



CITY OF ALBANY
Public Works Department

ADDENDUM #1

W-19-01, Valley View Reservoirs Mixing Improvements

In order to clarify the intent of the Specifications and Drawings, the following provisions are provided and shall be considered part of the contract documents.

In order to ensure that all bidders are aware of these provisions, each bidder shall sign this addendum below and attach it to the proposal.

IMPORTANT: Failure to include a signed Addendum could result in the disqualification of your bid.

BID OPENING DATE AND TIME

The bid opening has been rescheduled for Thursday, September 12, 2019, at 2:00 p.m. Bid opening and drop-off locations have been unchanged.

CONSTRUCTION DRAWINGS:

G1.00 (Replace Sheet)

1. Updated TOC and Design Team

E1.01 (Replace Sheet)

1. Added Keynote #11

E1.03 (Replace Sheet)

1. Removed "316" from all galvanized callouts on both details
2. Added 14" Diameter Sonotube base note
3. Updated Sheet keynotes #1, 2, and 4

TECHNICAL SPECIFICATIONS:

Section 11220 – Submersible Mixer (Replace Section)

1. Added Large Submersible Mixer to products

CLARIFICATIONS:

1. Attached to this addendum are pictures of the vents at the top of the tanks that will need to be modified.
2. The contractor is responsible for on site locates. This will require hiring a private locating company.

Contractor's Signature

Date

Company Name *(please type or print)*

Reservoir Vents



Central Reservoir Vent



North Reservoir Vent 1



North Reservoir Vent 2



North Reservoir Vent 3



South Reservoir Vent 1



South Reservoir Vent 2



South Reservoir Vent 3



South Reservoir Vent 4

VALLEY VIEW RESERVOIR MIXER IMPROVEMENTS PROJECT

CITY OF ALBANY

DESIGN TEAM

OWNER
 CITY OF ALBANY
 333 Broadalbin Street SW
 Albany, OR 97321
 PHONE: 541.791.0130
 CONTACT: Nolan Nelson

ELECTRICAL ENGINEER
 LANDIS CONSULTING
 6446 Fairway Avenue SE, Suite #220
 Salem, OR 97306
 PHONE: 503.584.1576
 CONTACT: Ben Perry

