SOUTH DAVIS SEWER DISTRICT

ADDENDUM NO. 1

NORTH PLANT UPGRADE PROJECT
April 19, 2024

This addendum changes and adds to contract documents as noted below. The bidder shall acknowledge this addendum on the bid form, certifying that the addendum was received in its entirety and that the Bidder accepts the conditions herein.

The contract documents are hereby revised as follows:

1.1 The Pre-Bid Signup Sheet is attached to this document.

1.2 All spoils will need to be exported off the site.

1.3 The contractor shall have access to plant secondary water. Potable water will require a meter and the contractor is responsible for coordinating with West Bountiful City on using the water from a fire hydrant.

1.4 The contractor shall have power available but the enter power system is being redone thus the contractor may be required to reconnect at a different time during the course of the project. The owner will pay for the power used by the contractor.

1.5 Any equipment that is removed shall be disposed of by the contractor unless noted otherwise on the drawing documents. The drawings note anything that the owner wants to keep.

1.6 Piping that is abandoned in place shall be cut and capped as noted in the drawing documents.

1.7 There is no known contaminated or hazardous waste that the contractor will be required to haul off.

1.8 The guidelines for “Or-Equal” and “Or-Approved Equal” are clarified in Volume I-Article 11.

1.9 The **Bid Form** had various changes to the document. Attached is the updated form.

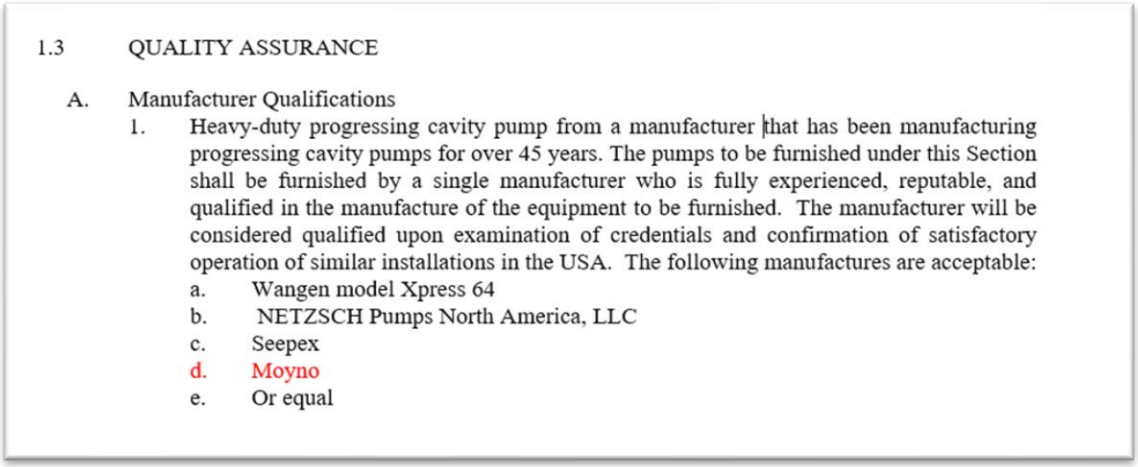
1.10 Specification **464300 – CIRCULAR SPIRAL SCRAPER CLARIFIER** Section 1.3.A has been updated as shown below.

1.3 SUPPLIER

A. Acceptable Manufactures:

1. WesTech
2. OVIVO
3. Clearstream
4. Or equal

1.11 Specification **432356 – SLUDGE PROGRESSING CAVITY PUMP** section 1.3.A.1 has been updated to include Moyno as shown below.



1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications

1. Heavy-duty progressing cavity pump from a manufacturer that has been manufacturing progressing cavity pumps for over 45 years. The pumps to be furnished under this Section shall be furnished by a single manufacturer who is fully experienced, reputable, and qualified in the manufacture of the equipment to be furnished. The manufacturer will be considered qualified upon examination of credentials and confirmation of satisfactory operation of similar installations in the USA. The following manufactures are acceptable:
   a. Wangen model Xpress 64
   b. NETZSCH Pumps North America, LLC
   c. Seepex
   d. Moyno
   e. Or equal

1.12 Specification **013130 – SAFETY** section 1.3.D.1 has been updated as shown below.

D. Safety Program Requirements:

1. Safety Representative Requirements:
   a. Assign a full-time Safety Representative.
      1) A full-time Safety Representative is required only when there are 25 or more people on the jobsite, including any subcontractors.

1.13 Specification **467311 – FIXED DIGESTER COVERS**: Section 1.4, B, 3 and 4 has been updated as shown below.

1.4 MANUFACTURES

A. The equipment covered by these specifications is intended to be standard equipment of proven performance. Equipment shall be designed, constructed, and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown on the Contract Drawings. The lid supplier shall ensure that the new cover is compatible with the LM™ Mixer by OVIVO USA, LLC as specified in Section 464100 – Linear Motion Mixer.

B. Acceptable Manufactures:

1. Ovivo
2. WesTech
3. ~~ODI~~ Olympus Technologies, Inc
4. Or ~~approved~~ equal.

1.14 Specification **065310 – FIBERGLASS BAFFLE WALLS** should be removed from the Specification package.

1.15 Specification **400559 – SLIDE AND WIER GATES** Section 1.2.A has been updated to include additional manufactures as shown below.

1.2 APPROVED MANUFACTURERS

A. Gates supplied shall be provided by one of the following manufacturers:

1. Orbinox Gates
2. Whipps
3. Waterman
4. Rodney Hunt
5. Golden Harvest, Inc
6. Or equal

1.16 Specification **400500 – PIPING, General** Section 2.4, B, C, and D have been updated and E has been added as shown below.

B. Couplings for Steel Pipe, Manufacturers, or Equal
1. Victaulic ~~Style 44 with Type D Heavy Duty Grooved Adaptor Ends.~~ Style W 77 for flexible Style W 07 for rigid

C. Ductile Iron Pipe Couplings, Manufacturers, or Equal
1. Victaulic Style 31 (flexible or rigid grooving).
2. Note: Ductile iron pipe couplings shall be furnished with flush seal gaskets.

D. Couplings for PVC Pipe, Manufacturers, or Equal
1. Victaulic ~~Style 775.~~ Style 356 or 357
2. Note: Couplings for PVC pipe shall be furnished with radius cut or standard roll grooved pipe ends. Grooved end couplings shall be used on PVC pipe only for Schedule 80 vent piping at the vaults. Grooved end couplings shall not be used for PVC C905 water pipe.

2.5 SLEEVE-TYPE COUPLINGS

E. Couplings for Stainless Steel Pipe, Manufacturers, or Equal
1. Victaulic Style 77S for flexible, Style 489 for rigid

1.17 The specification package has been updated to include **072541 – Digester Cover Insulation Roof System** see attached.

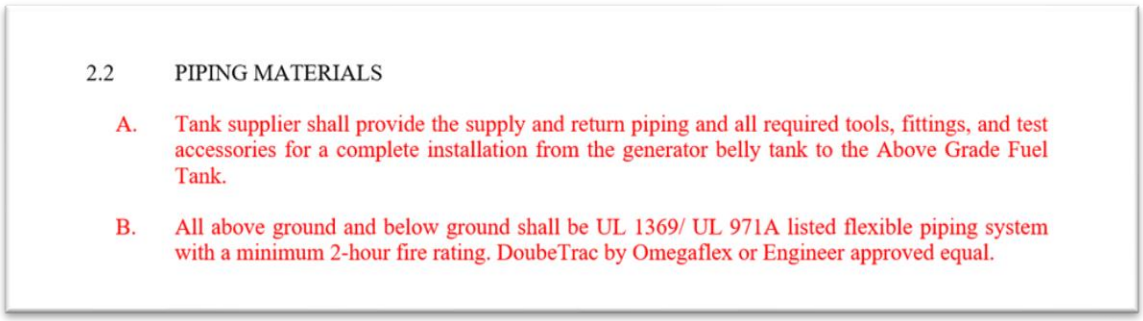
1.18 Specification **098000 – Protective Coatings** section 2.4.A.7 has been updated to include **System 106B** for the coating of large structures with severe wastewater H_2S vapor exposure.

7. SYSTEM 106B SEVERE WASTEWATER H_2S VAPOR EXPOSURE – LARGE STRUCTURES
   a. Surface Preparation: SSPC-SP5 White Metal Blast Cleaning with a minimum angular anchor profile of 3.0 mils
   b. Primer: Tneme-Liner Series 61 at minimum 4.0 mils DFT to cover the blast profile – this will hold the blast and allow for a 7 day recoat window.
   c. Intermediate: Perma-Glaze Series G435 at 15 - 20 mils DFT
   d. Stripe: Perma-Glaze Series G435 - Stripe coat as per SSPC-PA11 to all edges, bolt holes, welds, etc.
   e. Topcoat: Perma-Glaze Series G435 at 15 - 20 mils DFT

1.19 Drawings **G020** has been updated to include coatings for the Primary Digester cover coatings.

1.20 Drawing **69S204** has been updated to include general notes referring to the Primary Digester cover coatings.

1.21 Specification **231323 – ABOVE GROUND FUEL STORAGE TANK** Section 2.2 has been updated as shown below.



2.2 PIPING MATERIALS

A. Tank supplier shall provide the supply and return piping and all required tools, fittings, and test accessories for a complete installation from the generator belly tank to the Above Grade Fuel Tank.

B. All above ground and below ground shall be UL 1369/ UL 971A listed flexible piping system with a minimum 2-hour fire rating. DoubeTrac by Omegaflex or Engineer approved equal.

1.22 The percentage of Xypex Bio-San in Concrete Note # 17 on Drawing **G016** has been changed to 1%.

1.23 The diesel fuel tank system has been updated to include additional detail. The following drawings have been updated per these changes.

- G002 – Index
- 01C400 – Overall, Yard Piping Plan
- 01C405 – Yard Piping Plan
- 06S201 – Pad Plan and Section
- 06M201 – Mechanical Plan
- 06M401 – Mechanical Section
- 06M402 – Mechanical Section
- 81M802 – Mechanical Schedule
- 81M804 – Valve Schedule
- 81M805 - Valve Schedule
- 81M806 - Valve Schedule
- 81M807 - Valve Schedule
- I101 – P&ID Screens Building
- E203 – Site Plan 2

1.24 The Orbinox BT-SERIES 22 knife gate listed on valve schedule **84M804** are Stainless Steel (SS) bodies. However, Material column incorrectly identifies them as Ductile Iron. The Material Column has been corrected to Stainless Steel as shown in the attached documents.

1.25 The Orbinox BT-Series 22 knife gates listed on valve schedule **84M805** feature Stainless Steel bodies. However, the Material column mistakenly labels them as Ductile Iron. Additionally, the Type column incorrectly identifies them as Plug Valves instead of Knife Gates. We've rectified these errors by updating the Material column to indicate SS and the Type column to reflect Knife Gate as shown in the attached documents.

1.26 Specification **463350-MOVING BED BIOFILM REACTOR (MBBR) EQUIPMENT** section 1.8 table B and Tabel C have been updated as shown below.

B. The Biological Treatment System shall be designed for operation in a reactor as indicated on the drawings. Equipment shall be designed for the following:

Parameter	Units	Value
Number of Process Trains	-	2
Number Reactors Per Train	-	1
Reactor Dimensions	ft	56' x 56' x 20' SWD
Reactor Volume	ft3	62,720
Minimum Freeboard	ft	2'
Max Reactor Media Fill Carrier Elements	%	25 (regular operation) 50 (maintenance condition)
Min total protected surface Area	m2	444
Aeration System Type	-	Coarse Bubble
Residual D.O., Design	mg/L	2-4

C. The SYSTEM SUPPLIER shall provide the following design parameters:

Parameter	Units	Value
Specific Media Surface Area		
Total Surface Area:	m2/m3	955
Protected Surface Area:	m2/m3	806
Max Bulk Volume of Media	m3 (ea)	888 (maintenance condition)
Min Bulk Volume of Media	m3 (ea)	444 (regular operation)
Air Requirements, Design(max)	SCFM/PSI	4,000 (per train)/10psi
Air Requirements, Design (min)	SCFM/PSI	2,100 (per train)/10psi

1.27 Specification **432356 – SLUDGE PROGRESSIVE CAVITY PUMP** had various changes to the document. Attached is the updated specification.

Electrical, Instrumentation and Controls Items:

2.1 Electrical drawings E801 thru E814 were added to the drawing package and are attached to this addendum. These drawings are as follows:

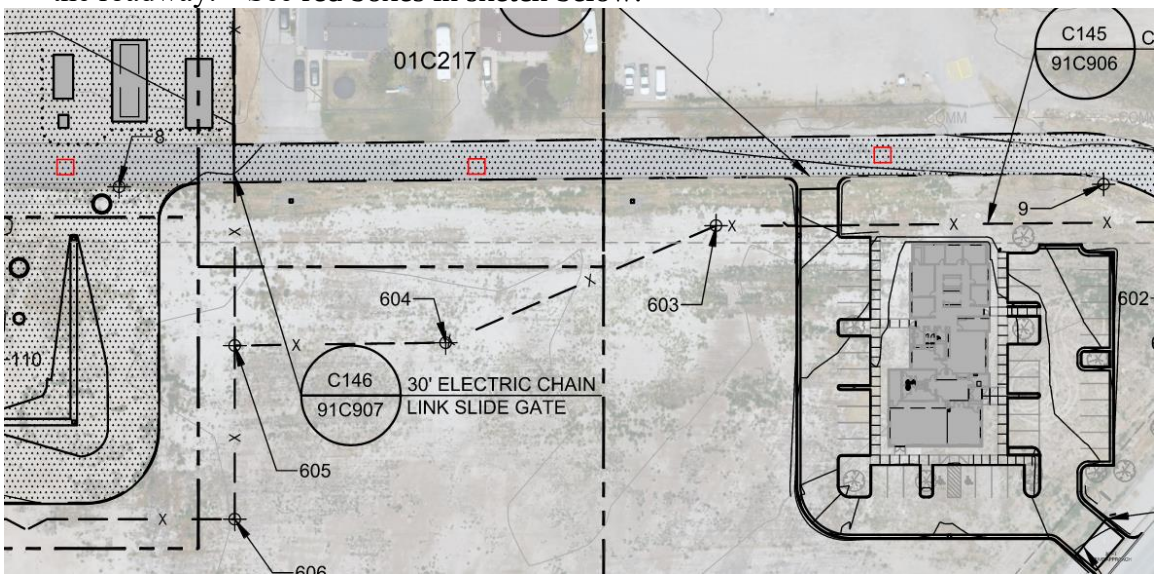
- E801 Instrument Schedule 1
- E802 Instrument Schedule 2
- E803 Conduit Schedule 1
- E804 Conduit Schedule 2
- E805 Conduit Schedule 3
- E806 Conduit Schedule 4
- E807 Conduit Schedule 5
- E808 Conduit Schedule 6
- E809 Conduit Schedule 7
- E810 Conduit Development 1
- E811 Conduit Development 2

- E812 Conduit Development 3
- E813 Conduit Development 4
- E814 Conduit Development 5

2.2 Instrumentation Drawing I126 a Diaphragm seal should be indicated with a isolation ball valve below it for PIT-75258

2.3 I101 and E203 have been modified to reflect new information about the updated generator and fuel tank system that now includes a belly tank.

2.4 Drawing E201should have the following Key Note 4 added with the indicator pointing the same location as Key Note 2 & 3: "Contractor shall install 3 new manholes in the duct bank between the main service switchgear and the admin building r intervals. One manhole shall be located directly south of the switchgear area to tie the switchgear into the duct bank, and the last manhole shall be immediately north of the admin building in the roadway." See red boxes in sketch below:



2.5 Specification 263213 – Engine Generators has been revised and should be replaced in its entirety with the attached specification.

<u>Answers to questions from electrical contractors:</u>
Note that some questions were duplicated, and are only answered one time for similar questions.

2.6 There are currently several conflicting requirements for the Blower LPC & MCP PLC and HMI requirements, as noted below:

- Section 431112, 2.20.G and 2.21.G &H – Specifies Modicon M340 series for the LCP PLCs and Modicon Magellis for the HMIs.
- Section 431112, 2.2.H&I – List acceptable manufacturers to be Phoenix Contact, Allen Bradely or pre-approved equal for the MCP PLC and HMI.

- Section 409443, 2.1.H – List acceptable PLCs to be Allen Bradley CompactLogix, ControlLogix, Modicon M340, or Modicon M580.
- Section 409433, 2.1.C – List acceptable HMIs to be GE QuickPanel, Modicon Magelis XBTGT, or Red Lion CR3000.

Please confirm PLC & HMI manufacturer and model requirements for the blower LCPs and MCP.

Answer: The owner's preferred PLC for this project is the Modicon M340 PLC with Red Lion CR3000 or Modicon Maglis XBTGT HMIs per the specifications. The owner is willing to allow Allen Bradley Compact Logix, Control Logix and Panel View Plus 7 HMIs per the specifications as acceptable alternatives.

2.6 **Questions**: Are there any records of each ductbank that need to be removed, such as what size of conduits and how many are in each ductbank? Are the existing ductbanks that need to be removed concrete encased or direct buried?

Answers: Attached to this addendum are the records provided to the engineer detailing plans for conduits/ductbanks from the 1988 project. Please see Pages E-1,E-2, E-12, E-13, and E-14 at the end of this package. There is a mix of concrete and direct buried conduits. The contractor is expected to verify this information on site prior to the beginning of construction.

2.7 **Question**: Is lightning protection not included in the scope of this project?

Answer: Lightning protection is not included in the scope of this project.

2.8 **Question:** The main distribution panel, DP-MAIN, shown on E504 does not appear to be labeled anywhere else in the drawings. We are assuming that it is located with the main switchgear and ATS on the pad near the transformer vault and generator. Please confirm this assumption is correct?

Answer: DP-MAIN is to be located immediately adjacent to SWGR-MAIN.

2.9 **Question:** There is no duct bank shown on E201 or E205 feeding Primary Clarifier 4. Is there a preference or any restrictions on the route the duct bank takes, or is it up to the contractor?

Answer: The contractor should extend to the south the ductbank shown feeding primary clarifiers 1 and 2 in order to provide electrical service to primary clarifier 4. Follow the details shown in the site plan drawings and specification **260543 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS**.

2.10 **Question:** The one-line for the main distribution (E504) indicates an existing transformer and panel fed from DP-MAIN to CONTROL BLDG LP. There does not appear to be a duct bank schedule, conduit schedule, or cable schedule in the bid documents, and there

are a couple existing buildings labeled control building (Electrical Control Building, Digester Control Building) Please clarify which building this transformer and panel are located in.

Answer: The control building LP is existing and shown on drawing E501 and is to be re-wired to the new service. This transformer is located at the north end of the electrical room in the Electrical control building. The location is near the identifier for Existing MCP, MCC-Main & PP-1 on drawing E202

2.11 Question: Drawing E209 indicates two control panels in the MBBR Pump Station, LCP-P-31360 & LCP-31310, which are not in the P&ID drawings. Drawing I107 indicates LCP-P31320 & LCP-31320 for the MBBR Pump Station, which are not located in the layout drawings. Are these the same control panels, just labeled differently?

Answer: The control panels shown on I107 and E209 are confirmed to be the same. The correct tag numbers should be LCP-P-31320 and 31360.

2.12 Question: DP-DCB shown on E507 is not in the layout drawings. Is there a space designated in Digester Building 2 for it? If so, where is it to be located?

Answer: DP-DCB is to be located in the location immediately adjacent to MCC-DCB as shown on E213. The footprint shown for MCC-DCB will be reduced as many loads have been moved out of MCC-DCB to DP-DCB.

2.13 Question: Keynote 1 on E217 states that the gas detector, strobe & horn and light switch shall be NEMA 7 in the Gas Handling Room, similar to the Headworks building. However, there do not appear to be any gas detectors or strobe & horns indicated on E217 or in the P&IDs. Should there be detectors and strobe & horns? If so, please provide revised P&ID drawing.

Answer: Gas detector and strobes mentioned in Keynote 1 of E217 are to be located in the gas handling room, near the door on the north wall. The strobes and horn should be located inside of the room and outside of the room Just as in HW. These also need to be added to the P&IDs and instrument schedule. The number of detectors required will be one each for monitoring oxygen, hydrogen sulfide, and combustible gases.

2.14 Question: E507 indicates a starter for ME-62102. The drawing for that building (E213) states in General Notes 1 that panels shall be stainless steel NEMA 4X, but the MCC shown in that building is labeled as NEMA 12 and the photo on E213 show enclosures that are not stainless steel. Does this new starter for ME-62102 need to be stainless steel NEMA 4X rated?

Answer: E506-507 indicates MCC/DP-DCB are NEMA12 which is correct. The motor starter panel for the sludge grinder is specified with the sludge grinder and will be supplied as specified by the sludge grinder manufacturer.

2.15 **Question:** I130 indicates that the air handlers for the blower building have a local control panel, but the one-line (E510) indicates a VFD in the MCC and no LCP. The same applies to the digester building's AHU (I131 & E506). Please clarify if these air handlers are controlled by VFD's in the MCC or LCP's.

Answer: The design for the HVAC is to be completed and coordinated by the HVAC Vendor. VFDs were included in the MCC as a contingency, but if the HVAC vendor supplies the VFDs in the LCP the VFD in the MCC will remain as a spare.

2.16 **Question**: I131 indicates that the evaporative cooler for the digester building has a LCP, but the evaporative cooler for the blower building (I130) does not. Is this correct?

Answer: Both evaporative coolers can be directly thermostat controlled unless a LCP is required by the vendor.

2.17 **Question**: Some design clarification might be needed for the electrical installation. The notes in the electrical drawings for all areas state to "limit exposed conduits" and "conduit shall only run exposed where necessary." However, in section 033000 of the specs, it states "do not embed piping or electrical conduits in concrete unless shown on the Drawings" (033000 3.4 B). In some areas that dictates that most or all conduit will be exposed, such as in the case of the headworks building due to the pump pit, and wet well below the building. Is the statement "limit exposed conduits" in the notes considered as meeting the "shown on the Drawings" requirements from the specs? Can conduit be allowed to be embedded in the concrete if the requirements of 033000 3.4 C are followed?

Answer: In general the intent is to conceal as many conduits as possible, minimizing exposed conduits as the note on the drawing indicates. Conduit can be embedded I the concrete if the requirements of 033000 3.4 C are followed.

2.18 **Question**: Does the owner have their own A/V contractor for this project? The Low Voltage Scope of Work for the Admin building (09E007) indicates the AV contractor will supply and install all the equipment and specialty items for the A/V system, but there are no details provided in the documents, just locations for rough-in. If the A/V contractor is to be subcontracted on this project, please provide details on the displays, ceiling loudspeakers, and any other equipment desired for a functioning A/V system.

Answer: The elec sub is only to provide what is shown on the plans. The owner will have their own direct sub provide the equipment.

2.19 **Question**: There are fire alarm specifications included in the bid documents (283100). Since the Admin building has its own spec section and drawings, the assumption is that 283100 applies to the rest of the plant. There are no fire alarm drawings for the rest of the plant. Is this a deferred design scope? If so, what is the

existing fire alarm system, if there is one? Since the specs are open to different manufacturers, does the new system need to be able to communicate with the existing system? If there is no existing system, do the existing buildings need to be retrofitted with a fire alarm system?

Answer: The fire alarm system specified is a deferred design scope. There is no fire alarm system existing. The fire alarm system should include all existing and new structures. The new admin building, and the rest of the plant should be on the same fire alarm system.

2.20 **Question:** 260533 2.1 A states that "all wiring, except as otherwise noted, shall be in conduit." 260519 2.1 E & F list requirements for tray cable leaving the question if cable tray is allowed. Would 260519 2.1 E & F classify as "otherwise noted" from 260533 2.1 A? Is cable tray allowed, or does everything need to be in conduit?

Answer: Cable tray is shown in the Admin building network room. Other areas of the plant are intended to utilize conduit. If the contractor would like to propose utilizing cable tray in other areas, we are open to the idea. Please provide information regarding proposed routing and locations for review.

2.21 **Question:** What are the electrical requirements for the temporary bypass pumping system?

Answer: This will need to be coordinated with the temporary bypass pumping selected by the general contractor.

2.22 **Question:** Please clarify if the new fire alarm system will need to tie into the existing system. If so, please clarify what existing fire alarm manufacturer is currently on site.

Answer: See question 2.20

2.23 **Question:** Please clarify who will be responsible for providing and installing the CCTV, Access Control, and AV systems if required. If the electrical contractor will be responsible for this scope of work, please provide drawings and specifications for these systems.

Answer: See question 2.19

2.24 **Question:** Please provide an electrical equipment schedule showing what disconnects, vfds etc will need to be provided by the electrical contractor

Answer: An instrument schedule has been provided. All new equipment not otherwise identified is to be contractor provided. All existing equipment is noted on the drawings as such. Please identify any items that are not clear for clarification.

2.25 **Question:** Please provide an electrical ductbank schedule.

Answer: Conduit and cable schedule with conduit development has been provided as part of this addendum. Please let us know if additional information is needed.

2.26 **Question:** Please provide a pull-box schedule for all new pull-boxes.

Answer: The pull boxes to be installed are indicated on site plan drawings E201-E205. Conduit and cable schedule with conduit development has been provided as part of this addendum. Please let us know if additional information is needed.

2.27 **Question:** Please provide a location for the new service entrance switchgear SES shown on the oneline diagram E504.

Answer: On drawing E201 there is an area on the right side of the page labeled "electrical service area" with three gray boxes. The SES is to be located on the right most box.

2.28 **Question:** Please provide the location for DP-Main shown on E504.

2.29 **Answer:** See question 2.9

2.30 **Question:** Please provide the location for DP-UW shown on E509.

Answer: On drawing E101, the building labeled non-potable water building, just east of the final clarifiers, will house the new DP-UW.

2.31 **Question:** Will any gutter melt be required on any of the buildings? If so, please provide and specification and information on drawings.

Answer: No gutter melt is intended for this project.

2.32 **Question:** Please clarify who is responsible to provide and install heat trace for process piping.

Answer: This is to be coordinated between the Electrical contractor and the general contractor.

2.33 **Question:** Please clarify to what extent the EC will be responsible for extending or repulling any circuits that may be too short for re-termination in the new panels, MCC's & Switchgear. See the lightly shaded circuits on the oneline diagrams on sheets E501-E511.

2.34 **Answer:** All existing equipment that is being re-powered will require all new conductors

if they are too short for the installation. It is the general assumption that all re-powered equipment will need new conductors.

