CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO. 3 PROJECT
CIP NO. 24006 & 24007

ADDENDUM 4
DATED: March 6, 2025

This addendum forms part of the Contract Documents and modifies the original Plans and Specifications. **Bidders shall acknowledge receipt of this Addendum by signing the attached acknowledgement and including the Acknowledgement in their bid proposal.** Failure to include the Acknowledgement with their bid may subject the bidder to disqualification.

GENERAL:

The following changes, deletions, and additions shall be made to the following documents, as noted, and shall take precedence over the original Contract Documents. All other requirements remain the same.

Item	Drawing/Specification	Description
4.01	Specifications Section 11227 – Large Bubble Mixing System	*Revised specifications Section 11227 Large Bubble Mixing System:* • Delete paragraph 2.06.A.4 in its entirety and renumber subsequent paragraphs.
4.02	Specifications Section 11246 – Polymer Blending and Feed Equipment: Liquid	*Revised specifications Section 11246 – Polymer Blending and Feed Equipment: Liquid* • In paragraph 2.06.A, add "4. Panel shall be provided with a minimum short circuit interrupting rating of 65,000 amperes, symmetrical."
4.03	Specifications Section 11334 – Inline Grinders	*Revised specifications Section 11334 – Inline Grinders* • In paragraph 2.05.A.1., add "h. Panel shall be provided with a minimum short circuit interrupting rating of 65,000 amperes, symmetrical."

4.04 Specifications Section 11354 – Thickeners	*Revised specifications Section 11354 – Thickeners* • In paragraph 2.04.K.3.a, replace "Rockwell PLC CompactLogix" with "Schneider Electric M340 PLC utilizing X80 modules". • In paragraph 2.04.K.3.b.2, add "shall be Schneider Electric Harmony GTU, 10.4" at the end of the sentence. • In paragraph 2.04.K., add: o "6. Panel enclosure shall be fabricated from 316 stainless steel. o 7. Panel enclosure shall be provided with closed-loop air conditioning system. o 8. Panel shall be provided with a minimum short circuit interrupting rating of 65,000 amperes, symmetrical."
4.05 Specifications Section 11358 – Centrifuge Dewatering Equipment	*Revised specifications Section 11358 – Centrifuge Dewatering Equipment* • In paragraph 2.11.F.1., add "j. Panel shall be provided with a minimum short circuit interrupting rating of 65,000 amperes, symmetrical."
4.06 Specifications Section 11395A – Packaged Odor Control System	*Revised specifications Section 11395A – Packaged Odor Control System* • In paragraph 2.04.A., add "8. Panels shall be provided with a minimum short circuit interrupting rating of 65,000 amperes, symmetrical."
4.07 Specifications Section 14624 – Monorail System	*Revised specifications Section 14624 – Monorail System* • In paragraph 2.02.B.2., replace "4 ton" with "1 ton".
4.08 Specifications Section 16100 – Electrical Requirements	*Revised specifications Section 16100 – Electrical Requirements* • In paragraph 2.13.Y.5., delete "Allen-Bradley".
4.09 Specifications Section 17100 – Control System Requirements	*Revised specifications Section 17100 – Control System Requirements* • Replace paragraph 1.01.B.4.e in its entirety with "e. Provide new gauges, instrument seals and instrument piping as specified in Sections 17401, 17402 and 17404." • In paragraph 2.11.A delete the following and renumber subsequent paragraphs: o "2. FIT-07-031: RDT 1 Flowmeter. o 3. FIT-07-032: RDT 2 Flowmeter. o 4. FIT-07-033: RDT 3 Flowmeter.

	○ 5. FIT-07-041: Polymer Skid 1 Dilution Water Flowmeter. ○ 6. FIT-07-042: Polymer Skid 2 Dilution Water Flowmeter. ○ 7. FIT-07-043: Polymer Skid 3 Dilution Water Flowmeter." • In paragraph 2.12.A, add the following: ○ "3. FIT-07-031: RDT 1 Flowmeter. ○ 4. FIT-07-032: RDT 2 Flowmeter. ○ 5. FIT-07-033: RDT 3 Flowmeter."
4.10 Specifications (Replacement & Addition)	*Revised specifications with the following specification section replacement and addition (Attachment 1):* *Delete the following specification sections:* • 09960 – HIGH PERFORMANCE COATINGS ATTACHMENTS *Replace with:* • 09960 – HIGH PERFORMANCE COATINGS ATTACHMENTS *Revised Specifications to include the following specification sections:* • 17401 – PRESSURE/VACUUM MEASUREMENT DIAPHRAGM AND ANNULAR SEALS • 17402 – PRESSURE/VACUUM MEASUREMENT: INSTRUMENT VALVES • 17404 – PRESSURE/VACUUM MEASUREMENT: GAUGES.
4.12 Drawings (Replacement & Addition)	*Revised drawing plan sheets with the following plan sheet replacement and addition (Attachment 2):* *Delete the following plan sheets:* • 00G002 – DRAWING INDEX 1 • 00C002 – YARD PIPING PLAN – NORTH • 00C003 – YARD PIPING PLAN – SOUTH • 07M100 – SLUDGE BLEND TANKS PERSPECTIVE VIEWS • 07M101 – SLUDGE BLEND TANKS PLAN • 07M102 – SLUDGE BLEND TANKS SECTIONS • 00E017 – PANELBOARD SCHEDULES • 00E041 – CONTROL SCHEMATICS 11 • 00E045 – CONTROL SCHEMATICS 15 • 00E046 – CONTROL SCHEMATICS 16 • 00E052 – CIRCUIT SCHEDULES 2

	• 00E053 – CIRCUIT SCHEDULES 3 • 00E054 – CIRCUIT SCHEDULES 4 • 00E062 – ELECTRICAL DETAILS 2 • 00E064 – ELECTRICAL DETAILS 4 • 00E066 – ELECTRICAL DETAILS 6 • 07E201 – RDT FACILITY LOWER POWER AND CONTROL PLAN • 00N027 – NEW CPNL-05-01A: INPUT/OUTPUT SIGNAL LIST 3 • 00N028 – NEW CPNL-05-01A: INPUT/OUTPUT SIGNAL LIST 4 • 07N011 – P&ID: RDT FEED PUMPS 1 AND 2 • 07N021 – P&ID: RDT DRUM THICKENER 1 • 07N022 – P&ID: RDT DRUM THICKENER 2 • 07N023 – P&ID: RDT DRUM THICKENER 3 • 07N024 – P&ID: RDT DRUM THICKENER 4 • 07N041 – P&ID: THICKENED SLUDGE PUMP 1 • 07N042 – P&ID: THICKENED SLUDGE PUMP 2 • 07N043 – P&ID: THICKENED SLUDGE PUMP 3 • 07N044 – P&ID: FUTURE THICKENED SLUDGE PUMP 4 • 07N051 – P&ID: THICKENING POLYMER STORAGE AND BLENDING UNIT 1 • 07N052 – P&ID: THICKENING POLYMER BLENDING UNIT 2 • 07N053 – P&ID: THICKENING POLYMER BLENDING UNIT 3 • 07N054 – P&ID: FUTURE THICKENING POLYMER BLENDING UNIT 4 • 00TC003 – CIVIL 3 *Replace with:* • 00G002 – DRAWING INDEX 1 • 00C002 – YARD PIPING PLAN – NORTH • 00C003 – YARD PIPING PLAN – SOUTH • 07M100 – SLUDGE BLEND TANKS PERSPECTIVE VIEWS • 07M101 – SLUDGE BLEND TANKS PLAN • 07M102 – SLUDGE BLEND TANKS SECTIONS • 00E017 – PANELBOARD SCHEDULES • 00E041 – CONTROL SCHEMATICS 11 • 00E045 – CONTROL SCHEMATICS 15 • 00E046 – CONTROL SCHEMATICS 16 • 00E052 – CIRCUIT SCHEDULES 2

	• 00E053 – CIRCUIT SCHEDULES 3 • 00E054 – CIRCUIT SCHEDULES 4 • 00E062 – ELECTRICAL DETAILS 2 • 00E064 – ELECTRICAL DETAILS 4 • 00E066 – ELECTRICAL DETAILS 6 • 07E201 – RDT FACILITY LOWER POWER AND CONTROL PLAN • 00N027 – NEW CPNL-05-01A: INPUT/OUTPUT SIGNAL LIST 3 • 00N028 – NEW CPNL-05-01A: INPUT/OUTPUT SIGNAL LIST 4 • 07N011 – P&ID: RDT FEED PUMPS 1 AND 2 • 07N021 – P&ID: RDT DRUM THICKENER 1 • 07N022 – P&ID: RDT DRUM THICKENER 2 • 07N023 – P&ID: RDT DRUM THICKENER 3 • 07N024 – P&ID: RDT DRUM THICKENER 4 • 07N041 – P&ID: THICKENED SLUDGE PUMP 1 • 07N042 – P&ID: THICKENED SLUDGE PUMP 2 • 07N043 – P&ID: THICKENED SLUDGE PUMP 3 • 07N044 – P&ID: FUTURE THICKENED SLUDGE PUMP 4 • 07N051 – P&ID: THICKENING POLYMER STORAGE AND BLENDING UNIT 1 • 07N052 – P&ID: THICKENING POLYMER BLENDING UNIT 2 • 07N053 – P&ID: THICKENING POLYMER BLENDING UNIT 3 • 07N054 – P&ID: FUTURE THICKENING POLYMER BLENDING UNIT 4 • 00TC003 – CIVIL 3 *Revised drawing plans to include the following plan sheets:* • 00G010 – EXISTING SITE CONDITIONS

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO. 3 PROJECT
CIP NO. 24006 & 24007

ADDENDUM 4
DATED: March 6, 2025

I acknowledge receipt of Addendum No. 4.

Company _____

By: _____

Title: _____

Address: _____

Date: _____

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO. 3 PROJECT
CIP NO. 24006 & 24007

ADDENDUM 4
DATED: March 6, 2025

ATTACHMENT 1

Specifications (Replacement)

- 09960 – HIGH PERFORMANCE COATINGS ATTACHMENTS

Specifications (Addition)

- 17401 – PRESSURE/VACUUM MEASUREMENT DIAPHRAGM AND ANNULAR SEALS
- 17402 – PRESSURE/VACUUM MEASUREMENT: INSTRUMENT VALVES
- 17404 – PRESSURE/VACUUM MEASUREMENT: GAUGES.

Replace Attachment in its Entirety

ATTACHMENT A - SCHEDULE OF SURFACES TO BE COATED[AD4]

[AD4] Addendum 4

ATTACHMENT A
Schedule of Surfaces to be Coated

A. The following schedule is incomplete. Coat unlisted surfaces with same coating system as similar listed surfaces. Contact Engineer for clarification.

EPU-M-1	Metals, exterior and interior, non-immersed
EPX-GM-1	Galvanized pipe
EPX-M-5	Aluminum surfaces in contact with concrete or masonry. Locations where Alkali-resistant bitumastic is specified.
EPX-M-6-BG	Metals: below grade or buried valves and appurtenances, excluding pipe
EPX-C-2	Concrete surfaces as indicated on the drawings
POL-C-1-BSC	Concrete surfaces, immersed and in vapor space as indicated on the drawings
EPU-FRP-1	FRP surfaces, exterior and interior, exposed to view
ACR-PVC-1	CPVC, PVC Exterior Surfaces; Galvanized Rigid Conduit (GRC), PVC-coated Rigid Steel Conduit (PCS), flexible conduit, and associated fittings and appurtenances

Notes:

1: Non-immersed ferrous metal surfaces include:
- a. Doors, doorframes, ventilators, louvers, grilles, exposed sheet metal, and flashing.
- b. Pipe, valves, pipe hangers, supports and saddles, conduit, cable tray hangers, and supports.
- c. Motors and motor accessory equipment.
- d. Drive gear, drive housing, coupling housings, and miscellaneous gear drive equipment.
- e. Valve and gate operators and stands.
- f. Structural steel.
- g. Crane and hoist rails.
- h. Exterior of tanks and other containment vessels.
- i. Mechanical equipment supports, drive units, and accessories.
- j. Bare electrical equipment: boxes, exposed conduit, and accessories.
- k. Pumps not submerged.
- l. Other miscellaneous metals.

2: Immersed ferrous metal surfaces include:
- a. Interior surfaces of ferrous metal tanks.
- b. Field priming of ferrous metal surfaces with defective shop-prime coat; including non-submerged service.
- c. Bell rings, underside of manhole covers and frames.
- d. Sump pumps, including underside of base plates and submerged suction and discharge piping.
- e. Exterior of submerged piping and valves other than stainless steel or PVC piping.
- f. Submerged pipe supports and hangers.
- g. Stem guides.
- h. Other submerged iron and steel metal unless specified otherwise.

Replace Attachment in its Entirety

ATTACHMENT B - COATING DETAIL SHEETS[AD4]

[AD4] Addendum 4

Attachment B			
Coating Detail Sheet			
Coating System	EPU-M-1		
Coating Material	Two coats epoxy with polyurethane finish coat		
Substrate	Metal		
Products: One of the following or equal:	Primer	Intermediate Coat	Finish Coat
Carboline	Carboguard 890	Carboguard 890	Carbothane 134 VOC
International Paint	Devran 224V	Devran 224V	Devthane 379H
PPG	Amerlock 2VOC	Amerlock 2VOC	Amershield VOC
Sherwin Williams	Macropoxy 646 100	Macropoxy 646 100	Hi Solids Polyurethane 250
Tnemec	Series 69	Series 69	Series 1095
Service Condition	Interior or Exterior, subject to direct sunlight. Non-immersion.		
Surface Preparation			
General	Prepare surfaces as specified in this Section and as follows.		
Ferrous Metal	Bare surfaces: SSPC-SP10, Near-White Blast Cleaning. Shop primed surfaces: SSPC-SP2, Hand Tool Cleaning or SSPC-SP3, Power Tool Cleaning. Damaged primer or rust: SSPC-SP10, Near White Blast Cleaning and spot prime.		
Nonferrous Metal	SSPC-SP16, Brush Blast Cleaning.		
Galvanized Metal	SSPC-SP16, Brush Blast Cleaning. Test for surface contaminants.		
Surface Profile			
Ferrous Metal	2.5 to 3.0 mils		
Nonferrous Metal	1.5 to 2.0 mils		
Galvanized Metal	1.5 to 2.0 mils		
System Thickness (Dry Film)			
Total	10 to 13 mils		
Primer	4 to 5 mils		
Intermediate Coat	4 to 5 mils		
Finish Coat	2 to 3 mils		
Application			
Special CTR Training	Not required.		

Attachment B			
Coating Detail Sheet			
Coating System	EPX-GM-1		
Coating Material	Epoxy		
Substrate	Galvanized Steel		
Products: One of the following or equal:	Primer	Intermediate Coat	Finish Coat
Carboline	Carboguard CM94	None applied	Carboguard CM94
International Paint	Devran 201V	None applied	Devran 224V
PPG	Amerlock 2/400 Series	None applied	Amerlock 2/400 Series
Sherwin Williams	Macropoxy 646	None applied	Macropoxy 646
Tnemec	Series V69	None applied	Series V69
Service Condition	Interior, moderately corrosive.		
Surface Preparation			
General	Prepare surfaces as specified in this Section and as follows.		
Galvanized Metal	SSPC-SP16, Brush Blast Cleaning. Test for surface contaminants.		
Surface Profile			
Galvanized Metal	1.5 to 2.0 mils		
System Thickness (Dry Film)			
Total	5 to 8 mils		
Primer	3 to 4 mils		
Finish Coat	3 to 4 mils		
Application			
Special CTR Training	Not required.		

Attachment B			
Coating Detail Sheet			
Coating System	EPX-M-5		
Coating Material	Epoxy mastic		
Substrate	Metal		
Products: One of the following or equal:	Primer	Intermediate Coat	Finish Coat
Carboline	CSM recommended	None applied	Carbomastic 15
International Paint	CSM recommended	Bar-Rust 231LV	Bar-Rust 231LV
PPG	No product specified	No product specified	No product specified
Sherwin Williams	CSM recommended	No product specified	No product specified
Tnemec	CSM recommended	Series 135	Series 135
Service Condition	Interior, corrosive environment, confined enclosures, where minimal surface preparation is possible.		
Surface Preparation			
General	Prepare surfaces as specified in this Section and as follows.		
Ferrous Metal	Bare surfaces: SSPC-SP11, Power to Cleaning to Bare Metal. Shop primed surfaces: SSPC-SP3, Power Tool Cleaning. Damaged primer or rust: SSPC-SP11, Power to Cleaning to Bare Metal.		
Nonferrous Metal	SSPC-SP16, Brush-Off Blast Cleaning.		
Surface Profile			
Ferrous Metal	2.0 to 2.5 mils		
Nonferrous Metal	1.0 to 1.5 mils		
System Thickness (Dry Film)			
Total	15 to 19 mils		
Primer	2 to 4 mils		
Finish Coat	15 mils		
Application			
Special CTR Training	Not required.		

Attachment B			
Coating Detail Sheet			
Coating System	EPX-M-6-BG		
Coating Material	Epoxy		
Substrate	Metal		
Products: One of the following or equal:	Primer	Intermediate Coat	Finish Coat
Carboline	Carboguard 890	Carboguard 890	Carboguard 890
International Paint	Bar-Rust 236	Bar-Rust 236	Bar-Rust 236
PPG	Amerlock 400	Amerlock 400	Amerlock 400
Sherwin Williams	No product specified	No product specified	No product specified
Tnemec	Series 69	Series 69	Series 69
Service Condition	Below grade in contact with soil.		
Surface Preparation			
General	Prepare surfaces as specified in this Section and as follows.		
Ferrous Metal	SSPC-SP10, Near White Metal Blast Cleaning.		
Nonferrous Metal	SSPC-SP16, Brush-Off Blast Cleaning.		
Galvanized Metal	SSPC-SP16, Brush-Off Blast Cleaning.		
Surface Profile			
Ferrous Metal	2.5 to 3.0 mils		
Nonferrous Metal	1.5 to 2.0 mils		
Galvanized Metal	1.5 to 2.0 mils		
System Thickness (Dry Film)			
Total	16 mils		
Primer	4 to 6 mils		
Intermediate Coat	4 to 6 mils		
Finish Coat	4 to 6 mils		
Application			
General	Fill all bugholes with a filler/surfacer compatible with the coating.		
Special CTR Training	Not required.		

Attachment B			
Coating Detail Sheet			
Coating System	EPX-C-2		
Coating Material	Epoxy		
Substrate	Concrete or masonry		
Products: One of the following or equal:	Primer	Intermediate Coat	Finish Coat
Carboline	Carboguard 890	Carboguard 890	Carboguard 890
International Paint	Bar-Rust 236	Bar-Rust 236	Bar-Rust 236
PPG	Amerlock 2/400 Series	Amerlock 2/400 Series	Amerlock 2/400 Series
Sherwin Williams	Macropoxy 646	Macropoxy 646	Macropoxy 646
Tnemec	Series 69	Series 69	Series 69
Service Condition	Immersion, Interior, Non-Immersion, Moderately Corrosive.		
Surface Preparation			
General	Prepare surfaces as specified in this Section and as follows.		
Concrete	Cure at least 28 days and dry to the CSM's recommended moisture content. Remove loose concrete and laitance from surfaces, and repair voids and cracks as specified in this Section.		
Existing Coated Concrete	Remove all existing coating to a sound substrate or intact, well-adhered coating. Abrade all surfaces to achieve required surface profile and vacuum to remove all loose dirt, paint chips, and dirt.		
Masonry	Cure at least 28 days and dry to CSM's recommended moisture content. Fill holes or other joint defects with mortar and repoint. Scrape or chip to remove loose or splattered mortar. Wash and scrub masonry surfaces with clear water to remove foreign and deleterious substances. Do not use muriatic acid. Fill surfaces with block filler compatible with the specified primer after cleaning.		
Surface Profile			
Concrete	0.5 to 1.5 mils		
Existing Coated Concrete	0.5 to 1.5 mils		
Masonry	0.5 to 1.5 mils		
System Thickness (Dry Film)			
Total	10 mils, excluding block filler and sealer.		
Application			
General	Let sealer or filler dry at least 48 hours before primer application. Use CSM's recommended drying time between coats.		
Special CTR Training	Not required.		

Attachment B			
Coating Detail Sheet			
Coating System	POL-C-1-BSC		
Coating Material	Hybrid Polyurethane		
Substrate	Concrete or dense masonry		
Products: One of the following or equal:	Primer	Intermediate Coat	Finish Coat
Carboline	Reactamine 760	Reactamine 760	Reactamine 760
Global Eco Technologies	Endura-Flex EF 1200P	Endura-Flex EF 1988	Endura-Flex EF 1988
International Paint	Interseal 670HS LTC Buff	Polibrid 705	Polibrid 705
Sherwin Williams	Macropoxy 5500	Polycote 115	Polycote 115
Service Condition	Interior or exterior, Immersed, non-potable; non-immersed, corrosive environment, biogenic sulfide corrosion, new or existing construction. Waterproofing in accordance with **[Section 07110(07_11_ 00) - Dampproofing][Section 07130(07_13_00) - Sheet Waterproofing]** for exterior of buried tanks.		
Surface Preparation			
General	Prepare surfaces as specified in this Section and as follows.		
Concrete	Apply concrete surfacer, as required, after surface is accepted to provide a smooth surface. Completely fill all bugholes with the same material. Brush blast clean after adequate cure per CSM's instructions to produce a uniform anchor pattern. Let concrete substrate cure under warm conditions (minimum of 75 degrees F) for at least 5 days before coating application if using wet abrasive or water jet surface preparation. Sawcut 1/4" minimum deep groove and provide coating termination and transition details as shown on the drawings and in accordance with CSM's standard details including terminations, transitions at corners, cracks, pipe penetrations, terminations at metal embedments, and other details. Vacuum all surfaces to be coated after surface preparation and curing to remove all loose dirt, dust, or other loose materials.		
Existing Coated Concrete	Prepare as for new concrete. Apply a filler material and coat with surfacer to restore the substrate to a smooth surface suitable for coating. Refer to Section 09968(09_96_08)		
Masonry	Prepare as for new concrete. Apply a skim coat of a surfacer or filler material to provide a smooth surface suitable for coating.		
Surface Profile			
Concrete	ICRI CSP 5.		
Existing Coated Concrete	ICRI CSP 5.		
Masonry	ICRI CSP 3.		
System Thickness (Dry Film)			
Total	125 mils in addition to the surfacer.		
Primer	2-4 mils		
Intermediate and Finish Coats	Each coat at CSM's recommended DFT to specified system thickness.		
Application			
Special CTR Training	Required.		

Attachment B			
Coating Detail Sheet			
Coating System	EPU-FRP-1		
Coating Material	Polyurethane		
Substrate	FRP		
Products: One of the following or equal:	Primer	Intermediate Coat	Finish Coat
Carboline	Carboguard 890	None Applied	Carbothane 134 VOC
International Paint	Devran 224V	None Applied	Devthane 378H
PPG	Amercoat 400	None Applied	Amershield VOC
Sherwin Williams	Macropoxy 646-100	None Applied	VOC Hi Solids Polyurethane 100
Tnemec	Series 69	None Applied	Series 1095
Service Condition	Exterior, exposed to direct sunlight, non-immersed.		
Surface Preparation	Prepare surfaces as specified in this Section and as follows.		
General	Clean to remove loose dirt, dust, or other contaminants. Sand surfaces to achieve a uniform, roughened surface profile. Solvent clean and vacuum to remove loose debris.		
Surface Profile	1.5 to 2.0 mils		
System Thickness (Dry Film)			
Total	4 to 7 mils		
Primer	2 to 4 mils		
Finish Coat	2 to 4 mils		
Application			
Special CTR Training	Not required.		

Attachment B			
Coating Detail Sheet			
Coating System	ACR-PVC-1		
Coating Material	Acrylic		
Substrate	PVC and CPVC pipe		
Products: One of the following or equal:	Primer	Intermediate Coat	Finish Coat
Carboline	Sanitile 120	None Applied	Carbocrylic 3359 DTM
International Paint	Devcryl 1440	None Applied	Devcryl 1448
PPG	Pitt Tech Plus Primer	None Applied	Pitt Tech Plus
Sherwin Williams	Sher Cryl HPA	None Applied	Sher Cryl HPA
Tnemec	Series 1028 or 1029	None Applied	Series 1028 or 1029
Service Condition	Exterior, exposed to direct sunlight, non-immersed.		
Surface Preparation	Prepare surfaces as specified in this Section and as follows.		
General	Clean to remove loose dirt, dust, or other contaminants. Sand surfaces to achieve a uniform, roughened surface profile. Solvent clean and vacuum to remove loose debris.		
Surface Profile	1.5 to 2.0 mils		
System Thickness (Dry Film)			
Total	4 to 8 mils		
Primer	2 to 4 mils		
Finish Coat	2 to 4 mils		
Application			
Special CTR Training	Not required.		

New Section

SECTION 17401[AD4]

PRESSURE/VACUUM MEASUREMENT: DIAPHRAGM AND ANNULAR SEALS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Diaphragm seals.
   2. Annular seals.

1.02 REFERENCES

A. As specified in Section 17100 - Control System Requirements.

B. Standards:
   1. American National Standards Institute (ANSI).

1.03 SUBMITTALS

A. Furnish Submittals as specified in Section 01330 - Submittal Procedures.

B. Additional requirements:
   1. Product data:
      a. Manufacturer's installation instructions.
      b. Seal type.
      c. Body materials.
      d. Diaphragm material.
      e. Fill fluid type.
      f. Seal size.
      g. Options.
      h. Process connection.

1.04 QUALITY ASSURANCE

A. Examine the complete set of Contract Documents and verify the compatibility with the installed conditions, including:
   1. Process conditions: Fluids, pressures, temperatures, flows, materials, etc.
   2. Physical conditions:
      a. Installation and mounting requirements.
      b. Location within the process.
      c. Accessories: Verify that required accessories are provided and are compatible with the process conditions and physical installation.

1.05 PROJECT OR SITE CONDITIONS

A. As specified in Section 01850 - Design Criteria.

1.06 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Notify the Engineer if any installation condition does not meet the manufacturer's recommendations or specifications.

1.07 WARRANTY

A. As specified in Section 01783 - Warranties and Bonds.

1.08 MAINTENANCE

A. Furnish a spare annular seal for every size provided in the Project.

PART 2 PRODUCTS

2.01 GENERAL

A. Provide seals identified in the Contract Documents.

2.02 DESIGN AND PERFORMANCE CRITERIA

A. Provide instruments suitable for the installed Site conditions, including, but not limited to, material compatibility, Site altitude, Site seismic conditions, humidity, and process and ambient temperatures.

2.03 MANUFACTURERS

A. Diaphragm seals:
   1. For chemical applications, liquids containing solids, and liquids with pulsating flow having pressures greater than or equal to 15 pounds per square inch gauge: One of the following or equal:
      a. Ashcroft:
         1) Flushing connection: Type 201.
         2) Without flushing connection: Type 200.
         3) Saddle mount: Type 205.
      b. Mansfield and Green:
         1) Flushing connection: Type SG.
         2) Without flushing connection: Type SB.
         3) Saddle mount: Type SJ.
      c. Wika:
         1) Type L990.10.
         2) Saddle mount: L910.ZA.

B. Annular seals:
   1. One of the following or equal:
      a. Ashcroft, Wafer Isolation Ring.
      b. Onyx Valve.

2.04 MANUFACTURED UNITS

A. Diaphragm seals:
   1. General:
      a. Diaphragm seal and pressure instrument shall be assembled by the pressure instrument manufacturer and shipped as an assembly.
   2. Requirements:
      a. Seal type:
         1) Metallic diaphragm: Welded to upper housing.
         2) Elastomer diaphragm: Bonded to upper housing.
      b. Process connection:
         1) As indicated in the instrument datasheets.
      c. Instrument connection: 1/2-inch NPT.
      d. Material construction:
         1) As indicated in the instrument datasheets.
      e. Provide 1/4-inch flushing connection in diaphragm lower housing or provide flushing ring.
      f. Flush port plug: Same material of construction as diaphragm lower housing.
      g. Mounting: As indicated in the Contract Documents.
      h. Provide Type 316 stainless steel armored capillary for remote installations.
      i. Nuts and bolts: Type 316 stainless steel.
      j. Materials of construction:
         1) Sewage, sludge, liquids containing solids, and liquids with pulsating flow having pressures greater than 15 pounds per square inch:
            a) Diaphragm: Type 316 stainless steel.
            b) Lower housing: Type 316 stainless steel.
            c) Upper housing: Manufacturer's standard.
            d) Fill fluid: Silicone oil.
         2) Chlorine:
            a) Diaphragm: Tantalum.
            b) Lower housing: Hastelloy C.
            c) Upper housing: Manufacturer's standard.
            d) Fill fluid: Halocarbon.
         3) Engineer's approval.

B. Annular seals:
   1. General:
      a. Inside diameter of annular seal shall provide uninterrupted flow:
         1) There shall be no dead ends or crevices.
         2) Process flow shall be sufficient to make the annular seal self-cleaning.
      b. Pressure sensing flexible cylinder shall measure pressure around the full inside circumference of the pipeline.
   2. Requirements:
      a. Pressure rating: Equivalent to the ANSI flanges.
      b. Materials of construction:
         1) Inner flexible cylinder: Manufacturer's standard.
         2) Body:
            a) Carbon steel with epoxy coating.
            b) As indicated in the instrument datasheets.

3) Assembly flanges: To match adjacent piping.
4) Fill fluid: Silicone oil.

c. Nominal pipe size: As indicated on the Drawings.
d. Process connection:
1) As indicated in the instrument datasheets.
e. Instrument connection: 1/2-inch NPT.
f. Provide isolating needle valve between annular seal and pressure instrument.

2.05 ACCESSORIES (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION (NOT USED)

3.02 INSTALLATION

A. Coordinate the installation with trades to ensure that the mechanical system has necessary appurtenances, including weld-o-lets, valves, etc., for proper installation of instruments.

B. Do not use Teflon™ thread seal tape on pressure instruments with silicone oil fill fluid.

3.03 CALIBRATION AND TESTING

A. Per manufacturer's recommendations.

END OF SECTION

[AD4] Addendum 4

New Section

SECTION 17402[AD4]

PRESSURE/VACUUM MEASUREMENT: INSTRUMENT VALVES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Instrument valve tree.
   2. Valve manifolds.
   3. Level sensor isolation valves.

1.02 REFERENCES

A. As specified in Section 17100 - Control System Requirements.

1.03 SUBMITTALS

A. Furnish Submittals as specified in Section 01330 - Submittal Procedures.

B. Additional requirements:
   1. Product data:
      a. Instrument valve type.
      b. Body material.
      c. Size.
      d. Options.
   2. Shop Drawings:
      a. Mounting details for instrument valves.

1.04 QUALITY ASSURANCE

A. Examine the complete set of Contract Documents and verify that the valves are compatible with the installed conditions, including:
   1. Process conditions: Fluids, pressures, temperatures, flows, materials, etc.
   2. Physical conditions:
      a. Installation and mounting requirements.
      b. Location within the process.
      c. Accessories: Verify that required accessories are provided and are compatible with the process conditions and physical installation.

B. Provide valves manufactured at facilities certified to the quality standards of ISO 9001.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect valve manifolds and protective coatings from damage during handling and installation. Repair coating where damaged.

1.06 PROJECT OR SITE CONDITIONS

A. As specified in Section 01850 - Design Criteria.

1.07 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Notify the Engineer if any installation condition does not meet the manufacturer's recommendations or specifications.

1.08 WARRANTY

A. As specified in Section 01783 - Warranties and Bonds.

1.09 MAINTENANCE

A. Furnish parts, materials, fluids, etc., necessary for operation, maintenance, and calibration purposes throughout the warranty period. Deliver these supplies before Project Substantial Completion.

PART 2 PRODUCTS

2.01 GENERAL

A. Provide valves and valve manifolds identified in the Contract Documents.

2.02 DESIGN AND PERFORMANCE CRITERIA

A. Provide valves and valve manifolds suitable for the installed Site conditions, including, but not limited to, material compatibility, process, and ambient temperatures.

2.03 MANUFACTURERS

A. Instrument valve tree as indicated in the Contract Documents.

B. Valve manifolds:
   1. One of the following or equal:
      a. Anderson Greenwood.
      b. Emerson, Rosemount.
      c. Hex Valve.
      d. Noshok.

C. Level sensor isolation valves:
   1. One of the following or equal:
      a. DeZURIK.
      b. Indu-Tech.
      c. PBM.

