

ADDENDUM NO. 3

DATE: January 13, 2020

PROJECT: Owosso Water Treatment Plant Wash Water Pump and Piping Replacement
DWRP #7457-01

OWNER: City of Owosso

BID DATE: Thursday, January 16, 2020 @ 3:00 p.m.

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated December 16, 2019, as noted below. Bidders shall acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of 2 pages.

The following Project Manual Documents are included consisting of 6 pages with changes in **bold**:

SECTION 40 72 43 - PRESSURE AND DIFFERENTIAL PRESSURE TYPE LEVEL METERS

The following Contract Drawings are being reissued consisting of 6 pages:

P-202 LOSS OF HEAD TRANSMITTERS
I-101 PROPOSED PIPING AND INSTRUMENTATION DIAGRAM
E-201 LOWER LEVEL AND WELL HOUSE POWER PLANS
E-202 UPPER LEVEL POWER PLAN
E-403 PUMP MOTOR AND VFD WIRING DIAGRAM
E-405 CONTROL WIRING

Total Pages for Addendum #3: 14 pages

CHANGES TO TECHNICAL SPECIFICATIONS

SECTION 43 23 21 –CENTRIFUGAL WATER PUMPS

Paragraph 2.2.B.1 Material: After the words “aluminum-bronze,” add “, cast iron, ” as an optional impeller material.

Paragraph 4.1.A.10. Minimum shutoff head: Remove “65 feet” and replace with “55 feet”.

QUESTIONS FROM BIDDERS

1. Is the Contractor to provide a temporary field office for the use of the Engineer? If so, please provide details.
No, a temporary field office is not required for the engineer.
2. Please clarify paragraph 1.7.C under Section 43 23 21 Centrifugal Water Pumps that calls for tests for limiting suction conditions.
This paragraph is requesting shop verification of the pump NPSHr.

End of Addendum No. 3

SECTION 40 72 43 - PRESSURE AND DIFFERENTIAL PRESSURE TYPE LEVEL METERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Hydrostatic-level measurement devices.
2. Transmitters.

B. Related Requirements:

1. Section 26 05 23 – Control-Voltage Electrical Power Cables: Control power wiring requirements.

1.2 REFERENCE STANDARDS

A. International Electrotechnical Commission:

1. IEC 61508 - Functional safety of electrical/electronic/programmable electronic safety-related systems.
2. IEC 61511 - Corrigendum 1 - Functional safety - Safety instrumented systems for the process industry sector.

B. NSF International:

1. NSF 61 - Drinking Water System Components - Health Effects.
2. NSF 372 - Drinking Water System Components - Lead Content.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information for system materials and component equipment, including connection requirements.

C. Shop Drawings:

1. Indicate system materials and component equipment.
2. Submit installation requirements and other details.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Source Quality-Control Submittals: Indicate results of factory tests and inspections.

F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

G. Manufacturer Reports: Certify that equipment has been installed according to manufacturer instructions.

H. Qualifications Statement:

1. Submit qualifications for manufacturer.

1.4 CLOSEOUT SUBMITTALS

A. Section 01 77 00 - Closeout Procedures: Requirements for closeout procedures.

- B. Section 01 78 23 – Operation and Maintenance: Requirements for O&M manuals.
- C. Section 01 78 39 - Project Record Documents: Record actual locations and final orientation of equipment and accessories.

1.5 QUALITY ASSURANCE

- A. Ensure that materials of construction of wetted parts are compatible with process liquid.
- B. Materials in Contact with Potable Water: Certified to NSF 61 and NSF 372.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum 20 years' experience.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Store materials according to manufacturer instructions.
- D. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

1.8 WARRANTY

- A. Section 01 77 00 - Closeout Procedures: Requirements for warranties.
- B. Furnish five-year manufacturer's warranty for measurement devices.

PART 2 - PRODUCTS

2.1 HYDROSTATIC-LEVEL MEASUREMENT DEVICES

- A. Manufacturers:
 - 1. ABB
 - 2. Rosemount
 - 3. Endress and Hauser
 - 4. Honeywell
 - 5. Substitutions: As specified in Section 01 60 00 - Product Requirements.
- B. Body
 - 1. Enclosure Type NEMA 4x rated
 - 2. Differential pressure units shall be furnished with close coupled stainless steel three valve manifold assembly.

- C. Sensor:
 - 1. Description: Pressure sensor, condensate proofed and long-term stable, and incorporating continuous temperature and pressure compensation.
 - 2. Factory set correction coefficients shall be stored in the sensor's non-volatile memory for correction and linearization of the sensor output in the electronics section.
 - 3. Turndown: 100:1.
 - 4. Measuring Cell:
 - a. Hermetically sealed.
 - b. Material: Ceramic.
 - c. Accuracy: Plus or minus 0.1 percent.
 - d. Furnish pressure overload resistance to 60-psig nominal pressure.
- D. Electronics
 - 1. Correct the digital signal from the sensor and convert it into a 4-20 mA analog signal for transmission to receiving devices
 - 2. Contain user selectable square root extractors to provide a linear 4-20 mA DC output proportional to flow, when activated.
 - 3. Contain configuration parameters and diagnostic data in non-volatile memory and shall be capable of communicating with a remote interface device.
 - 4. Span and zero shall be continuously adjustable externally over the entire range. Span and zero adjustments shall be capable of being disabled internally.
 - 5. Output signal damping shall be provided, with an adjustable time constant of 0-36 seconds.
- E. Display:
 - 1. 4-digit LCD indicator capable of displaying engineering units.
 - 2. Pushbutton or local programming
- F. Mounting:
 - 1. All 316 SS mounting brackets shall be provided
- G. Connections:
 - 1. Provide all necessary connectors, SS tubing, and appurtenances to connect to process piping
- H. Output:
 - 1. 4-20 mA, 24 VDC.
- I. Calibration:
 - 1. Total Long-Term Stability shall be no less than 0.2% of upper range limit for 10 years.
 - 2. Each transmitter shall have a stainless-steel tag with calibration data attached to body.
- J. Communications Protocol: Fieldbus.
- K. Operation: Menu guided.

2.2 PRESSURE SWITCHES

- A. Electro-Mechanical:
 - 1. **Acceptable manufacturers:**
 - a. **Allen-Bradley (Model 836).**
 - b. **Emerson / ASCO (S Series).**
 - c. **Mercoïd (Series DA/DS or SA1100).**
 - 2. **Materials:**
 - a. **Wetted switch elements: 316 stainless steel.**

- b. Diaphragm seal housing: 316 stainless steel.
- c. Pressure snubber:
 - 1) Filter disc: 316 stainless steel.
 - 2) Housing: 316 stainless steel.
- 3. Accessories:
 - a. Provide ball valve to isolate pressure switch from source.
 - b. Utilize pressure snubber with porous metal discs to provide pulsation dampening on pressure switch as shown on schedule. (snubber shall be field removable)
 - c. On applications where a pressure switch and a pressure gauge are used at the same location, it is permissible to utilize one pulsation dampener and diaphragm seal to isolate both elements from the process fluid.
- 4. Design and fabrication:
 - a. Utilize "Snap Action" type contact switches.
 - b. No external power needed.
 - c. One DPST contact rated:
 - 1) 0.5 amps inductive at 125 VDC.
 - 2) 5 amps inductive at 120 VAC.
 - d. Switch set points:
 - 1) Below 1,000 PSI:
 - a) Set points between 30 and 70 PCT of switch rated working range.
 - b) Operating pressure not to exceed 75 PCT of switch rated working range.
 - e. Accuracy: ± 1 PCT of full scale.
 - f. Process connection: Minimum of 1/4 IN.
 - g. Conduit connection: Minimum of 1/2 IN.
- 5. Schedule – see Attachment paragraph 3.5.B

2.3 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.
- B. Provide shop inspection and testing of completed assembly.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that items provided by other Sections of Work are ready to receive Work of this Section.

3.2 INSTALLATION

- A. Coordinate location and orientation of level probe assemblies with final equipment installations.
- B. Ensure that instruments are located to be easily accessible for maintenance.

3.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Section 01 73 00 - Execution: Requirements for testing, adjusting, and balancing.

- C. **Manufacturer Services:** Furnish services of manufacturer's representative experienced in installation of products furnished under this Section for not less than 8 hours on Site for installation, inspection, field testing, and instructing Owner's personnel in maintenance of equipment.
- D. **Equipment Acceptance:**
 - 1. Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.
 - 2. Make final adjustments to equipment under direction of manufacturer's representative.
- E. Furnish installation certificate from equipment manufacturer's representative attesting that equipment has been properly installed and is ready for startup and testing.
- F. Furnish configuration worksheet for each device detailing all site-specific settings and setpoints that deviate from factory setup.