2.35 **Question:** Will the EC be responsible to provide and install the AV flat panel display wall boxes labeled as DP on sheet E301? If so, please provide details for what is required.

Answer: Please coordinate with AV contractor as specified in question 2.18

2.36 **Question:** Will the EC be responsible for providing and installing the 14" x 4" ladder rack tray or Data/Com in room 121 of the admin building.

Answer: Please coordinate with the general contractor for division of scope

2.37 **Question:** Will the EC be required for providing and installing the Fire rated Plywood Backboard in room 121 of the Admin Building? If so please clarify how much plywood will be required.

Answer: Please coordinate with the general contractor for division of scope. Amount of plywood required is 4x8 sheet.

2.38 **Question:** Drawing G018, Hazard Area and Classification Plan shown the generator and Diesel fuel tank as Class 1 Div 1 areas. Please confirm if this is correct.

Answer: The generator and fuel tank and electrical service areas are NOT classified areas.

South Davis Sewer District
North Plant Upgrade Project
MANDATORY Pre-BID MEETING
2:00 PM, Thursday April 18th, 2024

	Organization	Contact	Phone / Email
1	COP Construction	Tim Ard	8015143739 Tima@coponstruction.com
	Alder Construction	Mark Anderson	801 404 0436 manderson@alderconstruction.com
	Gerber Construction	Mark Nielsen	801-380-9683 mn@1gerber.com
2	Ralph L Wadsworth	Lance Seifert	801-597-6809 Lance@wadsco.com
	Ralph L. Wadsworth	Josh Lamb	435-619-1162 jlamb@wadsco.com
	~~Britton Construction~~ Michels	Britton Ranstrom	206.947.7795 branstro@michels.[illegible]
3	Sunbelt Rentals	Derek Dorman	385.234.8419 Derek.Dorman@Sunbelt Rentals.[illegible]
	Big-D Construction	Steve Kieffer	801-381-7970 SKieffer@big-d.com
	RSCI Group	Steve Pierce	208-789-7133 stevepierce@RSCIgroup.com
4	GSL Electric	Spencer Thackeray	801-633-2296 sthackeray@gslelectric.com
	GSL Electric	Phil Capell	801-520-9432 pcapell@gslelectric.com
	Alder	James Winder	435-695-3473 jwinder@alderconstruc[illegible]
5	Alder	Jeff Pitts	801-~~[illegible]~~ 549 8156 jpitts@alderconstruction.com
	Capital Pump	Tim Parson	tparson@CPE Pumps.com
	Skyline Electric	Burk Montgomery	385-427-5465 burk.montgomery@skyline.us
6	BODELL CONSTRUCTION	GRAYDEN NICHOLSON	801 892-8058 GNICHOLSON@BODELLCONSTRUCTION.COM
	Xypex	Justin Mellen	801-694-3812 Justin.Mellen@xypex.com
	Big-D	Nate Rickert	801-608-1238 Dagcox@Skyline.us
7	Skyline Elec.	Brad Wilding	801-608-8969 bwilding@skyline.us
	ISCO	Brandon DenBoer	801-386-2550 - brandon.denboer@isco-pipe.com
	Buck Sellers	Bodell const	801-557-7482 - bsellers@Bodell
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9			

BID FORM

South Davis Sewer District

North Plant Upgrade

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

MATT MYERS
GENERAL MANAGER
SOUTH DAVIS SEWER DISTRICT
1800 W 1200 N
BOUNTIFUL, UT, 84087

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.	Addendum, Date

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations

obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the e execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Lump Sum Bid Price for Base Bid Includes Total Project Costs	$
Alternate A Deduct Cost to Remove Primary Clarifier	$

Total of All Lump Sums $ _____

5.02 Equipment Alternative Deductive. If there is suggested equipment that may not meet the required specifications but has a substantial cost benefit to the Owner it may be listed below with the deduction amount from the total contract price. The Owner may select the alternative equipment and receive the noted deduction.

Equipment Description	Specification Number	Deductive amount

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Required Bid security;

B. List of Proposed Subcontractors;

C. List of Proposed Suppliers;

D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;

E. Contractor's License No.: _____

ARTICLE 8 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

_____

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

_____

_____

_____

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

_____

Bidder's License No.: _____

ARTICLE 7 ATTACHMENTS TO THIS BID

Item B: list of proposed subcontractors

The Bidder shall list below the name and business address of each subcontractor who will perform work under this Bid in excess of one percent of the Contractor's Total Bid Price and shall also list the portion of the Work which will be done by such subcontractor. After the opening of the Bids, no changes or substitutions will be allowed, except as otherwise provided by law. The listing of more than one subcontractor for each item of work to be performed with the words "and/or" will not be permitted.

Work To Be Performed	Subcontractor License No.	Percent of Total Contract	Subcontractors Name and Address
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

12. _____ _____

13. _____ _____

14. _____ _____

15 _____ _____

16. _____ _____

17. _____ _____

18. _____ _____

Note: Attach additional sheets if required.

Item C: List of Proposed Suppliers

The Bidder shall list below the name and business address of each Equipment Supplier who will supply individual pieces of equipment this Bid in excess of $200,000.

Proposed Equipment	Equipment Supplier Name and Address
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	

14. _____ _____

15 _____ _____

16. _____ _____

17. _____ _____

18. _____ _____

Note: Attach additional sheets if required.

SECTION 072541 – DIGESTER COVER INSULATION ROOF SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. CONTRACTOR shall furnish labor, materials, equipment and incidentals required to provide the insulated roofing system as shown and specified for all digesters.

B. The extent of the roofing system includes insulation and roofing on the Gas-Holding Covers for Digesters No. 1, No. 2, and No. 3.

C. Roof System includes:
   1. Preparation of substrate.
   2. Sprayed-in-place polyurethane foam insulation.
   3. Base coat.
   4. Intermediate coat.
   5. Top coat for walkway path.
   6. Ceramic granules.
   7. Required miscellaneous materials and work.

D. Related Sections:
   1. Section 07920, Caulking and Sealants.
   2. Section 09900, Painting.
   3. Section 13236, Gas-Holding Digester Covers.

1.2 REFERENCES

A. The specifications in this Section are subject to the administrative and procedural requirements specified in Division 1, as well as the broader requirements of the General Conditions.

B. Referenced Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
   1. American Society for Testing and Materials:
      a. ASTM C-158 Method for Flexural Testing of Glass.
      b. ASTM C-273 Method for Shear Test in Flatwise Plane of Flat Sandwich Construction or Sandwich Cores.
      c. ASTM D-56 Test Method for Flash Point by Tag-Closed Tester.
      d. ASTM D-412 Test Method for Rubber Properties in Tension.
      e. ASTM D-471 Test Method for Rubber Property – Effect in Liquid.
      f. ASTM D-624 Test Method for Rubber Property – Tear Resistance.
      g. ASTM D-2240 Test Method for Rubber Property – Durometer Hardness.
      h. ASTM E 96 Water Vapor Transmission of Materials.
      i. ASTM E-108 Method for Fire Tests of Roof Coverings.
      j. ASTM D-1079.

k. ASTM E-84.
l. ASTM E-119.
m. ASTM D-1622.
n. ASTM D-1621.
o. ASTM D-2856.
p. ASTM C-518.
q. ASTM D-2126.
r. ASTM D-2369.
s. ASTM D-5201.
t. ASTM D-5469.

2. Factory Mutual Engineering Corporation:
   a. FM, Approval Guide.
3. Underwriters Laboratories, Inc.:
   a. U.L., Building Materials Directory.
4. National Roofing Contractors Association:
   a. The NCRA Roofing and Waterproofing Manual.

1.3 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 for definitions of terms related to roofing work not otherwise defined in this Section.

1.4 SYSTEM DESCRIPTION

A. Design Requirements:
   1. Roofing System Design: Provide a roofing system that complies with roofing system manufacturer's written design instructions.
   2. System Consists of:
      a. Surface preparation and primer application.
      b. Installation of monolithic sprayed-in-place polyurethane foam insulation.
      c. Installation of polyurethane foam protection top coat assembly (base, intermediate, and finish coats) with ceramic roofing granules broadcast into the top coat, providing a non-skid surface, designed to resist foot traffic.
   3. Performance Requirements:
      a. General: Install a watertight, spray-applied monolithic polyurethane foam insulation and roofing system that will not permit the passage of liquid water and will withstand wind loads, and exposure to weather without failure.
      b. FM Listing: Provide materials that meet requirements of FM 4450 as part of a roofing system and that are listed in FM's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM markings.
      c. Polyurethane foam insulation and roofing system shall meet the requirements of Underwriters Laboratory and ASTM E-108 Class A non-combustible deck requirements. Installed roofing system shall comply with Factory Mutual System I-90 wind uplift criteria for Zone 2 wind pressures of 45 lbs./ sq. ft.
      d. A single source manufacturer shall provide polyurethane foam insulation and roofing system.

e. A contractor licensed by polyurethane foam insulation and roofing system manufacturer shall install polyurethane foam insulation, and roofing system assembly.

1.5 SUBMITTALS

A. Product Data:
   1. Product Data: Provide data substantiating that materials comply with
      a. requirements for each type of roofing product specified.

B. Shop Drawings:
   1. Include completely dimensioned plans, details of construction and erection, and attachments to other work. Include flashing details, roof penetration locations and roof penetration details. At a minimum, show the following:
      a. a. Base flashings, cants, and terminations.

C. Samples: Submit the following products:
   1. 18-inch by 18-inch square of primer system, polyurethane foam insulation and roofing system assembly representative of the completed application.
   2. 18-inch by 18-inch square roofing insulation.
   3. 1/2 pound of ceramic granules.

D. Quality Assurance/Control Submittals:
   1. Test Reports:
      a. Product Test Reports: Based on evaluation of tests performed by manufacturer and witnessed by a qualified independent testing agency, indicate compliance of components of roofing system with requirements based on comprehensive testing of current product compositions.
      b. Research/Evaluation Reports: Evidence of roofing system's compliance with local building code.
   2. Contractor's and Manufacturer’s Review:
      a. Submit to the ENGINEER a written statement signed by an authorized agent of the Manufacturer, CONTRACTOR, and the roofing installer, stating that the Drawings and Specifications for roofing have been reviewed with an authorized agent of the roofing material manufacturer; and that the manufacturer is in agreement that the selected systems are proper, compatible and that the details shown are not in conflict with the roofing manufacturer's roofing and flashing details. Show by copy of transmittal form that a copy of the statement has been transmitted to the manufacturer.
   3. Certificates:
      a. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install specified roofing system and is eligible to receive the standard roofing manufacturer's warranty.
      b. Manufacturer Certificates: Signed by roofing system manufacturer certifying that the roofing system complies with requirements specified in the "Performance Requirements" Article. Submit evidence of complying with requirements.
   4. Manufacturer’s Instructions:

a. Submit manufacturer's specifications indicating product information correlated to specified requirements, preparation and installation instructions, and other data as may be required by the ENGINEER.

5. Manufacturer’s Field Reports:
   a. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roof installation.
6. Qualification Statements:
   a. Qualification Data: For firms and persons specified in paragraph 1.6 to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified. Installations are to be similar in climate and scope.

E. Closeout Submittals:
1. Maintenance Instructions:
   a. Manufacturer's maintenance instructions.
   b. Maintenance Data: Include in the maintenance manuals.
2. Warranty:
   a. CONTRACTOR shall submit written warranty signed by the manufacturer, the installation subcontractor, and the CONTRACTOR, as specified herein.
3. Statement of Application: Upon completion of the Work, submit a statement to the ENGINEER signed by CONTRACTOR and roofing installer stating that the Work complies with the requirements of these Specifications and the installation methods comply with the manufacturer's printed instructions and were proper and adequate for the condition of installation and use.

1.6 QUALITY ASSURANCE

A. Qualifications:
1. Installer Qualifications:
   a. Engage a single installer who is a recognized roofing CONTRACTOR, skilled and experienced in the type of roofing and associated work required, and equipped to perform workmanship in accordance with recognized standards so that there will be undivided responsibility for the performance of the work.
   b. The installer of the roofing and associated Work shall be franchised or otherwise approved in writing by the roofing materials manufacturers for installation of a fully guaranteed roof in accordance with the requirements. The CONTRACTOR shall submit the approval letter from the roofing materials manufacturer.
   c. Installer shall have no less than 5 years’ experience with roofing projects of magnitude equivalent to the required Work of this Section.
2. Manufacturer Qualifications: Obtain primary roofing materials from one manufacturer, who publishes complete information on the specified roofing system, and offers to warranty the completed roofing installation as required herein. Obtain secondary and associated materials from sources acceptable to the manufacturer of the primary roofing materials.
   a. Manufacturer of the roofing system shall accept the generic types of insulation specified herein as bondable if installed according to the roofing manufacturer’s standards.

b. Manufacturer shall prepare a written report without delay covering the roof inspection and submit as specified.

B. Regulatory Requirements:
1. Comply with applicable insurance rating bureau requirements as required by the governing building code unless more restrictive requirements are specified.

C. Certifications:
1. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method indicated below by UL, FM, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
2. Insulation Fire Performance Characteristics: Provide insulation materials that are identical to materials whose fire performance characteristics have been determined for the assemblies of which the insulation materials are a part, per test method listed below, by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
   a. Surface Burning Characteristics: ASTM E 84.
   b. Fire Resistance Ratings: ASTM E 119.

D. Pre-installation Meetings:
1. Pre-submittal Roofing Conference: As soon as possible after negotiation of Change Order, conduct conference at Project site. Meet with Installer (Roofer), manufacturer's representative, the ENGINEER, and representatives of other entities directly concerned with performance of roofing system. Notify participants at least 10 working days before conference.
   a. Review specification and drawing requirements, submittals, status of coordinating work, availability of materials, and installation facilities and establish preliminary installation schedule. Review requirements for inspections, testing, certifications, forecasted weather conditions, governing regulations, insurance requirements, and proposed installation procedures.
   b. Discuss roofing system protection requirements for construction period extending beyond roofing installation.
   c. Record discussion, including agreement or disagreement on matters of significance; furnish copy of recorded discussions to each participant. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.
2. Pre-installation Conference: Approximately 2 weeks before installing roofing system, conduct conference at Project site. Notify participants at least 5 working days before conference.
   a. Meet with the ENGINEER; testing and inspecting agency representative; roofing Installer; roofing system manufacturer's representative; digester cover installer; and installers whose work interfaces with or affects roofing, including installers of digester cover accessories and digester cover-mounted equipment.
   b. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
   c. Examine digester cover conditions and finishes for compliance with requirements, including blasting, cleaning, and attachment to structural members.

d. Review loading limitations of deck during and after roofing.
e. Review flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing.
f. Review governing regulations and requirements for insurance, certifications, and inspection and testing, if applicable.
g. Review temporary protection requirements for roofing system during and after installation.
h. Review roof observation and repair procedures after roofing installation.
i. Review required submittals, both completed and yet to be completed.
j. Review and finalize construction schedule related to roofing work and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
k. Review required inspection, testing, certifying, and material usage accounting procedures.
l. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
m. Review project requirements, including Drawings, Specifications, and other Contract Documents.
n. Review availability of materials, tradesmen, equipment, and facilities needed to make progress and avoid delays.
o. Review regulations concerning code compliance, environmental protection, health, safety, fire, and similar considerations.
p. Review procedures needed for protection of roofing during the remainder of the construction period.
q. Document proceedings, including corrective measures or actions required, and furnish copy of record to each participant.

1.7 DELIVERY, STORAGE AND HANDLING

A. Packing, Shipping, Handling, and Unloading:
1. Delivery of Materials:
a. Deliver materials in manufacturer's original, unopened containers and rolls with labels intact and legible.
b. Materials requiring fire resistance classification shall be delivered to the job with labels attached and packaged as required by labeling service.
c. Deliver materials in sufficient quantity to allow continuity of work.
2. Handling of Materials:
a. Handle rolled goods to prevent damage to edges or ends.
b. Select and operate material handling equipment so as not to damage existing construction or applied roofing.

B. Storage and Protection:
1. Store in a dry, well ventilated, weather tight place, and in a manner which will ensure that there is no possibility of significant moisture pick-up. Remove wet material from site.
2. Store in a manner which complies with fire and safety regulations.
3. Store emulsions at temperatures above 40 degrees F.
4. Store materials on clean raised platforms with weather protective covering when stored outdoors.

5. Provide continuous protection of materials against wetting and moisture absorption.
6. Protect materials against damage by construction traffic.
7. Protect against staining and mechanical damage of adjacent surfaces during application of roofing by use of tarpaulins, plywood or other protective covering.

1.8 PROJECT CONDITIONS

A. Project Environmental Requirements:
   1. Proceed with roofing and associated work only when weather conditions will permit unrestricted use of materials and quality control of the work being installed, complying with the Specification requirements and with the recommendations of the roofing materials manufacturers.
      a. Proceed only when the CONTRACTOR and his installer are willing to guarantee the Work as required and without additional reservations and restrictions.
      b. At ambient temperatures of 40 degrees F and below, including wind chill, precautions shall be taken to ensure that gas-holding digester cover maintains the minimum acceptable temperature at the point of roofing application as recommended by the roofing manufacturer.

B. Do not install the roofing until all pressure testing of cover are successfully completed and approved by ENGINEER.

1.9 SCHEDULING

A. Coordination:
   1. Review installation procedures under other Sections and coordinate the installation of items that must be installed with the roofing system.
   2. Coordinate the installation of roof insulation and associated Work so as to provide a complete system complying with the combined recommendations of manufacturers and installers involved in the Work.

B. Scheduling:
   1. Proceed with roofing only after all related and effected equipment and work has been installed, tested and adjusted and approved by the ENGINEER.
   2. Proceed with the roofing and associated work only after openings, blocking, vents, drains and other projections through the covers have been installed, and when the substrate construction and framing of openings are completed.
   3. Proceed with and complete the Work only when materials, equipment and tradesmen required for the installation of the insulation and roofing system are at the Site and are ready to follow with the Work immediately (same day) for a complete roofing system.
   4. Phasing is not acceptable. Install roofing and associated work in a manner that will ensure a complete roofing system at the end of each days work. Do not advance the installation of one material beyond that which is necessary for proper sequencing of the Work.

1.10 WARRANTY

A. General Warranty: The warranties specified herein shall not deprive the OWNER of other rights the OWNER may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the CONTRACTOR under requirements of the Contract Documents.

B. Special Warranties:
   1. CONTRACTOR shall furnish a written special warranty. The special warranty shall provide for the replacement and / or the repair of poor or unsatisfactory workmanship, to include but not be limited to, wrinkles, blisters, stains, tears, punctures, or otherwise unsatisfactory appearance as determined by the OWNER. Said warranty shall be in effect for a minimum of four years from the date of final acceptance.
   2. The manufacturer shall also furnish a written special warranty. The special warranty shall be effective for a minimum of 15 years. The fifteen-year warranty shall provide for paying costs (materials and labor) of repair or replacement of the roofing system due to the following reasons:
      a. Deterioration of roofing resulting from ordinary wear and tear, bird damage, wind forces up to 90 mph, and severe hail damage as defined by Factory Mutual Research Corporation (FMRC) simulated hail damage tests.
      b. Workmanship on the part of the approved CONTRACTOR, in the application of the roofing system.
      c. Splits or breaks not caused by structural movement or movement of material underlying the roofing membrane or base flashing.
      d. Blisters, wrinkles, ridges, fishmouths, or open laps in the roof system.

1.11 OWNER'S INSTRUCTIONS

A. Provide the services of a qualified factory-trained manufacturer's representative to conduct training in repair and maintenance of roofing system in the following sessions:
   1. Maintenance - One (1) session consisting of:
      a. Classroom - Two (2) hours.
      b. Hands-on training – Two (2) hours.

1.12 MAINTENANCE

A. Provide the following repair parts:
   1. One (1) gallon of primer.
   2. One (1) gallon of sealant (base, intermediate, and top coats).
   3. Ten (10) pounds of granules.
   4. One standard repair kit.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer and Product – Primer:

1. United Coatings Primer 302
2. BASF FE 1601
3. Or approved equal.

B. Manufacturer and Product Polyurethane Foam Insulation:
1. BASF Elastospray 81305
2. Or approved equal.

C. Manufacturer and Product Sealant (base, intermediate, and top coat):
1. BASF Elastocote S-5000 Silicone

D. Manufacturer of Product – Granules:
1. #11 3M Ceramic.

2.2 MATERIALS

A. Polyurethane Foam Insulation:
1. The insulation manufacturer and the particular polyurethane foam system must be approved for use in a warranted roof system by the warranty provider.
2. Physical property requirements are as follows:
   a. Density, sprayed-in-place, pcf, min.: 2.8 ASTMD-1622
   b. Compressive strength, psi, min. 50 ASTM D-1621
   c. Closed-cell content, percent, min. 90 ASTM D-2856
   d. K-factor, aged, max 0.16 ASTM C-518
   e. Dimensional Stability, 28 days, +0.69 ASTM D-2126 Percent volume change, max.
   f. Flame spread, max. 75 ASTM E-84
3. Finished insulation system shall provide a minimum R-value of 22
4. Foam shall be placed in lifts of 1 ½" maximum thickness.
5. Minimum thickness of cured insulation at any point on the roof shall be 4".

B. Protective Coatings:
1. Protective coating shall be as approved by the foam manufacturer for use as the coating component of a sprayed polyurethane foam roof system. Coating shall consist of separately applied base, intermediate and finish coats.
2. Protective coatings shall serve as UV protection for foam waterproofing and provide a compound to hold granules that provides a walking surface.
3. The basecoat will meet the following:
   a. Minimum cured thickness: 20mils
   b. As supplied solids content, by weight: 82% (ASTM D-2369)
   c. As supplied solids content, by volume: 80% (ASTM D-5201)
   d. Dry Time to walk on: 20 minutes.
   e. As cured duromenter hardness: 65-70 (ASTM D-2240)
   f. As cured tensile strength: 1000 psi (ASTM D-412)
   g. As cured elongation, percent: 500 (ASTM D-412)
4. The intermediate and topcoat will meet the following:
   a. Minimum cured thickness: 25 mils total (refer to paragraph 3.3G.2.)
   b. As supplied solids content, by weight: 75% (ASTM D-2369)
   c. As supplied solids content, by volume: 65% (ASTM D-5201)

d. Dry Time to walk on: 2 hours.
e. As cured durometer hardness: 90-95 (ASTM D-2240)
f. As cured tensile strength: 2500 psi (ASTM D-412)
g. As cured elongation, percent: 400 (ASTM D-412)

C. Granules
1. Granules shall be siliceous mineral granules, 98 percent passing the No. 10 sieve and 98 percent retained on the No. 35 sieve. Granules shall be free of fines and dust. One-color granule surfacing shall be used, and the granule color shall be compatible with the color of the final coat. Color shall be selected to best match topcoat.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that all surfaces to receive polyurethane foam insulation are clean, dry and free of dust, dirt, debris, oil, solvents and all materials that may adversely affect the adhesion of the polyurethane foam.

B. Verify that all penetrations are properly installed and secured.

C. Do not begin applying polyurethane foam insulation until substrate and environmental conditions are satisfactory.

D. Site Verification of Conditions:
1. CONTRACTOR shall examine the substrate and the surface conditions to receive roofing and associated Work and ascertain the conditions under which the Work will be performed.
2. Notify the ENGINEER in writing of unsatisfactory conditions.
3. Do not proceed with roofing and associated work until unsatisfactory conditions have been corrected in a manner acceptable to the OWNER and the ENGINEER.

3.2 PREPARATION

A. Metal surfaces must be free from rust, corrosion, dirt, grease, and any other material, which could interfere with proper adhesion. Surfaces shall be sand blasted in accordance with SSPC-SP10 Commercial Blast Cleaning with a minimum anchor pattern of 1.5 mils. Where sandblasting is not possible, all rust must be removed with power equipment or by wire brushing and use of a liquid rust remover.
1. Primer - Install primer per manufacturer's recommendations. Make sure all surfaces are clean and dry prior to primer and/or polyurethane foam application.

3.3 APPLICATION

A. Neither the coating nor the polyurethane foam shall be applied during periods of inclement weather (rain, snow, fog, and mist).

B. Do not apply the polyurethane foam when substrate or ambient air temperatures are below 60°F unless specifically approved in writing by the polyurethane foam manufacturer and ENGINEER.

C. Do not apply polyurethane foam or coatings when temperature is below 60°F and/or above 85% relative humidity.

D. Windscreens shall be used during the application of polyurethane foam and coatings to prevent overspray onto surfaces not intended to receive foam and coating. Under no circumstances shall the polyurethane foam or coating be applied when wind speeds exceed 10 miles per.

E. Primer:
   1. Insulation Subcontractor to power wash the primed surface to remove dust, dirt and debris. Insulation subcontractor to reapply primer as necessary prior to application of foam insulation.
   2. Apply as recommended by the coating manufacturer.

F. Polyurethane Foam Application:
   1. Inspection:
      a. Prior to polyurethane foam application, inspect the substrate surface to ensure preparation requirements have been met.
      b. Polyurethane foam shall not be applied unless the environmental requirements described herein are met.
   2. Application:
      a. General application shall be in accordance with roofing system manufacturer's instructions.
      b. Protect the building structures; cover guides, valves, equipment and other surfaces adjacent to the work from overspray from foam and coating materials. Protective coverings shall be secured and vented to prevent collection of moisture on covered surfaces. Use protective shields or barriers when spraying along open roof edges and walls to prevent uncontrolled overspray. Any surfaces damaged by roof system products shall be restored or replaced to the satisfaction of the ENGINEER at no additional expense to the OWNER.
      c. CONTRACTOR shall take necessary precautions during roofing installation to assure and maintain the roofing system appearance. Final acceptance of the roofing system shall include inspection for appearance and finish of the completed system by the OWNER. CONTRACTOR shall take whatever action is necessary to correct unacceptable appearances or finishes.
      d. Post warning signs at ground level adjacent to the work area a minimum of 150 feet from the application area stating the area is off limits to unauthorized persons and warning of potential overspray hazard.
      e. Close or tape off any vents or openings during foam and spray application
      f. Application shall be as specified and in general accord with requirements and recommendation as ASTM D 5469.
      g. Apply foam to provide a minimum finished thickness as required by the foam manufacturer to obtain the minimum R-value rating, but in no case shall the total cured thickness of the foam insulation be less than 4 inches. Apply each spray pass at right angles to the previous pass to the extent practicable. Check foam thickness during application by probing depth with probe wire. Adjust application procedures as necessary to develop required foam thickness.

h. Transition between horizontal and vertical surfaces shall be smooth and sprayed at a nominal angle of 45°. Foam shall be uniformly terminated a minimum of 4" above the roofline at all curb, stack, pipe and other vertical penetrations in the roof.

i. The finished surface of applied foam shall be smooth and free of ridges, bumps, pinholes, depressions, crevices, voids or oxidation and shall be "orange peel" or smoother in conformance with photographic standards of ASTM D 5469. Soft, spongy, delaminating, brittle or otherwise non-complying areas of foam shall be removed and replaced.

j. Do not start foam application on an area larger than can be brought to the specified full foam thickness, cured and coated with the base coat of the coating system on the same day. No applied foam, except for leading edges shall stand uncoated overnight. Inspect the leading edge of foam before resuming work the next day. Remove and replace damaged or wet foam material.

k. Cure the applied foam for a minimum of 2 hours and as otherwise recommended by the foam manufacturer prior to application of the protective coating.