2.04 MANUFACTURED UNITS

A. Instrument valve tree as indicated in the Contract Documents.

B. Valve manifolds:
   1. General:
      a. Provide 2-valve, 3-valve, blowdown type 5-valve, or metering type 5-valve manifolds, as indicated in the datasheets.
      b. Valve manifolds shall have 1-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads.
   2. Requirements:
      a. Bonnet lock pin to prevent accidental loosening.
      b. Gas leak tested metal-to-metal hard seat design for hard seat valves.
      c. Gas leak tested soft seat design with replaceable seat for soft seat valves.
      d. Manifold valves shall have straight through portion for bi-directional flow and easy roddable cleaning.
      e. Manifold valves shall allow for direct or remote instrument mounting.
      f. Shall be able to withstand pressures up to 6,000 psi for soft seat valves and 10,000 psi for hard seat valves at maximum 200 degrees Fahrenheit.
      g. Materials of construction:
         1) Body material: Type 316 stainless steel.
         2) O-ring: Teflon™.
      h. 2-valve manifolds:
         1) 1 isolation valve and 1 drain/vent and calibration valve.
      i. 3-valve manifolds:
         1) 2 isolation valves and 1 equalizing valve for differential pressure applications.
         2) Plugged vent connections used for vent/drain or calibration.
      j. Blowdown 5-valve manifold:
         1) 2 isolation valves, 1 equalizing valve, 2 blowdown valves for differential pressure applications.
      k. Metering 5-valve manifold:
         1) 2 isolation valves, 2 equalizing valves, 1 vent/drain and calibration valve for differential pressure applications.

C. Level sensor isolation valves:
   1. General:
      a. Valve shall provide process isolation from level diaphragm.
      b. Gas leak tested, metal-to-metal hard seat design for hard seat valves.
      c. Gas leak tested, soft seat design with replaceable seat for soft seat valves.
   2. Requirements:
      a. Materials of construction:
         1) Body material: Type 316 stainless steel.
         2) Flange diameter size: 3 inches.

2.05 ACCESSORIES

A. Provide tube fitting, female NPT, or pipe butt weld connections if necessary.

B. Provide stainless steel concentric or eccentric pipe nipples when necessary.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine the installation location and verify the valve will work properly when installed.

3.02 INSTALLATION

A. Coordinate the installation with trades to ensure that the mechanical system has necessary appurtenances, including weld-o-lets, valves, etc., for proper installation of valves.

END OF SECTION

[AD4] Addendum 4

New Section

SECTION 17404[AD4]

PRESSURE/VACUUM MEASUREMENT: GAUGES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Pressure/vacuum gauges.

1.02 REFERENCES

A. As specified in Section 17100 - Control System Requirements.

B. Standards:
   1. American Society of Mechanical Engineers (ASME):
      a. B40.100 - Pressure Gauges and Gauge Attachments.

1.03 SUBMITTALS

A. Furnish Submittals as specified in Section 01330 - Submittal Procedures.

B. Product data:
   1. Accessories.
   2. Certificate stating the instruments are suitable for the application.

1.04 QUALITY ASSURANCE

A. Examine the complete set of Contract Documents and verify that the instruments are compatible with the installed conditions, including:
   1. Process conditions: Fluids, pressures, temperatures, flows, materials, etc.
   2. Physical conditions:
      a. Installation and mounting requirements.
      b. Location within the process.
      c. Accessories: Verify that required accessories are provided and are compatible with the process conditions and physical installation.

1.05 PROJECT OR SITE CONDITIONS

A. As specified in Section 01850 - Design Criteria.

1.06 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Notify the Engineer if any installation condition does not meet the instrument manufacturer’s recommendations or specifications.

1.07 WARRANTY

A. As specified in Section 01783 - Warranties and Bonds.

PART 2 PRODUCTS

2.01 GENERAL

A. Provide instruments specified in the Contract Documents.

2.02 DESIGN AND PERFORMANCE CRITERIA

A. Provide instruments suitable for the installed Site conditions, including, but not limited to, material compatibility, Site altitude, Site seismic conditions, humidity, and process and ambient temperatures.

2.03 MANUFACTURERS

A. One of the following or equal:
   1. Ametek U.S. Gauge.
   2. Ashcroft:
      a. Maximum pressure less than 10 pounds per square inch: Model 1189.
      b. Maximum pressure greater than or equal to 10 pounds per square inch: Model 1379.
   3. Wika, Model XSEL type 232.34.

2.04 MANUFACTURED UNITS

A. General:
   1. Pressure gauge assembly shall include pressure sensing element, gauge case, and dial mechanism.

B. Performance requirements:
   1. Pressure range:
      a. As specified in the Contract Documents.
   2. Accuracy:
      a. Grade 2A, as defined by ASME B40.100.
      b. Within 1.0 percent of span after friction errors are eliminated by tapping or vibration.
      c. Maximum allowable friction inaccuracy: Within 1.0 percent of span.
   3. Element:
      a. Where the maximum pressure is less than 10 pounds per square inch, provide socket and bellows; for all other pressure ranges, employ a Bourdon® tube.
      b. Socket tips for bellows and Bourdon® tube:
         1) Materials: Type 316 stainless steel.
      c. Overpressure: Minimum 130 percent of maximum range pressure without damage to gauge or sensing element.
      d. Wetted materials:
         1) As indicated in the datasheets.

4. Dial gauge:
    a. Dial size: 4-1/2 inches.
    b. Dial case material:
        1) As indicated in the datasheets.
        2) Maximum pressure less than 10 pounds per square inch:
            a) Aluminum.
        3) Maximum pressure greater than or equal to 10 pounds per square inch:
            a) Aluminum.
    c. Provide safety gauge with safety blow out through the back or top of the unit.
    d. Dial face: Gasketed shatterproof glass or polycarbonate.
    e. Provide gauge locks on pressure gauges directly connected to diaphragm seals.
    f. Provide gauge locks where possible.
    g. Connection and mounting:
        1) Direct mounted and suitable for outdoor installation.
        2) 1/2-inch NPT.
        3) Connection material:
            a) As indicated in the datasheets.
    h. Pointer: Externally adjustable.

2.05 ACCESSORIES

A. Pulsation dampeners and snubbers:
    1. As indicated in the datasheets.
    2. Provide with each pressure gauge installed on discharge of positive displacement type pump.
    3. Provide piston-type snubber if pressure spikes will exceed 130 percent of gauge maximum range.
    4. Mount integrally to the pressure gauge.
    5. Connection: 1/2-inch NPT.
    6. Provide diaphragm seals as specified in the Contract Documents and/or as indicated in the datasheets.
    7. Diaphragm seal and pressure gauge shall be assembled by the manufacturer and shipped as an assembly.

B. Furnish instrument isolation as indicated in the datasheets:
    1. Mount isolation device integrally to the instrument.
    2. Isolation device and instrument shall be assembled by the manufacturer and shipped as an assembly.

C. Provide stainless steel tags for each instrument. Tags shall be labeled as specified in the Contract Documents.

2.06 FINISHES (NOT USED)

2.07 SOURCE QUALITY CONTROL

A. Factory calibrate each pressure gauge at a facility that is traceable to the NIST.

B. Provide complete documentation covering the traceability of calibration instruments.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine the installation location for the instrument and verify that the instrument will work properly when installed.

3.02 INSTALLATION

A. Coordinate the installation with trades to ensure that the mechanical system has necessary appurtenances, including weld-o-lets, valves, etc., for proper installation of instruments.

3.03 CALIBRATION AND TESTING

A. Per manufacturer's recommendations.

3.04 ADJUSTING

A. Verify factory calibration of instruments in accordance with the manufacturer's instructions:
   1. Return factory calibrated devices to the factory if they do not meet the field verification requirements for calibration.

3.05 SCHEDULES

A. The provided information does not necessarily include all required instruments. Provide all instruments identified in the Contract Documents:
   1. Instruments may be indicated on the Drawings, specified in the Specifications, or both.

END OF SECTION

[AD4] Addendum 4

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO. 3 PROJECT
CIP NO. 24006 & 24007

ADDENDUM 4
DATED: March 6, 2025

ATTACHMENT 2

Drawing Plan Sheets (Replacement)

- 00G002 – DRAWING INDEX 1
- 00C002 – YARD PIPING PLAN – NORTH
- 00C003 – YARD PIPING PLAN – SOUTH
- 07M100 – SLUDGE BLEND TANKS PERSPECTIVE VIEWS
- 07M101 – SLUDGE BLEND TANKS PLAN
- 07M102 – SLUDGE BLEND TANKS SECTIONS
- 00E017 – PANELBOARD SCHEDULES
- 00E041 – CONTROL SCHEMATICS 11
- 00E045 – CONTROL SCHEMATICS 15
- 00E046 – CONTROL SCHEMATICS 16
- 00E052 – CIRCUIT SCHEDULES 2
- 00E053 – CIRCUIT SCHEDULES 3
- 00E054 – CIRCUIT SCHEDULES 4
- 00E062 – ELECTRICAL DETAILS 2
- 00E064 – ELECTRICAL DETAILS 4
- 00E066 – ELECTRICAL DETAILS 6
- 07E201 – RDT FACILITY LOWER POWER AND CONTROL PLAN
- 00N027 – NEW CPNL-05-01A: INPUT/OUTPUT SIGNAL LIST 3
- 00N028 – NEW CPNL-05-01A: INPUT/OUTPUT SIGNAL LIST 4
- 07N011 – P&ID: RDT FEED PUMPS 1 AND 2
- 07N021 – P&ID: RDT DRUM THICKENER 1
- 07N022 – P&ID: RDT DRUM THICKENER 2
- 07N023 – P&ID: RDT DRUM THICKENER 3
- 07N024 – P&ID: RDT DRUM THICKENER 4
- 07N041 – P&ID: THICKENED SLUDGE PUMP 1
- 07N042 – P&ID: THICKENED SLUDGE PUMP 2
- 07N043 – P&ID: THICKENED SLUDGE PUMP 3
- 07N044 – P&ID: FUTURE THICKENED SLUDGE PUMP 4
- 07N051 – P&ID: THICKENING POLYMER STORAGE AND BLENDING UNIT 1

- 07N052 – P&ID: THICKENING POLYMER BLENDING UNIT 2
- 07N053 – P&ID: THICKENING POLYMER BLENDING UNIT 3
- 07N054 – P&ID: FUTURE THICKENING POLYMER BLENDING UNIT 4
- 00TC003 – CIVIL 3

Drawing Plan Sheets (Addition)

- 00G010 – EXISTING SITE CONDITIONS

DRAWING INDEX 1

SHEET NO.	DRAWING NO.	DESCRIPTION
		(G) - GENERAL
1	00G001	COVER SHEET, VICINITY MAP, AND LOCATION MAP
2	00G002	DRAWING INDEX 1
3	00G003	DRAWING INDEX 2
4	00G004	NOTES, LEGENDS, AND SYMBOLS
5	00G005	ABBREVIATIONS
6	00G006	SITE PLAN AND SURVEY CONTROL
7	00G007	CONTRACTOR STAGING PLAN
8	00G008	BIOSOLIDS PROCESS SCHEMATIC
9	00G009	WAS TEMPORARY BYPASS PUMPING PLAN
9A	00G010	EXISTING SITE CONDITION
		(D) - DEMOLITION
10	00D001	SITE PLAN
11	00D002	PARTIAL SITE PLAN
12	00D003	PARTIAL SITE PLAN YARD PIPING
13	00D004	FLOW METER VAULT PHOTOS
14	03D001	BIOTOWER EFFLUENT CHANNEL STRUCTURAL FOUNDATION PLAN
15	03D002	BIOTOWER EFFLUENT CHANNEL STRUCTURAL TOP PLAN
16	03D003	BIOTOWER PUMP STATION AND EFFLUENT CHANNEL STRUCTURAL PLAN AND SECTIONS
17	03D004	BIOTOWER PUMP STATION AND EFFLUENT CHANNEL PHOTOS
18	03D101	NORTH AERATION BLOWER GALLERY STRUCTURAL BOTTOM PLAN
19	03D102	NORTH AERATION BLOWER GALLERY STRUCTURAL SECTIONS
20	07D101	DISSOLVED AIR FLOTATION THICKENERS STRUCTURAL PLANS AND SECTIONS
21	07D102	DISSOLVED AIR FLOTATION THICKENERS STRUCTURAL SECTIONS
22	07D103	DISSOLVED AIR FLOTATION THICKENERS MECHANICAL PLAN
23	07D104	DISSOLVED AIR FLOTATION THICKENERS MECHANICAL SECTIONS
24	07D105	DISSOLVED AIR FLOTATION THICKENERS MECHANICAL SECTIONS
25	07D106	DISSOLVED AIR FLOTATION THICKENERS PHOTOS
26	07D107	DISSOLVED AIR FLOTATION THICKENERS PHOTOS
27	07D401	DEWATERING FACILITY PHOTOS
28	07D501	DIGESTER CONTROL BUILDING NO. 2 PLAN AND PHOTOS
		(C) - CIVIL
29	00GC001	GENERAL CIVIL LEGEND AND SYMBOLS
30	00GC002	GENERAL CIVIL NOTES AND ABBREVIATIONS
31	00C001	PAVING AND GRADING PLAN
32	00C002	YARD PIPING PLAN - NORTH
33	00C003	YARD PIPING PLAN - SOUTH
34	00C004	PLAN AND PROFILE 6" PRIMARY SLUDGE
35	00C005	PLAN AND PROFILE 16" PROCESS DRAIN
36	00C006	PLAN AND PROFILE 12" 3W
37	00C007	PLAN AND PROFILE 8" SD
38	00C008	YARD PIPING DETAIL AND SECTION
39	00C009	YARD PIPING PHOTOS 1
39A	00C010	YARD PIPING PHOTOS 2
		(S) - STRUCTURAL
40	00GS001	GENERAL NOTES
41	00GS002	SUBGRADE PREPARATION
42	00GS003	SOIL MITIGATION PLAN
42A	03S101	BIOTOWER PUMP STATION AND EFFLUENT CHANNEL PLAN AND SECTION
43	07S101	SLUDGE BLEND TANKS LOWER PLAN
44	07S102	SLUDGE BLEND TANKS TOP PLAN
45	07S103	SLUDGE BLEND TANKS SECTIONS
46	07S104	SLUDGE BLEND TANKS SECTIONS AND DETAILS
47	07S201	RDT FACILITY LOWER PLAN
48	07S202	RDT FACILITY INTERMEDIATE PLAN
49	07S203	RDT FACILITY MONORAIL PLAN
50	07S204	RDT FACILITY SECTIONS 1
51	07S205	RDT FACILITY SECTIONS 2
52	07S206	RDT FACILITY DETAILS

SHEET NO.	DRAWING NO.	DESCRIPTION
		(S) - STRUCTURAL (CONTINUED)
53	07S301	THICKENING ODOR CONTROL FACILITY PLAN AND SECTION
54	07S401	DEWATERING FACILITY TOP PLAN
55	07S402	DEWATERING FACILITY MEZZANINE PLAN
56	07S403	DEWATERING FACILITY SECTION
57	07S501	NORTH AERATION BLOWER GALLERY PLAN AND SECTIONS
		(M) - MECHANICAL
58	00GM001	GENERAL MECHANICAL LEGEND AND SYMBOLS
59	00GM002	GENERAL MECHANICAL NOTES
60	07M100	SLUDGE BLEND TANKS PERSPECTIVE VIEWS
61	07M101	SLUDGE BLEND TANKS PLAN
62	07M102	SLUDGE BLEND TANKS SECTIONS
63	07M103	SLUDGE BLEND TANKS SECTIONS
64	07M104	SLUDGE BLEND TANKS SECTIONS
65	07M200	RDT FACILITY PERSPECTIVE VIEWS
66	07M201	RDT FACILITY SUBGRADE PLAN
67	07M202	RDT FACILITY LOWER PLAN
68	07M203	RDT FACILITY UPPER PLAN
69	07M204	RDT FACILITY ENLARGED PLAN
70	07M205	RDT FACILITY SECTIONS
71	07M206	RDT FACILITY SECTIONS
72	07M207	RDT FACILITY SECTIONS
73	07M208	RDT FACILITY DETAILS
74	07M300	THICKENING ODOR CONTROL FACILITY PERSPECTIVE VIEWS
75	07M301	THICKENING ODOR CONTROL FACILITY PLAN
76	07M302	THICKENING ODOR CONTROL FACILITY SECTION
77	07M303	THICKENING ODOR CONTROL FACILITY SECTION
78	07M304	THICKENING ODOR CONTROL FACILITY SECTIONS
79	07M305	THICKENING ODOR CONTROL SCHEMATIC 1
80	07M306	THICKENING ODOR CONTROL SCHEMATIC 2
81	07M401	DEWATERING FACILITY TOP PLAN
82	07M402	DEWATERING FACILITY PARTIAL PLAN AND ENLARGED PLAN
83	07M403	DEWATERING FACILITY SECTIONS
84	07M404	DEWATERING FACILITY SECTIONS
85	07M405	DEWATERING FACILITY DETAILS
86	07M501	DIGESTER CONTROL BUILDING NO. 2 PLAN
87	07M502	COMPRESSED AIR SYSTEM SCHEMATIC
		(E) - ELECTRICAL
88	00E001	LEGEND AND GENERAL NOTES
89	00E002	KEY SITE PLAN
90	00E003	NOT USED
91	00E004	ELECTRICAL SITE PLAN - MODIFICATIONS
92	00E011	EXISTING MCC-E SINGLE LINE DIAGRAM - DEMOLITION
93	00E012	MCC-TEMP SINGLE LINE DIAGRAM
94	00E013	NEW MCC-E SINGLE LINE DIAGRAM 1
95	00E014	NEW MCC-E SINGLE LINE DIAGRAM 2
96	00E015	MCC-TEMP FRONT ELEVATION
97	00E016	NEW MCC-E FRONT ELEVATION
98	00E017	PANELBOARD SCHEDULES
99	00E021	EXISTING MCC-15-01 SINGLE LINE DIAGRAM - MODIFICATIONS 1
100	00E022	EXISTING MCC-15-01 SINGLE LINE DIAGRAM - MODIFICATIONS 2
101	00E023	EXISTING MCC-15-01 FRONT ELEVATION - MODIFICATIONS
102	00E025	EXISTING DIG-MCC-07-001 PARTIAL SINGLE LINE DIAGRAM - DEMOLITION
103	00E026	EXISTING DIG-MCC-07-001 PARTIAL SINGLE LINE DIAGRAM - MODIFICATIONS
104	00E031	CONTROL SCHEMATICS 1
105	00E032	CONTROL SCHEMATICS 2
106	00E033	CONTROL SCHEMATICS 3
107	00E034	CONTROL SCHEMATICS 4
108	00E035	CONTROL SCHEMATICS 5
109	00E036	CONTROL SCHEMATICS 6
110	00E037	CONTROL SCHEMATICS 7

SHEET NO.	DRAWING NO.	DESCRIPTION
		(E) - ELECTRICAL (CONTINUED)
111	00E038	CONTROL SCHEMATICS 8
112	00E039	CONTROL SCHEMATICS 9
113	00E040	CONTROL SCHEMATICS 10
114	00E041	CONTROL SCHEMATICS 11
115	00E042	CONTROL SCHEMATICS 12
116	00E043	CONTROL SCHEMATICS 13
117	00E044	CONTROL SCHEMATICS 14
118	00E045	CONTROL SCHEMATICS 15
119	00E046	CONTROL SCHEMATICS 16
120	00E047	CONTROL SCHEMATICS 17
121	00E051	CIRCUIT SCHEDULES 1
122	00E052	CIRCUIT SCHEDULES 2
123	00E053	CIRCUIT SCHEDULES 3
124	00E054	CIRCUIT SCHEDULES 4
125	00E061	ELECTRICAL DETAILS 1
126	00E062	ELECTRICAL DETAILS 2
127	00E063	ELECTRICAL DETAILS 3
128	00E064	ELECTRICAL DETAILS 4
129	00E065	ELECTRICAL DETAILS 5
130	00E066	ELECTRICAL DETAILS 6
131	00E067	ELECTRICAL DETAILS 7
132	00E068	NOT USED
133	00E069	NOT USED
134	00E070	NOT USED
135	00E071	NOT USED
136	00E072	NOT USED
137	07E101	SLUDGE BLEND TANKS POWER AND CONTROL PLAN
138	07E102	SLUDGE BLEND TANKS LIGHTING PLAN
139	07E201	RDT FACILITY LOWER POWER AND CONTROL PLAN
140	07E202	RDT FACILITY UPPER POWER AND CONTROL PLAN
141	07E203	RDT FACILITY LOWER LIGHTING PLAN
142	07E204	RDT FACILITY UPPER LIGHTING PLAN
143	07E301	THICKENING ODOR CONTROL FACILITY POWER AND CONTROL PLAN
144	07E302	THICKENING ODOR CONTROL FACILITY LIGHTING PLAN
145	07E401	DEWATERING FACILITY POWER AND CONTROL PLAN
146	07E501	NORTH AERATION BLOWER GALLERY DEMOLITION PLAN
147	07E502	NORTH AERATION BLOWER GALLERY MODIFICATION PLAN
148	07E601	DIGESTER CONTROL BUILDING NO.2 DEMOLITION PLAN
149	07E602	DIGESTER CONTROL BUILDING NO.2 MODIFICATION PLAN
150	XXEXX1	NOT USED
151	XXEXX2	NOT USED
152	XXEXX3	NOT USED
153	XXEXX4	NOT USED
154	XXEXX5	NOT USED

AREA INDEX

AREA	AREA NAME
00	SITE/GENERAL
03	BIOLOGICAL TREATMENT
07	SOLIDS TREATMENT

REV	DATE	BY	DESCRIPTION
4	3/5/25	KTL	CHANGED PER ADDENDUM 4
3	2/26/25	KTL	CHANGED PER ADDENDUM 3
2	2/17/25	KTL	CHANGED PER ADDENDUM 2
1	2/12/25	BG	CHANGED PER ADDENDUM 1

DESIGNED CE
DRAWN CE
CHECKED LJE
DATE JANUARY 2025

REGISTERED PROFESSIONAL ENGINEER KYLE T. LEONARD No. 86011 CIVIL STATE OF CALIFORNIA

Digitally signed by Kyle Thomas Leonard

carollo®

myManteca CITY OF MANTECA, CALIFORNIA the family city

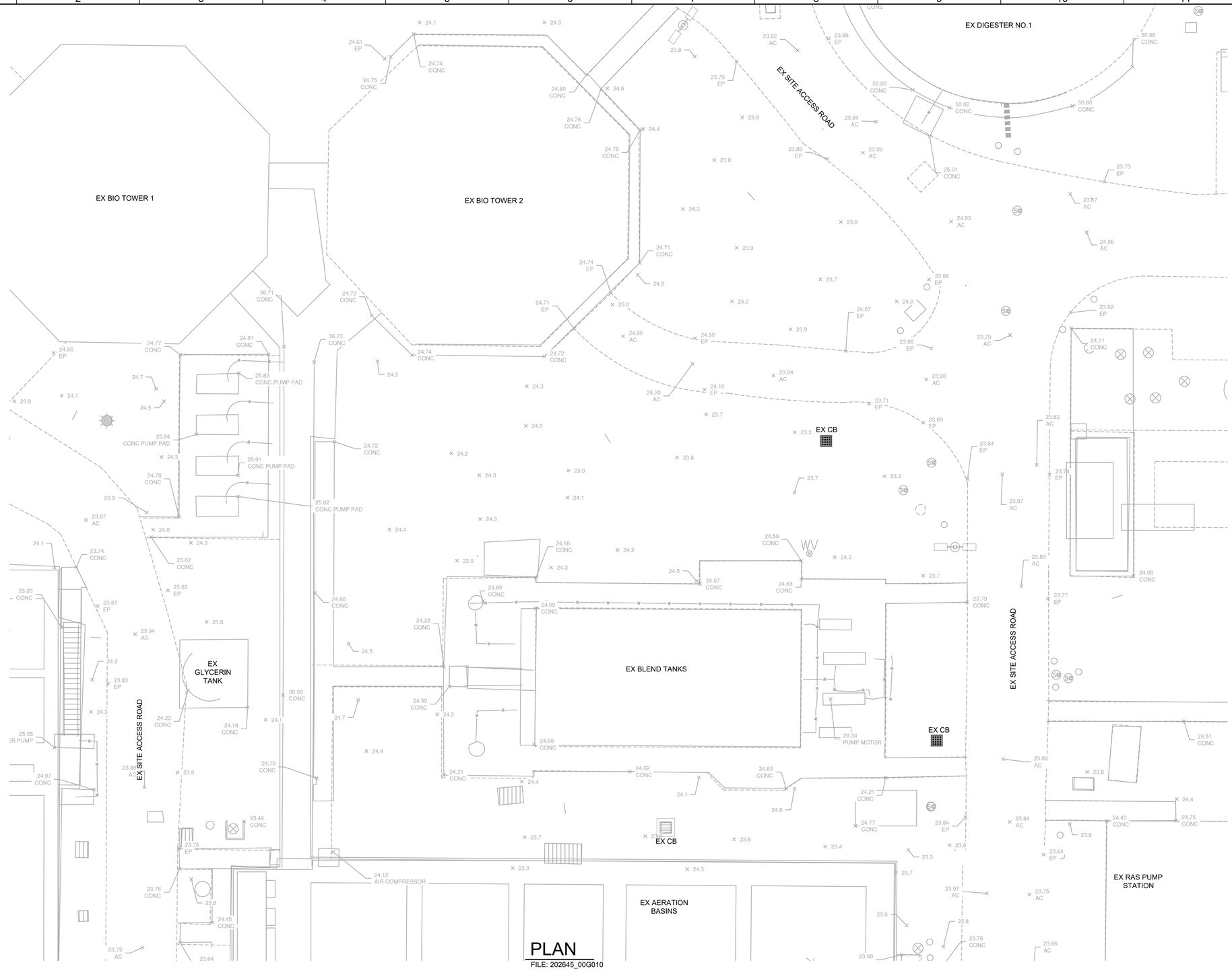
CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO. 3 PROJECT
GENERAL
DRAWING INDEX 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00G002
SHEET NO. 2 OF 239

LAST SAVED BY: gleal

PROJECT NO. 202645-100000 FILE NAME: 202645_00G002.dwg



GENERAL NOTES:

1. REFER TO DRAWING 00GC001 FOR GENERAL AND CIVIL LEGEND AND SYMBOLS.
2. REFER TO DRAWING 00GC002 FOR CIVIL NOTES AND ABBREVIATIONS.

Know what's below. Call before you dig. usanorth811.org

SCALE

0 5' 10' 20'

SCALE: 1" = 10'

PLAN

FILE: 202645_00G010

REV	DATE	BY	DESCRIPTION
1	3/05/25	BG	CHANGED PER ADDENDUM 4

DESIGNED BG
DRAWN JJ
CHECKED TR
DATE JANUARY 2025

REGISTERED PROFESSIONAL ENGINEER RYAN A. HOOK No. 68462 CIVIL STATE OF CALIFORNIA

Digitally signed by Ryan A Hook
Contact Info: Carollo Engineers, Inc.
Date: 2025.03.06 15:13:19-08'07'

carollo

CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO. 3 PROJECT

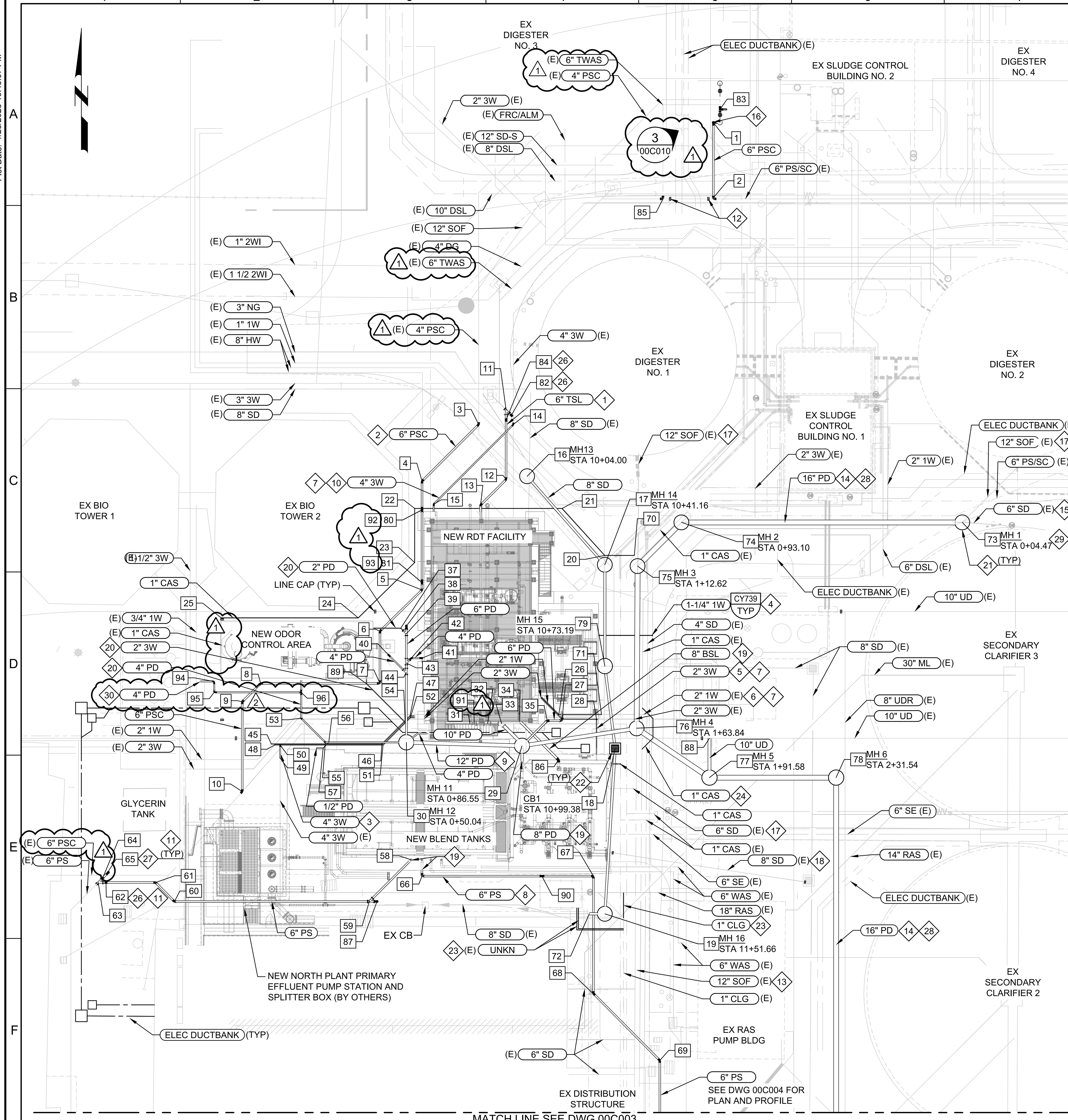
GENERAL

EXISTING SITE CONDITIONS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00G010
SHEET NO. 9A OF 239