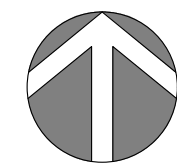
SHEET INDEX

GENERAL

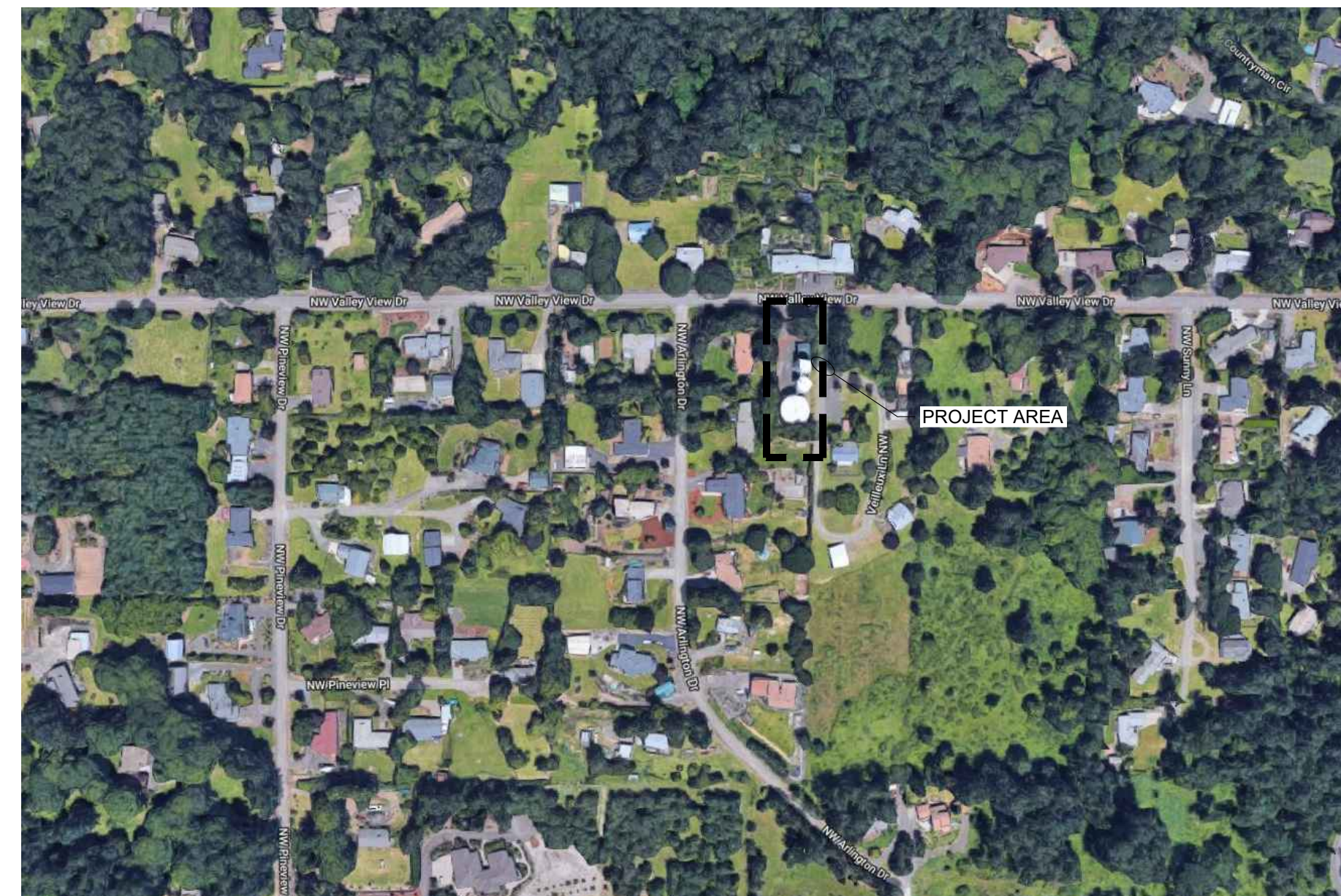
G1.00 - COVER SHEET

ELECTRICAL

- E0.01 - ELECTRICAL ABBREVIATIONS AND SYMBOL LEGEND
- E0.10 - ONE-LINE DIAGRAM
- E0.15 - CONDUIT & CONDUCTOR SCHEDULES
- E1.00 - EXISTING ELECTRICAL SITE PLAN
- E1.01 - ELECTRICAL POWER SITE PLAN
- E1.02 - ELECTRICAL CONTROL SITE PLAN
- E1.03 - MIXER CONTROL PANEL STAND DETAILS
- E1.04 - CONDUIT SYSTEM DRAINAGE DETAIL
- E1.05 - TANK POWER JUNCTION BOX ELEVATION & DETAILS
- E2.01 - ELECTRICAL RACEWAY BLOCK DIAGRAM
- E3.01 - PANEL SCHEDULES

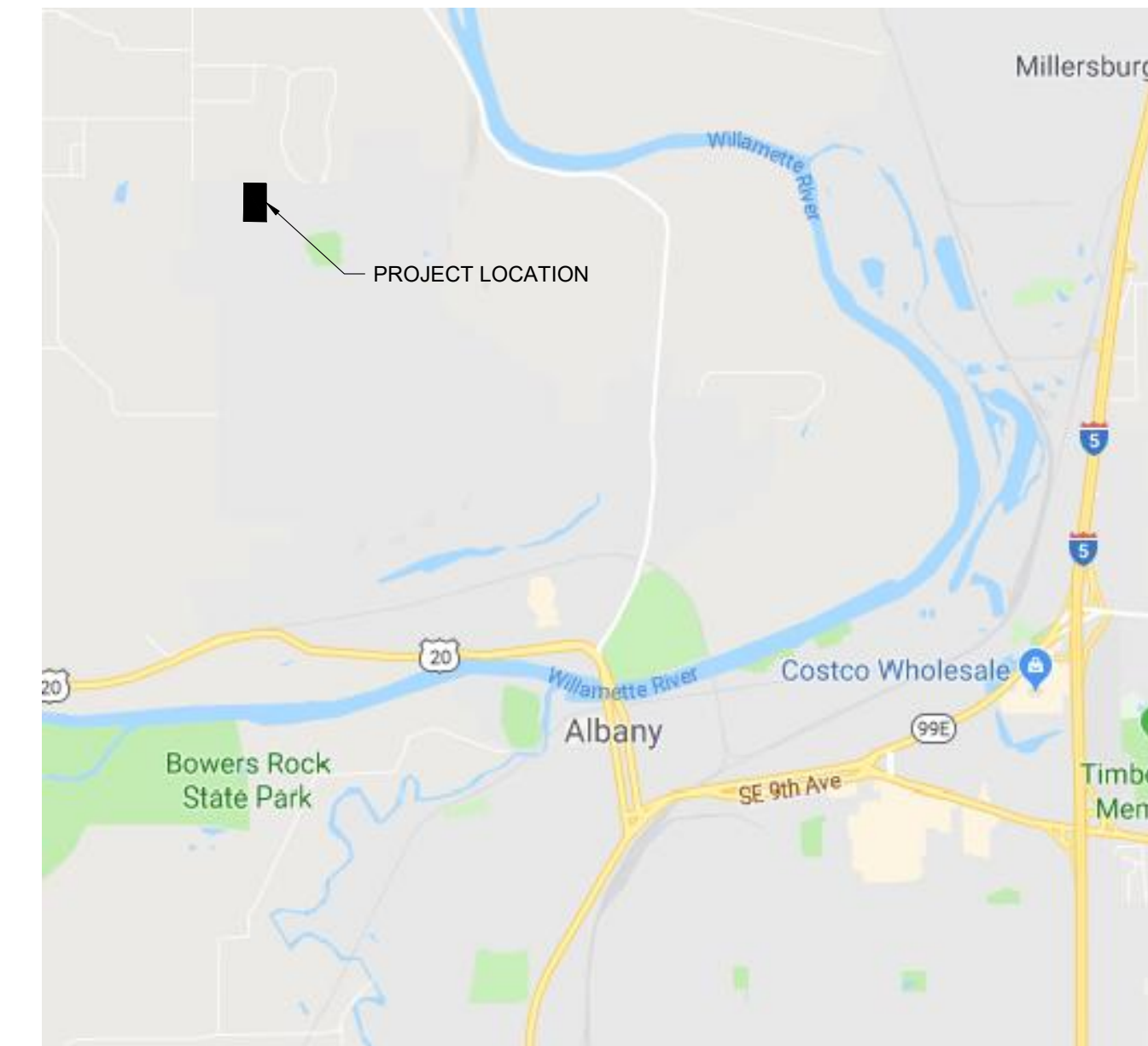


VICINITY MAP

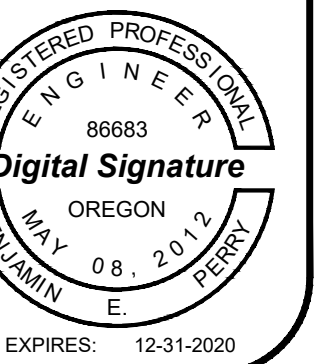


FACILITY ADDRESS
 Valley View Reservoir
 3240 Valley View Drive
 Albany, Oregon 97321

LOCATION MAP



Landis Consulting
 ENGINEERING SERVICES
 6446 Fairway Ave. SE, Suite 220
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 503-584-1576
 www.landisconsulting.com



