE DEADLINE WILL RESULT IN A NON-RESPONSIVE BID. A NON-RESPONSIVE BID WILL NOT BE CONSIDERED FOR AWARD.

Form Submitted by (Bidder Name): _____

Contact Name: _____ **Phone No:** _____

Deliver Form to Agency: CITY OF WOODBURN

Person Designated to Receive Form: CITY ENGINEER

Agency's Address: 190 Garfield Street, Woodburn, OR 97071

UNLESS OTHERWISE STATED IN THE ORIGINAL SOLICITATION, THIS DOCUMENT SHALL NOT BE FAXED.

BID SUBMITTAL CHECKLIST

The following is a checklist of the items that shall be submitted with the Bidder's bid Proposal

- ❑ Form of Proposal
- ❑ Bid Bond
- ❑ First Tier Subcontractor Disclosure Form (Submit within two hours after bid opening time)
- ❑ Certification Page
- ❑ Addendum(s)

CITY OF WOODBURN
MILL CREEK PUMP STATION
PHASE 1 UPGRADES

PART III

CONTRACT FORMS

CERTIFICATE OF LIABILITY INSURANCE – (Sample)

CONSTRUCTION AGREEMENT – (Sample)

NOTICE OF AWARD – (Sample)

PREFORMANCE BOND FORM

PAYMENT BOND FORM

MAINTENANCE AND WARRANTY BOND FORM

NOTICE TO PROCEED – (Sample)

ACORD CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

PRODUCER FAX

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.

INSURED	INSURERS AFFORDING COVERAGE	NAIC #
	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	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
		GENERAL LIABILITY				EACH OCCURRENCE	$
		☐ COMMERCIAL GENERAL LIABILITY				DAMAGE TO RENTED PREMISES (Ea occurance)	$
		☐ CLAIMS MADE ☐ OCCUR				MED EXP (Any one person)	$
		Owners and Cont Prot				PERSONAL & ADV INJURY	$
						GENERAL AGGREGATE	$
		GEN'L AGGREGATE LIMIT APPLIES PER:				PRODUCTS - COMP/OP AGG	$
		☐ POLICY ☐ PRO-JECT ☐ LOC				Fire Damage (any one fire)	
		AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT (Ea accident)	$
		☐ ANY AUTO				BODILY INJURY (Per person)	$
		☐ ALL OWNED AUTOS				BODILY INJURY (Per accident)	$
		☐ SCHEDULED AUTOS				PROPERTY DAMAGE (Per accident)	$
		☐ HIRED AUTOS					
		☐ NON-OWNED AUTOS					
		GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
		☐ ANY AUTO				OTHER THAN AUTO ONLY: EA ACC	$
						AGG	$
		EXCESS/UMBRELLA LIABILITY				EACH OCCURRENCE	$
		☐ OCCUR ☐ CLAIMS MADE				AGGREGATE	$
							$
		☐ DEDUCTIBLE					$
		☐ RETENTION $					$
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				☐ WC STATU-TORY LIMITS ☐ OTH-ER	
		ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED?				E.L. EACH ACCIDENT	$
		If yes, describe under SPECIAL PROVISIONS below				E.L. DISEASE - EA EMPLOYEE	$
						E.L. DISEASE - POLICY LIMIT	$
		OTHER					

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

The City of Woodburn, OR its elected and appointed officials, agents, employees and volunteers.

CERTIFICATE HOLDER

City of Woodburn
Public Works Dept.
190 Garfield St.
Woodburn, OR 97071

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

CONSTRUCTION AGREEMENT

THIS AGREEMENT, made this ____ day of _____, 20___, by and between _____, hereinafter called "CONTRACTOR" and the CITY OF WOODBURN, an Oregon Municipal Corporation, hereinafter called "City" or "Owner".

The Contractor, for the consideration hereinafter named, does hereby agree to furnish all materials, equipment, labor and necessary implements for the construction of _____ and doing such other work as is necessary to make an appropriate and complete improvement.

All of said work shall be done according to the terms, conditions, and requirements of the Contract Documents including the: Advertisement of Bids, Contractor's signed Proposal, information to bidders, special specifications, general conditions, standard specifications, general specifications, and plans and Addendum Nos. _____ for said improvement, which Contract Documents by this reference are made a part of this agreement.

Said improvement shall be completed by the date specified in said Contract Documents and if not so completed, unless said time for completion is extended, as provided in the Contract Documents, or if extended, if the same is not completed within time extended, the City will suffer liquidated damages as specified in the Contract Documents, which liquidated damages shall be retained out of any monies due or to become due under this agreement.

Payments shall be made as provided in the Contract Documents. The contract amount, as approved by the Council on _____, 20____, and agreed by the Contractor, is $_____.

The City will pay the required fee to the Bureau of Labor and Industries equal to one-tenth of one percent (0.1 percent) of the price of this contract, minimum fee in the amount of $250.00 and maximum fee of $7,500.00.

The Contractor will pay the prevailing wage rates in accordance with ORS279C.830 and as amended by Davis Bacon and all current amendments as set forth in the Contract.

NOW, THEREFORE, in consideration of the faithful performance of the covenants and agreements hereinbefore made by the Contractor, the City hereby covenants and agrees to pay the Contractor as in said Contract Documents provided.

IN WITNESS WHEREOF, the respective parties hereto have each caused these presents to be executed in duplicate the day and year first above written.

CITY OF WOODBURN, OREGON

ATTESTED: _____ _____.
HEATHER PIERSON, *CITY RECORDER* Eric Swenson, *MAYOR*

CONTRACTOR: _____.
Organization

By:_____. Title:_____.

NOTICE OF CONTRACT AWARD

PROJECT DESCRIPTION: **Mill Creek Pump Station Phase 1 upgrades**
FILE No: **2017-015-38**
BID No: **2018-02**

The Owner has considered the bid submitted by you on **June 6, 2019** for the above described work in response to its Invitation to Bid.

You are hereby notified that on **June 25, 2019** the City Council accepted your bid for construction of the work in the amount of **$XXX,XXX.00**

You are required under the terms of the Notice Inviting Bids and the Information for Bidders to execute the Agreement and furnish bonds and certificates of insurance within **14-calendar days** from the date of this Notice to you.

If you fail to execute said Agreement and furnish said bonds and certificates of insurance within 14-days of this Notice, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your bid to be abandoned and as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the Owner.

Dated this **26** of **June, 2019**

By ________________________ Title ___________________________________

Contractor shall fill in all information below this line and return original signed copy

- -

ACCEPTANCE OF NOTICE

Receipt of the foregoing Notice of Award is hereby acknowledged

By: ____

Title: ____

This: _____________ day of __________________________ 2019.

Bond No. _____
Solicitation _____
Project BID#: **2018-02**

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS that, _____, as the Principal, and _____, a corporation organized and existing under the laws of the State of Oregon, and duly authorized to transact a surety business in the State of Oregon, as Surety, are held and firmly bound unto the City of Woodburn, a municipal corporation of the State of Oregon, in the penal sum of $_____ Dollars $_____, lawful money of the United States of America, for the payment whereof well and truly to be made, we and each of us, jointly and severally, bind ourselves, our and each of our heirs, executors, administrators successors and assign, firmly by these presents.

WHEREAS, the Principal has entered into a contract with the City of Woodburn, the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Performance Bond by reference, whether or not attached to the contract (all hereafter called the "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety,

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH:

That if the Principal herein shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things undertaken by Contractor to be performed under the Contract, upon the terms set forth therein, and within the time prescribed therein, or as extended as provided in the Contract, with or without notice to the Sureties, and shall indemnify and save harmless the City of Woodburn, the, its officers, employees and agents, against any direct or indirect damages or claim of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Principal or its subcontractors, and shall in all respects perform said contract according to law, then this obligation is to be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond nor shall the City of Woodburn, be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapter 279C, the provisions of which hereby are incorporated into this bond and made a part hereof.

Contractor

_____

BY:

TITLE: _____

Surety

By: _____
Attorney-In-Fact

Bond No. _____
Solicitation:_____
Project Bid#: **2018-02**

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that, _____, as the Principal, and _____, a corporation organized and existing under the laws of the State of Oregon, and duly authorized to transact a surety business in the State of Oregon, as Surety, are held and firmly bound unto the City of Woodburn, a municipal corporation of the State of Oregon, in the penal sum of $_____ Dollars $_____, lawful money of the United States of America, for the payment whereof well and truly to be made, we and each of us, jointly and severally, bind ourselves, our and each of our heirs, executors, administrators successors and assign, firmly by these presents.

WHEREAS, the Principal has entered into a contract with the City of Woodburn, the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Payment Bond by reference, whether or not attached to the contract (all hereafter called the "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety,

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH:

That if the Principal shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things by it undertaken to be performed under said Contract and any duly authorized modifications that are made, upon the terms set forth therein, and within the time prescribed therein, or as extended therein as provided in the Contract, with or without notice to the sureties, including the conditions listed in ORS 279.310 to 279.320, and shall indemnify and save harmless the City of Woodburn, its officers, employees and agents, against any claim for direct or indirect damages of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Contractor or its Subcontractors, and shall promptly pay all persons supplying labor, materials or both to the Principal or its Subcontractors for prosecution of the work provided in the Contract; and shall promptly pay all contributions due the State Industrial Accident Fund and the State Unemployment Compensation Fund from the Principal or its Subcontractor in connection with the performance of the Contract; and shall pay over to the Oregon

Department of Revenue all sums required to be deducted and retained from the wages of employees of the Principal and its Subcontractors pursuant to ORS 316.167, and shall permit no lien nor claim to be filed or prosecuted against the City of Woodburn on account of any labor or materials furnished; and shall do all things required of the Principal by the laws of this State, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond nor shall the City of Woodburn, be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapter 279C, the provisions of which hereby are incorporated into this bond and made a part hereof.

Contractor

_____

BY:

TITLE: _____

Surety

By: _____

Attorney-In-Fact

Bond No. _____
Solicitation _____
Project Bid#: **2018-02**

MAINTENANCE/WARRANTY BOND

KNOW ALL MEN BY THESE PRESENTS that, _____, as the Principal, and _____, a corporation organized and existing under the laws of the State of Oregon, and duly authorized to transact a surety business in the State of Oregon, as Surety, are held and firmly bound unto the City of Woodburn, a municipal corporation of the State of Oregon, in the penal sum of $_____ Dollars $_____, lawful money of the United States of America, for the payment whereof well and truly to be made, we and each of us, jointly and severally, bind ourselves, our and each of our heirs, executors, administrators successors and assign, firmly by these presents.

WHEREAS, the Principal has entered into a contract with the City of Woodburn, the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Maintenance/Warranty Bond by reference, whether or not attached to the contract (all hereafter called the "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety,

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH:

That the Principal agrees to warrant to the City of Woodburn that the construction is, and will remain for a period of one (1) year from the date of acceptance, free from defects in materials and workmanship.

That if the Principal herein shall faithfully and truly observe the terms, provisions, conditions, stipulations, directions, and requirements of the Contract and shall in all respects, whether the same be enumerated herein or not, faithfully comply with the same and shall assume the defense of indemnify and save harmless the City of Woodburn, its officers, agents, and employees from all claims, liabilities, loss, damage or injury which may have been suffered or claimed to have been suffered to persons or property directly or indirectly resulting from or arising out of the operations or conduct of the Principal or any subcontractor in the performance of the work under the Contract and shall indemnify and make whole the City for any injury or damage to any street, highway, avenue, or road or any part thereof, resulting from the operations or conduct of the Principal or any subcontractor in connection with performance or conduct of the work under the Contract,

and shall in all respects faithfully keep and observe all of said terms, provision, conditions, stipulations, directions, and requirements, then this obligation is void, otherwise, it shall remain in full force and effect.

WITNESS our hand and seals this _____ day of_____, 2017.

Contractor

_____

BY:

TITLE: _____

Surety

By: _____

Attorney-In-Fact

NOTICE TO PROCEED **PUBLIC WORKS DEPT.** **ENGINEERING DIV.**	WOODBURN OREGON Incorporated 1889

PROJECT NAME:	Mill Creek Pump Station Phase 1 Upgrades		
BID #:	2018-02	PROJECT No #:	2017-015-38
AMOUNT:	$	B,EGIN DATE:	
CONTRACTOR:		CCB #:	
ADDRESS:			

You are hereby notified to commence work on the referenced contract, and shall fully complete all of the work of said contract within 90 calendar days.

The completion date is therefore: **July XX 2019**

The contract provides for the assessment of liquidated damages for each consecutive calendar day after the above-established contract completion date that the work remains incomplete in the amount of: $_____per day.

PM for THE CITY OF WOODBURN: Pete Gauthier

DATE: _____

Contractor: *Complete items below this line and return Document to Owner within seven (7) days*:

CONTRACTOR'S ACCEPTANCE OF THIS NOTICE

Receipt of the foregoing Notice to Proceed is hereby acknowledged:

SIGNED: _____

TITLE: _____

DATE: _____

NTP Form
Revised Dec 2009

CITY OF WOODBURN
MILL CREEK PUMP STATION
PHASE 1 UPGRADES

PART IV

SPECIFICATIONS

SPECIAL PROVISIONS

WORK TO BE DONE

The Work to be done under this Contract consists of the following repairs and modifications to the Mill Creek Pump Station at 150 Newberg Hwy. Woodburn, OR in Marion County:

1. Provide bypass pumping from the two gravity manholes on site to the 18” and 24” force mains in the pig vault.
2. Remove and Replace two sluice gates and actuators (owner provided).
3. Remove enough of existing concrete filler at bottom of wet well to provide a base and access for new submersible pump.
4. Install new Flygt pump and all appurtenance required to have an operating pump.
5. Install power, controls, and control wires as required.
6. Remove and relocate/replace the Access hatch
7. Reline wet well
8. Rehab 24” and 30” inlet pipes from gravity manholes.

APPLICABLE SPECIFICATIONS

The Specifications that are applicable to the Work on this Project is the 2018 edition of the "Oregon Standard Specifications for Construction".

All number references in these Special Provisions shall be understood to refer to the Sections and subsections of the Standard Specifications bearing like numbers and to Sections and subsections contained in these Special Provisions in their entirety.

CLASS OF PROJECT

This is a Municipal Public Works Project.

SEQUENCE OF WORK

The sequence of the work will be the responsibility of the contractor with these exceptions:

1. Bypass pumping is to be in operation prior to any work being done in the wetwell.

PART 00100 – GENERAL CONDITIONS

SECTION 00110 - ORGANIZATION, CONVENTIONS, ABBREVIATIONS AND DEFINITIONS

Comply with Section 00110 of the Standard Specifications modified as follows:

00110.05(a) Grammar - Add the following bullet to the bullet list:

- For the purposes of this Contract, the terms "sidewalk ramp" and "sidewalk ramps" shall respectively refer to and shall be read to mean "curb ramp" and "curb ramps".

00110.05(e) Reference to Websites - Add the following bullet list to the end of this subsection:

- City of Woodburn Public Works Department:
  https://www.woodburn-or.gov/?q=public_works

- City of Woodburn Public Works Department Bids and RFPs:
  http://www.ci.woodburn.or.us/?q=blog-categories/bids-and-rfps

- American Traffic Safety Services Association (ATSSA)
  www.atssa.com

- ODOT Construction Section
  www.oregon.gov/odot/construction/pages/index.aspx

- ODOT Construction Section - Qualified Products List (QPL)
  www.oregon.gov/ODOT/Construction/Pages/Qualified-Products.aspx

- ODOT Estimating
  www.oregon.gov/ODOT/Business/Pages/Steel.aspx

- Oregon Legislative Counsel
  www.oregonlegislature.gov/lc

- ODOT Procurement Office - Conflict of Interest Guidelines and Disclosure Forms
  www.oregon.gov/ODOT/Business/Procurement/Pages/PSK.aspx

- ODOT Procurement Office - Construction Contracts Unit Notice of Intent
  www.oregon.gov/ODOT/Business/Procurement/Pages/NOI.aspx

- ODOT Procurement Office - Construction Contracts Unit prequalification forms
  www.oregon.gov/odot/business/procurement/pages/bid_award.aspx

- Oregon Secretary of State: State Archives
  sos.oregon.gov/archives/Pages/default.aspx

- ODOT Traffic Control Plans Unit
  www.oregon.gov/ODOT/Engineering/Pages/Work-Zone.aspx
- ODOT Traffic Standards
  www.oregon.gov/ODOT/Engineering/Pages/Signals.aspx

00110.20 Definitions – Delete the "3D Engineering Model" and "3D Construction Model" definitions.

Replace the "Agency" definition with the following definition:

Agency – The City of Woodburn Public Works Department – Engineering Division.

Add the following definition:

Agency Website – This is the website of the Public Works Department, Engineering Division as owned, controlled and administrated by the City of Woodburn, OR. The URL being referenced when this term is used shall be the following:

http://www.ci.woodburn.or.us/?q=blog-categories/bids-and-rfps

Replace the "Bid Booklet" definition with the following definition:

Bid Booklet - The version that can be accessed and printed from the Agency website.

Replace the "Traveled Way" definition with the following definition:

Traveled Way - That part of the Highway for moving vehicles, exclusive of berms and Shoulders.

SECTION 00120 - BIDDING REQUIREMENTS AND PROCEDURES

Comply with Section 00120 of the Standard Specifications modified as follows:

00120.00 Prequalification of Bidders - Replace this subsection, except for the subsection number and title, with the following:

The Agency will prequalify Bidders according to ODOT's Oregon Administrative Rules and prequalification procedures. A Bidder must file for prequalification and **NO** fee. Prequalification must be renewed annually. Bidders shall make application for prequalification and for required renewals on standard forms available from the ODOT Procurement Office - Construction Contracts Unit website. Bidders shall return the completed application to the Dago Garcia at 190 Garfield St. Woodburn, OR 97071 or e-mail to dago.garcia@ci.woodburn.or.us. No facsimile of Prequalification will be accepted.

Contracts will only be awarded to Bidders who, at the time of Bid Opening, are prequalified in the Class or Classes of Work specified in the Special Provisions, except that a Bidder whose prequalification has been revoked or revised as provided in ORS 279C.430(4) may also be eligible for Award under that statute if the Project was advertised prior to the revocation or revision. The Agency will consider a Bid from a Bidder whose complete application for prequalification has been received by the Public Works Department – Engineering Division Office at least 3 Calendar Days before the opening of Bids. Bidders shall submit Bids in the same company name used on the prequalification application; provided however, if Bidder's legal name has changed since the submittal of its application for prequalification, it shall submit its Bid under its current legal name with the former name referenced by "formerly known as".

The Agency will regularly evaluate the performance of Contractors on its projects for purposes of responding to reference checks, future prequalification and determinations of responsibility.

00120.01 General Bidding Requirements - In the paragraph that begins "Bidders may submit …", replace the paragraph with the following sentence:

Bidders may submit Bids by paper only. No electronic (e-mail or facsimile) Bids will be accepted.

00120.05 Request for Plans, Special Provisions, and Bid Booklets - Replace this subsection, with the following subsection:

00120.05 Request for Plans, Special Provisions, and Bid Booklets:

(a) Informational Plans and Special Provisions - Informational Project Plans and Special Provisions are available, free of charge, on the Agency's website.

(b) Bidding Plans, Special Provisions, and Bid Booklets - Bidders must submit paper Bids.

(1) Paper Bids - Bidders submitting bids shall access and print Plans, Special Provisions, and Bid Booklets from the Agency's website. Bidders obtaining Plans, Special Provisions, and Bid Booklets must register on Agency's list of "Holders of Bidding Plans". Bids will be considered responsive only if Bidders are registered as "Holders of Bidding Plans".

Delete the paragraph that begins with the following;

"(2) Electronic Bids - Bidders …"

The Plans, which are applicable to the Work to be performed under the Contract, are included in these Special Provisions.

00120.10 Bid Booklet - In the paragraph that begins "The Bid Section includes all pages after…", add the following bullet to the bullet list:

- Certificate of nondiscrimination regarding ORS 279A.110 and certificate regarding policy and practice against sexual harassment, sexual assault and discrimination against employees who are members of a protected class as required by Chapter 212, Oregon Laws 2017 (House Bill 3060)
-

00120.30 Changes to Plans, Specifications, or Quantities before Opening of Bids - Replace all "ODOT eBids website" wording in this section with "Agency's website".

Delete "(see 00110.05(e))" wording in this section.

00120.40(a-1) Paper Bids - Replace this subsection, except for the subsection number and title, with the following:

Bidders shall not alter, in any manner, the (paper) documents within the Bid Section that are accessed and printed from the Agency's website. Bidders shall complete the certifications and statements included in the Bid Section of the Bid Booklet according to the instructions. Signature of the Bidder's authorized representative thereon constitutes the Bidder's confirmation of an agreement to all certifications and statements contained in the Bid Booklet. Entries on paper documents in the Bid Section shall be in ink or typed.

The Bidder shall properly complete and bind all the paper documents in the Bid Section, as specified in 00120.10, together with all other required documents that are part of the Bid Booklet, between the front and back covers of the Bid Booklet, except that the Bid Bond is not required if another permissible type of Bid guaranty is provided. (see 00120.40(e))

00120.40(a-2) Electronic Bids – Delete this subsection in its entirety.

00120.40(c-2) Electronic Bid Schedule Entries – Delete this subsection in its entirety.

00120.40(e-2) Bid Guaranty with Electronic Bids - Delete this subsection in its entirety.

00120.40(f) Disclosure of First-Tier Subcontractors - Replace this subsection, except for the subsection number and title, with the following:

Without regard to the amount of a Bidder's Bid, if the Agency's cost range for a public improvement Project in the "Invitation to Bid", or in other advertisement or solicitation documents, exceeds $100,000, the Bidder shall, within 2 working hours of the time Bids are due to be submitted, submit to the Agency, on a form provided by the Agency, a disclosure

identifying any first-tier Subcontractors that will furnish labor or labor and Materials, and whose contract value is equal to or greater than:

- 5% of the total Project Bid, but at least $15,000; or
- $350,000, regardless of the percentage of the total Project Bid.

For each Subcontractor listed, Bidders shall state:

- The name of the Subcontractor;
- The dollar amount of the subcontract; and
- The category of Work that the Subcontractor would be performing.

If no subcontracts subject to the above disclosure requirements are anticipated, a Bidder shall so indicate by entering "NONE" or by filling in the appropriate check box. For each Subcontractor listed, Bidders shall provide all requested information. An incomplete form will be cause for rejection of the Bid.

The Subcontractor Disclosure Form may be submitted for a paper Bid (See 00120.05(b-1) either:

By filling out the Subcontractor Disclosure Form printed from the Bid Booklet on the Agency's Engineering Division's website.

Subcontractor Disclosure Forms will be considered late if not received by the Agency within 2 working hours of the time designated for receiving Bids.

The Agency is not responsible for partial, failed, illegible or partially legible facsimile (FAX) transmissions or submittals, and such forms may be rejected as incomplete.

In the event that multiple Subcontractor Disclosure Forms are submitted, the last version received prior to the deadline will be considered to be the intended version.

Bids not in compliance with the requirements of this Subsection will be considered non-responsive.

00120.45 Submittal of Bids – Replace subsections (a) with the following:

00120.45 Submittal of Bids – Bids may be submitted by mail, parcel delivery service, or hand delivery to the office and address and at the time given in the Bid Booklet. Submit Bids in a sealed envelope and marked on the outside of the envelope as required by the Invitation to Bid. Closing time for acceptance of Bids is 2:00:00 p.m. local time on the day of Bid Opening. Bids submitted after the time set for receiving Bids will not be opened or considered. The Agency assumes no responsibility for the receipt and return of late Bids.

00120.45(b) Electronic Bids - Delete this subsection in its entirety.

00120.60(a) Paper Bids - In the paragraph that begins "Information entered into…", replace the words " ODOT Procurement Office" with the words "Agency".

In the paragraph that begins "A Bidder may withdraw…", replace the words "ODOT Procurement Office " with the words "Agency".

00120.60(b) Electronic Bids – Delete this subsection in its entirety.

00120.70 Rejection of Nonresponsive Bids - Add the following bullets to the end of the bullet list:

- The Bidder has liquidated and delinquent debt owed to the State or any department or agency of the State.

SECTION 00130 - AWARD AND EXECUTION OF CONTRACT

Comply with Section 00130 of the Standard Specifications modified as follows:

00130.10 Award of Contract - Replace the paragraph that begins "The Agency will provide Notice of Intent to Award…" with the following bullet:

The Agency will provide Notice of Intent to Award on the Agency's website.

00130.15 Right to Protest Award - Replace this subsection number and title and replace the sentence that begins "Before the Agency will..." with the following number and title and sentence:

00130.15 Right to Protest Award - Adversely affected or aggrieved Bidders, limited to the here apparent lowest Bidders and any other Bidder directly in for Contract Award, may submit to the Agency a written protest of the Agency's intent to Award within 3 working days following posting of the Notice of Intent to Award on the Agency's website. The protest shall specify the grounds upon which it is based.

The Agency is not obligated to consider late protests.

00130.50(a) By the Bidder - In the paragraph that begins "The successful Bidder…", replace the words "ODOT Procurement Office – Construction Contract Unit" with the words "Agency's Project Manager".

SECTION 00140 - SCOPE OF WORK

Comply with Section 00140 of the Standard Specifications.

SECTION 00150 - CONTROL OF WORK

Comply with Section 00150 of the Standard Specifications modified as follows:

00150.15 Construction Stakes, Lines, and Grades: - Replace this subsection number and title with the following number and title subsection:

00150.15 Construction Stakes, Lines, and Grades: All new construction is relative to existing fixed pipes and structures. The Engineer will assist in defining the location of the reference points, but the Contractor shall be responsible for final location and fit of all equipment. Survey work, if any, will be considered incidental to the Contract.

00150.30 Delivery of Notices - Add the following to the end of this subsection:

For purposes of this subsection, the time zone is Pacific Standard Time (PST) to determine time of receipt of notices and other documents. For purposes of this subsection, non-business days are Saturdays, Sundays and legal holidays as defined by ORS 187.010 and 187.020.

Following Notice to Proceed, all notices and other documents submitted to the Contractor by the Engineer, or to the Engineer by the Contractor, electronically under 00170.08:

- If recorded in Doc Express® as received before 5:00 p.m. PST on a business day it shall be considered as received on the business day on which it was actually received in Doc Express®.
- If recorded in Doc Express® as received on a non-business day, or after 5:00 p.m. PST on a business day, it shall be considered as received at 8:00 a.m. PST on the next business day.

Claims must be submitted on paper documents according to Section 00199.

00150.35 Plans, 3D Engineering Models, Working Drawings, and 3D Construction Models: Remove all of the following words from this subsection “3D Engineering Models, 3D Construction Models.

00150.50(c) Contractor Responsibilities - Add the following subsection:

00150.50(f) Utility Information:

Contact those Utilities having buried facilities and request that they locate and mark them for their protection prior to construction.

UTILITY	CONTACT PERSON	PHONE NUMBER
Century Link	Josh Fallin	503.399.4931
AT&T	Tom Normoyle	503.588.1899
NWN Gas	Daniel Kizer	503.226.4211ext8166
PGE	Darrin Perkins	503.463.4325
DataVision	Dennis Weddle	503-949-9701
Wave Cable/Internet	Derek Anderson	503.798-6651
City Water	Brian Young	503.982.5238
City Sewer Collections and Streets	Curtis Stultz	503.982.5268
Republic Services - Solid Waste	Dispatch	503.981.1278
US Postal Service	Kevin McGrory	503.982.0186
First Student - School Bus	Delores Stubblefield	503.982.1427
911 - Non Emergency	Operator/Dispatch	503.982.2340

This Project is located within the Oregon Utility Notification Center area which is a Utilities notification system for notifying owners of Utilities about Work being performed in the vicinity of their facilities. The Utilities notification system telephone number is 811 (or use the old number which is 1-800-332-2344).

Further notify and coordinate with the following:

SECTION 00160.15 – COMMON PRODUCTS REQUIREMENTS

Add this section, see Appendix A

SECTION 00165 - QUALITY OF MATERIALS

Comply with Section 00165 of the Standard Specifications.

SECTION 00165.92 SPECIAL INSPECTIONS

Add this Section, see Appendix A

SECTION 00165.93 MANUFACTURER'S FIELD SERVICES

Add this Section, see Appendix A

SECTION 00165.94 OPERATIONS AND MAINTENANCE DATA SPECIFICATION

Add this Section, see Appendix A

SECTION 00165.95 SEISMIC ANCHORAGE AND BRACING

Add this Section, see Appendix A

SECTION 00170 - LEGAL RELATIONS AND RESPONSIBILITIES

Comply with Section 00170 of the Standard Specifications modified as follows:
Add the following subsection:

00170.04 Patents, Copyrights, and Trademarks - Replace the paragraph that begins " Prior to use of designs, devices, materials, or processes…" with the following paragraph:

Prior to use of designs, devices, materials, or processes protected by patent, copyright, or trademark, the Contractor shall obtain from the Entity entitled to enforce the patent, copyright, or trademark all necessary evidence of Contractor's legal right to use such design, device, material, or process.