Plot Date: 1/29/2025 7:10:05 PM
LAST SAVED BY: JJabla



PLAN

FILE: 202645_00C002

COORDINATE CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	2112794.98	6342040.22	18.13 (CL)	6" VERT BEND 90 DEG
2	2112771.55	6342040.49	18.13 (CL)	6" BEND 90 DEG
3	2112699.66	6341966.19	17.10 (CL)	6"x4" RED BEND 45 DEG (1)
4	2112681.76	6341948.29	17.10 (CL)	6" BEND 45 DEG
5	2112647.42	6341948.29	17.10 (CL)	6" BEND 45 DEG
6	2112634.40	6341935.02	17.10 (CL)	6" BEND 45 DEG
7	2112617.93	6341935.02	17.10 (CL)	6" BEND 90 DEG
8	2112617.93	6341897.38	17.10 (CL)	6" BEND 45 DEG
9	2112612.12	6341891.57	17.10 (CL)	6" BEND 45 DEG
10	2112583.78	6341891.57	17.10 (CL)	6" BEND 45 DEG
11	2112704.24	6341974.82	18.13 (CL)	6" WYE
12	2112682.28	6341974.85	18.13 (CL)	6" BEND 45 DEG
13	2112674.22	6341966.76	18.13 (CL)	6" BEND 45 DEG
14	2112699.64	6341977.10	19.50 (CL)	4" BEND 45 DEG
15	2112674.52	6341951.98	19.50 (CL)	4" BEND 45 DEG
16	2112683.30	6341981.44	DWG 00C007	MH 13
17	2112655.39	6342005.98	DWG 00C007	MH 14
18	2112597.39	6342009.23	DWG 00C007	CB 1
19	2112545.20	6342005.98	DWG 00C007	MH 16
20	2112658.34	6342005.94	22.44 (CL)	1" BEND 45 DEG
21	2112673.15	6341992.48	22.44 (CL)	1" BEND 45 DEG
22	2112673.15	6341945.98	22.44 (CL)	1" BEND 90 DEG
23	2112656.13	6341945.93	22.44 (CL)	1" BEND 45 DEG
24	2112638.62	6341928.16	22.44 (CL)	1" BEND 45 DEG
25	2112638.67	6341884.83	22.44 (CL)	1" TEE
26	2112608.13	6341991.46	19.60 (CL)	2" BEND 45 DEG
27	2112606.65	6341992.48	19.60 (CL)	2" BEND 45 DEG
28	2112606.63	6342003.36	19.60 (CL)	2" TEE
29	2112598.22	6341979.86	DWG 00C005	MH 11
30	2112599.33	6341943.36	DWG 00C005	MH 12
31	2112605.26	6341963.43	19.32 (INV)	6" BEND 90 DEG
32	2112605.30	6341968.98	19.32 (INV)	10" TEE
33	2112605.26	6341973.40	19.32 (INV)	10" BEND 45 DEG
34	2112605.99	6341978.98	19.10 (INV)	8" BEND 45 DEG
35	2112606.15	6341987.79	19.10 (INV)	6" BEND 45 DEG
37	2112635.34	6341941.57	15.09 (INV)	2" BEND 45 DEG
38	2112636.06	6341943.36	14.63 (INV)	CLEANOUT
39	2112633.61	6341943.36	14.63 (INV)	6"x2" RED. WYE
40	2112626.95	6341937.68	14.99 (INV)	4" BEND 45 DEG
41	2112625.90	6341948.31	14.63 (INV)	4" VERT BEND 90 DEG
42	2112625.90	6341944.89	14.63 (INV)	4" BEND 45 DEG
43	2112624.34	6341943.36	14.92 (INV)	6"x4" RED WYE
44	2112621.26	6341943.36	14.63 (INV)	6"x4" WYE
45	2112598.80	6341900.74	19.65 (CL)	2" BEND 45 DEG
46	2112598.85	6341935.63	21.20 (CL)	2" BEND 45 DEG
47	2112607.65	6341944.50	21.71 (CL)	2" BEND 45 DEG
48	2112598.52	6341901.83	19.65 (CL)	2" BEND 45 DEG
49	2112594.35	6341903.52	19.65 (CL)	6" COUPLING TIE-IN
50	2112598.52	6341903.51	19.65 (CL)	4"x2"x2" TEE
51	2112598.52	6341936.00	21.20 (CL)	2" BEND 45 DEG
52	2112607.15	6341944.63	21.71 (CL)	2" BEND 45 DEG
53	2112606.94	6341910.16	20.71 (INV)	4" BEND 45 DEG
54	2112605.62	6341942.99	20.98 (CL)	2" TEE
55	2112599.33	6341917.78	20.65 (INV)	4" BEND 45 DEG
56	2112599.34	6341918.85	20.65 (INV)	4"x1/2" WYE
57	2112597.53	6341917.10	20.65 (INV)	1/2" BEND 45 DEG
58	2112562.31	6341944.69	18.59 (CL)	6" VERT BEND 90 DEG
59	2112549.08	6341931.67	18.59 (CL)	6" WYE
60	2112549.05	6341870.15	18.59 (CL)	6" BEND 45 DEG

COORDINATE CONTROL POINTS (CONT)

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
61	2112555.08	6341864.22	18.59 (CL)	6" BEND 45 DEG
62	2112555.10	6341848.58	18.59 (CL)	6" PLUG VALVE
63	2112555.07	6341846.13	18.59 (CL)	6" WYE
64	2112556.45	6341847.50	18.59 (CL)	6" PLUG VALVE (1)
65	2112557.61	6341848.65	18.59 (CL)	CLEANOUT
66	2112557.09	6341948.29	DWG 00C004	6" BEND 90 DEG
67	2112557.09	6342002.38	DWG 00C004	6" BEND 90 DEG
68	2112520.04	6342002.25	DWG 00C004	6" BEND 45 DEG
69	2112498.90	6342023.32	DWG 00C004	6" BEND 45 DEG
70	2112658.33	6342015.29	22.44 (CL)	1" BEND 45 DEG
71	2112608.13	6342004.91	20.98 (CL)	2" COUPLING TIE-IN
72	2112545.20	6342001.09	DWG 00C007	8" COUPLING TIE-IN
73	2112668.74	6342118.76	DWG 00C005	MH 1
74	2112668.77	6342030.13	DWG 00C005	MH 2
75	2112654.99	6342016.28	DWG 00C005	MH 3
76	2112603.78	6342015.99	DWG 00C005	MH 4
77	2112588.23	6342038.97	DWG 00C005	MH 5
78	2112588.23	6342078.92	DWG 00C005	MH 6
79	2112623.37	6342005.98	DWG 00C007	MH15
80	2112672.71	6341948.30	28.10 (CL)	6" VERT BEND 90 DEG
81	2112649.80	6341948.30	28.10 (CL)	6" VERT BEND 90 DEG
82	2112702.57	6341976.49	21.30 (CL)	6" PLUG VALVE
83	2112799.13	6342042.32	18.13 (CL)	4" TEE
84	2112701.12	6341974.82	21.30 (CL)	6" PLUG VALVE
85	2112770.88	6342024.32	18.13 (CL)	6" BEND 90 DEG
86	2112593.77	6341991.37	19.10 (INV)	8" BEND 45 DEG
87	2112549.12	6341934.09	18.59 (CL)	CLEANOUT
88	2112600.61	6342038.97	12.70 (INV)	10" TEE
89	2112617.87	6341930.75	20.98 (CL)	2" BEND 45 DEG
90	2112557.09	6341986.13	DWG 00C004	6" VERT BEND 22.5 DEG
91	2112605.28	6341964.75	19.32 (INV)	10"x6" REDUCER
92	2112672.71	6341948.30	17.10 (CL)	6" VERT BEND 90 DEG
93	2112649.80	6341948.30	17.10 (CL)	6" VERT BEND 90 DEG
94	2112618.55	6341882.71	20.86	4" BEND 90 DEG
95	2112615.12	6341882.71	20.82	4" BEND 90 DEG
96	2112615.12	6341910.16	20.67	4" TEE (2)

GENERAL NOTES:

1. REFER TO DRAWING 00GC001 FOR GENERAL AND CIVIL LEGEND AND SYMBOLS.
2. REFER TO DRAWING 00GC002 FOR CIVIL NOTES AND ABBREVIATIONS.
3. RESTORE DISTURBED PAVEMENT PER CITY OF MANTECA TYPICAL DETAIL ST-14 AND SECTION 02952 OF THE SPECIFICATIONS.
4. RESTRAIN PRESSURE PIPES PER SECTION 15211 AND 02705 OF THE SPECIFICATIONS AND CAROLLO STANDARD DETAIL CY134.
5. INSTALL PIPE IN TRENCH PER CITY OF MANTECA STANDARD DETAILS U-5 AND U-6.

KEY NOTES:

1. 6" TSL LINE TIE-IN INTO EXISTING 6" TWAS LINE. SEE DWG 07M201 FOR CONNECTION TO RDT FACILITY. (1)
2. NEW 6" PSC LINE AND TIE-IN INTO EXISTING 4" PSC LINE C/W RESTRAINED TRANSITION COUPLINGS.
3. ~~TIE INTO EXISTING 4" 3W. REDUCE TO 2" AND TIE INTO~~ EXISTING 2" 3W.
4. NEW 1-1/4 1W SERVICE LINE C/W CORP STOP, ISOLATION BALL VALVE. TIE INTO EXISTING 1W LINE. PIPE MATERIAL AND INVERT ELEVATION OF EXISTING 1W LINE TO BE CONFIRMED BY CONTRACTOR.
5. TIE INTO EXISTING 2" 3W LINE.
6. ~~TIE INTO EXISTING 2" 1W LINE.~~
7. FLOOR PENETRATE LINE. SEE DWG 07M202 FOR PENETRATION LOCATIONS. (1)
8. INSTALL NEW 6" PS LINE. SEE DWG 07M102 FOR PENETRATION TO ABOVEGROUND LOCATION. ALIGNMENT CONTINUES SOUTH (SEE DWG 00C003). SEE DWG 00C004 FOR PROFILE.
9. NEW 12" PROCESS DRAIN LINE. TIE INTO NEW 16" PD LINE. SEE DWG 07M201 FOR CONNECTIONS TO RDT FACILITY.
10. TIE INTO EXISTING EXISTING 4" 3W LINE.
11. TIE IN NEW 6" PS TO EXISTING 6" PS LINE W/ WYE AND RESTRAINED TRANSITION COUPLINGS.
12. CAP EXISTING 6" PS/SC AND FILL WITH CLSM PER SPECIFICATION 01738. INSTALL 90 DEG BEND.
13. MAINTAIN EXISTING 12" SOF IN PLACE DOWNSTREAM OF MH 4. 12" SOF LINE CONNECTS TO NEW 16" PD AT MH7, REFER TO DWG 00C003.
14. REPLACE IN KIND EXISTING 12" SOF, UPSIZE TO A 16 INCH. SEE DWG 00C003 AND 00C005 FOR CONTINUATION REFER TO SECTION 02552 OF THE SPECIFICATIONS FOR BYPASSING DETAILS.
15. ~~RESTORE CONNECTION TO THE NEW 16" PD LINE.~~
16. BRING 6" PSC PIPE UP ABOVE GRADE TO CORNER OF BUILDING AND TIE IT TOGETHER WITH THE EXISTING 4" PSC PIPE ABOVE GRADE. SEE DWG 00C010 FOR CONNECTION TO THE EXISTING 4" PSC AND SLUDGE BUILDING NO.2. (1)
17. ABANDON EXISTING CONNECTION TO SOF LINE. CAP AND FILL WITH CLSM PER SPEC 01738.
18. ABANDON 8" SD PIPE AND FILL WITH CLSM PER SPEC 01738. PARTIALLY DEMOLISH, SEE DWG 00D003 FOR DEMOLITION PLAN.
19. SEE DWG 07M101 FOR CONNECTION TO NEW BLEND TANKS.
20. SEE DWG 07M301 FOR CONNECTION TO ODOR CONTROL AREA.
21. CONSTRUCT SEWER MANHOLES IN ACCORDANCE WITH CITY OF MANTECA STANDARD DETAILS S-3 AND S-5. USE MANHOLE COVERS CONFORMING TO CITY OF MANTECA STANDARD DETAIL S-8. THIS INCLUDES ALL MANHOLES ASSOCIATED WITH PROCESS DRAIN (PD) LINES.
22. CONSTRUCT STORM MANHOLES IN ACCORDANCE WITH CITY OF MANTECA STANDARD DETAIL D-1. USE INLET CONFORMING TO CITY OF MANTECA STANDARD DETAIL D-4. STORM MANHOLES ASSOCIATED WITH THE 8" STORM DRAIN (SD) LINES SHALL BE 48-INCH DIAMETER MANHOLES. (3)
23. REROUTE LINES TO AVOID CONFLICT WITH M 16. REFER TO DWG 00D003 FOR DEMOLITION PLAN.
24. REROUTE 1" CAS TO AVOID CONFLICT WITH MH 4. REFER TO DWG 00D003 FOR DEMOLITION PLAN.
25. NOT USED. (1)
26. INSTALL VALVES PER CITY OF MANTECA STANDARD DETAIL W-6.
27. INSTALL CLEANOUT AND FRAME AND COVERS PER CITY OF MANTECA STANDARD DETAILS S-10 AND S-11.
28. REFER TO SPECIFICATION 02552 FOR LINE PLUGGING AND BYPASSING DETAILS.
29. ~~PROPOSED BYPASSING SUCTION MANHOLE.~~
30. BRING NEW 4" PD TO GRADE AND CONNECT TO THE BULKHEAD. REFER TO DWG 03S101 FOR CONNECTION. (2)

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SCALE

0 10' 20' 40'

SCALE: 1" = 20'

REV	DATE	BY	DESCRIPTION
3	3/05/25	BG	CHANGED PER ADDENDUM 4
2	2/26/25	BG	CHANGED PER ADDENDUM 3
1	2/12/25	BG	CHANGED PER ADDENDUM 1

DESIGNED BG
DRAWN JJ
CHECKED TR
DATE JANUARY 2025

REGISTERED PROFESSIONAL ENGINEER RYAN A. HOOK No. 68462 CIVIL STATE OF CALIFORNIA

Digitally signed by Ryan A. Hook

carollo

CITY OF MANTECA

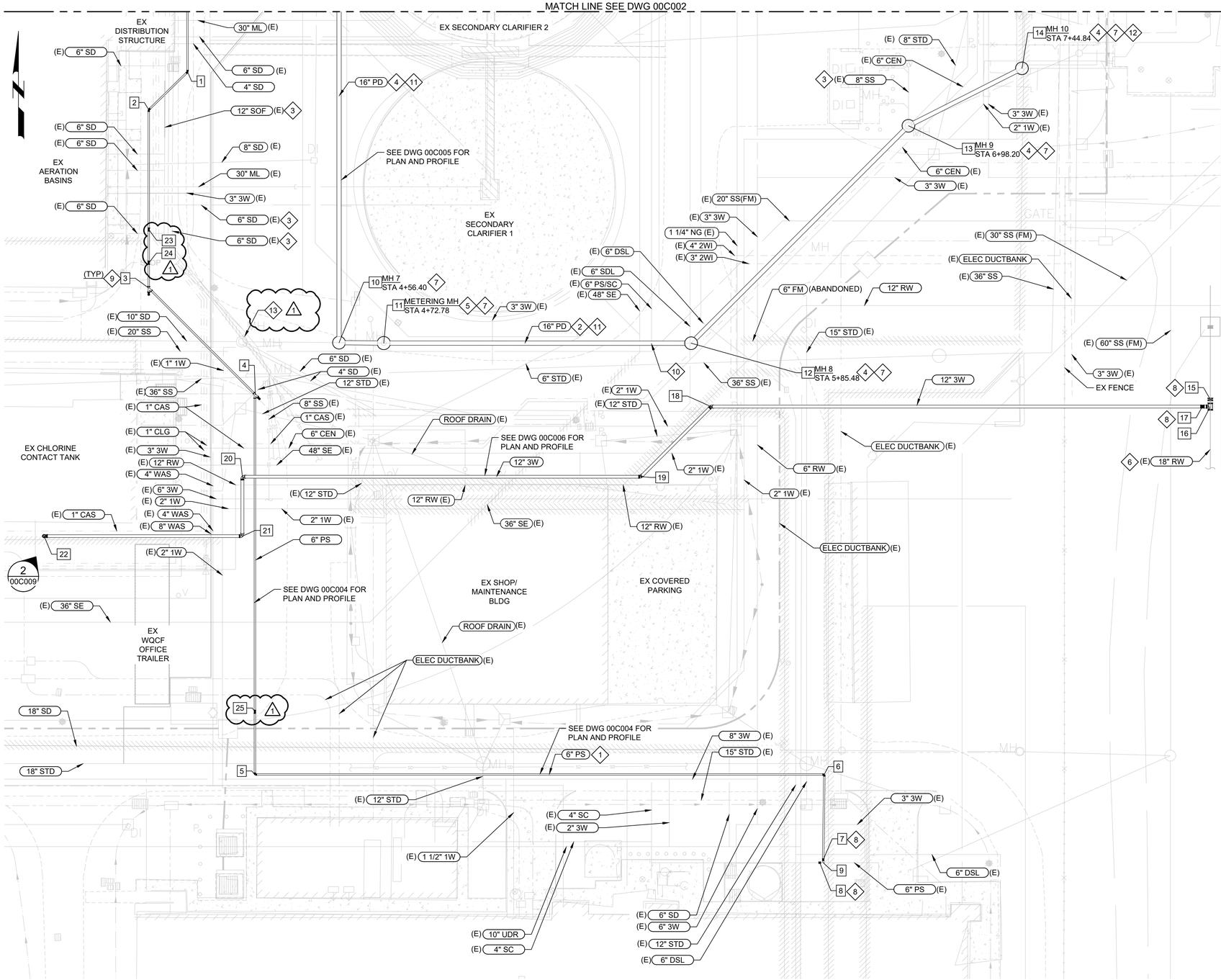
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO. 3 PROJECT

CIVIL

YARD PIPING PLAN - NORTH

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00C002
SHEET NO. 32 OF 239



COORDINATE CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	2112462.54	6342023.40	DWG 00C004	6" BEND 45 DEG
2	2112448.67	6342009.17	DWG 00C004	6" BEND 45 DEG
3	2112383.33	6342009.17	DWG 00C004	6" WYE
4	2112344.19	6342048.25	DWG 00C004	6" WYE
5	2112205.02	6342048.02	DWG 00C004	6" BEND 90 DEG
6	2112205.02	6342256.85	DWG 00C004	6" BEND 90 DEG
7	2112173.80	6342256.47	DWG 00C004	6" PLUG VALVE
8	2112172.68	6342255.22	DWG 00C004	6" PLUG VALVE
9	2112172.68	6342256.47	DWG 00C004	6" TEE
10	2112363.32	6342078.96	DWG 00C005	MH7
11	2112363.15	6342095.34	DWG 00C004	METERING MH
12	2112363.10	6342208.04	DWG 00C004	MH 8
13	2112442.81	6342287.75	DWG 00C004	MH 9
14	2112463.85	6342329.37	DWG 00C004	MH 10 (1)
15	2112342.49	6342398.43	DWG 00C006	12" GATE VALVE
16	2112339.88	6342398.43	DWG 00C006	12" TEE
17	2112339.88	6342395.51	DWG 00C006	12" GATE VALVE
18	2112339.88	6342215.36	DWG 00C006	12" BEND 45 DEG
19	2112314.20	6342189.63	DWG 00C006	12" BEND 45 DEG
20	2112314.17	6342043.51	DWG 00C006	12" BEND 90 DEG
21	2112292.39	6342043.51	DWG 00C006	12" BEND 90 DEG
22	2112292.39	6341970.83	DWG 00C006	12" VERT BEND 90 DEG
23	2112404.79	6342009.17	DWG 00C004	6" VERT BEND 22.5 DEG
24	2112392.58	6342009.17	DWG 00C004	6" VERT BEND 22.5 DEG
25	2112228.11	6342048.14	DWG 00C004	6" VERT BEND 11.25 DEG

GENERAL NOTES:

1. REFER TO DRAWING 00GC001 FOR GENERAL AND CIVIL LEGEND AND SYMBOLS.
2. REFER TO DRAWING 00GC002 FOR CIVIL NOTES AND ABBREVIATIONS.

(#) KEY NOTES:

1. TIE INTO EXISTING 6" PS.
2. REMOVE AND REPLACE EXISTING 12" SOF WITH A 16" PIPE. REFER TO SECTION 02552 OF THE SPECIFICATIONS FOR BYPASSING DETAILS.
3. RESTORE CONNECTION TO THE NEW 16" PD LINE.
4. REPLACE MANHOLE AND RESTORE ALL CONNECTIONS.
5. REPLACE METERING MANHOLE AND INSTALL A PARSHALL FLUME PER DETAIL ON DWG 00C008 AND SECTION 11210 OF THE SPECIFICATIONS.
6. CONTRACTOR TO FIELD VERIFY LOCATION OF 18" RW (FORCEMAIN). TIE INTO EXISTING 18" RW LINE W/ 18"x18"x12" TEE AND RESTRAINED TRANSITION COUPLINGS.
7. CONSTRUCT SEWER MANHOLES IN ACCORDANCE WITH CITY OF MANTECA STANDARD DETAILS S-3 AND S-5. USE MANHOLE COVERS CONFORMING TO CITY OF MANTECA STANDARD DETAIL S-8. THIS INCLUDES ALL MANHOLES ASSOCIATED WITH PROCESS DRAIN (PD) LINES. (2)
8. INSTALL VALVES PER CITY OF MANTECA STANDARD DETAIL W-6.
9. INSTALL CLEANOUT AND FRAME AND COVERS PER CITY OF MANTECA STANDARD DETAILS S-10 AND S-11.
10. ROUTING BETWEEN 6" PS/CS LINE AND NEW 16" PD IS UNKNOWN AT THIS LOCATION. CONTRACTOR TO CONFIRM.
11. REFER TO SPECIFICATION 02552 FOR LINE PLUGGING AND BYPASSING DETAILS.
12. PROPOSED BYPASSING DISCHARGE MANHOLE. (1)
13. PROPOSED BYPASSING SUCTION MANHOLE.

Know what's below. Call before you dig. usanorth811.org

SCALE

0 10' 20' 40'

SCALE: 1" = 20'

PLAN

FILE: 202645_00C003

REV	DATE	BY	DESCRIPTION
2	3/05/25	BG	CHANGED PER ADDENDUM 4
1	2/12/25	BG	CHANGED PER ADDENDUM 1

DESIGNED BG
DRAWN JJ
CHECKED TR
DATE JANUARY 2025

REGISTERED PROFESSIONAL ENGINEER RYAN A. HOOK No. 68462 CIVIL STATE OF CALIFORNIA

Digitally signed by Ryan A. Hook
Contact Info: Carollo Engineers, Inc.
Date: 2025.03.04 08:29:35-08'00'

carollo

CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO. 3 PROJECT

CIVIL

YARD PIPING PLAN - SOUTH

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

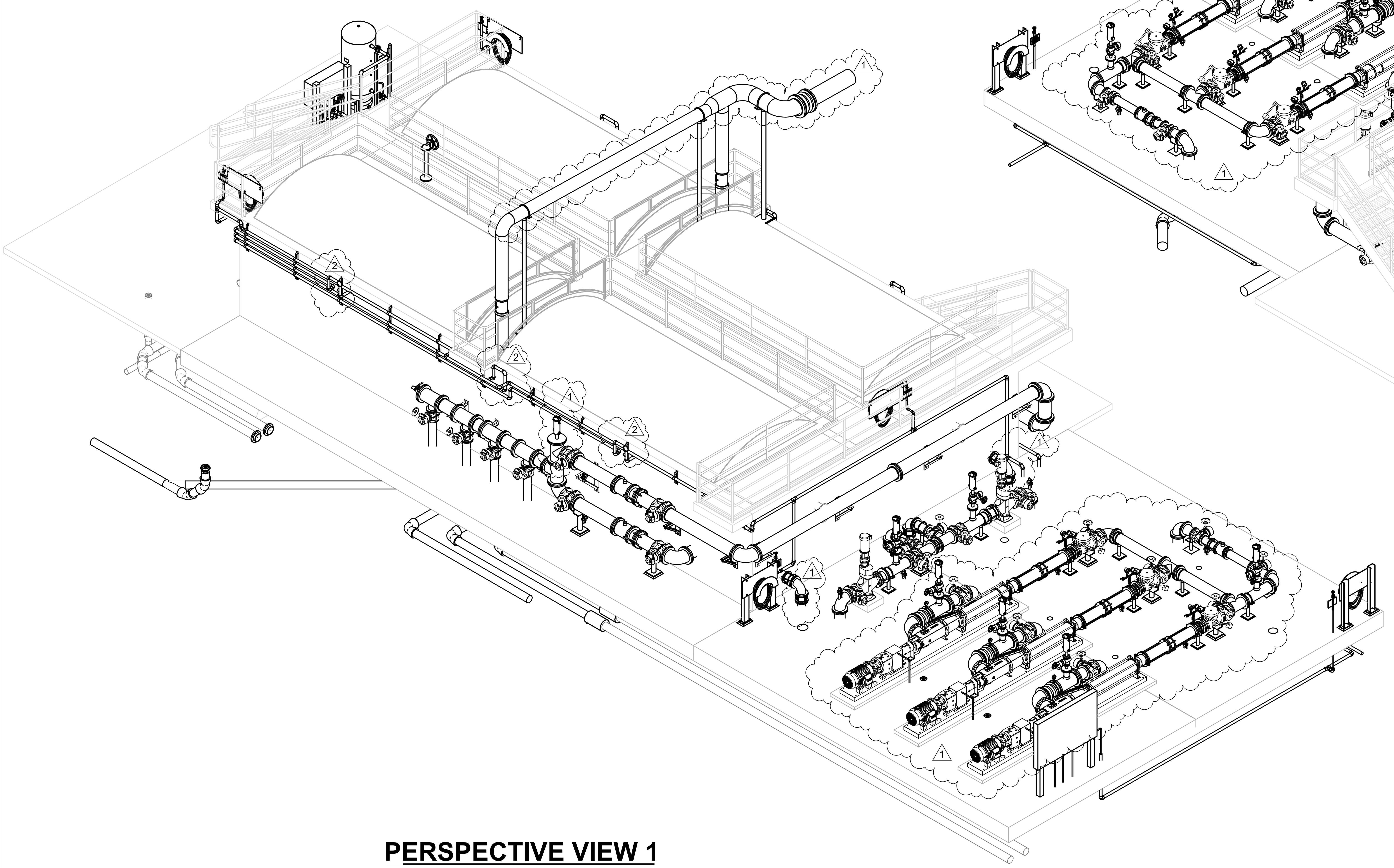
JOB NO. 202645
DRAWING NO. 00C003
SHEET NO. 33 OF 239

LAST SAVED BY: Jlabla

PROJECT NO. 202645-100000 FILE NAME: 202645_00C003.dwg

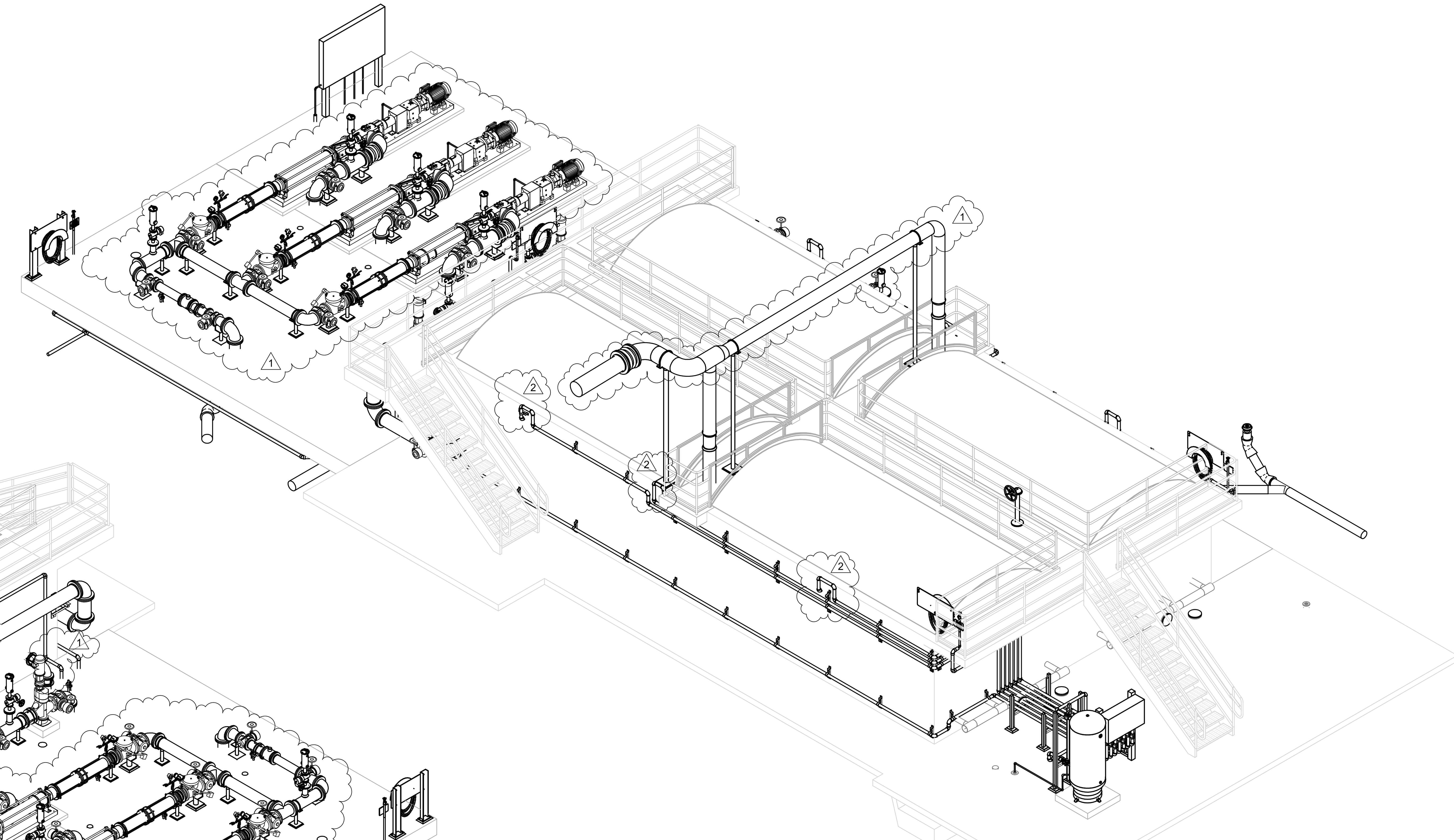
GENERAL NOTES:

1. THESE PERSPECTIVE VIEWS PROVIDE A VISUAL REPRESENTATION OF THE PROCESS ELEMENT FOR REFERENCE ONLY. IT IS NOT TO SCALE. REFER TO SUBSEQUENT DRAWINGS FOR DETAILED REQUIREMENTS FOR THE PROCESS ELEMENT.



PERSPECTIVE VIEW 1

SCALE: NO SCALE



PERSPECTIVE VIEW 2

SCALE: NO SCALE

REV	DATE	BY	DESCRIPTION
2	3/5/25	KTL	CHANGED PER ADDENDUM 4
1	2/12/25	KTL	CHANGED PER ADDENDUM 1

DESIGNED KTL
DRAWN GL
CHECKED KJB
DATE JANUARY 2025

REGISTERED PROFESSIONAL ENGINEER KYLE T. LEONARD No. 86011 CIVIL STATE OF CALIFORNIA

Digitally signed by Kyle Thomas Leonard
Contact Info: Carollo Engineers, Inc.
Date: 2025.03.06 08:32:49-08'00'

carollo

CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO. 3 PROJECT

MECHANICAL

SLUDGE BLEND TANKS
PERSPECTIVE VIEWS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 07M100
SHEET NO. 60 OF 239

PLOT DATE: 3/5/2025 5:09:22 PM

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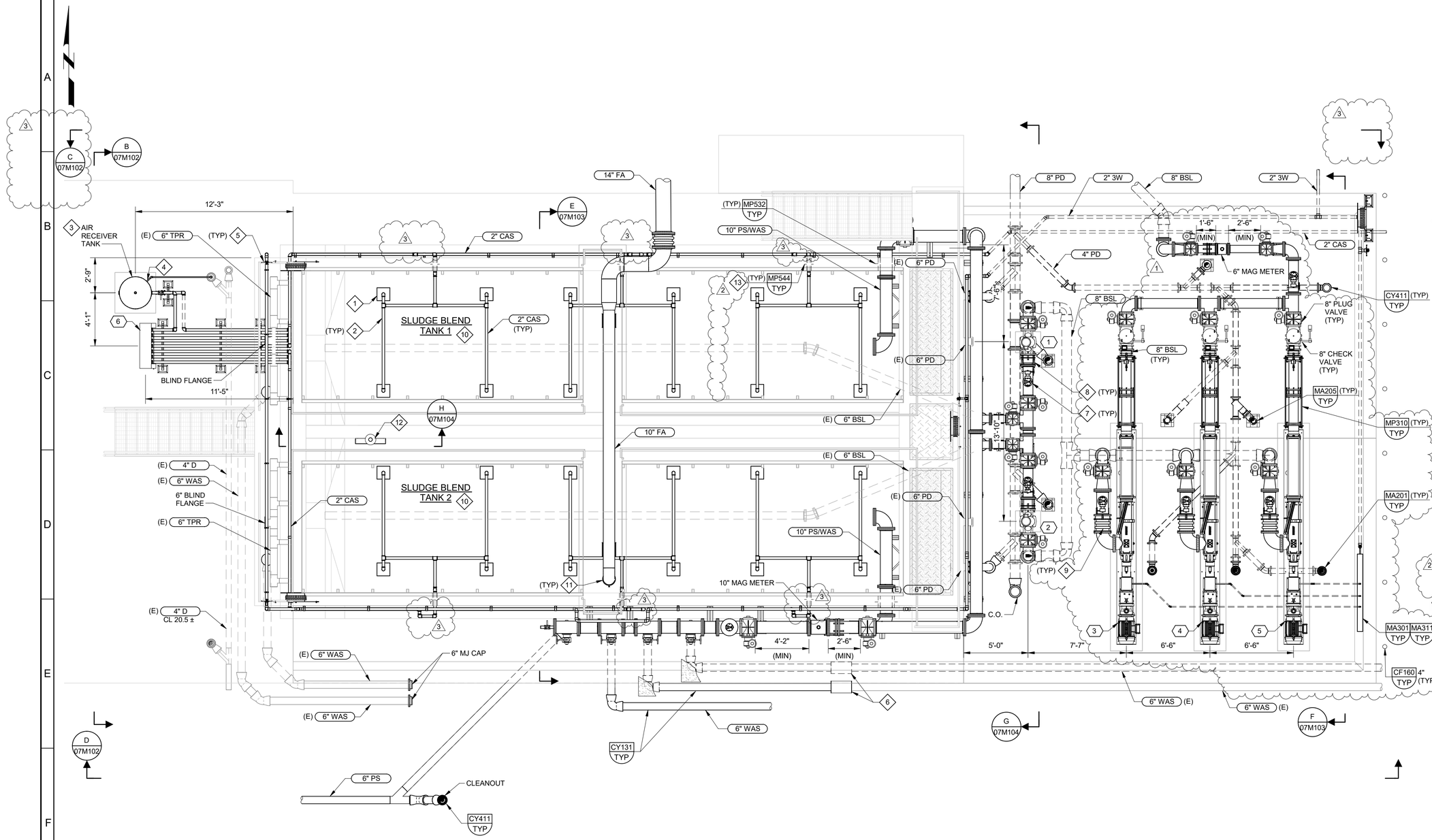


A PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. REFER TO THE GENERAL MECHANICAL NOTES ON DRAWING 00GM002.
2. FOR CONTINUATION OF YARD PIPING, REFER TO CIVIL DRAWINGS.
3. ALL PIPING BELOW THE CONCRETE SLAB SHALL BE CONCRETE ENCASED PER DETAILS MP003/TYP AND MP005/TYP. CONTINUE ENCASEMENT BEYOND THE EDGE OF SLAB TO A DIMENSION EQUAL TO THE DISTANCE FROM BOTTOM OF SLAB TO TOP OF PIPE OR 2'-0", WHICHEVER IS GREATER.
4. MAINTAIN A MINIMUM OF 2% SLOPE ON ALL DRAIN LINES.
5. NOT ALL PIPE AND DUCT SUPPORTS ARE SHOWN. CONTRACTOR SHALL PROVIDE ADDITIONAL SUPPORTS AS REQUIRED PER SPECIFICATIONS.
6. SUPPORT ALL 3W AND CAS PIPING PER DETAILS MP073/TYP, MP218/TYP, AND MP253/TYP.
7. SUPPORT ALL PS AND WAS PIPING PER DETAILS MP032/TYP, MP222/TYP, AND MP250/TYP.
8. SUPPORT ALL BSL PIPING PER DETAILS MP032/TYP AND MP034/TYP.