G. Protective Coating System:

1. Inspection:

a. Prior to the application of protective coating, inspect the polyurethane foam surface to ensure the conditions described herein have been met.

b. The polyurethane foam surface shall be free of moisture, dust, dirt, debris and other contaminants that would impair the adhesion of the protective coating.

2. Application:

a. The protective basecoat shall be applied on the same day as the polyurethane foam application, after the polyurethane foam has been allowed to cure for a minimum of two hours.

b. Apply the basecoat in a uniform application to achieve a finished dry film thickness of approximately 20 mils.

c. The basecoat shall not be subjected to foot traffic or otherwise disturbed until it is tack-free.

d. After it has cured, inspect the coating for pinholes, cracks, thin areas or other defects. All defects observed shall be caulked with sealant and/or roller coated with additional basecoat prior to applying subsequent coats of protective coating. The basecoat must be cured, clean and free of all moisture prior to application of intermediate coat.

e. Apply an intermediate coat in a contrasting color to the basecoat within 48 hours of the basecoat application. The intermediate coat application shall be made at right angles to the basecoat application. Surface texture and conditions may require additional quantities of coating to ensure a minimum of 20 dry mils.

f. The intermediate coat shall be applied a minimum of 2 inches beyond all the terminated edges of the polyurethane foam. These terminations should be masked to provide a straight edge, with a neat, finished appearance.

g. Allow the intermediate coat to cure and inspect the finished coating surface for pinholes, cracks, thin areas, or other defects. Repair any defects observed with polyurethane sealant and/or additional polyurethane coating material.

h. Apply a topcoat. Topcoat shall be applied in a contrasting color and uniform application to achieve a minimum total finished dry film thickness of the basecoat, intermediate and topcoat of 45 mils.

i. It is the applicator's responsibility to ensure the minimum total dry film thickness specified is achieved throughout the entire roof area regardless of the quantity of liquid coating required.

H. Granule Surfacing

1. Apply granules to intermediate and top finish layers of protective coating. Add granules within 2 to 5 minutes after application of coating, depending on temperature and humidity, as required by roof coating manufacture's printed installation instructions. Spray applicator equipment shall be a sand blaster with output pressure reduced to 10 to 20 psi. Apply granules to surface evenly at a rate of 50 pounds per 100 square feet. Granules shall provide full coverage of the roof surface. Bare spots shall be covered by applying additional finish coat and granules. Do not allow traffic on finished areas for a minimum 24 hours after granule applications completed.

I. Penetrations

1. Apply an additional 10 mil finish coat a minimum of 3 feet around all roof access locations and all penetrations.

3.4 FIELD QUALITY CONTROL

A. The CONTRACTOR shall submit to the ENGINEER a listing of any deficient roof areas, such as: ponding, wet insulation, deck problems, etc.

B. Core samples of the insulation coating system shall be secured at completion by an Independent Inspection Firm at a rate of two cores per tank top, to test for foam thickness, compressive strength, density, and adhesion. Additionally, slit samples shall be taken at a rate of 4 per cover, to test the coating thickness and coating adhesion. Sampled areas shall be repaired using polyurethane sealant and replacement foam cores, to be finished with topcoat. Certified copies of test results by the Independent Inspection Firm shall be submitted to ENGINEER. All samples and testing costs shall be paid by CONTRACTOR.

C. CONTRACTOR's quality control during application shall consist of the following, as a minimum:

1. The primer application rate shall be verified by a wet mil gauge test onto a metal test panel.
2. Insulation thickness shall be verified with a probe at frequent and random locations.
3. Thickness and adhesion of the insulation shall be examined by removing cores at a rate of 2 per tank top.
4. After and during coating application, the CONTRACTOR shall remove slits to examine adhesion of the coating to the insulation and the dry millage of applied polyurethane coating.

D. Independent Inspection Firm shall visit the job site and inspect all insulated digester covers and submit a certified inspection report documenting all deficiencies and recommendation for corrections. All inspection and report costs shall be paid by CONTRACTOR.

E. Submit copies of all field quality control tests to ENGINEER.

3.5 CLEANING

A. Comply with Division 1, General Requirements.

3.6 PROTECTION

A. Protect installed insulation from damage due to harmful weather exposures, or abuse from other Work until final acceptance.

B. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07 25 41

NOTES:

1. UNLESS NOTED OTHERWISE, SURFACE PREPARATION AND COATING SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS SECTION 098000.
2. ALL COLORS SHALL BE SELECTED BY OWNER, PIPE LABELING AND COLOR CODING SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS SECTION 220553.
3. WHERE AN ITEM IS NOT SPECIFICALLY INCLUDED IN THE TABLE, REFER TO TECHNICAL SPECIFICATIONS SECTION 098000. WHERE ONE OR MORE COATING SYSTEM APPEAR TO BE APPLICABLE BASED ON GENERAL DESCRIPTION, THE MORE STRINGENT (ROBUST) COATING SHALL BE USED (FOLLOWING REVIEW AND APPROVAL BY THE ENGINEER).
4. CONCRETE SURFACE FINISH SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS SECTION 033000.
5. FOR ARCHITECTURAL FINISHES AND COATING REQUIREMENTS SEE TECHNICAL SPECIFICATION 09900.

COATING SCHEDULE

AREA	ITEM	COATING
SNAIL TRAP		
	EXTERIOR CONCRETE WALLS BELOW GROUND	NO COATING REQUIRED
	EXTERIOR CONCRETE WALLS ABOVE GROUND	NO COATING REQUIRED
	INTERIOR WALLS	NO COATING REQUIRED
	CONCRETE SLABS/FLOOR	NO COATING REQUIRED
	STAINLESS STEEL GATES	NO COATING REQUIRED
	GRIT EQUIPMENT	FACTORY FINISH - NO COATING REQUIRED
MBBR BASINS		
	EXTERIOR CONCRETE WALLS BELOW GROUND	NO COATING REQUIRED
	EXTERIOR CONCRETE WALLS ABOVE GROUND	NO COATING REQUIRED
	INTERIOR CONCRETE WALLS	NO COATING REQUIRED
	CONCRETE SLABS/FLOOR	NO COATING REQUIRED
EXISTING FINAL CLARIFIER		
	SUBMERGED CONCRETE WALLS	NO COATING REQUIRED
	SUBMERGED CONCRETE SLABS/FLOOR	NO COATING REQUIRED
	LAUNDER CONCRETE WALLS AND FLOOR	COAT PER TECHNICAL SPECIFICATION SECTION 099657
	CLARIFIER MECHANISM	COATING SYSTEM 104
	V-NOTCH WEIR	NO COATING REQUIRED
GRAVITY THICKENER		
	SUBMERGED CONCRETE WALLS	NO COATING REQUIRED
	SUBMERGED CONCRETE SLABS/FLOOR	NO COATING REQUIRED
	LAUNDER CONCRETE WALLS AND FLOOR	COAT PER TECHNICAL SPECIFICATION SECTION 099657
	GRAVITY THICKENER MECHANISM	COATING SYSTEM 104
	V-NOTCH WEIR	NO COATING REQUIRED
DIGESTER BUILDING 3		
	EXTERIOR CONCRETE WALLS BELOW GROUND	NO COATING REQUIRED
	EXTERIOR CONCRETE WALLS ABOVE GROUND	NO COATING REQUIRED
	INTERIOR CONCRETE SLABS/FLOOR	NO COATING REQUIRED
	DOUBLE TEE ROOF SYSTEM	NO COATING REQUIRED
	INTERIOR DIGESTER TANK CONCRETE WALLS	COAT TOP 6 FT OF THE INTERIOR CONCRETE WALL PER TECHNICAL SPECIFICATION SECTION 099655
	DIGESTER LID EXTERIOR	COAT PER TECHNICAL SPECIFICATION SECTION 072541
	DIGESTER LID INTERIOR	COATING SYSTEM 106B
DEWATERING BUILDING		
	EXTERIOR CONCRETE WALLS BELOW GROUND	NO COATING REQUIRED
	EXTERIOR CONCRETE WALLS ABOVE GROUND	NO COATING REQUIRED
	INTERIOR CONCRETE SLABS/FLOOR	NO COATING REQUIRED
	DOUBLE TEE ROOF SYSTEM	NO COATING REQUIRED
	MONORAIL CRAIN SYSTEM	NO COATING REQUIRED
	SCREW PRESS	FACTORY FINISH - NO COATING REQUIRED
	CONVEYORS	FACTORY FINISH - NO COATING REQUIRED

1

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/01/2024	BDP	CAL	BMR
REVISIONS				
1	04/19/2024	BDP	BDP	BMR

SOUTH DAVIS SEWER DISTRICT
NORTH PLANT UPGRADE

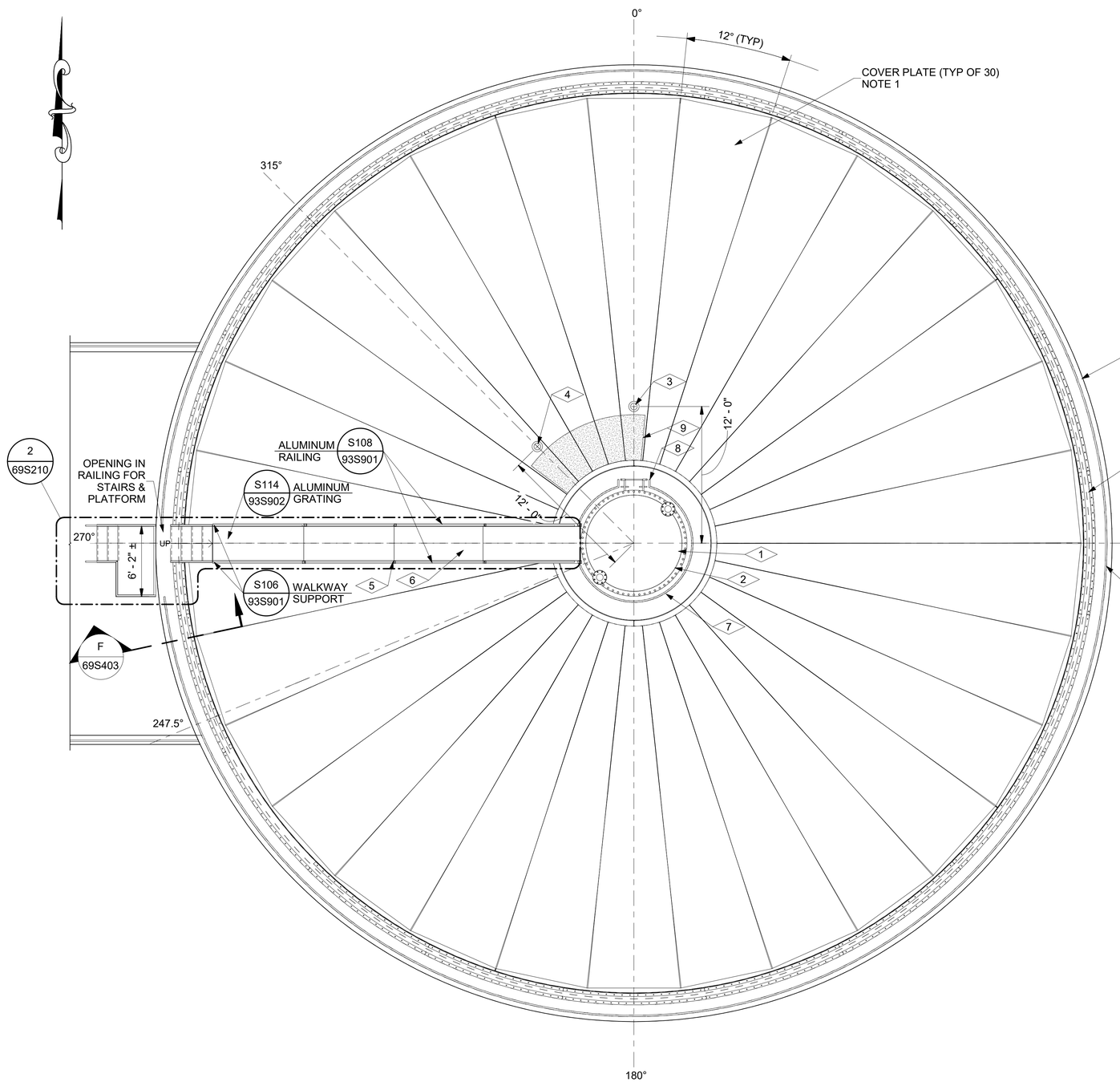
GENERAL
COATING SCHEDULE

AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
G020

SHEET

4/19/2024 C:\USERS\BRETT.PRATT\DC\ACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\000 GENERAL\G019, G020 - COATING SCHEDULE.DWG



DIGESTER LID PLAN

3/16" = 1'-0"

0 4 8

Scale in Feet

NOTES:

1. DESIGN BASIS FIXED LID SHOWN FOR REFERENCE. CONTRACTOR TO CONFIRM DIMENSIONS, LAYOUT, & INSTALLATIONS REQ'S W/ SUPPLIER & PROVIDE FORMAL SUBMITTAL FOR ENGINEERS REVIEW & APPROVAL.
2. CONTRACTOR TO COORDINATE MIXER PORT OPENING & MOUNTING REQUIREMENTS W/ LID SUPPLIER & MIXER SUPPLIER.
1 3. CONTRACTOR SHALL COAT INTERIOR OF FIXED STEEL LID PER THE SYSTEM REQUIREMENTS INDICATED IN THE TECHNICAL SPECIFICATIONS AND FINISH SCHEDULE ON SHEET G020.
4. CONTRACTOR SHALL FURNISH AND INSTALL ROOF INSULATION SYSTEM FOR THE FIXED STEEL LID AS INDICATED IN THE TECHNICAL SPECIFICATIONS AND FINISH SCHEDULE ON SHEET G020.

KEYNOTES:

1. Ø 8'-6" COMPRESSION RING W/ GASKET & (4) LIFTING HANDLES(SEE NOTE 2).
2. Ø 9'-4" MIXER PORT COVER PLATE (SEE NOTE 2).
3. 4"Ø FLANGED NOZZLE FOR P-RELIEF VALVE.
4. 6"Ø FLANGED NOZZLE FOR GAS COLLECTION PIPING.
5. PROVIDE GRATING SUPPORTS AT MAX SPACING OF 8'-0" O.C. COORDINATE FINAL PLACEMENT & LOCATION BETWEEN LID SUPPLIER & GRATING SUPPLIER.
6. INSTALL ALUMINUM GRATING WALKWAY ELEVATED MIN 6" ABOVE TOP OF LID INSULATION.
7. COORDINATE HANDRAIL AROUND MIXER PLATFORM W/ LID SUPPLIER.
8. PROVIDE OPENING W/ LADDER ACCESS TO ROOF ELEVATION. COORDINATE W/ LID AND MIXER SUPPLIER.
9. SINGLE-PLY WALKWAY 4' WIDE ATTACHED TO DIGESTER LID INSULATION PER MANUFACTURE'S RECOMMENDATIONS.

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/01/2024	EES	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED
1	04/19/2024	EES	BDP	BMR

SOUTH DAVIS SEWER PLANT

-

NORTH PLANT UPGRADE

PRIMARY DIGESTER BUILDING/DIGESTER STRUCTURAL LID PLAN

AQUA ENGINEERING

DRAWING NO.

69S204

SHEET

CONCRETE NOTES:

1. ALL WORK PERTAINING TO CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318, ACI 301, AND THE PROJECT SPECIFICATIONS.
2. ALL STRUCTURAL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI AIR. ALL CONCRETE FOR THRUST RESTRAINT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2500 PSI.
3. NO CONCRETE SHALL BE PLACED WITH A SLUMP IN EXCESS OF 4 INCHES.
4. THE CONTRACTOR SHALL SUBMIT A CONCRETE MIX DESIGN FOR APPROVAL AT LEAST 10 WORKING DAYS BEFORE PLACING ANY CONCRETE PRODUCED WITH THAT MIX DESIGN.
5. AGGREGATE FOR CONCRETE SHALL CONFORM TO ALL THE REQUIREMENTS AND TESTS OF ASTM C33 AND PROJECT SPECIFICATIONS. MAXIMUM AGGREGATE SIZE SHALL BE 1 INCH.
6. ANY USE OF HIGH-EARLY CONCRETE SHALL BE CONTINGENT ON ENGINEER'S APPROVAL WHICH SHALL BE BASED ON TIMELY SUBMITTAL OF MIX DESIGN PRIOR TO PLACEMENT.
7. ALL CONCRETE PLACEMENTS SHALL BE SCHEDULED AT LEAST 24 HOURS IN ADVANCE TO ALLOW SCHEDULING OF FIELD TESTING. ALL CONCRETE TESTING SHALL BE PROVIDED BY THE CONTRACTOR. THE OWNER MAY ELECT TO PERFORM SUPPLEMENTARY TESTING.
8. EXCEPT AS OTHERWISE NOTED, EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS.
9. ALL REINFORCING STEEL DOWELS, ANCHOR BOLTS, AND OTHER INSERTS OR EMBEDMENTS SHALL BE SECURED IN POSITION PRIOR TO PLACING CONCRETE.
10. CONCRETE SHALL NOT BE ALLOWED TO DROP MORE THAN 6 FEET VERTICALLY DURING PLACEMENT. TREMIE HOSES AND CHUTE EXTENSIONS SHALL BE USED TO ALLOW CONCRETE TO BE PLACED AS CLOSE TO ITS FINAL RESTING POSITION AS POSSIBLE.
11. INTERNAL VIBRATORS SHALL BE USED TO CONSOLIDATE ALL PLACED CONCRETE. VIBRATORS SHALL NOT BE USED TO TRANSPORT CONCRETE.
12. ALL CONCRETE WALLS SHALL BE ALLOWED TO CURE A MINIMUM OF 21 DAYS OR REACH A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI BEFORE BACKFILLING.
13. ALL CONCRETE THRUST BLOCKS, COLLARS, OR RESTRAINTS SHALL BE ALLOWED TO CURE A MINIMUM OF 3 DAYS BEFORE BACKFILLING. ALL THRUST RESTRAINTS MUST BE INSPECTED AND APPROVED BY THE ENGINEER BEFORE BACKFILLING.
14. ALL CONCRETE SHALL BE PROPERLY AND ADEQUATELY PROTECTED AND CURED AS FOLLOWS:

    TEMPERATURE - THE TEMPERATURE OF THE CONCRETE SHALL BE MAINTAINED BETWEEN 50 AND 70 DEGREES FAHRENHEIT FOR A MINIMUM OF 7 DAYS. THIS MAY REQUIRE HEATING AND/OR COOLING OF CONCRETE.

    MOISTURE - ALL CONCRETE SURFACES, HORIZONTAL AND VERTICAL SHALL BE KEPT MOIST FOR A MINIMUM OF 7 DAYS AFTER PLACEMENT. CURING COMPOUNDS MAY ONLY BE USED WITH WRITTEN PERMISSION OF THE ENGINEER.

15. CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS BUT PROPOSED BY THE CONTRACTOR SHALL BE LOCATED AND DETAILED ON CONTRACTOR DRAWINGS AND SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE.
16. ALL CONCRETE MIX DESIGNS SHALL BE FOR ACI EXPOSURE S2 AND EXTERIOR FLAT WORK SHALL ALSO BE FOR ACI EXPOSURE F2.
17. USE XYPEX BIO-SAN C-500 IN HEADWORKS BUILDING FOUNDATION, WALLS, AND BASE SLABS AT THE RATE OF 1% BY WEIGHT OF CEMENT OR AS SPECIFIED BY XYPEX.

EARTHWORK:

1. SEE THE PROJECT SPECIFICATIONS FOR GRADATION AND COMPACTION REQUIREMENTS FOR BEDDING, BACKFILL, BASE COURSE, A.C. PAVEMENT AND CRUSHED ROCK SURFACE COURSES. TOWN OF JOHNSTOWN CONSTRUCTION STANDARDS MUST BE FOLLOWED. IN THE EVENT OF CONFLICTS BETWEEN TOWN OF JOHNSTOWN STANDARDS AND THESE PROJECT PLANS AND SPECIFICATIONS; THE TOWN OF JOHNSTOWN STANDARDS WILL TAKE PRECEDENCE.
2. ALL TRENCHES AND EXCAVATIONS SHALL BE CUT, PROTECTED AND SUPPORTED AS PRESCRIBED BY OSHA.
3. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND MAINTAIN ANY EQUIPMENT NECESSARY TO DEWATER EXCAVATIONS.
4. DEWATERING OF TRENCHES MAY BE REQUIRED. THE CONTRACTOR IS RESPONSIBLE TO KEEP ALL EXCAVATIONS FREE OF STANDING WATER.
5. STOCKPILE AND STAGING AREAS MUST BE ESTABLISHED AND RESERVED BY THE CONTRACTOR.
6. ALL BACKFILL AND COMPACTION OF FILL MATERIAL AROUND AND UNDER THE STRUCTURES SHALL BE ACCORDING TO THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS AND SPECIFICATIONS.
7. THE SITE SHALL BE CLEARED OF ALL GRASSES, SHRUBS, TREES, AND ROOTS. TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR REUSE ON FILL SLOPES, AND DISTURBED NON-TRAFFIC AREAS. SIDE SLOPES SHALL BE LAID BACK AT SLOPES NO STEEPER THAN 3:1 UNLESS SPECIFICALLY NOTED.

ADHESIVE ANCHORS FOR CONCRETE:

1. ANCHOR EMBEDMENT AND NOMINAL DIAMETER OF STUD SHALL BE AS SHOWN ON DRAWINGS.
2. ADHESIVE STUD ASSEMBLIES SHALL CONSIST OF A THREADED STUD, FLAT WASHER, AND HEX NUT. USE F1554, GR 36 THREADED RODS OR A193, GRADE B8M (A316) STAINLESS STEEL THREADED RODS.
3. OTHER ADHESIVE ANCHORING SYSTEMS SHALL ONLY BE USED WITH THE APPROVAL OF THE ENGINEER.
4. SIMPSON ADHESIVE SYSTEMS:
   IN CONCRETE: SET -3G
   IN MASONRY: SET-XP
5. NUTS SHALL CONFORM TO ASTM A 563, AMERICAN STANDARD HEAVY HEX, OR ASTM F594 FOR STAINLESS STEEL APPLICATIONS.
6. FLAT WASHERS SHALL CONFORM TO ASTM F 435 OR A316 FOR STAINLESS STEEL.
7. GALVANIZED STUDS, WHERE CALLED FOR, SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A 123. UNLESS NOTED OTHERWISE NUTS AND WASHERS SHALL BE SUPPLIED WITH A HOT DIP GALVANIZED FINISH. BOLTS AND NUTS SHALL HAVE THEIR THREADS CHASED AFTER GALVANIZING.
8. STUD PROTECTION FROM FACE OF CONCRETE SHALL BE DETERMINED BY THE CONTRACTOR, CONSIDERING THE THICKNESS OF THE GROUT, THICKNESS OF THE MATERIAL THROUGH WHICH THE BOLT MUST PROJECT, WASHER THICKNESS, NUT THICKNESS, PLUS A MINIMUM OF 1/4" PROJECTION BEYOND THE FACE OF NUT.
9. DRILL TYPE, HOLE DIAMETER AND PREPARATION SHALL BE AS REQUIRED BY THE ADHESIVE SYSTEM MANUFACTURER.
10. SPECIAL INSPECTION, IN ACCORDANCE WITH THE REQUIREMENTS OF IBC 2021, IS REQUIRED DURING INSTALLATION OF ALL STUD BOLTS.
11. CONCRETE SHALL HAVE THE DESIGNATED COMPRESSIVE STRENGTH OR HIGHER AT THE TIME ANCHORS ARE INSTALLED.

CONCRETE REINFORCING STEEL:

1. REINFORCING BARS SHALL BE DEFORMED BARS CONFORMING TO ASTM A615 GRADE 60, UNCOATED AND SHALL BE FREE FROM ALL DIRT, OILS AND SCALEY RUST.
2. ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED AND SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF THE "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE," ACI 318, THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES," ACI 315, AND ACI 350.
3. ALL REINFORCING SHALL BE SECURELY TIED AND BRACED IN PLACE PRIOR TO POURING CONCRETE.
4. UNO PROVIDE CONTINUOUS REINFORCEMENT WHERE POSSIBLE. REINFORCING BARS MARKED CONTINUOUS SHALL BE SPLICED WITH A LAP ACCORDING TO THE LAP SPLICE CHARTS.
5. BAR SUPPORTS IN CONTACT WITH EXPOSED SURFACES SHALL BE PLASTIC TIPPED.
6. BEAM AND SLAB REINFORCING SHALL NOT BE SLEEVED OR OTHERWISE INTERRUPTED EXCEPT AS SHOWN ON THE STRUCTURAL DRAWINGS.
7. CONTRACTOR SHALL SUBMIT REINFORCEMENT MILL TEST REPORTS FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT.
8. CONTRACTOR SHALL SUBMIT REINFORCING BAR LAYOUTS AND DETAILS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. REINFORCEMENT AND EMBEDMENTS SHALL BE ACCURATELY POSITIONED AND SECURED AGAINST DISPLACEMENT PRIOR TO PLACING CONCRETE. PROVIDE SUFFICIENT SUPPORTS TO PREVENT DAMAGE OR DISPLACEMENT DUE TO CONSTRUCTION TRAFFIC ON REINFORCEMENT.
9. IT IS THE RESPONSIBILITY OF THE REINFORCING BARS SUBCONTRACTOR TO REVIEW THE CONTRACT DRAWINGS. SHOP DRAWINGS MUST INDICATE ALL PENETRATIONS LARGER THAN 6 INCH DIAMETER AND PROVIDE THE NECESSARY TRIM REINFORCEMENT.
10. BEFORE ANY CONCRETE IS PLACED, IN-PLACE REINFORCING STEEL SHALL BE INSPECTED BY THE DISTRICT REPRESENTATIVE. ANY ERRORS OR DISCREPANCIES SHALL BE CORRECTED BEFORE CONCRETE IS PLACED. NOTIFY THE ENGINEER OR OWNER'S REPRESENTATIVE NOT LESS THAN 72 HOURS BEFORE REINFORCING STEEL INSPECTION IS REQUIRED.
11. NO WELDING OF REINFORCING BARS IS ALLOWED.
12. LAP SPLICES OR REINFORCING SHALL BE ACCORDING TO THE LAP SPLICE.