00170.05 Assignment of Antitrust Rights - Replace the bullet that reads "ORS 646.725; and" with the following bullet:

- ORS 646.725; or

00170.07 Record Requirements - In the paragraph that begins "For purposes of this Subsection, the term…", replace the words "OAR 731-005-0780" with the words "OAR 734-010-0400".

00170.07(a) Records Required - In the paragraph that begins "These records shall include…", replace the bullet that begins "Contracts or documents of other…", with the following bullet:

- Contracts or documents of other arrangements with any Related Entity as defined in OAR 734-010-0400.

In the paragraph that begins "The Contractor shall include…", replace the words "OAR 731-005-0780" with the words "OAR 734-010-0400".

00170.07(b) Access to Records - In the paragraph that begins "The Contractor shall provide…", replace the words "OAR 731-005-0780(9)" with the words "OAR 734-010-0400(9)".

00170.62 Labor Nondiscrimination - Add the following sentence to the end of this subsection:

It is a material term of this Contract that the Contractor certifies by entering into this Contract that the Contractor has a written policy and practice that meets the requirements described in Chapter 212, Oregon Laws 2017 (House Bill 3060) for preventing sexual harassment, sexual assault and discrimination against employees who are members of a protected class and that the Contractor shall maintain the policy and practice in force during the entire term of this Contract.

00170.60 Safety, Health and Sanitation Provisions – Add the following paragraph to the end of this subsection:

The Contractor is responsible to require each subcontractor at every tier to comply with the requirements of OAR 437-002-0146, Oregon OSHA's Confined Space Rule including a copy of all closed permit entry forms to the Agency Project Manager within 24 hours of closing the permit.

00170.70(a) Insurance Coverages - The following insurance coverages and dollar amounts are required pursuant to this subsection:

InsuranceCombined Single LimitAnnual Aggregate

Coverages	**per Occurrence**	**Limit**
Commercial General Liability	$1,000,000.00	$2,000,000.00
Commercial Automobile Liability	$1,000,000.00	(aggregate limit not required)

00170.70(c) Additional Insured - Add the following paragraph and bullet to the end of this subsection:

Add the following as Additional Insureds under the Contract:

- The City of _Woodburn, OR and its officers, agents, representatives, volunteers and employees

00170.72 Indemnity/Hold Harmless - Add the following paragraph and bullets to the end of this subsection:

Extend indemnity, defense and hold harmless to the Agency and the following:

- The City of _Woodburn, OR and its officers, agents, representatives, volunteers and employees

SECTION 00180 - PROSECUTION AND PROGRESS

Comply with Section 00180 of the Standard Specifications modified as follows:

00180.40(a) In General – Add the following bullets to this subsection:

- Street Closures are not allowed in this project.
- Provided and maintain access to all homes, School and Business at all times.
- All work shall be accomplished between 7:00 AM and 7:00 PM every day from Monday through Friday, excluding Legal Holidays.

Add the following subsection:

00180.40(c) Specific Limitations - Limitations of operations specified in these Special Provisions include, but are not limited to, the following:

Limitations	Subsection
Cooperation with Utilities	00150.50
Cooperation with Other Contractors	00150.55
On-Site Work	00180.40(b)
Contract Time	00180.50(h)
Special Events	00220.40(e)(2)(b)
Regulated Work Areas	00290.34(a)
Noise Control	00290.32

00180.41 Project Work Schedules - After the paragraph that begins "One of the following Type…" add the following paragraph:

In addition to the "look ahead" Project Work schedule, a Type _____ schedule as detailed in the Standard Specifications is required on this Contract.

00180.42 Preconstruction Conference - Add the following paragraph to the end of this subsection:

The Contractor shall conduct a group Utilities scheduling meeting with representatives from the Utility companies involved with this Project and the Engineer before the preconstruction conference. The Contractor shall incorporate the Utilities time needs into the Contractor's schedule submitted at the preconstruction conference.

00180.50(c) Beginning of Contract Time - Replace this subsection, except for the subsection number and title, with the following:

When the Contract Time is stated in Calendar Days, counting of Contract Calendar Days will begin on the day the Contractor begins On-Site Work as defined in 00110.20.

Add the following subsection:

00180.50(h) Contract Time - There is one Contract Time on this Project as follows:

Complete all Work to be done under the Contract absolutely not later than August 31, 2019.

The Contractor shall complete all Work to be done under the Contract within one hundred and twenty calendar (120) of "Notice to Proceed" or within sixty (60) days of Engineer's approval to begin bypass pumping, whichever occurs later.

00180.85(b)(1) Single Contract Time - Replace this subsection, except for the subsection number and title, with the following:

The Liquidated Damages per Calendar Day* are 15.0 percent of C divided by T as defined in this Section.

C = The Contractor's Bid amount for the Contract.
T = The total Calendar Days between the latest completion date or time listed under 00180.50(h) in the Solicitation Documents and the Bid Opening that will result in the greatest value for T.

* Calendar Day amounts are applicable when the Contract time is expressed on the Calendar Day or fixed date basis.

SECTION 00190 - MEASUREMENT OF PAY QUANTITIES

Comply with Section 00190 of the Standard Specifications.

SECTION 00195 - PAYMENT

Comply with Section 00195 of the Standard Specifications modified as follows:

00195.10 Payment for Changes in Materials Costs - Replace this subsection with the following subsection:

00195.10 Payment for Changes in Materials Costs – There are no changes in payments for escalation/De-Escalation of materials in this Contract.

Additional work required by the Agency will be negotiated on a case by case basis for all changes in materials costs and shall be agreed upon, in writing, before the work is accomplished.

All materials are subject to change in costs and conditions, as specified in subsection 00195.20 Changes in Plans or Character of Work, including but not limited to:

- Steel Materials Price Adjustment
- Asphalt Cement Price Adjustment
- Fuel Price Adjustment

The Agency reserves all of its rights under the Contract, including, but not limited to, its rights for suspension of the Work under 00180.70 and its rights for termination of the Contract under 00180.90, and this escalation/de-escalation provision shall not limit those rights.

00195.12 Steel Material Price Escalation/De-Escalation – Remove this subsection in its entirety.

00195.50 (1) Progress Payments - Replace the paragraph that begins with “At the same time each month…” of this subsection with the following:

At the same time each month, the Contractor will make an estimate of the amount and value of the Pay Item Work completed. The Contractor will submit this estimation of quantities to the Engineer for agreement on the number of estimated units completed for unit price Pay Items plus the estimated percentage completed of lump sum Pay Items.

00195.50 (2) Value of Materials on Hand – Replace the paragraph that begins with “The Engineer will…” of this subsection with the following:

The Contractor will also make an estimate of the amount and value of acceptable Materials on hand, i.e., already delivered and stored according to 00195.60(a), to be incorporated into the Work and submit this estimation to the Engineer for agreement for Pay Items for this progress payment.

00195.50(b) Retainage - Replace the paragraph that begins "The amount to be retained…" with the following paragraph:

The amount to be retained from progress payments will be 5% of the value of Work accomplished, and will be retained by the Agency until completion of the Work as specified in (c) below.

00195.50(c) Forms of Retainage - Replace this entire subsection through and including 00195.50(3) Bonds, Securities, and Other Instruments with the following:

The Agency will withhold payment of 5% of all progress payments until completion of the project as is described in (c) below.

Insert the following:

00195.50 (c) Release of Retainage – The Agency will make payment to the Contractor after the Contractor has made application for payment to the Engineer upon issuance of the Third Notification.

00195.50 (e) Withholding Payments – Change (e) to (d) in the title of this subsection.

00195.50 (f) Prompt Payment Policy – Change the (f) to (e) in the title of this subsection.

00195.90(c) No Waiver of Right to Make Adjustment - Replace this subsection, except for the subsection number and title, with the following:

The fact that the Agency has made any measurement, estimate, determination or certification either before or after completion of the Project, Final Acceptance, Agency assumption of possession of the Project Site, determination of satisfactory completion of Pay Items or Work or release of retainage under 00195.50(c) or payment for any part of the Work, shall not prevent either party from:

- Showing the true amount and character of the Work;
- Showing that any measurement, estimate, determination or certification is incorrect;
- Recovering from the other party damages that may have been suffered because the other party failed to comply with the Contract.

SECTION 00196 - PAYMENT FOR EXTRA WORK

Comply with Section 00196 of the Standard Specifications.

SECTION 00197 - PAYMENT FOR FORCE ACCOUNT WORK

Comply with Section 00197 of the Standard Specifications modified as follows:

SECTION 00210 - MOBILIZATION

Comply with Section 00210 of the Standard Specifications.

SECTION 00310 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Comply with Section 00310 of the Standard Specifications.

SECTION 00310 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Comply with Section 00310 of the Standard Specifications.

SECTION 00410 - COMMON PROVISIONS FOR PIPE LINING

Comply with Section 00410 of the Standard Specifications.

SECTION 00412 - CURED-IN-PLACE PIPE LINING

Comply with Section 00412 of the Standard Specifications modified as follows:

00412.02 Design Parameters - Add the following to the end of this subsection:

The following design parameters apply:

Condition	Parameter
Load Conditions:	
Soil	120 pcf
Traffic	HS20
Groundwater Elevation	At Grade/Perched
Pipe Ovality	2% - 5%
Modulus of Soil Reaction	
10’ Depth or less	700 psi
Over 10’ Depth	1,000 psi

SECTION 00420 – SALVAGING PIPE

Comply with Section 00420 of the Standard Specifications modified as follows:

00420.80 Measurement – No measurement of quantities will be made for salvage pipe.

00420.90 Payment - No payment of quantities will be made for salvage pipe. All salvage pipe material is the property and responsibility of the Contractor to dispose of in a location and manner as approved by law.

SECTION 00440 - COMMERCIAL GRADE CONCRETE

Comply with Section 00440 of the Standard Specifications modified as follows:

Add the following subsection:

00440.01 Terminology - According to 00110.05(a), for the purposes of this Contract, the terms "sidewalk ramp" and "sidewalk ramps" shall respectively refer to and shall be read to mean "curb ramp" and "curb ramps".

Add the following subsection:

00440.02 Abbreviations and Definitions:

ASTV – Actual Strength Test Value – See 02001.02 for definition.

00440.12 Proportions of Commercial Grade Concrete - Replace the bullet that begins "Compressive strength…" with the following bullet:

- **Compressive Strength** - ASTV minimum of 3,000 psi at 28 days

00440.14(d) Hardened CGC - Add the following to the end of this subsection:

The ASTV at 28 Days is the average compressive strength of the three cylinders tested. Discard all specimens that show definite evidence, other than low strength, of improper sampling, molding, handling, curing, or testing. The average strength of the remaining cylinders shall then be considered the test result.

SECTION 00490 – WORK on EXISTING SEWERS and STRUCTURES

Comply with Section 00490 of the Standard Specifications modified as follows:

00490.42 Service Line Connections to Existing Sanitary Sewers – Add the following sentence to this subsection:

Inserta-Tee is the approved commercial tap to be use on existing sewer mains.

SECTION 00641 - AGGREGATE SUBBASE, BASE, AND SHOULDERS

Comply with Section 00641 of the Standard Specifications

SECTION 02001 - CONCRETE

Comply with Section 02001 of the Standard Specifications modified as follows:

02001.02 Abbreviations and Definitions - Replace this subsection, except for the subsection number and title, with the following:

ASTV - Actual Strength Test Value - average of test cylinder compressive strengths

f'_c - Minimum Specified Compressive Strength at 28 days

f'_{cr} - Average Compressive Strength Over-design. The average strength required to assure that, with normal variations, the concrete will meet ¦'c

GGBFS - Ground Granulated Blast Furnace Slag

HPC - High Performance Concrete

HRWRA - High-Range Water-Reducing Admixture (super-plasticizer)

PPCM - Precast prestressed concrete member

SCM - Supplementary Cementitious Materials

SSD - Saturated Surface-Dry

w/cm Ratio - Water-Cementitious Material Ratio

WRA - Water Reducing Admixture

Cementitious Materials - Portland cement and supplementary cementitious materials.

High Performance Concrete - Concrete designed for enhanced durability and performance characteristics. High performance concrete is identified on the Plans by the letters "HPC" in front of the concrete class designation (for example, HPC4500 - 1 1/2).

Moderate Exposure - Elevations below 1,000 feet.

Pozzolans - Fly ash, silica fume, and metakaolin.

Severe Exposure - Elevations 1,000 feet and above.

Supplementary Cementitious Materials - Fly ash, silica fume, metakaolin, and ground granulated blast furnace slag.

02001.10 Materials - Replace this subsection, except for the subsection number and title, with the following:

Furnish Materials meeting the requirements of the following:

Aggregates 02690

Cement 02010
Chemical Admixtures.....02040
Concrete Modifiers 02035
Supplementary Cementitious Materials.....02030
Synthetic Fiber Reinforcing 02045
Water 02020

02001.20(a) Strength - Replace this subsection, except for the subsection number and title, with the following:

Provide concrete meeting the required Classes shown in the Contract Documents. The class of concrete designates the minimum required compressive strength, f'_c at 28 days.

Table 02001-1

Concrete Strength and Water/Cementitious Material (w/cm) Ratio		
Type of Concrete	**Strength (PSI)**	**Maximum w/cm Ratio**
Structural	3300	0.50
	3300 (Seal)	0.45
	4000	0.48
	HPC4500	0.40
	5000 and Above	0.40[1]
	HPC5000 and above	0.40
Drilled Shaft	4000	0.48
Paving	4000	0.44
[1] PPCM's with cast-in-place decks and no entrained air may have w/cm as follows: 5000 psi - 0.48; 5500 psi - 0.44; 6000 psi and up - 0.42		

02001.30 Concrete Mix Design - Replace the bullet that begins "Cementitious material with modifiers proportioned according…" with the following bullet:

- Cement with SCM proportioned according to 02001.31(b) and with trial batches performed to demonstrate that the proposed alternate mix design provides a maximum of 1,000 coulombs at 90 days when tested according to AASTHO T 277.

02001.31 Concrete Constituents - Replace this entire subsection with the following subsection:

02001.31 Concrete Constituents:

(a) Portland Cement - Use AASHTO M 85 or ASTM C150, Type I or II cement for structural or paving concrete. Use AASHTO M 85 or ASTM C150, Type III cement for precast prestressed concrete. Provide all cement from the QPL.

(b) Supplementary Cementitious Materials - SCM may be used separately or in combinations up to the specified maximum percentage by mass according to the following:

Separate SCM	Maximum
Fly Ash + Other Pozzolans	25%
GGBFS	50%
Silica Fume	5%

Combined SCM	Maximum
Fly Ash + Other Pozzolans + GGBFS + Silica Fume	50%*
Fly Ash + Other Pozzolans + Silica Fume	30%*

* Fly ash + other pozzolans shall constitute no more than 25% and silica fume shall constitute no more than 5% of the total weight of cementitious materials.

When silica fume is added to truck mixed concrete, mix the batch a minimum of 100 revolutions at the mixing speed specified by the manufacturer before leaving the batch plant.

(c) Blended Hydraulic Cement - Blended hydraulic cement may be used subject to the limits of 02001.31(b) and 02010.20.

(d) Chemical Admixtures - Use chemical admixtures according to the manufacturer's recommendations. Use WRA in all seal concrete and in Class 5000 concrete or greater. Use HRWRA in all HPC.

Use a superset extender from the QPL in all concrete for bridge decks. Use an appropriate amount to extend the initial set time of the concrete by 90 minutes.

(e) Aggregate - If the nominal maximum size of the coarse Aggregate is not included as a part of the class of concrete, or shown on the Plans, any size from 1 1/2-inch to 3/8-inch nominal maximum size Aggregate may be used according to ACI guidelines except:

Use 1 1/2 inch nominal maximum size Aggregates in bridge deck concrete.

Use 1 1/2 inch nominal maximum size Aggregates in paving concrete unless otherwise indicated.

Use 3/8 inch nominal maximum size Aggregates in drilled shafts unless otherwise indicated.

Proportion all HPC for a minimum coarse Aggregate absolute solid volume according to Table 02001-4:

Table 02001-4

Absolute Solid Volume	
Maximum Nominal	**Cu. Yd. (Aggregate) /**

Aggregate Size	Cu. Yd. (Concrete)
3/8"	0.36
1/2"	0.38
3/4"	0.40
1"	0.42
1 1/2"	0.44

Two or more Aggregate products or sources meeting Specifications may be blended to improve concrete properties. Blending non-specification Aggregate Materials, except for gradation, with specification Materials is not allowed.

02001.35 Required Submittals for Mix Designs - Replace this entire subsection with the following subsection:

02001.35 Required Submittals for Mix Designs - Submit the following information for each concrete mix design:

(a) Supplier's Information - Provide the supplier's unique mix design identification number and batch plant location.

(b) Mix Design Constituent Proportions:

- Weight per cubic yard (pounds per cubic yard) of cement, SCM, fine Aggregates and coarse Aggregates (SSD), mix water, concrete modifiers, and chemical admixtures

Absolute volumes of cement, SCM, fine Aggregates and coarse Aggregates (SSD), mix water, air content, concrete modifiers, and chemical admixtures

Dosage rates for chemical admixtures (ounces per cubic yard)

w/cm ratio including all chemical admixtures

(c) Aggregates - Identify the Aggregate source by the ODOT source number. Report current values of the following:

- Bulk specific gravities (SSD)

Fine Aggregate absorptions

Coarse Aggregate absorptions

Dry-rodded density of coarse Aggregates

Average stockpile gradations

Fineness modulus of sand used in the mix design calculations

(d) Cement - For each cement used, provide the following:

- Manufacturer

Brand name

Type

Source or location plant

QPL product number

(e) SCM - For each SCM used, provide the following:

- Manufacturer

Brand name

Source

Class

QPL product number

(f) Concrete Modifiers - For each concrete modifier used, provide the following:

- Manufacturer

Brand name

QPL product number

(g) Admixtures - For each admixture used, identify the following:

- Manufacturer

Brand name

Design dosage rate

QPL product number

(h) Synthetic Fiber Reinforcing - For each synthetic fiber reinforcing used, provide:

- Manufacturer

Brand name

Design dosage rate

QPL product number

(i) Water - Identify the source of water to be used and provide a certificate of compliance certifying that the water meets the requirements of 02020.10.

(j) Plastic Concrete Tests - Report the temperature, slump, density, air content, yield, and w/cm ratio of the trial batch or the average of these values for the cylinder sets presented for evaluation of a current mix design.

For drilled shaft concrete, report the following additional information:

- The total time estimate from initial batching through drilled shaft placement, including haul time, placing concrete, and temporary casing extraction.

Initial slump test results and subsequent results at 15-minute intervals, verifying a minimum slump of 4 inches is maintained for the total time estimated for drilled shaft placement, including temporary casing extraction. Report data in a table or graph format.

(k) Compressive Strength Test Results - Report the individual test results and the ASTV of cylinders from the trial batch for new mix designs. For current designs, provide the individual tests and the average of the cylinder sets presented for evaluation.

(l) Strength Analysis - Provide an analysis, showing all calculations, demonstrating that the mix design meets the requirements of 02001.33.

(m) Quality Control Personnel - Provide the name and certification number of the CCT who prepared the mix design, the QCT who performed the plastic concrete tests and cast the test cylinders, the CSTT who tested the cylinders, and the ODOT certification number of the laboratory where the cylinders were tested.

SECTION 10100 - FLYGT PUMP INSTALLATION

Add this Section, see Appendix A

SECTION 10200 - PIPING GAGES AND VALVES

Add this Section, see Appendix A

SECTION 10300 - SLUICE GATE INSTALLATION

Add this section, see Appendix A

SECTION 10500 - MAINTAIN WASTEWATER FLOW

Add this Section, see Appendix A

SECTION 10600 - EQUIPMENT DEMOLITION AND SALVAGE

Add this Section, see Appendix A

SECTION 00160.15 – COMMON PRODUCTS REQUIREMENTS

SECTION 00165.92 SPECIAL INSPECTIONS

SECTION 00165.93 MANUFACTURER'S FIELD SERVICES

SECTION 00165.94 OPERATIONS AND MAINTENANCE DATA SPECIFICATION

SECTION 00165.95 SEISMIC ANCHORAGE AND BRACING

SECTION 02535 – METAL FABRICATION

SECTION 10100 - FLYGHT PUMP INSTALLATION

SECTION 10200 - PIPING, GAGES AND VALVES

SECTION 10300 - SLUICE GATE INSTALLATION

SECTION 10500 – MAINTAIN WASTEWATER FLOW

SECTION 10600 – EQUIPMENT DEMOLITION AND SALVAGE

SECTION 10700 – WET WELL LINER

APPENDIX A

SPECIAL PROVISIONS APPENDIX "A"
SUPLIMENTAL SPECIFICATIONS

SECTION 00160.15 – COMMON PRODUCTS REQUIREMENTS

SECTION 00165.92 SPECIAL INSPECTIONS

SECTION 00165.93 MANUFACTURER'S FIELD SERVICES

SECTION 00165.94 OPERATIONS AND MAINTENANCE DATA SPECIFICATION

SECTION 00165.95 SEISMIC ANCHORAGE AND BRACING

SECTION 02535 – METAL FABRICATION

SECTION 10100 - FLYGHT PUMP INSTALLATION

SECTION 10200 - PIPING, GAGES AND VALVES

SECTION 10300 - SLUICE GATE INSTALLATION

SECTION 10500 – MAINTAIN WASTEWATER FLOW

SECTION 10600 – EQUIPMENT DEMOLITION AND SALVAGE

SECTION 10700 – WET WELL LINER

SECTION 01165.15
COMMON PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 DEFINITIONS

A. Products:

1. New items for incorporation in the Work, whether purchased by Contractor or Owner for the Project, or taken from previously purchased stock, and may also include existing materials or components required for reuse.
2. Includes the terms material, equipment, machinery, components, subsystem, system, hardware, software, and terms of similar intent and is not intended to change meaning of such other terms used in Contract Documents, as those terms are self-explanatory and have well recognized meanings in construction industry.
3. Items identified by manufacturer's product name, including make or model designation, indicated in manufacturer's published product literature, that is current as of the date of the Contract Documents.

1.2 DESIGN REQUIREMENTS

A. Where Contractor design is specified, design of installation, systems, equipment, and components, including supports and anchorage, shall be in accordance with provisions of latest edition of International Building Code (IBC) by International Code Council.

B. Wind, snow, seismic, earth, and other design loads shall be shown on the General Structural Note Sheets on the Drawings.

1.3 ENVIRONMENT AL REQUIREMENTS

A. Altitude: Provide materials and equipment suitable for installation and operation under rated conditions at 180 feet above sea level.

B. Provide equipment and devices installed outdoors or in unheated enclosures capable of continuous operation within an ambient temperature range of 110 to 10 degrees F.

1.4 PREPARATION FOR SHIPMENT

A. When practical, factory assemble products. Mark or tag separate parts and assemblies to facilitate field assembly. Cover machined and unpainted parts that may be damaged by the elements with strippable protective coating.

B. Package products to facilitate handling and protect from damage during shipping, handling, and storage. Mark or tag outside of each package or crate to indicate its purchase order number, bill of lading number, contents by name, name of Project and Contractor, equipment number, and approximate weight. Include complete packing list and bill of materials with each shipment.

C. Extra Materials, Special Tools, Test Equipment, and Expendables:

1. Furnish as required by Individual Specifications.
2. Schedule:
   a. Ensure that shipment and delivery occurs concurrent with shipment of associated equipment.
   b. Transfer to Owner shall occur immediately subsequent to Contractor's acceptance of equipment from Supplier.
3. Packaging and Shipment:
   a. Package and ship extra materials and special tools to avoid damage during long term storage in original cartons insofar as possible, or in appropriately sized, hinged-cover, wood, plastic, or metal box.
   b. Prominently displayed on each package, the following:
      1) Manufacturer's part nomenclature and number, consistent with Operation and Maintenance Manual identification system.
      2) Applicable equipment description.
      3) Quantity of parts in package.
      4) Equipment manufacturer.
4. Deliver materials to Site.
5. Notify Engineer upon arrival for transfer of materials.
6. Replace extra materials and special tools found to be damaged or otherwise inoperable at time of transfer to Owner.

D. Request a minimum 7-day advance notice of shipment from manufacturer.

E. Factory Test Results: Reviewed and accepted by Engineer before product shipment as required in individual Specification sections.

1.5 DELIVERY AND INSPECTION

A. Deliver products in accordance with accepted current Progress Schedule and coordinate to avoid conflict with the Work and conditions at Site. Deliver anchor bolts and templates sufficiently early to permit setting prior to placement of structural concrete.

B. Deliver products in undamaged condition, in manufacturer's original container or packaging, with identifying labels intact and legible. Include on label, date of manufacture and shelf life, where applicable.

C. Unload products in accordance with manufacturer's instructions for unloading or as specified. Record receipt of products at Site. Promptly inspect for completeness and evidence of damage during shipment.

D. Remove damaged products from Site and expedite delivery of identical new undamaged products, and remedy incomplete or lost products to provide that specified, so as not to delay progress of the Work.

1.6 HANDLING, STORAGE, AND PROTECTION

A. Handle and store products in accordance with manufacturer's written instructions and in a manner to prevent damage. Store in approved storage yards or sheds. Provide manufacturer's recommended maintenance during storage, installation, and until products are accepted for use by Owner.

B. Manufacturer's instructions for material requiring special handling, storage, or protection shall be provided prior to delivery of material.

C. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration. Keep running account of products in storage to facilitate inspection and to estimate progress payments for products delivered, but not installed in the Work.

D. Store electrical, instrumentation, and control products, and equipment with bearings in weather-tight structures maintained above 60 degrees F. Protect electrical, instrumentation, and control products, and insulate against moisture, water, and dust damage. Connect and operate continuously space heaters furnished in electrical equipment.

E. Store fabricated products above ground on blocking or skids, and prevent soiling or staining. Store loose granular materials in well-drained area on solid surface to prevent mixing with foreign matter. Cover products that are subject

to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.

F. Store finished products that are ready for installation in dry and well-ventilated areas. Do not subject to extreme changes in temperature or humidity.

G. After installation, provide coverings to protect products from damage due to traffic and construction operations. Remove coverings when no longer needed.

H. Hazardous Materials: Prevent contamination of personnel, storage area, and Site. Meet requirements of product specification, codes, and manufacturer's instructions.

PART 2 PRODUCTS

2.1 GENERAL

A. Provide manufacturer's standard materials suitable for service conditions, unless otherwise specified in the individual Specifications.

B. Where product specifications include a named manufacturer, with or without model number, and also include performance requirements, named manufacturer's products must meet the performance specifications.

C. Like items of products furnished and installed in the Work shall be end products of one manufacturer and of the same series or family of models to achieve standardization for appearance, operation and maintenance, spare parts and replacement, manufacturer's services, and implement same or similar process instrumentation and control functions in same or similar manner.

D. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.

E. Provide interchangeable components of the same manufacturer, for similar components, unless otherwise specified.

F. Equipment, Components, Systems, and Subsystems: Design and manufacture with due regard for health and safety of operation, maintenance, and accessibility, durability of parts, and shall comply with applicable OSHA, state, and local health and safety regulations.

G. Regulatory Requirement: Coating materials shall meet federal, state, and local requirements limiting the emission of volatile organic compounds and for worker exposure.

H. Safety Guards: Provide for all belt or chain drives, fan blades, couplings, or other moving or rotary parts. Cover rotating part on all sides. Design for easy installation and removal. Use 16-gauge or heavier; galvanized steel, aluminum coated steel, or galvanized or aluminum coated 1/2-inch mesh expanded steel. Provide galvanized steel accessories and supports, including bolts. For outdoors application, prevent entrance of rain and dripping water.

I. Authority Having Jurisdiction (AHJ):

1. Provide the Work in accordance with NFPA 70, National Electrical Code (NEC). Where required by the AHJ, material and equipment shall be labeled or listed by a nationally recognized testing laboratory or other organization acceptable to the AHJ in order to provide a basis for approval under NEC.
2. Materials and equipment manufactured within the scope of standards published by Underwriters Laboratories, Inc. shall conform to those standards and shall have an applied UL listing mark.