3.4 DEMONSTRATION

- A. Section 01 79 00 – Demonstration and Training: Requirements for demonstration and training.
- B. Demonstrate equipment startup, shutdown, routine maintenance, and emergency repair procedures to Owner's personnel.

3.5 ATTACHMENTS

A. Level Sensor Schedule:

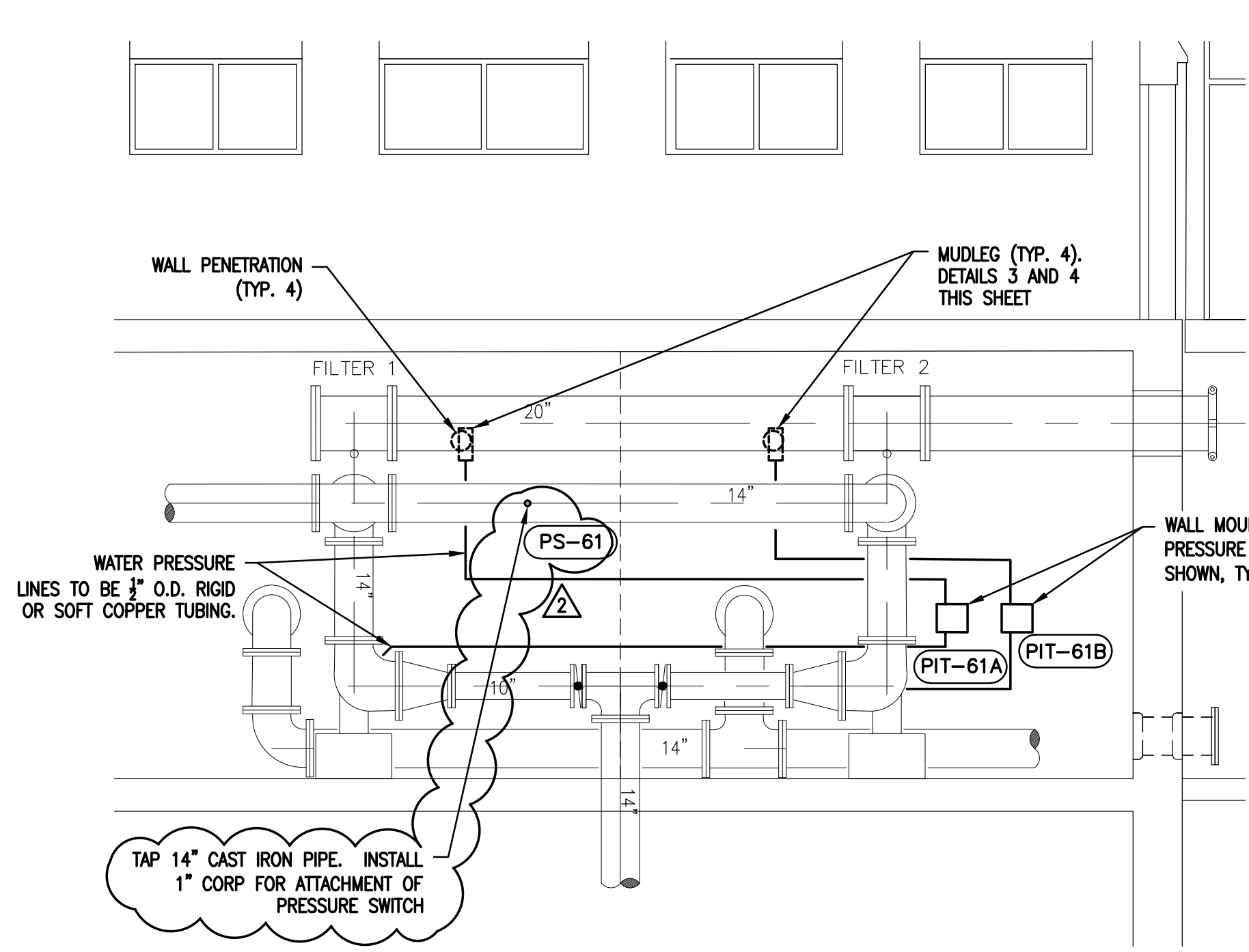
- 1. PIT-61A, PIT-61B, PIT-61C, PIT-61D:
 - a. Manufacturer: TBD.
 - b. Model: TBD.
 - c. Operating Range: 0-20 feet of water
 - d. Scale range: 0-12 feet of water
 - e. Location: Each Filter Outlet – Filters 1, 2, 3, 4.
 - f. Type: Differential Pressure.
 - g. Mounting: Wall.
 - h. Process Fluid: Potable Water.

B. Pressure Switch Schedule:

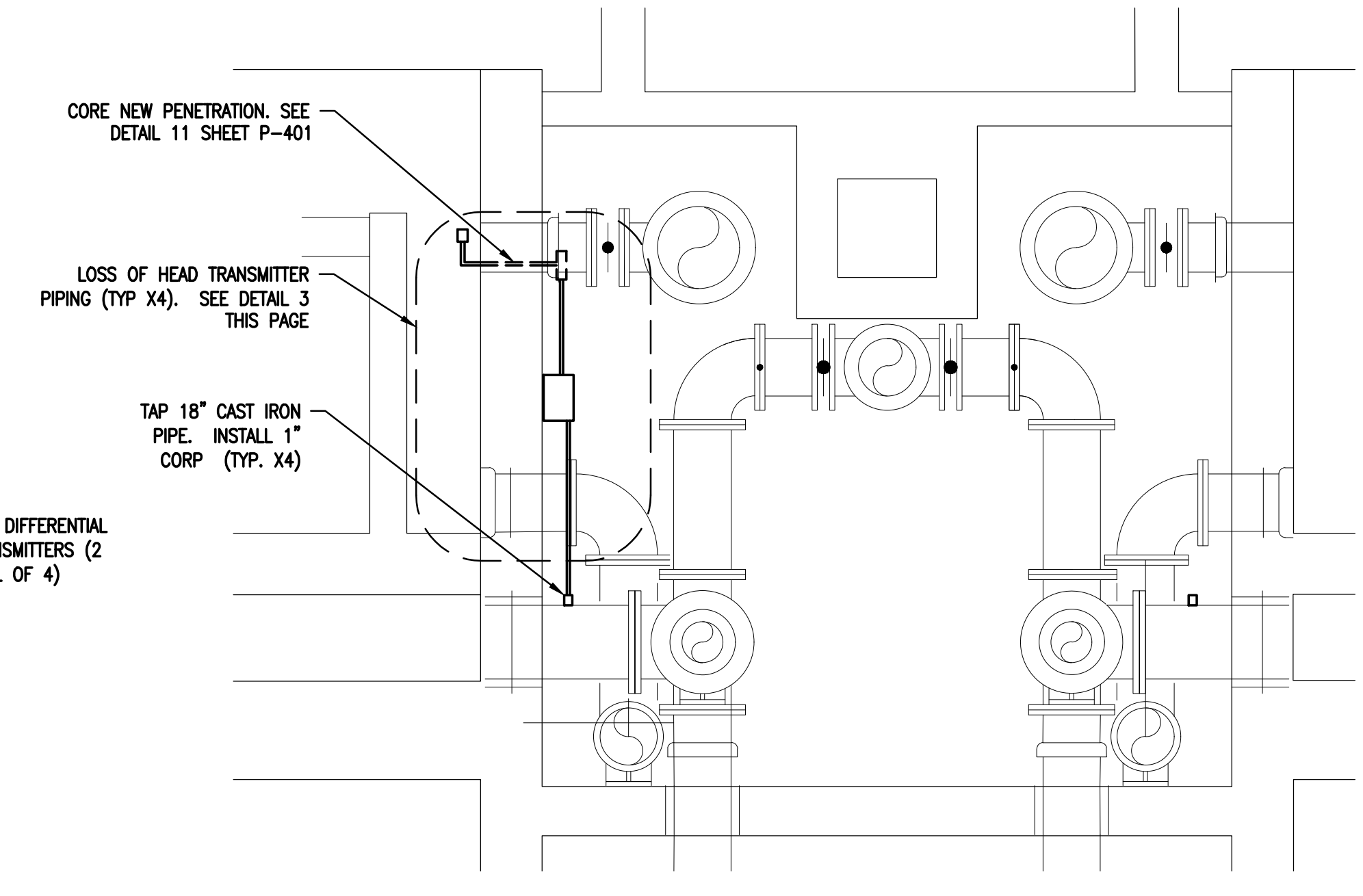
- 1. **PS-61:**
 - a. **Manufacturer: TBD.**
 - b. **Model: TBD.**
 - c. **Operating Range: 0-30 feet of water**
 - d. **Setpoint: 16 feet of water**
 - e. **Location: Tap on side of pipe, downstream of modulating valve**
 - f. **Type: Pressure Switch.**
 - g. **Mounting: pipe mounted.**
 - h. **Process Fluid: Potable Water.**