CITY OF ALBANY
 VALLEY VIEW RESERVOIR MIXER
 IMPROVEMENTS PROJECT
 3240 VALLEY VIEW DRIVE
 ALBANY, OREGON 97321

Rev	Description
1	Revision 1 - 08/28/2019

COVER SHEET

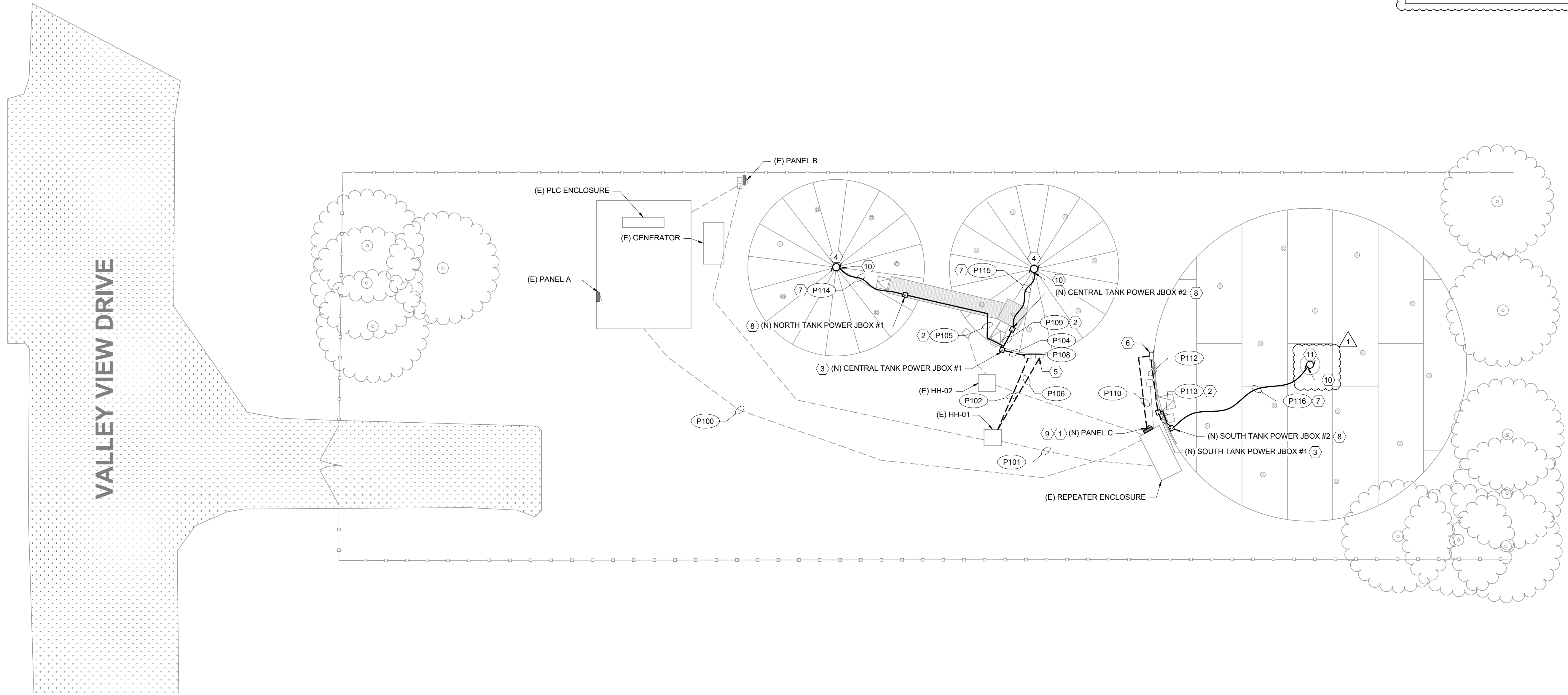
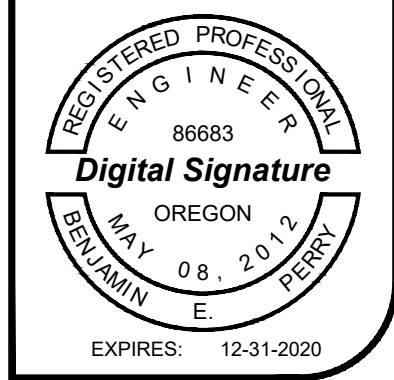
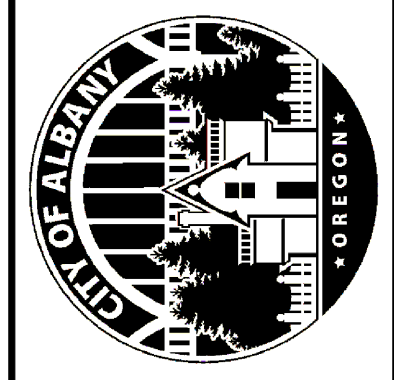
Design DML
 Drawn JCL
 Checked BEP
 Date 8/05/2019
 Proj. No. 7021801
 Drawing No.

G1.00

SHEET KEY NOTES

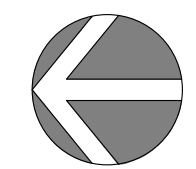
1. NEW PANEL C SHALL BE MOUNTED TO THE EXTERIOR OF THE REPEATER ENCLOSURE.
2. ROUTE NEW POWER CONDUIT UP RIGHT SIDE OF LADDER ADJACENT TO EXISTING CONDUITS. HEIGHT OF TANKS IS APPROXIMATELY 48'-3".
3. NEW 6" x 6" x 4" GENERAL ENCLOSURE MOUNTED AT 18" A.F.G.
4. NEW JET MIXER PWM100 INSTALLED IN TANK.
5. NORTH AND CENTER TANK PUMP CONTROL PANEL STAND. SEE DETAIL 2 ON SHEET E1.03 FOR ADDITIONAL INFORMATION.
6. SOUTH TANK PUMP CONTROL PANEL STAND. SEE DETAIL 3 ON SHEET E1.03 FOR ADDITIONAL INFORMATION.
7. CONTRACTOR SHALL INSTALL MANUFACTURER SUPPLIED CABLE (MSC) ACROSS ROOF OF TANK INSIDE LIQUID TIGHT FLEXIBLE CONDUIT. CONTRACTOR SHALL ROUTE CONDUIT WITH SLACK AS TO ALLOW MOVEMENT OF THE CONDUIT AND CABLE WITH THE EXPANSION AND CONTRACTION OF THE ROOF.
8. JUNCTION BOX SHALL BE MOUNTED TO THE CATWALK SIDING USING 1/8" STRUT CHANNEL AND MOUNTING HARDWARE. SEE SHEET E1.05 FOR JUNCTION BOX DETAILS.
9. CONTRACTOR SHALL DRIVE A NEW GROUND ROD AT REPEATER ENCLOSURE FOR GROUNDING ELECTRODE SYSTEM. GROUND ROD SHALL BE SIZED PER NEC.
10. CONTRACTOR SHALL PENETRATE EXISTING VENT AND ROUTE NEW MIXER MSC DOWN VENT OPENING. PROVIDE CORD GRIP, AND CONDUIT FITTINGS AT NEW PENETRATION.
11. NEW JET MIXER PWM150 INSTALLED IN TANK.