J. Equipment Finish:

1. Provide manufacturer's standard finish and color, except where specific color is indicated.
2. If manufacturer has no standard color, provide equipment with finish as approved by Owner.

K. Special Tools and Accessories: Furnish to Owner, upon acceptance of equipment, all accessories required to place each item of equipment in full operation. These accessory items include, but are not limited to, adequate oil and grease (as required for first lubrication of equipment after field testing), light bulbs, fuses, hydrant wrenches, valve keys, handwheels, chain operators, special tools, and other spare parts as required for maintenance.

L. Lubricant: Provide initial lubricant recommended by equipment manufacturer in sufficient quantity to fill lubricant reservoirs and to replace consumption during testing, startup, and operation until final acceptance by Owner.

2.2 FABRICATION AND MANUFACTURE

A. General:

1. Manufacture parts to U.S.A. standard sizes and gauges.
2. Two or more items of the same type shall be identical, by the same manufacturer, and interchangeable.
3. Design structural members for anticipated shock and vibratory loads.
4. Use 1/4-inch minimum thickness for steel that will be submerged, wholly or partially, during normal operation.
5. Modify standard products as necessary to meet performance Specifications.

B. Lubrication System:

1. Require no more than weekly attention during continuous operation.
2. Convenient and accessible; oil drains with bronze or stainless steel valves and fill-plugs easily accessible from the normal operating area or platform. Locate drains to allow convenient collection of oil during oil- changes without removing equipment from its installed position.
3. Provide constant-level oilers or oil level indicators for oil lubrication systems.
4. For grease type bearings, which are not easily accessible, provide and install stainless steel tubing; protect and extend tubing to convenient location with suitable grease fitting.

2.3 SOURCE QUALITY CONTROL

A. Where Specifications call for factory testing to be witnessed by Engineer, notify Engineer not less than 14 days prior to scheduled test date, unless otherwise specified.

B. Calibration Instruments: Bear the seal of a reputable laboratory certifying instrument has been calibrated within the previous 12 months to a standard endorsed by the National Institute of Standards and Technology (NIST).

C. Factory Tests: Perform in accordance with accepted test procedures and document successful completion.

PART 3 EXECUTION

3.1 INSPECTION

A. Inspect materials and equipment for signs of pitting, rust decay, or other deleterious effects of storage. Do not install material or equipment showing

such effects. Remove damaged material or equipment from the Site and expedite delivery of identical new material or equipment. Delays to the Work resulting from material or equipment damage that necessitates procurement of new products will be considered delays within Contractor's control.

3.2 INSTALLATION

A. Equipment Drawings show general locations of equipment, devices, and raceway, unless specifically dimensioned.

B. No shimming between machined surfaces is allowed.

C. Install the Work in accordance with NECA Standard of Installation, unless otherwise specified.

D. Repaint painted surfaces that are damaged prior to equipment acceptance.

E. Do not cut or notch any structural member or building surface without specific approval of Engineer.

F. Handle, install, connect, clean, condition, and adjust products in accordance with manufacturer's instructions, and as may be specified. Retain a copy of manufacturers' instruction at Site, available for review at all times.

G. For material and equipment specifically indicated or specified to be reused in the Work:

1. Use special care in removal, handling, storage, and reinstallation to assure proper function in the completed Work.
2. Arrange for transportation, storage, and handling of products that require offsite storage, restoration, or renovation. Include costs for such Work in the Contract Price.

3.3 FIELD FINISHING

A. In accordance with individual specification sections.

3.4 ADJUSTMENT AND CLEANING

A. Perform required adjustments, tests, operation checks, and other startup activities.

3.5 LUBRICANTS

A. Fill lubricant reservoirs and replace consumption during testing, startup, and operation prior to acceptance of equipment by Owner.

END OF SECTION

SECTION 00165.92
SPECIAL INSPECTION, OBSERVATION, AND TESTING

PART 1 GENERAL

1.1 SUMMARY

A. This Section covers requirements for Special Inspection, Observation, and Testing required in accordance with Chapter 17 of the 2014 International Building Code, and is in addition to supplement requirements included in Statement of Special Inspections (Plan) shown on Drawings.

1.2 REFERENCES

A. The following is a list of standards which may be referenced in this Section:

1. International Code Council (ICC):
   a. 2014 International Building Code (IBC).
   b. Evaluation Service (ICC-ES) Reports and Legacy Reports.
2. American Society of Civil Engineers (ASCE): 7 -05, Minimum Design Loads for Buildings and Other Structures.

1.3 DEFINITIONS

A. Agencies and Personnel:

1. Approved Agency: An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved.
2. Registered Design Professional in Responsible Charge: An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the Project is to be constructed.
3. Special Inspector: Qualified person employed by Owner who will demonstrate competence to the satisfaction of the building official for inspection of a particular type of construction or operation requiring Special Inspection.

B. Special Inspection:

1. Special Inspection: Inspection required of materials, installation, fabrication, erection, or placement of components and connections

requiring special expertise to ensure compliance with approved Contract Documents and referenced standards.

2. Special Inspection, Continuous: Full-time observation of work requiring Special Inspection by an approved Special Inspector who is present in the area where the Work is being performed.
3. Special Inspection, Periodic: Part-time or intermittent observation of work requiring Special Inspection by an approved Special Inspector who is present in the area where the Work has been or is being performed, and at the completion of the Work.

C. Structural Systems and Components:

I. Diaphragm: Component of structural lateral load resisting system consisting of roof, floor, or other membrane or bracing system acting to transfer lateral forces to vertical resisting elements of structure.
2. Drag Strut or Collector: Component of structural lateral load resisting system consisting of a diaphragm or shear wall element that collects and transfers diaphragm shear forces to vertical force-resisting elements or distributes forces within diaphragm or shear wall.
3. Seismic-Force-Resisting System: That part of structural lateral load resisting system that has been considered in the design to provide required resistance to seismic forces identified on Drawings.
4. Shear Wall: Component of structural lateral load resisting system consisting of a wall designed to resist lateral forces parallel to the plane of the wall. Unless noted otherwise on Drawings, load-bearing walls with direct in-plane connections to roof and floors shall be considered to be shear walls.
5. Wind Force Resisting System: That part of the structural system that has been considered in the design to provide required resistance to wind forces identified on Drawings.

D. Nonstructural Components:

l. Architectural Component Supports: Structural members or assemblies of members which transmit loads and forces from architectural systems or components to the structure, including braces, frames, struts, and attachments.
2. Electrical Component Supports: Structural members or assemblies which transmit loads and forces from electrical equipment to the structure, including braces, frames, legs, pedestals, and tethers, as well as elements forged or cast as part of component for anchorage.
3. Mechanical Component Supports: Structural members or assemblies which transmit loads and forces from mechanical equipment to the structure, including braces, frames, skirts, legs, saddles, pedestals, snubbers, and tethers, as well as elements forged or cast as part of component for anchorage.

E. Professional Observation:

1. Does not include or waive responsibility for required Special Inspection or inspections by building official.
2. Requirements are indicated on Statement of Special Inspections (Plan) provided on Drawings.
3. Geotechnical Observation: Visual observation of selected subgrade bearing surfaces by a registered design professional for general conformance to Contract Documents.
4. Structural Observation: Visual observation of structural system(s) by a registered design professional for general conformance to Contract Documents.
5. Statement of Special Inspections (Plan): Detailed written procedure contained on Drawings establishing systems and components subject to Special Inspection, Observation, and Testing during construction, type and frequency of testing, extent and duration of Special Inspection, and reports to be completed and distributed by Special Inspector.

1.4 STATEMENT OF SPECIAL INSPECTIONS (PLAN) REQUIREMENTS

A. Designated Systems for Inspection:

1. Seismic-force-resisting systems designated under IBC Section 1705 and subject to Special Inspection under Section 1707: None r e q u i r e d .
2. Wind-force-resisting systems designated under IBC Section: None required.
3. Architectural, Mechanical, and Electrical Components subject to Special Inspection under IBC Section 1707 for Seismic Resistance: Standby Generator.

B. Statement of Special Inspections (Plan): As included in Drawings and in support of the building permit application, the Project specific plan was prepared by the registered design professional in responsible charge. The following identifies elements of the inspection, observation and testing program to be followed in construction of the Work:

1. Special Inspection and testing required by IBC Section 1704 and Section 1708, and other applicable sections and referenced standards therein.
2. Type and frequency of Special Inspection required.
3. Type and frequency of testing required.

4. Required frequency and distribution of testing and Special Inspection reports to be distributed by Special Inspector to Engineer, Contractor, building official, and Owner.
5. Geotechnical Observation to be Performed: Required frequency and distribution of Geotechnical Observation reports by registered design professional to Contractor, building official, and Owner.
6. Structural Observations to be Performed: Required frequency and distribution of Structural Observation reports by registered design professional to Contractor, building official, and Owner.

C. Special Inspection and associated testing of shop fabrication and field construction will be performed by an approved accredited independent agency. Owner will secure and pay for the services of the agency to perform Special Inspection and associated testing.

D. Owner's plan for code required Special Inspection with associated testing and Professional Observation, as provided in Statement of Special Inspections (Plan) on Drawings and further provided in this Section, is for the sole benefit of Owner and does not:

1. Relieve Contractor of responsibility for providing adequate quality control measures.
2. Relieve Contractor of responsibility for damage to or loss of material before acceptance.
3. Constitute or imply acceptance.
4. Affect continuing rights of Owner after acceptance of completed Work.

E. The presence or absence of code required Special Inspector and Professional Observer does not relieve Contractor from Contract requirements.

F. Contractor is responsible for additional costs associated with Special Inspection and Testing and Observation when Work is not ready at time identified by Contractor, and Special Inspectors and Professional Observer are on Site but not able to provide contracted services.

G. Contractor is responsible for associated costs for additional Special Inspection and Testing and Professional Observation by Special Inspectors and Professional Observers required due to rejection of materials of in place Work that cannot be made compliant to Contract Document without additional Site visits or testing.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 GENERAL

A. Provide access to shop or Site for Special Inspection and Testing and Professional Observation.

B. Notify Engineer in advance of required Special Inspection and Professional Observation no later than 72 hours prior to date of Special Inspection and Professional Observation.

C. Materials and systems, inclusive, shall be inspected during placement where Continuous Special Inspection is required.

D. Materials and systems shall be inspected during or at completion of their placement where Periodic Special Inspection is allowed.

1. Periodic Special Inspection shall be performed so that Work inspected after, but not during, its placement can be corrected prior to other related Work proceeding and covering inspected Work.
2. Periodic Special Inspection does not allow sampling of a portion of the Work. All Work shall be inspected.

END OF SECTION

SECTION 01 43 33 MANUFACTURERS' FIELD SERVICES

PART 1 GENERAL

1.1 DEFINITIONS

A. Person-Day: One person for 8 hours within regular Contractor working hours.

1.2 SUBMITTALS

A. Informational Submittals:

I. Training Schedule: Submit, in accordance with requirements of this Specification, not less than 21 days prior to start of equipment installation and revise as necessary for acceptance.

2. Lesson Plan: Submit, in accordance with requirements of this Specification, proposed lesson plan not less than 21 days prior to scheduled training and revise as necessary for acceptance.

3. Training Session Recordings: Furnish Owner with two complete sets of recordings fully indexed and cataloged with printed label stating session and date recorded.

1.3 QUALIFICATION OF MANUFACTURER'S REPRESENTATIVE

A. Authorized representative of the manufacturer, factory trained, and experienced in the technical applications, installation, operation, and maintenance of respective equipment, subsystem, or system, with full authority by the equipment manufacturer to issue the certifications required of the manufacturer. Additional qualifications may be specified in the individual specification section.

B. Representative subject to acceptance by Owner and Engineer. No substitute representatives will be allowed unless prior written approval by such has been given.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 FULFILLMENT OF SPECIFIED MINIMUM SERVICES

A. Furnish manufacturers' services, when required by an individual specification section, to meet the requirements of this Section.

B. Where time is necessary in excess of that stated in the Specifications for manufacturers' services, or when a minimum time is not specified, time

required to perform specified services shall be considered incidental.

C. Schedule manufacturer' services to avoid conflict with other onsite testing or other manufacturers' onsite services.

D. Determine, before scheduling services, that conditions necessary to allow successful testing have been met.

E. Only those days of service approved by Engineer will be credited to fulfill specified minimum services.

F. When specified in individual specification sections, manufacturer's onsite services shall include:

I. Assistance during product (system, subsystem, or component) installation to include observation, guidance, instruction of Contractor's assembly, erection, installation or application procedures.
2. Inspection, checking, and adjustment as required for product (system, subsystem, or component) to function as warranted by manufacturer and necessary to furnish Manufacturer's Certificate of Proper Installation.
3. Providing, on a daily basis, copies of manufacturers' representative field notes and data to Engineer.
4. Revisiting the Site as required to correct problems and until installation and operation are acceptable to Engineer.
5. Resolution of assembly or installation problems attributable to or associated with respective manufacturer's products and systems.
6. Assistance during functional and performance testing, and facility startup and evaluation.
7. Training of Owner's personnel in the operation and maintenance of respective product as required.

3.2 MANUFACTURER'S CERTIFICATE OF COMPLIANCE

A. When so specified, a Manufacturer's Certificate of Compliance, a copy of which is attached to this Section, shall be completed in full, signed by entity supplying the product, material, or service, and submitted prior to shipment of product or material or execution of the services.

B. Engineer may permit use of certain materials or assemblies prior to sampling and testing if accompanied by accepted certification of compliance.

C. Such form shall certify proposed product, material, or service complies with that specified. Attach supporting reference data, affidavits, and certifications as appropriate.

D. May reflect recent or previous test results on material or product, if acceptable to Engineer.

3.3 MANUFACTURER'S CERTIFICATE OF PROPER INSTALLATION

A. When so specified, a Manufacturer's Certificate of Proper Installation form, a copy of which is attached to this Section, shall be completed and signed by equipment manufacturer's representative.

B. Such form shall certify signing party is a duly authorized representative of manufacturer, is empowered by manufacturer to inspect, approve, and operate their equipment and is authorized to make recommendations required to ensure equipment is complete and operational.

3.4 TRAINING

A. General:

1. Furnish manufacturers' representatives for detailed classroom and hands-on training to Owner's personnel on operation and maintenance of specified product (system, subsystem, and component) and as may be required in applicable Specifications.
2. Furnish trained, articulate personnel to coordinate and expedite training, to be present during training coordination meetings with Owner, and familiar with operation and maintenance manual information specified in Section O I 78 23, Operation and Maintenance Data.
3. Manufacturer's representative shall be familiar with facility operation and maintenance requirements as well as with specified equipment.
4. Furnish complete training materials, to include operation and maintenance data, to be retained by each trainee.

B. Training Schedule:

1. List specified equipment and systems that require training services and show:
   a. Respective manufacturer.
   b. Estimated dates for installation completion.
   c. Estimated training dates.
2. Allow for multiple sessions when several shifts are involved
3. Adjust schedule to ensure training of appropriate personnel as deemed necessary by Owner, and to allow full participation by manufacturers' representative. Adjust schedule for interruptions in operability of equipment.
4. Coordinate with Section O1 32 00, Construction Progress Documentation, and Section 01 91 14, Equipment Testing and Facility Startup.

C. Lesson Plan: When manufacturer or vendor training of Owner personnel is specified, prepare a lesson plan for each required course containing the following minimum information:

1. Title and objectives.
2. Recommended attendees (such as, managers, engineers, operators, maintenance).
3. Course description, outline of course content, and estimated class duration.
4. Format (such as, lecture, self-study, demonstration, hands-on).
5. Instruction materials and equipment requirements.
6. Resumes of instructors providing training.

D. Prestartup Training:

1. Coordinate training sessions with Owner's operating personnel and manufacturers' representatives, and with submission of operation and maintenance manuals in accordance with Section 00165.94, Operation and Maintenance Data.
2. Complete at least 14 days prior to beginning of facility startup.

E. Post-startup Training: If required in Specifications, furnish and coordinate training of Owner's operating personnel by respective manufacturer's representatives.

F. Recording of Training Sessions:

1. Furnish audio and color recording of prestartup and post-startup instruction sessions, including manufacturers' representatives' hands-on equipment instruction and classroom sessions.
2. Video training materials shall be produced by a qualified, professional video production company.
3. Use DVD format suitable for playback on standard equipment available commercially in the United States. Blu-ray® DVD format is not acceptable without Engineer's prior approval.
4. DVD may contain multiple training sessions. If multiple training sessions included on a DVD, provide with on-screen menu for playback selection.

3.5 SUPPLEMENTS

A. The supplements listed below, following "End of Section," are part of this Specification.

1. Manufacturer's Certificate of Compliance.
2. Manufacturer's Certificate of Proper Installation.

END OF SECTION

SECTION 00165.94
OPERATION AND MAINTENANCE DATA

PART l GENERAL

1.1 SECTION INCLUDES

A. Detailed information for the preparation, submission, and Engineer's review of Operations and Maintenance (O&M) Data, as required by individual specification sections.

1.2 DEFINITIONS

A. Preliminary Data: Initial and subsequent submissions for Engineer's review.

B. Final Data: Engineer-accepted data, submitted as specified herein.

C. Maintenance Operation: As used on Maintenance Summary Form is defined to mean any routine operation required to ensure satisfactory performance and longevity of equipment. Examples of typical maintenance operations are lubrication, belt tensioning, adjustment of pump packing glands, and routine adjustments.

1.3 SEQUENCING AND SCHEDULING

A. Equipment and System Data:

1. Preliminary Data:
   a. Do not submit until Shop Drawing for equipment or system has been reviewed and approved by Engineer.
   b. Submit prior to shipment date.
2. Final Data: Submit Compilation Formatted and Electronic Media Formatted data prior to Substantial Completion of Project.

B. Materials and Finishes Data:

1. Preliminary Data: Submit at least 15 days prior to request for final inspection.
2. Final Data: Submit within 10 days after final inspection.

1.4 DATA FORMAT

A. Prepare preliminary data in the form of an instructional manual. Prepare final data in data compilation format and on electronic media.

B. Instructional Manual Format:

1. Binder: Commercial quality, permanent, three-ring or three-post binders with durable plastic cover.
2. Size: 8-1/2 inches by 11 inches, minimum.
3. Cover: Identify manual with typed or printed title "OPERATION AND MAINTENANCE DATA" and list:
   a. Project title.
   b. Designate applicable system, equipment, material, or finish.
   c. Identity of separate structure as applicable.
   d. Identify volume number if more than one volume.
   e. Identity of general subject matter covered in manual. Identity of equipment number and Specification section.
4. Spine:
   a. Project title.
   b. Identify volume number if more than one volume.
5. Title Page:
   a. Contractor name, address, and telephone number.
   b. Subcontractor, Supplier, installer, or maintenance contractor's name, address, and telephone number, as appropriate.
      1) Identify area of responsibility of each.
      2) Provide name and telephone number of local source of supply for parts and replacement.
6. Table of Contents:
   a. Neatly typewritten and arranged in systematic order with consecutive page numbers.
   b. Identify each product by product name and other identifying numbers or symbols as set forth in Contract Documents.
7. Paper: 20-pound minimum, white for typed pages.
8. Text: Manufacturer's printed data, or neatly typewritten.
9. Three-hole punch data for binding and composition; arrange printing so that punched holes do not obliterate data.
10. Material shall be suitable for reproduction, with quality equal to original. Photocopying of material will be acceptable, except for material containing photographs.

C. Data Compilation Format:

1. Compile all Engineer-accepted preliminary O&M data into a hard-copy, hard-bound set.
2. Each set shall consist of the following:
   a. Binder: Commercial quality, permanent, three-ring or three-post binders with durable plastic cover.

b. Cover: Identify each volume with typed or printed title "OPERATION AND MAINTENANCE DATA, VOLUME NO. OF_", and list:
   1) Project title.
   2) Contractor's name, address, and telephone number.
   3) If entire volume covers equipment or system provided by one Supplier include the following:
      a) Identity of general subject matter covered in manual.
      b) Identity of equipment number and Specification section.

c. Provide each volume with title page and typed table of contents with consecutive page numbers. Place contents of entire set, identified by volume number, in each binder.

d. Table of contents neatly typewritten, arranged in a systematic order:
   1) Include list of each product, indexed to content of each volume.
   2) Designate system or equipment for which it is intended.
   3) Identify each product by product name and other identifying numbers or symbols as set forth in Contract Documents.

e. Section Dividers:
   1) Heavy, 80 pound cover weight, tabbed with numbered plastic index tabs.
   2) Fly-Leaf:
      a) For each separate product, or each piece of operating equipment, with typed description of product and major component parts of equipment.
      b) List with Each Product:
         (1) Name, address, and telephone number of Subcontractor, Supplier, installer, and maintenance contractor, as appropriate.
         (2) Identify area of responsibility of each.
         (3) Provide local source of supply for parts and replacement.
      c) Identity of separate structure as applicable.

f. Assemble and bind material, as much as possible, in same order as specified in the Contract Documents.

D. Electronic Media Format:

1. Portable Document Format (PDF):
   a. After all preliminary data has been found to be acceptable to Engineer, submit Operation and Maintenance data in PDF format on CD.

b. Files to be exact duplicates of Engineer-accepted preliminary data. Arrange by specification number and name.
c. Files to be fully functional and viewable in most recent version of Adobe Acrobat.

1.5 SUBMITTALS

A. Informational:

1. Data Outline: Submit two copies of a detailed outline of proposed organization and contents of Final Data prior to preparation of Preliminary Data.
2. Preliminary Data:
   a. Submit two copies for Engineer's review.
   b. If data meets conditions of the Contract:
      1) One copy will be returned to Contractor.
      2) One copy will be forwarded to Resident Project Representative.
      3) One copy will be retained in Engineer's file.
   c. If data does not meet conditions of the Contract:
      1) All copies will be returned to Contractor with Engineer's comments (on separate document) for revision.
      2) Engineer's comments will be retained in Engineer's file.
      3) Resubmit two copies revised in accordance with Engineer's comments.
3. Final Data: Submit one data compilation format hardcopy and one electronic media format specified herein.

1.6 DATA FOR EQUIPMENT AND SYSTEMS

A. Content For Each Unit (or Common Units) and System:

1. Product Data:
   a. Include only those sheets that are pertinent to specific product.
   b. Clearly annotate each sheet to:
      1) Identify specific product or part installed.
      2) Identify data applicable to installation.
      3) Delete references to inapplicable information.
   c. Function, normal operating characteristics, and limiting conditions.
   d. Performance curves, engineering data, nameplate data, and tests.
   e. Complete nomenclature and commercial number of replaceable parts.
   f. Original manufacturer's parts list, illustrations, detailed assembly drawings showing each part with part numbers and

sequentially numbered parts list, and diagrams required for maintenance.

g. Spare parts ordering instructions.
h. Where applicable, identify installed spares and other provisions for future work (e.g., reserved panel space, unused components, wiring, and terminals).

2. As-installed, color-coded piping diagrams.
3. Charts of valve tag numbers, with the location and function of each valve.
4. Drawings: Supplement product data with Drawings as necessary to clearly illustrate:
   a. Format:
      1) Provide reinforced, punched, binder tab; bind in with text.
      2) Reduced to 8-1/2 inches by 11 inches, or 11 inches by 17 inches folded to 8-1/2 inches by 11 inches.
      3) Where reduction is impractical, fold and place in 8-1/2-inch by 11-inch envelopes bound in text.
      4) Identify Specification section and product on Drawings and envelopes.
   b. Relations of component parts of equipment and systems.
   c. Control and flow diagrams.
   d. Coordinate drawings with Project record documents to assure correct illustration of completed installation.
5. Instructions and Procedures: Within text, as required to supplement product data.
   a. Format:
      1) Organize in consistent format under separate heading for each different procedure.
      2) Provide logical sequence of instructions for each procedure.
      3) Provide information sheet for Owner's personnel, including:
         a) Proper procedures in event of failure.
         b) Instances that might affect validity of guarantee or Bond.
   b. Installation Instructions: Including alignment, adjusting, calibrating, and checking.
   c. Operating Procedures:
      1) Startup, break-in, routine, and normal operating instructions.
      2) Test procedures and results of factory tests where required.
      3) Regulation, control, stopping, and emergency instructions.
      4) Description of operation sequence by control manufacturer.
      5) Shutdown instructions for both short and extended duration.
      6) Summer and winter operating instructions, as applicable.
      7) Safety precautions.
      8) Special operating instructions.
   d. Maintenance and Overhaul Procedures:
      1) Routine maintenance.
      2) Guide to troubleshooting.
      3) Disassembly, removal, repair,

reinstallation, and re- assembly.

6. Guarantee, Bond, and Service Agreement: In accordance with Section 00195 as modified by special conditions, Closeout Procedures.

B. Content for Each Electric or Electronic Item or System:

1. Description of Unit and Component Parts:
   a. Function, normal operating characteristics, and limiting conditions.
   b. Performance curves, engineering data, nameplate data, and tests.
   c. Complete nomenclature and commercial number of replaceable parts.
   d. Interconnection wiring diagrams, including control and lighting systems.
2. Circuit Directories of Panelboards:
3. Electrical service.
4. Control requirements and interfaces.
5. Communication requirements and interfaces.
6. List of electrical relay settings, and control and alarm contact settings.
7. Electrical interconnection wiring diagram, including as applicable, single-line, three-line, schematic and internal wiring, and external interconnection wiring.
8. As-installed control diagrams by control manufacturer.
9. Operating Procedures:
   a. Routine and normal operating instructions.
   b. Startup and shutdown sequences, normal and emergency.
   c. Safety precautions.
   d. Special operating instructions.
10. Maintenance Procedures:
   a. Routine maintenance.
   b. Guide to troubleshooting.
   c. Adjustment and checking.
   d. List of relay settings, control and alarm contact settings.
11. Manufacturer's printed operating and maintenance instructions.
12. List of original manufacturer's spare parts, manufacturer's current Prices, and recommended quantities to be maintained in storage.

C. Maintenance Summary:
   1. Compile individual Maintenance Summary for each applicable equipment item, respective unit or system, and for components or sub-units.
   2. Format:
      a. Use Maintenance Summary Form bound with this Section or electronic facsimile of such.
      b. Each Maintenance Summary may take as many pages as required.
      c. Use only 8-1/2-inch by 11-inch size paper.
      d. Complete using typewriter or electronic printing.
   3. Include detailed lubrication instructions and diagrams showing points to be greased or oiled; recommend type, grade, and temperature range of lubricants and frequency of lubrication.
   4. Recommended Spare Parts:
      a. Data to be consistent with manufacturer's Bill of Materials/Parts List furnished in O&M manuals.
      b. "Unit" is the unit of measure for ordering the part.
      c. "Quantity" is the number of units recommended.
      d. "Unit Cost" is the current purchase price.

1.07 DATA FOR MATERIALS AND FINISHES

A. Content for Architectural Products, Applied Materials, and Finishes:
   1. Manufacturer's data, giving full information on products:
      a. Catalog number, size, and composition.
      b. Color and texture designations.
      c. Information required for reordering special-manufactured products.
   2. Instructions for Care and Maintenance:
      a. Manufacturer's recommendation for types of cleaning agents and methods.
      b. Cautions against cleaning agents and methods that are detrimental to product.
      c. Recommended schedule for cleaning and maintenance.

B. Content for Moisture Protection and Weather Exposed Products:
   1. Manufacturer's data, giving full information on products:
      a. Applicable standards.
      b. Chemical composition.
      c. Details of installation.
   2. Instructions for inspection, maintenance, and repair.

1.8 SUPPLEMENT

A. The supplement listed below, following "End of Section," is part of this Specification.

1. Maintenance Summary Form.

PART2 PRODUCTS (NOT USED)

PART3 EXECUTION (NOT USED)

END OF SECTION

MAINTENANCE SUMMARY FORM

PROJECT:_____CONTRACT NO.:_____

1. EQUIPMENT ITEM_____

2. MANUFACTURER _____

3. EQUIPMENT/TAG NUMBER(S)_____

4. WEIGHT OF INDIVIDUAL COMPONENTS (OVER 100 POUNDS)_____

5. NAMEPLATE DATA (hp, voltage, speed, etc.)_____

6. MANUFACTURER'S LOCAL REPRESENTATIVE

a. Name_____Telephone No._____

b. Address_____

7. AINTENANCE REQUIREMENTS

Maintenance Operation Comments	Frequency	Lubricant (If Applicable)
List briefly each maintenance operation required and refer to specific information in manufacturer's standard maintenance manual, if applicable. (Reference to manufacturer's catalog or sales literature is not acceptable.)	List required frequency of each maintenance operation.	Refer by symbol to lubricant required.