LAP SPLICE TABLE

CONCRETE

BAR	LAP SPLICE
4	15"
5	19"
6	22"
7	33"
8	37"

MASONRY

BAR	LAP SPLICE
4	21"
5	26"
6	39"

HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE CAST BELOW BARS

BAR	LAP SPLICE
4	20"
5	24"
6	29"
7	42"
8	48"

MASONRY NOTES:

1. DESIGN, MATERIALS, CONSTRUCTION AND WORKMANSHIP SHALL CONFORM TO ACI 530.
2. COMPRESSIVE DESIGN STRENGTH OF THE MASONRY SYSTEM SHALL BE 4000 PSI MINIMUM AT 28 DAYS.
3. MASONRY SHALL CONSIST OF HOLLOW, LOAD BEARING ATLAS BRICK PLACED IN A RUNNING BOND PATTERN WITH NOMINAL DIMENSIONS OF 10x4x16 UNO.
4. MORTAR SHALL BE TYPE "S" OR "M", MECHANICALLY MIXED 3 TO 10 MINUTES, KEPT ELASTIC, USED WITHIN 2.5 HOURS OF INTRODUCING WATER AND CONFORM TO ASTM C270. JOINTS SHALL BE 3/8 INCHES WIDE WITH FULL COVERAGE AND TOOLED.
5. GROUT SHALL HAVE 8" TO 10" SLUMP WITH 3/8" MAXIMUM COARSE AGGREGATE, COMPRESSIVE STRENGTH OF 4000 PSI MINIMUM AT 28 DAYS AND CONFORM TO ASTM C476. GROUT SHALL BE PLACED IN ALL UNIT CELLS (GROUTED SOLID) AND BE MECHANICALLY VIBRATED IN 4'-0" MAXIMUM LIFTS WITH JOINTS 1 1/2" BELOW MORTAR JOINTS.
6. REINFORCING STEEL (REBAR) SHALL BE NEW STOCK DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60. REBAR SHALL BE CONTINUOUS AT INTERSECTIONS AND CORNERS. SPLICES SHALL BE 72 BAR DIAMETERS. PLACEMENT TOLERANCES SHALL BE ±1/2" FOR 8" UNITS ±3/4" FOR WIDER UNITS. MINIMUM CLEAR SPACING BETWEEN REBAR AND BASE OF UNIT SHALL BE 1/2".
7. ANCHOR RODS (BOLTS) SHALL CONFORM TO ASTM F1554, GRADE 36, HAVE A WASHER AND NUT EXPOSED AND A HEAD OR NUT EMBEDDED. OTHER EMBEDDED ITEMS SHALL CONFORM TO ASTM A36. EXPOSED EMBEDDED METALS SHALL BE GALVANIZED PER ASTM A123.
8. WALLS SHALL HAVE THE FOLLOWING REBAR, UNO: (1) #5 VERTICAL CENTERED IN WALL PLACED FROM SUPPORT TO SUPPORT, AT EACH CORNER, EACH SIDE OF OPENINGS, AT END OF WALLS AND AT 32 INCHES MAXIMUM ALONG WALLS. VERTICAL REBAR SHALL EXTEND INTO A FOUNDATION OR BE SPLICED TO A MATCHING FOUNDATION DOWEL. (2) #4 PLACED HORIZONTAL AT TOP AND BOTTOM OF WALL OPENING EXTENDING 36 INCHES PAST OPENING FACE, AND PLACED CONTINUOUS AT TOP OF WALLS, ROOF AND FLOOR LEVELS AND AT 4'-0" MAXIMUM VERTICAL SPACING.
9. VERTICAL WALL CONTROL JOINTS AS SHOWN ON DRAWINGS. MASONRY JOINT SEALANT SHALL BE DYMERIC 511 BY TREMCO OR EQUAL.
10. COLD WEATHER (BELOW 40 DEGREES F) AND HOT WEATHER (ABOVE 90 DEGREES F) MASONRY CONSTRUCTION SHALL CONFORM TO "SPECIFICATION FOR MASONRY STRUCTURES" BY MSJC, SECTION 1.8. HOT AND COLD WEATHER CONTRACTOR SUBMITTED PROCEDURES SHALL BE APPROVED PRIOR TO PLACEMENT.
11. VARIATION TOLERANCES: SURFACE PLUMB - 1/4" IN 10 FEET AND 1/2 INCH IN 40 FEET. COURSE LEVELNESS - 1/4" INCH IN 20 FEET AND 1/2 INCH IN 40 FEET. BUILDING LINES - 1/2 INCH IN 20 FEET AND 3/4 INCH IN 40 FEET.
12. SURFACE RESIDUE SHALL BE REMOVED PROMPTLY ALLOWING NO LASTING MARKS.
13. ALL REINFORCING SHALL BE PLACED ON CENTERLINE OF CELL UNLESS NOTED OTHERWISE.
14. CLEAR COVER IS 2" TO OUTSIDE OF MASONRY FOR CELLS AND COURSES WITH TWO BARS.

ALUMINUM NOTES:

1. ALL FRAMING MEMBERS AND PLATE ARE 6061-T6 ALUMINUM, UNLESS NOTED OTHERWISE.
2. FABRICATE ACCORDING TO ALUMINUM ASSOCIATION'S ALUMINUM DESIGN MANUAL.
3. USE ALUMINUM 6061-T6 BOLTS, OR A316 STAINLESS STEEL BOLTS WHERE SHOWN.
4. DO NOT WELD ALUMINUM UNLESS NOTED OTHERWISE ON DRAWINGS.
5. WELD ALUMINUM ACCORDING TO AWS D1.2.
6. USE LARGE WASHERS UNDER BOLT AND NUT HEADS.

LUMBER NOTES:

1. DOUG FIR/LARCH LUMBER #2 (OR BETTER).
2. DOUG FIR/LARCH LUMBER #2 (OR BETTER) PRESSURE TREATED SILL PLATES.
3. USE COMMON NAILS.
4. USE SHEATHING GRADE OSB (OR PLYWOOD) WITH EXTERIOR GLUE, EXPOSURE 1.
5. INSTALL SIMPSON TIES, STRAPS AND ANCHORS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR MAXIMUM LOADING.
6. NAIL AND FRAMING SCHEDULE ACCORDING TO THE IBC 2021 CODE.
7. WALL AND CEILING SHEETING: USE 1/2" OSB OR PLYWOOD, NAILED WITH 1 1/2" 16 GA STAPLES (WITH 7/16" CROWN) @ 6" EDGES, 12 " FIELD, FULLY BLOCKED UNO.

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED
ORIGINAL				
B	04/01/2024	EIT	CAL	BMR
REVISIONS				
1	04/19/2024	EIT	BDP	BMR

SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

GENERAL STRUCTURAL GENERAL NOTES

AQUA
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PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

G016

SHEET

C:\USERS\BRETT PRATT\DOCUMENTS\ACCDOCS\AQUA ENGINEERING\001709 C SDSD NORTH PLANT UPGRADE\PROJECT FILES\000 GENERAL\G015 - STRUCTURAL NOTES.DWG

3/26/2024

DRAWING INDEX

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01C204	33	SITE PAVING AND GRADING PLAN
01C205	34	SITE PAVING AND GRADING PLAN
01C206	35	SITE PAVING AND GRADING PLAN
01C207	36	SITE PAVING AND GRADING PLAN
01C208	37	SITE PAVING AND GRADING PLAN
01C209	38	SITE PAVING AND GRADING PLAN
01C210	39	SITE PAVING AND GRADING PLAN
01C211	40	SITE PAVING AND GRADING PLAN
01C212	41	SITE PAVING AND GRADING PLAN
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01C907	81	PIPE CONNECTIONS
01C908	82	MANHOLES
01C909	83	MANHOLES
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08G107	97	PHOTOS
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08S401	99	DETAILS
		EXISTING HEADWORKS BUILDING
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09G202	101	LOWER LEVEL PLAN
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10S202	108	FOUNDATION PLAN
10S203	109	ROOF FRAMING PLAN
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10S403	122	SECTION
10S404	123	SECTION
10S405	124	SECTIONS
10S406	125	SECTIONS
10S407	126	SECTIONS
10S408	127	SECTIONS
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10S410	129	SECTION
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10S901	132	DETAILS
10S902	133	DETAILS
10S903	134	DETAILS
10S904	135	DETAILS
10S905	136	DETAILS
10S906	137	DETAILS
10S907	138	DETAILS
10S908	139	DETAILS
10S909	140	DETAILS
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DWG#	SHT#	HEADWORKS
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21S204	162	EFFLUENT BOX PLAN
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21S403	165	SECTIONS
21S404	166	SECTIONS
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33S204	202	PLAN
33S205	203	FOUNDATION PLAN
33S206	204	HANDRAIL PLAN
33S207	205	GRATING SUPPORT PLAN
33S208	206	STAIR PLAN
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DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

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SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

GENERAL INDEX

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

G002

SHEET

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NOTES:

1- SEE SHEET 01C407 FOR YARD PIPING SCHEDULE.

2- SEE SHEET 01C408 FOR EXISTING PIPING SCHEDULE.

3- PRESSURIZED PIPE, SEE SHEET 01C407 FOR DETAILS. BURY MIN OF 3' DEEP. 25-27 / -

6' MANHOLE
MH 1
24 01C506
MH 2
6' MANHOLE
SEE SHEET 01C402
EX CHEMICAL BUILDING
EX FUELING STATION
SEE SHEET 01C403
14 01C506
EX DRYING BEDS
DEWATERING BUILDING
EX DRYING BEDS
12 01C506
13 01C506
EX MAINTENANCE BUILDING
SEE SHEET 01C405
11 01C506
EX MAINTENACE BUILDING
9 01C506
EX OPERATOR SHOP
SEE SHEET 01C401
EX FINAL CLARIFIER 4
EX FINAL CLARIFIER 3
SEE SHEET 01C404
EX CHLORINE CONTACT BASIN
EX FINAL CLARIFIER DISTRIBUTION BOX
EX NPW BOOSTER PUMP STATION
FLARE
EX DIGESTER BUILDING 2
BIOGAS CONDENSATE VAULT
MH 9
EX CHLORINE CONTACT BASIN DISTRIBUTION BOX
EX FINAL CLARIFIER 2
EX FINAL CLARIFIER 1
EX ELECTRICAL BUILDING
EX GRAVITY THICKENER
EX DIGESTER 1
EX DIGESTER 2
10 01C506
EX DIGESTER BUILDING 1
34 01C511
DIGESTER BUILDING
DIGESTER
6' PRECAST MANHOLE
MH 3
42 -
43 -
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ELECTRICAL GEAR PAD
37 01C512
WES TECH LEASE AREA
16 01C506
5 01C501
4 01C501
1 01C501
FUEL TANK PAD
MH 4
MH 5
6' PRECAST MANHOLE
3" GAS
BLOWER BUILDING
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MBBR TANK 2
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EX TRICKLING FILTER 3
EX TRICKLING FILTER 2
33 01C511
6 01C506
CHEMICAL STORAGE
HEADWORKS
MH 6
MH 7
6' PRECAST MANHOLE
36 01C511
EX RAW SLUDGE PUMP STATION
20 01C506
28 01C509
MH 10
MH 10 (SIM)
15 01C506
29 01C510
29 01C510
21 01C506
8 01C502
EX PRIMARY CLARIFIER 1
23 01C506
EX DEGRITER
MH 8
3 01C501
35 01C511
2 01C501
6' PRECAST MANHOLE
30 01C510
31 01C510
29 01C510
7 01C502
41 01C513
29 01C510
EX PRIMARY CLARIFIER DISTRIBUTION BOX
EX PRIMARY CLARIFIER 2
18 01C506
22 01C506
17 01C505
19 01C505
EX TRICKLING FILTER 4
EX TRICKLING FILTER 1
SEE SHEET 01C406
PRIMARY CLARIFIER
EX PRIMARY CLARIFIER 3

OVERALL YARD PIPING PLAN

SCALE: 1"=40'-0"

0 40 80
Scale in Feet

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

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SOUTH DAVIS SEWER DISTRICT
NORTH PLANT UPGRADE
CIVIL
OVERALL YARD PIPING PLAN

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
01C400
SHEET

3/29/2024
C:\USERS\DEREK.HYDE\DCVACCDOCS\AQUA ENGINEERING\0017\09.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\001 SITE CIVIL\011-01C400 - OVERALL YARD PIPING PLAN.DWG

MATCHLINE SEE SHEET 01C403

MATCHLINE SEE SHEET 01C404

MATCHLINE SEE SHEET 01C406

PIPE 13 STA: 0+24.06 45° BEND

8" PD 26

PIPE 13 STA: 0+26.53 45° BEND

PIPE 12 STA: 0+18.90 45° BEND

PIPE 9 STA: 2+65.91 45° BEND

PIPE 13 STA: 0+18.26 45° BEND

PIPE 9 STA: 2+72.28 45° BEND

EX DIGESTER BUILDING 2

PIPE 10 STA: 0+09.44 45° BEND

PIPE 10 STA: 0+05.06 45° BEND

PIPE 9 STA: 1+48.74 45° BEND

PIPE 11 STA: 1+60.07 45° BEND

PIPE 9 STA: 1+35.66 45° BEND

PIPE 11 STA: 1+45.92 45° BEND

PIPE 11 STA: 0+89 45° BEND

PIPE 11 STA: 0+18.88 45° BEND

PIPE 10 STA: 1+24.95 45° BEND

PIPE 9 STA: 0+14.33 45° BEND

PIPE 11 STA: 0+76.34 45° BEND

PIPE 10 STA: 1+36.80 45° BEND

PIPE 9 STA: 0+78.95 45° BEND

PIPE 9 STA: 0+17.73 45° BEND

PIPE 10 STA: 1+93.41 45° BEND

PIPE 10 STA: 2+52.47 45° BEND

PIPE 9 STA: 0+65.28 45° BEND

PIPE 10 STA: 2+08.41 45° BEND

EX DIGESTER 1

EX DIGESTER 2

EX DIGESTER BUILDING 1

PIPE CONNECTION DETAIL 15 / 01C907

DIGESTER BUILDING

SEE DETAIL 2

DIGESTER

PIPE 10 STA: 2+54.54 45° BEND

20 / 01C908 MANHOLE 3

6' PRECAST MANHOLE

PIPE 5 STA: 1+90.03 22.50° BEND

PIPE 5 STA: 1+33.62 22.50° BEND

PIPE 6 STA: 0+02.68 22.50° BEND

PIPE 6 STA: 1+19.21 45° BEND

PIPE 6 STA: 1+26.54 45° BEND

PIPE 6 STA: 1+48.26 45° BEND

PIPE 5 STA: 3+30.13 45° BEND

EXISTING NG METER

PIPE 5 STA: 3+53.41 45° BEND

PIPE 6 STA: 1+56 45° BEND

HEADWORKS

PIPE 22 STA: 3+19.74 45° BEND

PIPE 21 STA: 1+88.27 45° BEND

PIPE 22 STA: 3+10.40 45° BEND

PIPE 21 STA: 1+78.49 45° BEND

PIPE 20 STA: 0+77.88 45° BEND

PIPE 22 2+37.15 TEE

EX RAW SLUDGE PUMP STATION

PIPE 23 STA: 2+57.66 45° BEND

PIPE 20 STA: 0+88.15 45° BEND

PIPE 23 STA: 2+50.05 45° BEND

PIPE 20 STA: 0+17.30 90° BEND

EX PRIMARY CLARIFIER 1

PIPE 3 STA: 0+55.77 45° BEND

PIPE 3 STA: 0+00 45° BEND

EX DEGRITER

PIPE 11 STA: 0+15.85 45° BEND

25 / 01C910 MANHOLE 9

4 / 01C902 BIO GAS CONDENSATE VAULT

DETAIL 2

GENERATOR PAD

42 / 01C512

43 / 01C512

ELECTRICAL GEAR PAD

TRANSFORMER VAULT

37 / 01C512

21 / 01C908 MANHOLE 4

MANHOLE 5 22 / 01C909

23 / 01C909 MANHOLE 6

6' PRECAST MANHOLE

MH 7

24 / 01C910 MANHOLE 8

NOTES:

1- SEE SHEET 01C407 FOR YARD PIPING SCHEDULE.

2- SEE SHEET 01C408 FOR EXISTING PIPING SCHEDULE.

3- PRESSURIZED PIPE, SEE SHEET 01C407 FOR DETAILS. BURY MIN OF 3' DEEP. 25-27 / -

KEYNOTES:

1- CONTRACTOR TO FIELD VERIFY PIPE SIZE AND PIPE TYPE. CONNECT WITH APPROPRIATE FITTING TYPE.

2- CONTRACTOR TO CONCRETE ENCASE EXISTING 30" PIPING UNDER DIGESTER BUILDING. SEE DETAIL S150 ON SHEET 93S906.

3- CONTRACTOR TO REHAB TRICKLING FILTER AS SHOWN ON SHEETS 25G101.

4- CONTRACTOR TO REHAB PRIMARY CLARIFIER AS SHOWN ON SHEETS 20M201.

YARD PIPING PLAN

SCALE: 1"=20'-0"

0 20 40

Scale in Feet

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

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SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

CIVIL

YARD PIPING PLAN

AQUA ENGINEERING

533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

01C405

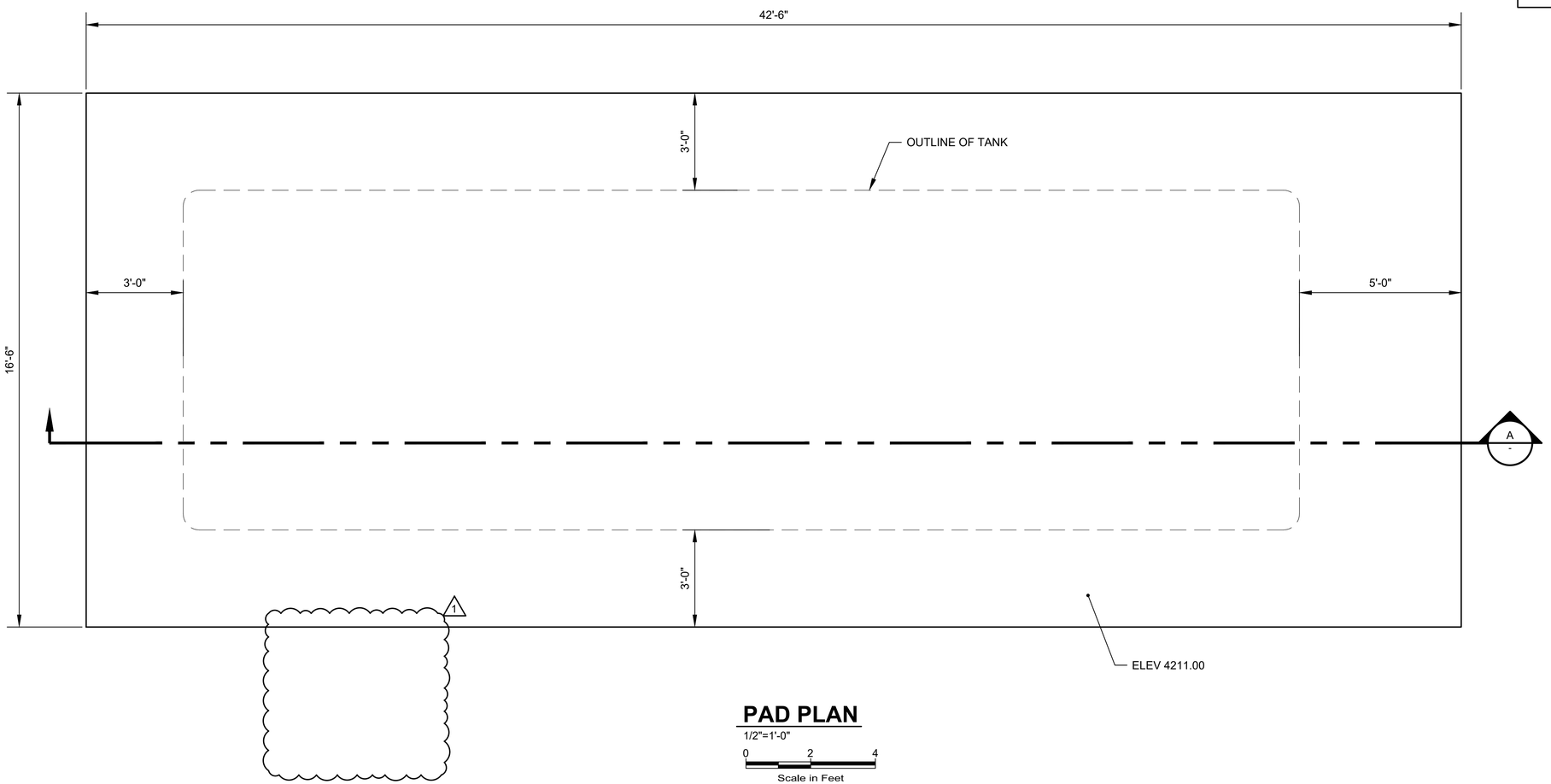
SHEET

3/29/2024

C:\USERS\DEREK.HYDE\DCACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\001 SITE CIVIL\011-01C403 - 01C406 YARD PIPING PLAN.DWG

KEYNOTES:

1. CONTRACTOR SHALL COORDINATE FINAL PAD SIZE WITH ENGINEER UPON APPROVAL OF FINAL FUEL TANK SUBMITTAL.

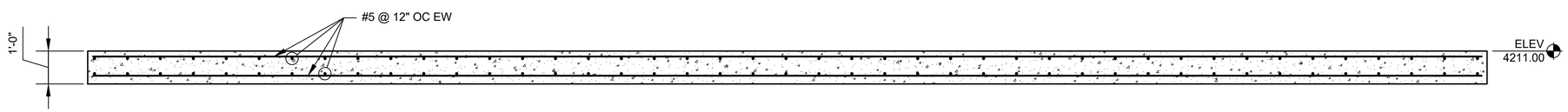


PAD PLAN

1/2"=1'-0"

0 2 4

Scale in Feet



SECTION

A

-

1/2"=1'-0"

0 2 4

Scale in Feet

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

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SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

FUEL STATION
STRUCTURAL
PAD PLAN AND SECTION

AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

06S201

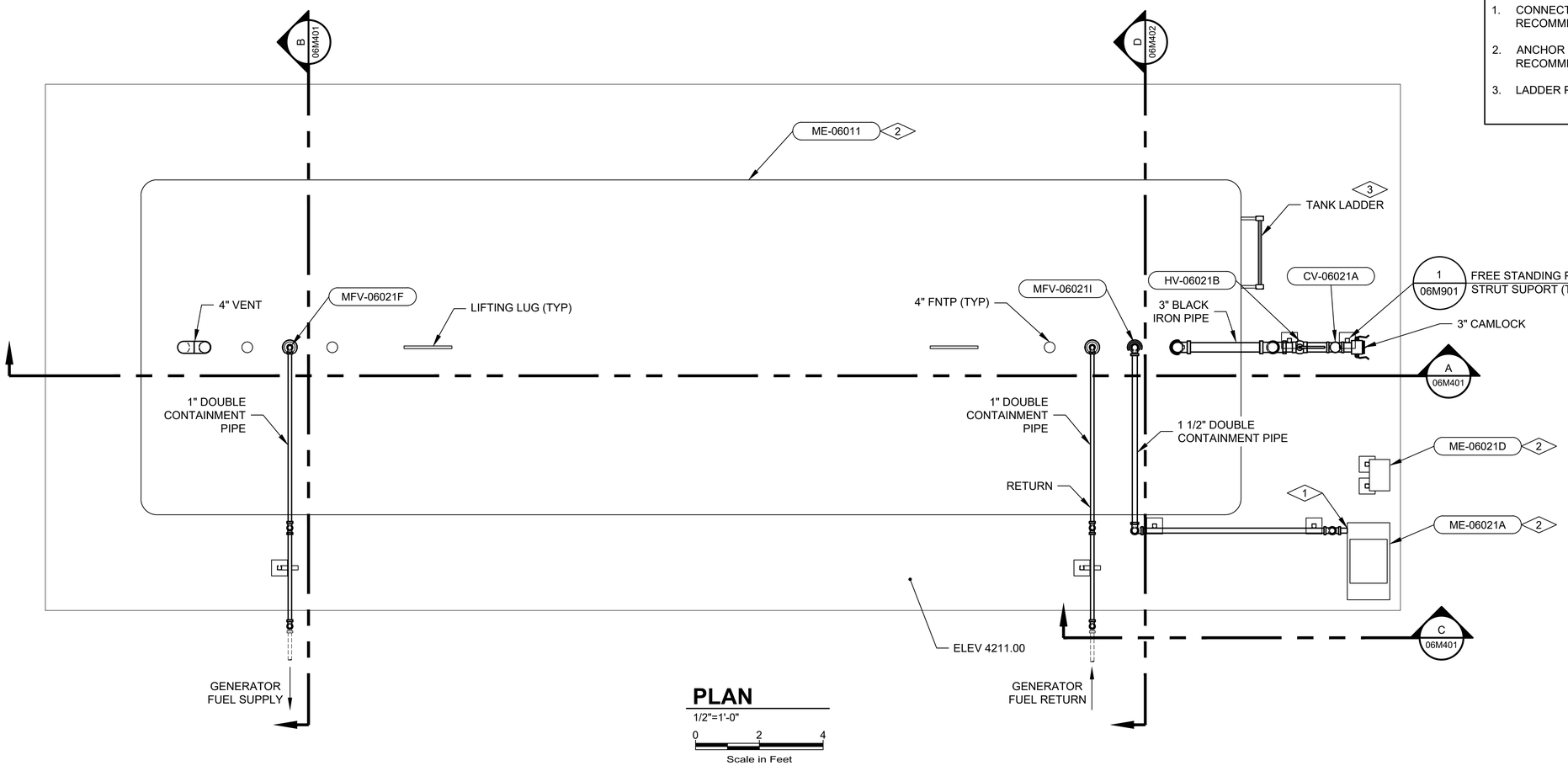
SHEET

NOTES:

1. CONTRACTOR TO COORDINATE INSTALLATION OF PIPING, VALVES, AND MECHANICAL EQUIPMENT WITH FUEL TANK SUPPLIER. SEE SPECIFICATION 231323 - ABOVE GROUND FUEL STORAGE TANK.
2. CAP TANK PORTS NOT USED.
3. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INSTRUMENTATION.
4. TANK SUPPLIER SHALL PROVIDE ABOVE AND UNDER GROUND DOUBLE CONTAINMENT PIPE. DOUBLETRAC BY OMEGAFLEX OR APPROVED EQUAL.