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 ENGINEERING SERVICES
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1 ELECTRICAL POWER SITE PLAN

SCALE: 1" = 10'



CITY OF ALBANY
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 IMPROVEMENTS PROJECT
 3240 VALLEY VIEW DRIVE
 ALBANY, OREGON 97321

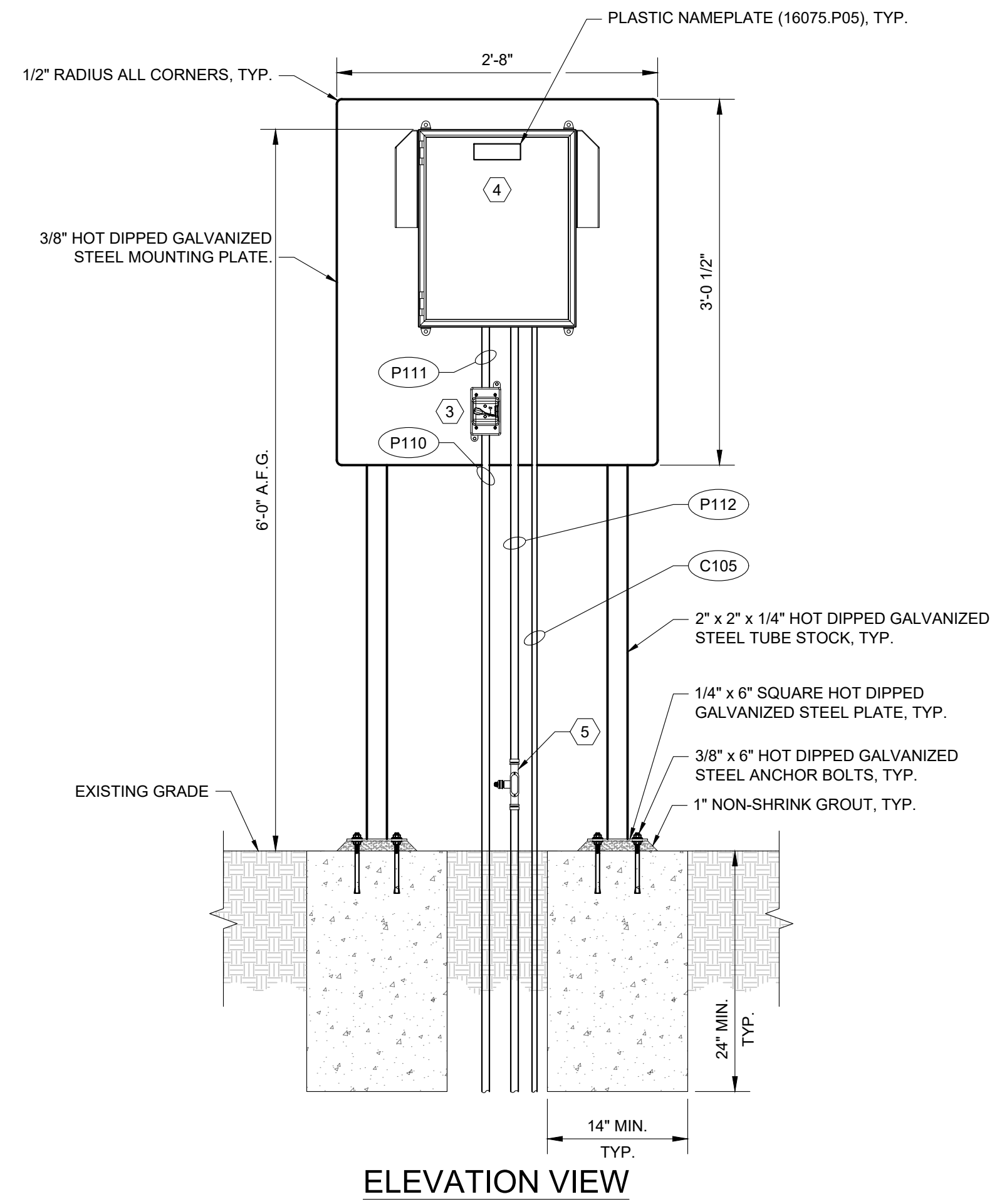
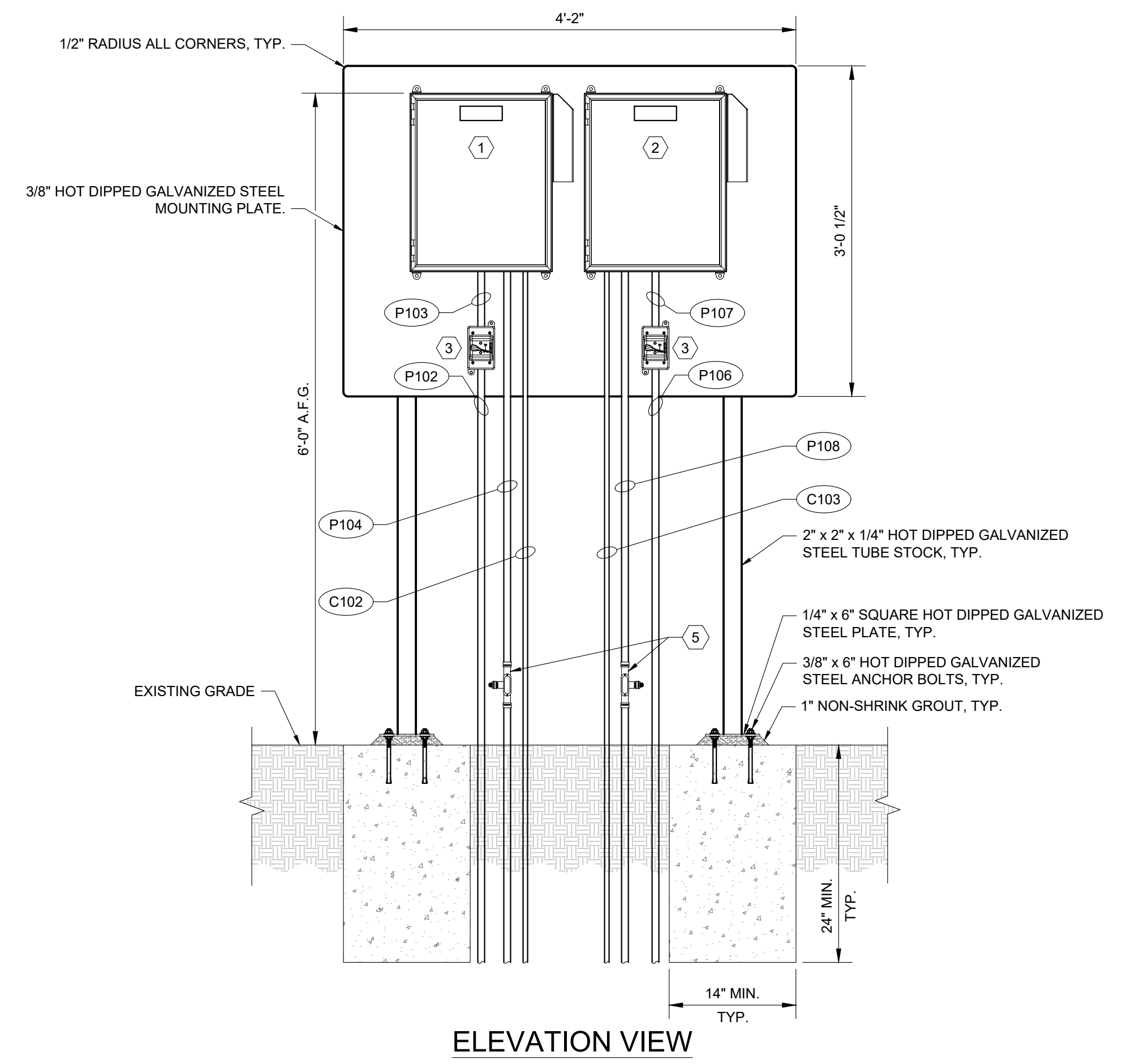
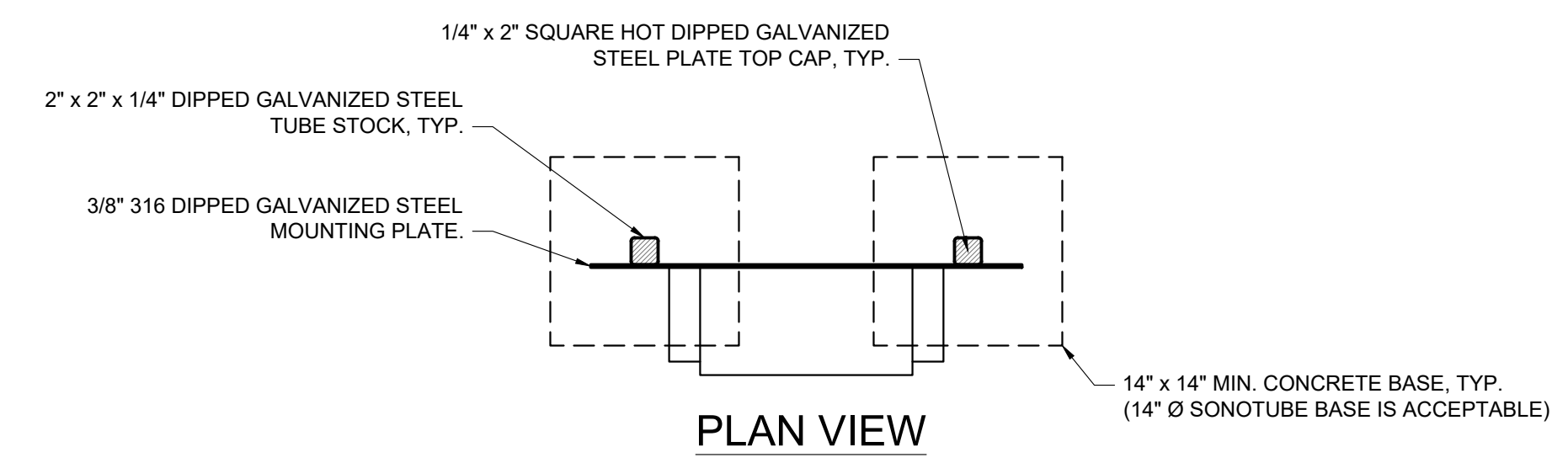
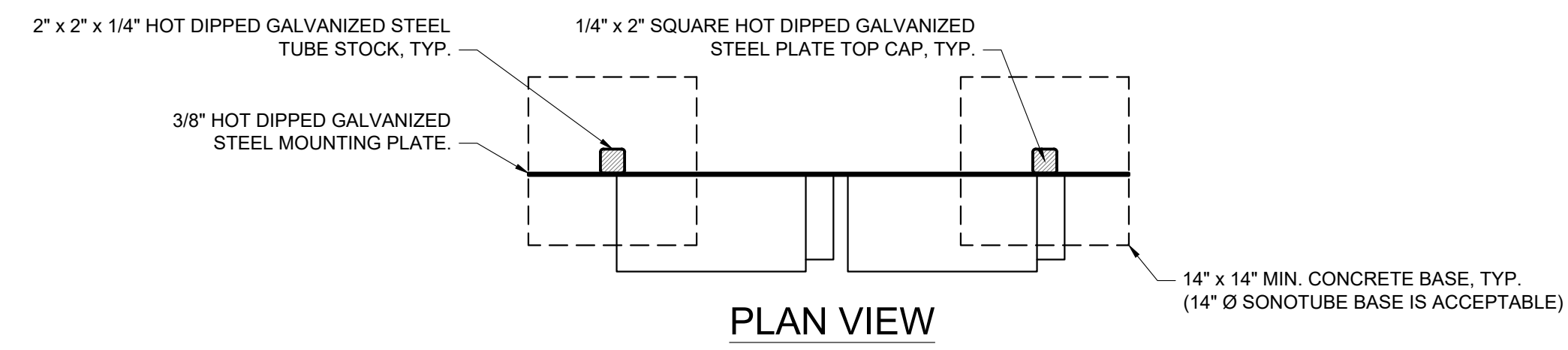
Rev	Description
1	Revision 1 - 08/28/2019