END OF SECTION 40 72 43

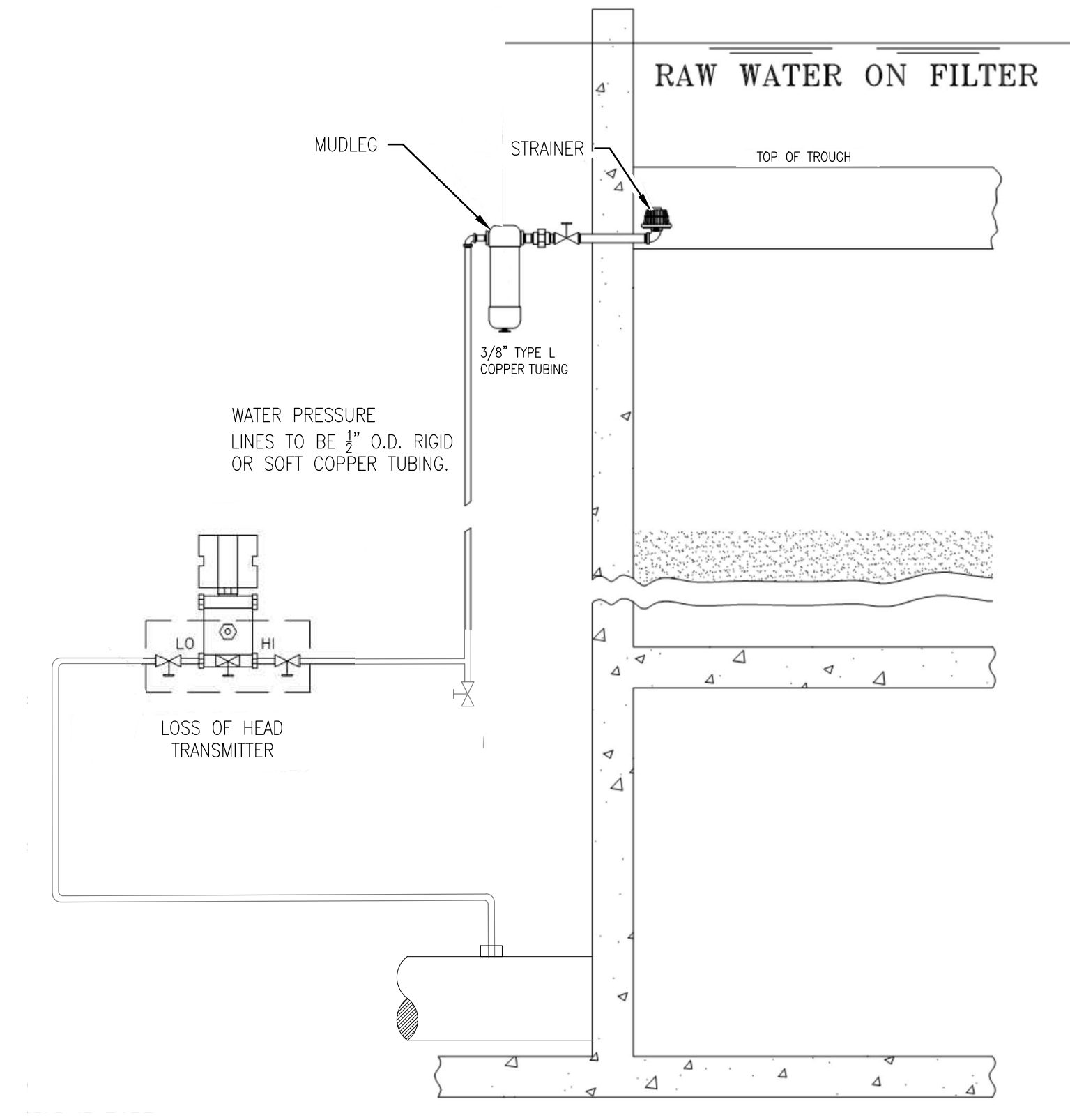
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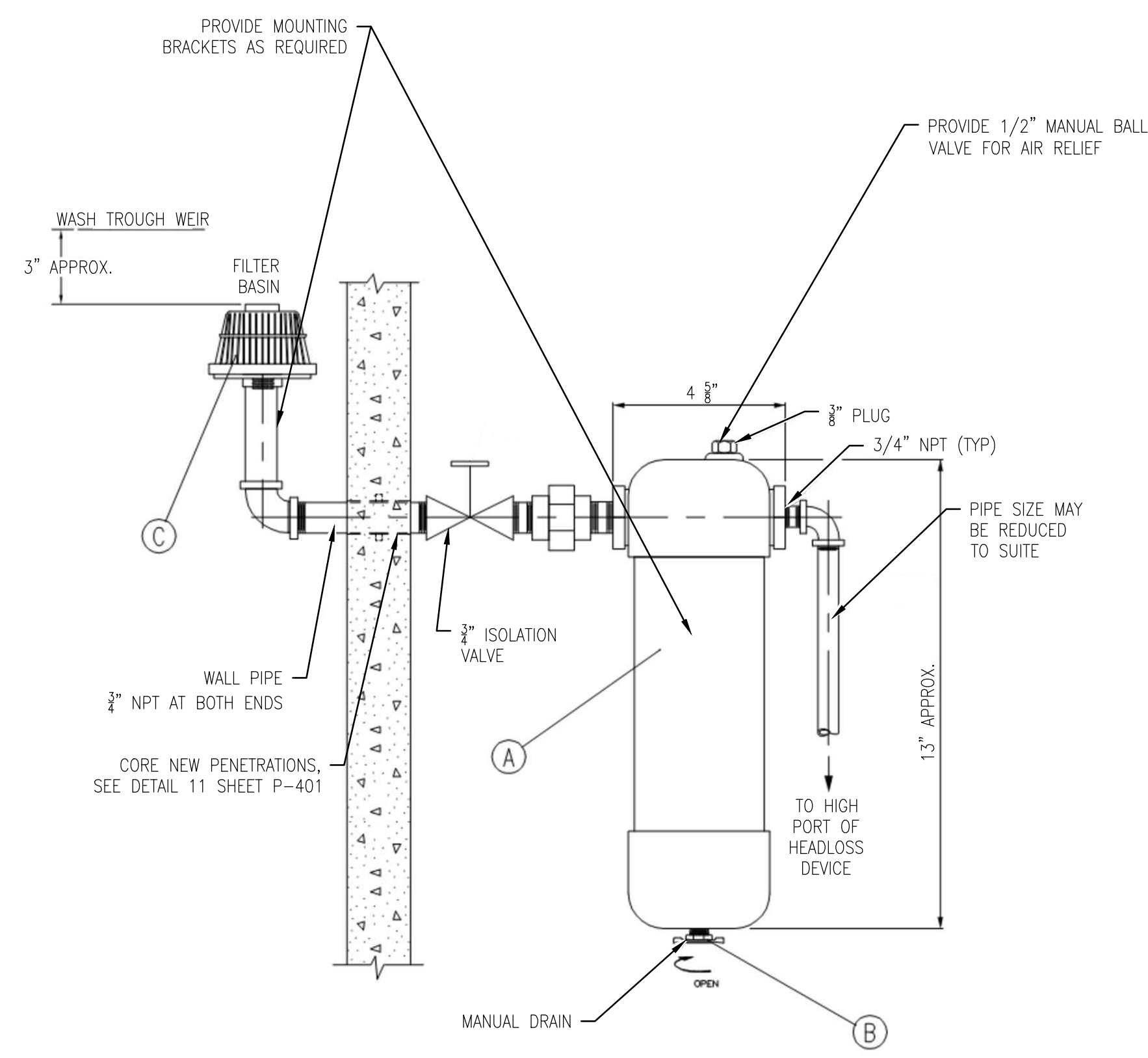
① FILTER PIPE GALLERY
 1/4" = 1'-0"



② FILTER PIPE GALLERY SECTION
 3/8" = 1'-0"