KEY NOTES:

1. PROVIDE LARGE BUBBLE MIXING SYSTEM PER SECTION 11227. A GENERAL MIXING SYSTEM ARRANGEMENT IS SHOWN FOR EXAMPLE ONLY AND SHALL BE DESIGNED BY THE MIXING SYSTEM MANUFACTURER.
2. PROVIDE ADDITIONAL PIPE SUPPORTS AND ANCHORAGE ON LARGE BUBBLE MIXING SYSTEM NOZZLE HEADERS, NOZZLE OFFSETS, AND NOZZLES TO MAINTAIN PIPE STABILITY WHEN FILLING AND DRAINING THE TANK PER SECTION 11227.
3. PROVIDE AIR RECEIVER TANK PER SECTION 11227.
4. PROVIDE EXTERNALLY MOUNTED AUTOMATIC MECHANICAL TYPE DRAIN TRAP ON AIR RECEIVER DRAIN PIPING. ROUTE DRAIN PIPING TO EXISTING FLOOR DRAIN.
5. PROVIDE HOSE BIBB AND HOSE RACK PER DETAILS MA415/TYP AND MA417/TYP.
6. CONNECT TO EXISTING 6" WAS PIPES WITH MJ SLEEVES.
7. PROVIDE 2" COMBINATION VACUUM AND AIR RELEASE VALVE PER DETAIL MP896/TYP. ROUTE DISCHARGE PIPE TO THE NEAREST DRAIN.
8. DISMANTLING JOINT.
9. PROVIDE RESTRAINED RUBBER EXPANSION JOINT PER DETAIL MP302/TYP.
10. COVER NOT SHOWN. REFER TO STRUCTURAL DRAWINGS.
11. NEW FA DUCT SHALL PENETRATE WALKWAY WITH A TYPE 316 SST SPOOL PER DETAIL MP566/TYP (SIM). PROVIDE A FLEXIBLE COUPLING BETWEEN THE DUCT AND THE SPOOL IN THE WALKWAY.
12. THE CENTERLINE OF THE GATE STEM SHALL BE AT LEAST 5" FROM THE EDGE OF THE WALL. STEM CENTERLINE SHALL NOT BE ADJUSTED WITH THE USE OF UNIVERSAL JOINTS.
13. CONTRACTOR SHALL SCAN THE WALL TO LOCATE REBAR PRIOR TO CORE DRILLING AND ADJUST LOCATION OF CORE DRILL SO THAT NO HORIZONTAL REBAR ARE CUT AND A MAXIMUM OF ONE VERTICAL REBAR IS CUT.

KEY TAGS:

1	SLB-GRD-07-001	BLENDED SLUDGE GRINDER 1
2	SLB-GRD-07-002	BLENDED SLUDGE GRINDER 2
3	SLB-PMP-07-001	RDT FEED PUMP 1
4	SLB-PMP-07-002	RDT FEED PUMP 2
5	SLB-PMP-07-003	RDT FEED PUMP 3
6	SLB-VCP-07-011	LARGE BUBBLE MIXING CONTROL PANEL

REV	DATE	BY	DESCRIPTION
3	3/5/25	KTL	CHANGED PER ADDENDUM 4
2	2/26/25	KTL	CHANGED PER ADDENDUM 3
1	2/12/25	KTL	CHANGED PER ADDENDUM 1

DESIGNED KTL
DRAWN GL
CHECKED KJB
DATE JANUARY 2025

REGISTERED PROFESSIONAL ENGINEER KYLE T. LEONARD No. 86011 CIVIL STATE OF CALIFORNIA

Digitally signed by Kyle Thomas Leonard
Contact Info: Carollo Engineers, Inc.
Date: 2025.03.05 17:09:27-08'00'

carollo

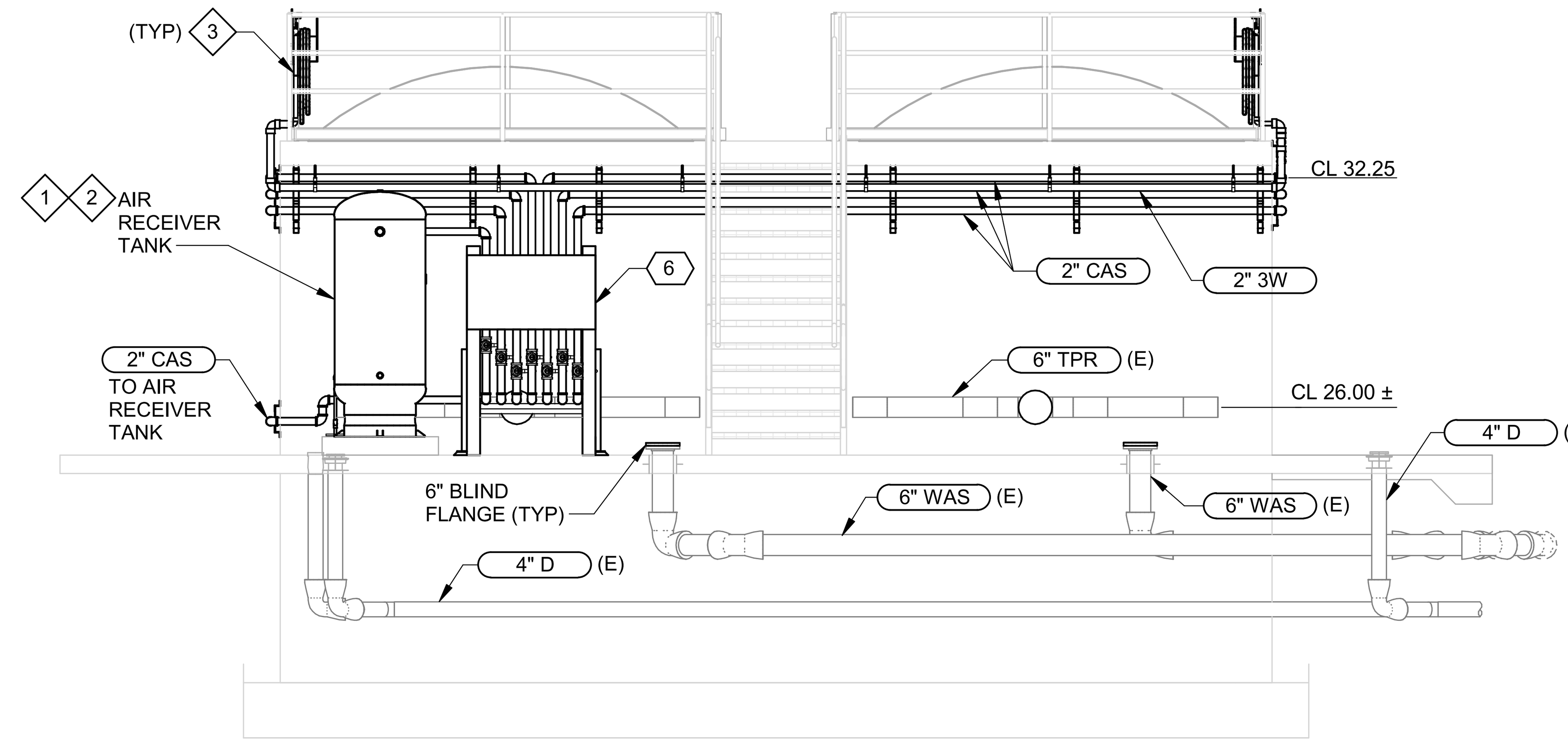
CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO. 3 PROJECT
MECHANICAL
SLUDGE BLEND TANKS PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

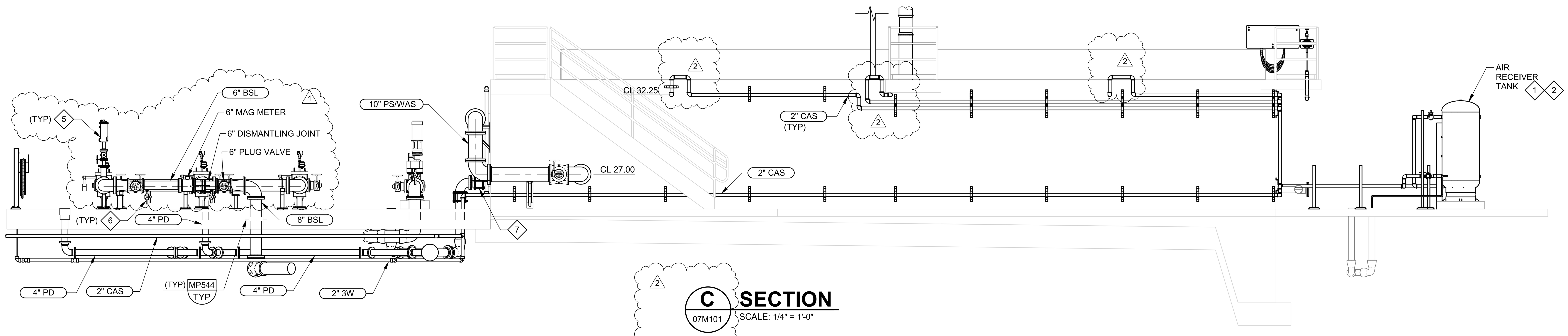
JOB NO. 202645
DRAWING NO. 07M101
SHEET NO. 61 OF 239

PLOT DATE: 3/5/2025 5:09:27 PM

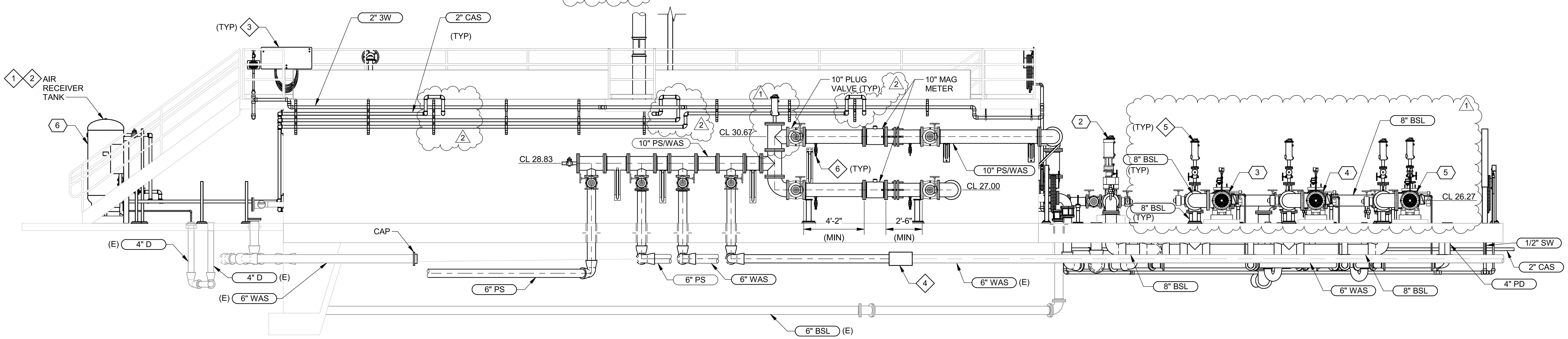
FILE NAME: R:\d0299007\202645_00M0800.rvt



B SECTION
07M101
SCALE: 1/4" = 1'-0"



C SECTION
07M101
SCALE: 1/4" = 1'-0"



D SECTION
07M101
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. REFER TO THE GENERAL MECHANICAL NOTES ON DRAWING 0GM002.
2. FOR CONTINUATION OF YARD PIPING, REFER TO CIVIL DRAWINGS.
3. ALL PIPING BELOW THE CONCRETE SLAB SHALL BE CONCRETE ENCASED PER DETAILS MP003/TYP AND MP005/TYP. CONTINUE ENCASEMENT BEYOND THE EDGE OF SLAB TO A DIMENSION EQUAL TO THE DISTANCE FROM BOTTOM OF SLAB TO TOP OF PIPE OR 2'-0", WHICHEVER IS GREATER.
4. MAINTAIN A MINIMUM OF 2% SLOPE ON ALL DRAIN LINES.
5. NOT ALL PIPE AND DUCT SUPPORTS ARE SHOWN. CONTRACTOR SHALL PROVIDE ADDITIONAL SUPPORTS AS REQUIRED PER SPECIFICATIONS.
6. SUPPORT ALL 3W AND CAS PIPING PER DETAILS MP073/TYP, MP218/TYP, AND MP253/TYP.
7. SUPPORT ALL PS AND WAS PIPING PER DETAILS MP032/TYP, MP222/TYP, AND MP250/TYP.
8. SUPPORT ALL BSL PIPING PER DETAILS MP032/TYP AND MP034/TYP.

KEY NOTES:

1. PROVIDE AIR RECEIVER TANK PER SECTION 11227.
2. PROVIDE EXTERNALLY MOUNTED AUTOMATIC MECHANICAL TYPE DRAIN TRAP ON AIR RECEIVER DRAIN PIPING. ROUTE DRAIN PIPING TO EXISTING FLOOR DRAIN.
3. PROVIDE HOSE BIBB AND HOSE RACK PER DETAILS MA415/TYP AND MA417/TYP.
4. CONNECT TO EXISTING 6" WAS PIPES WITH MJ SLEEVES.
5. PROVIDE 2" COMBINATION VACUUM AND AIR RELEASE VALVE PER DETAIL MP896/TYP. ROUTE DISCHARGE PIPE TO THE NEAREST DRAIN.
6. PROVIDE FLUSHING CONNECTION PER MP405/TYP.
7. PROVIDE RESTRAINED FLEXIBLE COUPLING SIMILAR TO DETAIL MP310/TYP. EMBED TIE ROD INTO CONCRETE 6 INCHES PER DETAIL SC040/TYP.

KEY TAGS:

2	SLB-GRD-07-002	BLENDED SLUDGE GRINDER 2
3	SLB-PMP-07-001	RDT FEED PUMP 1
4	SLB-PMP-07-002	RDT FEED PUMP 2
5	SLB-PMP-07-003	RDT FEED PUMP 3
6	SLB-VCP-07-011	LARGE BUBBLE MIXING CONTROL PANEL

REV	DATE	BY	DESCRIPTION
2	3/5/25	KTL	CHANGED PER ADDENDUM 4
1	2/12/25	KTL	CHANGED PER ADDENDUM 1

DESIGNED KTL
DRAWN GL
CHECKED KJB
DATE JANUARY 2025

REGISTERED PROFESSIONAL ENGINEER KYLE T. LEONARD No. 86011 CIVIL STATE OF CALIFORNIA

Digitally signed by Kyle Thomas Leonard

carollo®

CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO. 3 PROJECT

MECHANICAL
SLUDGE BLEND TANKS
SECTIONS

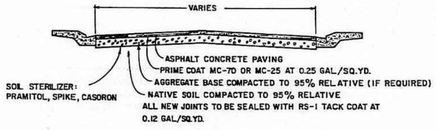
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 07M102
SHEET NO. 62 OF 239

PLOT DATE: 3/5/2025 5:13:32 PM
FILE NAME: R:\d0299007\202645_00M0800.rvt

PAVEMENT DESIGN CHART

STREET NAME	TRAFFIC INDEX	SOIL R-VALUE	ADJUSTED R-VALUE	A.B. THICKNESS	A.C. THICKNESS	LIFT & THICKNESS
ALL PROPOSED AC PAVEMENT				8"	4"	PER SPEC 02742A
						2



1. SOIL STERILIZER SHALL BE APPLIED WHEN ASPHALT CONCRETE PAVING IS PLACED DIRECTLY ON NATIVE MATERIAL ONLY.
2. PAVEMENT STRUCTURAL DESIGN SHALL BE BASED UPON "THE FLEXIBLE PAVEMENT STRUCTURAL SECTION DESIGN GUIDE FOR CALIFORNIA CITIES AND COUNTIES", AS MODIFIED IN CITY RESOLUTION NO. R5633.
3. CONSTRUCTION SHALL CONFORM WITH THE LATEST STANDARD SPECIFICATION OF THE STATE OF CALIFORNIA.
   ASPHALT CONCRETE SHALL BE TYPE "B"
   AGGREGATE BASE SHALL BE CLASS "2"
4. BASE SHALL BE WATERED AND COMPACTED PURSUANT TO STATE SPECIFICATIONS EXCEPT-95% TO 0.5 FEET BELOW FINISHED SUBGRADE-90% TO 2.5 FEET BELOW FINISHED SUBGRADE.
5. PRIME COAT SHALL BE APPLIED WHEN ASPHALT CONCRETE PAVING IS PLACED ON AGGREGATE BASE MATERIAL ONLY.

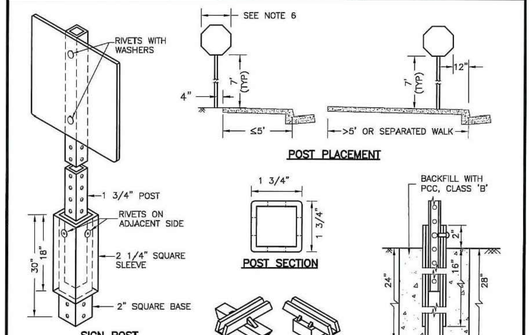
NO.	REVISED	BY

DRAWN BY: J. HULSEY
CHECKED BY: J. PODESTA
SCALE: NONE

PAVEMENT DESIGN CHART AND STREET CROSS SECTION

CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY: DIRECTOR OF PUBLIC WORKS
DRAWING NO. ST-14
DATE: JAN. 1988



NOTES

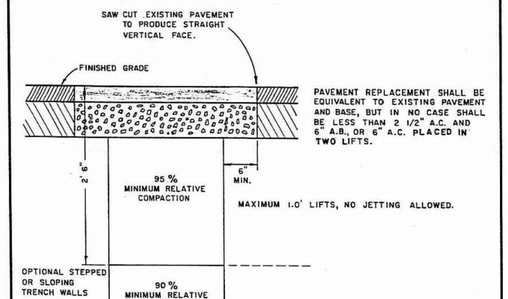
1. MATERIALS:
   - POST – 1 3/4" SQUARE WITH ROUNDED CORNERS, 14 GA. GALV. HIGH STRENGTH RAIL STEEL ASTM A715, GRADE 60. (TELESPAR PART # 18012-PG OR APPROVED EQUAL.) GALVANIZED POST FINISH SHALL CONFORM TO ASTM A525 G90 COATING.
   - POST BASE ANCHOR – 30" LONG X 2" SQUARE 12 GA. GALV. STEEL (TELESPAR PART # 20F12A2.5 OR APPROVED EQUAL.)
   - POST BASE SLEEVE – 18" LONG X 2¼" SQUARE 12 GA. GALV. STEEL (TELESPAR PART # TEL-22F12-A OR APPROVED EQUAL.)
   - SIGN FACE – SHALL BE REFLECTIVE AND PLACED ON .080" MINIMUM THICKNESS ALUMINUM WITH 3M HIGH-INTENSITY GRADE PRISMATIC REFLECTIVE SHEETING SERIES 3930 OR APPROVED EQUAL.
2. STREET NAME SIGNS SHALL BE MOUNTED ON STREET LIGHT POLES IN CONFORMANCE WITH CITY STANDARD ST-18 WHEREVER POSSIBLE.
3. STREET NAME SIGN LOCATION SUBJECT TO CITY ENGINEER APPROVAL.
4. SIGN POLES SHALL BE SET PRIOR TO NEW SIDEWALK CONSTRUCTION.
5. SIGNS SHALL CONFORM TO CALTRANS STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
6. STOP SIGN DIMENSION:
   - TWO (2) LANE ROADWAY: 30"X30" MIN.
   - FOUR (4) LANES OR MORE: 36"X36" MIN.

DATE: 9-2-2009
DRAWN BY: J.R.
CHECKED BY: M.M.
SCALE: N.T.S.

TRAFFIC, PARKING, AND STREET NAME SIGNS

CITY OF MANTECA
PUBLIC WORKS DEPARTMENT

APPROVED: DIRECTOR OF PUBLIC WORKS
ST-19



NOTES:

1. ANY AREA AT THE BOTTOM OF THE TRENCH DETERMINED TO BE UNSUITABLE BY THE ENGINEER SHALL BE REMOVED AND REPLACED WITH DRAIN ROCK (1-1/2" X 3/4" OR 2-1/2" X 1-1/2").
2. SELECTED NATIVE MATERIAL MAY BE USED IN ALL TRENCH BACKFILL ZONES AND SHALL BE FREE OF ORGANIC MATERIAL, STONES, OR LUMPS EXCEEDING 3" IN GREATEST DIMENSION.
3. COMPACTION TESTING SHALL BE REQUIRED AS DIRECTED BY THE CITY ENGINEER.

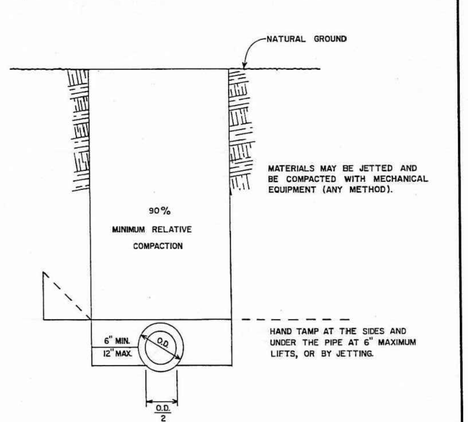
NO.	REVISED	BY

DRAWN BY: A. MENOR
CHECKED BY: J. PODESTA
SCALE: NONE

TRENCH BACKFILL IN EXISTING STREETS

CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY: DIRECTOR OF PUBLIC WORKS
DRAWING NO. U-5
DATE: JAN. 1988



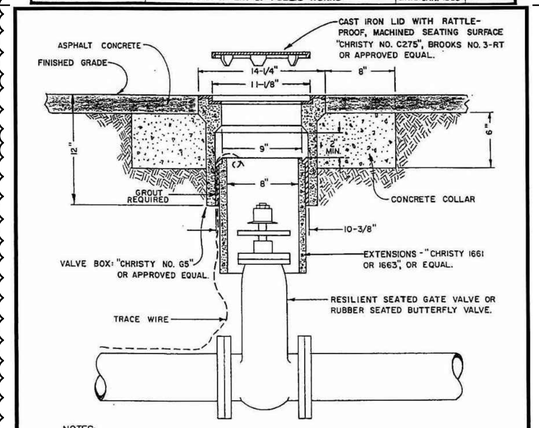
NO.	REVISED	BY

DRAWN BY: A. MENOR
CHECKED BY: J. PODESTA
SCALE: NONE

TRENCH BACKFILL OUTSIDE STREET AREAS (P.U.E.)

CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY: DIRECTOR OF PUBLIC WORKS
DRAWING NO. U-6
DATE: JAN. 1988



NOTES:

1. VALVE BOX AND LID SHALL BE "CHRISTY NO. G5" AND "CHRISTY NO. C275", BROOKS NO. 3-RT, OR EQUALS.
2. ALL LIDS SHALL HAVE MACHINE SEATING SURFACES.
3. EXTENSIONS SHALL BE AS MANUFACTURED FOR THE VALVE BOX SUPPLIED OR A.C. PIPE OF CORRECT SIZE MAY BE USED.
4. CONCRETE COLLAR SHALL BE OF CLASS "B" CONCRETE AND SHALL BE CONSTRUCED 2½ INCHES BELOW FINISHED GRADE.
5. RESILIENT SEATED GATE VALVE SHALL BE MUELLER, KENNEDY, AMERICAN AVK CO., OR APPROVED EQUAL.
6. RESILIENT SEATED GATE VALVE SHALL HAVE A NON-RISING STEM AND CONFORM TO A.W.W.A. STANDARD C509 OF LATEST REVISION.
7. RUBBER SEATED BUTTERFLY VALVE SHALL BE DRESSER 450, MUELLER B3211 OR APPROVED EQUAL.
8. RUBBER SEATED BUTTERFLY VALVE SHALL CONFORM TO A.W.W.A. STANDARD C504 OF LATEST REVISION.
9. RUBBER SEATED BUTTERFLY VALVES SHALL BE USED FOR PIPE SIZES LARGER THAN 12 INCHES.

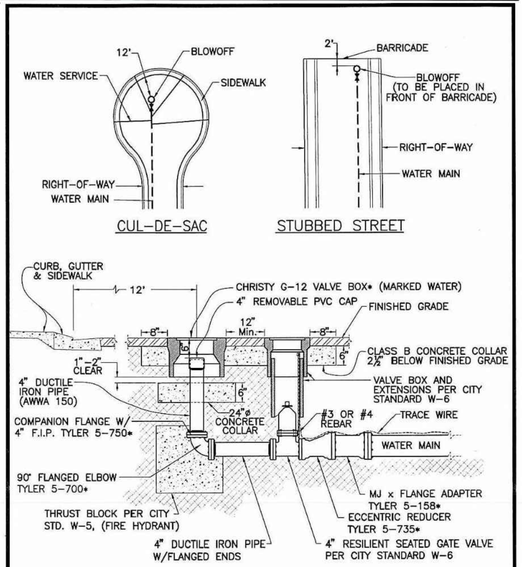
NO.	REVISED	BY
4	OCT. 2003	JH

DRAWN BY: C. SABERTON
CHECKED BY: J. PODESTA
SCALE: NONE

STANDARD VALVE BOX

CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY: DIRECTOR OF PUBLIC WORKS
DRAWING NO. W-6
DATE: JAN. 1988



*OR APPROVED EQUAL

NO.	REVISED	BY
1	JULY, 1999	JR

DRAWN BY: J. KOESTER
CHECKED BY: J. PODESTA
SCALE: NONE

BELOW GRADE WATER LINE BLOW-OFF

CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY: DIRECTOR OF PUBLIC WORKS
DRAWING NO. W-7
DATE: JAN. 1988

REV	DATE	BY	DESCRIPTION
2	3/5/25	KTL	CHANGED PER ADDENDUM 4
1	2/26/25	KTL	CHANGED PER ADDENDUM 3

DESIGNED: CE
DRAWN: CE
CHECKED: TR
DATE: JANUARY 2025

REGISTERED PROFESSIONAL ENGINEER RYAN A. HOOK No. 68462 CIVIL STATE OF CALIFORNIA

Contract Info: Carollo Engineers, Inc.
Date: 2025.03.04 15:54:56 -08'07'

carollo

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO. 3 PROJECT
TYPICAL DETAILS
CIVIL 3

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00TC003
SHEET NO. 221 OF 239

LAST SAVED BY: gleal

PROJECT NO. 202645-100000 FILE NAME: 202645_00TC003.dwg

NOTES

1. CONNECT EXISTING LOAD CIRCUIT VIA TEMPORARY CONDUCTORS SPLICED TO EXISTING FIELD CONDUCTORS (TEMPORARY SPLICES MADE ADJACENT TO EXISTING MCC-E LOCATION).
2. CONNECT EXISTING LOAD FIELD CONDUCTORS TO NEW PANELBOARD CIRCUIT BREAKER.