KEYNOTES:

1. CONNECT PER MANUFACTURERS RECOMMENDATIONS.
2. ANCHOR PER MANUFACTURERS RECOMMENDATIONS.
3. LADDER PROVIDED BY FUEL TANK SUPPLIER.



PLAN

1/2"=1'-0"

0 2 4

Scale in Feet

1 THIS SHEET HAS BEEN UPDATED

DRAWING IS TO SCALE
IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE

0 1/2 1

ORIGINAL

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SOUTH DAVIS SEWER DISTRICT
NORTH PLANT UPGRADE

FUEL STATION
MECHANICAL
PLAN

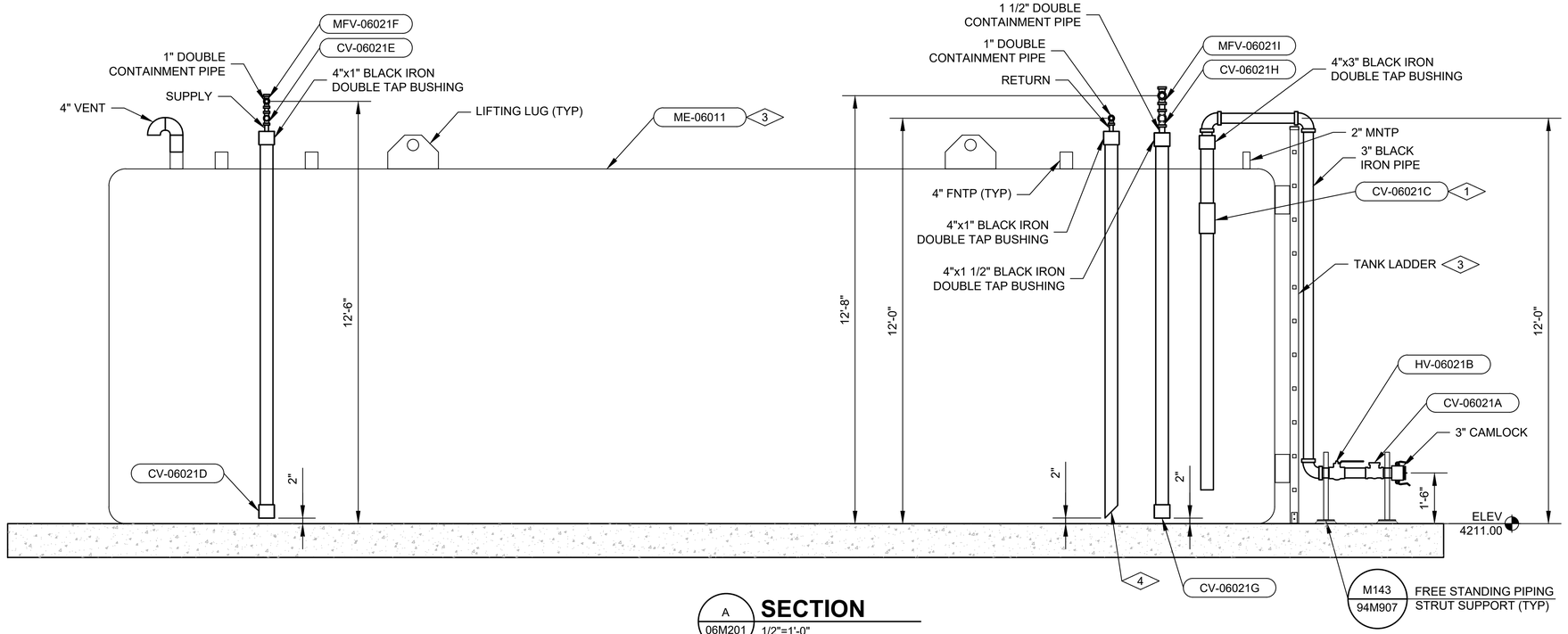
AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

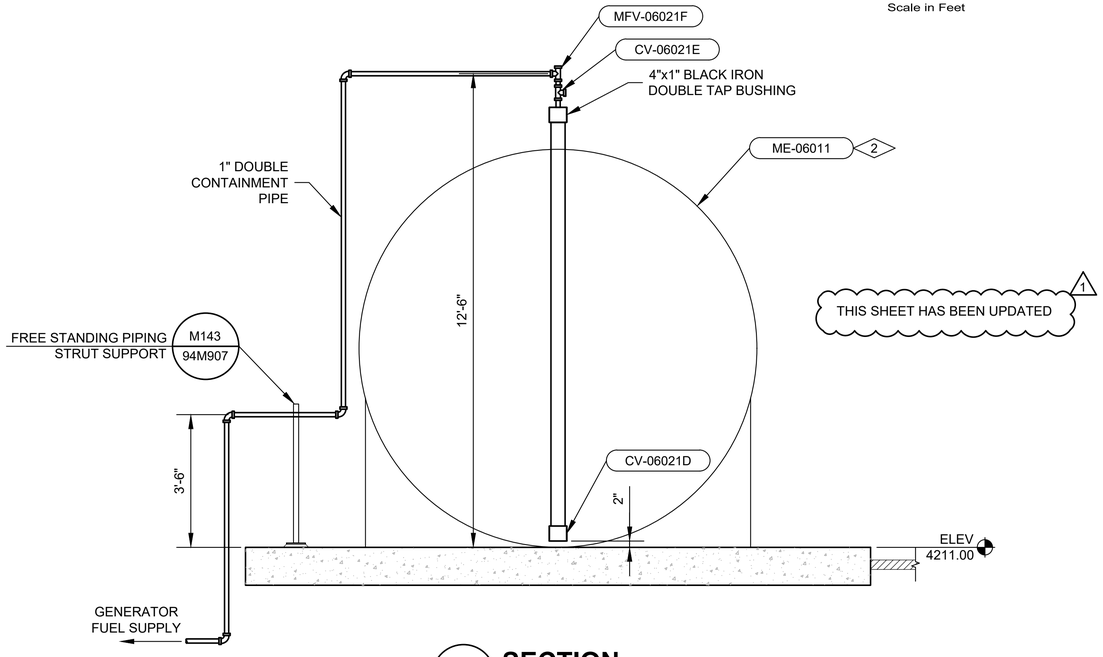
06M201

SHEET

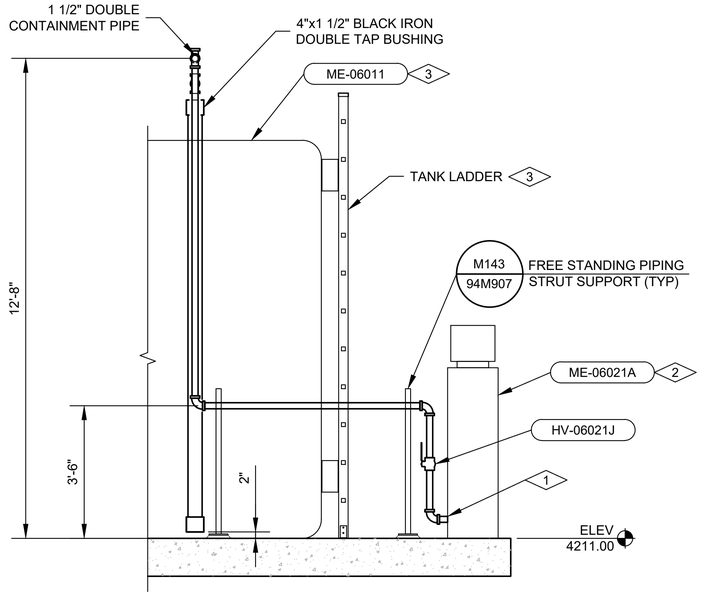
4/17/2024 C:\USERS\BRETT.PRATT\DC\ACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\002 STRUCTURES\06 FUEL STATION\060-06M201 - MECH PLAN.DWG



A 06M201 **SECTION**
1/2"=1'-0"
0 2 4
Scale in Feet



B 06M201 **SECTION**
1/2"=1'-0"
0 2 4
Scale in Feet



C 06M201 **SECTION**
1/2"=1'-0"
0 2 4
Scale in Feet

NOTES:

1. CONTRACTOR TO COORDINATE INSTALLATION OF PIPING, VALVES, AND MECHANICAL EQUIPMENT WITH FUEL TANK SUPPLIER. SEE SPECIFICATION 231323 - ABOVE GROUND FUEL STORAGE TANK.
2. CAP TANK PORTS NOT USED.
3. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INSTRUMENTATION.
4. TANK SUPPLIER SHALL PROVIDE ABOVE AND UNDER GROUND DOUBLE CONTAINMENT PIPE. DOUBLETRAC BY OMEGAFLEX OR APPROVED EQUAL.

KEYNOTES:

1. CONNECT PER MANUFACTURERS RECOMMENDATIONS.
2. ANCHOR PER MANUFACTURERS RECOMMENDATIONS.
3. LADDER PROVIDED BY FUEL TANK SUPPLIER.
4. CUT PIPE AT 45° ANGLE.

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

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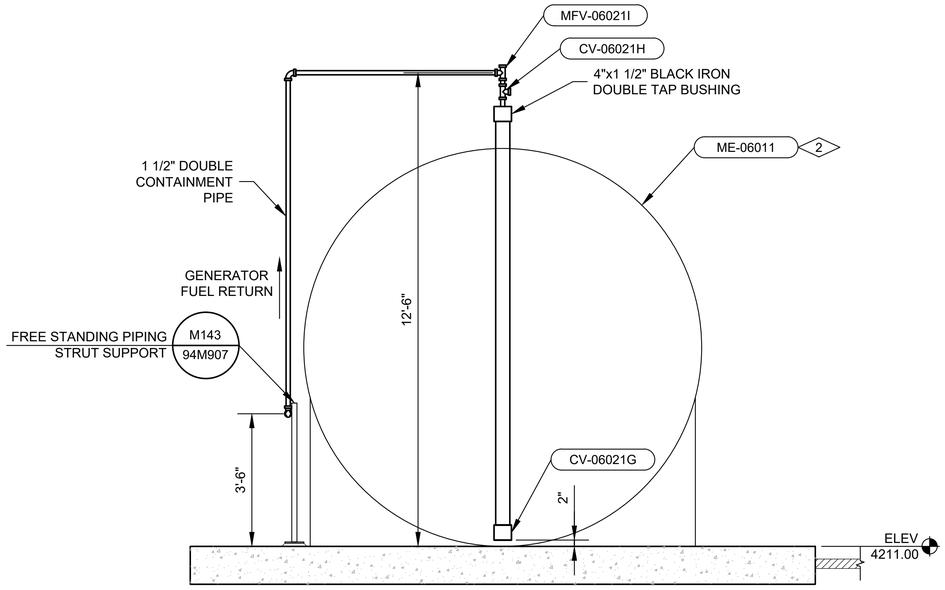
SOUTH DAVIS SEWER DISTRICT
NORTH PLANT UPGRADE

FUEL STATION MECHANICAL SECTIONS

AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
06M401
SHEET

4/17/2024 C:\USERS\BRETT.PRATT\DCVACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\002 STRUCTURES\06 FUEL STATION\060-06M401 - MECH SECTIONS.DWG



D / 06M201 **SECTION**

1/2"=1'-0"

0 2 4

Scale in Feet

NOTES:

1. CONTRACTOR TO COORDINATE INSTALLATION OF PIPING, VALVES, AND MECHANICAL EQUIPMENT WITH FUEL TANK SUPPLIER. SEE SPECIFICATION 231323 - ABOVE GROUND FUEL STORAGE TANK.
2. CAP TANK PORTS NOT USED.
3. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INSTRUMENTATION.
4. TANK SUPPLIER SHALL PROVIDE ABOVE AND UNDER GROUND DOUBLE CONTAINMENT PIPE. DOUBLETRAC BY OMEGAFLEX OR APPROVED EQUAL.

KEYNOTES:

1. CONNECT PER MANUFACTURERS RECOMMENDATIONS.
2. ANCHOR PER MANUFACTURERS RECOMMENDATIONS.
3. LADDER PROVIDED BY FUEL TANK SUPPLIER.

THIS SHEET HAS BEEN ADDED

DRAWING IS TO SCALE
IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/19/2024	EIT	BDP	BMR

REVISIONS

SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

FUEL STATION
MECHANICAL
SECTIONS

AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

06M402

SHEET

4/17/2024 C:\USERS\BRETT.PRATT\DCVACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\002 STRUCTURES\06 FUEL STATION\060-06M401 - MECH SECTIONS.DWG

MECHANICAL EQUIPMENT SCHEDULE

ME#	LOCATION	ITEM	SERVICE	HP (KW)	REMARKS
ME-06011	GENERATOR PAD	GENERATOR	BACK UP POWER GENERATOR	2000KW	KOHLER POWER SYSTEM DIESEL GENERATOR KOHLER KD2000 OR EQUAL
ME-06021A	FUEL STATION	FUEL MANAGEMENT SYSTEM AND DISPENSER	FUEL DISPENSING	115V / 0.75 HP	GASBOY ATLAS ELECTRONIC SINGLE HOSE SUCTION PUMP/DISPENSIER W/ TOPKAT PLUS FUEL MANAGEMENT SYSTEM, PROVIDED WITH FUEL TANK SEE SPEC 231323
ME-06021B	FUEL STATION	TRANSITION SUMP	FUEL SUMP	-	FRANKLINE FUELING SYSTEM GRADE LEVEL TRANSITION SUMP MODEL AST-2922 OR EQUAL
ME-06021C	FUEL STATION	DIESEL FUEL TANK	FUEL TANK	-	20,000 GALLON DOUBLE WALL UL-142 DIESEL FUEL TANK OR EQUAL SEE SPEC 231323
ME-06021D	FUEL STATION	FUEL MODULAR GAUGING SYSTEM	FUEL GAUGING SYSTEM	115 / 230V	OMNTEC PROTEUS K-SS SERIES CONSOLE, PROVIDED WITH FUEL TANK SEE SPEC 231323
ME-10105	HEADWORKS BUILDING	PARSHALL FLUME	FLOW MEASURMENT	-	ENGINEERED FIBERGLASS COMPSITES PARSHALL FLUME 36" WIDE THROAT, 3-24 MGD, OR EQUAL
ME-10111	HEADWORKS BUILDING	MECHANICAL SCREEN 1	HEADWORKS MECHANICAL SCREEN 1	480V / 1.5 HP	HUBER CENTER FLOW SCREEN MODEL RAKEMAX-CF, 12-24 MGD, OR EQUAL
ME-10112	HEADWORKS BUILDING	COMPACTOR 1	SCREEN 1 WASHER COMPACTOR	480V / 5 HP	HUBER WASHER COMPACTOR MODEL WAP 4, OR EQUAL
ME-10121	HEADWORKS BUILDING	MECHANICAL SCREEN 2	HEADWORKS MECHANICAL SCREEN 2	480V / 1.5 HP	HUBER CENTER FLOW SCREEN MODEL RAKEMAX-CF, 12-24 MGD, OR EQUAL
ME-10122	HEADWORKS BUILDING	COMPACTOR 2	SCREEN 2 WASHER COMPACTOR	480V / 5 HP	HUBER WASHER COMPACTOR MODEL WAP 4, OR EQUAL
ME-10130	HEADWORKS BUILDING	INFLUENT SAMPLER	INFLUENT SAMPLER	-	INFLUENT SAMPLER RELOCATED FROM EXISTING HEADWORKS
ME-10171	PUMP STATION 1	INJECTION QUILL	CHEMICAL INJECTION	-	SAF-T-FLO MODEL EB-120-S-C-6-B-E OR EQUAL
ME-10180	HEADWORKS BUILDING	EMERGENCY SHOWER AND EYEWASH	EMERGENCY SHOWER AND EYEWASH	-	BRADLEY S19314 SERIES COMBINATION DRENCH SHOWER AND EYEWASH OR EQUAL
ME-10181	HEADWORKS BUILDING	EMERGENCY SHOWER AND EYEWASH	OUTDOOR EMERGENCY SHOWER AND EYEWASH	-	BRADLEY S19-310TW FROST-PROOF DRENCH SHOWER AND EYEWASH UNIT OR EQUAL
ME-10191	PUMP STATION 1	MONORAIL CRANE	PUMP CRANE	460V / 15HP	AMERICAN EQUIPMENT SYSTEMS 5 TON MONORAIL CRANE OR EQUAL
ME-10301	HEADWORKS BUILDING	STRAINER	CHEMICAL STRAINING	-	1/2" HAYWARD YS SERIES CPVC STRAINER W-EPDM SEALS AND PLASTIC SCREEN OR EQUAL
ME-10303	HEADWORKS BUILDNG	POLYETHYLENE TANK	ALUMINUM SULFATE/FERRIC SULFATE STORAGE TANK	-	5,400 GAL POLYPROCESSING DOUBLE WALL TANK OR EQUAL
ME-10311	HEADWORKS BUILDING	STRAINER	CHEMICAL STRAINING	-	1/2" HAYWARD YS SERIES CPVC STRAINER W-EPDM SEALS AND PLASTIC SCREEN OR EQUAL
ME-10313	HEADWORKS BUILDNG	POLYETHYLENE TANK	ALUMINUM SULFATE/FERRIC SULFATE STORAGE TANK	-	5,400 GAL POLYPROCESSING DOUBLE WALL TANK OR EQUAL
ME-10321	HEADWORKS BUILDING	STRAINER	CHEMICAL STRAINING	-	1/2" HAYWARD YS SERIES CPVC STRAINER W-EPDM SEALS AND PLASTIC SCREEN OR EQUAL
ME-10331	HEADWORKS BUILDING	STRAINER	CHEMICAL STRAINING	-	1/2" HAYWARD YS SERIES CPVC STRAINER W-EPDM SEALS AND PLASTIC SCREEN OR EQUAL
ME-20281	PRIMARY CLARIFIER 4	PRIMARY CLARIFIER	CLARIFIER	460V / 1 HP	WESTECH 75FT DIAMETER CLARIFIER MODEL COPC2G, 3-5.25 MGD, OR EQUAL
ME-33101	SNAIL TRAP	GRIT TRAP	GRIT/SNAIL REMOVAL	460V / 1 HP	OVIVO JETA GRIT COLLECTOR, MODEL 900/360 W/ SS IMPELLER OR EQUAL
ME-33301	CLASSIFIER ROOM	GRIT CLASSIFIER	GRIT REMOVAL	460V / 1 HP	OVIVO MODEL 300, 15 FT STAINLESS STEEL, 18 - 20 MGD OR EQUAL
ME-35481	BLOWER BUILDING	AERATION BLOWER	BLOWER	200 HP	1800-2800 SCFM LONESTAR BLOWER MODEL GL2 WITH ACCESSORY PACKAGE OR EQUAL
ME-35482	BLOWER BUILDING	AERATION BLOWER	BLOWER	200 HP	1800-2800 SCFM LONESTAR BLOWER MODEL GL2 WITH ACCESSORY PACKAGE OR EQUAL
ME-35483	BLOWER BUILDING	AERATION BLOWER	BLOWER	200 HP	1800-2800 SCFM LONESTAR BLOWER MODEL GL2 WITH ACCESSORY PACKAGE OR EQUAL
ME-37110	MBBR TANK 1	AERATION GRID 1	MBBR AERATION	-	EDI COARSE BUBBLE DIFFUSERS PROVIDED BY MBBR SUPPLIER
ME-37120	MBBR TANK 1	RETENTION SCREEN 1	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37121	MBBR TANK 1	RETENTION SCREEN 2	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37122	MBBR TANK 1	RETENTION SCREEN 3	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37123	MBBR TANK 1	RETENTION SCREEN 4	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37124	MBBR TANK 1	RETENTION SCREEN 5	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37125	MBBR TANK 1	RETENTION SCREEN 6	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37126	MBBR TANK 1	RETENTION SCREEN 7	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37210	MBBR TANK 2	AERATION GRID 2	MBBR AERATION	-	EDI COARSE BUBBLE DIFFUSERS PROVIDED BY MBBR SUPPLIER
ME-37220	MBBR TANK 2	RETENTION SCREEN 8	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37221	MBBR TANK 2	RETENTION SCREEN 9	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37222	MBBR TANK 2	RETENTION SCREEN 10	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37223	MBBR TANK 2	RETENTION SCREEN 11	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37224	MBBR TANK 2	RETENTION SCREEN 12	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37225	MBBR TANK 2	RETENTION SCREEN 13	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-37226	MBBR TANK 2	RETENTION SCREEN 14	MBBR MEDIA RETENTION	-	36"D X 36"L SCREEN PROVIDED BY MBBR SUPPLIER
ME-38101	HEADWORKS BUILDING	STRAINER	CHEMICAL STRAINING	-	1/2" HAYWARD YS SERIES CPVC STRAINER W-EPDM SEALS AND PLASTIC SCREEN OR EQUAL
ME-38201	HEADWORKS BUILDING	STRAINER	CHEMICAL STRAINING	-	1/2" HAYWARD YS SERIES CPVC STRAINER W-EPDM SEALS AND PLASTIC SCREEN OR EQUAL
ME-38301	BLOWER BUILDING	EMERGENCY SHOWER AND EYEWASH	EMERGENCY SHOWER AND EYEWASH	-	BRADLEY S19314 SERIES COMBINATION DRENCH SHOWER AND EYEWASH OR EQUAL
ME-38302	BLOWER BUILDING	EMERGENCY SHOWER AND EYEWASH	OUTDOOR EMERGENCY SHOWER AND EYEWASH	-	BRADLEY S19-310TW FROST-PROOF DRENCH SHOWER AND EYEWASH UNIT OR EQUAL
ME-62102	RAW SLUDGE PUMP STATION	GRINDER	SLUDGE GRINDER	460V / 3 HP	300-600 GPM VOGELSANG GRINDER MODEL 10RC5 RC5000 ROTA-CUT OR EQUAL
ME-68203	EXISTING DIGESTER TANK	RELIEF VALVE W/ FLAME ARRESTER ASSEMBLY	DIGESTER TANK PRESSURE RELIEF	-	4" VAREC 5811B46S OR EQUAL
ME-68204	EXISTING DIGESTER TANK	RELIEF VALVE W/ FLAME ARRESTER ASSEMBLY	DIGESTER TANK PRESSURE RELIEF	-	4" VAREC 5811B46S OR EQUAL
ME-68223	EXISTING DIGESTER TANK	RELIEF VALVE W/ FLAME ARRESTER ASSEMBLY	DIGESTER TANK PRESSURE RELIEF	-	4" VAREC 5811B46S OR EQUAL
ME-68224	EXISTING DIGESTER TANK	RELIEF VALVE W/ FLAME ARRESTER ASSEMBLY	DIGESTER TANK PRESSURE RELIEF	-	4" VAREC 5811B46S OR EQUAL
ME-68231	EXISTING DIGESTER BUILDING 1	SEDIMENT TRAP	BIOGAS CONDENSATE AND SEDIMENT TRAP	.	4" VAREC CONDENSATE SEDIMENT TRAP MODEL 233-06-F-S OR EQUAL
ME-68232	EXISTING DIGESTER BUILDING 1	DRIP TRAP	BIOGAS CONDENSATE DRAIN	-	4" VAREC MANUAL DRIP TRAP MODEL 2466 OR EQUAL
ME-68233	EXISTING DIGESTER BUILDING 1	FLAME TRAP	BIOGAS LINE FLARE ARRESTER	-	4" VAREC 4500421S OR EQUAL

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DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/01/2024	EIT	DCL	BMR
REVISIONS				
1	04/19/2024	EIT	DCL	BMR

SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

-

SCHEDULES

MECHANICAL EQUIPMENT

AQUA

533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

81M802

SHEET

C:\USERS\DANIEL.LEAVITT\DCACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\98D SCHEDULES\984-84M802 MECHANICAL SCHEDULE DWG