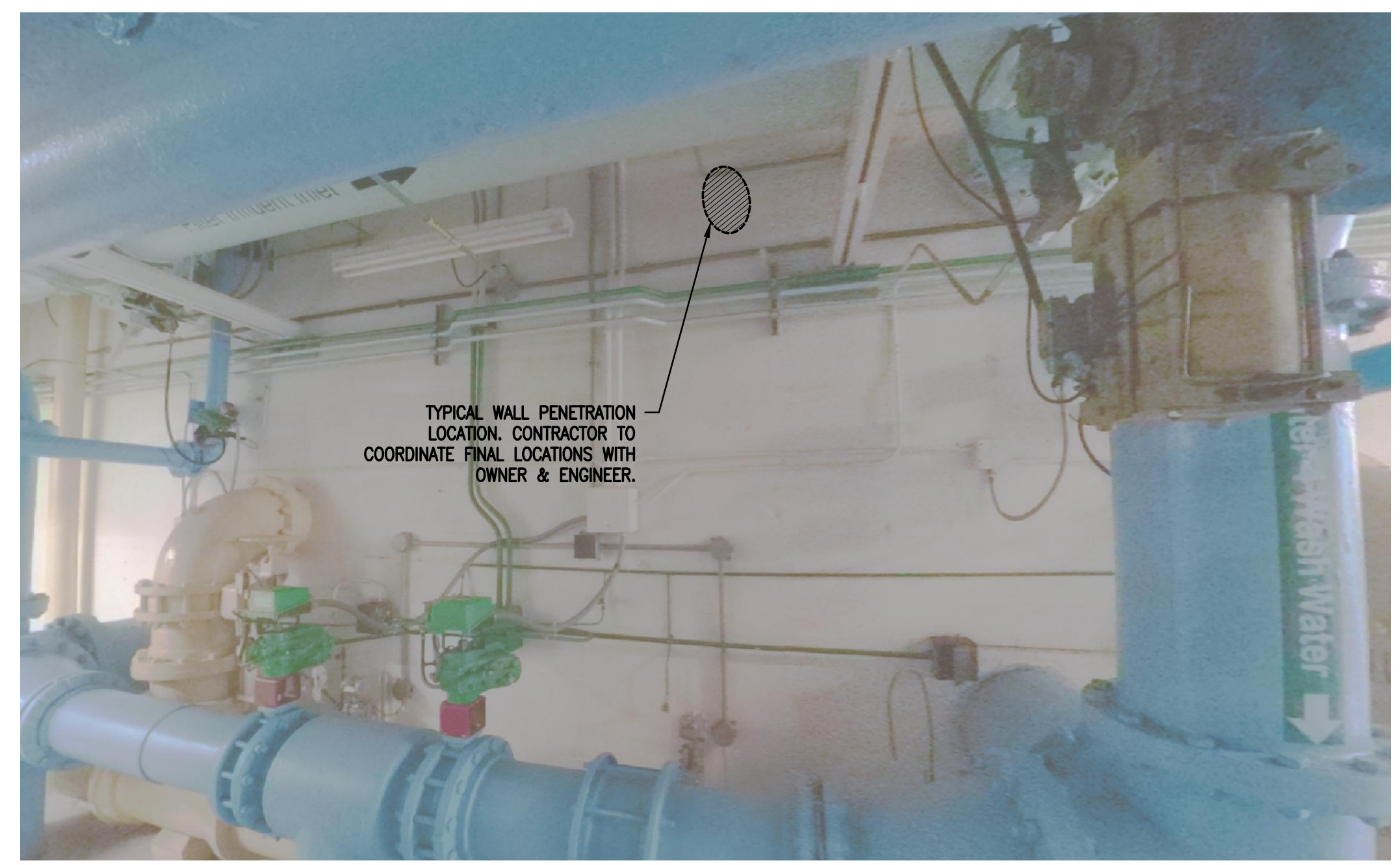


③ LOSS OF HEAD TRANSMITTER DETAIL
 NO SCALE



④ MUDLEG DETAIL
 NO SCALE

PARTS LIST (PER UNIT)			
TAG	DESCRIPTION	MATERIAL	LEOPOLD PART #
MUDLEG & STRAINER ASSEMBLY CONSISTING OF THE FOLLOWING PARTS			
A	MUDLEG	PVC	
	3" CAP, SCHEDULE 40	PVC	102-207-110
	BUSHING, 1" X 3/4"	PVC	102-208-020
	3" PIPE, SCHEDULE 40	PVC	106-070-053
	FLAT, 1/4" X 3"	PVC	120-020-030
	PIPE PLUG, 3/8" NPT	BRASS	102-107-011
B	MANUAL DRAIN	BRASS	107-040-050
C	STRAINER, 3/4" NPT	POLYPROPYLENE	107-001-060



⑤ WALL PENETRATION LOCATION
 NO SCALE

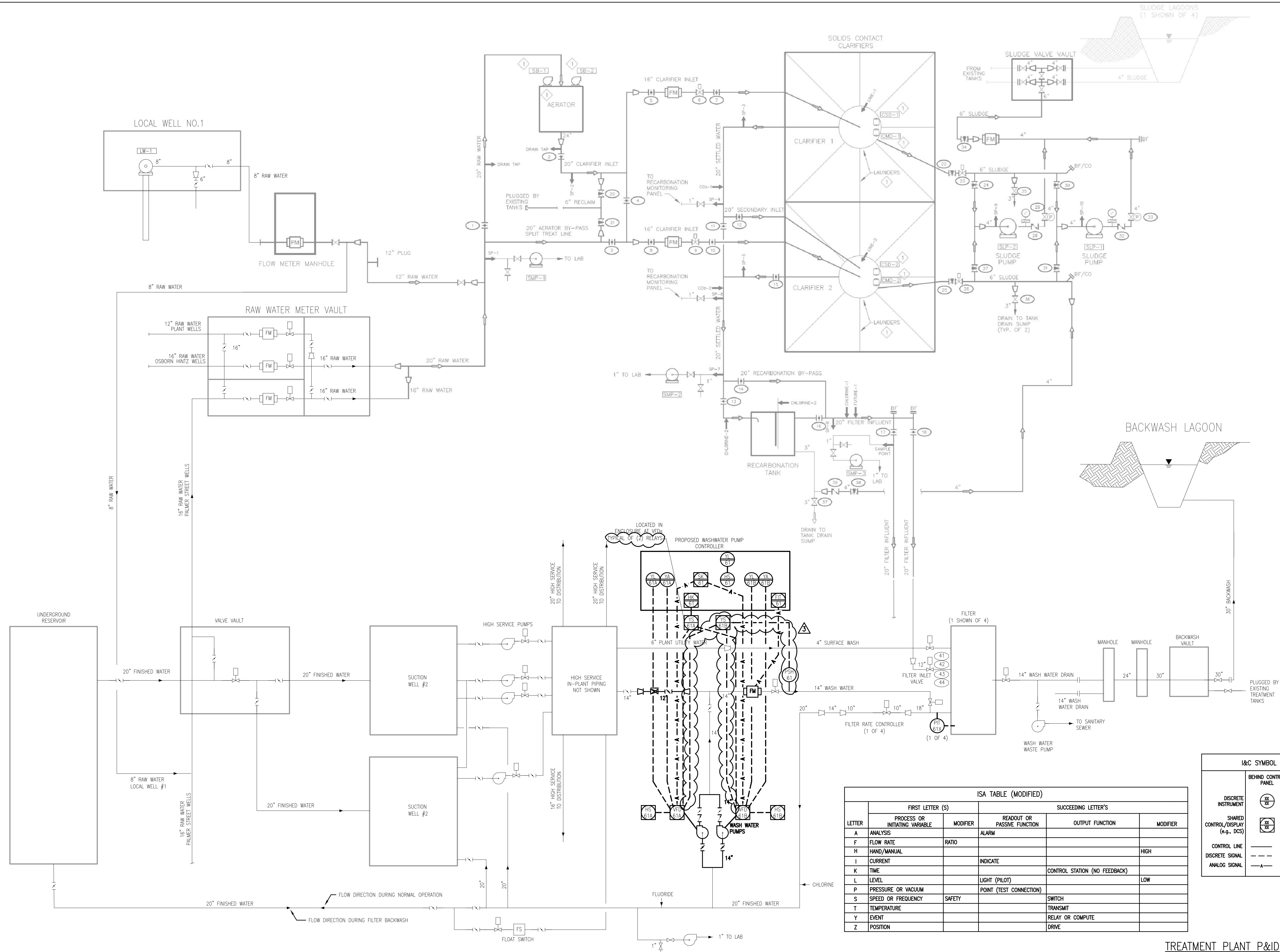
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 2 ADDENDUM #3 01/15/2020

CITY OF OWOSSO
 WASH WATER PUMP & PIPING REPLACEMENT
 LOSS OF HEAD TRANSMITTERS

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LETTER	FIRST LETTER (S)		SUCCEEDING LETTER'S		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
F	FLOW RATE	RATIO			
H	HAND/MANUAL				HIGH
I	CURRENT		INDICATE		
K	TIME			CONTROL STATION (NO FEEDBACK)	
L	LEVEL		LIGHT (PILOT)		LOW
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
Y	EVENT			RELAY OR COMPUTE	
Z	POSITION			DRIVE	

I&C SYMBOL LEGEND	BEHIND CONTROL PANEL	IN THE FIELD	ON LOCAL CONTROL PANEL
	DISCRETE INSTRUMENT		
SHARED CONTROL/DISPLAY (e.g., DCS)			
CONTROL LINE	---	---	---
DISCRETE SIGNAL	---	---	---
ANALOG SIGNAL	---	---	---