PANEL PNL-TEMP — VOLTAGE 120/240V, 1Ø, 3-WIRE — MOUNTING IN MCC-TEMP
LOCATION NORTH AERATION BLOWER GALLERY — MAIN 30A — BUS 225A (100% COPPER GROUND BUS) — AIC RATING 22,000 AIC

LOAD	VA ØA	VA ØB	TRIP	CKT.	CKT.	TRIP	VA ØA	VA ØB	LOAD
RIO-TEMP	1000	---	20A	1	2	20A	50	---	(E) RAS METER
TEMPORARY WAS SYSTEM INLET FLOWMETER	---	50	20A	3	4	20A	---	1000	(E) AERATION GALLERY LIGHTING
TEMPORARY WAS SYSTEM OUTLET FLOWMETER	50	---	20A	5	6	20A	1000	---	(E) CPNL-05-01
SPARE	---	---	20A	7	8	20A	---	---	SPARE
SPARE	---	---	20A	9	10	20A	---	---	SPARE
SPARE	---	---	20A	11	12	20A	---	---	SPARE
SPARE	---	---	20A	13	14	20A	---	---	SPARE
SPARE	---	---	20A	15	16	20A	---	---	SPARE
SPARE	---	---	20A	17	18	20A	500	---	LIGHTS 1A/1B/1C CL2 ANALYZER
SUBTOTALS (VA)	1050	50					1050	1000	
PANELBOARD TOTAL (VA)	3100								

SEE NOTE 1 (rows CKT. 2, 4, 6)

PANEL PNL-LPE1 — VOLTAGE 120/240V, 1Ø, 3-WIRE — MOUNTING IN MCC-E
LOCATION NORTH AERATION BLOWER GALLERY — MAIN 90A — BUS 225A (100% COPPER GROUND BUS) — AIC RATING 22,000 AIC

LOAD	VA ØA	VA ØB	TRIP	CKT.	CKT.	TRIP	VA ØA	VA ØB	LOAD
CPNL-05-01A	1000	---	20A	1	2	20A	---	---	SPARE
FIT-07-001: BLEND TANK 1 FLOWMETER	---	50	20A	3	4	20A	---	---	SPARE
FIT-07-002: BLEND TANK 2 FLOWMETER	50	---	20A	5	6	20A	---	---	SPARE
FIT-07-021: BLENDED SLUDGE FEED FLOWMETER	---	50	20A	7	8	20A	---	1200	SLUDGE BLEND TANKS - LIGHTING
FIT-07-031: RDT 1 FLOWMETER	50	---	20A	9	10	20A	1000	---	SLUDGE BLEND TANKS - LIGHTING
FIT-07-032: RDT 2 FLOWMETER	---	50	20A	11	12	20A	---	600	SLUDGE BLEND TANKS - RECEPTACLES
FIT-07-033: RDT 3 FLOWMETER	50	---	20A	13	14	20A	1200	---	THICKENER AREA - UPPER LEVEL LIGHTING
SPARE	---	---	20A	15	16	20A	---	1200	THICKENER AREA - UPPER LEVEL LIGHTING
SPARE	---	---	20A	17	18	20A	1200	---	THICKENER AREA - LOWER LEVEL LIGHTING
SPARE	---	---	20A	19	20	20A	---	1200	THICKENER AREA - LOWER LEVEL LIGHTING
AIT-07-001: RDT 1 SLUDGE DENSITY METER	50	---	20A	21	22	20A	1200	---	THICKENER AREA - POLYMER AREA LIGHTING
AIT-07-002: RDT 2 SLUDGE DENSITY METER	---	50	20A	23	24	20A		1600	THICKENER AREA - UPPER LEVEL RECEPTACLES
AIT-07-003: RDT 3 SLUDGE DENSITY METER	50	---	20A	25	26	20A	1400		THICKENER AREA - LOWER LEVEL RECEPTACLES
AIT-07-011: TSP 1 SLUDGE DENSITY METER	---	50	20A	27	28	20A		800	THICKENER AREA - POLYMER AREA RECEPTACLES
AIT-07-012: TSP 2 SLUDGE DENSITY METER	50	---	20A	29	30	20A	600		ODOR SCRUBBER AREA - LIGHTING
AIT-07-013: TSP 3 SLUDGE DENSITY METER	---	50	20A	31	32	20A		600	ODOR SCRUBBER AREA - RECEPTACLES
WIT-07-001: POLYMER TOTE 1 WEIGHT TRANSMITTER	50	---	20A	33	34	20A	50		(E) RAS METER
WIT-07-002: POLYMER TOTE 2 WEIGHT TRANSMITTER	---	50	20A	35	36	20A		1000	(E) AERATION GALLERY LIGHTING
WIT-07-003: POLYMER TOTE 3 WEIGHT TRANSMITTER	50	---	20A	37	38	20A	1000		(E) CPNL-0501
WIT-07-004: POLYMER TOTE 4 WEIGHT TRANSMITTER	---	50	20A	39	40	20A	---	---	SPARE
VALVE MODULE VCP	50	---	20A	41	42	20A	---	---	SPARE
SUBTOTALS (VA)	1450	400					7650	8200	
PANELBOARD TOTAL (VA)	17700								

SEE NOTE 2 (rows CKT. 34, 36, 38)

2

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	REVISION PER ADDENDUM 4
1	2/13/25	TB	DRAWING ADDED PER ADDENDUM 1

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER — TODD A. BEECHER — E014712 — Exp. 6/30/25 — ELECTRICAL — STATE OF CALIFORNIA — 2/13/2025

carollo

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
ELECTRICAL
PANELBOARD SCHEDULES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00E017
SHEET NO. 98 OF 239

PROJECT NO. 202645 FILE NAME: 202645_00E017.dwg

MOTORIZED ACTUATOR

SEE NOTE 1

23
22

4-20mA POSITION CONTROL (FROM CPNL-05-01A)

26
27

LOCAL DISCONNECT SWITCH

CB

480V 3Ø 60HZ

△

*

2
3
1
E

0VDC 4
24VDC 5

MONITOR RELAY 4-20mA POSITION CONTROL
42
43
44

MAKE AT FULLY SHUT S1
6
7

MAKE AT FULLY OPEN S2
8
9

BREAK AT FULLY SHUT S3
10
11

BREAK AT FAULT S4
12
13

CLOSE 33

STOP/MAINTAIN 34

OPEN 35

COMMON-VE 36

MAKE AT FULLY SHUT S5
14
16
15

MAKE AT FULLY OPEN S6
17
19
18

MAKE WHEN LOCAL SELECTED S7
20
24
21

MAKE WHEN REMOTE SELECTED S8
30
47
46

△

ACTUATOR REMOTE LCP
(SEE NOTE 2)

###%
% OPEN

4-20mA POSITION INDICATION (TO CPNL-05-01A)

FULL CLOSED
R

FULL OPEN
G

CR1

CR1
OVERLOAD
A

CR1
OVERLOAD ALARM (TO CPNL-05-01A)

FULL CLOSED INDICATION (TO CPNL-05-01A)

FULL OPEN INDICATION (TO CPNL-05-01A)

REMOTE MODE INDICATION (TO CPNL-05-01A)

△

SCHEMATIC DIAGRAM 19

TYPICAL FOR:

THK-VAL-07-011	RDT 1 MOTORIZED VALVE 1
THK-VAL-07-021	RDT 2 MOTORIZED VALVE 1
THK-VAL-07-031	RDT 3 MOTORIZED VALVE 1

LEGEND:

* - LOCATED AT MCC

△ - LOCATED IN FIELD

□ - FIELD WIRING TERMINAL BLOCK (LOCATED AT REMOTE LCP)

◇ - FIELD WIRING TERMINAL BLOCK (LOCATED IN CPNL-05-01A)

NEW FIELD CONDUCTOR

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	DRAWING RE-ISSUED PER ADDENDUM 4
1	2/13/25	TB	DRAWING ADDED PER ADDENDUM 1

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA 2/13/2025

carollo

CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT

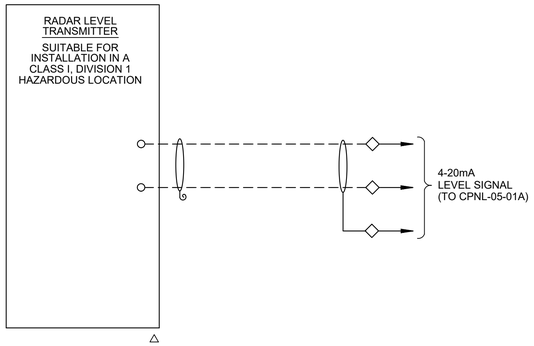
ELECTRICAL

CONTROL SCHEMATICS 11

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00E041
SHEET NO. 114 OF 239

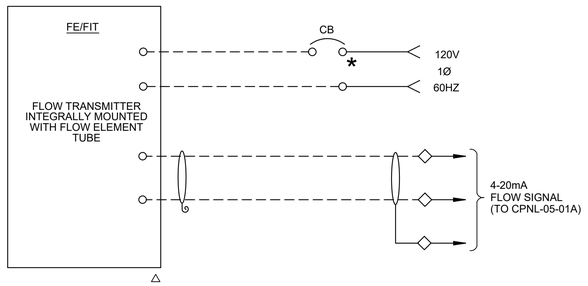
PROJECT NO. 202645 FILE NAME: 202645_00E041.dwg



SCHEMATIC DIAGRAM 23

TYPICAL FOR:

LIT-07-011	BLEND TANK 1 LEVEL TRANSMITTER
LIT-07-012	BLEND TANK 2 LEVEL TRANSMITTER



SCHEMATIC DIAGRAM 25

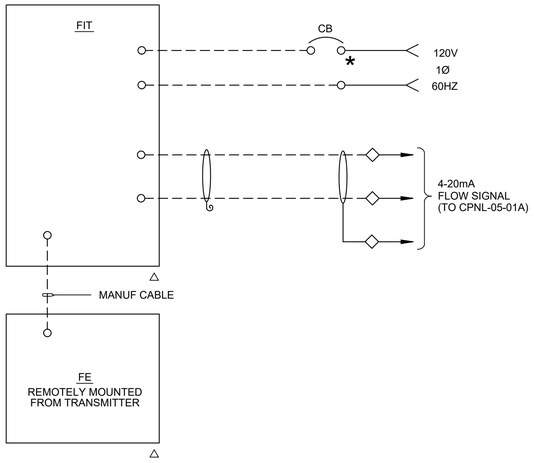
TYPICAL FOR:

FIT-07-021	BLENDED SLUDGE FEED FLOWMETER

SCHEMATIC DIAGRAM 27

TYPICAL FOR:

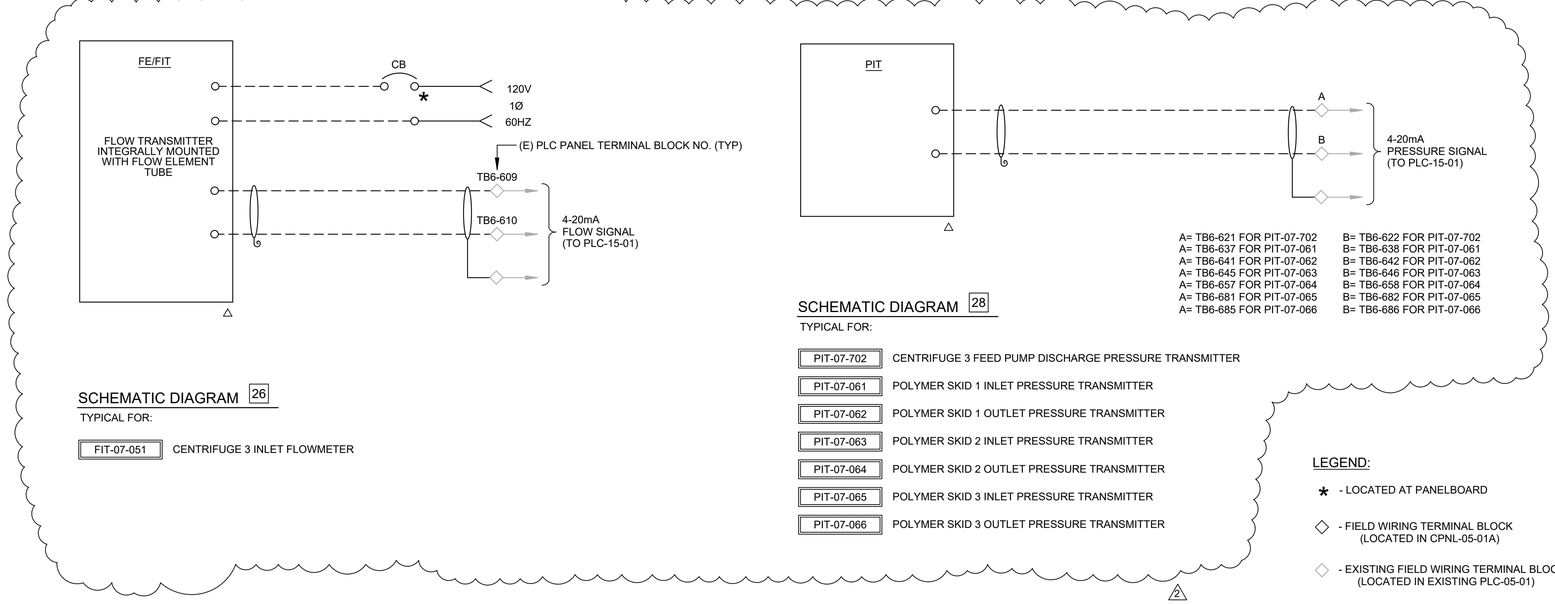
PIT-07-001	RDT FEED PUMP 1 DISCHARGE PRESSURE TRANSMITTER	PIT-07-021	POLYMER SKID 1 INLET PRESSURE TRANSMITTER
PIT-07-002	RDT FEED PUMP 2 DISCHARGE PRESSURE TRANSMITTER	PIT-07-022	POLYMER SKID 1 OUTLET PRESSURE TRANSMITTER
PIT-07-003	RDT FEED PUMP 3 DISCHARGE PRESSURE TRANSMITTER	PIT-07-031	POLYMER SKID 2 INLET PRESSURE TRANSMITTER
PIT-07-011	TSP 1 DISCHARGE PRESSURE TRANSMITTER	PIT-07-032	POLYMER SKID 2 OUTLET PRESSURE TRANSMITTER
PIT-07-012	TSP 2 DISCHARGE PRESSURE TRANSMITTER	PIT-07-041	POLYMER SKID 3 INLET PRESSURE TRANSMITTER
PIT-07-013	TSP 3 DISCHARGE PRESSURE TRANSMITTER	PIT-07-042	POLYMER SKID 3 OUTLET PRESSURE TRANSMITTER



SCHEMATIC DIAGRAM 24

TYPICAL FOR:

FIT-07-001	BLEND TANK 1 FLOWMETER	FIT-07-031	RDT 1 FLOWMETER
FIT-07-002	BLEND TANK 2 FLOWMETER	FIT-07-032	RDT 2 FLOWMETER
		FIT-07-033	RDT 3 FLOWMETER



SCHEMATIC DIAGRAM 26

TYPICAL FOR:

FIT-07-051	CENTRIFUGE 3 INLET FLOWMETER

SCHEMATIC DIAGRAM 28

TYPICAL FOR:

PIT-07-702	CENTRIFUGE 3 FEED PUMP DISCHARGE PRESSURE TRANSMITTER
PIT-07-061	POLYMER SKID 1 INLET PRESSURE TRANSMITTER
PIT-07-062	POLYMER SKID 1 OUTLET PRESSURE TRANSMITTER
PIT-07-063	POLYMER SKID 2 INLET PRESSURE TRANSMITTER
PIT-07-064	POLYMER SKID 2 OUTLET PRESSURE TRANSMITTER
PIT-07-065	POLYMER SKID 3 INLET PRESSURE TRANSMITTER
PIT-07-066	POLYMER SKID 3 OUTLET PRESSURE TRANSMITTER

LEGEND:

- ✱ - LOCATED AT PANELBOARD
- ◇ - FIELD WIRING TERMINAL BLOCK (LOCATED IN CPNL-05-01A)
- ◇ - EXISTING FIELD WIRING TERMINAL BLOCK (LOCATED IN EXISTING PLC-05-01)
- △ - LOCATED IN FIELD
- NEW FIELD CONDUCTOR

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
3	3/6/25	TB	REVISION PER ADDENDUM 4
2	2/27/25	TB	REVISION PER ADDENDUM 3
1	2/18/25	TB	DRAWING ADDED PER ADDENDUM 2

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
2/13/2025

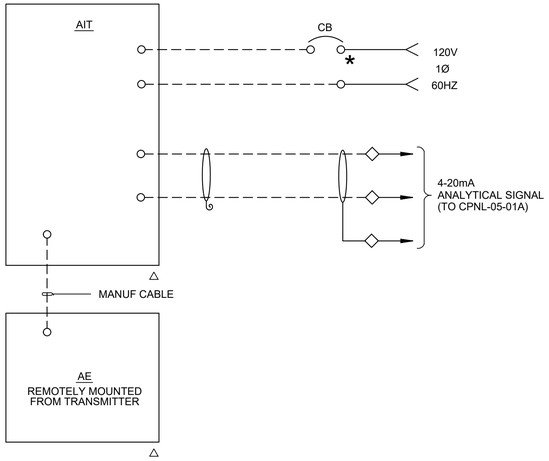
carollo

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
ELECTRICAL
CONTROL SCHEMATICS 15

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00E045
SHEET NO. 118 OF 239

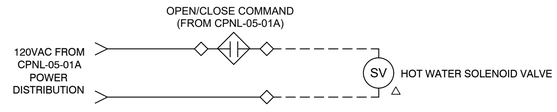
PROJECT NO. 202645
FILE NAME: 202645_00E045.dwg



SCHEMATIC DIAGRAM 29

TYPICAL FOR:

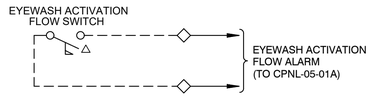
AIT-07-001	RDT 1 SLUDGE DENSITY METER	AIT-07-011	TSP 1 SLUDGE DENSITY METER
AIT-07-002	RDT 2 SLUDGE DENSITY METER	AIT-07-012	TSP 2 SLUDGE DENSITY METER
AIT-07-003	RDT 3 SLUDGE DENSITY METER	AIT-07-013	TSP 3 SLUDGE DENSITY METER



SCHEMATIC DIAGRAM 30

TYPICAL FOR:

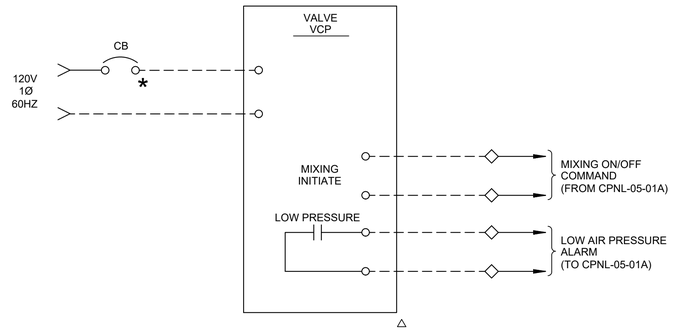
THK-SV-07-001	RDT 1 HOT WATER SV	THK-SV-07-011	TSP 1 HOT WATER SV
THK-SV-07-002	RDT 2 HOT WATER SV	THK-SV-07-012	TSP 2 HOT WATER SV
THK-SV-07-003	RDT 3 HOT WATER SV	THK-SV-07-013	TSP 3 HOT WATER SV



SCHEMATIC DIAGRAM 31

TYPICAL FOR:

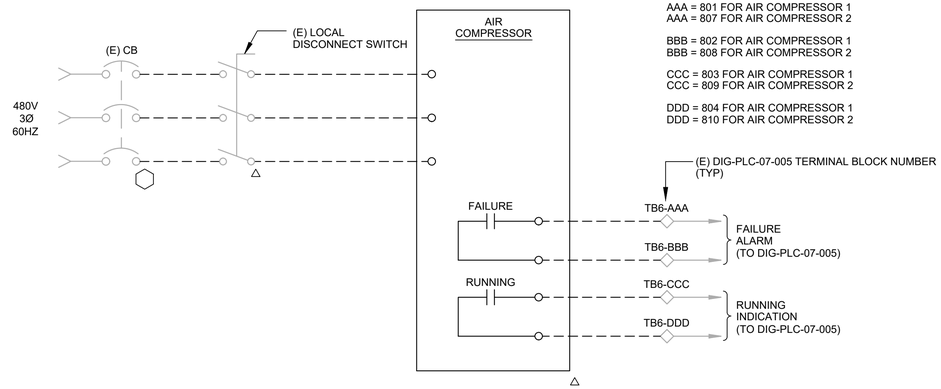
THK-EEWS-07-001 EMERGENCY EYEWASH AND SHOWER



SCHEMATIC DIAGRAM 32

TYPICAL FOR:

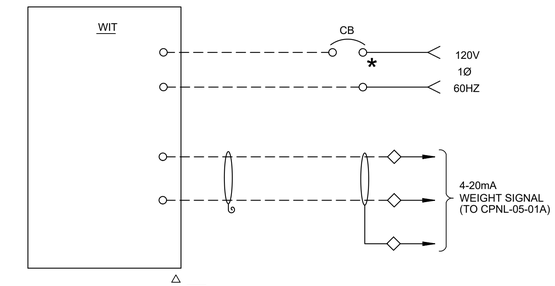
SLB-VCP-07-011 VALVE MODULE PANEL



SCHEMATIC DIAGRAM 33

TYPICAL FOR:

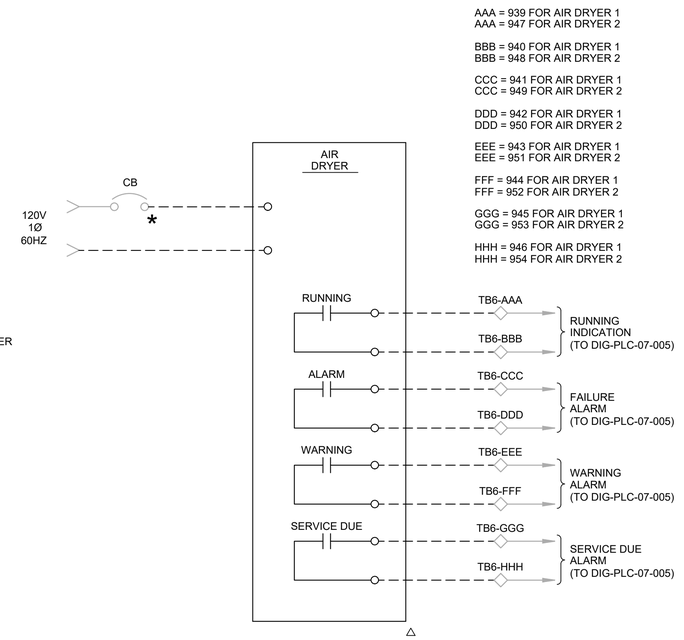
DIG-CMP-07-591	AIR COMPRESSOR 1
DIG-CMP-07-592	AIR COMPRESSOR 2



SCHEMATIC DIAGRAM 34

TYPICAL FOR:

WIT-07-001	POLYMER TOTE 1 WEIGHT TRANSMITTER
WIT-07-002	POLYMER TOTE 2 WEIGHT TRANSMITTER
WIT-07-003	POLYMER TOTE 3 WEIGHT TRANSMITTER
2 WIT-07-004	POLYMER TOTE 4 WEIGHT TRANSMITTER



SCHEMATIC DIAGRAM 35

TYPICAL FOR:

DIG-DRY-07-591	AIR DRYER 1
DIG-DRY-07-592	AIR DRYER 2

LEGEND:

- ⬡ - LOCATED AT MOTOR CONTROL CENTER
- * - LOCATED AT PANELBOARD
- ◇ - FIELD WIRING TERMINAL BLOCK (LOCATED IN CPNL-05-01A)
- △ - LOCATED IN FIELD
- – – – – NEW FIELD CONDUCTOR

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	REVISION PER ADDENDUM 4
1	2/13/25	TB	DRAWING ADDED PER ADDENDUM 1

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER
TODD A. BEECHER
E014712
Exp. 6/30/25
ELECTRICAL
STATE OF CALIFORNIA
2/13/2025

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
ELECTRICAL
CONTROL SCHEMATICS 16

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00E046
SHEET NO. 119 OF 239

PROJECT NO. 202645 FILE NAME: 202645_00E046.dwg

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LAST SAVED BY: tbeecher

POWER CIRCUITS

CIRCUIT NO.	WIRE/CABLE REQUIREMENTS	FROM:	TO:	SCHEMATIC DIAGRAM NO.	CONDUCTOR TYPE
P-VLV011	3#12, 1#12GND	MCC-E	DISCONNECT SWITCH	19	XHHW-2
P-VLV011A	3#12, 1#12GND	DISCONNECT SWITCH	THK-VAL-07-011	19	XHHW-2
P-VLV012	3#12, 1#12GND	MCC-E	DISCONNECT SWITCH	20	XHHW-2
P-VLV012A	3#12, 1#12GND	DISCONNECT SWITCH	THK-VAL-07-012	20	XHHW-2
P-VLV021	3#12, 1#12GND	MCC-E	DISCONNECT SWITCH	19	XHHW-2
P-VLV021A	3#12, 1#12GND	DISCONNECT SWITCH	THK-VAL-07-021	19	XHHW-2
P-VLV022	3#12, 1#12GND	MCC-E	DISCONNECT SWITCH	20	XHHW-2
P-VLV022A	3#12, 1#12GND	DISCONNECT SWITCH	THK-VAL-07-022	20	XHHW-2
P-VLV031	3#12, 1#12GND	MCC-E	DISCONNECT SWITCH	19	XHHW-2
P-VLV031A	3#12, 1#12GND	DISCONNECT SWITCH	THK-VAL-07-031	19	XHHW-2
P-VLV032	3#12, 1#12GND	MCC-E	DISCONNECT SWITCH	20	XHHW-2
P-VLV032A	3#12, 1#12GND	DISCONNECT SWITCH	THK-VAL-07-032	20	XHHW-2
P-FIT001	2#12, 1#12GND	PNL-LPE1	FIT-07-001	24	XHHW-2
P-FIT002	2#12, 1#12GND	PNL-LPE1	FIT-07-002	24	XHHW-2
P-FIT021	2#12, 1#12GND	PNL-LPE1	FIT-07-021	25	XHHW-2
P-FIT031	2#12, 1#12GND	PNL-LPE1	FIT-07-031	25	XHHW-2
P-FIT032	2#12, 1#12GND	PNL-LPE1	FIT-07-032	25	XHHW-2
P-FIT033	2#12, 1#12GND	PNL-LPE1	FIT-07-033	25	XHHW-2
P-AIT001	2#12, 1#12GND	PNL-LPE1	AIT-07-001	29	XHHW-2
P-AIT002	2#12, 1#12GND	PNL-LPE1	AIT-07-002	29	XHHW-2
P-AIT003	2#12, 1#12GND	PNL-LPE1	AIT-07-003	29	XHHW-2
P-AIT011	2#12, 1#12GND	PNL-LPE1	AIT-07-011	29	XHHW-2
P-AIT012	2#12, 1#12GND	PNL-LPE1	AIT-07-012	29	XHHW-2
P-AIT013	2#12, 1#12GND	PNL-LPE1	AIT-07-013	29	XHHW-2
P-CENTPOLY1	3#12, 1#12GND	MCC-15-01	DEW-POL-07-001	17	XHHW-2
P-CENTPOLY2	3#12, 1#12GND	MCC-15-01	DEW-POL-07-002	17	XHHW-2
P-CENTPOLY3	3#12, 1#12GND	MCC-15-01	DEW-POL-07-003	17	XHHW-2
P-CENT3MOV1	2#12, 1#12GND	DPNL-15-02	DISCONNECT SWITCH	21	XHHW-2
P-CENT3MOV1A	2#12, 1#12GND	DISCONNECT SWITCH	DEW-VAL-07-031	21	XHHW-2
P-CENT3MOV2	2#12, 1#12GND	DPNL-15-02	DISCONNECT SWITCH	21	XHHW-2
P-CENT3MOV2A	2#12, 1#12GND	DISCONNECT SWITCH	DEW-VAL-07-032	21	XHHW-2
P-FDPMP3	3#12, 1#12GND	MCC-15-01	DEW-PMP-07-003	22	XHHW-2
P-FIT051	2#12, 1#12GND	PNL-15-02	FIT-07-051	26	XHHW-2

4

3

3

CONTROL / SIGNAL CIRCUITS

CIRCUIT NO.	WIRE/CABLE REQUIREMENTS	FROM:	TO:	SCHEMATIC DIAGRAM NO.	SIGNAL DESCRIPTION	
C-RDT3	4#14, 1#14GND	CPNL-05-01A	RDT 3 TERMINAL BOX	11	RDT 3 - RIO SIGNALS	
C-RDT3A	2#12, 16#14, 1#12GND	THK-VCP-07-003	RDT 3 TERMINAL BOX	11	RDT 3 - FIELD CONTROL SIGNALS	
C-RDT3B	2#14, 1#14GND	RDT 3 TERMINAL BOX	HOPPER LSHH TB	11	RDT 3 - HOPPER HIGH-HIGH LEVEL FLOAT SWITCH	
C-RDT3C	2#12, 1#12GND	RDT 3 TERMINAL BOX	HOPPER SV	11	RDT 3 - HOPPER 3W SOLENOID VALVE	
S-RDT3	CAT-6	CPNL-05-01A	THK-VCP-07-003	11	RDT 3 - VCP COMMUNICATION	
S-LIT003	1#16 TSP	CPNL-05-01A	LIT-07-003	11	RDT 3 - HOPPER LEVEL TRANSMITTER	
C-GRD1	8#14, 1#14GND	CPNL-05-01A	SLB-GRD-07-001 VCP	12	BLENDED SLUDGE GRINDER 1 - RIO SIGNALS	
C-GRD2	8#14, 1#14GND	CPNL-05-01A	SLB-GRD-07-002 VCP	12	BLENDED SLUDGE GRINDER 2 - RIO SIGNALS	
C-TSP1	10#14, 1#14GND	MCC-E	CPNL-05-01A	15	THICKENED SLUDGE PUMP 1 - RIO SIGNALS	SEE NOTE 4
C-TSP1A	2#14, 1#14GND	MCC-E	THK-PMP-07-011	15	THICKENED SLUDGE PUMP 1 - MOTOR TEMPERATURE SWITCHES	
C-TSP1B	2#14, 1#14GND	MCC-E	THK-PMP-07-011	15	THICKENED SLUDGE PUMP 1 - MOTOR SPACE HEATER	
C-TSP1C	2#14, 1#14GND	MCC-E	LOS STATION	15	THICKENED SLUDGE PUMP 1 - LOCAL LOCKOUT-STOP	
C-TSP1D	4#14, 1#14GND	MCC-E	PROTECTION MODULE	15	THICKENED SLUDGE PUMP 1 - PUMP STATOR PROTECTION MODULE	
C-TSP1E	2#14, 1#14GND	MCC-E	PSH	15	THICKENED SLUDGE PUMP 1 - DISCHARGE HIGH PRESSURE SWITCH	
C-TSP1F	2#14, 1#14GND	MCC-E	SEAL WATER FSL	15	THICKENED SLUDGE PUMP 1 - SEAL WATER FLOW SWITCH	
C-TSP1G	2#12, 1#12GND	MCC-E	SEAL WATER SV	15	THICKENED SLUDGE PUMP 1 - SEAL WATER SOLENOID VALVE	
C-TSP1H	2#14, 1#14GND	MCC-E	CHECK VALVE ZS	15	THICKENED SLUDGE PUMP 1 - CHECK VALVE POSITION SWITCH	
S-TSP1	CAT-6	MCC-E	CPNL-05-01A	15	THICKENED SLUDGE PUMP 1 - VFD COMMUNICATION	SEE NOTE 4
C-TSP2	10#14, 1#14GND	MCC-E	CPNL-05-01A	15	THICKENED SLUDGE PUMP 2 - RIO SIGNALS	SEE NOTE 4
C-TSP2A	2#14, 1#14GND	MCC-E	THK-PMP-07-012	15	THICKENED SLUDGE PUMP 2 - MOTOR TEMPERATURE SWITCHES	
C-TSP2B	2#14, 1#14GND	MCC-E	THK-PMP-07-012	15	THICKENED SLUDGE PUMP 2 - MOTOR SPACE HEATER	
C-TSP2C	2#14, 1#14GND	MCC-E	LOS STATION	15	THICKENED SLUDGE PUMP 2 - LOCAL LOCKOUT-STOP	
C-TSP2D	4#14, 1#14GND	MCC-E	PROTECTION MODULE	15	THICKENED SLUDGE PUMP 2 - PUMP STATOR PROTECTION MODULE	
C-TSP2E	2#14, 1#14GND	MCC-E	PSH	15	THICKENED SLUDGE PUMP 2 - DISCHARGE HIGH PRESSURE SWITCH	
C-TSP2F	2#14, 1#14GND	MCC-E	SEAL WATER FSL	15	THICKENED SLUDGE PUMP 2 - SEAL WATER FLOW SWITCH	
C-TSP2G	2#12, 1#12GND	MCC-E	SEAL WATER SV	15	THICKENED SLUDGE PUMP 2 - SEAL WATER SOLENOID VALVE	
C-TSP2H	2#14, 1#14GND	MCC-E	CHECK VALVE ZS	15	THICKENED SLUDGE PUMP 2 - CHECK VALVE POSITION SWITCH	
S-TSP2	CAT-6	MCC-E	CPNL-05-01A	15	THICKENED SLUDGE PUMP 2 - VFD COMMUNICATION	SEE NOTE 4
C-TSP3	10#14, 1#14GND	MCC-E	CPNL-05-01A	15	THICKENED SLUDGE PUMP 3 - RIO SIGNALS	SEE NOTE 4
C-TSP3A	2#14, 1#14GND	MCC-E	THK-PMP-07-013	15	THICKENED SLUDGE PUMP 3 - MOTOR TEMPERATURE SWITCHES	
C-TSP3B	2#14, 1#14GND	MCC-E	THK-PMP-07-013	15	THICKENED SLUDGE PUMP 3 - MOTOR SPACE HEATER	
C-TSP3C	2#14, 1#14GND	MCC-E	LOS STATION	15	THICKENED SLUDGE PUMP 3 - LOCAL LOCKOUT-STOP	
C-TSP3D	4#14, 1#14GND	MCC-E	PROTECTION MODULE	15	THICKENED SLUDGE PUMP 3 - PUMP STATOR PROTECTION MODULE	
C-TSP3E	2#14, 1#14GND	MCC-E	PSH	15	THICKENED SLUDGE PUMP 3 - DISCHARGE HIGH PRESSURE SWITCH	
C-TSP3F	2#14, 1#14GND	MCC-E	SEAL WATER FSL	15	THICKENED SLUDGE PUMP 3 - SEAL WATER FLOW SWITCH	
C-TSP3G	2#12, 1#12GND	MCC-E	SEAL WATER SV	15	THICKENED SLUDGE PUMP 3 - SEAL WATER SOLENOID VALVE	
C-TSP3H	2#14, 1#14GND	MCC-E	CHECK VALVE ZS	15	THICKENED SLUDGE PUMP 3 - CHECK VALVE POSITION SWITCH	
S-TSP3	CAT-6	MCC-E	CPNL-05-01A	15	THICKENED SLUDGE PUMP 3 - VFD COMMUNICATION	SEE NOTE 4

NOTES:

1. NEW CONDUIT REQUIREMENTS ARE NOT INCLUDED IN THE CIRCUIT SCHEDULES. REFER TO THE ELECTRICAL PLAN DRAWINGS FOR NEW CONDUIT REQUIREMENTS.
2. TEMPORARY CONDUCTOR REQUIREMENTS ARE NOT INCLUDED ON THE CIRCUIT SCHEDULES. REFER TO PLAN DRAWINGS AND SINGLE LINE DIAGRAMS FOR TEMPORARY CONDUCTOR REQUIREMENTS.
3. NEW LIGHTING AND CONVENIENCE RECEPTACLE CONDUCTOR REQUIREMENTS ARE NOT INCLUDED ON THE CIRCUIT SCHEDULES. REFER TO PLAN DRAWINGS FOR LIGHTING AND CONVENIENCE RECEPTACLE NEW CONDUCTOR REQUIREMENTS.
4. ROUTED WITHIN NEW MCC-E WIREWAY.