8. LUBRICANT LIST

Reference Symbol	Shell	Exxon Mobile	Chevron Texaco	BP Amoco	Or Equal
List symbols used in No. 7 above.	List equivalent lubricants, as distributed by each manufacturer for the specific use recommended.				

9. RECOMMENDED SPARE PARTS FOR OWNER'S INVENTORY.

Part No.	Description	Unit	Quantity	Unit Cost
Note: Identify parts provided by this Contract with two asterisks.				

SECTION 00165.95
SEISMIC ANCHORAGE AND BRACING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section covers requirements for seismic anchorage and bracing for equipment and nonstructural components required in accordance with the International Building Code (IBC).

1.2 REFERENCES

A. The following is a list of standards which may be referenced in this Section:

1. American Institute of Steel Construction (AISC).
2. American Society of Civil Engineers (ASCE): ASCE 7, Minimum Design Loads for Buildings and Other Structures.
3. International Code Council (ICC): International Building Code (IBC).
4. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA): Seismic Restraint Manual: Guidelines for Mechanical Systems.

1.3 DESIGN AND PERFORMANCE REQUIREMENTS

A. General:

1. Contractor shall be responsible for designing code required seismic attachments, braces, and anchors to the structure for elements of the architectural, mechanical, and electrical systems included in the Work in accordance with this Section unless a design is specifically provided within the Contract Documents.
2. Contractor shall also be responsible for designing seismic anchorage for modified existing architectural, mechanical, or electrical systems where code requirements would dictate design for similar new components.

B. Design Requirements:

1. In accordance with 2014 IBC, Section 1613 and Chapter 13 of ASCE 7.
2. Architectural, mechanical, electrical and other nonstructural systems, components, and elements permanently attached to the structure shall be designed to transfer the component seismic forces specified in ASCE 7 Section 13.3.1 to the structure.

3. Design forces for anchors in concrete or masonry shall be in accordance with ASCE 7, Section 13.4.2.
4. Seismic anchorage and bracing systems shall be designed by a qualified professional engineer registered in the State of Oregon.
5. Nonstructural Components: Design as nonbuilding structures for components with weights greater than or equal to 25 percent of the effective seismic weight of the overall structure.
6. Architectural Components: Includes, but are not limited to, nonstructural walls and elements, partitions, cladding and veneer, access flooring, signs, cabinets, suspended ceilings, and glass in glazed curtain walls and partitions.
7. Design seismic attachments, braces, and anchorages for parts or elements of the architectural, mechanical, and electrical systems in accordance with the provisions of the International Building Code and the following site-specific seismic criteria, unless noted otherwise on the Drawings.
    a. Site-Specific Spectral Response Coefficients :
        1) Short Period Mapped Maximum Considered Earthquake, 5 Percent Damped: S_S equals 0.861g.
        2) 1 Period Mapped Maximum Considered Earthquake, 5 Percent Damped: S_1 equals 0.327g.
        3) Short Period Design Spectral Response Acceleration, 5 Percent Damped: S_{DS} equals 0.664g.
        4) 1 Second Period Design Spectral Response Acceleration, 5 Percent Damped: S_{D1} equals 0.381g.
8. Site Class: D.
9. Seismic Design Category (SDC): D, unless noted otherwise. Same as supporting structure's SDC, as shown on Drawings.
10. Occupancy Category: Ill, unless noted otherwise. The anchorage and bracing Occupancy Category shall be the same as that for supporting structure as shown on Drawings.
11. Analyze local region of body of nonstructural component for load transfer of anchorage attachment if component Ip = 1.5.
12. Component Important Factor:
    a. Ip = 1.0, unless noted otherwise.
    b. Ip shall be taken as 1.5 for components needed for or whose failure could impair continued operation of hazardous or essential facilities.
    c. Ip shall be taken as 1.5 for components that contain hazardous materials or that are required for life safety to be functional after a seismic event.
    d. In accordance with ASCE 7, the following are exempt from the requirements of the section for provision of seismic anchorages and bracing, in addition to those items specifically exempted in

ASCE 7, Part 13.5 for architectural components and Part 13.6 for electrical and mechanical equipment:

13. Mechanical and electrical components with Ip equals 1.0 that weigh 400 pounds or less and are mounted 4 feet or less above adjacent finished floor elevation, or are provided with flexible connections between the components and associated ductwork, piping, or conduit.
14. Mechanical and electrical components with Ip equals 1.0 that weigh 20 pounds or less, are mounted at any height, and are provided with flexible connections to attached ductwork, piping, and conduit.
15. Distribution systems with Ip equals 1.0 weighing 5 pounds per foot or less.

C. Support drawings and calculations for electrical distribution components shall be provided if any of the following conditions apply:

1. Ip is equal to 1.5 and conduit diameter is greater than 2.5-inch trade size.
2. Ip is equal to 1.5 and the total weight of bus duct, cable tray, or conduit supported by trapeze assemblies exceeds 10 pounds per foot.
3. Supports are cantilevered up from floor.
4. Supports include bracing to limit deflection and are constructed as rigid welded frames.
5. Attachments utilize spot welds, plug welds, or minimum size welds as defined by AISC.

D. Existing components, systems, and equipment that are modified by the Project requirements and are not exempted by the above section in their final condition shall require the same anchorage and bracing drawing and calculation submittals as new equipment. Field verify existing conditions.

E. Other seismic design and detailing requirements identified in ASCE 7, Chapter 13 are required to be provided for new and modified architectural, mechanical and electrical component, system, or equipment.

1.4 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
   a. Submit shop drawings with supporting calculations no less than 4 weeks in advance of installation of component, equipment or distribution system to be anchored to structure.
   b. Submitted anchorage drawings and calculations are identified as

IBC deferred submittals and will be submitted to and accepted bypermitting agency prior to installation of component, equipment or distribution system.

c. List of architectural, mechanical, and electrical equipment weighing more than 20 pounds, and electrical, piping, and mechanical distribution systems weighing more than 5 pounds per foot shall be anchored, unless specifically exempted hereinafter.
d. Manufacturers' engineered seismic hardware product data.
e. Seismic attachment assemblies' drawing; include connection hardware, braces, and anchors or anchor bolts for nonexempt components, equipment, and systems.
f. List of existing architectural, mechanical, and electrical equipment or component required to be modified by Work required in the Project weighing more than 20 pounds and electrical, piping, or mechanical distribution systems weighing more than 5 pounds per foot in the final retrofitted condition.
g. Seismic attachment assemblies' drawing; include connection hardware, braces, and anchors or anchor bolts for modified, nonexempt existing components, equipment, and systems where combination of new and existing systems or component's final condition would require seismic anchorage or bracing under this Specification for new equipment.
h. Submittals will be rejected if proposed anchorage method would create an overstressed condition of supporting member. Revise anchorages and strengthening of structural support so there is no overstressed condition.

B. Informational Submittals:

1. Seismic Anchorage and Bracing Calculations: For seismic attachments, braces, and anchorages. Include IBC and project specific criteria as noted on General Structural Note Sheets on Drawing, in addition to manufacturer's specific criteria used for the design; sealed by a civil or structural engineer registered in the State of Oregon.
2. Manufacturer's seismic hardware installation requirements.

PART 2 PRODUCTS

2.1 GENERAL

A. Attachments and supports transferring seismic loads to structure shall be constructed of materials and products suitable for the application and be designed and constructed in accordance with the design criteria shown on Drawings and nationally recognized standards.

B. In accordance with Section, 00160.15 Common Product Requirements and, 02530 Metal Fabrications. Source quality control shall be in accordance with the referenced section.

C. Provide anchor bolts, and concrete and masonry anchors for anchorage of equipment in concrete or masonry in accordance with Section 02530, Metal Fabrications. Size of anchor bolts and anchors, and required minimum embedment and spacing shall be based on calculations submitted by Contractor.

D. Powder actuated fasteners and sleeve anchors shall not be used for seismic attachments and anchorage where resistance to tension loads is required. Expansion anchors, other than undercut anchors, shall not be used for nonvibration isolated mechanical equipment rated over 10 hp.

PART 3 EXECUTION

3.1 GENERAL

A. Make seismic attachments, bracing, and anchorage in such a manner that component seismic force is transferred to the lateral force resisting system of the structure through a complete load path.

B. Overall seismic anchorage system shall provide restraint in all directions, including vertical, for each component or system so anchored.

C. Components mounted on vibration isolation systems shall have snubbers in each horizontal direction and vertical restraints where required to resist overturning.

D. Anchor piping in such a manner as to ensure piping system has adequate flexibility and expansion capabilities at flexible connections and expansion joints. Piping and ductwork suspended more than 12 inches below the supporting structure shall be braced for seismic effects to avoid significant bending of the hangers and their attachments, unless high-deformability piping is used per ASCE 7, Section 13.6.8 or HVAC ducts have a cross-sectional area of less than 6 square feet.

E. Tall and narrow equipment such as motor control centers and telemetry equipment shall be anchored at the base and within 12 inches from the top of the equipment, unless approved otherwise by Engineer.

F. Architectural, mechanical, or electrical components shall not be attached to more than one element of a building structure at a single restraint location where such elements may respond differently during a seismic event. Such attachments shall also not be made across building expansion and contraction joints.

3.2 INSTALLATION

A. Do not install components or their seismic anchorages or restraints prior to review and acceptance by Engineer and permitting a g e n c y .

B. Notify Engineer upon completion of seismic restraints in accordance with Section 01 45 33, Special Inspection, Observation, and Testing.

3.3 FIELD QUALITY CONTROL

A. Field Quality Control shall be in accordance with Section 00165.35, Metal Fabrications.

END OF SECTION

SECTION 02535
METAL FABRICATIONS

PART l GENERAL

1.1 REFERENCES

A. The following is a list of standards which may be referenced in this Section:

1. The Aluminum Association, Inc. (AA): The Aluminum Design Manual.
2. American Galvanizers Association (AGA): Inspection of Products Hot-Dip Galvanized After Fabrication.
3. American Institute of Steel Construction (AISC): S329, Allowable Stress Design Specification for Structural Joints using ASTM A325 or A490 Bolts.
4. American Iron and Steel Institute (AISI): Stainless Steel Types.
5. American Ladder Institute (ALI): A14.3, Ladders - Fixed - Safety Requirements.
6. American National Standards Institute (ANSI).
7. American Society of Mechanical Engineers (ASME): Bl.1, Unified- inch Screw Threads (UN and UNR Thread Form).
8. American Society of Safety Engineers (ASSE): Al0.11, Safety Requirements for Personnel and Debris Nets.
9. American Welding Society (AWS):
   a. D1.1, Structural Welding Code - Steel.
   b. D1.2, Structural Welding Code - Aluminum.
   c. Dl.6, Structural Welding Code - Stainless Steel.
10. ASTM International (ASTM):
    a. A36/A36M, Specification for Carbon Structural Steel.
    b. A48, Specification for Gray Iron Castings.
    c. A53/A53M, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
    d. A108, Specification for Steel Bars, Carbon, Cold-Finished, Standard Quality.
    e. A123/A123M, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
    f A143, Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.
    g. A153/A153M, Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
    h. A193/A193M, Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.

i. A194/A194M, Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure or High-Temperature Service, or Both.
J. A240/A240M, Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels.
k. A276, Specification for Stainless Steel Bars and Shapes.
l A278, Specification for Gray Iron Castings for Pressure-Containing Parts for Temperatures Up to 650 Degree.
m. A283/A283M, Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.
n. A307, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile.
o. A325, Specification for Structural Bolts, Steel, Heat Treated 120/105 ksi Minimum Tensile Strength.
p. A380, Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems.
q. A384, Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies.
r. A385, Practice for Providing High-Quality Zinc Coatings (Hot- Dip).
s. A489, Specification for Carbon Steel Lifting Eyes.
t. A500, Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
u. A501, Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
v. A563, Specification for Carbon and Alloy Steel Nuts.
w. A653, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
x. A780, Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
y. A786/A786M, Specification for Hot-Rolled Carbon, Low-Alloy, High-Strength Low-Alloy, and Alloy Steel Floor Plates.
z. A793, Specification for Rolled Floor Plate, Stainless Steel.
aa. A967, Specification for Chemical Passivation Treatments for
Stainless Steel Parts.
bb. A992/A992M, Specification for Steel for Structural Shapes for Use in Building Framing.
cc. B209, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
dd. B308/B308M, Specification for Aluminum-Alloy 6061-

T6 Standard Structural Profiles.

ee. B429, Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.

ff. B632/B632M, Specification for Aluminum-Alloy Rolled Tread Plate.

gg. D1056, Specification for Flexible Cellular Materials - Sponge or Expanded Rubber.

hh. F436, Specification for Hardened Steel Washers.

11. F468, Specification for Nonferrous Bolts, Hex Cap Screws, and Studs for General Use.

JJ. F593, Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

kk. F594, Specification for Stainless Steel Nuts.

11. F844, Specification for Washers, Steel, Plain (Flat), Unhardened for General Use.

mm. F1554, Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.

11. International Code Council (ICC): Evaluation Reports for Concrete and Masonry Anchors.

12. NSF International (NSF).

13. Occupational Safety and Health Administration (OSHA):
    a. 29 CFR 1910.27, Fixed Ladders.
    b. 29 CFR 1926.105, Safety Nets.
    c. 29 CFR 1926.502, Fall Protection Systems Criteria and Practices.

14. Specialty Steel Industry of North America (SSINA):
    a. Specifications for Stainless Steel.
    b. Design Guidelines for the Selection and Use of Stainless Steel.
    c. Stainless Steel Fabrication.
    d. Stainless Steel Fasteners.

1.2 DEFINITIONS

A. Corrosive Area: Containment area or area exposed to delivery, storage, transfer, or use of chemicals.

B. Exterior Area: Location not protected from the weather by a building or other enclosed structure.

C. Interior Dry Area: Location inside building or structure where floor is not subject to liquid spills or washdown, nor where wall or roof slab is common to a water-holding or earth-retaining structure.

D. Interior Wet Area: Location inside building or structure where floor is sloped to floor drains or gutters and is subject to liquid spills or washdown, or where wall, floor, or roof slab is common to a water-holding or earth-retaining structure.

E. Submerged: Location at or below top of wall of open water-holding structure, such as a basin or channel, or wall, ceiling or floor surface inside a covered water-holding structure, or exterior below grade wall or roof surface of water- holding structure, open or covered.

1.3 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
   a. Metal fabrications, including welding and fastener information.
   b. Specific instructions for concrete anchor installation, including drilled hole size, preparation, placement, procedures, and instructions for safe handling of anchoring systems.

B. Informational Submittals:

1. Concrete and Masonry Drilled Anchors:
   a. Manufacturer's product description and installation procedures.
   b. Current test data or ICC Evaluation Report.
   c. Adhesive Anchor Installer Certification.
2. Passivation method for stainless steel members.
3. Hot-Dip Galvanizing: Certificate of compliance signed by galvanizer, with description of material processed and ASTM standard used for coating.

1.4 QUALITY ASSURANCE

A. Qualifications:

I. Adhesive Anchor Installers: Trained and certified by manufacturer.
2. Galvanized Coating Applicator: Company specializing in hot-dip galvanizing after fabrication and following procedures of Quality Assurance Manual of the American Galvanizers Association.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Insofar as practical, factory assemble items specified herein. Assemblies that due to necessity have to be shipped unassembled shall be packaged and tagged in manner that will protect materials from damage and will facilitate identification and field assembly.

B. Package stainless steel items in a manner to provide protection from carbon impregnation.

C. Protect painted coatings and hot-dip galvanized finishes from damage due to metal banding and rough handling. Use padded slings and straps.

D. Store fabricated items in dry area, not .in direct contact with ground.

1.6 SPECIAL GUARANTEE

A. Manufacturer's extended guarantee or warranty, with Owner named as beneficiary, in writing, as special guarantee. Special guarantee shall provide for correction, or at option of Owner, removal and replacement of sidewalk doors and floor hatches found defective during a period of 5 years after date of Substantial Completion. Duties and obligations for correction or removal and replacement of defective Work as specified in General Conditions.

1.7 EXTRA MATERIALS

A. Delivery: In accordance with Section 00160.15, Common Product Requirements in special

PART2 PRODUCTS

2.1 GENERAL

A. For hot-dip galvanized steel that is exposed to view and does not receive paint, limit the combined phosphorus and silicon content to 0.04 percent. For steels that require a minimum of 0.15 percent silicon (such as plates over 1.5 inches thick for A36 steel), limit the maximum silicon content to 0.21 percent and the phosphorous content to 0.03 percent.

B. Unless otherwise indicated, meet the following requirements:

Item	ASTM Reference
Steel W Shapes	A9926/A9926M
All other Steel Shapes and Plates	A36/A36M
Steel Pipe	A501 or A53/A53M, Type E or S, Grade B
Structural Steel Tubing	A500, Grade B
Stainless Steel:	
Bars and Angles	A276, AISI Type 316(316L for welded connections)

Item	ASTM Reference
Shapes	A276, AISI Type 304 (304L for welded connections)
Steel Plate, Sheet, and Strip	A240/A240M, AISI Type 316 (316L for welded connections)
Bolts, Threaded Rods, Anchor Bolts, and Anchor Studs	F593, AISI Type 316, Condition CW
Nuts	F594, AISI Type 316, Condition CW
Steel Bolts and Nuts:	
Carbon Steel	A307 bolts, with A563 nuts
High-Strength	A325, Type 1 bolts, with A563 nuts
Anchor Bolts and Rods	F1554, Grade 55, with weldability supplement S1.
Eyebolts	A489
Threaded Rods	A36/A36M
Flat Washers (Unhardened)	F844
Flat and Beveled Washers (Hardened)	F436
Aluminum Plates and Structural Shapes	B209 and B308/B308M, Alloy 6061-T6 F468,
Aluminum Bolts and Nuts	Alloy 2024-T4

C. Bolts, Washers, and Nuts: Use stainless steel, hot-dip galvanized steel, zinc-plated steel, and aluminum material types as indicated in Fastener Schedule at end of this Section.

2.2 ANCHOR BOLTS

A. Cast-in-Place Anchor Bolts:

1. Headed type, unless otherwise shown on Drawings.
2. Material type and protective coating as shown in Fastener Schedule at end of this Section.

2.3 CONCRETE AND MASONRY DRILLED ANCHORS

A. General:

1. AISI Type 316 stainless, hot-dip galvanized, or zinc-plated steel, as shown in Fastener Schedule atend of this section.
2. Current evaluation and acceptance reports by ICC or other similar code organization.
3. Acceptable for use in potable water structures by EPA and local health agencies or NSF.

B. Wedge Anchors:

1. Manufacturers and Products:
   a. ITW Ramset/Red Head, Addison, IL; Trubolt Wedge Anchor.
   b. Hilti, Inc., Tulsa, OK; Kwik-Bolt-TZ (KB-TZ) Anchor.
   c. Powers Fasteners, New Rochelle, NY; Power-Stud +SDI or +SD2 Anchor.
   d. Simpson Strong-Tie Co., Inc., Pleasanton, CA; Strong-Bolt Anchor.
   e. Wej-It Corp., Tulsa, OK; ANKRtite CCAT Wedge Anchor.

C. Undercut Anchors:

1. Manufacturers and Products:
   a. USP Structural Connectors; DUC Undercut Anchor.
   b. Hilti, Inc., Tulsa OK; HDA Undercut Anchor.

D. Adhesive Anchors:

1. Threaded Rod:
   a. ASTM F593 stainless steel threaded rod, diameter as shown on Drawings.
   b. Length as required, to provide minimum depth of embedment.
   c. Clean and free of grease, oil, or other deleterious material.
2. Adhesive:
   a. Two-component, designed to be used in adverse freeze/thaw environments, with gray color aftermixing.
   b. Cure Temperature, Pot Life, and Workability: Compatible for intended use and environmental conditions.
   c. Nonsag, with selected viscosity base on installation temperature and overhead application whereapplicable.

3. Packaging and Storage:
   a. Disposable, self-contained cartridge system capable of dispensing both components in the proper mixing ratio and fitting into a manually or pneumatically operated caulking gun.
   b. Store adhesive cartridges on pallets or shelving in covered storage area, in accordance with manufacturer's written instructions.
   c. Cartridge Markings: Include manufacturer's name, product name, material type, batch or serial number, and adhesive expiration date.
   d. Dispose of cartridges if shelf life has expired.
4. Manufacturers and Products:
   a. No "fast set" products may be used. Wedge or undercut anchors approved for use in cracked concrete shall be used for sustained direct tension applications such as overhead or cantilevered conditions. Adhesive anchors meeting the requirements of ICC-ES AC308 in long-term creep may be used for direct tension only where approved by Engineer.
   b. Hilti, Inc., Tulsa, OK; HIT HY 150 MAX-SD Adhesive Anchor System.
   c. Hilti, Inc., Tulsa, OK; HIT RE 500-SD Adhesive Anchor System.
   d. Simpson Strong-Tie Co., Inc., Pleasanton, CA; SET-XP Epoxy-Tie Adhesive.
   e. Powers Fasteners, Brewster, NY; PElOOO+ Epoxy Adhesive Anchor System.

2.4 EMBEDDED STEEL SUPPORT FRAMES FOR FLOOR PLATE AND GRATING

A. Steel angle support frames to be embedded in concrete shall be stainless steel, ASTM A276, AISI Type 316, unless indicated otherwise.

B. Welded anchors for stainless steel support frames shall also be stainless steel.

2.5 SIDEWALK DOORS

A. Load Capacity: 300 psf with maximum deflection of 1/150th of span. Provide H-20 highway loading capacity where indicated on Drawings.

B. Component Fabrication:

1. Access Door Leaf(s): 1/4-inch aluminum diamond pattern plate.
2. Channel Frame: 1/4-inch thick extruded aluminum trough frame with continuous anchor flange around perimeter. Weld 1-1/2-inch diameter drain coupling to frame trough at front right comer, unless indicated otherwise on Drawings.

3. Safety Grate: Aluminum grating with 300 psf live load capacity, 5-inch by 5-inch grate openings, permanent hinging system that locks grate in 90-degree position, and opening arm with vinyl grip handle and locking device.

C. Door Hardware:

1. Hinges: Heavy-duty brass or stainless steel with stainless steel pins through-bolted to cover plate with tamper-proof stainless steel bolts flush with top of cover and to outside leg of channel frame with stainless steel bolts and locknuts.
2. Lifting Mechanism: Stainless steel compression lift springs enclosed in telescoping vertical housing or stainless steel torsion lift springs.
3. Hold-Open Arm:
   a. Locks automatically in open position.
   b. Disengages with slight pull on vinyl grip with one hand.
   c. Door can be easily closed with one hand by pulling forward and down on vinyl grip.
4. Snap Lock:
   a. Stainless steel snap lock mounted on bottom of door leaf with removable topside key wrench and inside fixed lever handle.
   b. Threaded plug for flush outside surface with key wrench removed.

D. Aluminum shall be mill finished with protective coating applied to surfaces to be in contact with concrete, as specified in Section 09 90 00, Painting and Coating.

E. Manufacturers and Products:

1. Bilco Co., New Haven, CT; J Series.
2. Nystrom Products Co., Minneapolis, MN; FG Series.
3. U.S.F. Fabrication, Hialeah, FL; T Series.
4. ITT Flygt Corporation, Trumbull, CT; FDRN Series.
5. Thompson Fabricating Co., Birmingham, AL; TE Series.
6. Halliday Products, Orlando, FL; WS Series.

2.6 FLOOR HATCHES

A. Load Capacity: 150 psf minimum with maximum deflection of 11150th of span.

B. Component Fabrication:

1. Access Door Leaf(s): 1/4-inch thick aluminum diamond pattern plate. Provide stainless steel safety chain and attachments for end of double-leaf door assembly when open.
2. Angle Frame: 1/4-inch thick extruded aluminum angle frame with concrete anchors and integral neoprene gasket strip.

C. Door Hardware:

1. Hinges: Heavy-duty brass or stainless steel with stainless steel pins, through-bolted to cover plate with tamper-proof stainless steel bolts flush with top of cover and to outside leg of channel frame with stainless steel bolts. And lockouts.
2. Lifting Mechanism: Stainless steel compression lift springs enclosed in telescoping vertical housing or stainless steel torsion lift springs.
3. Hold-Open Arm:
   a. Locks automatically in open position.
   b. Disengages with slight pull on vinyl grip with one hand.
   c. Door can be easily closed with one hand by pulling forward and down on vinyl grip.
4. Snap Lock:
   a. Stainless steel snap lock mounted on bottom of door leaf with removable topside key wrench and inside fixed lever handle.
   b. Threaded plug for flush outside surface with key wrench removed.

D. Aluminum shall be mill finished with protective coating applied to surfaces to be in contact with concrete, as specified in Section 09 90 00, Painting and Coating.

E. Manufacturers and Products:

1. New Construction:
   a. Bilco Co., New Haven, CT; K Series.
   b. Nystrom Products Co., Minneapolis; MN; FH Series.
   c. U.S.F. Fabrication, Hialeah, FL; A Series.
   d. ITT Flygt Corporation, Trumbull, CT; FLE Series.
   e. Thompson Fabricating Co., Birmingham, AL; TI Series.
   f. Halliday Products, Orlando, FL; SS Series.
2. Retrofit Construction:
   a. U.S.F. Fabrication, Hialeah, FL; A-Retrofit Series.
   b. Nystrom Products Co., Minneapolis, MN; FDE Series.

2.7 LADDERS

A. Flat Bar Ladders:

1. Punch rails, pass rungs through rails, and weld on outside.
2. Weld brackets to the ladder for fastening ladder to wall.

B. Ladder Safety Post:

1. Telescoping tubular, spring balanced and automatically locking in raised position, with release lever for unlocking.
2. Post: Stainless steel, AISI Type 316.
3. Spring Mechanism: Stainless steel.
4. Furnish dissimilar metal protective coatings at connections.
5. Manufacturer and Product: Bilco Co., New Haven, CT; "Ladder Up" to fit ladder rungs.

2.8 ACCESSORIES

A. Antiseizing Lubricant for Stainless Steel Threaded Connections:

1. Resists washout.
2. Manufacturers and Products:
   a. Bostik, Middleton, MA; Neverseez.
   b. Saf-T-Eze Div., STL Corp., Lombard, IL; Anti-Seize.

B. Neoprene Gasket:

1. ASTM D1056, 2Cl, soft, closed-cell neoprene gasket material, suitable for exposure to sewage and sewage gases, unless otherwise shown on Drawings.
2. Thickness: Minimum 1/4 inch.
3. Furnish without skin coat.
4. Manufacturer and Product: Rubatex Corporation, Bedford, VA; Rubatex No. R-411-N.

2.9 FABRICATION

A. General:

1. Finish exposed surfaces smooth, sharp, and to well-defined lines.
2. Furnish necessary rabbets, lugs, and brackets so work can be assembled in neat, substantial manner.
3. Conceal fastenings where practical; where exposed, flush countersink.

4. Drill metalwork and countersink holes as required for attaching hardware or other materials.
5. Grind cut edges smooth and straight. Round sharp edges to small uniform radius. Grind burrs,jagged edges, and surface defects smooth.
6. Fit and assemble in largest practical sections for delivery to Site.

B. Materials:

1. Use steel shapes, unless otherwise noted.
2. Steel to be hot-dip galvanized: Limit silicon content to less than 0.04 percent or to between 0.15 and 0.25 percent.
3. Fabricate aluminum in accordance with AA Specifications for Aluminum Structures - Allowable Stress Design.

C. Welding:

1. Weld connections and grind exposed welds smooth. When required to be watertight, make welds continuous.
2. Welded fabrications shall be free from twisting or distortion caused by improper welding techniques.
3. Steel: Meet fabrication requirements of AWS Dl.1, Section 5.
4. Aluminum: Meet requirements of AWS D1.2.
5. Stainless Steel: Meet requirements of AWS Dl.6.
6. Welded Anchor Studs: Prepare surface to be welded and weld with stud welding gun in accordance with AWS D1.1, Section 7, and manufacturer's instructions.
7. Complete welding before applying finish.

D. Painting:

1. Shop prime with rust-inhibitive primer as specified in Section 09 90 00, Painting and Coating, unless otherwise indicated.
2. Coat surfaces of galvanized steel and aluminum fabricated items to be in direct contact with concrete, grout, masonry, or dissimilar metals, as specified in Section 09 90 00, Painting and Coating, unless indicated otherwise.
3. Do not apply protective coating to galvanized steel anchor bolts or galvanized steel welded anchor studs, unless indicated otherwise.

E. Galvanizing:

1. Fabricate steel to be galvanized in accordance with ASTM A143, ASTM A384, and ASTM A385. Avoid fabrication techniques that could cause distortion or embrittlement of the steel.