TREATMENT PLANT P&ID

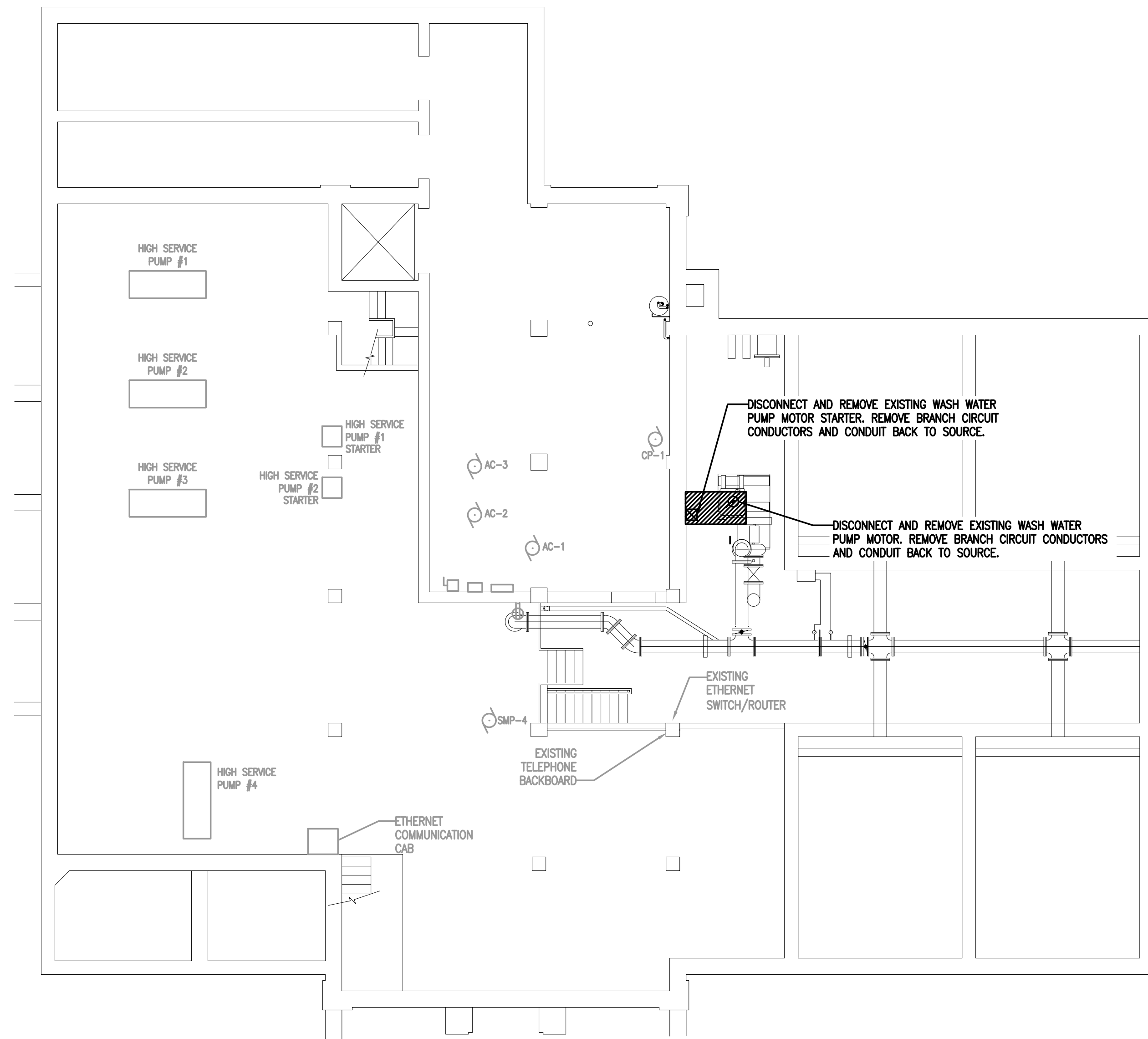
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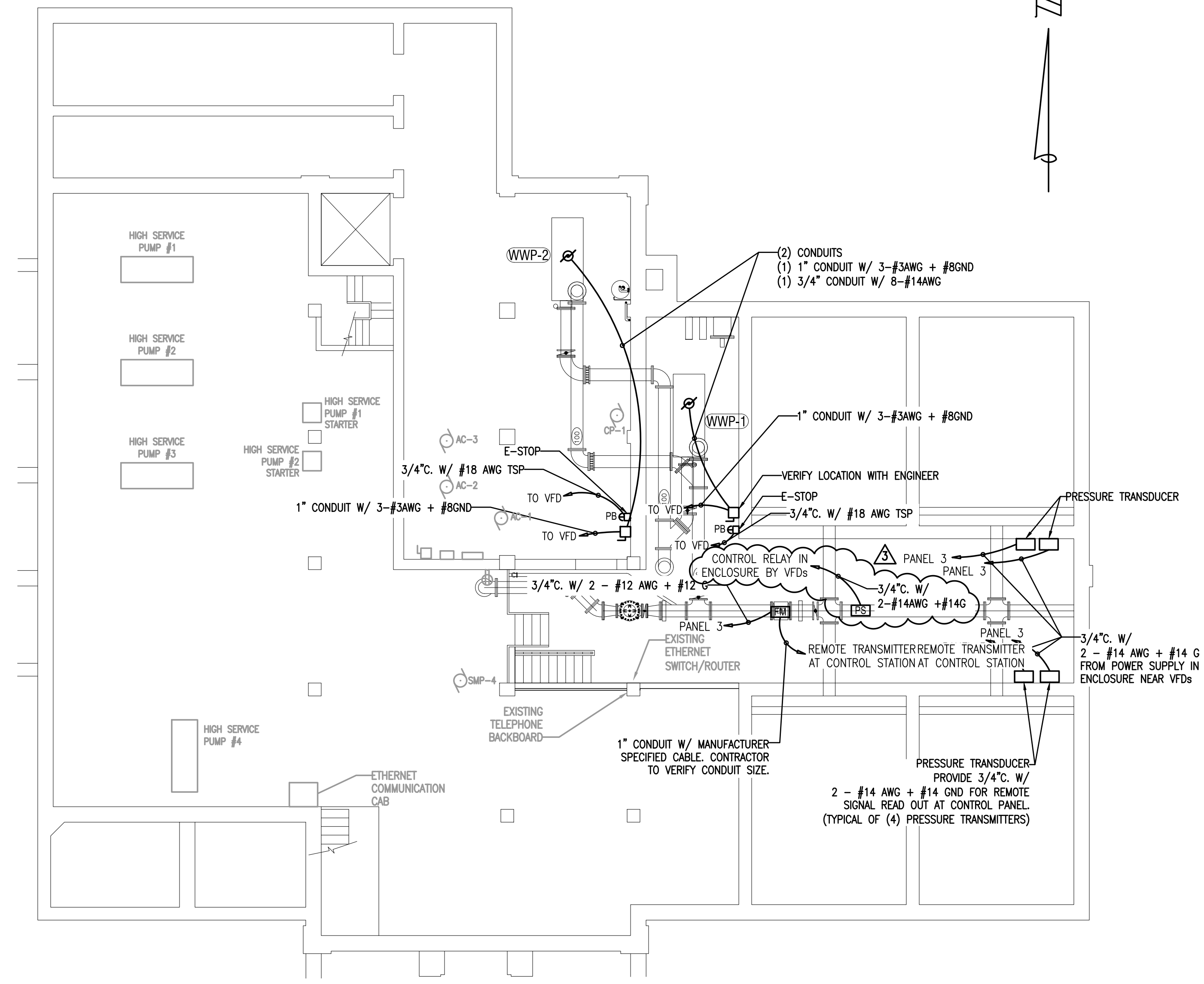
CITY OF OWOSSO
 WASH WATER PUMP & PIPING REPLACEMENT
 PROPOSED PIPING AND INSTRUMENTATION DIAGRAM

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1 LOWER LEVEL AND WELL HOUSE DEMOLITION POWER PLANS - ELEVATION 732.42'
 1/8" = 1'-0"