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
4	3/6/25	TB	REVISION PER ADDENDUM 4
3	2/27/25	TB	REVISION PER ADDENDUM 3
2	2/18/25	TB	DRAWING RE-ISSUED PER ADDENDUM 2
1	2/13/25	TB	DRAWING ADDED PER ADDENDUM 1

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA 2/13/2025

carollo

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
ELECTRICAL
CIRCUIT SCHEDULES 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00E052
SHEET NO. 122 OF 239

PROJECT NO. 202645 FILE NAME: 202645_00E052.dwg

PLOT DATE: 3/5/2025 3:33:30 PM
USER: BEI
COLOR TABLE:CAROLLO_STD_F_V1703.CTB
PLOT SCALE:1:1
PAGE SETUP: ----
LAST SAVED BY: tbeecher

CONTROL / SIGNAL CIRCUITS

CIRCUIT NO.	WIRE/CABLE REQUIREMENTS	FROM:	TO:	SCHEMATIC DIAGRAM NO.	SIGNAL DESCRIPTION	
C-POLY1	8#14, 1#14GND	CPNL-05-01A	THK-POL-07-001	16	POLYMER BLENDING UNIT 1 - DISCRETE RIO SIGNALS	
S-POLY1	3 - 1#16TSP	CPNL-05-01A	THK-POL-07-001	16	POLYMER BLENDING UNIT 1 - ANALOG RIO SIGNALS	
C-POLY2	8#14, 1#14GND	CPNL-05-01A	THK-POL-07-002	16	POLYMER BLENDING UNIT 2 - DISCRETE RIO SIGNALS	
S-POLY2	3 - 1#16TSP	CPNL-05-01A	THK-POL-07-002	16	POLYMER BLENDING UNIT 2 - ANALOG RIO SIGNALS	
C-POLY3	8#14, 1#14GND	CPNL-05-01A	THK-POL-07-003	16	POLYMER BLENDING UNIT 3 - DISCRETE RIO SIGNALS	
S-POLY3	3 - 1#16TSP	CPNL-05-01A	THK-POL-07-003	16	POLYMER BLENDING UNIT 3 - ANALOG RIO SIGNALS	
S-SCRUB	CAT-6	CPNL-05-01A	FAR-VCP-07-021	18	BTF AND CARBON SCRUBBER - VCP COMMUNICATION	
S-SCRUBAIT	1#16 TSP	FAR-VCP-07-021	pH ANALYZER	18	BTF AND CARBON SCRUBBER - pH ANALYZER	
S-SCRUBFIT	1#16 TSP	FAR-VCP-07-021	DOSING FLOWMETER	18	BTF AND CARBON SCRUBBER - DOSING FLOWMETER	
C-SCRUBMOV	3#14, 1#14GND	FAR-VCP-07-021	SCRUBBER MOV	18	BTF AND CARBON SCRUBBER - MOTORIZED VALVE CONTROL	
C-BTFFLOATS	6#14, 1#14GND	FAR-VCP-07-021	FLOAT TERMINAL BOX	18	BTF AND CARBON SCRUBBER - BTF FLOAT SWITCHES	
C-NUTFLOATS	4#14, 1#14GND	FAR-VCP-07-021	FLOAT TERMINAL BOX	18	BTF AND CARBON SCRUBBER - NUTRIENT SOLUTION TANK FLOAT SWITCHES	
C-FAN1	4#14, 1#14GND	FAR-VCP-07-021	FAR-FAN-07-001	18	BTF AND CARBON SCRUBBER - ODOR SCRUBBER FAN 1 MOTOR TSH/HEATER	
C-FAN2	4#14, 1#14GND	FAR-VCP-07-021	FAR-FAN-07-002	18	BTF AND CARBON SCRUBBER - ODOR SCRUBBER FAN 2 MOTOR TSH/HEATER	
C-BTFPMP	4#14, 1#14GND	FAR-VCP-07-021	FAR-PMP-07-031	18	BTF AND CARBON SCRUBBER - BTF CIRC PUMP 2 MOTOR TSH/HEATER	
C-DOSEPMP	4#14, 1#14GND	FAR-VCP-07-021	FAR-PMP-07-032	18	BTF AND CARBON SCRUBBER - NUT DOSING PUMP 2 MOTOR TSH/HEATER	
C-VLV011	8#14, 1#14GND	CPNL-05-01A	THK-VAL-07-011	19	RDT 1 MOTORIZED VALVE 1 - DISCRETE RIO SIGNALS	
C-VLV011A	1#16 TSP,14#14, 1#14GND	THK-VAL-07-011	REMOTE LCP	19	RDT 1 MOTORIZED VALVE 1 - REMOTE LCP SIGNALS	4
S-VLV011	2 - 1#16 TSP	CPNL-05-01A	THK-VAL-07-011	19	RDT 1 MOTORIZED VALVE 1 - ANALOG RIO SIGNALS	
C-VLV012	11#14, 1#14GND	CPNL-05-01A	THK-VAL-07-012	20	RDT 1 MOTORIZED VALVE 2 - RIO SIGNALS	
C-VLV021	8#14, 1#14GND	CPNL-05-01A	THK-VAL-07-021	19	RDT 2 MOTORIZED VALVE 1 - DISCRETE RIO SIGNALS	
C-VLV021A	1#16 TSP,14#14, 1#14GND	THK-VAL-07-021	REMOTE LCP	19	RDT 2 MOTORIZED VALVE 1 - REMOTE LCP SIGNALS	4
S-VLV021	2 - 1#16 TSP	CPNL-05-01A	THK-VAL-07-021	19	RDT 2 MOTORIZED VALVE 1 - ANALOG RIO SIGNALS	
C-VLV022	11#14, 1#14GND	CPNL-05-01A	THK-VAL-07-022	20	RDT 2 MOTORIZED VALVE 2 - RIO SIGNALS	
C-VLV031	8#14, 1#14GND	CPNL-05-01A	THK-VAL-07-031	19	RDT 3 MOTORIZED VALVE 1 - DISCRETE RIO SIGNALS	
C-VLV031A	1#16 TSP,14#14, 1#14GND	THK-VAL-07-031	REMOTE LCP	19	RDT 3 MOTORIZED VALVE 1 - REMOTE LCP SIGNALS	4
S-VLV031	2 - 1#16 TSP	CPNL-05-01A	THK-VAL-07-031	19	RDT 3 MOTORIZED VALVE 1 - ANALOG RIO SIGNALS	
C-VLV032	11#14, 1#14GND	CPNL-05-01A	THK-VAL-07-032	20	RDT 3 MOTORIZED VALVE 2 - RIO SIGNALS	
S-LIT011	1#16 TSP	CPNL-05-01A	LIT-07-011	23	BLEND TANK 1 - LEVEL	
S-LIT012	1#16 TSP	CPNL-05-01A	LIT-07-012	23	BLEND TANK 2 - LEVEL	
S-FIT001	1#16 TSP	CPNL-05-01A	FIT-07-001	24	BLEND TANK 1 - FLOW	
S-FIT002	1#16 TSP	CPNL-05-01A	FIT-07-002	24	BLEND TANK 2 - FLOW	
S-FIT021	1#16 TSP	CPNL-05-01A	FIT-07-021	25	BLENDED SLUDGE FEED - FLOW	
S-FIT031	1#16 TSP	CPNL-05-01A	FIT-07-031	25	RDT 1 - FLOW	
S-FIT032	1#16 TSP	CPNL-05-01A	FIT-07-032	25	RDT 2 - FLOW	
S-FIT033	1#16 TSP	CPNL-05-01A	FIT-07-033	25	RDT 3 - FLOW	
						4
S-FIT051	1#16 TSP	PLC-15-01	FIT-07-051	26	CENTRIFUGE 3 - INLET FLOW	
S-PIT061	1#16 TSP	PLC-15-01	PIT-07-061	28	POLYMER SKID 1 - INLET PRESSURE	
S-PIT062	1#16 TSP	PLC-15-01	PIT-07-062	28	POLYMER SKID 1 - OUTLET PRESSURE	
S-PIT063	1#16 TSP	PLC-15-01	PIT-07-063	28	POLYMER SKID 2 - INLET PRESSURE	
S-PIT064	1#16 TSP	PLC-15-01	PIT-07-064	28	POLYMER SKID 2 - OUTLET PRESSURE	3

CONTROL / SIGNAL CIRCUITS

CIRCUIT NO.	WIRE/CABLE REQUIREMENTS	FROM:	TO:	SCHEMATIC DIAGRAM NO.	SIGNAL DESCRIPTION	
S-PIT001	1#16 TSP	CPNL-05-01A	PIT-07-001	27	RDT FEED PUMP 1 - DISCHARGE PRESSURE	
S-PIT002	1#16 TSP	CPNL-05-01A	PIT-07-002	27	RDT FEED PUMP 2 - DISCHARGE PRESSURE	
S-PIT003	1#16 TSP	CPNL-05-01A	PIT-07-003	27	RDT FEED PUMP 3 - DISCHARGE PRESSURE	
S-PIT011	1#16 TSP	CPNL-05-01A	PIT-07-011	27	THICKENED SLUDGE PUIMP 1 - DISCHARGE PRESSURE	
S-PIT012	1#16 TSP	CPNL-05-01A	PIT-07-012	27	THICKENED SLUDGE PUIMP 2 - DISCHARGE PRESSURE	
S-PIT013	1#16 TSP	CPNL-05-01A	PIT-07-013	27	THICKENED SLUDGE PUIMP 3 - DISCHARGE PRESSURE	
S-PIT021	1#16 TSP	CPNL-05-01A	PIT-07-021	27	POLYMER SKID 1 - INLET PRESSURE	
S-PIT022	1#16 TSP	CPNL-05-01A	PIT-07-022	27	POLYMER SKID 1 - OUTLET PRESSURE	
S-PIT031	1#16 TSP	CPNL-05-01A	PIT-07-031	27	POLYMER SKID 2 - INLET PRESSURE	
S-PIT032	1#16 TSP	CPNL-05-01A	PIT-07-032	27	POLYMER SKID 2 - OUTLET PRESSURE	
S-PIT041	1#16 TSP	CPNL-05-01A	PIT-07-041	27	POLYMER SKID 3 - INLET PRESSURE	
S-PIT042	1#16 TSP	CPNL-05-01A	PIT-07-042	27	POLYMER SKID 3 - OUTLET PRESSURE	
S-AIT001	1#16 TSP	CPNL-05-01A	AIT-07-001	29	RDT 1 - SLUDGE DENSITY METER	
S-AIT002	1#16 TSP	CPNL-05-01A	AIT-07-002	29	RDT 2 - SLUDGE DENSITY METER	
S-AIT003	1#16 TSP	CPNL-05-01A	AIT-07-003	29	RDT 3 - SLUDGE DENSITY METER	
S-AIT011	1#16 TSP	CPNL-05-01A	AIT-07-011	29	THICKENED SLUDGE PUMP 1 - SLUDGE DENSITY METER	
S-AIT012	1#16 TSP	CPNL-05-01A	AIT-07-012	29	THICKENED SLUDGE PUMP 2 - SLUDGE DENSITY METER	
S-AIT013	1#16 TSP	CPNL-05-01A	AIT-07-013	29	THICKENED SLUDGE PUMP 3 - SLUDGE DENSITY METER	
C-RDT1HWSV	2#14, 1#14GND	CPNL-05-01A	THK-SV-07-001	30	RDT 1 - HOT WATER SOLENOID VALVE	
C-RDT2HWSV	2#14, 1#14GND	CPNL-05-01A	THK-SV-07-002	30	RDT 2 - HOT WATER SOLENOID VALVE	
C-RDT3HWSV	2#14, 1#14GND	CPNL-05-01A	THK-SV-07-003	30	RDT 3 - HOT WATER SOLENOID VALVE	
C-TSP1HWSV	2#14, 1#14GND	CPNL-05-01A	THK-SV-07-011	30	THICKENED SLUDGE PUMP 1 - HOT WATER SOLENOID VALVE	
C-TSP2HWSV	2#14, 1#14GND	CPNL-05-01A	THK-SV-07-012	30	THICKENED SLUDGE PUMP 2 - HOT WATER SOLENOID VALVE	
C-TSP3HWSV	2#14, 1#14GND	CPNL-05-01A	THK-SV-07-013	30	THICKENED SLUDGE PUMP 3 - HOT WATER SOLENOID VALVE	
C-CENTPOLY1	5#14, 1#14GND	PLC-15-01	DEW-POL-07-001	17	POLYMER BLENDING UNIT 1 - DISCRETE PLC SIGNALS	
S-CENTPOLY1	3 - 1#16 TSP	PLC-15-01	DEW-POL-07-001	17	POLYMER BLENDING UNIT 1 - ANALOG PLC SIGNALS	
C-CENTPOLY2	5#14, 1#14GND	PLC-15-01	DEW-POL-07-002	17	POLYMER BLENDING UNIT 2 - DISCRETE PLC SIGNALS	
S-CENTPOLY2	3 - 1#16 TSP	PLC-15-01	DEW-POL-07-002	17	POLYMER BLENDING UNIT 2 - ANALOG PLC SIGNALS	
C-CENTPOLY3	5#14, 1#14GND	PLC-15-01	DEW-POL-07-003	17	POLYMER BLENDING UNIT 3 - DISCRETE PLC SIGNALS	
S-CENTPOLY3	3 - 1#16 TSP	PLC-15-01	DEW-POL-07-003	17	POLYMER BLENDING UNIT 3 - ANALOG PLC SIGNALS	
C-CENT3MOV1	8#14, 1#14GND	PLC-15-01	DEW-VAL-07-031	21	CENTRIFUGE 3 MOTORIZED VALVE 1 - PLC SIGNALS	
C-CENT3MOV2	8#14, 1#14GND	PLC-15-01	DEW-VAL-07-032	21	CENTRIFUGE 3 MOTORIZED VALVE 2 - PLC SIGNALS	
C-FDPMP3	5#14, 1#14GND	MCC-15-01	PLC-15-01	22	CENTRIFUGE FEED PUMP 3 - PLC SIGNALS	
C-FDPMP3A	2#14, 1#14GND	MCC-15-01	DEW-PMP-07-003	22	CENTRIFUGE FEED PUMP 3 - MOTOR TEMPERATURE SWITCHES	
C-FDPMP3B	2#14, 1#14GND	MCC-15-01	DEW-PMP-07-003	22	CENTRIFUGE FEED PUMP 3 - MOTOR SPACE HEATER	
C-FDPMP3C	2#14, 1#14GND	MCC-15-01	LOS STATION	22	CENTRIFUGE FEED PUMP 3 - LOCAL LOCKOUT-STOP	
C-FDPMP3D	4#14, 1#14GND	MCC-15-01	PROTECTION MODULE	22	CENTRIFUGE FEED PUMP 3 - PUMP STATOR PROTECTION MODULE	
C-FDPMP3E	2#14, 1#14GND	MCC-15-01	PSH	22	CENTRIFUGE FEED PUMP 3 - DISCHARGE HIGH PRESSURE SWITCH	
C-FDPMP3F	2#14, 1#14GND	MCC-15-01	SEAL WATER FSL	22	CENTRIFUGE FEED PUMP 3 - SEAL WATER FLOW SWITCH	
C-FDPMP3G	2#12, 1#12GND	MCC-15-01	SEAL WATER SV	22	CENTRIFUGE FEED PUMP 3 - SEAL WATER SOLENOID VALVE	
S-FDPMP3	CAT-6	MCC-15-01	PLC-15-01	22	CENTRIFUGE FEED PUMP 3 - VFD COMMUNICATION	
S-PIT065	1#16 TSP	PLC-15-01	PIT-07-065	28	POLYMER SKID 3 - INLET PRESSURE	3
S-PIT066	1#16 TSP	PLC-15-01	PIT-07-066	28	POLYMER SKID 3 - OUTLET PRESSURE	

NOTES:

1. NEW CONDUIT REQUIREMENTS ARE NOT INCLUDED IN THE CIRCUIT SCHEDULES. REFER TO THE ELECTRICAL PLAN DRAWINGS FOR NEW CONDUIT REQUIREMENTS.
2. TEMPORARY CONDUCTOR REQUIREMENTS ARE NOT INCLUDED ON THE CIRCUIT SCHEDULES. REFER TO PLAN DRAWINGS AND SINGLE LINE DIAGRAMS FOR TEMPORARY CONDUCTOR REQUIREMENTS.
3. NEW LIGHTING AND CONVENIENCE RECEPTACLE CONDUCTOR REQUIREMENTS ARE NOT INCLUDED ON THE CIRCUIT SCHEDULES. REFER TO PLAN DRAWINGS FOR LIGHTING AND CONVENIENCE RECEPTACLE NEW CONDUCTOR REQUIREMENTS.

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
4	3/6/25	TB	REVISION PER ADDENDUM 4
3	2/27/25	TB	REVISION PER ADDENDUM 3
2	2/18/25	TB	DRAWING RE-ISSUED PER ADDENDUM 2
1	2/13/25	TB	DRAWING ADDED PER ADDENDUM 1

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
2/13/2025

carollo®

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
ELECTRICAL
CIRCUIT SCHEDULES 3

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00E053
SHEET NO. 123 OF 239

PROJECT NO. 202645 FILE NAME: 202645_00E053.dwg

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POWER CIRCUITS

CIRCUIT NO.	WIRE/CABLE REQUIREMENTS	FROM:	TO:	SCHEMATIC DIAGRAM NO.	CONDUCTOR TYPE
P-VLVPNL	2#12, 1#12GND	PNL-LPE1	SLB-VCP-07-011	32	XHHW-2
P-COMP1	3#10, 1#10GND	MCC-07-001	DISCONNECT SWITCH	33	XHHW-2
P-COMP1A	3#10, 1#10GND	DISCONNECT SWITCH	DIG-CMP-07-591	33	XHHW-2
P-COMP2	3#10, 1#10GND	MCC-07-001	DISCONNECT SWITCH	33	XHHW-2
P-COMP2A	3#10, 1#10GND	DISCONNECT SWITCH	DIG-CMP-07-592	33	XHHW-2
P-TOTE1	2#12, 1#12GND	PNL-LPE1	WIT-07-001	34	XHHW-2
P-TOTE2	2#12, 1#12GND	PNL-LPE1	WIT-07-002	34	XHHW-2
P-TOTE3	2#12, 1#12GND	PNL-LPE1	WIT-07-003	34	XHHW-2
P-TOTE4	2#12, 1#12GND	PNL-LPE1	WIT-07-004	34	XHHW-2
P-DRYER1	2#12, 1#12GND	DIG-BKP-07-001	DIG-DRY-07-591	35	XHHW-2
P-DRYER2	2#12, 1#12GND	DIG-BKP-07-001	DIG-DRY-07-592	35	XHHW-2
P-CENT3	3#4/0, 1#6GND	MCC-15-01	DEW-VCP-07-031	36	XHHW-2
P-CENT3MD	3#2, 4#14, 1#6GND	DEW-VCP-07-031	CENT 3 MAIN DRV MTR	36	XHHW-2
P-CENT3HYD	3#10, 4#14, 1#10GND	DEW-VCP-07-031	CENT 3 HYD MOTOR	36	XHHW-2
P-DIVGT3	3#12, 1#12GND	MCC-15-01	DEW-DG-07-003	36	XHHW-2

CONTROL / SIGNAL CIRCUITS

CIRCUIT NO.	WIRE/CABLE REQUIREMENTS	FROM:	TO:	SCHEMATIC DIAGRAM NO.	SIGNAL DESCRIPTION
C-EWFSH	2#14, 1#14GND	CPNL-05-01A	THK-EEWS-07-001	31	EMERGENCY EYEWASH AND SHOWER - ACTIVATION FLOW SWITCH
C-VLVPNL	4#14, 1#14GND	CPNL-05-01A	SLB-VCP-07-011	32	VALVE MODULE PANEL - RIO SIGNALS
C-COMP1	4#14, 1#14GND	DIG-PLC-07-005	DIG-CMP-07-591	33	AIR COMPRESSOR 1 - PLC SIGNALS
C-COMP2	4#14, 1#14GND	DIG-PLC-07-005	DIG-CMP-07-592	33	AIR COMPRESSOR 2 - PLC SIGNALS
S-TOTE1	1#16TSP	CPNL-05-01A	WIT-07-001	34	POLYMER TOTE 1 - WEIGHT INDICATION
S-TOTE2	1#16TSP	CPNL-05-01A	WIT-07-002	34	POLYMER TOTE 2 - WEIGHT INDICATION
S-TOTE3	1#16TSP	CPNL-05-01A	WIT-07-003	34	POLYMER TOTE 3 - WEIGHT INDICATION
S-TOTE4	1#16TSP	CPNL-05-01A	WIT-07-004	34	POLYMER TOTE 4 - WEIGHT INDICATION
C-DRYER1	8#14, 1#14GND	DIG-PLC-07-005	DIG-DRY-07-591	35	AIR DRYER 1 - PLC SIGNALS
C-DRYER2	8#14, 1#14GND	DIG-PLC-07-005	DIG-DRY-07-592	35	AIR DRYER 1 - PLC SIGNALS
S-FD3PIT	1#16 TSP	PLC-15-01	PIT-07-702	28	CENTRIFUGE 3 FEED PUMP - DISCHARGE PRESSURE INDICATION
C-CENT3	4#14, 6#12, 1#12GND	DEW-VCP-07-031	CENT 3 JUNCTION BOX	36	CENTRIFUGE 3 - DISCRETE SIGNALS AND AUXILIARY SYSTEM POWER
S-CENT3	2 - 1#16TR, 5 - 1#16TSP	DEW-VCP-07-031	CENT 3 JUNCTION BOX	36	CENTRIFUGE 3 - ANALOG SIGNALS AND TEMPERATURE MONITORING
S-CENT3A	CAT-6	DEW-VCP-07-031	PLC-15-01	36	CENTRIFUGE 3 - PLANT PLC COMMUNICATION
C-HYD3	4#14, 1#14GND	DEW-VCP-07-031	HYD UNIT 3 J-BOX	36	CENT 3 HYD UNIT - DISCRETE SIGNALS
S-HYD3	2 - 1#16TSP	DEW-VCP-07-031	HYD UNIT 3 J-BOX	36	CENT 3 HYD UNIT - ANALOG SIGNALS
C-DIVGT3	6#14, 1#14GND	DEW-VCP-07-031	DEW-DG-07-003	36	CENTRIFUGE 3 DIVERTER GATE - DISCRETE SIGNALS
C-LCS3	2#14, 1#14GND	DEW-VCP-07-031	E-STOP (LOWER)	36	CENTRIFUGE 3 - EMERGENCY STOP (LOWER LEVEL)
C-LCS3A	2#14, 1#14GND	DEW-VCP-07-031	E-STOP (UPPER)	36	CENTRIFUGE 3 - EMERGENCY STOP (UPPER LEVEL)
C-CENT3SV1	2#12, 1#12GND	DEW-LCP-07-031	SOLENOID VALVE	36	CENTRIFUGE 3 - CENTRIFUGE FLUSHING SOLENOID VALVE
C-CENT3SV2	2#12, 1#12GND	DEW-LCP-07-031	SOLENOID VALVE	36	CENTRIFUGE 3 - DIVERTER GATE FLUSHING SOLENOID VALVE
C-CENT3SV3	2#12, 1#12GND	DEW-LCP-07-031	SOLENOID VALVE	36	CENTRIFUGE 3 - CENTRATE CHUTE FLUSHING SOLENOID VALVE
C-CENT3SV4	2#12, 1#12GND	DEW-LCP-07-031	SOLENOID VALVE	36	CENTRIFUGE 3 - HYDRAULIC BACKDRIVE COOLING SOLENOID VALVE

NOTES:

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Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
3	3/6/25	TB	REVISION PER ADDENDUM 4
2	2/27/25	TB	REVISION PER ADDENDUM 3
1	2/18/25	TB	DRAWING ADDED PER ADDENDUM 2

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER
TODD A. BEECHER
E014712
Exp. 6/30/25
ELECTRICAL
STATE OF CALIFORNIA
2/13/2025

carollo

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
ELECTRICAL
CIRCUIT SCHEDULES 4

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00E054
SHEET NO. 124 OF 239

PROJECT NO. 202645 FILE NAME: 202645_00E054.dwg

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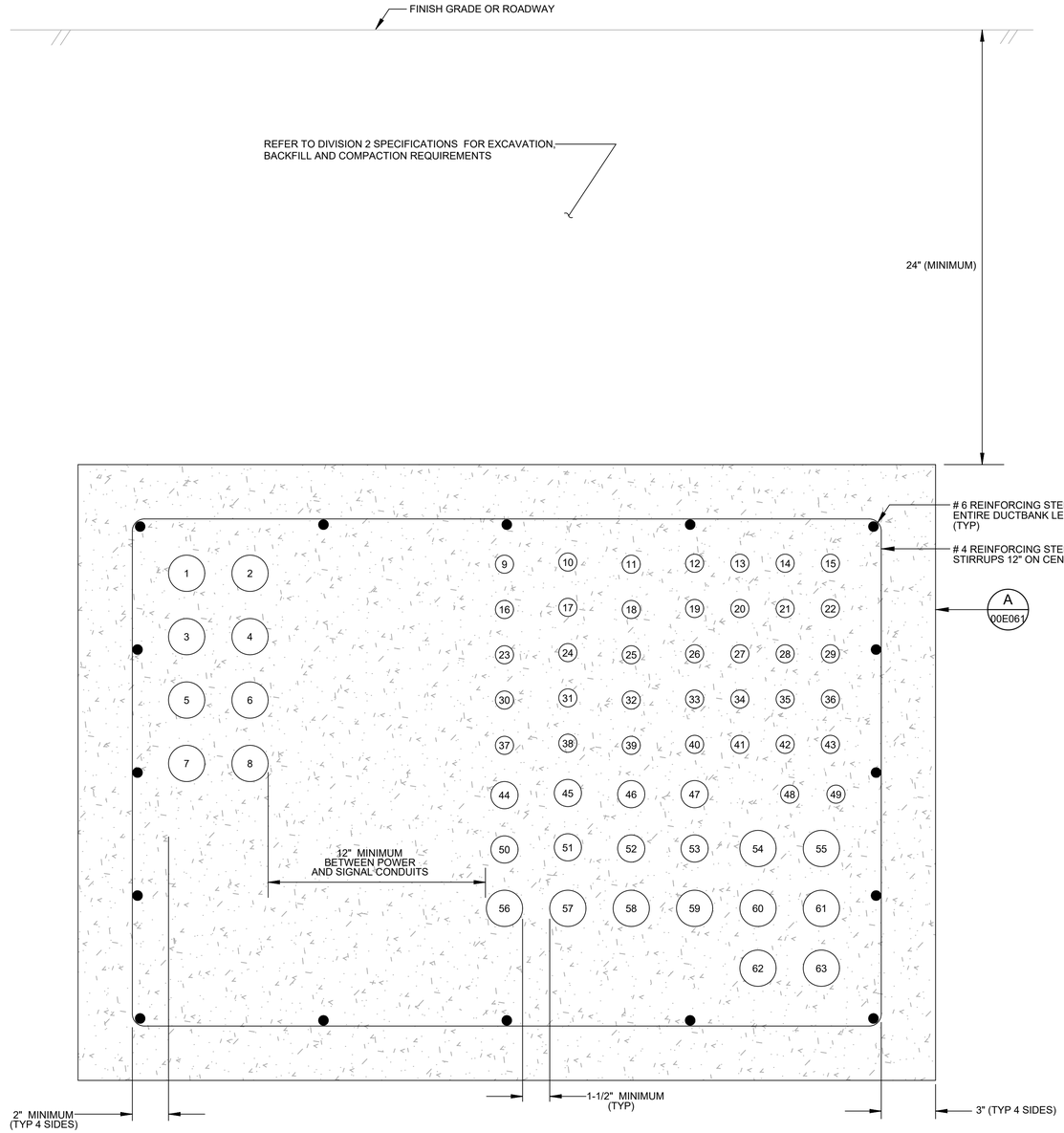

DUCTBANK SCHEDULE

CONDUIT NO.	SIZE	CIRCUITS
1	2"	PULL TAPE (SPARE)
2	2"	PULL TAPE (SPARE)
3	2"	S-LIT011, S-LIT012, S-FIT001, S-FIT002, S-FIT021, S-PIT001, S-PIT002, S-PIT003
4	2"	S-LIT001, S-LIT002, S-LIT003, S-PIT011, S-PIT012, S-PIT013, S-PIT021, S-PIT022, S-PIT031, S-PIT032, S-PIT041, S-PIT042
5	2"	S-POLY1, S-POLY2, S-POLY3, S-VLV011, S-VLV021, S-VLV031
2 6	2"	S-FIT031, S-FIT032, S-FIT033, S-AIT001, S-AIT002, S-AIT003, S-AIT011, S-AIT012, S-AIT013, S-TOTE1, S-TOTE2, S-TOTE3, S-TOTE4
7	2"	S-RDT1, S-RDT2, S-RDT3
8	2"	S-SCRUB
9	1"	PULL TAPE (SPARE)
10	1"	PULL TAPE (SPARE)
11	1"	PULL TAPE (SPARE)
12	1"	PULL TAPE (SPARE)
13	1"	P-RDT1
14	1"	P-RDT2
15	1"	P-RDT3
16	1"	P-GRD1
17	1"	P-GRD2
18	1"	P-HTR1
19	1"	P-HTR2
20	1"	P-TSP1
21	1"	P-TSP2
22	1"	P-TSP3
23	1"	P-POLY1
24	1"	P-POLY2
25	1"	P-POLY3
26	1"	P-VLV011
27	1"	P-VLV012
28	1"	P-VLV021
29	1"	P-VLV022
30	1"	P-VLV031
31	1"	P-VLV032
32	1"	P-FIT001, P-FIT002, P-FIT021
33	1"	P-VLVPNL
2 34	1"	P-TOTE1, P-TOTE2
35	1"	P-FIT041, P-FIT042, P-FIT043
36	1"	P-AIT001, P-AIT002, P-AIT003
37	1"	P-AIT011, P-AIT012, P-AIT013
2 38	1"	P-TOTE3, P-TOTE4
39	1"	4#8, 1#8GND - SLUDGE BLEND TANKS LIGHTING
40	1"	2#8, 1#8GND - SLUDGE BLEND TANKS RECEPTACLES
41	1"	4#8, 1#8GND - RDT FACILITY LOWER LEVEL LIGHTING
42	1"	4#8, 1#8GND - RDT FACILITY UPPER LEVEL LIGHTING
43	1"	4#8, 1#8GND - RDT FACILITY UPPER AND LOWER LEVEL RECEPTACLES
44	1-1/2"	P-RDTPMP1
45	1-1/2"	C-RDTPMP1A, C-RDTPMP1B, C-RDTPMP1C, C-RDTPMP1D, C-RDTPMP1E, C-RDTPMP1F, C-RDTPMP1G
46	1-1/2"	P-RDTPMP2
47	1-1/2"	C-RDTPMP2A, C-RDTPMP2B, C-RDTPMP2C, C-RDTPMP2D, C-RDTPMP2E, C-RDTPMP2F, C-RDTPMP2G
48	1"	4#8, 1#8GND - POLYMER AREA LIGHTING AND RECEPTACLES
49	1"	4#8, 1#8GND - ODOR CONTROL FACILITY LIGHTING AND RECEPTACLES
50	1-1/2"	P-RDTPMP3
51	1-1/2"	C-RDTPMP3A, C-RDTPMP3B, C-RDTPMP3C, C-RDTPMP3D, C-RDTPMP3E, C-RDTPMP3F, C-RDTPMP3G
52	1-1/2"	P-SLDGHTR
53	1-1/2"	P-SCRUB
54	2"	PULL TAPE (SPARE)
55	2"	PULL TAPE (SPARE)
56	2"	C-GRD1, C-GRD2, C-VLVPNL
57	2"	C-RDT1, C-RDT2, C-RDT3, C-POLY1, C-POLY2, C-POLY3
58	2"	C-VLV011, C-VLV012, C-VLV021, C-VLV022, C-VLV031, C-VLV032
59	2"	C-RDT1HWSV, C-RDT2HWSV, C-RDT3HWSV, C-TSP1HWSV, C-TSP2HWSV, C-TSP3HWSV, C-EWFSH
60	2"	P-EEWSHTR
61	2"	C-TSP1A, C-TSP1B, C-TSP1C, C-TSP1D, C-TSP1E, C-TSP1F, C-TSP1G, C-TSP1H
62	2"	C-TSP2A, C-TSP2B, C-TSP2C, C-TSP2D, C-TSP2E, C-TSP2F, C-TSP2G, C-TSP2H
63	2"	C-TSP3A, C-TSP3B, C-TSP3C, C-TSP3D, C-TSP3E, C-TSP3F, C-TSP3G, C-TSP3H

1 / 00E004 — 1 / 07E502 NEW UNDERGROUND DUCTBANK SECTION

NO SCALE

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	REVISION PER ADDENDUM 4
1	2/18/25	TB	DRAWING ADDED PER ADDENDUM 2

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA 2/13/2025

CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT

ELECTRICAL

ELECTRICAL DETAILS 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00E062
SHEET NO. 126 OF 239