4/19/2024

VALVE SCHEDULE

V#	LOCATION	SERVICE	TYPE	SIZE	MATERIAL	CONNECTION	ACTUATOR	REMARKS
CV-06021A	FUEL STATION	FUEL LINE CHECK VALVE	CHECK	3"	BRASS	THD	-	PROVIDED BY ABOVE GROUND FUEL TANK SUPPLIER
CV-06021C	FUEL STATION	OVERFLOW PREVENTION VALVE	CHECK	3"	SS	THD	-	PROVIDED BY ABOVE GROUND FUEL TANK SUPPLIER
CV-06021D	FUEL STATION	SUPPLY LINE FOOT VALVE	CHECK	3"	BRASS	THD	-	PROVIDED BY ABOVE GROUND FUEL TANK SUPPLIER
CV-06021E	FUEL STATION	SUPPLY LINE FUSIBLE EMERGENCY VALVE	CHECK	1"	SS	THD	-	PROVIDED BY ABOVE GROUND FUEL TANK SUPPLIER
CV-06021G	FUEL STATION	SUPPLY LINE TO DISPENSER FOOT VALVE	CHECK	3"	BRASS	THD	-	PROVIDED BY ABOVE GROUND FUEL TANK SUPPLIER
CV-06021H	FUEL STATION	SUPPLY LINE FUSIBLE EMERGENCY VALVE	CHECK	1 1/2"	SS	THD	-	PROVIDED BY ABOVE GROUND FUEL TANK SUPPLIER
CV-10130	PUMP STATION 1	PUMP 1 CHECK	CHECK	14"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-10140	PUMP STATION 1	PUMP 2 CHECK	CHECK	14"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-10150	PUMP STATION 1	PUMP 3 CHECK	CHECK	14"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-10160	PUMP STATION 1	PUMP 4 CHECK	CHECK	14"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-10321	HEADWORKS BUILDING	CHEMICAL PUMP CHECK	CHECK	1/2"	CPVC	TRUE UNION	-	ASAHI AMERICAN CPVC BALL CHECK VALVE OR EQUAL
CV-10331	HEADWORKS BUILDING	CHEMICAL PUMP CHECK	CHECK	1/2"	CPVC	TRUE UNION	-	ASAHI AMERICAN CPVC BALL CHECK VALVE OR EQUAL
CV-31320	MBBR PUMP STATION	PUMP BACKFLOW PREVENTION	CHECK	16"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-31330	MBBR PUMP STATION	PUMP BACKFLOW PREVENTION	CHECK	16"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-31340	MBBR PUMP STATION	PUMP BACKFLOW PREVENTION	CHECK	16"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-31350	MBBR PUMP STATION	PUMP BACKFLOW PREVENTION	CHECK	16"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-35481	BLOWER BUILDING	BLOWER CONTROL	CHECK	12"	SS	WAFER	.	PROVIDED BY MANUFACTURER
CV-35482	BLOWER BUILDING	BLOWER CONTROL	CHECK	12"	SS	WAFER	.	PROVIDED BY MANUFACTURER
CV-35483	BLOWER BUILDING	BLOWER CONTROL	CHECK	12"	SS	WAFER	.	PROVIDED BY MANUFACTURER
CV-38101	BLOWER BUILDING	CHEMICAL PUMP CHECK	CHECK	1/2"	CPVC	TRUE UNION	-	ASAHI AMERICAN CPVC BALL CHECK VALVE OR EQUAL
CV-38201	BLOWER BUILDING	CHEMICAL PUMP CHECK	CHECK	1/2"	CPVC	TRUE UNION	-	ASAHI AMERICAN CPVC BALL CHECK VALVE OR EQUAL
CV-62113	RAW SLUDGE PUMP STATION	RAW SLUDGE PUMP CHECK	CHECK	6"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-62123	RAW SLUDGE PUMP STATION	RAW SLUDGE PUMP CHECK	CHECK	6"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-63110	GRAVITY THICKENER	THICKENED SLUDGE PUMP CHECK	CHECK	6"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-63121	GRAVITY THICKENER	THICKENED SLUDGE PUMP CHECK	CHECK	6"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-68510	DIGESTER CONTROL BUILDING	SLUDGE DEWATERING PUMP CHECK	CHECK	4"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-68520	DIGESTER CONTROL BUILDING	SLUDGE DEWATERING PUMP CHECK	CHECK	4"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-68540	DIGESTER BUILDING	DIGESTER RECIRC PUMP CHECK	CHECK	4"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-68545	DIGESTER BUILDING	DIGESTER RECIRC PUMP CHECK	CHECK	4"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-68570	DIGESTER BUILDING	SLUDGE TRANSFER PUMP CHECK	CHECK	6"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-68575	DIGESTER BUILDING	SLUDGE TRANSFER PUMP CHECK	CHECK	6"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-70520A	DIGESTER BUILDING	BOILER RETURN CHECK	CHECK	4"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-70525A	DIGESTER BUILDING	BOILER RETURN CHECK	CHECK	4"	DI	FL X FL	-	VALMATIC SWING-FLEX CHECK VALVE OR EQUAL
CV-80300	DEWATERING BUILDING	POLYMER MIXING LINE	CHECK	6"	DI	FL X FL	-	VALMATIC 7800LW SWING CHECK VALVE OR EQUAL
FV-10201	PUMP STATION 1	FINAL CLARIFIER RETURN THROTTLING VALVE	BUTTERFLY	14"	SS	LUG	ELEC	BRAY SERIES 30/31 W. SS DISC AND STEM, EPDM SEAT AND MODULATING DUTY ROTORK IQ3 ACTUATOR OR EQUAL
FV-35481	BLOWER BUILDING	BLOWER CONTROL	BUTTERFLY	12"	SS	LUG	ELECTRIC	PROVIDED BY MANUFACTURER
FV-35482	BLOWER BUILDING	BLOWER CONTROL	BUTTERFLY	12"	SS	LUG	ELECTRIC	PROVIDED BY MANUFACTURER
FV-35483	BLOWER BUILDING	BLOWER CONTROL	BUTTERFLY	12"	SS	LUG	ELECTRIC	PROVIDED BY MANUFACTURER
FV-37101	MBBR BASINS	BASIN 1 AERATION MODULATING	BUTTERFLY	12"	SS	LUG	ELEC	BRAY SERIES 30/31 W. SS DISC AND STEM, EPDM SEAT AND MODULATING DUTY ROTORK IQ3 ACTUATOR OR EQUAL
FV-37102	MBBR BASINS	BASIN 1 AIR KNIFE MODULATING	BUTTERFLY	4"	SS	LUG	ELEC	BRAY SERIES 30/31 W. SS DISC AND STEM, EPDM SEAT AND MODULATING DUTY ROTORK IQ3 ACTUATOR OR EQUAL
FV-37201	MBBR BASINS	BASIN 2 AERATION MODULATING	BUTTERFLY	12"	SS	LUG	ELEC	BRAY SERIES 30/31 W. SS DISC AND STEM, EPDM SEAT AND MODULATING DUTY ROTORK IQ3 ACTUATOR OR EQUAL
FV-37202	MBBR BASINS	BASIN 2 AIR KNIFE MODULATING	BUTTERFLY	4"	SS	LUG	ELEC	BRAY SERIES 30/31 W. SS DISC AND STEM, EPDM SEAT AND MODULATING DUTY ROTORK IQ3 ACTUATOR OR EQUAL
FV-37303	MBBR BASINS	BLOWOFF VALVE	BUTTERFLY	6"	SS	LUG	ELEC	PROVIDED WITH BLOWER EQUIPMENT
FV-62110	RAW SLUDGE PUMP STATION	PRIMARY CLARIFIER 1 LINE CONTROL	PINCH	6"	DI	FL X FL	-	RED VALVE TYPE A AIR ACTUATED PINCH VALVE OR EQUAL
FV-62120	RAW SLUDGE PUMP STATION	PRIMARY CLARIFIER 2 LINE CONTROL	PINCH	6"	DI	FL X FL	-	RED VALVE TYPE A AIR ACTUATED PINCH VALVE OR EQUAL
FV-62130	RAW SLUDGE PUMP STATION	PRIMARY CLARIFIER 3 LINE CONTROL	PINCH	6"	DI	FL X FL	-	RED VALVE TYPE A AIR ACTUATED PINCH VALVE OR EQUAL
FV-62140	RAW SLUDGE PUMP STATION	PRIMARY CLARIFIER 4 LINE CONTROL	PINCH	6"	DI	FL X FL	PNEUMATIC	RED VALVE TYPE A AIR ACTUATED PINCH VALVE OR EQUAL
HV-06021B	FUEL STATION	FUEL LINE ISOLATION VALVE	BALL	3"	BRASS	THD	LV	PROVIDED BY ABOVE GROUND FUEL TANK SUPPLIER
HV-06021J	FUEL STATION	FUEL DISPENSER ISOLATION VALVE	BALL	1 1/2"	BRASS	THD	LV	PROVIDED BY ABOVE GROUND FUEL TANK SUPPLIER
HV-10130	PUMP STATION 1	PUMP 1 ISOLATION	KNIFE GATE	16"	SS	LUG	GEAR	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-10131	PUMP STATION 1	PUMP 1 ISOLATION	KNIFE GATE	14"	SS	LUG	GEAR	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-10140	PUMP STATION 1	PUMP 2 ISOLATION	KNIFE GATE	16"	SS	LUG	GEAR	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-10141	PUMP STATION 1	PUMP 2 ISOLATION	KNIFE GATE	14"	SS	LUG	GEAR	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-10150	PUMP STATION 1	PUMP 3 ISOLATION	KNIFE GATE	16"	SS	LUG	GEAR	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-10151	PUMP STATION 1	PUMP 3 ISOLATION	KNIFE GATE	14"	SS	LUG	GEAR	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-10160	PUMP STATION 1	PUMP 4 ISOLATION	KNIFE GATE	16"	SS	LUG	GEAR	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-10161	PUMP STATION 1	PUMP 4 ISOLATION	KNIFE GATE	14"	SS	LUG	GEAR	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-10201	PUMP STATION 1	FINAL CLARIFIER RETURN METER ISOLATION	KNIFE GATE	14"	SS	LUG	GEAR	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-10202	PUMP STATION 1	FINAL CLARIFIER RETURN METER ISOLATION	KNIFE GATE	14"	SS	LUG	GEAR	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL

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DRAWING IS TO SCALE
IF BAR MEASURES:
1" = FULL SCALE
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0 1/2 1

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B	04/01/2024	EIT	DCL	BMR

REVISIONS

1	04/19/2024	EIT	DCL	BMR

SOUTH DAVIS SEWER DISTRICT
NORTH PLANT UPGRADE
-
SCHEDULES
VALVES

AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
81M804
SHEET

4/19/2024 C:\USERS\DANIEL.LEAVITT\DCVACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\98D SCHEDULES\984-84M804 VALVE SCHEDULE.DWG

VALVE SCHEDULE

V#	LOCATION	SERVICE	TYPE	SIZE	MATERIAL	CONNECTION	ACTUATOR	REMARKS
HV-10301	HEADWORKS BUILDING	CHEMICAL TANK 1 ISOLATION	BALL	2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-10305	HEADWORKS BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-10311	HEADWORKS BUILDING	CHEMICAL TANK 2 ISOLATION	BALL	2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-10315	HEADWORKS BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-10321	HEADWORKS BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-10322	HEADWORKS BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-10331	HEADWORKS BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-10332	HEADWORKS BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-10341	HEADWORKS BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-10351	HEADWORKS BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-20273	PRIMARY CLARIFIER 3	PRIMARY CLARIFIER 3 QUICK CONNECT ISOLATION	PLUG	6"	DI	MJ X MJ	NUT	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-20281	PRIMARY CLARIFIER 4	UNDERFLOW DISCHARGE ISOLATION	PLUG	6"	DI	MJ X MJ	NUT	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-20282	PRIMARY CLARIFIER 4	SCUM ISOLATION	PLUG	6"	DI	MJ X MJ	NUT	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-20283	PRIMARY CLARIFIER 4	PRIMARY CLARIFIER 4 QUICK CONNECT ISOLATION	PLUG	6"	DI	MJ X MJ	NUT	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-31320	MBBR PUMP STATION	PUMP ISOLATION	KNIFE GATE	16"	SS	LUG	NUT	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-31330	MBBR PUMP STATION	PUMP ISOLATION	KNIFE GATE	16"	SS	LUG	NUT	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-31340	MBBR PUMP STATION	PUMP ISOLATION	KNIFE GATE	16"	SS	LUG	NUT	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-31350	MBBR PUMP STATION	PUMP ISOLATION	KNIFE GATE	16"	SS	LUG	NUT	ORBINOX BT-SERIES 22 KNIFE GATE VALVE W/ EPDM SEATS OR EQUAL
HV-31351	MBBR PUMP STATION	MBBR BYPASS	PLUG	30"	DI	FL X FL	NUT	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-31352	MBBR PUMP STATION	MBBR BYPASS	PLUG	30"	DI	FL X FL	NUT	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-33104	SNAIL TRAP	NPW ISOLATION	BALL	1"	SS	THD	LV	APOLLO 76-100 SERIES OR EQUAL
HV-33201	CLASSIFIER ROOM	GRIT PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-33202	CLASSIFIER ROOM	GRIT PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-33301	CLASSIFIER ROOM	DRAIN LINE	BALL	2"	CPVC	THD	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-33303	SNAIL TRAP	NPW ISOLATION	BALL	1"	SS	THD	LV	PROVIDED WITH GRIT CLASSIFIER EQUIPMENT
HV-35311	RAW SLUDGE PUMP STATION	AIR LINE ISOLATION	BALL	1/2"	SS	THD	LV	APOLLO 76-100 SERIES OR EQUAL
HV-35321	RAW SLUDGE PUMP STATION	AIR LINE ISOLATION	BALL	1/2"	SS	THD	LV	APOLLO 76-100 SERIES OR EQUAL
HV-35331	RAW SLUDGE PUMP STATION	AIR LINE ISOLATION	BALL	1/2"	SS	THD	LV	APOLLO 76-100 SERIES OR EQUAL
HV-35341	RAW SLUDGE PUMP STATION	AIR LINE ISOLATION	BALL	1/2"	SS	THD	LV	APOLLO 76-100 SERIES OR EQUAL
HV-35481A	BLOWER BUILDING	BLOWER 1 ISOLATION	BUTTERFLY	12"	SS	LUG	WHEEL	BRAY SERIES 30/31 W. SS DISC AND STEM, EPDM SEAT, AND CHAIN OPERATED OR EQUAL
HV-35482A	BLOWER BUILDING	BLOWER 2 ISOLATION	BUTTERFLY	12"	SS	LUG	WHEEL	BRAY SERIES 30/31 W. SS DISC AND STEM, EPDM SEAT, AND CHAIN OPERATED OR EQUAL
HV-35483A	BLOWER BUILDING	BLOWER 3 ISOLATION	BUTTERFLY	12"	SS	LUG	WHEEL	BRAY SERIES 30/31 W. SS DISC AND STEM, EPDM SEAT, AND CHAIN OPERATED OR EQUAL
HV-37101	MBBR BASINS	BASIN 1 AERATION ISOLATION	BUTTERFLY	12"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-37102	MBBR BASINS	BASIN 1 AIR KNIFE ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-37201	MBBR BASINS	BASIN 2 AERATION ISOLATION	BUTTERFLY	12"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-37202	MBBR BASINS	BASIN 2 AIR KNIFE ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-38001	BLOWER BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-38101	BLOWER BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-38102	BLOWER BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-38201	BLOWER BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-38202	BLOWER BUILDING	CHEMICAL PUMP ISOLATION	BALL	1/2"	CPVC	TRUE UNION	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-62108	RAW SLUDGE PUMP STATION	PUMP 1 ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-62109	RAW SLUDGE PUMP STATION	PRESSURE PORT ISOLATION	BALL	1"	SS	THD	LV	APOLLO 76-100 SERIES OR EQUAL
HV-62111	RAW SLUDGE PUMP STATION	PUMP STATION BYPASS	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-62112	RAW SLUDGE PUMP STATION	PRESSURE PORT ISOLATION	BALL	1"	SS	THD	LV	APOLLO 76-100 SERIES OR EQUAL
HV-62113	RAW SLUDGE PUMP STATION	PUMP 1 ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-62118	RAW SLUDGE PUMP STATION	PUMP 2 ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-62119	RAW SLUDGE PUMP STATION	PRESSURE PORT ISOLATION	BALL	1"	SS	THD	LV	APOLLO 76-100 SERIES OR EQUAL
HV-62121	RAW SLUDGE PUMP STATION	PUMP STATION BYPASS	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-62122	RAW SLUDGE PUMP STATION	PRESSURE PORT ISOLATION	BALL	1"	SS	THD	LV	APOLLO 76-100 SERIES OR EQUAL
HV-62123	RAW SLUDGE PUMP STATION	PUMP 2 ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-62131	RAW SLUDGE PUMP STATION	PUMP STATION BYPASS	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-62140	RAW SLUDGE PUMP STATION	PUMP STATION BYPASS	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-62141	RAW SLUDGE PUMP STATION	GRINDER ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-62142	RAW SLUDGE PUMP STATION	GRINDER ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-62143	RAW SLUDGE PUMP STATION	GRINDER ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-62144	RAW SLUDGE PUMP STATION	GRINDER BYPASS	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-62145	RAW SLUDGE PUMP STATION	GRINDER ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-63107	RAW SLUDGE PUMP STATION	GRAVITY THICKENER ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-63110	GRAVITY THICKENER	THICKENED SLUDGE PUMP ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-63111	GRAVITY THICKENER	THICKENED SLUDGE PUMP ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-63120	GRAVITY THICKENER	THICKENED SLUDGE PUMP ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL

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DRAWING IS TO SCALE
IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/01/2024	EIT	DCL	BMR

REVISIONS

1	04/19/2024	EIT	DCL	BMR

SOUTH DAVIS SEWER DISTRICT
NORTH PLANT UPGRADE
-
SCHEDULES
VALVES

AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
81M805
SHEET

4/19/2024 C:\USERS\DANIEL.LEAVITT\DCACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\980 SCHEDULES\984-84M804 VALVE SCHEDULE.DWG

VALVE SCHEDULE

V#	LOCATION	SERVICE	TYPE	SIZE	MATERIAL	CONNECTION	ACTUATOR	REMARKS
HV-63122	GRAVITY THICKENER	THICKENED SLUDGE PUMP ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-63126	GRAVITY THICKENER	FLOW DIRECTION CONTROL	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68228	DIGESTER CONTROL BUILDING	DIGESTER 1 BYPASS	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68229	DIGESTER CONTROL BUILDING	DIGESTER 1 BYPASS	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68510	DIGESTER CONTROL BUILDING	SLUDGE DEWATERING PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68511	DIGESTER CONTROL BUILDING	SLUDGE DEWATERING PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68520	DIGESTER CONTROL BUILDING	SLUDGE DEWATERING PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68521	DIGESTER CONTROL BUILDING	SLUDGE DEWATERING PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68522	DIGESTER CONTROL BUILDING	SLUDGE DEWATERING PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68523	DIGESTER CONTROL BUILDING	METER ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68532	DIGESTER BUILDING	DIGESTER OUTLET	PLUG	6"	DI	FL X FL	CW	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68533	DIGESTER BUILDING	DIGESTER OUTLET	PLUG	6"	DI	FL X FL	CW	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68534	DIGESTER BUILDING	DIGESTER OUTLET	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68535	DIGESTER BUILDING	SAMPLE PORT	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68536	DIGESTER BUILDING	CONDENSATE TRAP ISOLATION	BUTTERFLY	6"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-68538	DIGESTER BUILDING	CONDENSATE TRAP ISOLATION	BUTTERFLY	6"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-68540A	DIGESTER BUILDING	SLUDGE RECIRCULATION PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68540B	DIGESTER BUILDING	SLUDGE RECIRCULATION PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68545A	DIGESTER BUILDING	SLUDGE RECIRCULATION PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68545B	DIGESTER BUILDING	SLUDGE RECIRCULATION PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68553	DIGESTER BUILDING	HEAT EXCHANGER SLUDGE ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68554	DIGESTER BUILDING	HEAT EXCHANGER SLUDGE ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68563	DIGESTER BUILDING	HEAT EXCHANGER SLUDGE ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68564	DIGESTER BUILDING	HEAT EXCHANGER SLUDGE ISOLATION	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68570A	DIGESTER BUILDING	SLUDGE TRANSFER PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68570B	DIGESTER BUILDING	SLUDGE TRANSFER PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68575A	DIGESTER BUILDING	SLUDGE TRANSFER PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68575B	DIGESTER BUILDING	SLUDGE TRANSFER PUMP ISOLATION	PLUG	4"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-68576	DIGESTER BUILDING	SLUDGE TRANSFER PUMP CLEANOUT	PLUG	6"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-70501	DIGESTER BUILDING	AIR SEPARATOR OUTLET ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70505A	DIGESTER BUILDING	PRV/FLAME ARRESTOR ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 40/41 MCCANNALOK W SS DISC AND STEM AND PTFE SEAT OR EQUAL
HV-70505B	DIGESTER BUILDING	PRV/FLAME ARRESTOR ISOLATION	BUTTERFLY	4"	SS	LUG	CW	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70508	DIGESTER BUILDING	BOILER OUTLET ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70511	DIGESTER BUILDING	FUTURE BOILER ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70512	DIGESTER BUILDING	BOILER INLET ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70513	DIGESTER BUILDING	FUTURE HEAT EXCHANGER ISOLATION	BUTTERFLY	4"	SS	LUG	CW	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70520A	DIGESTER BUILDING	PUMP INLET ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70520B	DIGESTER BUILDING	PUMP OUTLET ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70525A	DIGESTER BUILDING	PUMP INLET ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70525B	DIGESTER BUILDING	PUMP OUTLET ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70530A	DIGESTER BUILDING	HEAT PUMP INLET ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70530B	DIGESTER BUILDING	HEAT PUMP OUTLET ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70530C	DIGESTER BUILDING	HEAT EXCHANGER ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70540A	DIGESTER BUILDING	HEAT PUMP INLET ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70540B	DIGESTER BUILDING	HEAT PUMP OUTLET ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-70540C	DIGESTER BUILDING	HEAT EXCHANGER ISOLATION	BUTTERFLY	4"	SS	LUG	LV	BRAY SERIES 30/31 W. SS DISC AND STEM, AND EPDM SEAT OR EQUAL
HV-72528	DIGESTER GAS LINE	PRESSURE GAUGE ISOLATION	BUTTERFLY	6"	SS	FL	LV	BRAY SERIES 40/41 MCCANNALOK W SS DISC AND STEM AND PTFE SEAT OR EQUAL
HV-72540	DIGESTER GAS LINE	FUTURE GAS SCRUBBER ISOLATION	BUTTERFLY	4"	SS	FL	CW	BRAY SERIES 40/41 MCCANNALOK W SS DISC AND STEM AND PTFE SEAT OR EQUAL
HV-72543	DIGESTER GAS LINE	FUTURE GAS SCRUBBER ISOLATION	BUTTERFLY	4"	SS	FL	CW	BRAY SERIES 40/41 MCCANNALOK W SS DISC AND STEM AND PTFE SEAT OR EQUAL
HV-72544	DIGESTER GAS LINE	FUTURE GAS SCRUBBER BYPASS	BUTTERFLY	6"	SS	FL	CW	BRAY SERIES 40/41 MCCANNALOK W SS DISC AND STEM AND PTFE SEAT OR EQUAL
HV-80300A	DEWATERING BUILDING	DEWATERING PRESS ISOLATION	PLUG	8"	DI	FL X FL	WHEEL	VALMATIC 100% PORT ECCENTRIC PLUG VALVE OR EQUAL
HV-80300B	DEWATERING BUILDING	POLYMER FLOW METER ISOLATION	BALL	1"	CPVC	THD	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
HV-80300C	DEWATERING BUILDING	POLYMER FLOW METER ISOLATION	BALL	1"	CPVC	THD	LV	ASAHI AMERICAN TYPE 21 CPVC BALL VALVE W/EPDM SEATS, VENTED BALL OR EQUAL
MFV-06021F	FUEL STATION	ANIT-SIPHON VALVE	PRV	1"	SS	THD	-	PROVIDED BY ABOVE GROUND FUEL TANK SUPPLIER
MFV-06021I	FUEL STATION	ANTI-SIPHON VALVE	PRV	1 1/2"	SS	THD	-	PROVIDED BY ABOVE GROUND FUEL TANK SUPPLIER
MFV-33302	CLASSIFIER ROOM	AIR/VACUUM RELIEF VALVE	AIR RELIEF	2"	DI	NPT	-	VALMATIC WASTEWATER AIR/VACUUM COMBINATION VALVE MODEL 801A OR EQUAL
MFV-62126	GRAVITY THICKENER	AIR/VACUUM RELIEF VALVE	AIR RELIEF	2"	DI	NPT	-	VALMATIC WASTEWATER AIR/VACUUM COMBINATION VALVE MODEL 801A OR EQUAL
MFV-63113	GRAVITY THICKENER	AIR/VACUUM RELIEF VALVE	AIR RELIEF	2"	DI	NPT	-	VALMATIC WASTEWATER AIR/VACUUM COMBINATION VALVE MODEL 801A OR EQUAL
MFV-68202	ANAEROBIC DIGESTER 1	DIGESTER 1 DOME PRESSURE RELIEF	PRV	4"	SS	FL	-	VAREC 7101B44TFRTS02 OR EQUAL
MFV-68222	ANAEROBIC DIGESTER 2	DIGESTER 2 DOME PRESSURE RELIEF	PRV	4"	SS	FL	-	VAREC 7101B44TFRTS02 OR EQUAL
MFV-68520	DIGESTER CONTROL BUILDING	AIR/VACUUM RELIEF VALVE	AIR RELIEF	2"	DI	NPT	-	VALMATIC WASTEWATER AIR/VACUUM COMBINATION VALVE MODEL 801A OR EQUAL
MFV-68556	DIGESTER BUILDING	AIR/VACUUM RELIEF VALVE	AIR RELIEF	2"	DI	NPT	-	VALMATIC WASTEWATER AIR/VACUUM COMBINATION VALVE MODEL 801A OR EQUAL

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4/19/2024

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IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE
0 1/2 1

ORIGINAL

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REVISIONS

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SOUTH DAVIS SEWER DISTRICT
NORTH PLANT UPGRADE
-
SCHEDULES
VALVES

AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
81M806
SHEET

VALVE SCHEDULE

V#	LOCATION	SERVICE	TYPE	SIZE	MATERIAL	CONNECTION	ACTUATOR	REMARKS
MFV-68571	DIGESTER BUILDING	AIR/VACUUM RELIEF VALVE	AIR RELIEF	2"	DI	NPT	-	VALMATIC WASTEWATER AIR/VACUUM COMBINATION VALVE MODEL 801A OR EQUAL
MFV-70505	DIGESTER BUILDING	AIR/VACUUM RELIEF VALVE	AIR RELIEF	2"	DI	NPT	-	VALMATIC WASTEWATER AIR/VACUUM COMBINATION VALVE MODEL 801A OR EQUAL
MFV-80301	.	AIR/VACUUM RELIEF VALVE	AIR RELIEF	2"	DI	NPT	-	VALMATIC WASTEWATER AIR/VACUUM COMBINATION VALVE MODEL 801A OR EQUAL
SV-10112	HEADWORKS BUILDING	WASHER COMPACTOR 1 NPW CONTROL	SOLENOID	1"	SS	THD	ELEC	FURNISHED WITH WASHER COMPACTOR
SV-10122	HEADWORKS BUILDING	WASHER COMPACTOR 2 NPW CONTROL	SOLENOID	1"	SS	THD	ELEC	FURNISHED WITH WASHER COMPACTOR
SV-33103	SNAIL TRAP	NPW CONTROL	SOLENOID	1"	BRASS	THD	ELEC	PROVIDED WITH GRIT TRAP EQUIPMENT
SV-33302	SNAIL TRAP	NPW CONTROL	SOLENOID	1"	BRASS	THD	ELEC	PROVIDED WITH GRIT TRAP EQUIPMENT
SV-35313	RAW SLUDGE PUMP STATION	PNEUMATIC VALVE ACTUATION	SOLENOID	1/2"	SS	THD	ELEC	ASCO REDHAT SERIES 8210 WITH 304 SS BODY OR EQUAL
SV-35323	RAW SLUDGE PUMP STATION	PNEUMATIC VALVE ACTUATION	SOLENOID	1/2"	SS	THD	ELEC	ASCO REDHAT SERIES 8210 WITH 304 SS BODY OR EQUAL
SV-35333	RAW SLUDGE PUMP STATION	PNEUMATIC VALVE ACTUATION	SOLENOID	1/2"	SS	THD	ELEC	ASCO REDHAT SERIES 8210 WITH 304 SS BODY OR EQUAL
SV-35343	RAW SLUDGE PUMP STATION	PNEUMATIC VALVE ACTUATION	SOLENOID	1/2"	SS	THD	ELEC	ASCO REDHAT SERIES 8210 WITH 304 SS BODY OR EQUAL
SV-68537	DIGESTER BUILDING	CONDENSATE DRAIN LINE	SOLENOID	1"	SS	NPT	-	ASCO REDHAT SERIES 8210 WITH 304 SS BODY OR EQUAL
SV-80300A	DEWATERING BUILDING	SPRAY BAR CONTROL	SOLENOID	1/2"	-	-	ELEC	PROVIDED WITH DEWATERING EQUIPMENT
SV-80300B	DEWATERING BUILDING	SPRAY BAR CONTROL	SOLENOID	1/2"	-	-	ELEC	PROVIDED WITH DEWATERING EQUIPMENT
SV-80300C	DEWATERING BUILDING	SPRAY BAR CONTROL	SOLENOID	1/2"	-	-	ELEC	PROVIDED WITH DEWATERING EQUIPMENT
SV-80300D	DEWATERING BUILDING	SPRAY BAR CONTROL	SOLENOID	1/2"	-	-	ELEC	PROVIDED WITH DEWATERING EQUIPMENT
SV-80300E	DEWATERING BUILDING	SPRAY BAR CONTROL	SOLENOID	1/2"	-	-	ELEC	PROVIDED WITH DEWATERING EQUIPMENT

1

SHEET HAS
BEEN UPDATED

C:\USERS\DANIEL.LEAVITT\DCVACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\980 SCHEDULES\984-84M804 VALVE SCHEDULE.DWG

4/19/2024

DRAWING IS TO SCALE
IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/01/2024	EIT	DCL	BMR
1	04/19/2024	EIT	DCL	BMR

REVISIONS

SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

-

SCHEDULES
VALVES

AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

81M807

SHEET

SECTION 432356 – SLUDGE PROGRESSING CAVITY PUMP

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. The work to be performed under this section of the specification shall consist of furnishing and installing (6) horizontal, motor driven, progressive cavity pumps model: Xpress 64 7.5 HP Weg WATT Gear CF052 11P132S04E.