2. Provide venting and drain holes for tubular members and fabricated assemblies in accordance with ASTM A385.
3. Remove welding slag, splatter, burrs, grease, oil, paint, lacquer, and other deleterious material prior to delivery for galvanizing.
4. Remove by blast cleaning or other methods surface contaminants and coatings not removable by normal chemical cleaning process in the galvanizing operation.
5. Hot-dip galvanize steel members, fabrications, and assemblies after fabrication in accordance with ASTM A123/A123M.
6. Hot-dip galvanize bolts, nuts, washers, and hardware components in accordance with ASTM Al53/A153M. Oversize holes to allow for zinc alloy growth. Shop assemble bolts and nuts.
7. Galvanized steel sheets in accordance with ASTM A653.
8. Galvanize components of bolted assemblies separately before assembly. Galvanizing of tapped holes is not required.

F. Watertight Seal: Where required or shown, furnish neoprene gasket of a type that is satisfactory for use in contact with sewage. Cover full bearing surfaces.

G. Fitting: Where movement of fabrications is required or shown, cut, fit, and align items for smooth operation. Make comers square and opposite sides parallel.

H. Accessories: Furnish as required for a complete installation. Fasten by welding or with stainless steel bolts or screws.

2.10 SOURCE QUALITY CONTROL

A. Visually inspect all fabrication welds and correct any deficiencies.

1. Steel: AWS D1.1, Section 6 and Table 6.1, Visual Inspection Acceptance Criteria.
2. Aluminum: AWS D1.2.
3. Stainless Steel: AWS Dl.6.

B. Hot-Dip Galvanizing:

1. An independent testing agency, will be retained by Owner to inspect and test hot-dip galvanized fabricated items in accordance with ASTM A123/A153M and ASTM A153/A153M.
2. Visually inspect and test for thickness and adhesion of zinc coating for minimum of three test samples from each lot in accordance with ASTM A123/A123M and ASTM A153/Al53M.

3. Reject and retest nonconforming articles in accordance with ASTM A123/A123M and ASTM A153/A153M.

PART 3 EXECUTION

3.1 INSTALLATION OF METAL FABRICATIONS

A. General:

1. Install metal fabrications plumb or level, accurately fitted, free from distortion or defects.
2. Install rigid, substantial, and neat in appearance.
3. Install manufactured products in accordance with manufacturer's recommendations.
4. Obtain Engineer approval prior to field cutting steel members or making adjustments not scheduled.

B. Aluminum:

1. Do not remove mill markings from concealed surfaces.
2. Remove inked or painted identification marks on exposed surfaces not otherwise coated after installed material has been inspected and approved.
3. Fabrication, mechanical connections, and welded construction shall be in accordance with the AA Aluminum Design Manual.

C. Pipe Sleeves:

1. Provide where pipes pass through concrete or masonry.
2. Holes drilled with a rotary drill may be provided in lieu of sleeves in existing walls.
3. Provide a center flange for water stoppage on sleeves in exterior or water-bearing walls.
4. Provide a rubber caulking sealant or a modular mechanical unit to form a watertight seal in the annular space between pipes and sleeves.

3.2 CAST-IN-PLACE ANCHOR BOLTS

A. Accurately locate and hold anchor bolts in place with templates at the time concrete is placed.

B. Minimum Bolt Size: 1/2-inch diameter by 12 inches long, unless otherwise shown.

3.3 CONCRETE AND MASONRY DRILLED ANCHORS

A. Begin installation only after concrete or masonry to receive anchors has attained design strength.

B. Install in accordance with manufacturer's instructions.

C. Provide minimum embedment, edge distance, and spacing as indicated by anchor designer's instructions or shown otherwise on Drawings.

D. Use only drill type and bit type and diameter recommended by anchor manufacturer. Clean hole of debris and dust with brush and compressed air.

E. For undercut anchors, use special undercutting drill bit and rotary hammer drill and apply final torque as recommended by anchor manufacturer.

F. When embedded steel or rebar is encountered in the drill path, slant drill to clear obstruction. If drill must be slanted more than 10 degrees to clear obstruction, notify Engineer for direction on how to proceed.

G. Adhesive Anchors:

1. Do not install adhesive anchors when temperature of concrete is below 40 degrees F (25 degrees F for Simpson Strong-Tie Acrylic-Tie Adhesive) or above 100 degrees F.
2. Remove any standing water from hole with oil-free compressed air. Inside surface of hole shall be dry where required by manufacturer's instructions.
3. For hollow-unit masonry, install screen tube in accordance with manufacturer's instructions.
4. Do not disturb anchor during recommended curing time.
5. Do not exceed maximum torque as specified in manufacturer's instructions.

3.4 ACCESS COVERS

A. Install access covers, including sidewalk doors, floor hatches, and hinged manhole covers in accordance with manufacturer's instructions.

B. Accurately position prior to placing concrete, such that covers are flush with floor surface.

C. Protect from damage resulting from concrete placement. Thoroughly clean exposed surfaces of concrete spillage to obtain a clean, uniform appearance.

3.5 ELECTROLYTIC PROTECTION

A. Aluminum and Galvanized Steel:

1. Concealed aluminum, galvanized, and nonferrous alloy surfaces (behind building panels or walls) do not require painting.
2. Coat surfaces of galvanized steel and aluminum fabricated items to be in direct contact with concrete, grout, masonry, or dissimilar metals.
   - Use Epoxy Primer.
   - Follow coating manufacturer's recommendation for preparation.
   - Apply intermediate and finish coats appropriate for exposure unless indicated otherwise.
3. Do not apply protective coating to galvanized steel anchor bolts or galvanized steel welded anchor studs, unless indicated otherwise.
4. Allow coating to dry before installation of the material.
5. Protect coated surfaces during installation.
6. Should coating become marred, prepare and touch up in accordance with paint manufacturer's written instructions.

B. Stainless Steel:

1. During handling and installation, take necessary precautions to prevent carbon impregnation of stainless steel members.
2. After installation, visually inspect stainless steel surfaces for evidence of iron rust, oil, paint, and other forms of contamination.
3. Remove contamination in accordance with requirements of ASTM A380 and ASTM A967.
4. Brushes used to remove foreign substances shall utilize only stainless steel or nonmetallic bristles.
5. After treatment, visually inspect surfaces for compliance.

3.6 PAINTING AND REPAIR OF GALVANIZED STEEL

A. Painted Galvanized Surfaces: Prepare as specified in Section 09 90 00, Painting and Coating.

B. Repair of Damaged Hot-Dip Galvanized Coating:

1. Conform to ASTM A780.
2. For minor repairs at abraded areas, use sprayed zinc conforming to ASTM A780.
3. For flame cut or welded areas, use zinc-based solder, or zinc sticks, conforming to ASTM A780.
4. Use magnetic gauge to determine that thickness is equal to or greater than the base galvanized coating.

3.7 FIELD QUALITY CONTROL

A. Concrete and Masonry Drilled Anchors: Special inspection and testing will be provided by Owner where indicated on Drawings.

3.8 MANUFACTURER'S SERVICES

A. Adhesive Anchors: Conduct site training of installation personnel for proper installation, handling, and storage of adhesive anchor system. Notify Engineer of time and place for sessions.

3.9 FASTENER SCHEDULE

A. Unless indicated otherwise on the Drawings, provide fasteners as follows:

Service Use and Location	Product	Remarks
1. Anchor Bolts Cast Into Concrete for Structural Steel, Metal Fabrications and Castings		
Interior Dry Areas	Hot-dip galvanized steel headed anchor bolts, unless indicated otherwise	
Exterior and Interior Wet Areas	Hot-dip galvanized or stainless steel headed anchor bolts	
Submerged and Corrosive Areas	Stainless steel, headed anchor bolts with fusion bonded coatings	
2. Anchor Bolts Cast Into Concrete for Equipment Bases		
Interior Dry Areas	Stainless steel headed anchor bolts, unless otherwise specified with equipment	

Service Use and Location	Product	Remarks
Submerged, Exterior, Interior Wet, and Corrosive Areas	Stainless steel headed anchor bolts with fusion bonded coating, unless otherwise specified with equipment	
3. Drilled Anchors for Metal Components to Cast-in-Place Concrete (e.g., Ladders, Handrail Posts, Electrical Panels, and Equipment)		
Interior Dry Areas	Zinc-plated or stainless steel wedge or expansion anchors	Use zinc-plated undercut anchors for overhead and ceiling installations
.Submerged, Exterior, Interior Wet, and Corrosive Areas	Adhesive stainless steel anchors	Use stainless steel undercut anchors for overhead and ceiling installations
4. Anchors in Grout-Filled Concrete Masonry Units		
Exterior and Interior Wet and Dry Areas	Hot-dip galvanized steel headed anchor bolts, zinc-plated or stainless steel sleeve anchors, or stainless steel adhesive anchors	
5. Anchors in Hollow Concrete Masonry Units		
Exterior and Interior Wet and Dry Areas	Zinc-plated or stainless steel sleeve anchors, or stainless steel adhesive anchors with screen tube	
6. Connections for Steel Fabrications and Wood Components		
Exterior and Interior Wet and Dry Areas	Hot-dip galvanized carbon or Stainless steel bolted connections	

Service Use and Location	Product	Remarks
7. Connections of Aluminum Components		
Submerged, Exterior and Interior Wet and Dry Areas	Stainless steel bolted connections, unless otherwise specified with equipment	
8. All Others		
Exterior and Interior Wet and Dry Areas	Stainless steel fasteners	

B. Antiseizing Lubricant: Use on all stainless steel threads.

C. Do not use adhesive anchors to support fire-resistive construction or where ambient temperature will exceed 120 degrees F.

END OF SECTION

SECTION 10100
FLYGHT PUMP INSTALLATION

PART 1 GENERAL

1.1 SCOPE:

A. This Section covers the work necessary to install owner's Flygt pump and to furnish associated materials and supplies.

1.2 GENERAL:

A. The Owner will provide the submersible Flygt pump to be installed. The pump is a model NT 3171 095. The close-coupled electric motor is rated at 30 horsepower, 460 volts, 4 pole, 60 Hertz service with 250 A starting current . The pump is capable of delivering 1050 gpm at about 73 feet Total Dynamic Head.

B. The Contractor shall provide all labor and materials not specifically indicated as supplied by Xylem-Flygt or the Owner in this specification.

1.3 MANUFACTURER'S SERVICES

A. A manufacturer's representative for the equipment specified will be available for installation assistance, inspection and certification of the installation.

PART 2 PRODUCTS

2.1 PUMP:

A. PUMP MOTOR AND VOLUTE (provided by owner)

1. NP 3171.095 rated at 30 horsepower, 480 volts, 4 pole, 60 Hertz service.

B. PUMP STAND (provided by owner)

1. Xylem Flygt standard for this model.
2. Guide rails and appurtenances.

C. POWER AND SIGNAL CABLE (provided by owner)

1. 40 foot power and signal cable Flygt standard for this pump model.

2.2 OTHER ACCESSORIES

1. Install Adjustable Speed Control/Local Control Panel cabinet (provided by owner) on inside North wall.
2. Sink and/or workbench may have to be removed to make room for above cabinet.

3. Install conduits, conductors, and other appurtenances as shown on plans but not provided by owner for a complete and operating system.

A. ANCHOR BOLTS

1. Four (4) ¾"x 10" SS anchor bolts and bolt pattern as shown on plans or recommended by Xylem Flygt.

2. Anchor bolts to be adhesive anchored Simpson Strong-Tie SET-3G or approved equal.

3. Discharge pipe support anchors to be: SET-3G – SET-3G w/ ½"Ø A193 GR. B6 with min 4" embedment, Strong-Bolt® 2 Stainless Steel – ½"Ø SS Strong-Bolt 2 w/ minimum 3⅞" embedment or approved equals.

C. GROUT

1. Non-shrink as specified in section 02080.30

D. MISCELLANEOUS

1. Associated bolts and other fasteners and miscellaneous supplies appropriate for installing the pump as recommended by Xylem Flygt.

PART 3 EXECUTION

3.1 GENERAL

A. Install the pump base and other accessories as shown on the Plans and as recommended by Xylem Flygt.

3.2 CONCRETE ANCHORS

A. Cast in place is the preferred method of installation. Adhesive anchor system may be used.
If an adhesive system is chosen, installation shall not begin until the concrete receiving the anchors has attained its design strength and has been thoroughly cleaned. An anchor shall not be installed closer than six times its diameter to either an edge of the concrete, or another anchor, unless specifically detailed otherwise on the Plans. Install in strict conformance with manufacturer's instructions

B. Approved Anchors:
1. Simpson Strong-Tie SET-3G (wet or dry conditions).
2. Or approved equal epoxy for anchors.

3.3 ADDITIONAL OWNER SERVICES

A. The Owner will deliver the pump, pump base, power and signal cable, and miscellaneous items to the pump station.
B. The Owner will supply drawings, including installation instructions, for the following:

1. Pump motor and volute
2. Pump Base
3. Guide bars
4. Power and signal cable
5. Controls and control cabinets

C. A Flygt representative will be present at the job site for the minimum person days listed for the services hereunder, travel time excluded.

1. 1 person day for installation assistance, inspection, and certification of the installation.
2. 1 person day for functional testing.
3. 1 ½ person days of programming assistance.

PART 4 TESTING

4.1 FUNCTIONAL TEST

A. Prior to pump station start up, all equipment described shall be inspected for proper alignment, quiet operation, proper connection, and satisfactory performance by means of functional test.

4.2 FIELD TESTS

A. Start up and operational field tests shall be conducted by the pump manufacturer's representative. The start up and operational tests shall be conducted in the presence of the owner's representative and the Contractor.

PART 5 GUARANTEE

5.1 GENERAL

A. Contractor shall guarantee all Contractor supplied products, materials, and workmanship for a period of one (1) year.

PART 6 SUBMITTALS

6.1 GENERAL

A. Refer to special provisions for required submittals.

PART 7 MEASUREMENT AND PAYMENT

7.1 LUMP SUM BASIS

A. Payment for the work in this section will be made based on the "Lump Sum" price amount listed in the bid schedule, and will be payment in full for all materials, equipment, labor, fittings, appurtenances and other incidental items required to complete the work as specified.

END OF SECTION

SECTION 10200
PIPING, GAGES, AND VALVES

PART 1 GENERAL

1.1 SCOPE:

A. This Section covers the work necessary to furnish and install, complete piping, pressure gages, and valves specified herein.

PART 2 PRODUCTS

2.1 GENERAL

A. The use of manufacturer's names and model or catalog number is for the purpose of establishing the standard of quality and general configuration desired only. Products of other manufacturers with similar equipment will be considered.

2.2 PRESSURE GAGES

A. Gages shall be sanitary industrial pressure gages with diaphragm seal as manufactured by Ashcroft with 2 ½" dial and pressure range 0 – 100 psig.

2.3 PIPING

A. SUCTION: Ductile Iron, class 250, Epoxy lined, and urethane primed coating.

B. DISCHARGE: 304L Stainless steel, Schedule 80 meets ASTM A358.

2.4 CHECK VALVE, Swing Check V608

A. AWWA C508, 125-pound flanged ends, cast-iron body, bronze body seat, bronze mounted cast-iron clapper with bronze seat, stainless steel hinge shaft.
B. Rated 175-pound WWP. Valves to be fitted with adjustable outside lever and weight.
C. Manufacturers and Products:
   1) M&H Valve; Style 59, 159, or 259
   2) Mueller Co.; No. A-2600 Series.

2.5 PLUG VALVE, Eccentric plug valve (V405)

A. Nonlubricated type rated 175-psig CWP, drip-tight shutoff with pressure from either direction, cast-iron body, exposed service flanged ends per AWWA B16.1 or grooved ends in accordance with AWWA C606 for rigid joints, buried service mechanical joint ends, unless otherwise noted.

2.6 BALL VALVES, V304 for general water an Air service

A. Three piece, full port, NPT threaded ends, bronze body and end pieces, hard-chrome plated solid bronze or brass ball, RTFE seats and packing, blowout-proof stem, zinc-plated steel hand lever operator with vinyl grip, rated 600 pond WOG,150 psi SWP, complies with MSS SP-110.

2.7 AIR/VACUME VALVE, V754

A. Suitable for sewage service, combines the operating functions of both air and vacuum and air release valve. The air and vacuum portion shall automatically exhaust air during filling of a system and allow air to re-enter during draining or when vacuum occurs. Air release portion to automatically exhaust entrained air that accumulates in the system. Single body unit with air and vacuum valve and air release valve in a single housing.
B. 80 psi operating pressure, 2-inch NPT inlet, 2-inch NPT outlet, 7/32-inch orifice venting 68 scfm.
C. Rated working pressure of 150 psi, built and tested to AWWA 512.
D. Materials: Cast-=iron or ductile-iron body and covers, NTP threaded inlet and outlet, with concave or skirted stainless steel float and trim.
E. Sewage air release valve fitted with blowoff valve, flushing valve with quick disconnect couplings, and a minimum of 5 feet of hose with quick disconnect couplings to permit backflushing after installation without dismantling valve.
F. Manufacturers and Products;
    1) APCO Valve and Primer Corp.; Series 440 SCAV.
    2) Val-Matic Valve; Series 800

2.8 FLANGED COUPLING ADAPTER

A. DI PIPE: Restrained flange adapters shall be used in lieu of threaded or welded flanged spool pieces. Flanged adapters shall be made of ductile iron conforming to ASTM A536 and have flange bolt circles that are compatible with ANSI/AWWA C110/A21.10 (125#/Class 150 Bolt Pattern). Restraint for flange adapter shall consist of a plurality of individual actuated gripping wedges to maximize restraint capability. Torque limiting actuating screws shall be used to insure proper initial set of gripping wedges. The flange adapters shall be capable of deflection during assembly or permit lengths of pipe to be field cut to allow a minimum 0.6 inch gap between the end of the pipe and the mating flange without affecting the integrity of the seal. Pressure ratings shall be a minimum of those shown in the adjacent tables. The flange adapter shall be the Series 2116 MEGAFLANGE® Restrained Flange Adapter as produced by EBAA Iron, Inc. or approved equal.

2.9 STAINLESS STEEL PIPE:

A. PIPE: Schedule 10S: ASTMA778, “as welded” grade, TYPE 316L, pickled and passivated.

B. FITTINGS; Butt-welded, ASTMA774/A774M Grade WP316L conforming to MMS PS 43, “as welded” grade, pickled and passivated, fitting wall thickness to match adjoining pipe, long radius elbows, unless shown otherwise.

C. FLANGES:
   a. Forged Stainless Steel: ASTM A182/A182M, Grade F316L, ASME B16.5 Class 150or Class 300, slip on, weld neck, or raised face.
   b. Blind flanges exposed to atmosphere and not buried or immersed in liquid, may be either stainless steel or Class 125 ductile iron or Class 150 carbon steel with gaskets as specified herein.
   c. Flanged coupling adapter with thrust ties, as approved by the Engineer.

D. BOLTING:
   a. Forged Flanges: TYPE 316 stainless steel, ASTM A320/A320M Grade B8M hex head bolts and ASTM A194/A194M Grade 8M hex nuts.
   b. Flanged Joints in Sumps, Wet Wells and Submerged and Wetted Installations: Type 316 stainless steel, ASTM A320/A320M,Grade B8M hex head bolts and ASTM A194/A194M, Grade 8M hex nuts.

E. GASKETS:
   a. Flanged, water and sewer service: 1/8” thick unless otherwise specified, red rubber (SBR), hardness 80 (shore A), rated at 200 degrees F, conforming to ASTM B16.21, AWWA C207, and ASTM D1330, Grade 1 and Grade 2.
   b. Blind Flanges shall be gasketed covering entire interior face with gasket cemented to blind flange.

2.10 QUICK DISCONNECT COUPLING

A. Stainless steel as manufactured by Ryan Herco, or equal.

   1. Associated bolts and other fasteners and miscellaneous associated supplies appropriate for installing the pump as recommended by Xylem Flygt.

2.11 EPOXY LINING MATERIAL

A. Epoxy lining material, where required, shall be Protecto 401 Ceramic or approved equivalent.

PART 3 EXECUTION

3.1 GENERAL

A. Install in accordance with the manufacturer's recommendations and as shown on the Plans.

B. Before Installation, carefully clean valves of all foreign material, adjust stuffing boxes, and inspect valves in OPEN and CLOSED positions. Install valves in accordance with applicable portions of these Specifications. Unless otherwise indicated, install valve with stem vertical. Mount horizontal valves in such a manner that adequate clearance is provided for operation. Installation practices shall conform to manufacturer's recommendations.

C. Prior to installing flanged valves, the flange faces shall be thoroughly cleaned. After cleaning, insert the gasket and tighten the nuts progressively and uniformly. If flanges leak under pressure, loosen the nuts, reset or replace the gasket, retighten the nuts and retest the joint. Joints must be water tight at test pressures before acceptance.

PART 4 TESTING

4.1 FUNCTIONAL TEST

A. Test gages in accordance with the manufacturer's recommendations. Make adjustments as necessary. Accuracy shall be ± 1.5% of the gage reading.

PART 5 GUARANTEE

5.1 GENERAL

A. Contractor shall guarantee all products, materials, and workmanship for a period of one (1) year.

PART 6 SUBMITTALS

6.1 SUBMITTAL REQUIREMENTS:

A. Refer to SPECIAL PROVISIONS for required submittals.

PART 7 MEASUREMENT AND PAYMENT

7.1 LUMP SUM BASIS

A. Payment for the work in this section will be made based on the “Lump Sum” price amount listed in the bid schedule, and will be payment in full for all materials, equipment, labor, fittings, appurtenances and other incidental items required to complete the work as specified.

END OF SECTION

SECTION 10300

FABRICATED SLIDE GATES INSTALLATION

PART 1 GENERAL

1.1 SCOPE

A. This Section covers the work necessary to install owner supplied sluice gates and to furnish associated materials and supplies not specifically identified as provided by owner.

1.2 SUBMITTALS

A. Action Submittals:

1. Shop Drawings: Provided by owner

B. Informational Submittals: provided by owner

1. Manufacturer's Certificate of Compliance.
2. Special shipping, storage and protection, and handling instructions.
3. Manufacturer's written/printed installation instructions.
4. Routine maintenance requirements prior to plant startup.
5. Operation and Maintenance Data.

PART 2 PRODUCTS

B.1 MATERIALS

A. ANCHOR ADHESIVE:

1. Simpson Strong-Tie, SET-3G (wet or dry conditions)
2. Or approved equal epoxy for anchors

B. NONSHRINK GROUT:

1. Nonmetallic nonshrink nongas-liberating.

2. Prepackaged natural aggregate grout requiring only the addition of water.

3. Aggregate shall show no segregation or settlement at fluid consistency at specified times or temperatures.

4. Test in accordance with ASTM c1107/C1107M:
   a. Fluid consistency 20seconds to 30 seconds in accordance with ASTM C939.

b. Temperatures of40 degrees F, 80 degrees F, and 100 degrees F.

5. One hour after mixing, pass fluid grout through flow cone with continuous flow.

6. Minimum strength of fluid grout, 3500 psi at 1 day, 4,500 psi at 3 days, and 7,500 psi at 28 days.

7. Manufactures and Products.

a.	BASF Building Systems Inc,	Master Flow 928
b.	Five Star Products Inc.,	Five Star Fluid Grout 100
c.	Euclid Chemical Co.,	Hi Flow Grout
d.	Dayton Superior Corporation,	Sure Grip Hi Performance Grout
e.	L&M Construction Chemicals Inc,	Crystex

PART 3 EXECUTION

3.1 INSTALLATION

A. In accordance with the manufacturer's written instructions.

B. Mount gate in accordance with manufacturer's recommendations. Provide minimum 1-inch grout pad.

1. Pressure wash, blast if necessary, and use compatible bonding agent on substrate

C. Field mount operators after installing gates.

D. Accurately place anchor bolts using templates furnished by the manufacturer.

E. Lubricate stems before operating.

3.2 FIELD QUALITY CONTROL

A. Functional Tests: Conduct on each slide gate.

B. Performance Test:

1. Conduct on each slide gate.
2. Perform under actual or approved simulated operating conditions.
3. Test for a continuous 3-hour period without malfunction.
4. Adjust, realign, or modify units and retest if necessary.

3.3 MANUFACTURER'S SERVICES

A. Manufacturer's Representative: Present at Site or classroom designated by Owner, for minimum person-days listed below, travel time excluded:

1. 1 person-day for installation assistance and inspection.

2. 1 person-day for functional and performance testing and completion of Manufacturer's Certificate of Proper Installation.
3. 1/2 person-day for presta1tup classroom or Site training.
4. 1/2 person-day for facility startup.
5. 1/2 person-day for post-startup training of Owner's personnel. Training shall not commence until an accepted detailed lesson plan for each training activity has been reviewed by Owner.

B. See Section O1 43 33, Manufacturers' Field Services, and Section O1 91 14, Equipment Testing and Facility Startup.

C. Provide manufacturer's representative at Site in accordance with Section 01 43 33, Manufacturers' Field Services, for installation assistance, inspection and certification of proper installation, equipment testing, startup assistance, and training of Owner's personnel for specified component, subsystem, equipment, or system.

END OF SECTION

SECTION 10500
MAINTAIN WASTEWATER FLOW

PART 1 GENERAL

1.1 SCOPE:

A. This Section outlines the requirements for providing and operating the temporary pump system to pump sewage from the two influent gravity sewer lines that feed the pump station, to the treatment plant. The pumps shall be used by the contractor until Pump #4 is fully operational under the terms of this contract and all other work under this contract is substantially complete.

PART 2 PRODUCTS

2.1 GENERAL:

A. Due to environmental conditions, bypass pumping shall not commence without approval of the Engineer. Approval may be delayed until Late April or early May and shall extend the project completion date to no more than Sixty (60) calendar day from such approval. In no case will bypass pumping continue beyond Sept 30, 2019 without increasing the capacity to 18 mgd.

B. The use of manufacturer's name and model or catalog numbers is for the purpose of the standard of quality and general configuration desired only. Products of other manufacturers with similar equipment will be considered. Each pump shall be a standard raw sewage pump as recommended by Flygt, Gould, or PACO Pump Company.

2.2 PUMPS:

A. A temporary pump system shall be capable of pumping raw sewage from the pump station site to and through the pig launcher/valve vault and the force main(s) to the treatment plant. The maximum total pumping requirement from the pump station to the treatment plant during the course of the project is anticipated to be 4 MGD at a total dynamic head of 70 feet plus additional head associated with temporary piping and the temporary pump system itself. About half the total flow enters the pump station wet well from each of the two influent gravity sewer lines.

2.3 DISCHARGE PIPING:

A. Provide temporary discharge piping, as appropriate, with sufficient length, fittings, and adaptors to connect the pumps with a discharge location as appropriate.

2.4 ALARMS:

A. The temporary pump system shall be equipped with an alarm system that alerts designated Contractor employees of failures, unsafe conditions, or required service. Alarms shall be responded to within fifteen minutes or as approved in the alarm system plan submitted per Sec 6.1.A5. The alarm system shall automatically notify the Wastewater Supervisor or his designee if the alarm is not acknowledged within 10 minutes and responded to per the approved plan.

B. In the event that the Wastewater Supervisor is required to respond to an alarm, the Contractor will be responsible for all costs incurred or $500 per occurrence, whichever is greater.

PART 3 EXECUTION

3.1 GENERAL:

A. The Contractor shall be responsible for DEQ acceptance of the temporary pump system.

B. Contractor shall transport the pump(s), piping, and other accessories to the Project site and maintain and operate them, as necessary, during construction until Project acceptance. The Contractor shall use the pump(s), as needed, or employ any other means necessary to ensure continuous pumping of raw sewage until Project acceptance.

C. Following Project acceptance, the Contractor shall transport the pump(s), hoses, and other accessories away from the project site and return them to their owner(s) as appropriate. The Project site and all associated equipment and other facilities shall be restored to the condition as found prior to the installation of the temporary pump system.

3.2 EXISTING FACILITIES:

A. All existing facilities as described in this Section are available for use by the Contractor to maintain the existing wastewater flow.

B. The portable pump on site is not to be used in the temporary pump system scheme.

PART 4 TESTING – NOT USED

PART 5 GUARANTEE – NOT USED

PART 6 SUBMITTALS

6.1 SUBMITTAL REQUIREMENTS:

A. Within 14 days of notice to proceed, The Contractor shall submit drawings and complete design data showing methods and equipment proposed to maintain sewer flow. The submittal shall include, but not limited to, the following.