PROJECT NO. 202645 FILE NAME: 202645_00E062.dwg

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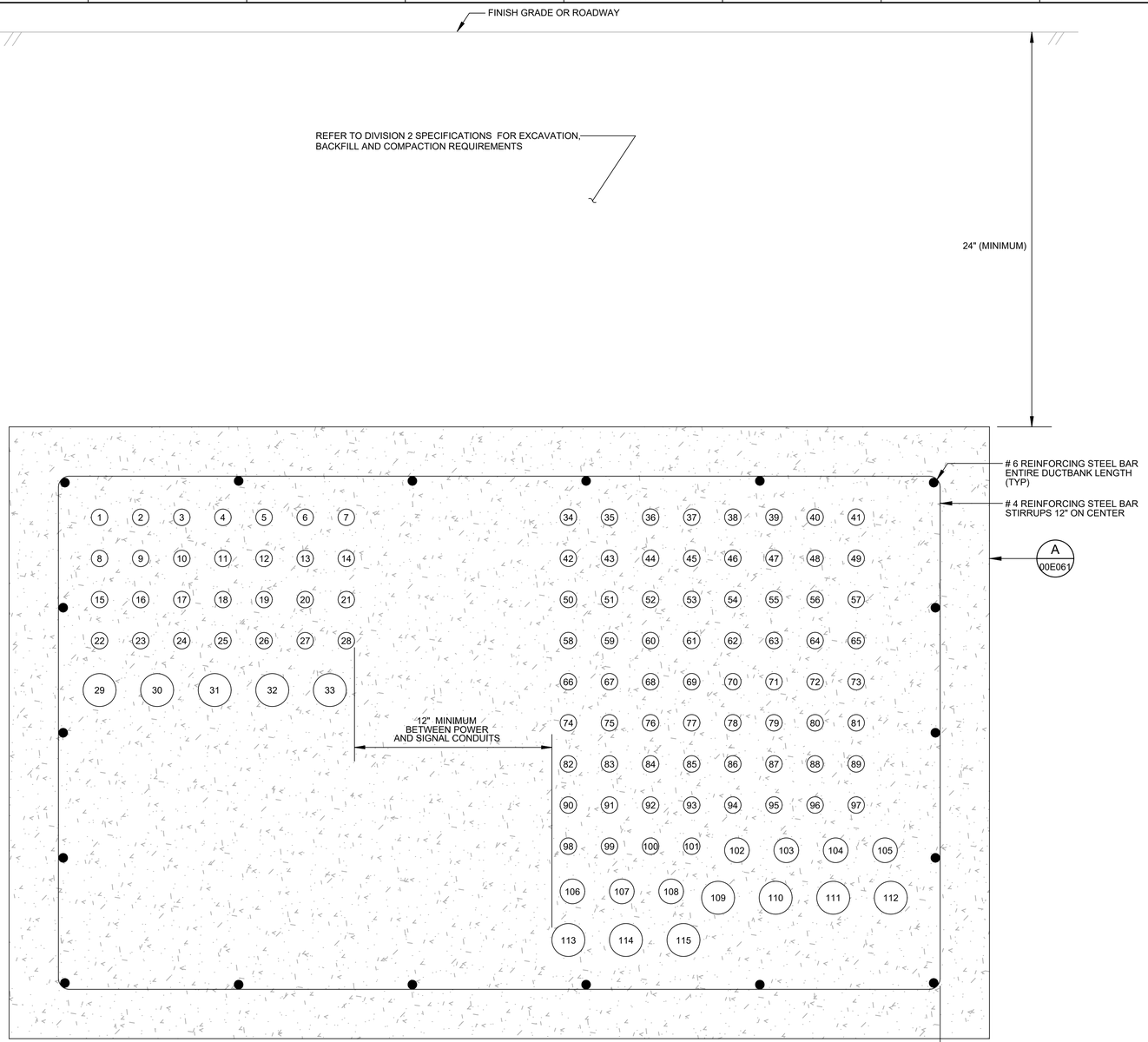


DUCTBANK SCHEDULE		
CONDUIT NO.	SIZE	CIRCUITS
1	1"	PULL TAPE (SPARE)
2	1"	PULL TAPE (SPARE)
3	1"	PULL TAPE (SPARE)
4	1"	PULL TAPE (SPARE)
5	1"	PULL TAPE (SPARE)
6	1"	S-PIT011
7	1"	S-AIT011
8	1"	S-AIT001
9	1"	S-FIT031
10	1"	S-VLV011
11	1"	S-RDT1

DUCTBANK SCHEDULE		
CONDUIT NO.	SIZE	CIRCUITS
12	1"	S-LIT001
13	1"	S-PIT012
14	1"	S-AIT012
15	1"	S-AIT002
16	1"	S-FIT032
17	1"	S-VLV021
18	1"	S-RDT2
19	1"	S-LIT002
20	1"	S-PIT013
21	1"	PULL TAPE (SPARE)
22	1"	S-AIT013

DUCTBANK SCHEDULE		
CONDUIT NO.	SIZE	CIRCUITS
23	1"	S-AIT003
24	1"	S-FIT033
25	1"	S-VLV031
26	1"	S-RDT3
27	1"	S-LIT003
2 28	1"	S-TOTE1, S-TOTE2, S-TOTE3, S-TOTE4
29	2"	PULL TAPE (SPARE)
30	2"	S-PIT021, S-PIT022, S-POLY1
2 31	2"	S-PIT031, S-PIT032, S-POLY2
32	2"	S-PIT041, S-PIT042, S-POLY3
33	2"	S-LIT011, S-LIT012, S-FIT001, S-FIT002, S-PIT001, S-PIT002, S-PIT003, S-FIT021
34	1"	PULL TAPE (SPARE)
35	1"	PULL TAPE (SPARE)
36	1"	PULL TAPE (SPARE)
37	1"	PULL TAPE (SPARE)
38	1"	PULL TAPE (SPARE)
39	1"	PULL TAPE (SPARE)
40	1"	PULL TAPE (SPARE)
41	1"	PULL TAPE (SPARE)
42	1"	PULL TAPE (SPARE)
43	1"	PULL TAPE (SPARE)
44	1"	C-TSP1HWSV
45	1"	P-AIT011
46	1"	P-VLV012
47	1"	C-VLV012
48	1"	C-RDT1HWSV
49	1"	P-AIT001
50	1"	P-FIT031
51	1"	P-VLV011
52	1"	C-VLV011
53	1"	P-TSP1
54	1"	P-RDT1
55	1"	C-RDT1
56	1"	P-HTR1
57	1"	C-TSP2HWSV
58	1"	P-AIT012
59	1"	P-VLV022
60	1"	C-VLV022
61	1"	C-RDT2HWSV
62	1"	P-AIT002
63	1"	P-FIT032
64	1"	P-VLV021
65	1"	PULL TAPE (SPARE)
66	1"	C-VLV021
67	1"	P-TSP2
68	1"	P-RDT2
69	1"	C-RDT2
70	1"	C-TSP3HWSV
71	1"	P-AIT013
72	1"	P-VLV032
73	1"	PULL TAPE (SPARE)
74	1"	C-VLV032
75	1"	C-RDT3HWSV
76	1"	P-AIT003
77	1"	P-FIT033
78	1"	P-VLV031
79	1"	C-VLV031
80	1"	P-TSP3
81	1"	PULL TAPE (SPARE)
82	1"	P-RDT3
83	1"	C-RDT3
84	1"	P-HTR2
85	1"	4#8, 1#8GND - RDT FACILITY LOWER LEVEL LIGHTING
86	1"	4#8, 1#8GND - RDT FACILITY UPPER LEVEL LIGHTING
87	1"	2#8, 1#8GND - RDT FACILITY LOWER LEVEL RECEPTACLES
88	1"	2#8, 1#8GND - RDT FACILITY UPPER LEVEL RECEPTACLES
89	1"	PULL TAPE (SPARE)
90	1"	P-POLY1
91	1"	P-POLY2
92	1"	P-POLY3
2 93	1"	P-TOTE1, P-TOTE2
94	1"	P-TOTE3, P-TOTE4
95	1"	C-EWHSH
96	1"	P-GRD1
97	1"	P-GRD2
98	1"	4#8, 1#8GND - POLYMER AREA LIGHTING AND RECEPTACLES
99	1"	4#8, 1#8GND - SLUDGE BLEND TANKS LIGHTING
100	1"	2#8, 1#8GND - SLUDGE BLEND TANKS RECEPTACLES
101	1"	P-FIT001, P-FIT002, P-FIT021
102	1-1/2"	P-RDTPMP1
103	1-1/2"	C-RDTPMP1A, C-RDTPMP1B, C-RDTPMP1C, C-RDTPMP1D, C-RDTPMP1E, C-RDTPMP1F, C-RDTPMP1G
104	1-1/2"	P-RDTPMP2
105	1-1/2"	C-RDTPMP2A, C-RDTPMP2B, C-RDTPMP2C, C-RDTPMP2D, C-RDTPMP2E, C-RDTPMP2F, C-RDTPMP2G
106	1-1/2"	P-RDTPMP3
107	1-1/2"	C-RDTPMP3A, C-RDTPMP3B, C-RDTPMP3C, C-RDTPMP3D, C-RDTPMP3E, C-RDTPMP3F, C-RDTPMP3G
108	1-1/2"	P-SLDGHTR
109	2"	P-EEWSHTR
110	2"	C-POLY1, C-POLY2, C-POLY3
111	2"	C-GRD1, C-GRD2
112	2"	C-TSP1A, C-TSP1B, C-TSP1C, C-TSP1D, C-TSP1E, C-TSP1F, C-TSP1G, C-TSP1H
113	2"	C-TSP2A, C-TSP2B, C-TSP2C, C-TSP2D, C-TSP2E, C-TSP2F, C-TSP2G, C-TSP2H
114	2"	C-TSP3A, C-TSP3B, C-TSP3C, C-TSP3D, C-TSP3E, C-TSP3F, C-TSP3G, C-TSP3H
115	2"	PULL TAPE (SPARE)

3 00E004 NEW UNDERGROUND DUCTBANK SECTION
NO SCALE

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	REVISION PER ADDENDUM 4
1	2/18/25	TB	DRAWING ADDED PER ADDENDUM 2

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

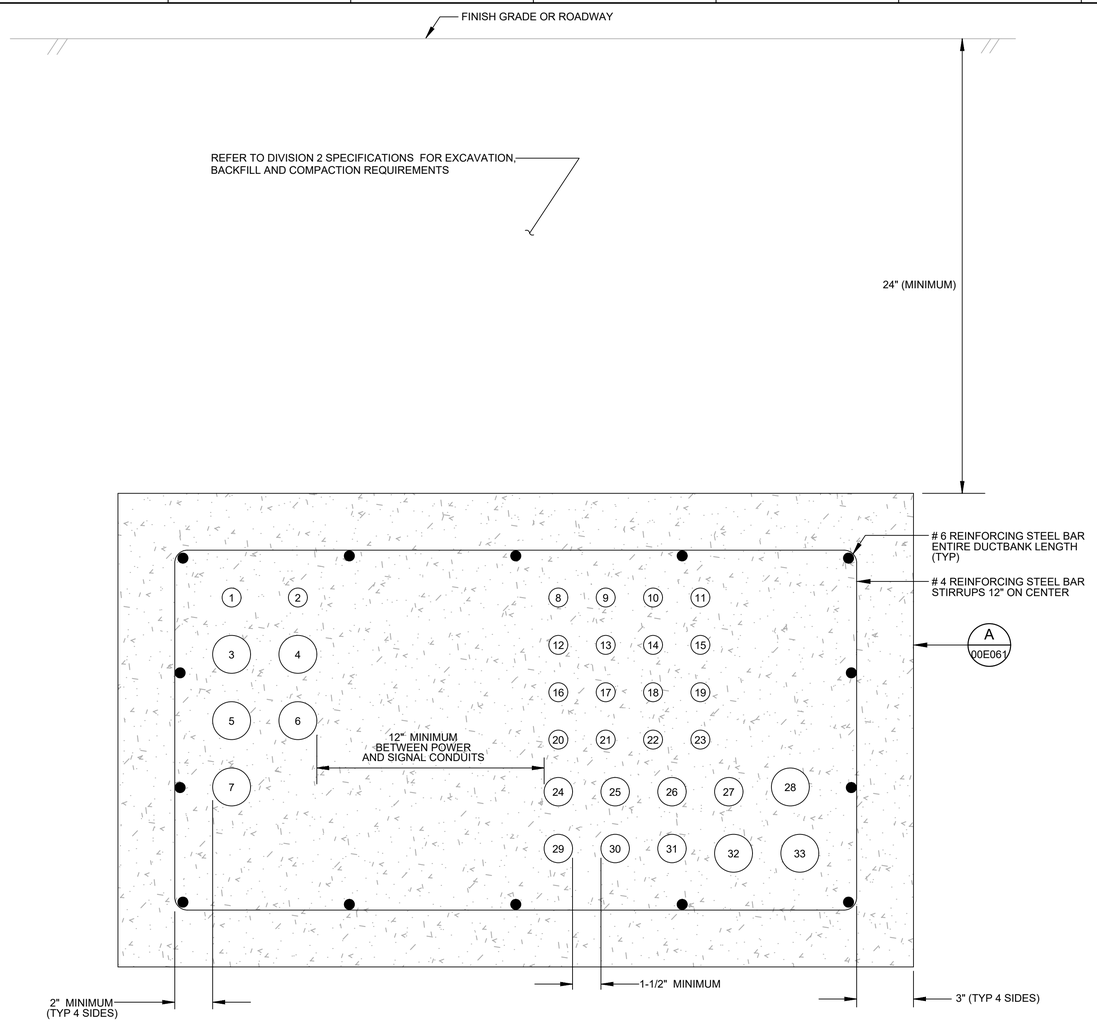
REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
2/13/2025

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
ELECTRICAL
ELECTRICAL DETAILS 4

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00E064
SHEET NO. 128 OF 239

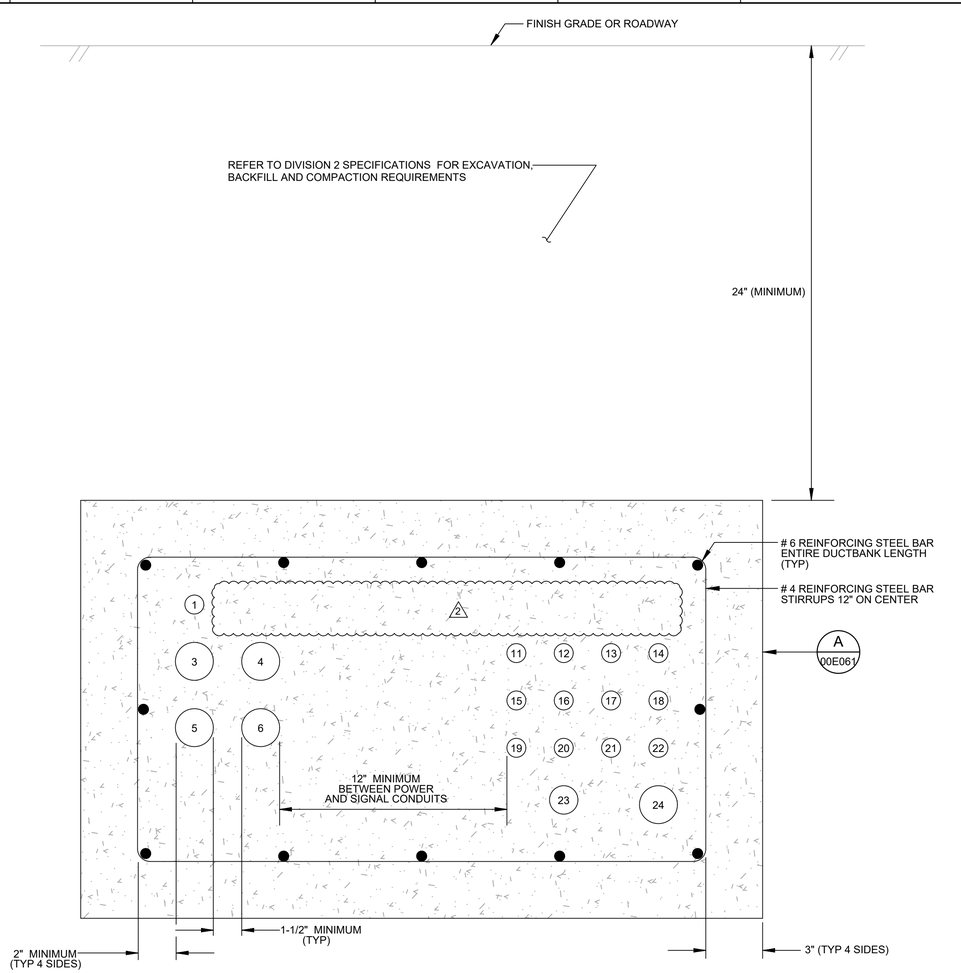
PROJECT NO. 202645 FILE NAME: 202645_00E064.dwg



DUCTBANK SCHEDULE		
CONDUIT NO.	SIZE	CIRCUITS
1	1"	PULL TAPE (SPARE)
2	1"	S-TOTE1, S-TOTE2, S-TOTE3, S-TOTE4
3	2"	PULL TAPE (SPARE)
4	2"	S-PIT021, S-PIT022, S-POLY1
5	2"	S-PIT031, S-PIT032, S-POLY2
6	2"	S-PIT041, S-PIT042, S-POLY3
7	2"	S-LIT011, S-LIT012, S-FIT001, S-FIT002, S-PIT001, S-PIT002, S-PIT003, S-FIT021
8	1"	PULL TAPE (SPARE)
9	1"	PULL TAPE (SPARE)
10	1"	PULL TAPE (SPARE)
11	1"	PULL TAPE (SPARE)
12	1"	P-POLY1
13	1"	P-POLY2
14	1"	P-POLY3
15	1"	P-TOTE1, P-TOTE2
16	1"	P-TOTE3, P-TOTE4
17	1"	C-EWFSH

DUCTBANK SCHEDULE (TYP)		
CONDUIT NO.	SIZE	CIRCUITS
18	1"	P-GRD1
19	1"	P-GRD2
20	1"	4#8, 1#8GND - POLYMER AREA LIGHTING AND RECEPTACLES
21	1"	4#8, 1#8GND - SLUDGE BLEND TANKS LIGHTING
22	1"	2#8, 1#8GND - SLUDGE BLEND TANKS RECEPTACLES
23	1"	P-FIT001, P-FIT002, P-FIT021
24	1-1/2"	P-RDTPMP1
25	1-1/2"	C-RDTPMP1A, C-RDTPMP1B, C-RDTPMP1C, C-RDTPMP1D, C-RDTPMP1E, C-RDTPMP1F, C-RDTPMP1G
26	1-1/2"	P-RDTPMP2
27	1-1/2"	C-RDTPMP2A, C-RDTPMP2B, C-RDTPMP2C, C-RDTPMP2D, C-RDTPMP2E, C-RDTPMP2F, C-RDTPMP2G
28	2"	P-EEWSHTR
29	1-1/2"	P-RDTPMP3
30	1-1/2"	C-RDTPMP3A, C-RDTPMP3B, C-RDTPMP3C, C-RDTPMP3D, C-RDTPMP3E, C-RDTPMP3F, C-RDTPMP3G
31	1-1/2"	P-SLDGHTR
32	2"	C-POLY1, C-POLY2, C-POLY3
33	2"	C-GRD1, C-GRD2

5 00E004 NEW UNDERGROUND DUCTBANK SECTION
NO SCALE



DUCTBANK SCHEDULE		
CONDUIT NO.	SIZE	CIRCUITS
1	1"	S-TOTE1, S-TOTE2, S-TOTE3, S-TOTE4
3	2"	S-PIT021, S-PIT022, S-POLY1
4	2"	PULL TAPE (SPARE)
5	2"	S-PIT031, S-PIT032, S-POLY2
6	2"	S-PIT041, S-PIT042, S-POLY3
11	1"	P-POLY1
12	1"	C-POLY1

DUCTBANK SCHEDULE		
CONDUIT NO.	SIZE	CIRCUITS
13	1"	P-POLY2
14	1"	C-POLY2
15	1"	P-POLY3
16	1"	C-POLY3
17	1"	P-TOTE1, P-TOTE2
18	1"	P-TOTE3, P-TOTE4
19	1"	PULL TAPE (SPARE)
20	1"	PULL TAPE (SPARE)
21	1"	C-EWFSH
22	1"	4#8, 1#8GND - POLYMER AREA LIGHTING AND RECEPTACLES
23	1-1/2"	P-SLDGHTR
24	2"	P-EEWSHTR

6 00E004 | 6 07E201 | 6 07E202 NEW UNDERGROUND DUCTBANK SECTION
NO SCALE

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	REVISION PER ADDENDUM 4
1	2/18/25	TB	DRAWING ADDED PER ADDENDUM 2

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL ENGINEER STATE OF CALIFORNIA 2/13/2025

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
ELECTRICAL
ELECTRICAL DETAILS 6

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
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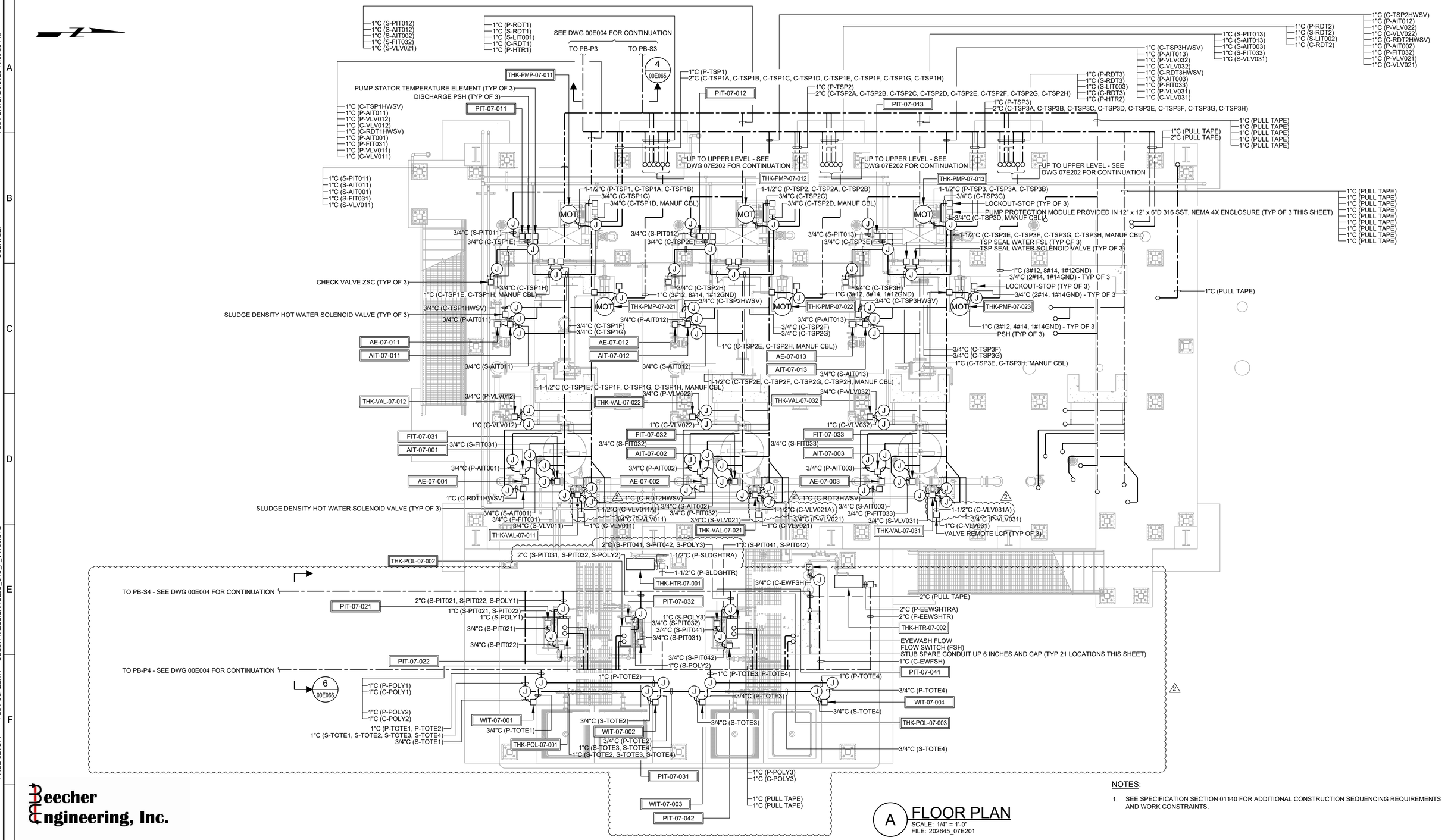
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00E066
SHEET NO. 130 OF 239



Beecher Engineering, Inc.

NOTES:

1. SEE SPECIFICATION SECTION 01140 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.

A FLOOR PLAN
SCALE: 1/4" = 1'-0"
FILE: 202645_07E201

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	REVISION PER ADDENDUM 4
1	2/18/25	TB	DRAWING ADDED PER ADDENDUM 2

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA 2/13/2025

carollo

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
ELECTRICAL
RDT FACILITY LOWER POWER AND CONTROL PLAN

VERIFY SCALES
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0 1"
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JOB NO. 202645
DRAWING NO. 07E201
SHEET NO. 139 OF 239

PLOT DATE: 3/5/2025 11:33:08 PM
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LAST SAVED BY: tbeecher

PROJECT NO. 202645 FILE NAME: 202645_07E201.dwg

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C	1	DO	0	HS02xxx	GRIT PUMP 1 - START/STOP COMMAND
C	1	DO	1	HS02xxx	PRIMARY SLUDGE PUMP 1 - START/STOP COMMAND
C	1	DO	2	HS02xxx	PRIMARY SCUM COLLECTOR 1 - START/STOP COMMAND
C	1	DO	3	HS07725	RDT 1 - HOPPER 3W SOLENOID VALVE - OPEN/CLOSE COMMAND
C	1	DO	4	HS07707	POLYMER BLENDING UNIT 1 - START/STOP COMMAND
C	1	DO	5	HS07724A	RDT 1 MOTORIZED VALVE 2 - OPEN COMMAND
C	1	DO	6	HS07724B	RDT 1 MOTORIZED VALVE 2 - CLOSE COMMAND
C	1	DO	7	---	SPARE POINT
C	2	DO	0	HS02xxx	GRIT PUMP 2 - START/STOP COMMAND
C	2	DO	1	HS02xxx	PRIMARY SLUDGE PUMP 2 - START/STOP COMMAND
C	2	DO	2	HS02xxx	PRIMARY SCUM COLLECTOR 2 - START/STOP COMMAND
C	2	DO	3	HS07735	RDT 2 - HOPPER 3W SOLENOID VALVE - OPEN/CLOSE COMMAND
C	2	DO	4	HS07708	POLYMER BLENDING UNIT 2 - START/STOP COMMAND
C	2	DO	5	HS07734A	RDT 2 MOTORIZED VALVE 2 - OPEN COMMAND
C	2	DO	6	HS07734B	RDT 2 MOTORIZED VALVE 2 - CLOSE COMMAND
C	2	DO	7	---	SPARE POINT
C	3	DO	0	HS02xxx	GRIT PUMP 3 - START/STOP COMMAND
C	3	DO	1	HS02xxx	PRIMARY SLUDGE PUMP 3 - START/STOP COMMAND
C	3	DO	2	HS02xxx	PRIMARY SCUM COLLECTOR 3 - START/STOP COMMAND
C	3	DO	3	HS07745	RDT 3 - HOPPER 3W SOLENOID VALVE - OPEN/CLOSE COMMAND
C	3	DO	4	HS07709	POLYMER BLENDING UNIT 3 - START/STOP COMMAND
C	3	DO	5	HS07744A	RDT 3 MOTORIZED VALVE 2 - OPEN COMMAND
C	3	DO	6	HS07744B	RDT 3 MOTORIZED VALVE 2 - CLOSE COMMAND
C	3	DO	7	---	SPARE POINT
C	4	DO	0	HS02xxx	GRIT PUMP 4 - START/STOP COMMAND
C	4	DO	1	HS02xxx	PRIMARY SLUDGE PUMP 4 - START/STOP COMMAND
C	4	DO	2	HS02xxx	PRIMARY SCUM PUMP 1 - START/STOP COMMAND
C	4	DO	3	HS07711	BLENDED SLUDGE GRINDER 1 - START/STOP COMMAND
C	4	DO	4	HS07721	RDT 1 HOT WATER SOLENOID VALVE - OPEN/CLOSE COMMAND
C	4	DO	5	HS07741	RDT 3 HOT WATER SOLENOID VALVE - OPEN/CLOSE COMMAND
C	4	DO	6	HS07772	TSP 1 HOT WATER SOLENOID VALVE - OPEN/CLOSE COMMAND
C	4	DO	7	HS07776	TSP 3 HOT WATER SOLENOID VALVE - OPEN/CLOSE COMMAND
C	5	DO	0	HS07701	VALVE MODULE VCP MIXING ON/OFF COMMAND
C	5	DO	1	---	SPARE POINT
C	5	DO	2	HS02xxx	GRIT WASHER - START/STOP COMMAND
C	5	DO	3	HS02xxx	PRIMARY SCUM PUMP 2 - START/STOP COMMAND
C	5	DO	4	HS07712	BLENDED SLUDGE GRINDER 2 - START/STOP COMMAND
C	5	DO	5	HS07731	RDT 2 HOT WATER SOLENOID VALVE - OPEN/CLOSE COMMAND
C	5	DO	6	HS07774	TSP 2 HOT WATER SOLENOID VALVE - OPEN/CLOSE COMMAND
C	5	DO	7	---	SPARE POINT

"xxx" LOOP DESIGNATIONS SHALL BE ASSIGNED BY CITY'S PROGRAMMER DURING CONSTRUCTION PERIOD (TYP)

RACK	SLOT NO.	POINT TYPE	POINT NO.	SIGNAL TAG NO.	SIGNAL DESCRIPTION
C	6	AI	0	LI07728	RDT 1 HOPPER LEVEL INDICATION
C	6	AI	1	SI07707	POLYMER BLENDING UNIT 1 - POLYMER PUMP SPEED INDICATION
C	6	AI	2	ZI07723	RDT 1 MOTORIZED VALVE 1 - POSITION INDICATION
C	6	AI	3	PI07713	RDT FEED PUMP 1 - DISCHARGE PRESSURE INDICATION
C	6	AI	4	PI07771	THICKENED SLUDGE PUMP 1 - DISCHARGE PRESSURE INDICATION
C	6	AI	5	PI07786	POLYMER SKID 1 - INLET PRESSURE INDICATION
C	6	AI	6	PI07787	POLYMER SKID 1 - OUTLET PRESSURE INDICATION
C	6	AI	7	FI07722	RDT 1 - FLOW INDICATION
C	7	AI	0	LI07738	RDT 2 HOPPER LEVEL INDICATION
C	7	AI	1	SI07708	POLYMER BLENDING UNIT 2 - POLYMER PUMP SPEED INDICATION
C	7	AI	2	ZI07733	RDT 2 MOTORIZED VALVE 1 - POSITION INDICATION
C	7	AI	3	PI07715	RDT FEED PUMP 2 - DISCHARGE PRESSURE INDICATION
C	7	AI	4	PI07773	THICKENED SLUDGE PUMP 2 - DISCHARGE PRESSURE INDICATION
C	7	AI	5	PI07789	POLYMER SKID 2 - INLET PRESSURE INDICATION
C	7	AI	6	PI07790	POLYMER SKID 2 - OUTLET PRESSURE INDICATION
C	7	AI	7	FI07732	RDT 2 - FLOW INDICATION
D	0	AI	0	LI07748	RDT 3 HOPPER LEVEL INDICATION
D	0	AI	1	SI07709	POLYMER BLENDING UNIT 3 - POLYMER PUMP SPEED INDICATION
D	0	AI	2	ZI07743	RDT 3 MOTORIZED VALVE 1 - POSITION INDICATION
D	0	AI	3	PI07717	RDT FEED PUMP 3 - DISCHARGE PRESSURE INDICATION
D	0	AI	4	PI07775	THICKENED SLUDGE PUMP 3 - DISCHARGE PRESSURE INDICATION
D	0	AI	5	PI07792	POLYMER SKID 3 - INLET PRESSURE INDICATION
D	0	AI	6	PI07793	POLYMER SKID 3 - OUTLET PRESSURE INDICATION
D	0	AI	7	FI07742	RDT 3 - FLOW INDICATION
D	1	AI	0	---	SPARE POINT
D	1	AI	1	AI07729	RDT 1 SLUDGE DENSITY INDICATION
D	1	AI	2	AI07765	THICKENED SLUDGE PUMP 1 SLUDGE DENSITY INDICATION
D	1	AI	3	LI07704	BLEND TANK 1 - LEVEL INDICATION
D	1	AI	4	FI07703	BLEND TANK 1 - FLOW INDICATION
D	1	AI	5	FI07716	BLENDED SLUDGE FEED FLOW INDICATION
D	1	AI	6	WI07780	POLYMER TOTE 1 WEIGHT INDICATION
D	1	AI	7	WI07782	POLYMER TOTE 3 WEIGHT INDICATION
D	2	AI	0	---	SPARE POINT
D	2	AI	1	AI07739	RDT 2 SLUDGE DENSITY INDICATION
D	2	AI	2	AI07766	THICKENED SLUDGE PUMP 2 SLUDGE DENSITY INDICATION
D	2	AI	3	LI07706	BLEND TANK 2 - LEVEL INDICATION
D	2	AI	4	FI07705	BLEND TANK 2 - FLOW INDICATION
D	2	AI	5	WI07781	POLYMER TOTE 2 WEIGHT INDICATION
D	2	AI	6	WI07783	POLYMER TOTE 4 WEIGHT INDICATION
D	2	AI	7	---	SPARE POINT