1.2 RELATED WORK

A. Related work specified elsewhere:
   1. Section 013300, “Contractor Submittals”
   2. Section 098000, “Protective Coatings”
   3. Division 26, “Electrical”

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications
   1. Heavy-duty progressing cavity pump from a manufacture that has been manufacturing progressing cavity pumps for over 45 years. The pumps to be furnished under this Section shall be furnished by a single manufacturer who is fully experienced, reputable, and qualified in the manufacture of the equipment to be furnished. The manufacturer will be considered qualified upon examination of credentials and confirmation of satisfactory operation of similar installations in the USA. The following manufactures are acceptable:
      a. Wangen model Xpress 64
      b. NETZSCH Pumps North America, LLC
      c. Seepex
      d. Moyno
      e. Or equal

1.4 SUBMITTALS

A. Submittals are required after award of the contract and prior to equipment construction. The contract shall submit, the following
   1. Performance curves; curves to include flowrate, pressure, sliding velocity, required horsepower, toque at operating points and starting torque.
   2. Complete specifications for each part to assure compliance with these specifications and should include the following:
      a. Materials of construction showing full compliance with specifications
      b. Application details and design details which include min/max operating point, suction pressure, discharge pressure, operating speed, sliding velocity, frequency, power required at drive shaft, running torque and starting torque

3. Construction drawings showing complete dimensions, anchor bolts locations, and flange details
4. Weights
5. Warranty

B. Submittals required after construction and prior to shipment.
1. Factory Data Test
2. Six bound copies of operation and maintenance manuals, each copy to include:
a. Sections drawings
b. Parts list with recommended spare parts
c. Operation instructions
d. Maintenance instructions

1.5 TESTING – PUMP AND MOTOR

A. All complete pumping units (this includes pump, motor, and drive) will be tested on water as a complete unit at the manufacturer's plant before shipment. The testing shall be a complete non-witnessed performance test at the design point(s) and is to include head and capacity, brake horsepower, and efficiency to prove that the pumps to be shipped conform to the requirements to the specification.

B. The contractor, acting under the instructions of the pump supplier's field representative shall perform a functional field test of all the equipment to prove to the engineer that all components of the system are properly installed and that all equipment will perform in accordance with this specification

1.6 WARRANTY

A. The pump manufacturer shall guarantee the complete pumping assemblies for a period of 12 months after acceptance or 18 months after shipment, whichever occurs first. The warranty as specified here shall cover all defective parts, material, and workmanship.

B. The responsible manufacturer shall replace all items deemed by the manufacturer to be defective without cost to the owner. Push-Pull is not included.

PART 2 - PRODUCTS

2.1 General – Unless otherwise stated, the sludge pumps shall be progressing cavity principle suitable for pumping sludge as indicated below:

A. Waste Activated Sludge

B. The progressing pump should meet the following performances parameters:
1. FLOW: 50-150 GPM
2. DISCHARGE PRESSURE: 50 PSI
3. MAXIMUM RPM: 104 RPM @ 50 GPM; 290 RPM @ 150 GPM

4. MINIMUM HORSEPOWER: 7.5 HP
5. MANUFACTURERS: WANGEN MODEL: Xpress 64
6. Suction FLANGE SIZES: 4 -INCH ANSI 150 #
7. Discharge FLANGE SIZES: 4 -INCH ANSI 150 #

2.2 PUMP CONSTRUCTION

A. Pump Suction and Discharge Casing
1. The pump casing shall be designed for the type of service specified and shall be of sufficient strength, weight, and metal thickness to ensure long life, accurate alignment, and reliable operation. The suction casing shall be constructed of close-grained cast iron and have two inspection ports. In addition, a drain port should also be at the lowest level of the suction body.
2. The suction and discharge connections shall be ANSI/B16.5 flanges sized for the pump specified. The discharge support feet shall be separate from the discharge flange.
3. Provide 2 square side plates on each side of the pump, 180° apart, large enough to permit easy inspection of the cardan joint and mechanical seal and servicing of pump.

B. STATOR
1. The stator shall be affixed to the suction casing by the use of four (4) thru-bolts for easy removal and replacement. Stators shall not be affixed to the suction casing by threaded connections or by snap rings. The suction edge of the stator shall be chamfered to allow for unrestricted flow into the pumping elements.
2. The seal shall be integral to the stator sleeve at the suction and discharge to prevent leakage. The use of separate O-rings or flat rings for stator sealing shall not be required.
3. Stator designs that limit nominal pump pressure capability to less than 58 PSI shall not be acceptable.
4. The stator assembly shall be provided with a PT100 thermistor switch to monitor stator temperature.

C. ROTOR
1. The rotor shall be precision machined from tool steel AISI/SAE 304 with a chromium content of 17-19,5% covered with heavy layers of hard chrome plating.

D. UNIVERSAL JOINT
1. The rotor shall be connected to the motor drive shaft by means of either a cardan joint, pin joint, or gear joint.

E. DRIVE TRAIN
1. The rotor shall be driven by means of a heavy-duty drive train. The rotor shall be joined to the motor drive shaft by means of either a cardan joint, pin joint, or gear joint with an NBR protective sleeve.
2. The cardan joint shall be joined and driven by hardened pins locked in place by a snap ring.
3. The cardan joint shall be sealed from the abrasive fluid being pumped, utilizing an NBR protective sleeve held in place with three stainless steel bands. The NBR protective sleeve shall cover the length of the cardan joint and allow for the movement of operation of the cardan joint.

F. SHAFT SEAL

1. The pumps shall be fitted with a single mechanical seal with Silicon Carbide Seal faces and 304 stainless steel metal parts. The mechanical seal shall be a rubber bellows seal type.
2. The mechanical seal shall be inside mounted, located inside the pump suction housing with ample open area around the seal and not in a dead-end enclosed housing where solids could accumulate.

2.3 DESIGN FEATURES

A. Pump Performance
1. The suction body of the pump shall be oversized at the entrance of the rotor and stator pumping elements to allow the free flow of high solids materials. The rotor joint head shall be set back from the stator and the leading edge of the stator shall be chamfered so not to restrict the flow into the pumping elements.
2. X-Lift Quick Change System: Pump(s) shall be provided with removable pump discharge flange that in conjunction with the Cardan joint allows for easy removal and exchange of the pump rotor/stator while the pump suction housing stays connected to the suction piping and the discharge piping remains in place. The removable discharge flange shall be 150# ANSI flanged and accept the octagonal discharge end of the stator housing. The removable discharge flange shall mount to a footed support. The discharge flange, stator housing, and footed support shall be connected to the pump body suction housing and held in place by four threaded connecting rods.

2.4 DRIVE FEATURES

A. Motor Features
1. The motor shall be an IP55 outdoor rated motor enclosure with class F insulation, 1.15 service factor, Inverter Duty rated. Motor shall be manufactured by Weg WATT.

PART 3 - EXECUTION

3.1 SERVICE OF MANUFACTURERS

A. Secure start-up services for pump as specified below.

SCHEDULE OF FIELD SERVICE REPRESENTATIVE ON SITE TIME		
Service	On Site Time (Days)	Trips to Site
Equipment delivery verification and installation instruction	1	1
Installation verification, start-up and instruction of the Owner's personnel	1	1
TOTAL	2	2

B. A "Day on Site" is defined as a conventional 8-hour workday excluding travel time. A "Trip to Site" is defined as complete round trip travel from the Manufacturer's factory. All expenses including salary, local/long distance travel, lodging, meals and any other per diem or miscellaneous expenses of the authorized service representative shall be the responsibility of the Contractor.

C. A factory representative of the pumping equipment shall be present to supervise start-up and ensure proper operation of all components. The Contractor shall obtain and pay for the factory representative start-up service.

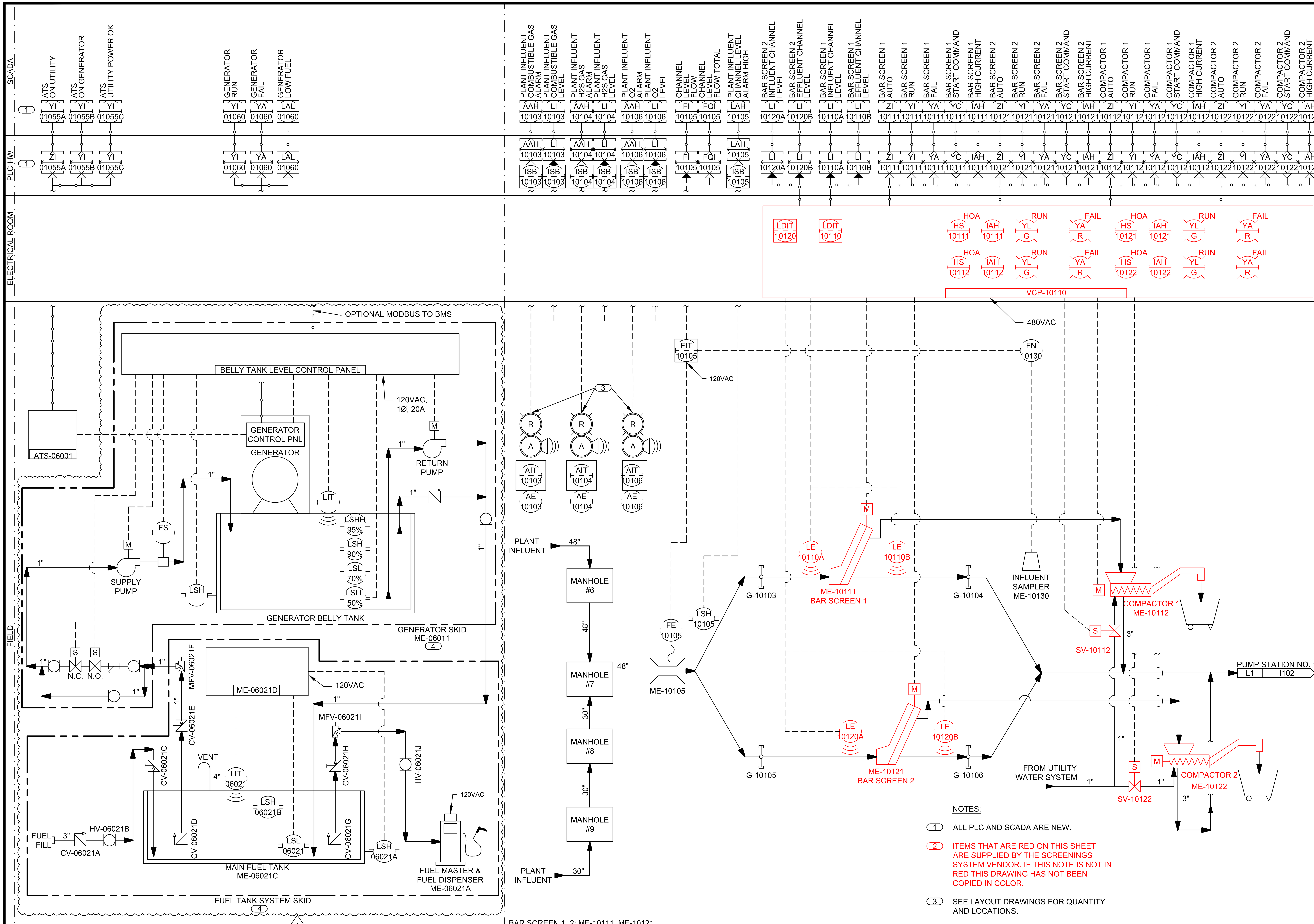
3.2 INSTALLATION

A. The pumps shall be installed as specified and in accordance with manufacturer's written recommendations.

3.3 TESTING

A. After completion of installation, the pumps shall be completely tested to demonstrate compliance with operating requirements as specified.

END OF SECTION 432356



ATS: ATS-06001
GENERATOR: ME-06011
FUEL SYSTEM: ME-06021A, C & D
LOOPS: 06001, 06011, 06021

BAR SCREEN 1, 2: ME-10111, ME-10121
COMPACTOR 1, 2: ME-10112, ME-10122
FUTURE PHOSPHORUS SAMPLING PUMP: P-10113
LOOPS: 10103, 10104, 10105, 10110, 10111, 10112, 10120, 10121, 10122, 10130

NOTES:

1. ALL PLC AND SCADA ARE NEW.
2. ITEMS THAT ARE RED ON THIS SHEET ARE SUPPLIED BY THE SCREENINGS SYSTEM VENDOR. IF THIS NOTE IS NOT IN RED THIS DRAWING HAS NOT BEEN COPIED IN COLOR.
3. SEE LAYOUT DRAWINGS FOR QUANTITY AND LOCATIONS.
4. FOR SPECIFIC DATAPOINT FEEDBACK FROM GENERATOR AND FUEL SYSTEM. REFER TO SPEC 263213 ENGINE GENERATORS.

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

NO.	DATE	DESIGN	DRAWN	CHECKED
ORIGINAL				
B	04/01/2024	RSP	TVH	RSP
REVISIONS				
1	04/19/2024	RSP	DCL	RSP

SOUTH DAVIS SEWER DISTRICT
NORTH PLANT UPGRADE
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INSTRUMENTATION - P&ID
SCREENS BUILDING

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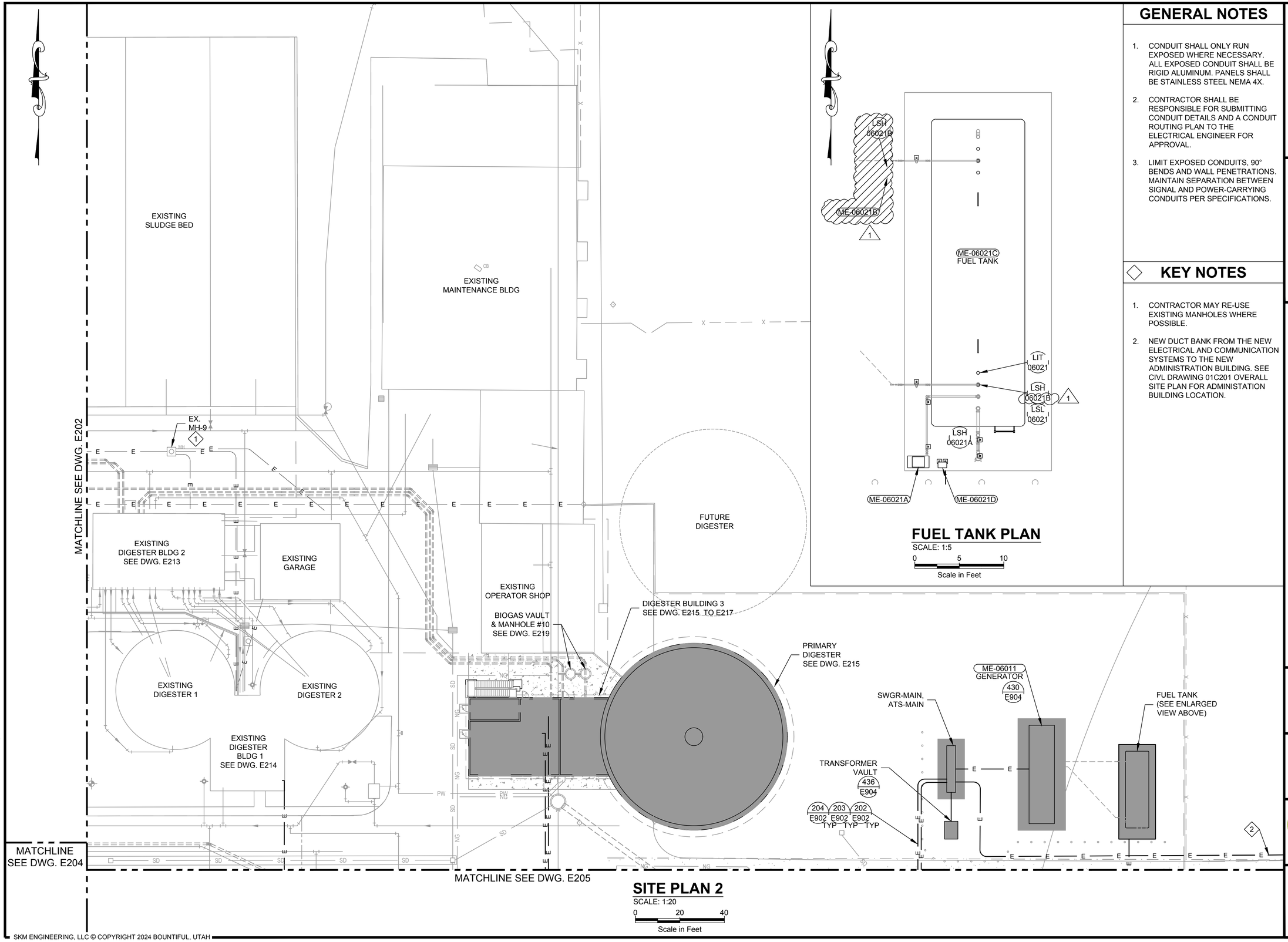
DRAWING NO.
I101
SHEET



SITE PLAN 2

SCALE: 1:20

0 20 40

Scale in Feet

FUEL TANK PLAN

SCALE: 1:5

0 5 10

Scale in Feet

GENERAL NOTES

1. CONDUIT SHALL ONLY RUN EXPOSED WHERE NECESSARY. ALL EXPOSED CONDUIT SHALL BE RIGID ALUMINUM. PANELS SHALL BE STAINLESS STEEL NEMA 4X.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CONDUIT DETAILS AND A CONDUIT ROUTING PLAN TO THE ELECTRICAL ENGINEER FOR APPROVAL.
3. LIMIT EXPOSED CONDUITS, 90° BENDS AND WALL PENETRATIONS. MAINTAIN SEPARATION BETWEEN SIGNAL AND POWER-CARRYING CONDUITS PER SPECIFICATIONS.

KEY NOTES

1. CONTRACTOR MAY RE-USE EXISTING MANHOLES WHERE POSSIBLE.
2. NEW DUCT BANK FROM THE NEW ELECTRICAL AND COMMUNICATION SYSTEMS TO THE NEW ADMINISTRATION BUILDING. SEE CIVL DRAWING 01C201 OVERALL SITE PLAN FOR ADMINISTATION BUILDING LOCATION.

DRAWING IS TO SCALE
IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/01/2024	RSP	DCL	RSP

REVISIONS

1	04/19/2024	RSP	DCL	RSP

SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE
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SITE PLAN 2

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DRAWING NO.

E203

SHEET

C:\USERS\DANIEL.LEAVITT\DCACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\999 ELECTRICAL\999-E201 OVERALL SITE PLAN.DWG
4/19/2024