1. Drawings indicating the location of temporary sewer plugs and bypass discharge lines.

2. Capacities of pumps, prime movers, and standby equipment

3. Design calculations providing adequacy of the system and selected equipment.

4. Refer to Special Provisions for required submittals.

5. Alarm System Plan to include an after hours response plan including procedures, a communication plan, a list of designated responsible employees and an estimated response time.

PART 7 MEASUREMENT AND PAYMENT

7.1 LUMP SUM BASIS

A. Payment for the work in this section will be made based on the "Lump Sum" price amount listed in the bid schedule, and will be payment in full for all materials, equipment, labor, fittings, appurtenances and other incidental items required to complete the work as specified.

END OF SECTION

SECTION 10600
EQUIPMENT DEMOLITION AND SALVAGE

PART 1 GENERAL

1.1 SCOPE:

A. This item covers the work necessary for removing and disposing or salvaging existing equipment in the pump station.

B. Reference Section 00140.90 Final Trimming and Cleanup in the General Conditions.

PART 2 PRODUCTS

2.1 GENERAL

A. Provide all equipment, tools, labor, and materials and necessary for demolition and salvage operations.

2.2 DUST CONTROL

A. The Contractor will be responsible for dust control in and around the Facility as it relates to the work of this contract, during the course of the Project. The Contractor shall furnish all equipment necessary to maintain air quality for protection of the workers, sensitive electrical and electronic equipment, and the environment.

2.3

PART 3 EXECUTION

3.1 GENERAL

A. Contractor shall disconnect and remove all equipment and material items from the pump station and vicinity as shown on Plans, those specified herein, and those directed by the owner. In general, the following existing items shall be removed:

- Existing acess hatch to wet well
- All remaining vortex Breakers
- Existing Sluice gates (two)
- Existing sluice gate actuators and shafts
- Remove enough of the concrete fillet at the bottom of the wet well to install the new pump.

B. Before removal from the wet well, components of piping system shall be cleaned inside and out.

3.2 SALVAGE ITEMS

A. None of the removed items are to be salvaged on behalf of the Owner.

3.3 ITEMS TO DISPOSE

A. All items to be removed shall be legally disposed of by the Contractor. Items shall be hauled off site immediately after removal and disposed at a location and in a manner appropriate for the action.

PART 4 TESTING – NOT USED

PART 5 GUARANTEE– NOT USED

PART 6 SUBMITTALS– NOT USED

PART 7 MEASUREMENT AND PAYMENT

7.1 LUMP SUM BASIS

A. Payment for the work in this section will be made based on the "Lump Sum" price amount listed in the bid schedule, and will be payment in full for all materials, equipment, labor, fittings, appurtenances and other incidental items required to complete the work as specified.

END OF SECTION

SECTION 10700
WET WELL LINING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
1. This Section includes, but is not necessarily limited to, restoration and corrosion barrier composite liner for concrete and brick structures as indicated on the Drawings, as specified herein, and as necessary for the proper and complete performance of the Work.

B. Unless specifically noted, GENERAL CONTRACTOR shall procure the materials and services described in this section; therefore, all requirements of Part 1, Part 2 and Part 3 of this specification are the responsibility of the GENERAL CONTRACTOR.

C. GENERAL CONTRACTOR is responsible for bypass pumping of the lift station during installation of the manhole lining system.

D. Related Sections:
1. Documents affecting work of this Section include, but are not necessarily limited to:
a. General Conditions, Supplementary Conditions and Sections in Division 00100 of these Specifications.

1.2 REFERENCES

A. Except as herein specified or as indicated on the Drawings, the work of this Section shall comply with the following:
1. ASTM Standard Test Methods:
a. C78 - Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading).
b. C109 - Compressive Strength of Hydraulic Cement Mortars (Using 2-in. Cube Specimens).
c. C157 - Length Change of Hardened Hydraulic-Cement, Mortar and Concrete.
d. C876 - Half-Cell Potentials of Uncoated Reinforcing Steel in Concrete.
e. 04138 - Measurement of Dry Film Thickness of Protective Coating Systems by Destructive Means.
2. International Concrete Repair Institute (ICRI) Technical Guideline:
a. No. 03730 - Surface Preparation Guidelines for the Repair of Deteriorated Concrete Resulting From Reinforcing Steel Corrosion.
3. ACI Standard:
a. 305R - Hot Weather Concreting.
b. 503R - Use of Epoxy Compounds for Coating Concrete.

1.3 SUBMITTALS

A. Submit in accordance with Section 00160 – Source of Materials.

B. Manufacturer's literature:

1. Submit for coating products.
2. Required information:
    a. Name of Manufacturer.
    b. Physical properties.
    c. Surface preparation.
    d. Application instructions.
    e. Curing instructions.

C. Certification:
1. Manufacturer's statement that the applicator is trained and approved in the application of the specified products.

1.4 QUALITY ASSURANCE

A. Qualifications:
1. Fabrication and installation personnel:
    a. Trained and experienced in the fabrication and installation of the materials and equipment.
    b. Knowledgeable of the design and the reviewed submittals.

1.5 DELIVERY, STORAGE AND HANDLING

A. Receiving and storage:
1. All materials shall be delivered in original, unbroken, brand marked containers or wrapping as applicable.
2. Handle and store materials:
    a. In a manner which will prevent:
        1) Deterioration or damage.
        2) Contamination with foreign matter.
        3) Damage by weather or elements.
    b. In accordance with Manufacturer's directions.
        1) Storage temperature of Corrosion Barrier Mortar: 40 to 80 degrees F.

B. Rejected material and replacements:
1. Reject damaged, deteriorated or contaminated material and immediately remove from the Site.
2. Replace rejected materials with new materials at no additional cost to OWNER.

1.6 WARRANTY

A. Warrant liner against failure for a period of 10 years. "Failure" will be deemed to have occurred if the protective lining fails to (a) prevent the internal deterioration or corrosion of the structure (b) protect the substrate and environment from contamination by effluent or (c) prevent groundwater infiltration. If any such failure occurs within 10 years of initial completion of work on a structure, the damage will be repaired to restore the lining at no cost to the Owner within 60 days after written notification of the failure. "Failure" does not include damage resulting from mechanical or chemical abuse or act of God. Mechanical or chemical abuse means exposing the lined surfaces of the structure to any mechanical force or chemical substance not customarily present or used in connection with structures of the type involved.

PART 2 – PRODUCTS: the following systems are pre-approved. Other systems may be considered by the Engineer if submitted 7 business days before bid due date.

2.1 MAINSTAY COMPOSITE LINER SYSTEM and EPOXYTEC STRUCTURAL EPOXY SYSTEM

A. Manufacturer:
1. Madewell Products Corporation, 7561 Industrial Court, Alpharetta, Georgia 30004. Phone (770) 475-8199.

2. Epoxytec, 3000 N 29th Court, Hollywood, FL 33020. Phone (954) 961-2395

B. Hydraulic Cement Mortar: Fast-setting mortar used to stop leaks through cracks and holes.
1. Composition: Blend of hydraulic cements and fillers.
2. Compressive Strength, ASTM C109:
   a. 1 Day: 1,500 psi.
   b. 28 Days: 5,000 psi.
3. Tensile Strength, ASTM C190:
   a. 7 Days: 290 psi.
   b. 28 Days: 575 psi.
4. Working Time: 1 to 3 minutes at 77 degrees F.

C. Restoration Mortar Sprayable silica Cement Mortar. Low shrinkage, high strength, sprayable silica mortar.
1. Composition: Blend of cements, silica, thermoplastic fibers, densifiers, and modifiers. Mortar shall not contain calcium aluminate cements or aggregates.
2. Thickness: 1 inch minimum.
3. Compressive Strength, ASTM C109:
   a. 1 Day: 3,000 psi.
   b. 28 Days: 5,000 psi.
4. Flexural Strength, ASTM C293:
   a. 1 Day: 535 psi.
   b. 28 Days: 950 psi.
5. Tensile Strength, ASTM C496:
   a. 1 Day: 225 psi.
   b. 28 Days: 300 psi.
6. Shrinkage, ASTM C596:
   a. 28 Days@ 90%: 0.05 percent.

D. Corrosion Barrier Coating:
1. Composition: 100 percent solids, modified epoxy coating.
2. Thickness: Minimum of 100 mils in 1 or 2 coats.
3. Number of Components: 2.
4. Finish: Gloss.
5. Color: White.

E. Manhole Frame Seal: Madewell 806 Flexible Epoxy
1. Composition: 100% solids, flexible epoxy trowel-grade mastic.
2. Thickness: Minimum of 1/4 inch.
3. Number of Components: 2.

APPENDIX "B"

Submittals of the following shall be delivered to the Engineer in accordance with Article D(13) of the General Conditions. *NOTE: This list is intended to be a useful guide to the Contractor and not necessarily a definitive list of all items that a submittal may be required on. If requested by the Engineer additional item(s) shall be delivered in the format outlined for review and approval.*

General Conditions:

- ❑ Signed Contract
- ❑ Signed Notice To Proceed
- ❑ Contractor's personnel's contact information & 24-hour emergency number
- ❑ Contractors Insurance Certificate(s)
- ❑ Schedule of work in flow chart format
- ❑ List of Subcontractors
- ❑ Copies of government permits (building, electrical, plumbing ODOT right of way, etc.)
- ❑ Performance, Payment, Labor and Materials Bonds

Division 2 – Sitework:

- ❑ Dust control plan

Division 3 – Concrete:

- ❑ Concrete mix design(s)
- ❑ Non shrink grout/dry pack
- ❑ Debris dumping site location/permit

Division 4 – Streets – NOT USED

Division 5 – Water – NOT USED

Division 6 – Sanitary Sewers

- ❑ Maintain existing wastewater flow plan

Division 7 – Storm Sewers – NOT USED

Division 8 – Structures – NOT USED

Division 9 – Miscellaneous – NOT USED

Division 10 – Equipment

- ❑ Gages
- ❑ Valves
- ❑ SS Pipe and fittings
- ❑ DI Pipe and Fittings
- ❑ Pipe and fittings

CITY OF WOODBURN
MILL CREEK PUMP STATION
PUMPS #1 & #3 REMOVAL & REPLACEMENT

PART V

PLANS

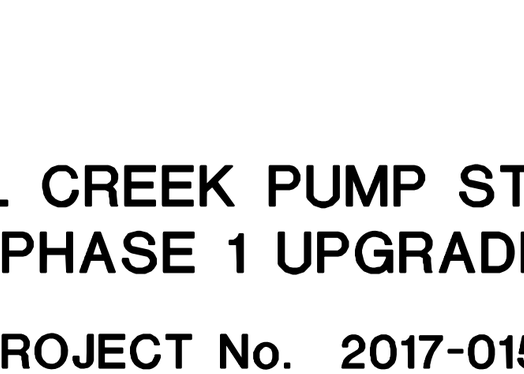
DRAWINGS

G-1	COVER SHEET
C-1	SITE PLAN
M-1	MECHANICAL
M-2	MECHANICAL
S-1	CONCRETE PEDESTAL
S-2	CONCRETE PEDESTAL REBAR
E-1	ELECTRICAL PLAN
E-2	ELECTRICAL NOTES

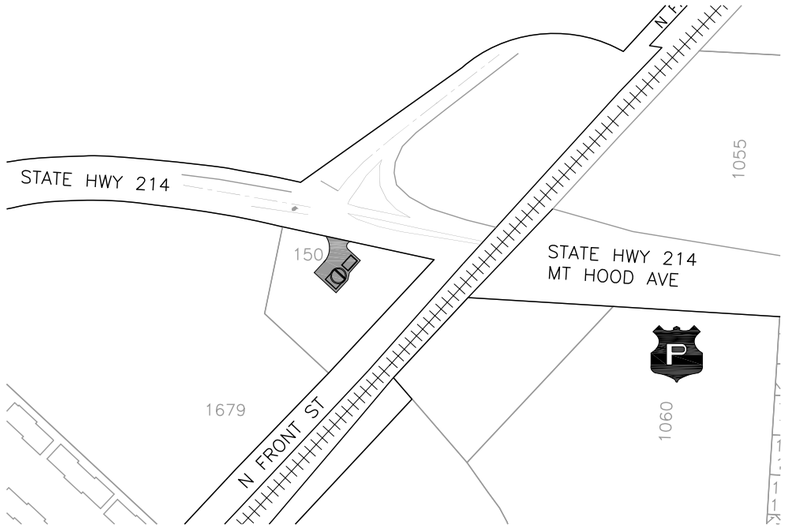
MILL CREEK PUMP STATION
PHASE 1 UPGRADES

PROJECT No. 2017-015-38
BID No. 2018-02

INDEX OF DRAWINGS



VICINITY MAP
NTS



LOCATION MAP
NTS

THIS BAR IS ONE-INCH ON ORIGINAL DRAWING.

0" 1"

PLOT DATE: 2/26/2019 10:42 AM

DESIGNED: PJG
DRAWN: PJG/GK
REVIEWED: EL
APPROVED: EL
HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: LOCAL

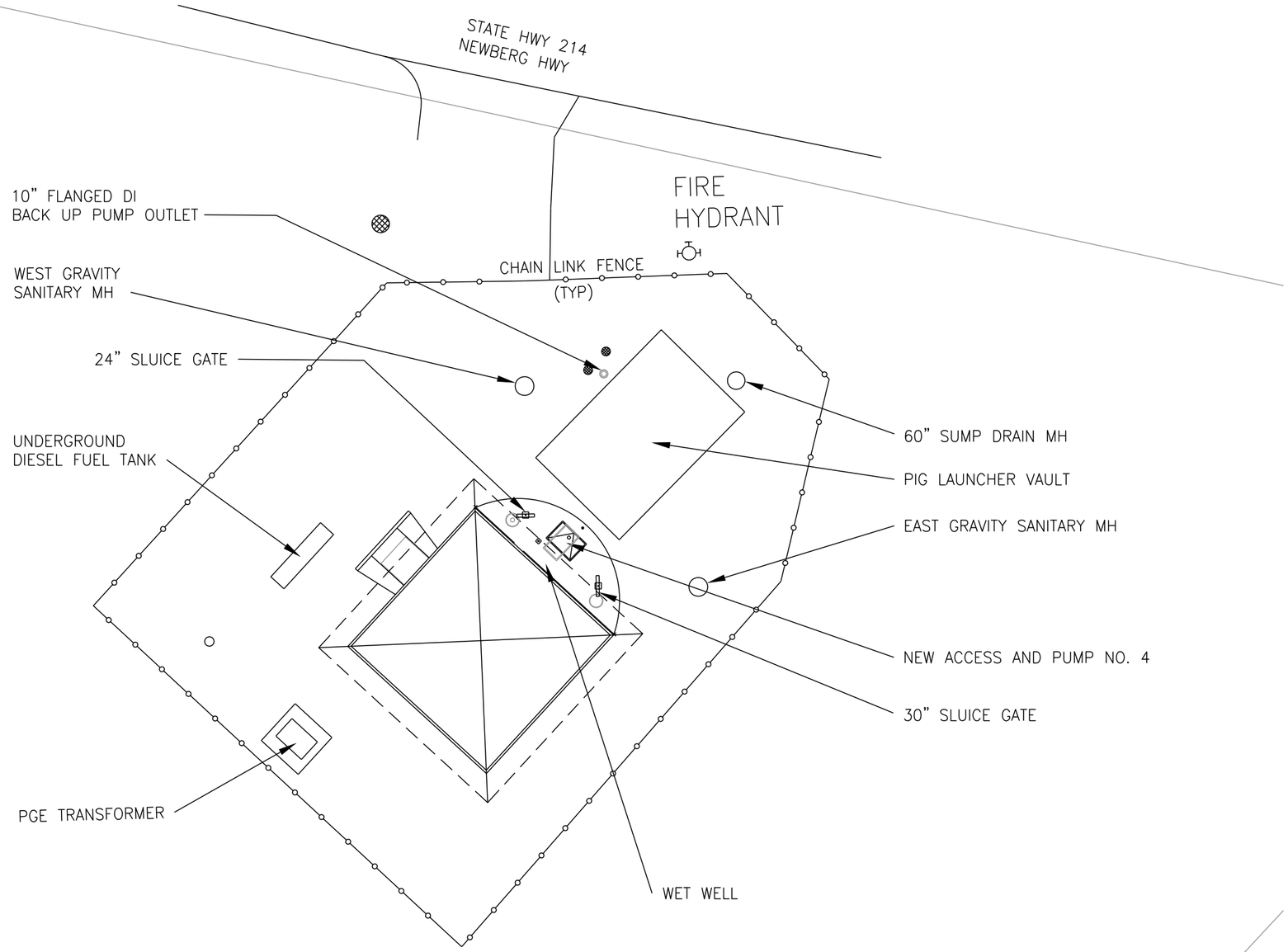
WOODBURN OREGON
Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

REVISIONS:

MILL CREEK PUMP STATION
UPGRADE PHASE 1

TITLE SHEET

PROJECT NO. 2017-015-38
DATE 6/12/2018
DWG NO. G-1
SHEET 1 OF 7



SITE PLAN

SCALE: 1"=20'-0"

PLOT DATE: 2/26/2019 10:44 AM

THIS BAR IS ONE-INCH ON ORIGINAL DRAWING.

0" 1"

DESIGNED: PJG
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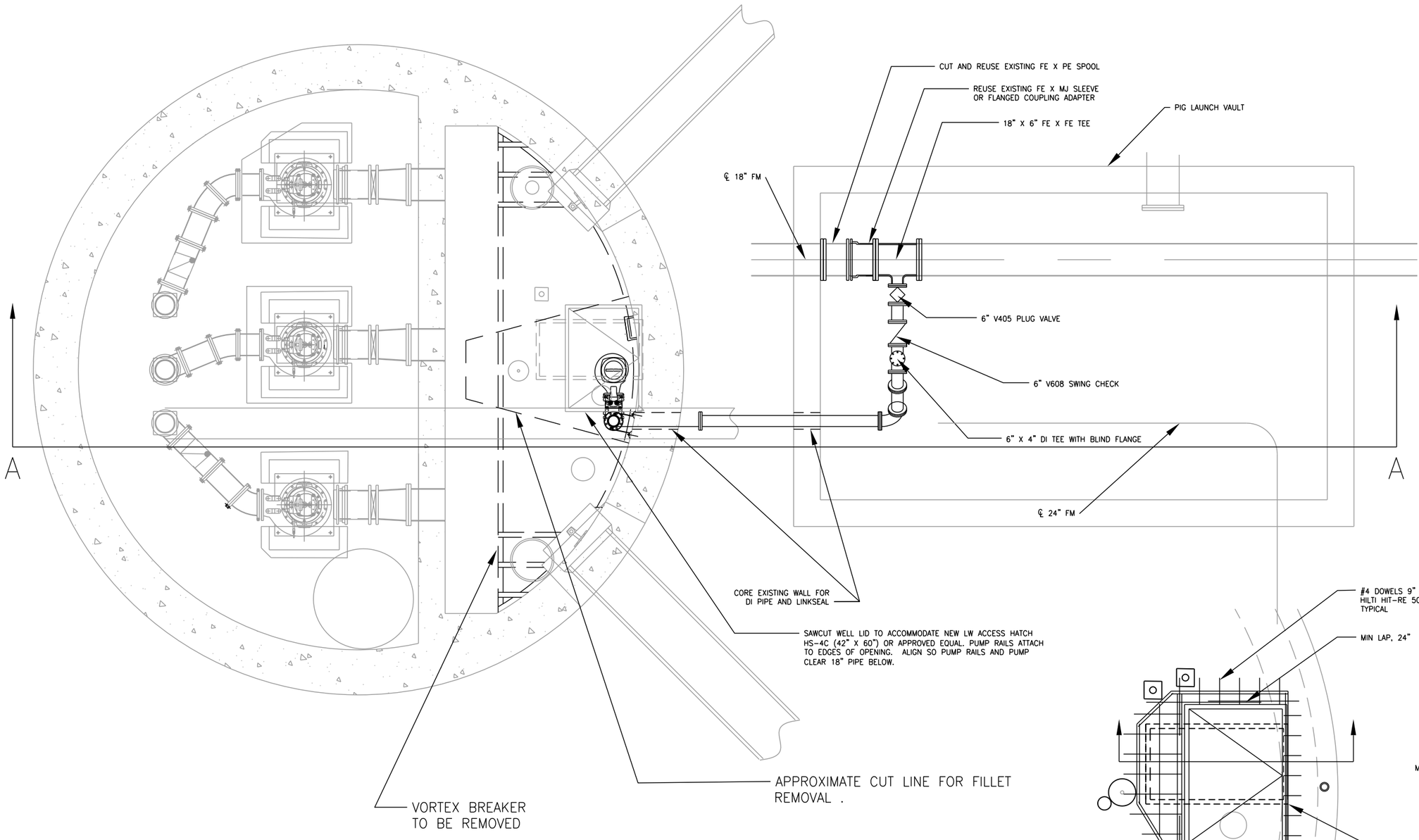
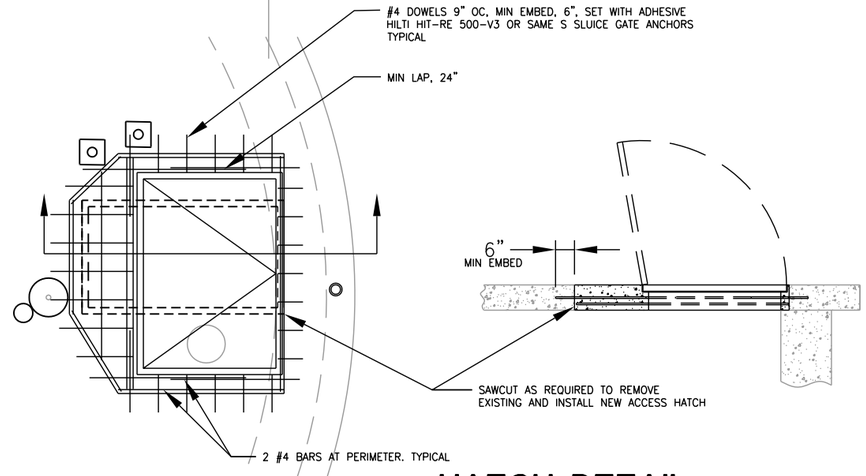
MILL CREEK PUMP STATION
UPGRADE PHASE 1

SITE PLAN

PROJECT NO. 2017-015-38
DATE 6/12/2018
DWG NO. C-2
SHEET 2 OF 7



PLAN VIEW PUMP #4



HATCH DETAIL

PLOT DATE: 2/26/2019 10:41 AM

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0" 1"

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PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

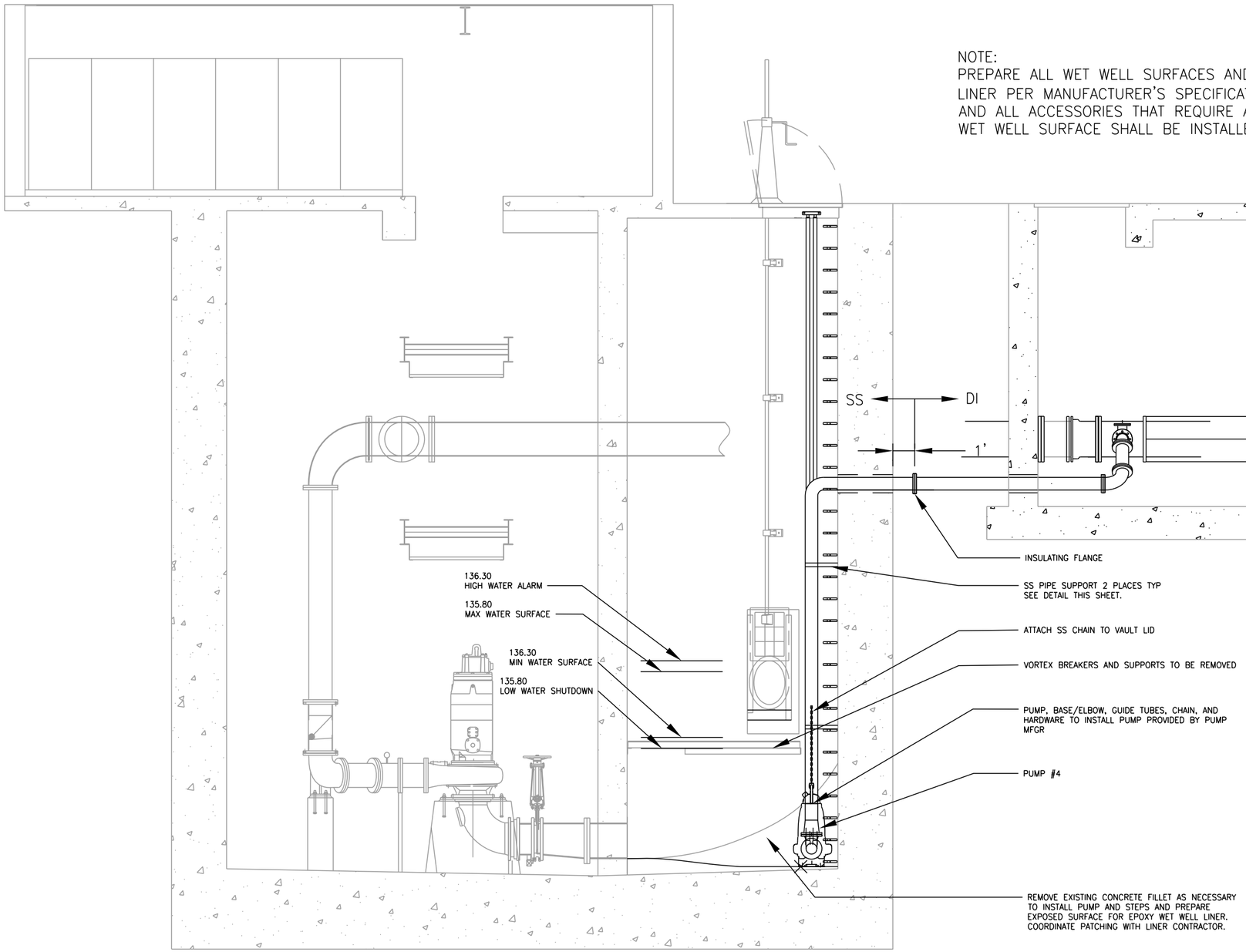
REVISIONS:

MILL CREEK PUMP STATION
UPGRADE PHASE 1

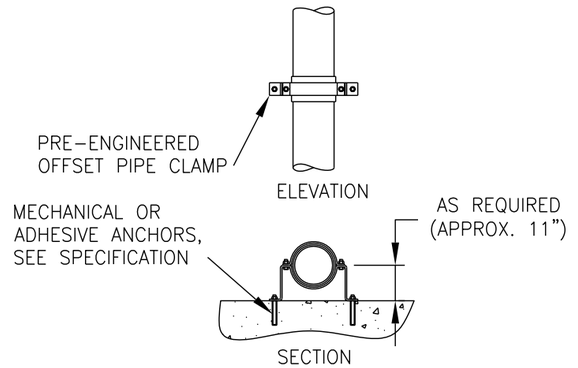
PUMP NO. 4
PLAN AND DETAIL

PROJECT NO. 2017-015-38
DATE 6/12/2018
DWG NO. M-1
SHEET 3 OF 7

NOTE:
PREPARE ALL WET WELL SURFACES AND INSTALL EPOXY LINER PER MANUFACTURER'S SPECIFICATIONS. SLUICE GATES AND ALL ACCESSORIES THAT REQUIRE ANCHORING TO THE WET WELL SURFACE SHALL BE INSTALLED PRIOR TO LINER.