ELECTRICAL POWER SITE PLAN

Design: DML
 Drawn: JCL
 Checked: BEP
 Date: 8/05/2019
 Proj. No.: 7021801
 Drawing No.:

E1.01

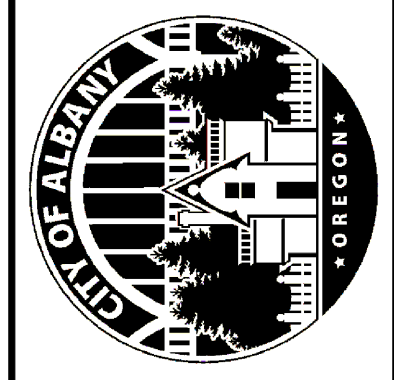
- SHEET KEY NOTES**
1. NORTH TANK PAX CONTROL CENTER PCC105.
 2. CENTRAL TANK PAX CONTROL CENTER PCC105.
 3. DISCONNECT SWITCH.
 4. SOUTH TANK PAX CONTROL CENTER PCC155.
 5. SEE DETAIL 1 ON SHEET E1.04 FOR CONDUIT DRAIN DETAIL.



1 NORTH & CENTRAL PUMP CONTROL PANEL STAND DETAIL
SCALE: NTS

2 SOUTH PUMP CONTROL PANEL STAND DETAIL
SCALE: NTS

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REGISTERED PROFESSIONAL
ENGINEER
86683
Digital Signature
OREGON
MAY 08, 2012
BENJAMIN E.
EXPIRES: 12-31-2020

CITY OF ALBANY
VALLEY VIEW RESERVOIR MIXER
IMPROVEMENTS PROJECT
3240 VALLEY VIEW DRIVE
ALBANY, OREGON 97321

Rev	Description
1	Revision 1 - 08/28/2019

MIXER CONTROL
PANEL STAND
DETAILS

Design DML
Drawn JCL
Checked BEP
Date 8/05/2019
Proj. No. 7021801
Drawing No.

E1.03

SECTION 11220

SUBMERSIBLE MIXER

PART 1 GENERAL

1.1 SUMMARY

- A. This section covers submersible mixers.

1.2 REFERENCES

- A. Comply with the applicable reference specifications as specified in the General Requirements
- B. Occupational Safety and Health Administration, OSHA
- C. NSF/ ANSI Standard 61
- D. Underwriters Laboratories Inc., UL 508

1.3 REQUIREMENTS

- A. CONTRACTOR shall furnish and install submersible mixing system together with controls and accessories necessary for a complete and operable system.
- B. Each mixer shall have the ability to function continuously on a year-round basis, regardless of drain and fill cycles. Each mixer shall consist of a water-filled submersible motor, an impeller and a non-submersible control center that houses all control electronics. The mixer shall be suitable for continuous use while submerged in potable water storage tanks.

1.4 CONTRACTOR SUBMITTALS

- A. NSF Certification
 - 1. Copies of the NSF-61 certified listing for all submersible mixer material being placed inside the tank and headspace, including the motor and power cable.
- B. Installation, Operations, and Maintenance Manuals shall be obtained from the equipment manufacturer and submitted. The following sections shall be included:
 - 1. General equipment specifications and data sheets.
 - 2. Installation, start-up, operation, and maintenance instructions.
 - 3. Factory-recommended maintenance schedule.
 - 4. Wiring diagrams specifying what electrical wiring needs to be done onsite during and prior to the installation, and by which responsible party.
 - 5. List of equipment or tooling necessary for diagnostics, trouble-shooting, repair or general maintenance.

1.5 QUALITY ASSURANCE

- A. Each mixing system shall be tested prior to deployment according to standard engineering practices at the factory testing facilities.
- B. Complete mixing system is NSF/ANSI Standard 61 certified by NSF.

1.6 WARRANTY

- A. Beginning with shipment to Buyer and ending on the time periods listed below, the Product is warranted to be substantially free from defects in material and workmanship and to conform to Seller's specifications applicable to the Product –
 - 1. Three (3) years on all supplied parts.
 - 2. One hundred twenty (120) days labor.

PART 2 PRODUCTS

2.1 SUBMERSIBLE MIXER - SMALL

A. PERFORMANCE

- 1. Mixing system shall completely mix reservoir according to the following minimum performance requirements. These requirements shall be measured and validated after installation by operators with the help of mixer manufacturer with readily-available tools such as temperature probes and total chlorine grab samplers.
 - a. Temperature Uniformity
 - 1) For tanks up to 375,000 gallons in volume: All temperatures shall converge to within 0.50°C within 24 hours after mixer is installed and activated.
 - 2) Disinfectant Residual Uniformity
 - 3) For tanks up to 375,000 gallons in volume: Disinfectant residual within top five feet of tank and bottom five feet of tank will converge to within 0.20 ppm within 24 hours after mixer is installed and activated. During continuous operation of the mixer, disinfectant residual will converge to within 0.20 ppm at least once every 24 hours.

B. GENERAL

- 1. Mixing system consists of a spiral-shaped nozzle mounted in a submersible stainless steel casing. System is lowered to the tank floor and creates a vertical flow pattern inside the tank. Devices with an externally mounted pump shall not be acceptable. Mixer operation shall be independent of tank drain and fill cycles to ensure constant mixing. Mixer shall weigh less than 40 lbs (~18 kg) and be able to be hoisted, installed, and/or removed by on-site personnel without additional equipment needed, and so that there is no crush hazard or entanglement hazard present, and so that weight of mixer on tank floor does not cause damage to interior coating.