1 PROPOSED LOWER LEVEL AND WELL HOUSE POWER PLANS - ELEVATION 732.42'
 1/8" = 1'-0"

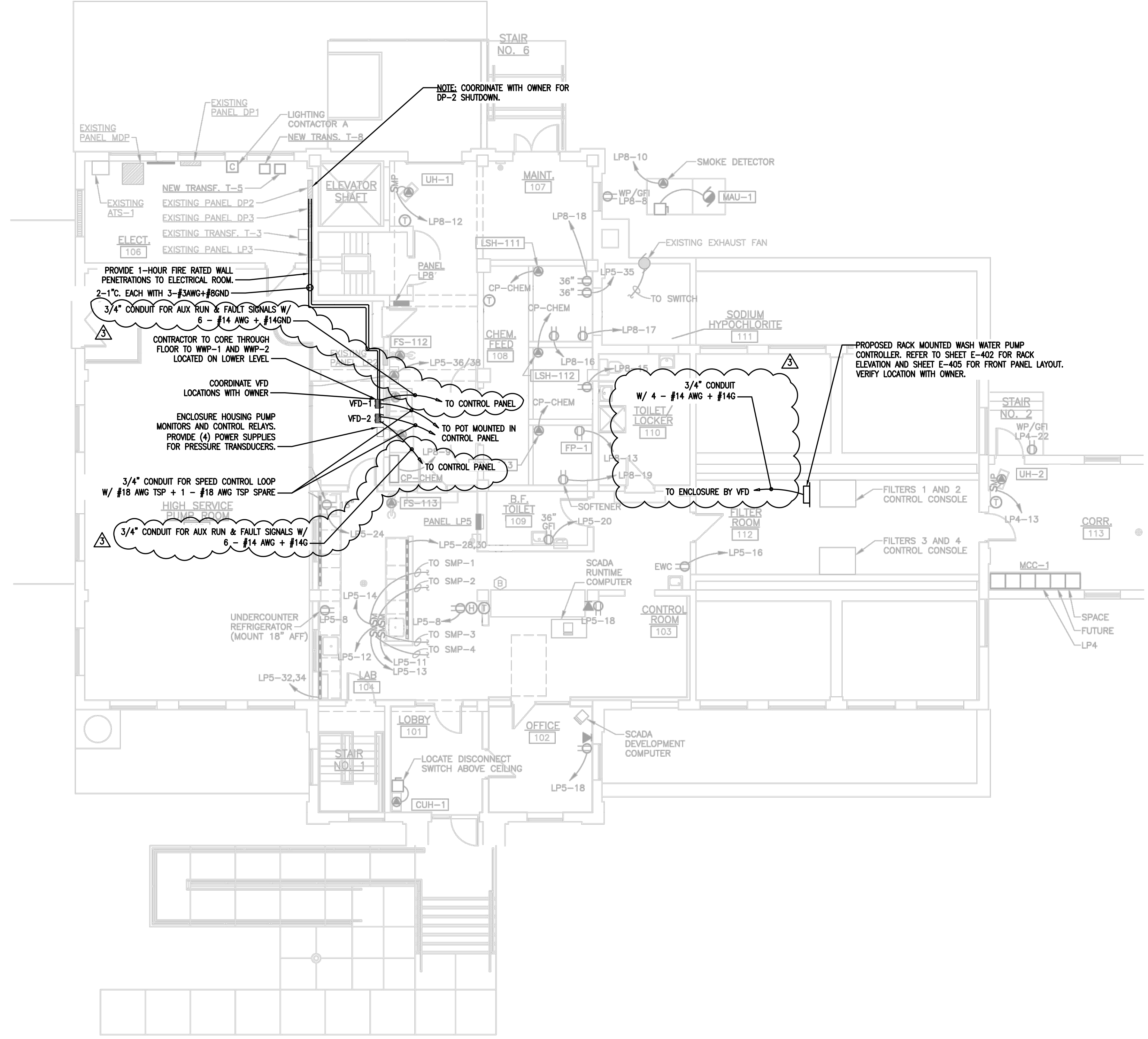


REVISIONS
 12/16/2019
 ISSUED FOR BIDS
 3 BID ADDENDUM #3
 01/13/2020

CITY OF OWOSSO
 WASH WATER PUMP & PIPING REPLACEMENT
 LOWER LEVEL AND WELL HOUSE POWER PLANS

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1 UPPER LEVEL POWER PLAN
 1/8" = 1'-0"

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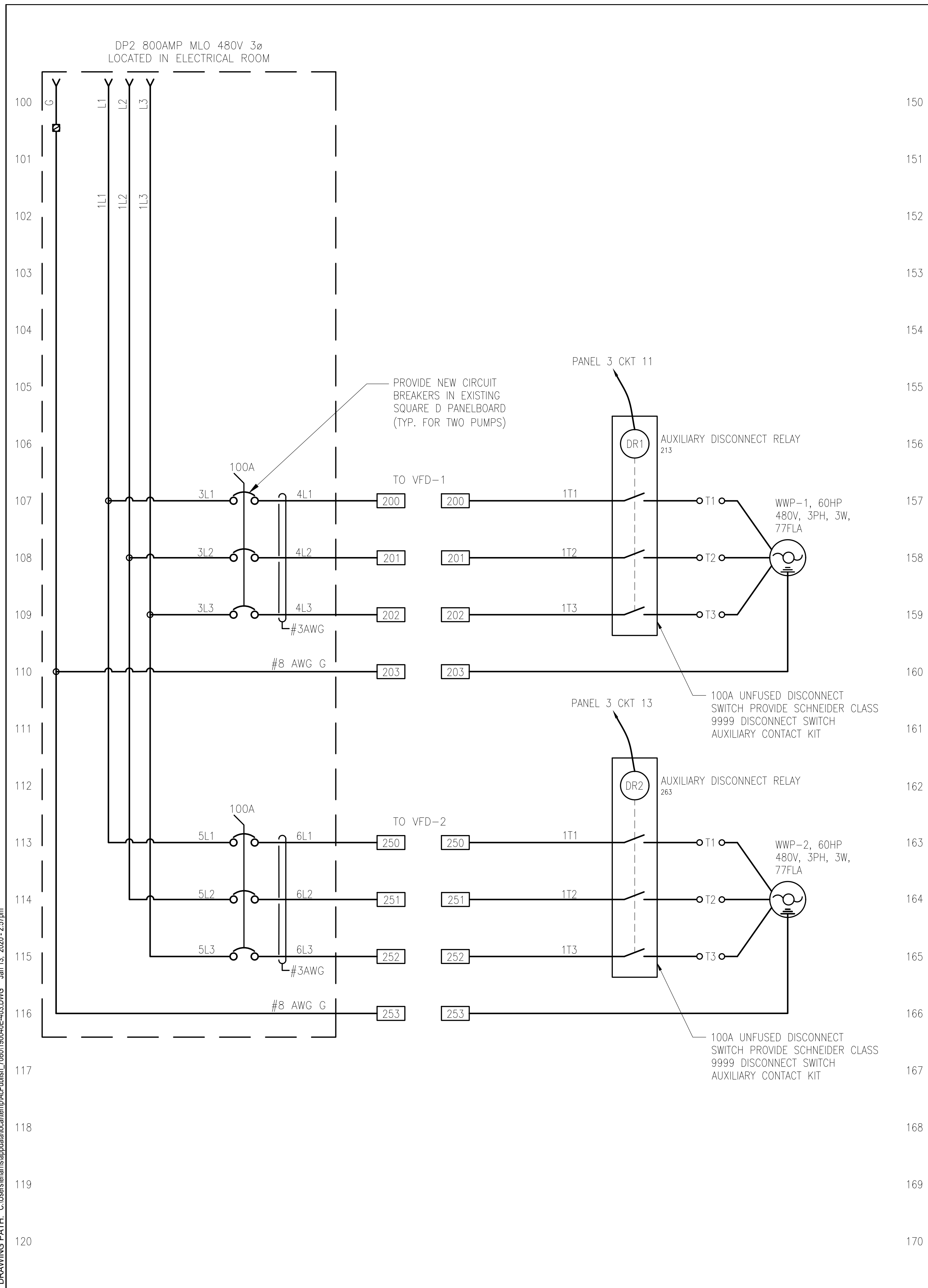
ISSUED FOR BIDS	12/16/2019
3 BID ADDENDUM #3	01/13/2020

DATE	PROJ. NUMBER	ENG	PROJ. MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	H.	V.	VERT. DATUM
	020-15-040	MK	JD	LM	SHAWASSEE	OWOSSO	1/8" = 1'-0"	NTS	NTS	N/A