SECTION A-A



PIPE SUPORT DETAIL

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0" 1"

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VERTICAL DATUM: LOCAL

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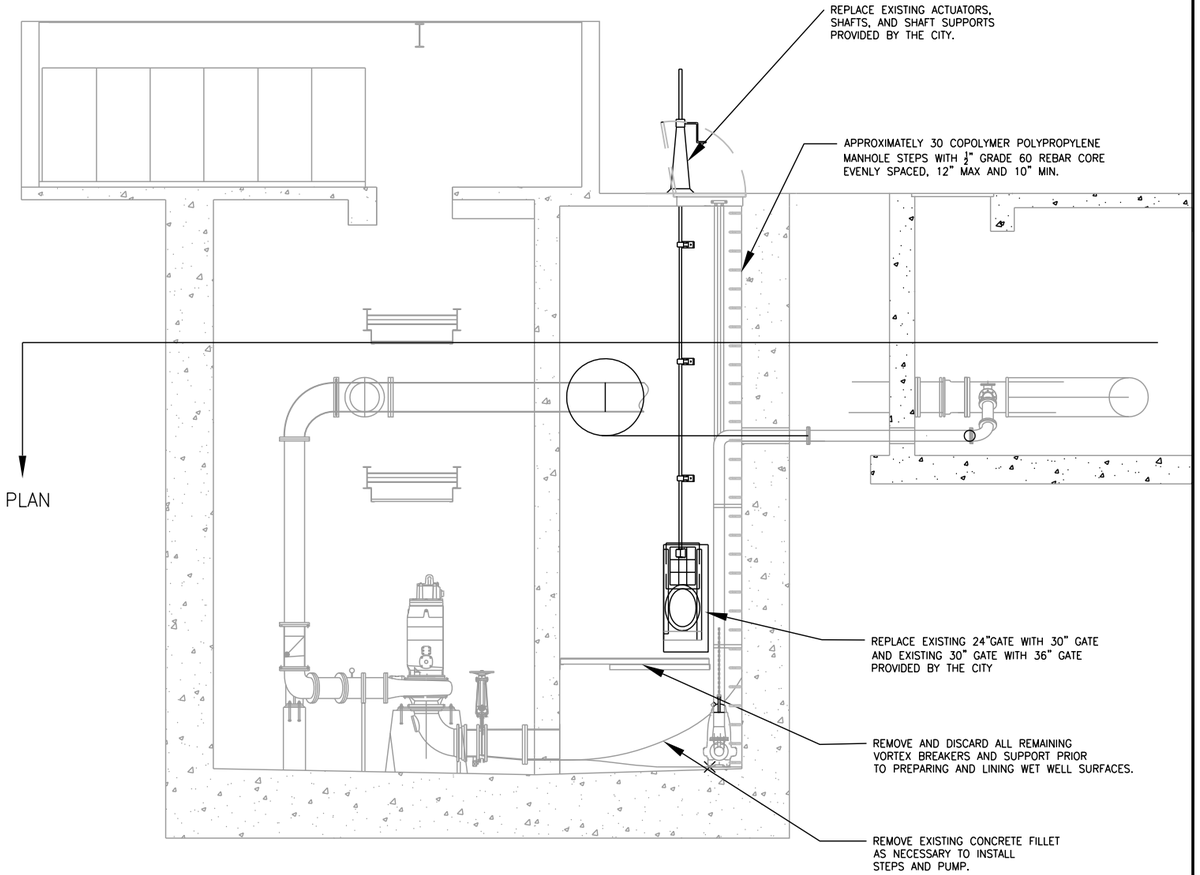
MILL CREEK PUMP STATION
UPGRADE PHASE 1

PUMP NO. 4
SECTION AND DETAIL

PROJECT NO. 2017-015-38
DATE 6/12/2018
DWG NO. M-2
SHEET 4 OF 7



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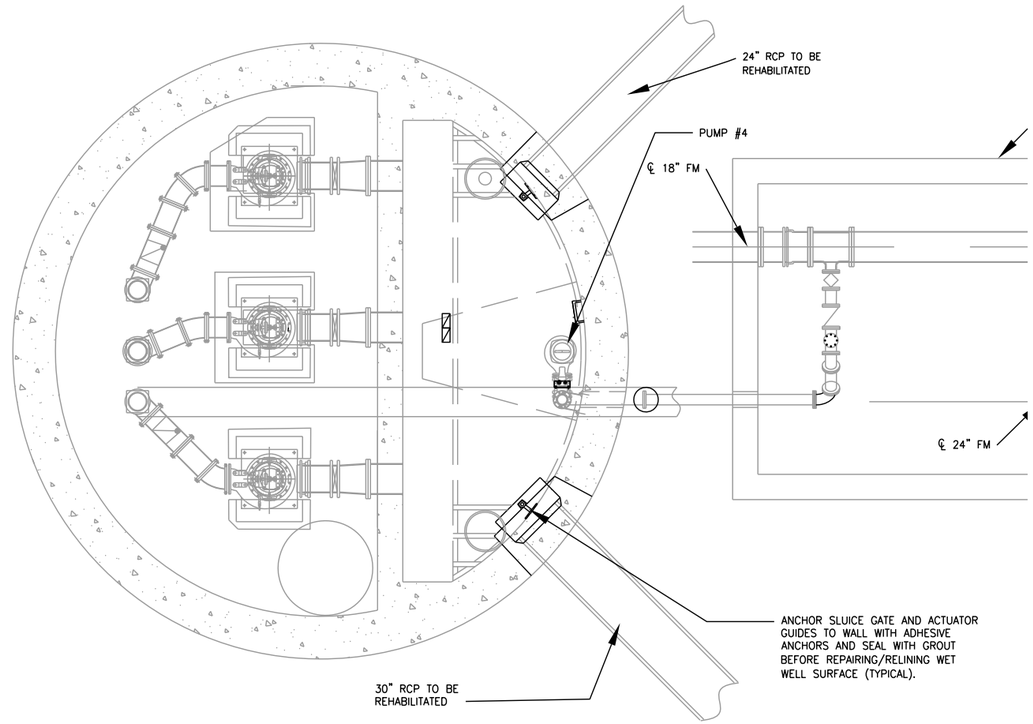

NOTE:
SURFACE AREA OF WET WELL IS APPROX. 2,140 FT²

PLAN

PLOT DATE: 2/28/2019 10:40 AM

THIS BAR IS ONE-INCH ON ORIGINAL DRAWING.

0" 1"

DESIGNED: PJG
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VERTICAL DATUM: LOCAL

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MILL CREEK PUMP STATION
UPGRADE PHASE 1

PUMP NO. 4
PLAN AND SECTION

PROJECT NO. 2017-015-38
DATE 6/12/2018
DWG NO. M-2
SHEET 5 OF 7

LEGEND

ASD	ADJUSTABLE SPEED DRIVE (SAME AS "VFD")
GRC	GALVANIZED RIGID STEEL CONDUIT
CPT	CONTROL POWER TRANSFORMER
EXST	EXISTING
MIN	MINIMUM
MSC	MANUFACTURER SUPPLIED CABLE
NEC	NATIONAL ELECTRICAL CODE
SST	STAINLESS STEEL
TJB	TERMINAL JUNCTION BOX
VFD	VARIABLE FREQUENCY DRIVE (SAME AS "AFD")
MAS	MONITORING AND STATUS. PUMP MONITORING SYSTEM

SCOPE OF WORK:

A NEW SUBMERSIBLE PUMP PROVIDED BY THE OWNER IS TO BE INSTALLED IN THE WETWELL AT THE MILL CREEK PUMP STATION. THE ELECTRICAL CONTRACTOR SHALL PERFORM THESE TASKS AS PART OF THE INSTALLATION:

1. INSTALL THE ADJUSTABLE SPEED CONTROL (ASC) NEAR DISTRIBUTION PANEL L4A, THE NEAR THE NORTHEAST CORNER OF THE BUILDING AS SHOWN ON PLANS AND TWO TJBs NEAR THE ACCESS TO THE WETWELL.
2. LOCAL CONTROL PANEL (LCP)
   .
3. INSTALL CONDUIT, CONDUCTORS AND CABLE AS SHOWN TO PROVIDE A COMPLETE OPERATING PUMP SYSTEM.
3. INSTALL CONDUIT, CONDUCTORS AND CABLE AS SHOWN TO PROVIDE A COMPLETE OPERATING PUMP SYSTEM.
4. TEST INSTALLATION AND VERIFY PROPER OPERATION OF PUMP AND SAFETY FEATURES.
5. COORDINATE WITH FLYGT REPRESENTATIVE FOR STARTUP AND PROGRAMING.

8.

GENERAL:

MATERIALS MANUFACTURED WITHIN SCOPE OF UNDERWRITERS LABORATORIES SHALL CONFORM TO UL STANDARDS AND HAVE AN APPLIED UL LISTING MARK.

CONDUITS, FITTINGS, AND SUPPORTS

CONDUITS, FITTINGS AND SUPPORTS SHALL SATISFY THESE REQUIREMENTS:

1. RIGID GALVANIZED STEEL CONDUIT AND FITTINGS.
   A. MEET REQUIREMENTS OF ANSI C80.1.
   B. FITTINGS: THREADED TYPE.
   C. GALVANIZE BY HOT-DIPPING PROCESS INCLUDING FITTINGS.
2. WALL OR CEILING MOUNT CONDUITS. ONE-HOLE MALEABLE IRON PIPE STRAPS FASTENED TO THE WALL OR CIELING. SUPPORT SPACING NOT TO EXCEED NEC REQUIREMENTS.
3. SUPPORT CHANNELS, ANCHORS, AND FITTINGS SHALL BE TYPE 316 SST, 12-GAUGE.

TERMINAL STRIPS AND BLOCKS

TERMINAL STRIPS AND BLOCKS SHALL SATISFY THESE REQUIREMENTS:

1. TYPE: COMPRESSION SCREW CLAMP WITH CURRENT BAR PROVIDING DIRECT CONTACT WITH WIRE AND YOKE.
2. SIZE COMPONENTS TO ALLOW INSERTION OF WIRE SIZES SHOWN.
3. RATED FOR 600VAC:
   A. POWER: 300 AMPS
   B. CONTROL: 20 AMPS
4. TERMINAL STRIP MANUFACTURERS:
   A. WEIDMULLER
   B. IDEAL
   C. ELECTROVERT
5. TERMINAL BLOCK MANUFACTURERS:
   A. SQUARE D
   B. CUTLER HAMMER
   C. GENERAL ELECTRIC

TJB NAMEPLATES

PROVIDE LAMINATED PLASTIC NAMEPLATES (WHITE WITH RED LETTERS) MOUNTE TO THE TJB DOOR WITH STAINLESS STEEL PANHEAD SCREWS. THE INSCRIPTIONS AND CHARACTER SIZES SHALL BE:

POWER TJB:

LINE 1 (3/4" HIGH)	DANGER
LINE 2 (3/4" HIGH)	HIGH VOLTAGE
LINE 3 (3/4" HIGH)	PUMP #4
LINE 4 (3/4" HIGH)	3-PHASE 480V
LINE 5 (3/4" HIGH)	ASC-L4-1/MCC-4A

CONTROL TJB:

LINE 1 (3/4" HIGH)	CAUTION
LINE 2 (1/2" HIGH)	PUMP #4
LINE 3 (1/2" HIGH)	CONTROL TERMINATION
LINE 4 (1/2" HIGH)	J-BOX

CONDUCTORS

CONDUCTORS SHALL SATISFY THESE REQUIREMENTS:

1. CONFORM TO APPLICABLE REQUIREMENTS OF NEMA WC 3, WC 5, AND WC 7.
2. CONDUCTOR TYPE: STRANDED COPPER.
3. INSULATION:
   A. NO.8 AWG AND SMALLER: TYPE THHN/THWN.
   B. NO.6 AWG AND LARGER: TYPE XHHW.
   C. RATED 600 VOLTS.
   D. MINIMUM SIZE: 14AWG
4. CONDUCTOR COLOR CODING: PROVIDE CONDUCTORS WITH COLORED INSULATION:

ALL SYSTEMS (EQUIPMENT GROUNDING)	- GREEN
480 VOLTS, 3-PHASE, 3-WIRE	
PHASE A	- BROWN
PHASE B	- ORANGE
PHASE C	- YELLOW

5. SINGLE CONTROL CONDUCTORS: PERMANENT SLEEVE TYPE MARKERS WITH WIRE NUMBERS APPLIED TO EACH END OF CONTROL CONDUCTORS.

PLOT DATE: 2/26/2019 10:47 AM

THIS BAR IS ONE-INCH ON ORIGINAL DRAWING.
0" 1"

DESIGNED: PJG
DRAWN: PJG/GK
REVIEWED: EL
APPROVED: EL
HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: LOCAL

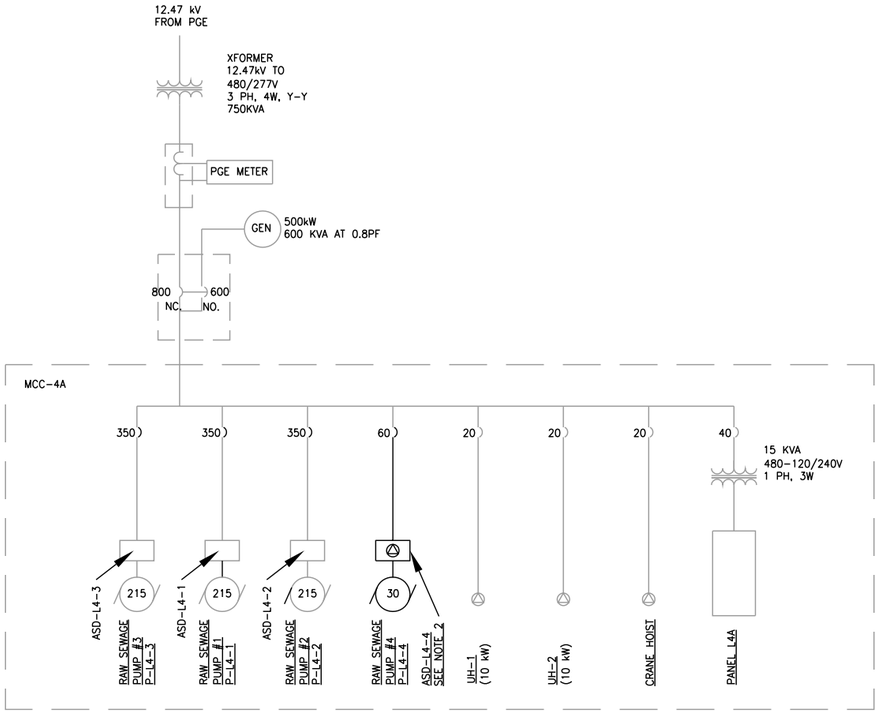
WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

REVISIONS:

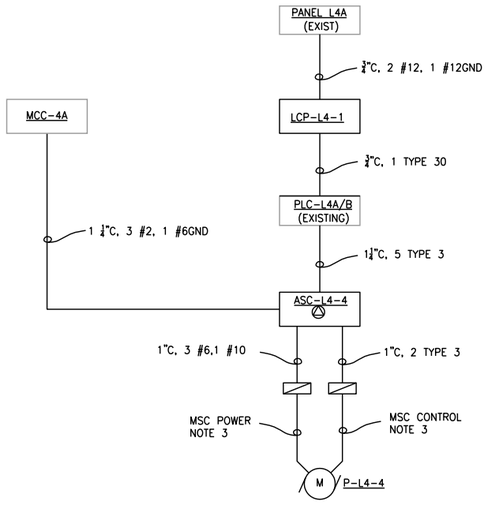
MILL CREEK PUMP STATION
UPGRADE PHASE 1

ELECTRICAL NOTES

PROJECT NO. 2017-015-38
DATE 6/12/2018
DWG NO. E-2
SHEET 8 OF 7



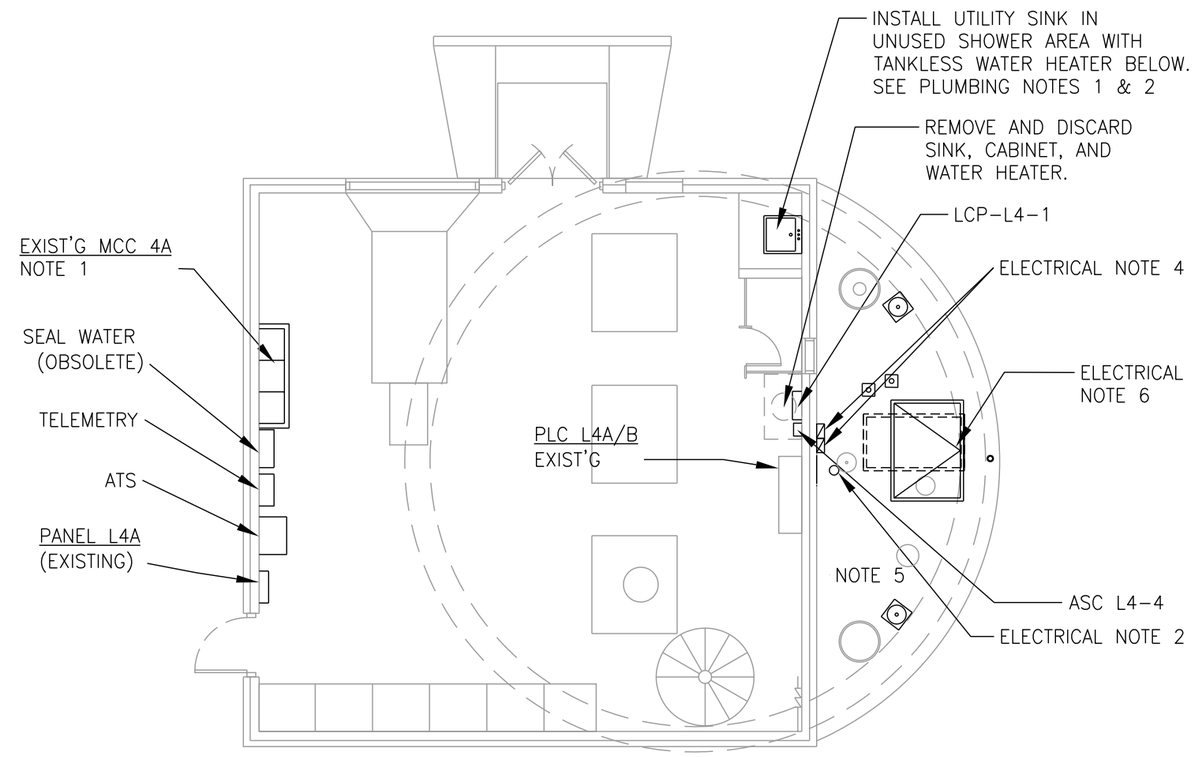
ONE-LINE DIAGRAM
(EXISTING)



NOTES:

1. SCREENED ITEMS ARE EXISTING TO REMAIN. BOLD ITEMS ARE NEW.
2. PACKAGED CONTROL/ASC PROVIDED BY PUMP SUPPLIER.
3. MANUFACTURER'S SUPPLIED SUBMERSIBLE CABLE. MAINTAIN A MINIMUM OF 24" HORIZONTAL CLEARANCE FROM EXISTING TRANSFORMER CABLE INSIDE WET WELL.
4. OVER TEMPERATURE AND MOISTURE INTRINSICALLY SAFE RELAY MODULE BASED ON FIRST-NAMED PUMP MANUFACTURER. PROVIDE MODIFICATIONS TO CONTROL DIAGRAM IF FIRST-NAMED NOT SUPPLIED.
5. CP=PLC-L4A/B
6. HAND MODE SPEED CONTROL BY SPEED POT OR DIGITAL KEYPAD.

CABLE BLOCK DIAGRAM



PLUMBING NOTES:
1. INSTALL UTILITY SINK MUSTEE 19CF OR APPROVED SIMILAR IN UNUSED SHOWER AREA.
2. INSTALL BOSCH US12 – 1.4 GPM AT 60°F RISE – 208-240V/1PH POINT OF USE WATER HEATER OR APPROVED EQUAL UNDER SINK.

ELECTRICAL NOTES:
1. FOR LOCATION OF ASD AND PUMP SEE PROCESS MECHANICAL DRAWINGS.
2. SIX INCH GRS SLEEVE ROUT SUBMERSIBLE CABLES THROUGH SLEEVE TO TJB'S. INSTALL BUSHINGS ON BOTH ENDS OF SLEEVE.
3. SCREENED ITEMS ARE EXISTING TO REMAIN. BOLD ITEMS ARE NEW.
4. WALL MOUNT NEMA 4X TJB'S A MINIMUM OF THREE FEET FROM HATCH AND ALL OTHER OPENINGS TO WETWELL.
5. ENTIRE WETWELL IS CONSIDERED CLASS 1, DIVISION 1. ALL CONDUIT, WIRING, AND ELECTRICAL DEVICES SHALL BE INSTALLED TO MEET REQUIREMENTS OF NATIONAL ELECTRIC CODE.
6. THREE FOOT ENVELOPE AROUND ACCESS HATCH AND ALL OTHER OPENINGS IS CONSIDERED CLASS 1, DIVISION 2. AL CONDUIT, WIRING, AND ELECRICL DEVICES SHALL BE INSTALLED TO MEET REQUIREMENTS OF NATIONAL ELECTRIC CODE.

PLAN
SCALE: 1/4"=1'-0"

PLOT DATE: 5/8/2019 1:34 PM

THIS BAR IS ONE-INCH ON ORIGINAL DRAWING.
0" 1"

DESIGNED: PJG
DRAWN: PJG/GK
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APPROVED: EL
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VERTICAL DATUM: LOCAL

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PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

REVISIONS:

MILL CREEK PUMP STATION
UPGRADE PHASE 1

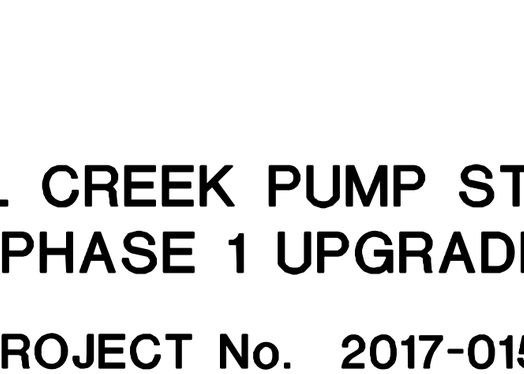
MISC and ELECTRICAL PLAN

PROJECT NO. 2017-015-38
DATE 6/12/2018
DWG NO. E-2
SHEET 7 OF 7

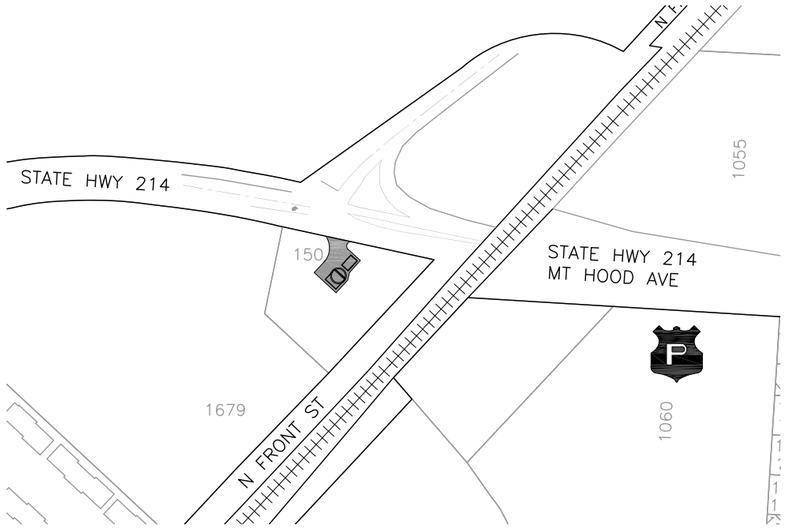
MILL CREEK PUMP STATION
PHASE 1 UPGRADES

PROJECT No. 2017-015-38
BID No. 2018-02

INDEX OF DRAWINGS



VICINITY MAP
NTS



LOCATION MAP
NTS

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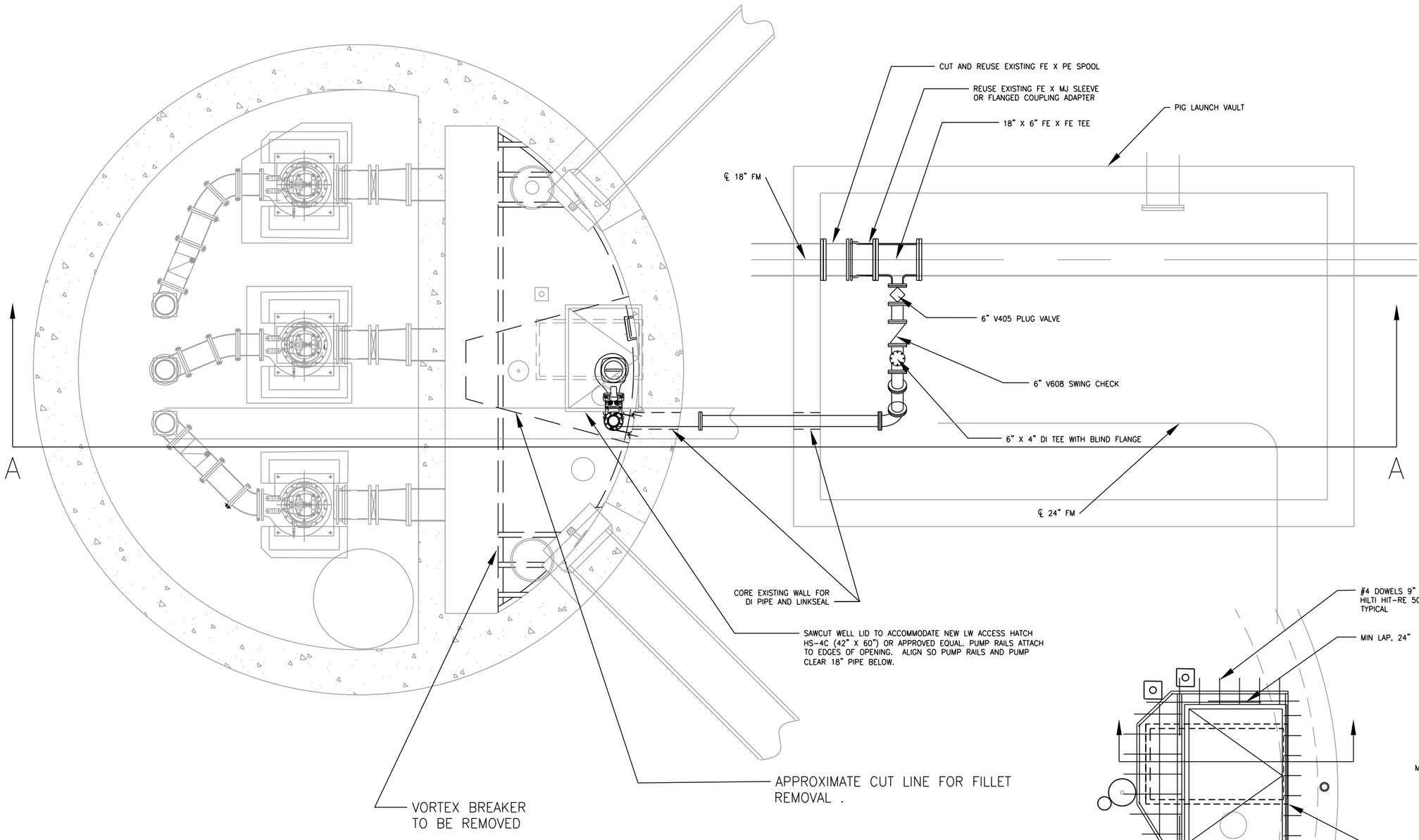
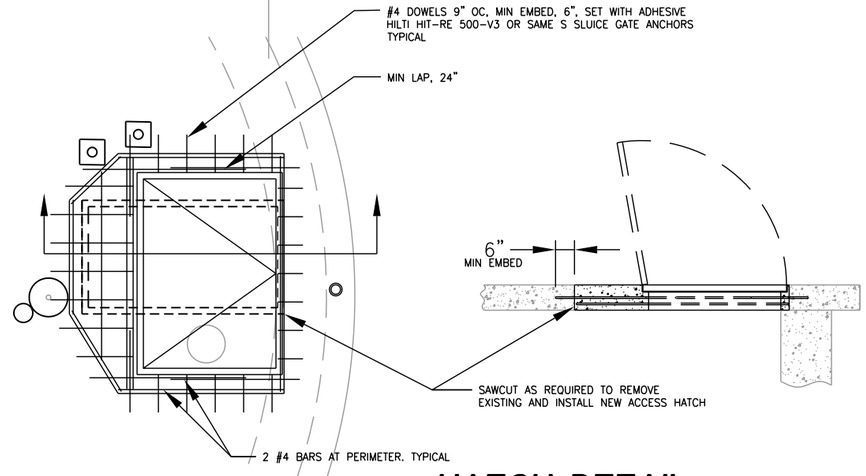
MILL CREEK PUMP STATION
UPGRADE PHASE 1