2. Mixing system inlet shall be elevated at a minimum of 6” above tank floor to avoid disturbing accumulated tank sediment or entraining particles and causing accelerated wear of moving parts.
3. Mixers using submersible pump with slit or “water sheet” or horizontal motor mounting designs are not acceptable.
4. Mixers shall include a buoyancy mechanism to keep nozzle pointing upright no matter the angle of the tank floor.
5. Mixers shall include integrated power cable as a lowering mechanism for simplicity.
6. Mixer provider must have more than 1000 installation of similar equipment in potable water tank.
7. Mixers shall have no oil-filled parts.
8. All wet-side mixer components shall be certified by NSF to the NSF/ANSI Standard 61
9. Dry-side mixer components shall include sine filter to prolong motor life and reduce noise level.
10. Power source for mixer shall be 115VAC single phase grid power to allow unit to continue 24/7 operation.
11. No maintenance required on the wet-side components in typical potable water application.
12. No passive mixing system allowed.

C. CONSTRUCTION

1. The mixer shall be certified by NSF to the NSF/ANSI Standard 61.
2. Equipment entering tank shall not adhere to, scratch or otherwise cause damage to internal tank coating or put undue stress on the materials of the tank construction. Equipment shall fit through a standard hatch of size 12” x12” or larger. UTILITY may prefer to puncture side-wall or ceiling of tank (in place of penetrating the hatch-way) to allow motor cable entry into the tank and protection against freezing/ice damage.
3. Each submersible mixer shall consist of the following components, regardless of the power source selected:
 - a. Nozzle
 - 1) AISI Type 316 Stainless Steel
 - 2) Electropolished to minimize surface corrosion
 - b. Nozzle housing
 - 1) AISI Type 316 Stainless Steel
 - 2) Brush finish to minimize surface corrosion
 - 3) Buoyancy mechanism to keep nozzle pointing upright no matter the angle of the tank floor
 - 4) Chlorine/chloramine resistant rubber foot pad to avoid scratching tank floor
 - 5) Integrated power cable and lowering mechanism for simplicity
 - c. Motor
 - 1) Stainless Steel 304 body
 - 2) Chlorine/Chloramine resistant rubber seals
 - 3) Fully submersible

4. Control Center shall include the following:
 - a. On/Off Safety Disconnect Switch with indicator light and SCADA Interface.
 - b. Enclosure
 - 1) Type 3R
 - 2) Lockable
 - 3) Weather Resistant
 - 4) Indicator light showing Mixer run status
 - 5) Manual On/Off Switch
 - 6) SCADA Interface: Digital output indicating motor running (Output contacts are SPDT, UL/CUR File E44211 Approved Contact Ratings)
 - c. The SCADA interface shall include SPDT dry contacts for hardwired alarms. The alarms shall include:
 - 1) Mixer running monitoring
 - 2) Mixer fault monitoring
 - 3) ON/OFF remote control
 - d. GFCI-protection
 - 1) 115/230VAC, single-phase, with a 300mA trip level GFCI included inside control center
 - e. Branch Circuit Protection
 - 1) Panel equipped with a 115/230VAC 20-Amp main breaker
 - f. Sine Filter

D. CONTROLS

1. Each unit shall be equipped with all necessary controls, inter-wired, to provide the following minimum functions:
 - a. On/Off switch to control power to mixer.
 - b. Automatically-activated motor shut-off if water level drops below motor height in tank.
 - c. Sine filter
 - d. Any other controls shown on electrical and instrumentation drawings

E. MANUFACTURER

1. PAX Water Technologies PWM100 PAX Mixer with a PCC105 PAX Control Center.

2.2 SUBMERSIBLE MIXER - LARGE

A. PERFORMANCE

1. Mixing system shall completely mix reservoir according to the following minimum performance requirements. These requirements shall be measured and validated after installation by operators with the help of mixer manufacturer with readily-available tools such as temperature probes and total chlorine grab samplers.
 - a. Temperature Uniformity
 - 1) For tanks up to 750,000 gallons in volume: All temperatures shall converge to within 0.50°C within 24 hours after mixer is installed and activated.
 - 2) Disinfectant Residual Uniformity

- 3) For tanks up to 750,000 gallons in volume: Disinfectant residual within top five feet of tank and bottom five feet of tank will converge to within 0.20 ppm within 24 hours after mixer is installed and activated. During continuous operation of the mixer, disinfectant residual will converge to within 0.20 ppm at least once every 24 hours.

B. GENERAL

1. Mixing system consists of a spiral-shaped nozzle mounted in a submersible stainless steel casing. System is lowered to the tank floor and creates a vertical flow pattern inside the tank. Devices with an externally mounted pump shall not be acceptable. Mixer operation shall be independent of tank drain and fill cycles to ensure constant mixing. Mixer shall weigh less than 45 lbs (~18 kg) and be able to be hoisted, installed, and/or removed by on-site personnel without additional equipment needed, and so that there is no crush hazard or entanglement hazard present, and so that weight of mixer on tank floor does not cause damage to interior coating.
2. Mixing system inlet shall be elevated at a minimum of 6" above tank floor to avoid disturbing accumulated tank sediment or entraining particles and causing accelerated wear of moving parts.
3. Mixers using submersible pump with slit or "water sheet" or horizontal motor mounting designs are not acceptable.
4. Mixers shall include a buoyancy mechanism to keep nozzle pointing upright no matter the angle of the tank floor.
5. Mixers shall include integrated power cable as a lowering mechanism for simplicity.
6. Mixer provider must have more than 1000 installation of similar equipment in potable water tank.
7. Mixers shall have no oil-filled parts.
8. All wet-side mixer components shall be certified by NSF to the NSF/ANSI Standard 61
9. Dry-side mixer components shall include sine filter to prolong motor life and reduce noise level.
10. Power source for mixer shall be 115VAC single phase grid power to allow unit to continue 24/7 operation.
11. No maintenance required on the wet-side components in typical potable water application.
12. No passive mixing system allowed.