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	REVISION PER ADDENDUM 4
1	2/13/25	TB	DRAWING ADDED PER ADDENDUM 1

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA 2/13/2025

carollo

CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT

INSTRUMENTATION

NEW CPNL-05-01A: INPUT/OUTPUT SIGNAL LIST 3

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 00N027
SHEET NO. 163 OF 239

PROJECT NO. 202645 FILE NAME: 202645_00N027.dwg

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LAST SAVED BY: tbeecher

RACK	SLOT NO.	POINT TYPE	POINT NO.	SIGNAL TAG NO.	SIGNAL DESCRIPTION
D	3	AI	0	---	SPARE POINT
D	3	AI	1	AI07749	RDT 3 SLUDGE DENSITY INDICATION
D	3	AI	2	AI07767	THICKENED SLUDGE PUMP 3 SLUDGE DENSITY INDICATION
D	3	AI	3	---	SPARE POINT
D	3	AI	4	---	SPARE POINT
D	3	AI	5	---	SPARE POINT
D	3	AI	6	---	SPARE POINT
D	3	AI	7	---	SPARE POINT
D	4	AO	0	SC07707A	POLYMER BLENDING UNIT 1 - MIXING CHAMBER SPEED CONTROL
D	4	AO	1	SC07707B	POLYMER BLENDING UNIT 1 - POLYMER PUMP SPEED CONTROL
D	4	AO	2	SC07709A	POLYMER BLENDING UNIT 3 - MIXING CHAMBER SPEED CONTROL
D	4	AO	3	SC07709B	POLYMER BLENDING UNIT 3 - POLYMER PUMP SPEED CONTROL
D	5	AO	0	ZC07723	RDT 1 MOTORIZED VALVE 1 - POSITION CONTROL
D	5	AO	1	ZC07743	RDT 3 MOTORIZED VALVE 1 - POSITION CONTROL
D	5	AO	2	---	SPARE POINT
D	5	AO	3	---	SPARE POINT
D	6	AO	0	SC07708A	POLYMER BLENDING UNIT 2 - MIXING CHAMBER SPEED CONTROL
D	6	AO	1	SC07708B	POLYMER BLENDING UNIT 2 - POLYMER PUMP SPEED CONTROL
D	6	AO	2	ZC07733	RDT 2 MOTORIZED VALVE 1 - POSITION CONTROL
D	6	AO	3	---	SPARE POINT
D	7	AO	0	---	SPARE POINT
D	7	AO	1	---	SPARE POINT
D	7	AO	2	---	SPARE POINT
D	7	AO	3	---	SPARE POINT

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REGISTERED PROFESSIONAL ENGINEER
TODD A. BEECHER
E014712
Exp. 6/30/25
ELECTRICAL
STATE OF CALIFORNIA
2/13/2025

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CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
INSTRUMENTATION
NEW CPNL-05-01A:
INPUT/OUTPUT SIGNAL LIST 4

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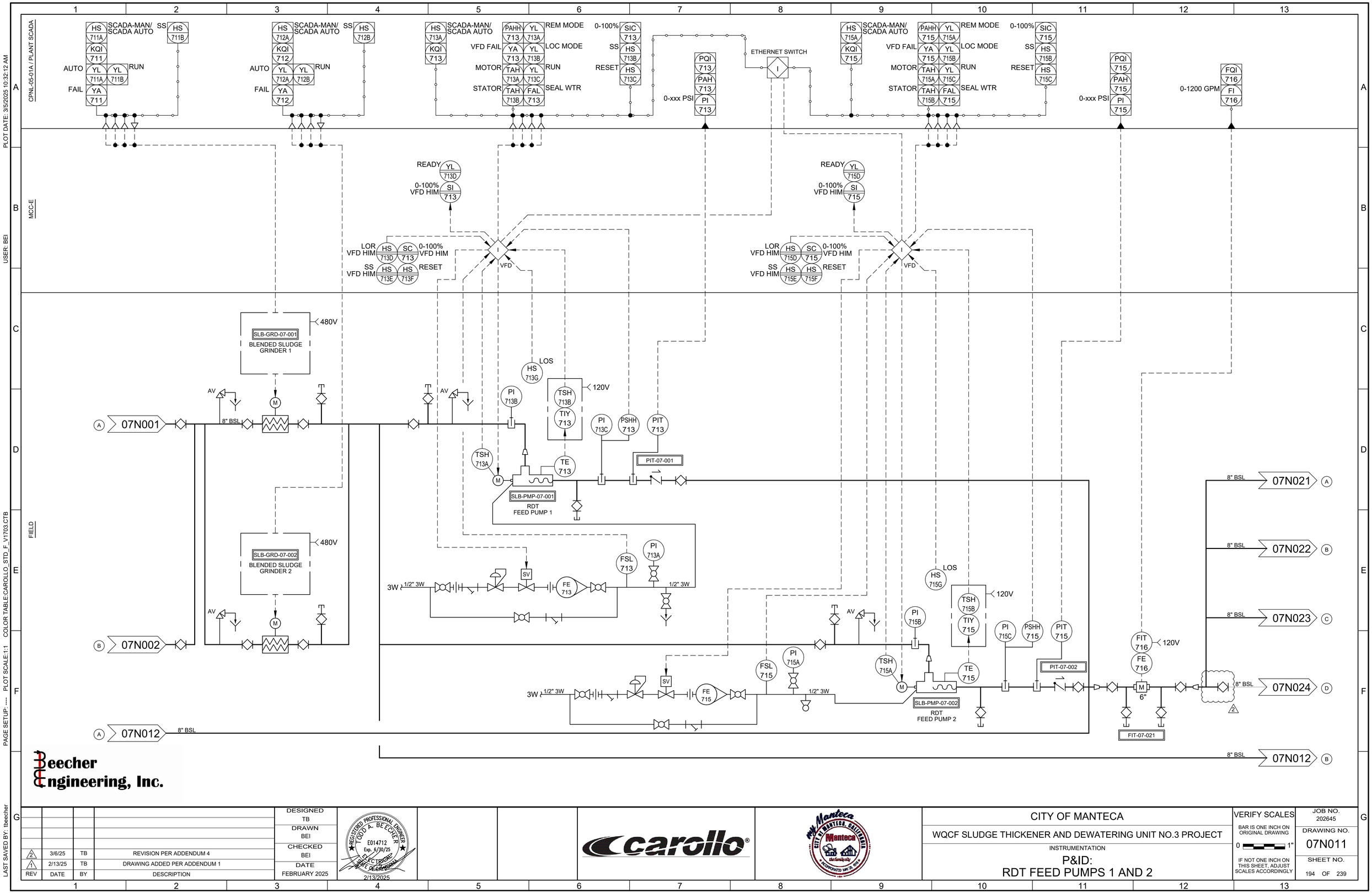
DRAWING NO. 00N028
SHEET NO. 164 OF 239



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DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
2/13/2025

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CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
INSTRUMENTATION
P&ID:
RDT FEED PUMPS 1 AND 2

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JOB NO. 202645
DRAWING NO. 07N011
SHEET NO. 194 OF 239

PROJECT NO. 202645 FILE NAME: 202645_07N011.dwg

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CPNL-05-01A / PLANT SCADA

HS 721 OC

AQI 729 / AI 729 SLUDGE DENSITY 0.0 - 4.0%

FQI 722 / FI 722 0-300 GPM

FAIL YA 723 / HS 723 SCADA MAN/SCADA AUTO
ZIC 723 / YL 723 REM
ZLO 723
ZLC 723

HS 724 SCADA MAN/SCADA AUTO
FAIL YA 724 / YL 724 REM
ZLO 724 / HS 724 OC
ZLC 724

ETHERNET SWITCH I

LAHH 726 / HS 727 OC / LI 728 0-132 INCHES

NOTES
1. FLOAT SWITCH IS SHOWN FOR REPRESENTATION ONLY. MANUFACTURER SHALL PROVIDE THEIR STANDARD LEVEL SWITCH INSTRUMENT.
2. TO SAMPLE SINK. REFER TO PROCESS DRAWINGS FOR DETAILS.
3. MANUFACTURER TO PROVIDE CONNECTIONS TO THICKENER FLOCCULATION TANK AND SLUDGE HOPPER FOR FOUL AIR REMOVAL. CONTRACTOR TO PROVIDE FOUL AIR DUCTING AND DAMPERS.
4. LEVEL SENSOR WITH FLANGE-MOUNTED DIAPHRAGM SEAL AND FLUSHING RING.
5. CONTINUATION OF THICKENED SLUDGE CHUTE. LINE DOES NOT REPRESENT PIPING.

PI 718 — 480V — 3W — 1" 3W
THK-HTR-07-001 SLUDGE DENSITY WATER HEATER

07N022 A
07N023 B
07N024 C
07N041 D
07N042 E
07N043 F
07N044 G

ROTARY DRUM THICKENER VENDOR PACKAGE
(SEE SPECIFICATION SECTION 11354 FOR ADDITIONAL REQUIREMENTS)
THK-VCP-07-001
ROTARY DRUM THICKENER 1
VENDOR CONTROL PANEL
(SEE SPECIFICATION SECTION 11354 FOR ADDITIONAL REQUIREMENTS)
480V

0-100% ZIC 723A / ZLO 723A / ZLC 723A / ZSO 723 / ZSC 723 / REM YA 723A / FAIL YA 723B
0-100% ZIC 723B / HS 723B LSR / ZLO 723B / ZLC 723B
HS 723A LSR

A 07N031 1" 3W
PI 725A — TSH 725 — SV — PSL 725 — PI 725B
M

B 07N061 6" FA
0 - 74.5 INCHES
SEE NOTE 3
LSHH 725 SEE NOTE 1

SV — 1" 3W PLANT WATER
SEE NOTE 3
LSHH 726 SEE NOTE 1

AIT 729 120V AIT-07-001
AE 729 SLUDGE DENSITY
PI 729
1" x 1/2"

FIT 722 120V
FE 722
M 4"
FIT-07-031

M 480V
6" x 4"
THK-VAL-07-011

A 07N011 8" BSL
8" x 4" SD
SV 1/2" HW
THK-SV-07-001

A 07N051 2" POS

PI 725
ZLO 724A / ZSO 724 / ZLC 724A / ZSC 724
REM YA 724A / HS 724A LSR
FAIL YA 724B / HS 724B OC
M 480V
THK-VAL-07-012

SEE NOTE 2
4" PD

THK-RDT-07-001
ROTARY DRUM THICKENER 1

ROTARY DRUM THICKENER VENDOR PACKAGE
(SEE SPECIFICATION SECTION 11354 FOR ADDITIONAL REQUIREMENTS)

THICKENER FLOCCULATION TANK

THICKENER

THICKENER HOPPER AND CHUTE

LIT 728 / LE 728 LIT-07-001
SEE NOTE 4

SEE NOTE 5 TSL 07N041 A
SEE NOTE 2
6" FIL
6"x8"
4" PD
4"x8"
4"x8"
8" PD
PROCESS DRAIN TO INFLUENT PUMP STATION

FIELD

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REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL 2/13/2025

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CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
INSTRUMENTATION
P&ID:
ROTARY DRUM THICKENER 1

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JOB NO. 202645
DRAWING NO. 07N021
SHEET NO. 196 OF 239

PROJECT NO. 202645 FILE NAME: 202645_07N021.dwg

FIELD

NOTES
1. FLOAT SWITCH IS SHOWN FOR REPRESENTATION ONLY. MANUFACTURER SHALL PROVIDE THEIR STANDARD LEVEL SWITCH INSTRUMENT.
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4. LEVEL SENSOR WITH FLANGE-MOUNTED DIAPHRAGM SEAL AND FLUSHING RING.
5. CONTINUATION OF THICKENED SLUDGE CHUTE. LINE DOES NOT REPRESENT PIPING.

HS 731 OC
AQI 739 / AI 739 SLUDGE DENSITY 0.0 - 4.0%
FQI 732 / FI 732 0-300 GPM
FAIL YA 733 HS 733 SCADA MAN/SCADA AUTO REM
ZIC 733 YL 733
ZLO 733
ZLC 733
HS 734 SCADA MAN/SCADA AUTO
FAIL YA 734 YL 734 REM
ZLO 734 HS 734 OC
ZLC 734
ETHERNET SWITCH I
LAHH 736 / HS 737 OC / LI 738 0-132 INCHES

ROTARY DRUM THICKENER VENDOR PACKAGE
(SEE SPECIFICATION SECTION 11354 FOR ADDITIONAL REQUIREMENTS)
480V
THK-VCP-07-002
ROTARY DRUM THICKENER 2
VENDOR CONTROL PANEL
(SEE SPECIFICATION SECTION 11354 FOR ADDITIONAL REQUIREMENTS)

PI 735A
TSH 735
SV
PSL 735
PI 735B
B 07N031 1" 3W
C 07N061 6" FA
0 - 74.5 INCHES
SEE NOTE 3
LSHH 735 SEE NOTE 1
SV 1" 3W PLANT WATER
SEE NOTE 3
LSHH 736 SEE NOTE 1
LIT 738 LE 738 LIT-07-002
SEE NOTE 4

0-100% ZIC 733A ZLO 733A ZLC 733A ZSO 733 ZSC 733 REM YA 733A FAIL YA 733B HS 733A LSR
0-100% ZIC 733B HS 733B LSR ZLO 733B ZLC 733B
AIT 739 120V AIT-07-002
AE 739 SLUDGE DENSITY
FIT 732 120V
FE 732
FIT-07-032
M 480V
THK-VAL-07-021
6" x 4"
PI 739
PI 735
ZLO 734A ZSO 734 ZLC 734A ZSC 734 REM YA 734A FAIL YA 734B HS 734A LSR HS 734B OC
M 480V
THK-VAL-07-022
SEE NOTE 2
4" PD

B 07N011 8" BSL 8" x 4"
A 07N021 1" x 1/2" 1/2" HW SV
THK-SV-07-002
SD
A 07N052 2" POS
1 1 1

THICKENER FLOCCULATION TANK
THICKENER
THICKENER HOPPER AND CHUTE
THK-RDT-07-002
ROTARY DRUM THICKENER 2
ROTARY DRUM THICKENER VENDOR PACKAGE
(SEE SPECIFICATION SECTION 11354 FOR ADDITIONAL REQUIREMENTS)
SEE NOTE 2
SEE NOTE 5
TSL
A 07N042
6" FIL
6"x8"
4" PD
4"x8"
4"x8"
8" PD
PROCESS DRAIN TO INFLUENT PUMP STATION

Beecher Engineering, Inc.

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CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
INSTRUMENTATION
P&ID:
ROTARY DRUM THICKENER 2

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JOB NO. 202645
DRAWING NO. 07N022
SHEET NO. 197 OF 239

PROJECT NO. 202645 FILE NAME: 202645_07N022.dwg

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CPNL-05-01A / PLANT SCADA

FIELD

NOTES
1. FLOAT SWITCH IS SHOWN FOR REPRESENTATION ONLY. MANUFACTURER SHALL PROVIDE THEIR STANDARD LEVEL SWITCH INSTRUMENT.
2. TO SAMPLE SINK. REFER TO PROCESS DRAWINGS FOR DETAILS.
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4. LEVEL SENSOR WITH FLANGE-MOUNTED DIAPHRAGM SEAL AND FLUSHING RING.
5. CONTINUATION OF THICKENED SLUDGE CHUTE. LINE DOES NOT REPRESENT PIPING.

HS 741 OC
AQI 749 / AI 749 SLUDGE DENSITY 0.0 - 4.0%
FQI 742 / FI 742 0-300 GPM
FAIL YA 743 / HS 743 SCADA MAN/SCADA AUTO
ZIC 743 / YL 743 REM
ZLO 743
ZLC 743
HS 744 SCADA MAN/SCADA AUTO
FAIL YA 744 / YL 744 REM
ZLO 744 / HS 744 OC
ZLC 744
ETHERNET SWITCH I
LAHH 746
HS 747 OC
LI 748 0-132 INCHES

ROTARY DRUM THICKENER VENDOR PACKAGE
(SEE SPECIFICATION SECTION 11354 FOR ADDITIONAL REQUIREMENTS)
480V
THK-VCP-07-003
ROTARY DRUM THICKENER 3
VENDOR CONTROL PANEL
(SEE SPECIFICATION SECTION 11354 FOR ADDITIONAL REQUIREMENTS)

0-100% ZIC 743A / ZLO 743A / ZLC 743A / ZSO 743 / ZSC 743 / REM YA 743A / FAIL YA 743B
0-100% ZIC 743B / HS 743B LSR / ZLO 743B / ZLC 743B
HS 743A LSR
C 07N031 1" 3W
PI 745A
TSH 745
SV
PSL 745
PI 745B
M
D 07N061 6" FA
0 - 74.5 INCHES
SEE NOTE 3
LSHH 745 SEE NOTE 1
SEE NOTE 3
SV 1" 3W PLANT WATER
LSHH 746 SEE NOTE 1
LIT 748 / LE 748 LIT-07-003
SEE NOTE 4
SEE NOTE 5 TSL 07N043 A
SEE NOTE 2
6" FIL
6"x8"
4" PD
4"x8"
8" PD PROCESS DRAIN TO INFLUENT PUMP STATION

AIT 749 120V AIT-07-003
AE 749 SLUDGE DENSITY
PI 749
FIT 742 120V
FE 742
M 4"
FIT-07-033
480V
6" x 4"
THK-VAL-07-031
C 07N011 8" BSL 8" x 4"
B 07N021 1" x 1/2" 1/2" HW
SV
THK-SV-07-003
A 07N053 2" POS
SD

PI 745
ZLO 744A / ZSO 744 / ZLC 744A / ZSC 744
REM YA 744A / HS 744A LSR
FAIL YA 744B / HS 744B OC
M 480V
SEE NOTE 2
4" PD
THK-VAL-07-032

THICKENER FLOCCULATION TANK
THICKENER
THICKENER HOPPER AND CHUTE
THK-RDT-07-003
ROTARY DRUM THICKENER 3
ROTARY DRUM THICKENER VENDOR PACKAGE
(SEE SPECIFICATION SECTION 11354 FOR ADDITIONAL REQUIREMENTS)

Beecher Engineering, Inc.

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2/13/2025

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CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
INSTRUMENTATION
P&ID:
ROTARY DRUM THICKENER 3

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DRAWING NO. 07N023
SHEET NO. 198 OF 239

PROJECT NO. 202645 FILE NAME: 202645_07N023.dwg

CPNL-05-01A / PLANT SCADA

FIELD

NOTES

1. FUTURE EQUIPMENT IS INDICATED ON THIS DRAWING, SHOWN FOR REFERENCE ONLY.

HS 751 OC

AQI 759 / AI 759 SLUDGE DENSITY 0.0 - 4.0%

FQI 752 / FI 752 0-300 GPM

FAIL YA 753 / HS 753 SCADA MAN/SCADA AUTO REM / YL 753

ZIC 753 / ZLO 753 / ZLC 753

FAIL YA 754 / YL 754 REM

HS 754 SCADA MAN/SCADA AUTO OC

ZLO 754 / ZLC 754

ETHERNET SWITCH I

LAHH 756 / HS 757 OC / LI 758 0-132 INCHES

480V

THK-VCP-07-004
FUTURE ROTARY DRUM THICKENER 4
VENDOR CONTROL PANEL

0-100% ZIC 753A / ZLO 753A / ZLC 753A / ZSO 753 / ZSC 753

0-100% ZIC 753B / HS 753B LSR / ZLO 753B / ZLC 753B

D 07N031 1" 3W

PI 755A / TSH 755 / SV / PSL 755 / PI 755B

M

0 - 74.5 INCHES

E 07N061 6" FA

LSHH 755

SV 1" 3W PLANT WATER

LSHH 756

AIT 759 120V AIT-07-004

SLUDGE DENSITY

AE 759 / PI 759

FIT 752 120V / FE 752

REM YA 753A / FAIL YA 753B / HS 753A LSR

M 480V

D 07N011 8" BSL 8" x 4" SD

C 07N021 1" x 1/2" 1/2" HW SV THK-SV-07-004

A 07N054 2" POS

FIT-07-034 4" M

THK-VAL-07-041 6" x 4"

PI 755 / ZLO 754A / ZSO 754 / ZLC 754A / ZSC 754

REM YA 754A / FAIL YA 754B / HS 754A LSR / HS 754B OC

M 480V

THK-VAL-07-042

4" PD

THK-RDT-07-004
FUTURE ROTARY DRUM THICKENER 4

THICKENER FLOCCULATION TANK

THICKENER

THICKENER HOPPER AND CHUTE

LIT 758 / LE 758 LIT-07-004

TSL 07N044 A

6" FIL

6"x8" 4" PD 4"x8"

4"x8"

8" PD PROCESS DRAIN TO INFLUENT PUMP STATION

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2/13/2025

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CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT

INSTRUMENTATION

P&ID:
FUTURE ROTARY DRUM THICKENER 4

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JOB NO. 202645
DRAWING NO. 07N024
SHEET NO. 199 OF 239

PROJECT NO. 202645 FILE NAME: 202645_07N024.dwg

CPNL-05-01A / PLANT SCADA

ETHERNET SWITCH

HS 771A / KQI 771 — SCADA-MAN/ SCADA AUTO

VFD FAIL — YA 771A / YL 771A — REM MODE
PAH 771A / YL 771B — LOC MODE
MOTOR TAH 771A / YL 771C — RUN
STATOR TAH 771B / FAL 771C — SEAL WTR

CHECK VALVE FAIL TO OPEN — ZA 771

0-100% SIC 771 / SS HS 771B / RESET HS 771C

PQI 771 / PAH 771 / PI 771 — 0-xxx PSI

HS 772 — OC

AQI 765 / AI 765 — SLUDGE DENSITY 0.0 - 8.0%

NOTES
1. CONTINUATION OF THICKENED SLUDGE CHUTE.

MCC-E

READY YL 771D

0-100% VFD HIM SI 771

LOR VFD HIM HS 771D / SC 771 — 0-100% VFD HIM

SS VFD HIM HS 771E / HS 771F — RESET

VFD

FIELD

A 07N021 — TSL (SEE NOTE 1)

HS 771G — LOS

TSH 771B / TIY 771 — 120V

AIT 765 — 120V

AE 765 — SLUDGE DENSITY

PI 771B / PSHH 771 / PIT 771 — PIT-07-011

ZSC 771

TSH 771A / PI 771A / FSL 771 / TE 771 — THK-PMP-07-011 THICKENED SLUDGE PUMP 1

3W 1/2" 3W — SV — FE 771 — 1/2" 3W

SD — AIT-07-011

AV — 4" x 6"

6" TSL — DIGESTER CONTROL BUILDING 2

D 07N021 — 1/2" HW — SV — THK-SV-07-011

A 07N042 — 6" TSL

B 07N043 — 6" TSL

C 07N044 — 6" TSL

Beecher Engineering, Inc.

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CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT

INSTRUMENTATION

P&ID:
THICKENED SLUDGE PUMP 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 07N041
SHEET NO. 201 OF 239

PROJECT NO. 202645 FILE NAME: 202645_07N041.dwg

NOTES

1. CONTINUATION OF THICKENED SLUDGE CHUTE.

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	REVISION PER ADDENDUM 4
1	2/13/25	TB	DRAWING ADDED PER ADDENDUM 1

DESIGNED TB
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DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
2/13/2025

carollo

City of Manteca

CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
INSTRUMENTATION
P&ID:
THICKENED SLUDGE PUMP 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 07N042
SHEET NO. 202 OF 239

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CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT

INSTRUMENTATION

P&ID: THICKENED SLUDGE PUMP 3

VERIFY SCALES
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JOB NO. 202645
DRAWING NO. 07N043
SHEET NO. 203 OF 239

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CPNL-05-01A / PLANT SCADA

ETHERNET SWITCH

HS 777A SCADA-MAN/SCADA AUTO
KQI 777

VFD FAIL YA 777A / YL 777A REM MODE
PAH 777A / YL 777B LOC MODE
MOTOR TAH 777A / YL 777C RUN
STATOR TAH 777B / FAL 777C SEAL WTR

CHECK VALVE FAIL TO OPEN ZA 777

0-100% SIC 777
SS HS 777B
RESET HS 777C

PQI 777
PAH 777
0-xxx PSI PI 777

HS 778 OC

AQI 768
AI 768 0.0 - 8.0% SLUDGE DENSITY

MCC-E

READY YL 777D
0-100% VFD HIM SI 777

LOR VFD HIM HS 777D / SC 777 0-100% VFD HIM
SS VFD HIM HS 777E / HS 777F RESET

VFD

HS 777G LOS
TSH 777B / TIY 777 120V
PI 777B
PSHH 777
PIT 777
AIT 768 120V
AE 768 SLUDGE DENSITY
ZSC 777

A 07N024 TSL

FIELD

TSH 777A
PI 777A
FSL 777
M
TE 777
SD
AV
4" x 6"
6" TSL
07N041 C

SV
FE 777
3W 1/2" 3W
1/2" 3W
THK-PMP-07-014
FUTURE THICKENED SLUDGE PUMP 4
AIT-07-014

G 07N021
1/2" HW
SV
2
THK-SV-07-014

NOTES

1. FUTURE EQUIPMENT IS INDICATED ON THIS DRAWING. SHOWN FOR REFERENCE ONLY.

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	REVISION PER ADDENDUM 4
1	2/13/25	TB	DRAWING ADDED PER ADDENDUM 1

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA 2/13/2025

carollo

CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT

INSTRUMENTATION

P&ID:
FUTURE THICKENED SLUDGE PUMP 4

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 07N044
SHEET NO. 204 OF 239

PROJECT NO. 202645 FILE NAME: 202645_07N044.dwg

PLOT DATE: 3/5/2025 2:38:11 PM
USER: BEI
COLOR TABLE:CAROLLO_STD_F_V1703.CTB
PLOT SCALE:1:1
PAGE SETUP: ----
LAST SAVED BY: tbeecher

CPNL-05-01A / PLANT SCADA

WI 780 POUNDS
WI 781 POUNDS
WI 782 POUNDS
WI 783 POUNDS
FAH 784 EYEWASH ACTIVATION
PI 786 0-150 PSIG
PI 787 0-150 PSIG

MIXING CHAMBER SPEED 0-100%
POLYMER PUMP SPEED 0-100%
SS
SC 707A REM MODE
YL 707A
SC 707B RUNNING
YL 707B
HS 707 PUMP SPEED 0-100%
SI 707
YA 707 ALARM

1" 3W DILUTION WATER

PI 784
1W 1-1/4" 1W
480V
FSH 784
1/2" HW
THK-HTR-07-002
EMERGENCY EYEWASH AND SHOWER WATER HEATER
THK-EEWS-07-001
EMERGENCY EYEWASH AND SHOWER

PIT-07-021 PIT 786
PIT-07-022 PIT 787
480V
POLYMER SKID
THK-POL-07-001
POLYMER BLENDING UNIT 1
POLYMER SKID VENDOR PACKAGE
(SEE SPECIFICATION SECTION 11246 FOR ADDITIONAL REQUIREMENTS)

2" POS 07N021 A

WIT-07-001
WT 780 120V
WE 780
POLYMER TOTE

WIT-07-002
WT 781 120V
WE 781
POLYMER TOTE

WIT-07-003
WT 782 120V
WE 782
POLYMER TOTE

WIT-07-004
WT 783 120V
WE 783
POLYMER TOTE

FIELD

DPI 769
1-1/2" POL
THK-STN-07-001
DUPLEX STRAINER 1

DPI 770
1-1/2" POL
THK-STN-07-002
DUPLEX STRAINER 2

1" POL 07N052 B
1" POL 07N053 C
1" POL 07N054 D

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
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1	2/13/25	TB	DRAWING ADDED PER ADDENDUM 1

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
2/13/2025

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CITY OF MANTECA
WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT
INSTRUMENTATION
P&ID: THICKENING POLYMER STORAGE AND BLENDING UNIT 1

VERIFY SCALES
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JOB NO. 202645
DRAWING NO. 07N051
SHEET NO. 205 OF 239

PROJECT NO. 202645
FILE NAME: 202645_07N051.dwg

CPNL-05-01A / PLANT SCADA

MIXING CHAMBER SPEED 0-100% — SC 708A / YL 708A — REM MODE
POLYMER PUMP SPEED 0-100% — SC 708B / YL 708B — RUNNING
SS — HS 708 / SI 708 — PUMP SPEED 0-100%
YA 708 — ALARM

PI 789 — 0-150 PSIG
PI 790 — 0-150 PSIG

FIELD

1" 3W — DILUTION WATER

PIT-07-031 — PIT 789
PIT-07-032 — PIT 790

480V

B — 07N051 — 1" POL

POLYMER SKID

2" POS — 07N022 — A

THK-POL-07-002
POLYMER BLENDING UNIT 2

POLYMER SKID VENDOR PACKAGE
(SEE SPECIFICATION SECTION 11246 FOR ADDITIONAL REQUIREMENTS)

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	REVISION PER ADDENDUM 4
1	2/13/25	TB	DRAWING ADDED PER ADDENDUM 1

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER — TODD A. BEECHER — E014712 — Exp. 6/30/25 — ELECTRICAL — STATE OF CALIFORNIA — 2/13/2025

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CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT

INSTRUMENTATION

P&ID:
THICKENING POLYMER BLENDING UNIT 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 — 1"
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JOB NO. 202645
DRAWING NO. 07N052
SHEET NO. 206 OF 239

PROJECT NO. 202645
FILE NAME: 202645_07N052.dwg

CPNL-05-01A / PLANT SCADA

MIXING CHAMBER SPEED 0-100% — SC 709A / YL 709A — REM MODE

POLYMER PUMP SPEED 0-100% — SC 709B / YL 709B — RUNNING

SS — HS 709 / SI 709 — PUMP SPEED 0-100%

PI 792 — 0-150 PSIG

YA 709 — ALARM

PI 793 — 0-150 PSIG

FIELD

2

1" 3W — DILUTION WATER

PIT-07-041 — PIT 792

PIT-07-042 — PIT 793

480V

C 07N051 — 1" POL — 2

POLYMER SKID

2" POS — 07N023 A — 2

THK-POL-07-003

POLYMER BLENDING UNIT 3

POLYMER SKID VENDOR PACKAGE
(SEE SPECIFICATION SECTION 11246 FOR ADDITIONAL REQUIREMENTS)

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	REVISION PER ADDENDUM 4
1	2/13/25	TB	DRAWING ADDED PER ADDENDUM 1

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER — TODD A. BEECHER — E014712 Exp. 6/30/25 — ELECTRICAL — STATE OF CALIFORNIA — 2/13/2025

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CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT

INSTRUMENTATION

P&ID:
THICKENING POLYMER BLENDING UNIT 3

VERIFY SCALES
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0 — 1"
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JOB NO. 202645
DRAWING NO. 07N053
SHEET NO. 207 OF 239

PROJECT NO. 202645 FILE NAME: 202645_07N053.dwg

CPNL-05-01A / PLANT SCADA

MIXING CHAMBER SPEED 0-100% — SC 710A / YL 710A — REM MODE
POLYMER PUMP SPEED 0-100% — SC 710B / YL 710B — RUNNING
SS — HS 710 / SI 710 — PUMP SPEED 0-100%
YA 710 — ALARM

PI 795 — 0-150 PSIG
PI 796 — 0-150 PSIG

2

1" 3W — DILUTION WATER

FIELD

PIT-07-051 — PIT 795
PIT-07-052 — PIT 796

480V

D — 07N051 — 1" POL — 2

POLYMER SKID

THK-POL-07-004
FUTURE POLYMER BLENDING UNIT 4

2" POS — 07N024 — A — 2

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION
2	3/6/25	TB	REVISION PER ADDENDUM 4
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DESIGNED TB
DRAWN BEI
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DATE FEBRUARY 2025

REGISTERED PROFESSIONAL ENGINEER — TODD A. BEECHER — E014712 — Exp. 6/30/25 — ELECTRICAL — STATE OF CALIFORNIA — 2/13/2025

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CITY OF MANTECA

WQCF SLUDGE THICKENER AND DEWATERING UNIT NO.3 PROJECT

INSTRUMENTATION

P&ID:
FUTURE THICKENING POLYMER BLENDING UNIT 4

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 — 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202645
DRAWING NO. 07N054
SHEET NO. 208 OF 239

PROJECT NO. 202645
FILE NAME: 202645_07N054.dwg