TITLE SHEET

PROJECT NO. 2017-015-38
DATE 6/12/2018
DWG NO. G-1
SHEET 1 OF 7



PLAN VIEW PUMP #4



HATCH DETAIL

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PUBLIC WORKS DEPARTMENT
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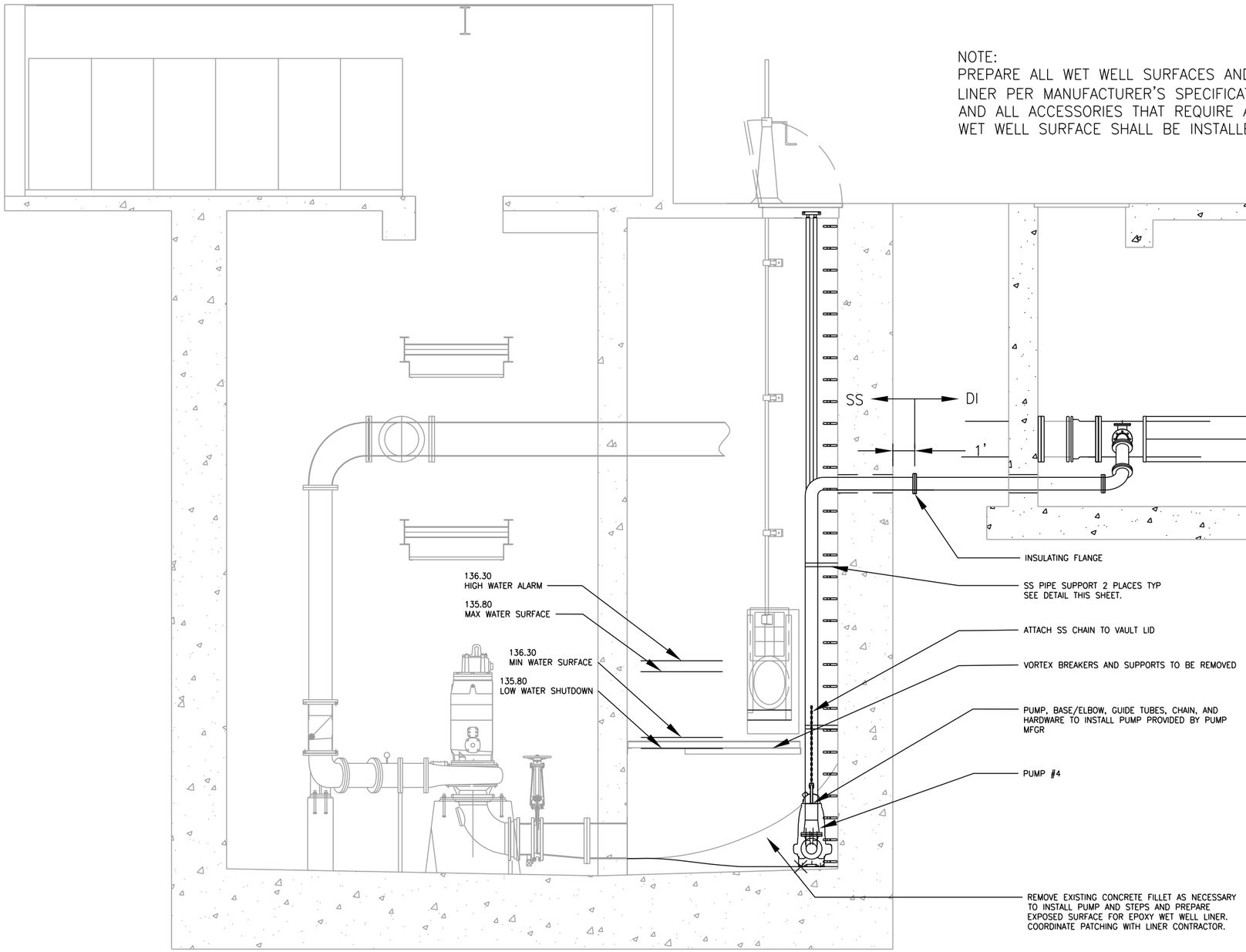
MILL CREEK PUMP STATION
UPGRADE PHASE 1

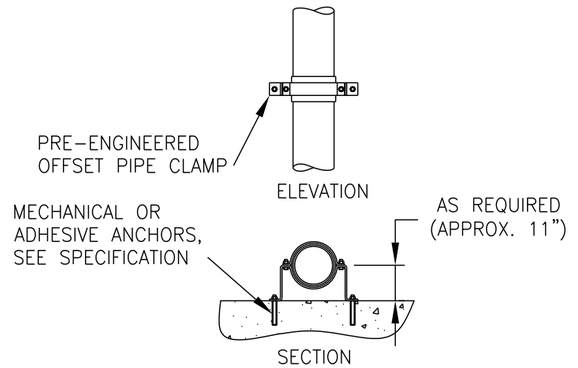
PUMP NO. 4
PLAN AND DETAIL

PROJECT NO. 2017-015-38
DATE 6/12/2018
DWG NO. M-1
SHEET 3 OF 7

NOTE:
PREPARE ALL WET WELL SURFACES AND INSTALL EPOXY LINER PER MANUFACTURER'S SPECIFICATIONS. SLUICE GATES AND ALL ACCESSORIES THAT REQUIRE ANCHORING TO THE WET WELL SURFACE SHALL BE INSTALLED PRIOR TO LINER.



SECTION A-A



PIPE SUPORT DETAIL

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MILL CREEK PUMP STATION
UPGRADE PHASE 1

PUMP NO. 4
SECTION AND DETAIL

PROJECT NO. 2017-015-38
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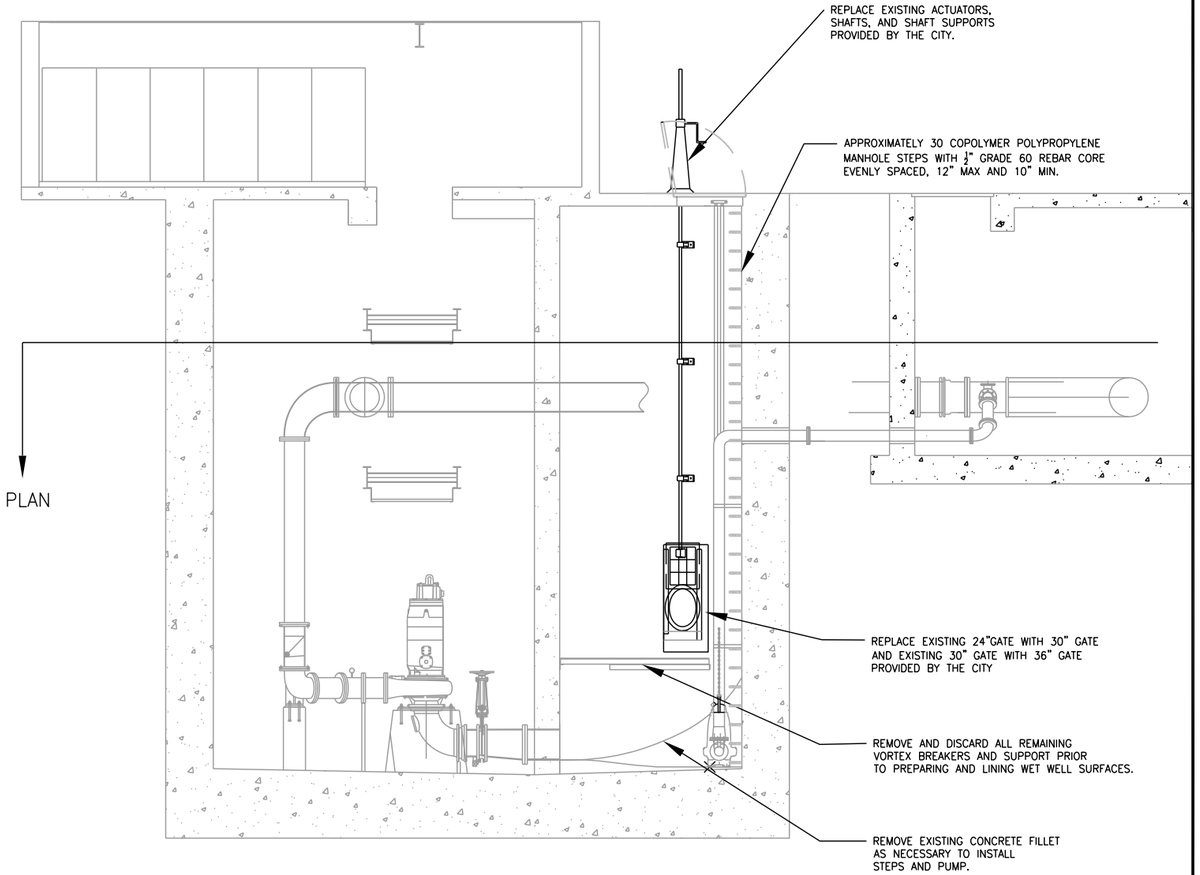
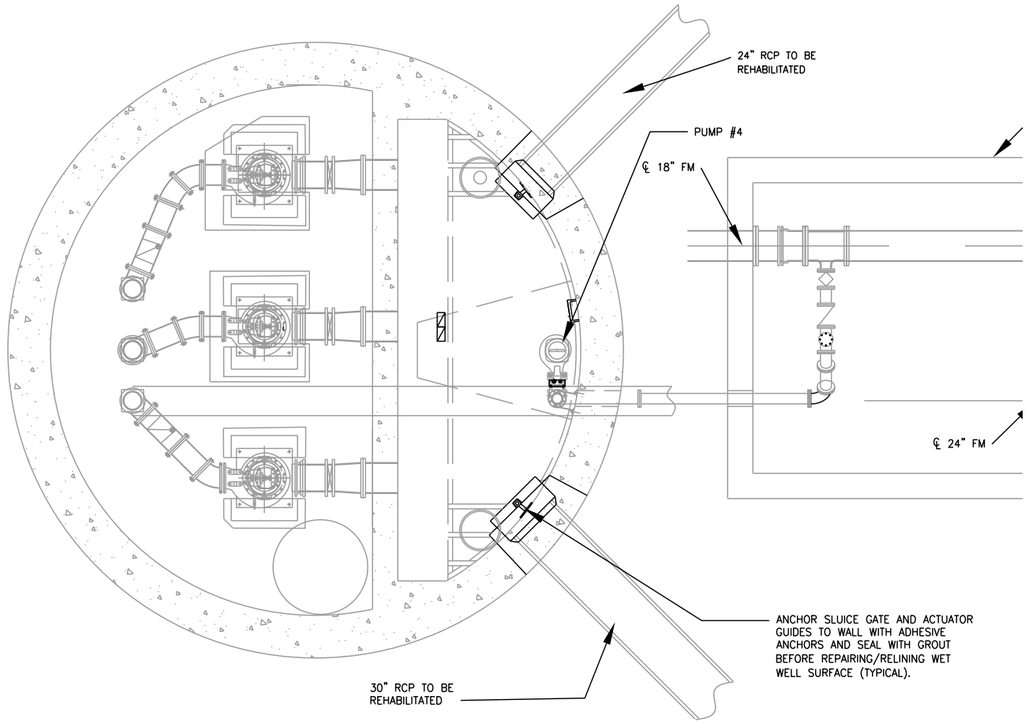
DWG NO. M-2
SHEET 4 OF 7



SECTION



NOTE:
SURFACE AREA OF WET WELL IS APPROX. 2,140 FT²

PLAN

THIS BAR IS ONE-INCH ON ORIGINAL DRAWING.
0" 1"

PLOT DATE: 2/26/2019 10:46 AM

DESIGNED: PJG
DRAWN: PJG/GK
REVIEWED: EL
APPROVED: EL
HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: LOCAL

WOODBURN OREGON
Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

REVISIONS:

MILL CREEK PUMP STATION
UPGRADE PHASE 1

PUMP NO. 4
PLAN AND SECTION

PROJECT NO. 2017-015-38
DATE 6/12/2018
DWG NO. M-2
SHEET 4 OF 7

LEGEND

ASD	ADJUSTABLE SPEED DRIVE (SAME AS "VFD")
GRC	GALVANIZED RIGID STEEL CONDUIT
CPT	CONTROL POWER TRANSFORMER
EXST	EXISTING
MIN	MINIMUM
MSC	MANUFACTURER SUPPLIED CABLE
NEC	NATIONAL ELECTRICAL CODE
SST	STAINLESS STEEL
TJB	TERMINAL JUNCTION BOX
VFD	VARIABLE FREQUENCY DRIVE (SAME AS "AFD")
MAS	MONITORING AND STATUS. PUMP MONITORING SYSTEM

SCOPE OF WORK:

A NEW SUBMERSIBLE PUMP PROVIDED BY THE OWNER IS TO BE INSTALLED IN THE WETWELL AT THE MILL CREEK PUMP STATION. THE ELECTRICAL CONTRACTOR SHALL PERFORM THESE TASKS AS PART OF THE INSTALLATION:

1. INSTALL THE ADJUSTABLE SPEED CONTROL (ASC) NEAR DISTRIBUTION PANEL L4A, THE NEAR THE NORTHEAST CORNER OF THE BUILDING AS SHOWN ON PLANS AND TWO TJBs NEAR THE ACCESS TO THE WETWELL.
2. LOCAL CONTROL PANEL (LCP)
   .
3. INSTALL CONDUIT, CONDUCTORS AND CABLE AS SHOWN TO PROVIDE A COMPLETE OPERATING PUMP SYSTEM.
3. INSTALL CONDUIT, CONDUCTORS AND CABLE AS SHOWN TO PROVIDE A COMPLETE OPERATING PUMP SYSTEM.
4. TEST INSTALLATION AND VERIFY PROPER OPERATION OF PUMP AND SAFETY FEATURES.
5. COORDINATE WITH FLYGT REPRESENTATIVE FOR STARTUP AND PROGRAMING.

8.

GENERAL:

MATERIALS MANUFACTURED WITHIN SCOPE OF UNDERWRITERS LABORATORIES SHALL CONFORM TO UL STANDARDS AND HAVE AN APPLIED UL LISTING MARK.

CONDUITS, FITTINGS, AND SUPPORTS

CONDUITS, FITTINGS AND SUPPORTS SHALL SATISFY THESE REQUIREMENTS:

1. RIGID GALVANIZED STEEL CONDUIT AND FITTINGS.
   A. MEET REQUIREMENTS OF ANSI C80.1.
   B. FITTINGS: THREADED TYPE.
   C. GALVANIZE BY HOT-DIPPING PROCESS INCLUDING FITTINGS.
2. WALL OR CEILING MOUNT CONDUITS. ONE-HOLE MALEABLE IRON PIPE STRAPS FASTENED TO THE WALL OR CIELING. SUPPORT SPACING NOT TO EXCEED NEC REQUIREMENTS.
3. SUPPORT CHANNELS, ANCHORS, AND FITTINGS SHALL BE TYPE 316 SST, 12-GAUGE.

TERMINAL STRIPS AND BLOCKS

TERMINAL STRIPS AND BLOCKS SHALL SATISFY THESE REQUIREMENTS:

1. TYPE: COMPRESSION SCREW CLAMP WITH CURRENT BAR PROVIDING DIRECT CONTACT WITH WIRE AND YOKE.
2. SIZE COMPONENTS TO ALLOW INSERTION OF WIRE SIZES SHOWN.
3. RATED FOR 600VAC:
   A. POWER: 300 AMPS
   B. CONTROL: 20 AMPS
4. TERMINAL STRIP MANUFACTURERS:
   A. WEIDMULLER
   B. IDEAL
   C. ELECTROVERT
5. TERMINAL BLOCK MANUFACTURERS:
   A. SQUARE D
   B. CUTLER HAMMER
   C. GENERAL ELECTRIC

TJB NAMEPLATES

PROVIDE LAMINATED PLASTIC NAMEPLATES (WHITE WITH RED LETTERS) MOUNTE TO THE TJB DOOR WITH STAINLESS STEEL PANHEAD SCREWS. THE INSCRIPTIONS AND CHARACTER SIZES SHALL BE:

POWER TJB:

LINE 1 (3/4" HIGH)	DANGER
LINE 2 (3/4" HIGH)	HIGH VOLTAGE
LINE 3 (3/4" HIGH)	PUMP #4
LINE 4 (3/4" HIGH)	3-PHASE 480V
LINE 5 (3/4" HIGH)	ASC-L4-1/MCC-4A

CONTROL TJB:

LINE 1 (3/4" HIGH)	CAUTION
LINE 2 (1/2" HIGH)	PUMP #4
LINE 3 (1/2" HIGH)	CONTROL TERMINATION
LINE 4 (1/2" HIGH)	J-BOX

CONDUCTORS

CONDUCTORS SHALL SATISFY THESE REQUIREMENTS:

1. CONFORM TO APPLICABLE REQUIREMENTS OF NEMA WC 3, WC 5, AND WC 7.
2. CONDUCTOR TYPE: STRANDED COPPER.
3. INSULATION:
   A. NO.8 AWG AND SMALLER: TYPE THHN/THWN.
   B. NO.6 AWG AND LARGER: TYPE XHHW.
   C. RATED 600 VOLTS.
   D. MINIMUM SIZE: 14AWG
4. CONDUCTOR COLOR CODING: PROVIDE CONDUCTORS WITH COLORED INSULATION:

ALL SYSTEMS (EQUIPMENT GROUNDING)	- GREEN
480 VOLTS, 3-PHASE, 3-WIRE	
PHASE A	- BROWN
PHASE B	- ORANGE
PHASE C	- YELLOW

5. SINGLE CONTROL CONDUCTORS: PERMANENT SLEEVE TYPE MARKERS WITH WIRE NUMBERS APPLIED TO EACH END OF CONTROL CONDUCTORS.

PLOT DATE: 2/26/2019 10:47 AM

THIS BAR IS ONE-INCH ON ORIGINAL DRAWING.
0" 1"

DESIGNED: PJG
DRAWN: PJG/GK
REVIEWED: EL
APPROVED: EL
HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: LOCAL

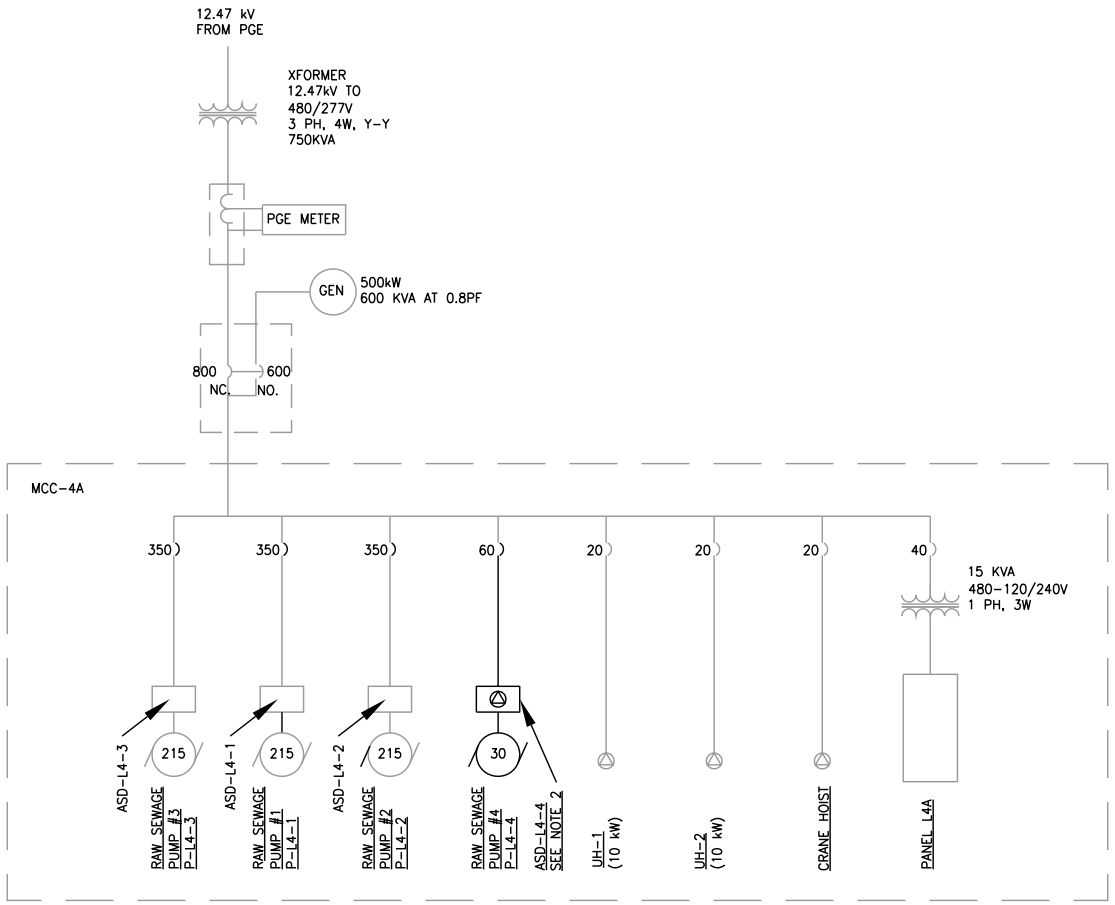
WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

REVISIONS:

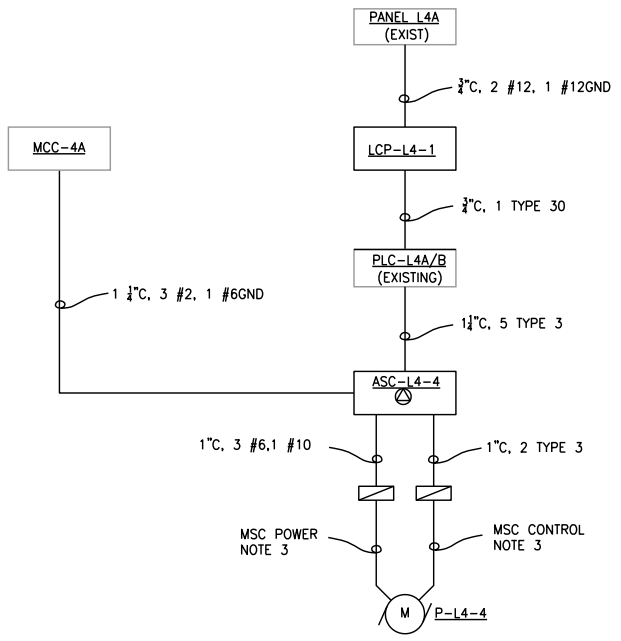
MILL CREEK PUMP STATION
UPGRADE PHASE 1

ELECTRICAL NOTES

PROJECT NO. 2017-015-38
DATE 6/12/2018
DWG NO. E-2
SHEET 8 OF 7



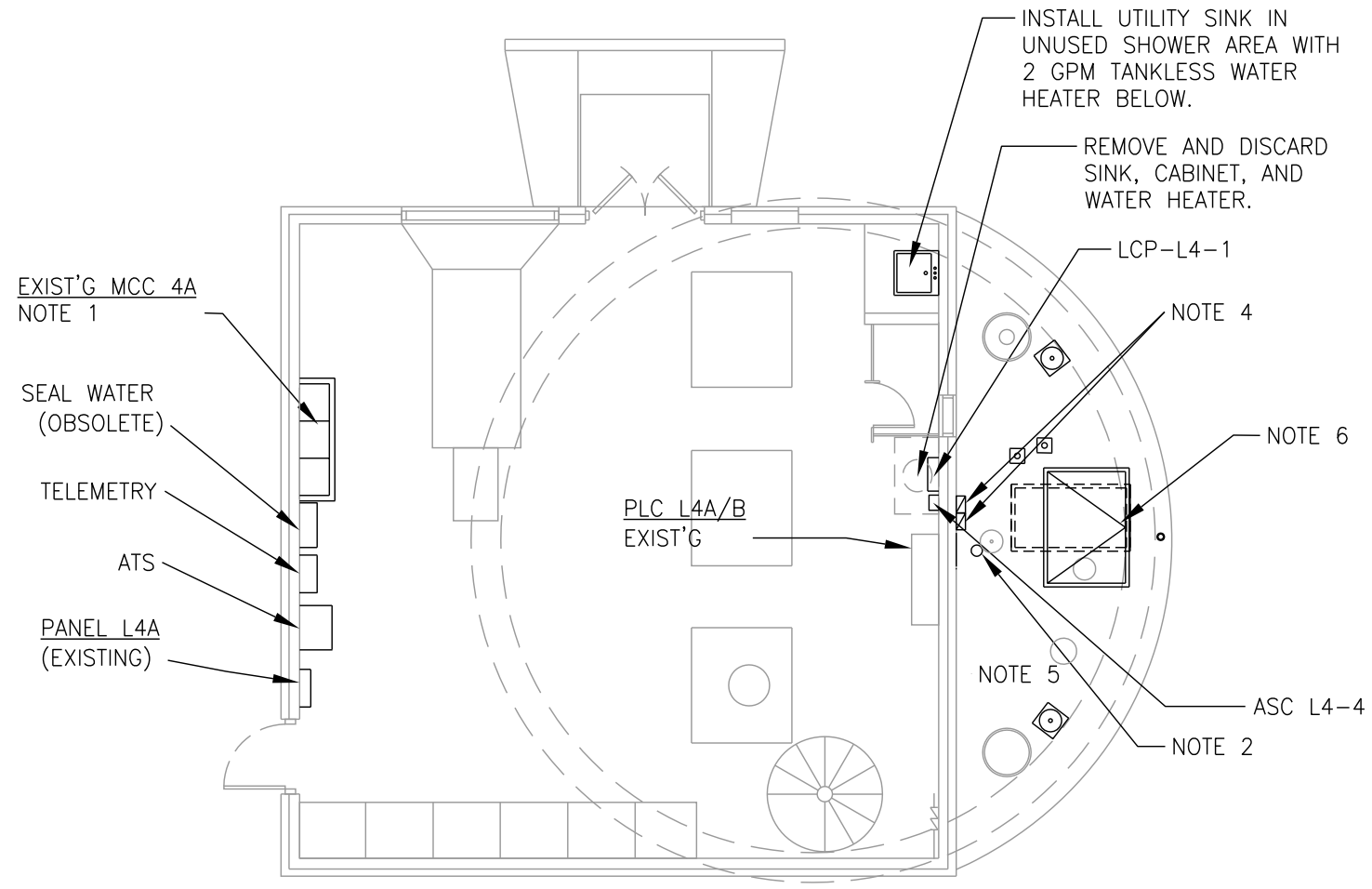
ONE-LINE DIAGRAM
(EXISTING)



NOTES:

1. SCREENED ITEMS ARE EXISTING TO REMAIN. BOLD ITEMS ARE NEW.
2. PACKAGED CONTROL/ASC PROVIDED BY PUMP SUPPLIER.
3. MANUFACTURER'S SUPPLIED SUBMERSIBLE CABLE. MAINTAIN A MINIMUM OF 24" HORIZONTAL CLEARANCE FROM EXISTING TRANSFORMER CABLE INSIDE WET WELL.
4. OVER TEMPERATURE AND MOISTURE INTRINSICALLY SAFE RELAY MODULE BASED ON FIRST-NAMED PUMP MANUFACTURER. PROVIDE MODIFICATIONS TO CONTROL DIAGRAM IF FIRST-NAMED NOT SUPPLIED.
5. CP=PLC-L4A/B
6. HAND MODE SPEED CONTROL BY SPEED POT OR DIGITAL KEYPAD.

CABLE BLOCK DIAGRAM



NOTES:

1. FOR LOCATION OF ASD AND PUMP SEE PROCESS MECHANICAL DRAWINGS.
2. SIX INCH GRS SLEEVE ROUT SUBMERSIBLE CABLES THROUGH SLEEVE TO TJB'S. INSTALL BUSHINGS ON BOTH ENDS OF SLEEVE.
3. SCREENED ITEMS ARE EXISTING TO REMAIN. BOLD ITEMS ARE NEW.
4. WALL MOUNT NEMA 4X TJB'S A MINIMUM OF THREE FEET FROM HATCH AND ALL OTHER OPENINGS TO WETWELL.
5. ENTIRE WETWELL IS CONSIDERED CLASS 1, DIVISION 1. ALL CONDUIT, WIRING, AND ELECTRICAL DEVICES SHALL BE INSTALLED TO MEET REQUIREMENTS OF NATIONAL ELECTRIC CODE.
6. THREE FOOT ENVELOPE AROUND ACCESS HATCH AND ALL OTHER OPENINGS IS CONSIDERED CLASS 1, DIVISION 2. AL CONDUIT, WIRING, AND ELECRICL DEVICES SHALL BE INSTALLED TO MEET REQUIREMENTS OF NATIONAL ELECTRIC CODE.

PLAN
SCALE: 1/4"=1'-0"

THIS BAR IS ONE-INCH ON ORIGINAL DRAWING.
0" 1"

PLOT DATE: 2/26/2019 10:48 AM

DESIGNED: PJG
DRAWN: PJG/GK
REVIEWED: EL
APPROVED: EL
HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: LOCAL

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UPGRADE PHASE 1

ELECTRICAL PLAN

PROJECT NO. 2017-015-38
DATE 6/12/2018
DWG NO. E-2
SHEET 7 OF 7