C. CONSTRUCTION

1. The mixer shall be certified by NSF to the NSF/ANSI Standard 61.
2. Equipment entering tank shall not adhere to, scratch or otherwise cause damage to internal tank coating or put undue stress on the materials of the tank construction. Equipment shall fit through a standard hatch of size 18" x18" or larger. UTILITY may prefer to puncture side-wall or ceiling of tank (in place of penetrating the hatch-way) to allow motor cable entry into the tank and protection against freezing/ice damage.

3. Each submersible mixer shall consist of the following components, regardless of the power source selected:
 - a. Nozzle
 - 1) AISI Type 316 Stainless Steel
 - 2) Electropolished to minimize surface corrosion
 - b. Nozzle housing
 - 1) AISI Type 316 Stainless Steel
 - 2) Brush finish to minimize surface corrosion
 - 3) Buoyancy mechanism to keep nozzle pointing upright no matter the angle of the tank floor
 - 4) Chlorine/chloramine resistant rubber foot pad to avoid scratching tank floor
 - 5) Integrated power cable and lowering mechanism for simplicity
 - c. Motor
 - 1) Stainless Steel 304 body
 - 2) Chlorine/Chloramine resistant rubber seals
 - 3) Fully submersible
4. Control Center shall include the following:
 - a. On/Off Safety Disconnect Switch with indicator light and SCADA Interface.
 - b. Enclosure
 - 1) Type 3R
 - 2) Lockable
 - 3) Weather Resistant
 - 4) Indicator light showing Mixer run status
 - 5) Manual On/Off Switch
 - 6) SCADA Interface: Digital output indicating motor running (Output contacts are SPDT, UL/CUR File E44211 Approved Contact Ratings)
 - c. The SCADA interface shall include SPDT dry contacts for hardwired alarms. The alarms shall include:
 - 1) Mixer running monitoring
 - 2) Mixer fault monitoring
 - 3) ON/OFF remote control
 - d. GFCI-protection
 - 1) 115/230VAC, single-phase, with a 300mA trip level GFCI included inside control center
 - e. Branch Circuit Protection
 - 1) Panel equipped with a 115/230VAC 20-Amp main breaker
 - f. Sine Filter

D. CONTROLS

1. Each unit shall be equipped with all necessary controls, inter-wired, to provide the following minimum functions:
 - a. On/Off switch to control power to mixer.
 - b. Automatically-activated motor shut-off if water level drops below motor height in tank.
 - c. Sine filter
 - d. Any other controls shown on electrical and instrumentation drawings

E. MANUFACTURER

1. PAX Water Technologies PWM150 PAX Mixer with a PCC155 PAX Control Center.

PART 3 EXECUTION

3.1 INSTALLATION

- A. The CONTRACTOR shall furnish services of a factory-trained and certified installation contractor or crew having experience with installation procedures and operation and maintenance requirements for the type of equipment installed under these specifications. Mixer must be able to be installed through a 12"x12" hatch for small mixer and 18"x18" hatch for large mixer. Mixer must be able to be installed without draining tank or taking tank out of service. Wet-side of Mixer shall weigh less than 45 pounds (~18 kg) and dry-side shall weigh less than 55 pounds (~25 kg). Both wet-side and dry-side shall be able to be hoisted, installed, and/or removed by on-site personnel without additional equipment needed, and so that there is no crush hazard or entanglement hazard present, and so that weight of mixer on tank floor does not cause damage to interior coating.
- B. The mixer and optional SCADA interface or control center shall be installed in accordance with approved procedures submitted and as shown, unless otherwise approved in writing from the Factory.

3.2 START-UP AND COMMISSIONING

- A. A factory-trained and certified individual shall provide start-up and commissioning.
- B. After installation and connection work has been completed, CONTRACTOR shall verify the equipment is properly installed.
 1. CONTRACTOR to verify the following
 2. Polarity of electric power and signal connections.
 3. Correct applied voltages to all equipment.
 4. Required grounds are properly connected.
 5. The integrity of all connections.
- C. CONTRACTOR shall certify in writing that the system has been verified for proper installation.
- D. System Testing
 1. The CONTRACTOR shall notify the ENGINEER a minimum of 14 days in advance of the scheduled system testing.
 2. System testing shall not commence until after approved acceptance of all wire, calibration, and loop tests.
 3. All systems shall be tested prior to the beginning of plant operational testing.
 4. Completion of system testing activities shall be documented by a certified report, including all test forms, with test data entered, furnished to ENGINEER.

5. System testing shall at a minimum demonstrate the following:
 - a. Each component of the system operates properly with all other components of the system.
 - b. Interlocks perform properly.
 - c. Control sequences perform properly.
 6. System testing activities shall include the use of water to establish service conditions simulating normal final control element operating conditions in terms of applied process loads, operating ranges and environmental conditions.
 7. Final control elements, control panels and supplementary equipment shall be tested under start up and steady state operating conditions to verify proper and stable control is achieved using all control center and field mounted control circuits associated with each system.
 8. Hardwired and software control circuit interlocks and alarms shall be operational.
 9. Control of final control elements and supplementary equipment shall be tested using both manual and automatic control circuits.
 10. Stable steady state operation of final control elements running under the control of field mounted automatic analog controllers or software based controllers shall be assured by adjusting the controllers, to eliminate oscillatory final control element operation.
 11. CONTRACTOR shall submit to ENGINEER a copy of completed test reports specified in this Section and Section 16080 - Electrical Testing
- E. Commissioning
1. CONTRACTOR shall then perform Commissioning as follows:
 - a. Operating the station for 7 consecutive days without a significant interruption with the exception of any interruption caused by training conducted during this time period.
 - b. The station shall be operated in every designed control mode including the operation of all equipment.
 2. Should a significant interruption occur the fault causing the interruption shall be corrected by the CONTRACTOR and the Commissioning period of 7 consecutive days shall be restarted

3.3 TRAINING

- A. PAX Water Technologies staff (or their representatives) will instruct designated UTILITY personnel in the safe and proper operation of the PAX Water Mixer. This training will reference the operations manual provided with equipment, and show how to check for proper functioning of the equipment.
- B. Reference Section 16015 Demonstration & Training for additional requirements.

END OF SECTION