CITY OF OWOSSO
WASH WATER PUMP & PIPING REPLACEMENT
UPPER LEVEL POWER PLAN

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PARTS LIST

ITEM #	QTY.	DESCRIPTION	MANUFACTURER	CATALOG #	P&ID DESIGNATION
1	2	VARIABLE FREQUENCY DRIVES	SCHNEIDER	ATV630	VFD/61A & VFD/61B
2	2	MOTOR DISCONNECT WITH AUX CONTACT			
3	1	PUMP ALTERNATOR	ALLEN-BRADLEY	700-HTA1A1	YS/61A
4	6	PILOT LIGHTS PTT	ALLEN-BRADLEY	800H-QTRH2	YL/61, YA/61A, YL/61A & YA/61B, YL/61B
5	1	POTENTIOMETER	SCHNEIDER ELECTRIC	XB4BD912R#K	SK/61
6	2	EMERGENCY STOP BUTTONS	ALLEN-BRADLEY	800H-TFRXJETA	HS/61A & HS/61B
7	1	FLOW METER	REFER TO SPECS		FIT/61
8	1	START PUSH BUTTON	ALLEN-BRADLEY	800H-B103W	HK/61
9	1	STOP PUSH BUTTON	ALLEN-BRADLEY	800H-B604W	HK/61
10	1	RESET PUSH BUTTON	ALLEN-BRADLEY	800H-B207W	
11	1	120V/24V TRANSFORMER	SQUARE D	9070E071D7	
12	2	PUMP MONITOR			
13	4	LOOP POWERED INDICATOR - PRESSURE TRANSDUCERS	PRECISION DIGITAL	PD685	FOR REMOTE READ OUT OF PRESSURE TRANSDUCERS
14	1	PRESSURE SWITCH	ALLEN-BRADLEY	836	YS/61B


NOTE: EQUIVALENT EQUIPMENT IS ACCEPTABLE, AS APPROVED BY ENGINEER

SEQUENCE OF OPERATION

1. USER INITIATES PUMP TO START BY WAY OF PUSH BUTTON (START) AT WASH WATER PUMP CONTROL STATION.
2. ONCE THE "CONTROL INITIATED PILOT LIGHT" IS ILLUMINATED, USER MAY CONTROL THE MOTOR SPEED VIA LOCAL POTENTIOMETER.
3. ONCE FILTER(S) ARE SATISFACTORILY WASHED, USER STOPS PUMP BY WAY OF PUSH BUTTON (STOP) AT CONTROL STATION.

RELAY ABBREVIATIONS

- ADRR AUXILIARY DRIVE RUNNING RELAY
- ADTR AUXILIARY DRIVE TRIP RELAY
- CR CONTROL RELAY
- DR DISCONNECT RELAY
- RR RUN RELAY



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3 BID ADDENDUM #3 01/13/2020

REVISIONS:

DATE: 02/15/2020

PROJ NUMBER: 0201-15-020

ENG: MK

PROJ MGR: JD

CADD: LM

COUNTY: SHAWANSEE

CITY/VILLAGE/TOWNSHIP: OWOSSO

SCALE: N/A

HORIZ DATUM: N/A

VERT DATUM: N/A

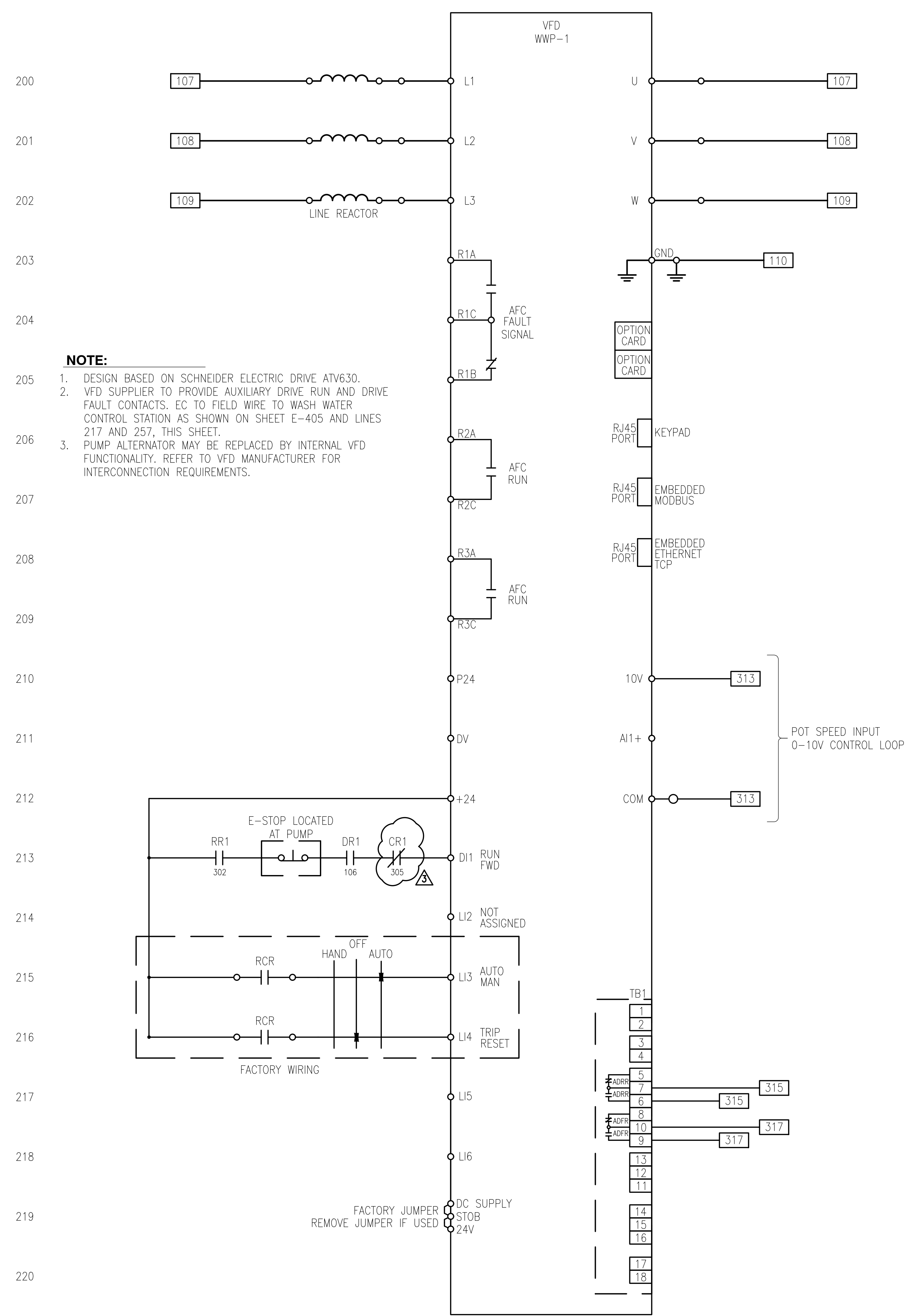
CITY OF OWOSSO

WASH WATER PUMP & PIPING REPLACEMENT

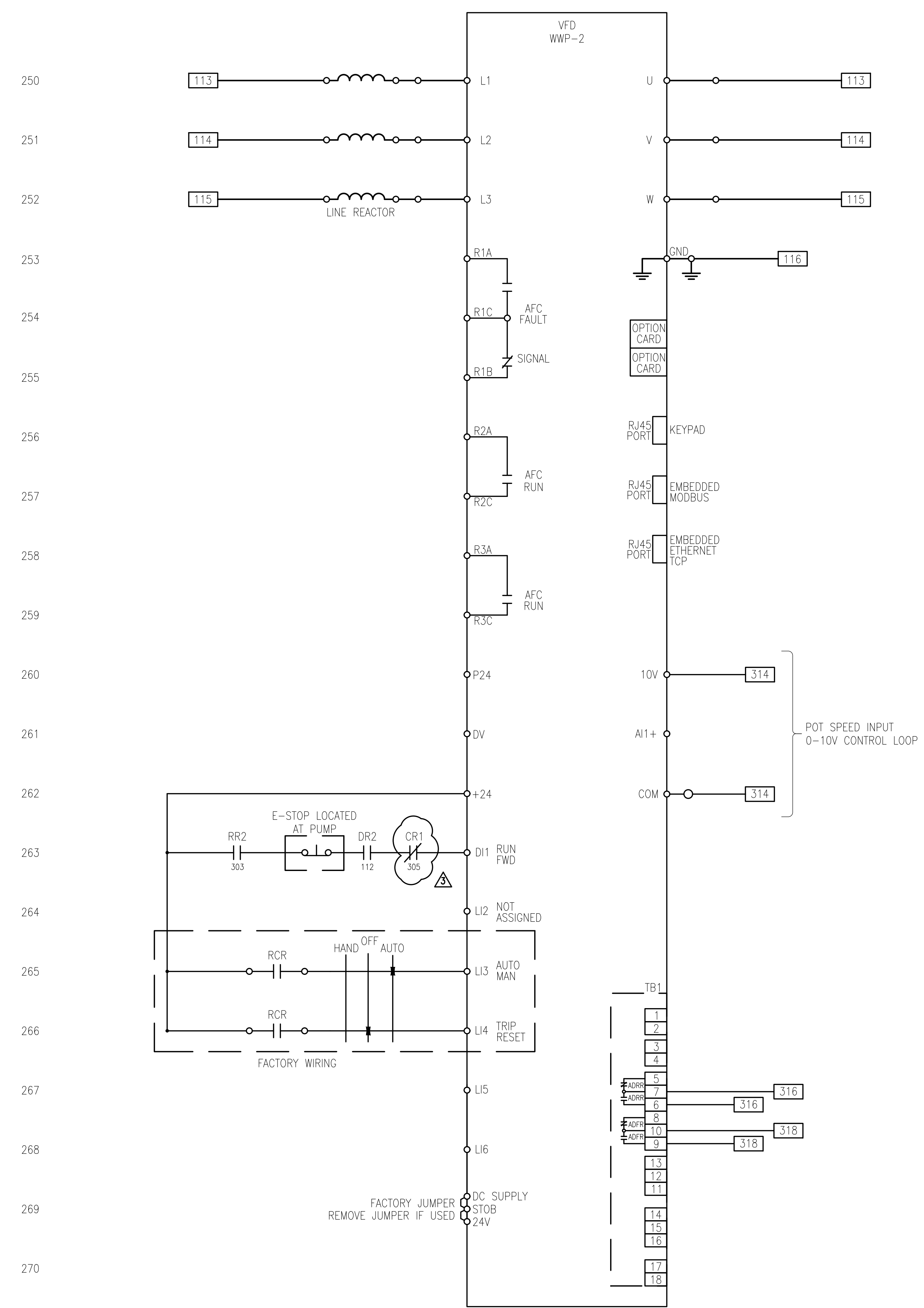
PUMP MOTOR AND VFD WIRING DIAGRAM

SHEET: **E-403**

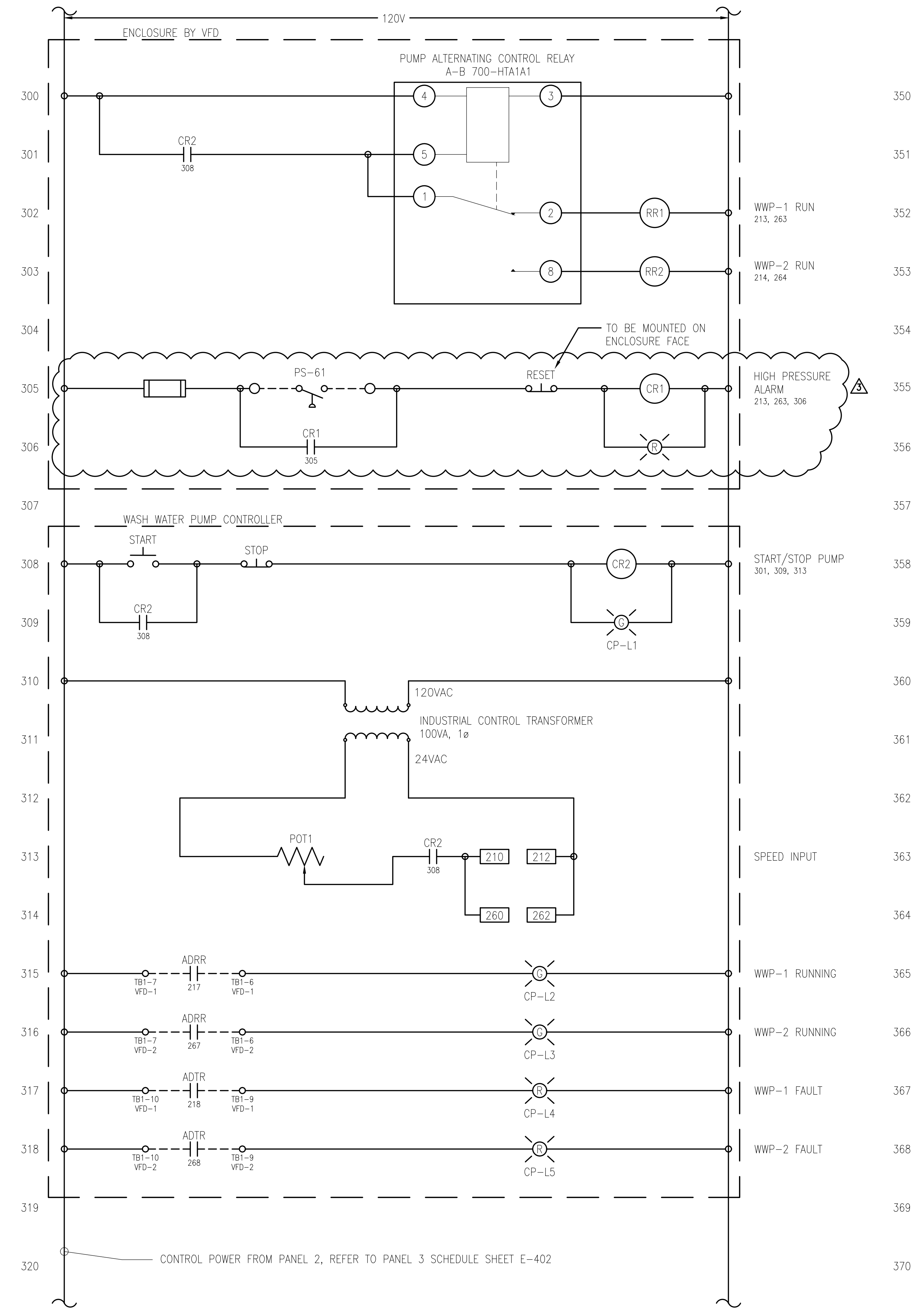
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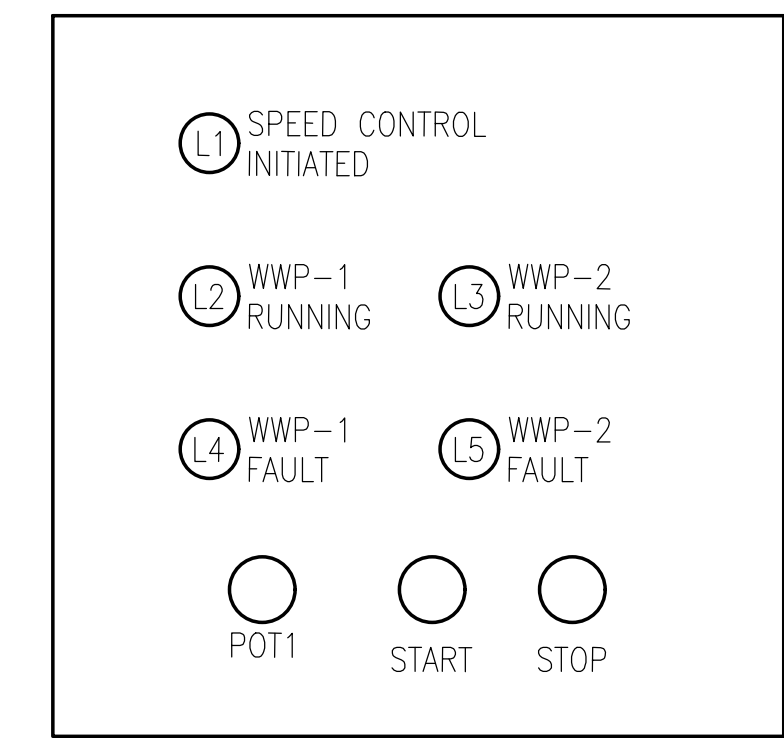
NOTE:
 1. DESIGN BASED ON SCHNEIDER ELECTRIC DRIVE ATV630.
 2. VFD SUPPLIER TO PROVIDE AUXILIARY DRIVE RUN AND DRIVE FAULT CONTACTS. EC TO FIELD WIRE TO WASH WATER CONTROL STATION AS SHOWN ON SHEET E-405 AND LINES 217 AND 257, THIS SHEET.
 3. PUMP ALTERNATOR MAY BE REPLACED BY INTERNAL VFD FUNCTIONALITY. REFER TO VFD MANUFACTURER FOR INTERCONNECTION REQUIREMENTS.



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- NOTES:**
1. PROVIDE NEMA 4X ENCLOSURE, MOUNTED ON UNISTRUT RACK, REFER TO SHEET E-402 FOR RACK ELEVATION.
 2. POWER (4) LOOP POWERED INDICATOR FROM INDUSTRIAL CONTROL TRANSFORMER MOUNTED IN WASH WATER PUMP CONTROLLER. INDICATOR FOR (4) PRESSURE TRANSDUCERS.

WASH WATER PUMP CONTROLLER - FRONT PANEL LAYOUT

REVISIONS:	ISSUED FOR BIDS	12/16/2019
	3 - BID ADDENDUM #3	01/13/2020

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	H:	NTS	V:	NTS	HORIZ DATUM	VERT DATUM
	0020-15-040	MK	JD	LM	SHAWASSEE	OWOSSO						N/A	N/A

CITY OF OWOSSO
WASH WATER PUMP & PIPING REPLACEMENT
CONTROL WIRING

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