SHEET	TAG	DESCRIPTION	LOCATION	MAKE	MODEL	SUPPLY	RANGE	COMMENTS
I101	AE/AIT-10103	Gas Detector LEL	PROCESS ROOM	MSA	ULTIMA X SERIES	120VAC		OWNER PROVIDED, CONTRACTOR INSTALLED
I101	AE/AIT-10104	Gas Detector H2S	PROCESS ROOM	MSA	ULTIMA X SERIES	120VAC		OWNER PROVIDED, CONTRACTOR INSTALLED
I101	AE/AIT-10105	Gas Detector O2	PROCESS ROOM	MSA	ULTIMA X SERIES	120VAC	0-100%	OWNER PROVIDED, CONTRACTOR INSTALLED
I101	FE/FIT-10105	ULTRASONIC LEVEL TRANSDUCER	PARSHALL FLUME	SIEMENS	XPS-15 OR GREATER			OWNER PROVIDED, CONTRACTOR INSTALLED
		TRANSMITTER	PARSHALL FLUE	SIEMENS	SITRANS LT500	120VAC	0-5 MGD	OWNER PROVIDED, CONTRACTOR INSTALLED
I101	LSH-10105	FLOAT LEVEL SWITCH	INFLUENT CHANNEL	FLYGT	ENM-10			OWNER PROVIDED, CONTRACTOR INSTALLED
I102	LSH-10128	FLOAT LEVEL SWITCH	PUMP STATION 1	FLYGT	ENM-10			OWNER PROVIDED, CONTRACTOR INSTALLED
I102	LSL-10128	FLOAT LEVEL SWITCH	PUMP STATION 1	FLYGT	ENM-10			OWNER PROVIDED, CONTRACTOR INSTALLED
I102	LT-10129	SUBMERSIBLE LEVEL TRANSMITTER	PUMP STATION 1	DWYER	PBLT2	24VDC	0-15 FT	OWNER PROVIDED, CONTRACTOR INSTALLED
I102	LCP-10130	PUMP STATION 1 LOCAL CONTROLS	PUMP STATION 1					CONTRACTOR PROVIDED AND INSTALLED
I102	LCP-10201	RECYCLE VALVE LOCAL CONTROLS	PUMP STATION 1					CONTRACTOR PROVIDED AND INSTALLED
I102	FE/FIT-10201	MAGNETIC FLOW METER	FINAL CLARIFIER RETURN	SIEMENS	SITRANS F 5100W	120VAC	0-200 GPM	OWNER PROVIDED, CONTRACTOR INSTALLED
I102	LCO-P10201	SUMP PUMP LOCAL CONTROLS	SUMP PUMP					CONTRACTOR PROVIDED AND INSTALLED
I102	LSHH-10170	FLOAT LEVEL SWITCH	PUMP STATION 1 SUMP RETURN	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I102	LSH-10170	FLOAT LEVEL SWITCH	PUMP STATION 1 SUMP RETURN	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I102	LSL-10170	FLOAT LEVEL SWITCH	PUMP STATION 1 SUMP RETURN	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I103	FSH-10180	EYEWASH FLOW SWITCH	EYEWASH STATION					PROVIDED WITH EYEWASH STATION
I103	FSH-10181	EYEWASH FLOW SWITCH	EYEWASH STATION					PROVIDED WITH EYEWASH STATION
I103	FSH-38301	EYEWASH FLOW SWITCH	EYEWASH STATION					PROVIDED WITH EYEWASH STATION
I103	FSH-38302	EYEWASH FLOW SWITCH	EYEWASH STATION					PROVIDED WITH EYEWASH STATION
I103	LCP-10300	METAL SALTS LEVEL DISPLAY	METAL STALTS FILL STATION					CONTRACTOR PROVIDED AND INSTALLED
I103	PSH-10321	PRESSURE SWITCH	METAL SALTS DOSING PUMP 1	DWYER	SERIES DA/DS		0-20 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I103		ANNULAR RING	METAL SALTS DOSING PUMP 1	REO TEMP	ORT, ORR, OR ORB		0-20 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I103	TSH-10321	PUMP TEMPERATURE SWITCH	METAL SALTS DOSING PUMP 1					PROVIDED BY PUMP SUPPLIER
I103	PSH-10331	PRESSURE SWITCH	METAL SALTS DOSING PUMP 2	DWYER	SERIES DA/DS		0-20 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I103		ANNULAR RING	METAL SALTS DOSING PUMP 2	REO TEMP	ORT, ORR, OR ORB		0-20 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I103	TSH-10331	PUMP TEMPERATURE SWITCH	METAL SALTS DOSING PUMP 2					PROVIDED BY PUMP SUPPLIER
I103	PSH-38101	PRESSURE SWITCH	BLOWER BUILDING MS DOSING PUMP 1	DWYER	SERIES DA/DS		0-20 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I103		ANNULAR RING	BLOWER BUILDING MS DOSING PUMP 1	REO TEMP	ORT, ORR, OR ORB		0-20 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I103	TSH-38101	PUMP TEMPERATURE SWITCH	BLOWER BUILDING MS DOSING PUMP 1					PROVIDED BY PUMP SUPPLIER
I103	PSH-38201	PRESSURE SWITCH	BLOWER BUILDING MS DOSING PUMP 2	DWYER	SERIES DA/DS		0-20 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I103		ANNULAR RING	BLOWER BUILDING MS DOSING PUMP 2	REO TEMP	ORT, ORR, OR ORB		0-20 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I103	TSH-38201	PUMP TEMPERATURE SWITCH	BLOWER BUILDING MS DOSING PUMP 2					PROVIDED BY PUMP SUPPLIER
I103	LE/LIT-10303	RADAR LEVEL	METAL SALTS TANK 1	SIEMENS	LR150	120VAC	0-10 FT	OWNER PROVIDED, CONTRACTOR INSTALLED
I103	LE/LIT-10313	RADAR LEVEL	METAL SALTS TANK 2	SIEMENS	LR150	120VAC	0-10 FT	OWNER PROVIDED, CONTRACTOR INSTALLED
I103	LSH-10303	CONTAINMENT LEAK SWITCH	METAL SALTS TANK 1					PROVIDED WITH TANK
I103	LSH-10313	CONTAINMENT LEAK SWITCH	METAL SALTS TANK 2					PROVIDED WITH TANK
I103	FE/FIT-10341	MAGNETIC FLOW METER	METAL SALTS DOSING PUMPS	SIEMENS	SITRANS F 5100W	120VAC	0-100 GAL/HR	OWNER PROVIDED, CONTRACTOR INSTALLED
I104	LCP-15201	GRIT SYSTEM LOCAL CONTROL PANEL	DEGRITTER					CONTRACTOR PROVIDED AND INSTALLED
I105	LCP-ME-PC-4	PRIMARY CLARIFIER 4 LOCAL CONTROLS	PRIMARY CLARIFIER 4					CONTRACTOR PROVIDED AND INSTALLED
I105	JSH-20281	PRIMARY CLARIFIER TORQUE SWITCH	PRIMARY CLARIFIER 4					PROVIDED BY CLARIFIER SUPPLIER
I107	LCP-30320	MBBR PUMP LOCAL CONTROLS	MBBR PUMP STATION					CONTRACTOR PROVIDED AND INSTALLED
I107	LCP-P-31320	SUMP PUMP LOCAL CONTROLS	SUMP PUMP					CONTRACTOR PROVIDED AND INSTALLED
I107	LSH-31301	FLOAT LEVEL SWITCH	MBBR PUMP STATION WET PIT	FLYGT	ENM-10			OWNER PROVIDED, CONTRACTOR INSTALLED
I107	LSL-31301	FLOAT LEVEL SWITCH	MBBR PUMP STATION WET PIT	FLYGT	ENM-10			OWNER PROVIDED, CONTRACTOR INSTALLED
I107	LE/LIT-31302	RADAR LEVEL	MBBR PUMP STATION WET PIT	SIEMENS	LR150	120VAC	0-23 FT	OWNER PROVIDED, CONTRACTOR INSTALLED
I107	LSHH-31361	FLOAT LEVEL SWITCH	MBBR PUMP STATION SUMP	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I107	LSH-31361	FLOAT LEVEL SWITCH	MBBR PUMP STATION SUMP	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I107	LSL-31361	FLOAT LEVEL SWITCH	MBBR PUMP STATION SUMP	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I108	OCA-33103	GRIT TRAP SOLENOID OCA SWITCH	GRIT TRAP WASH WATER					CONTRACTOR PROVIDED AND INSTALLED
I108	OCA-33302	GRIT CLASSIFIER SOLENOID OCA SWITCH	GRIT CLASSIFIER WASH WATER					CONTRACTOR PROVIDED AND INSTALLED
I108	FE-33105	ROTAMETER	NPW SNAIL TRAP LINE	DWYER	UV SERIES		2-20 GPM	OWNER PROVIDED, CONTRACTOR INSTALLED
I108	PIT-33201	PRESSURE TRANSMITTER	SNAIL PUMP	DWYER	SERIES 626	24VDC	0-10 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
		BLOCK AND BLEED VALVE	SNAIL PUMP					OWNER PROVIDED, CONTRACTOR INSTALLED
I108	PI-33303	PRESSURE GAUGE	GRIT CLASSIFIER	DWYER	SERIES DPG-200	24VDC	0-100 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I109	FE/FIT-37101	THERMAL MASS FLOWMETER	MBBR TANK 1 BLOWER LINES	FCI	ST51	120 VAC	0-4000 SCFM	OWNER PROVIDED, CONTRACTOR INSTALLED
I109	FE/FIT-37201	THERMAL MASS FLOWMETER	MBBR TANK 1 BLOWER LINES	FCI	ST51	120 VAC	0-4000 SCFM	OWNER PROVIDED, CONTRACTOR INSTALLED
I109	FE/FIT-37102	THERMAL MASS FLOWMETER	MBBR TANK 2 BLOWER LINES	FCI	ST51	120 VAC	0-500 SCFM	OWNER PROVIDED, CONTRACTOR INSTALLED
I109	FE/FIT-37202	THERMAL MASS FLOWMETER	MBBR TANK 2 BLOWER LINES	FCI	ST51	120 VAC	0-500 SCFM	OWNER PROVIDED, CONTRACTOR INSTALLED
I109	LSH-37101	FLOAT LEVEL SWITCH	MBBR TANK 1	FLYGT	ENM-10			OWNER PROVIDED, CONTRACTOR INSTALLED
I109	LSH-37201	FLOAT LEVEL SWITCH	MBBR TANK 2	FLYGT	ENM-10			OWNER PROVIDED, CONTRACTOR INSTALLED
I109	AE-37101	DO SENSOR	MBBR TANK 1	HACH	LDO PROBE 2			OWNER PROVIDED, CONTRACTOR INSTALLED
I109	AIT-37101	DO Controller	MBBR TANKS	HACH	SC200/1000	120 VAC		OWNER PROVIDED, CONTRACTOR INSTALLED
I109	AE-37201	DO SENSOR	MBBR TANK 2	HACH	LDO PROBE 2			OWNER PROVIDED, CONTRACTOR INSTALLED
I110	PIT-35490	PRESSURE TRANSMITTER	BLOWER LINES TO MBBR TANKS	DWYER	SERIES 626	24VDC	0-15 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I113	LCP-35313	CLARIFIER PINCH VALVE LOCAL CONTROLS	PRIMARY CLARIFIER RETURN					CONTRACTOR PROVIDED AND INSTALLED
I113	PSL-35303	PRESSURE SWITCH	DIGESTER BUILDING AIR COMPRESSOR	DWYER	SERIES APS		0-100 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I113	PSH-35303	PRESSURE SWITCH	DIGESTER BUILDING AIR COMPRESSOR	DWYER	SERIES APS		0-100 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I113	PSH-35313	PRESSURE SWITCH	DIGESTER BUILDING AIR COMPRESSOR	DWYER	SERIES APS		0-100 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I113	PSH-35323	PRESSURE SWITCH	DIGESTER BUILDING AIR COMPRESSOR	DWYER	SERIES APS		0-100 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I113	PSH-35333	PRESSURE SWITCH	DIGESTER BUILDING AIR COMPRESSOR	DWYER	SERIES APS		0-100 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I113	PSH-35343	PRESSURE SWITCH	DIGESTER BUILDING AIR COMPRESSOR	DWYER	SERIES APS		0-100 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I116	LIT-60101	RADAR LEVEL	SODIUM BUSULFITE TANK 1	SIEMENS	LR150	120VAC	0-20 FT	OWNER PROVIDED, CONTRACTOR INSTALLED
I116	LIT-60111	RADAR LEVEL	SODIUM BUSULFITE TANK 2	SIEMENS	LR150	120VAC	0-20 FT	OWNER PROVIDED, CONTRACTOR INSTALLED
I116	LIT-60121	RADAR LEVEL	SODIUM HYPOCHLORITE TANK 1	SIEMENS	LR150	120VAC	0-20 FT	OWNER PROVIDED, CONTRACTOR INSTALLED
I116	LIT-60131	RADAR LEVEL	SODIUM HYPOCHLORITE TANK 2	SIEMENS	LR150	120VAC	0-20 FT	OWNER PROVIDED, CONTRACTOR INSTALLED
I116	LIT-60141	RADAR LEVEL	SODIUM HYPOCHLORITE TANK 3	SIEMENS	LR150	120VAC	0-20 FT	OWNER PROVIDED, CONTRACTOR INSTALLED
I116	LIT-60151	RADAR LEVEL	SODIUM HYPOCHLORITE TANK 4	SIEMENS	LR150	120VAC	0-20 FT	OWNER PROVIDED, CONTRACTOR INSTALLED
I117	LCP-62151	SUMP PUMP LOCAL CONTROLS	SUMP PUMP					CONTRACTOR PROVIDED AND INSTALLED
I117	LCP-62110	RAW SLUDGE PUMP LOCAL CONTROLS	RAW SLUDGE PUMPS					CONTRACTOR PROVIDED AND INSTALLED
I117	LSHH-62150	FLOAT LEVEL SWITCH	DIGESTER CONTROL BUILDING SUMP 1	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I117	LSH-62150	FLOAT LEVEL SWITCH	DIGESTER CONTROL BUILDING SUMP 1	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I117	LSL-62150	FLOAT LEVEL SWITCH	DIGESTER CONTROL BUILDING SUMP 1	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I117	LCP-63110	THICKENED SLUDGE PUMP LOCAL CONTROLS	THICKENED SLUDGE PUMPS					CONTRACTOR PROVIDED AND INSTALLED
I117	FE/FIT-62125	MAGNETIC FLOW METER	RAW SLUDGE PUMPS	SIEMENS	SITRANS F 5100W	120VAC	0-500 GPM	OWNER PROVIDED, CONTRACTOR INSTALLED
I117	LCP-63131	SUMP PUMP LOCAL CONTROLS	SUMP PUMP					CONTRACTOR PROVIDED AND INSTALLED
I117	LSHH-63130	FLOAT LEVEL SWITCH	DIGESTER CONTROL BUILDING SUMP 2	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I117	LSH-63130	FLOAT LEVEL SWITCH	DIGESTER CONTROL BUILDING SUMP 2	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I117	LSL-63130	FLOAT LEVEL SWITCH	DIGESTER CONTROL BUILDING SUMP 2	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I117	PSH-63110	PRESSURE SWITCH	THICKENED SLUDGE PUMP 1	DWYER	SERIES DA/DS		0-50 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I117		ANNULAR RING	THICKENED SLUDGE PUMP 1	REO TEMP	ORT, ORR, OR ORB			OWNER PROVIDED, CONTRACTOR INSTALLED

INSTRUMENT SCHEDULE 1

1 SHEET ADDED

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/01/2024	RSP	DCL	RSP

REVISIONS

1	04/19/2024	RSP	DCL	RSP

SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

1800 W 1200 N WEST BOUNTIFUL, UT 84087

ELECTRICAL - POWER DISTRIBUTION

INSTRUMENT SCHEDULE 1

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
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AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E801

SHEET

4/18/2024 C:\USERS\DANIEL.LEAVITT\DCACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\999 ELECTRICAL\999-E801 INSTRUMENT SCHEDULE.DWG

SHEET	TAG	DESCRIPTION	LOCATION	MAKE	MODEL	SUPPLY	RANGE	COMMENTS
I117	TSH-63110	PUMP TEMPERATURE SWITCH	THICKENED SLUDGE PUMP 2					PROVIDED BY PUMP SUPPLIER
I117	PSH-63120	PRESSURE SWITCH	THICKENED SLUDGE PUMP 2	DWYER	SERIES DA/DS		0-50 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I117		ANNULAR RING	THICKENED SLUDGE PUMP 2	REO TEMP	ORT, ORR, OR ORB			OWNER PROVIDED, CONTRACTOR INSTALLED
I117	TSH-63120	PUMP TEMPERATURE SWITCH	THICKENED SLUDGE PUMP 3					PROVIDED BY PUMP SUPPLIER
I117	FE/FIT-63125	MAGNETIC FLOW METER	THICKENED SLUDGE PUMPS	SIEMENS	SITRANS F 5100W	120VAC	0-500 GPM	OWNER PROVIDED, CONTRACTOR INSTALLED
I118	PIT-68230	PRESSURE TRANSMITTER	ANAEROBIC DIGESTERS	DWYER	SERIES 626	24VDC	0-24 IN. W.C.	OWNER PROVIDED, CONTRACTOR INSTALLED
		BLOCK AND BLEED VALVE	ANAEROBIC DIGESTERS					OWNER PROVIDED, CONTRACTOR INSTALLED
I118	PT-68201	SUBMERSIBLE LEVEL TRANSMITTER	ANAEROBIC DIGESTER 1	DWYER	PBLT2	24VDC	0-20 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I118	PT-68221	SUBMERSIBLE LEVEL TRANSMITTER	ANAEROBIC DIGESTER 2	DWYER	PBLT2	24VDC	0-20 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I118	ZSH-68203	LID ALARM HIGH	ANAEROBIC DIGESTER 1				0-12 FT	OWNER PROVIDED, CONTRACTOR INSTALLED
I118	ZSH-68223	LID ALARM HIGH	ANAEROBIC DIGESTER 2				0-12 FT	OWNER PROVIDED, CONTRACTOR INSTALLED
I120	TE/TIT-73212	TEMPERATURE TRANSMITTER AND PROBE	HOT WATER PUMP 1	PYROMATION	T1 42 HART SERIES	24VDC	40-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I120	TE/TIT-73213	TEMPERATURE TRANSMITTER AND PROBE	HOT WATER PUMP 1	PYROMATION	T1 42 HART SERIES	24VDC	40-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I120	TE/TIT-73214	TEMPERATURE TRANSMITTER AND PROBE	CIRCULATION SLUDGE PUMP 1	PYROMATION	T1 42 HART SERIES	24VDC	40-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I120	TE/TIT-73215	TEMPERATURE TRANSMITTER AND PROBE	CIRCULATION SLUDGE PUMP 1	PYROMATION	T1 42 HART SERIES	24VDC	40-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I120	TE/TIT-73216	TEMPERATURE TRANSMITTER AND PROBE	HOT WATER PUMP 2	PYROMATION	T1 42 HART SERIES	24VDC	40-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I120	TE/TIT-73217	TEMPERATURE TRANSMITTER AND PROBE	HOT WATER PUMP 2	PYROMATION	T1 42 HART SERIES	24VDC	40-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I120	TE/TIT-73218	TEMPERATURE TRANSMITTER AND PROBE	CIRCULATION SLUDGE PUMP 2	PYROMATION	T1 42 HART SERIES	24VDC	40-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I120	TE/TIT-73219	TEMPERATURE TRANSMITTER AND PROBE	CIRCULATION SLUDGE PUMP 2	PYROMATION	T1 42 HART SERIES	24VDC	40-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I122	FSH-80500	EYEWASH FLOW SWITCH	EYEWASH STATION					PROVIDED WITH EYEWASH STATION
I123	FE/FIT-80300	MAGNETIC FLOW METER	POLYMER MIXERS	SIEMENS	SITRANS F 5100W	120VAC	0-30 GAL/HR	OWNER PROVIDED, CONTRACTOR INSTALLED
I124	PIT-68530	PRESSURE TRANSMITTER	PRIMARY DIGESTER	DWYER	SERIES 626	24VDC	0-15 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I124		ANNULAR RING	PRIMARY DIGESTER					OWNER PROVIDED, CONTRACTOR INSTALLED
I124	TE/TIT-68530	TEMPERATURE TRANSMITTER AND PROBE	PRIMARY DIGESTER	PYROMATION	T1 42 HART SERIES	24VDC	60-120°F	OWNER PROVIDED, CONTRACTOR INSTALLED
I124	PIT-68536	PRESSURE TRANSMITTER	PRIMARY DIGESTER	DWYER	SERIES 626	24VDC	0-24 IN. W.C.	OWNER PROVIDED, CONTRACTOR INSTALLED
I124	LSH-68537	FLOAT LEVEL SWITCH	SEDIMENT TRAP	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I124	LSL-68537	FLOAT LEVEL SWITCH	SEDIMENT TRAP	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I124	OCA-68537	SEDIMENT DRAIN SOLENOID OCA SWITCH	SEDIMENT TRAP					CONTRACTOR PROVIDED AND INSTALLED
I124	TE/TIT-68550	TEMPERATURE TRANSMITTER AND PROBE	PRIMARY DIGESTER	PYROMATION	T1 42 HART SERIES	24VDC	90-110 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I124	TE/TIT-68565	TEMPERATURE TRANSMITTER AND PROBE	THICKENED SLUDGE PUMP LINE	PYROMATION	T1 42 HART SERIES	24VDC	90-110 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I124	PIT-68540	PRESSURE TRANSMITTER	PRI DIGESTER RECIRC SLUDGE PUMP 1	DWYER	SERIES 626	24VDC	0-15 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I124		ANNULAR RING	PRI DIGESTER SLUDGE RECIRC PUMP 1	REO TEMP	ORT, ORR, OR ORB			OWNER PROVIDED, CONTRACTOR INSTALLED
I124	PIT-68545	PRESSURE TRANSMITTER	PRI DIGESTER RECIRC SLUDGE PUMP 2	DWYER	SERIES 626	24VDC	0-15 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I124		ANNULAR RING	PRI DIGESTER SLUDGE RECIRC PUMP 2	REO TEMP	ORT, ORR, OR ORB			OWNER PROVIDED, CONTRACTOR INSTALLED
I124	FE/FIT-68550	MAGNETIC FLOW METER	PRI DIGESTER RECIRC SLUDGE PUMPS	SIEMENS	SITRANS F 5100W	120VAC	0-250 GPM	OWNER PROVIDED, CONTRACTOR INSTALLED
I124	TSH-68570	PUMP TEMPERATURE SWITCH	PRIMARY DIGESTER PUMP 1					PROVIDED BY PUMP SUPPLIER
I124	PSH-68570	PRESSURE SWITCH	PRIMARY DIGESTER PUMP 1	DWYER	SERIES DA/DS		0-50 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I124		ANNULAR RING	PRIMARY DIGESTER PUMP 1	REO TEMP	ORT, ORR, OR ORB			OWNER PROVIDED, CONTRACTOR INSTALLED
I124	TSH-68575	PUMP TEMPERATURE SWITCH	PRIMARY DIGESTER PUMP 2					PROVIDED BY PUMP SUPPLIER
I124	PSH-68575	PRESSURE SWITCH	PRIMARY DIGESTER PUMP 2	DWYER	SERIES DA/DS		0-50 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I124		ANNULAR RING	PRIMARY DIGESTER PUMP 2	REO TEMP	ORT, ORR, OR ORB			OWNER PROVIDED, CONTRACTOR INSTALLED
I124	FE/FIT-68580	MAGNETIC FLOW METER	PRIMARY DIGESTER PUMPS	SIEMENS	SITRANS F 5100W	120VAC	0-160 GPM	OWNER PROVIDED, CONTRACTOR INSTALLED
I124	LSH-68539	FLOAT LEVEL SWITCH	BIOGAS CONDENSATE VAULT	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I124	LSL-68539	FLOAT LEVEL SWITCH	BIOGAS CONDENSATE VAULT	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I124	OCA-68539	CONDENSATE VAULT SOLENOID OCA SWITCH	CONDENSATE VALUT					CONTRACTOR PROVIDED AND INSTALLED
I124	LSHH-68590	FLOAT LEVEL SWITCH	MANHOLE #10	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I124	LSH-68590	FLOAT LEVEL SWITCH	MANHOLE #10	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I124	LSL-68590	FLOAT LEVEL SWITCH	MANHOLE #10	WARRICK				OWNER PROVIDED, CONTRACTOR INSTALLED
I124	LCP-P-68590	SUMP PUMP LOCAL CONTROLS	SUMP PUMP					CONTRACTOR PROVIDED AND INSTALLED
I125	PI-70510A	PRESSURE GAUGE W/ DIAPHRAGM SEAL	BOILER	DWYER	SERIES DPG-200	24VDC	0-50 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	PI-70510B	PRESSURE GAUGE W/ DIAPHRAGM SEAL	BOILER	DWYER	SERIES DPG-200	24VDC	0-50 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	PI-70500	PRESSURE GAUGE W/ DIAPHRAGM SEAL	EXPANSION TANK	DWYER	SERIES DPG-200	24VDC	0-50 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	FS-70509	FLOW SWITCH	AIR SEPARATOR	DWYER	LOW FLOW MODEL V6		0-250 GPM	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	TI-70508	TEMPERATURE PROBE	AIR SEPARATOR	PYROMATION	R5T185 SERIES		0-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	PI-70508	PRESSURE GAUGE W/ DIAPHRAGM SEAL	AIR SEPARATOR	DWYER	SERIES DPG-200	24VDC	0-50 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	PIT-72545B	PRESSURE TRANSMITTER W/ DIAPHRAGM SEAL	BIOGAS SCRUBBER LINES	DWYER		24VDC	0-24 IN. W.C.	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	PIT-70512	PRESSURE TRANSMITTER	HW RETURN LINE	DWYER	SERIES 626	24VDC	0-10 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	TE/TIT-70512	TEMPERATURE TRANSMITTER AND PROBE	HW RETURN LINE	PYROMATION	T1 42 HART SERIES		0-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	FE/FIT-70520	MAGNETIC FLOW METER	HW RETURN LINE	SIEMENS	SITRANS F 5100W	120VAC	0-250 GPM	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	PIT-70520	PRESSURE TRANSMITTER	HW SUPPLY LINE	DWYER	SERIES 626	24VDC		OWNER PROVIDED, CONTRACTOR INSTALLED
I125		BLOCK AND BLEED VALVE	HW SUPPLY LINE					OWNER PROVIDED, CONTRACTOR INSTALLED
I125	TE/TIT-70520	TEMPERATURE TRANSMITTER AND PROBE	HW SUPPLY LINE	PYROMATION	T1 42 HART SERIES	24VDC	0-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	TE/TIT-70530A	TEMPERATURE TRANSMITTER AND PROBE	HEAT EXCHANGER 1 PUMP	PYROMATION	T1 42 HART SERIES	24VDC	0-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	TE/TIT-70530B	TEMPERATURE TRANSMITTER AND PROBE	HEAT EXCHANGER 1 PUMP RETURN	PYROMATION	T1 42 HART SERIES	24VDC	0-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	TE/TIT-70540A	TEMPERATURE TRANSMITTER AND PROBE	HEAT EXCHANGER 2 PUMP	PYROMATION	T1 42 HART SERIES	24VDC	0-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I125	TE/TIT-70540B	TEMPERATURE TRANSMITTER AND PROBE	HEAT EXCHANGERE 2 PUMP RETURN	PYROMATION	T1 42 HART SERIES	24VDC	0-250 °F	OWNER PROVIDED, CONTRACTOR INSTALLED
I126	FE/FIT-72545	THERMAL MASS FLOWMETER	FUTURE GAS SCRUBBER SUPPLY	FCI	ST51	120 VAC	0-2500 SCFM	OWNER PROVIDED, CONTRACTOR INSTALLED
I126	PIT-72528	PRESSURE TRANSMITTER W/ DIAPHRAGM SEAL	FLARE BIOGAS SUPPLY	DWYER	SERIES 626	24VDC	0-24 IN. W.C.	OWNER PROVIDED, CONTRACTOR INSTALLED
I127		BLOCK AND BLEED VALVE	FLARE BIOGAS SUPPLY					OWNER PROVIDED, CONTRACTOR INSTALLED
I126	PSH-72528	PRESSURE SWITCH W/ DIAPHRAGM SEAL	FLARE BIOGAS SUPPLY	DWYER	SERIES 1000W	24VDC	0-24 IN. W.C.	OWNER PROVIDED, CONTRACTOR INSTALLED
I126		ISOLATION BALL VALVE	FLARE BIOGAS SUPPLY					OWNER PROVIDED, CONTRACTOR INSTALLED
I127	SSL-80510	ZERO SPEED SWITCH AND CONTROLLER	SCREW CONVEYOR 1					PROVIDED BY SCREW CONVEYOR MANUFACTURER
I127	SSL-80515	ZERO SPEED SWITCH AND CONTROLLER	SCREW CONVEYOR 2					PROVIDED BY SCREW CONVEYOR MANUFACTURER
I127	SSL-80517	ZERO SPEED SWITCH AND CONTROLLER	SCREW CONVEYOR 3					PROVIDED BY SCREW CONVEYOR MANUFACTURER
I127	SSL-80520	ZERO SPEED SWITCH AND CONTROLLER	SCREW CONVEYOR 4					PROVIDED BY SCREW CONVEYOR MANUFACTURER
I127	LCP-80522	CONVEYOR LOCAL CONTROLS	SCREW CONVEYORS					CONTRACTOR PROVIDED AND INSTALLED
I127	LCP-68510	SLUDGE DEWATERING PUMP CONTROLS	SLUDGE DEWATERING PUMPS					CONTRACTOR PROVIDED AND INSTALLED
I127	PSH-68510	PRESSURE SWITCH	SLUDGE DEWATERING PUMP 1	DWYER	SERIES DA/DS	24VDC	0-50 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I127		ANNULAR RING	SLUDGE DEWATERING PUMP 1	REO TEMP	ORT, ORR, OR ORB			OWNER PROVIDED, CONTRACTOR INSTALLED
I127	PSH-68520	PRESSURE SWITCH	SLUDGE DEWATERING PUMP 2	DWYER	SERIES DA/DS	24VDC	0-50 PSI	OWNER PROVIDED, CONTRACTOR INSTALLED
I127		ANNULAR RING	SLUDGE DEWATERING PUMP 2	REO TEMP	ORT, ORR, OR ORB			OWNER PROVIDED, CONTRACTOR INSTALLED
I128	MSH-70141	MOISTURE ALARM	NPW BOOSTER PUMP STATION SUMP	GEMS	LS-74780			OWNER PROVIDED, CONTRACTOR INSTALLED

INSTRUMENT SCHEDULE 2

1 SHEET ADDED

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/01/2024	RSP	DCL	RSP

REVISIONS

1	04/19/2024	RSP	DCL	RSP

SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE
1800 W 1200 N WEST BOUNTIFUL, UT 84087
ELECTRICAL - POWER DISTRIBUTION
INSTRUMENT SCHEDULE 2

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DRAWING NO.

E802

SHEET

4/18/2024 C:\USERS\DANIEL.LEAVITT\DCACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\999 ELECTRICAL\999-E802 INSTRUMENT SCHEDULE.DWG

POWER CONDUIT						
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	NOTES
P06021A	1"	2#6 W/#8 GND	120VAC	LP-HW	ME-06021A	
P10103	1"	2 #12 W/#12 GND	120VAC	LP-HW	ME-10103	
P10104	1"	2 #12 W/#12 GND	120VAC	LP-HW	ME-10104	
P10105	1"	2#12 W/#12 GND	120VAC	LP-HW	FIT-10105	
P10106	1"	2 #12 W/#12 GND	120VAC	LP-HW	ME-10106	
P10110	1"	3#6 W/#8 GND	480VAC	MCC-HW	VCP-10110	
P10111	1"	3#12 W/#12 GND	480VAC	VCP-10110	ME-10111	
P10121	1"	3#12 W/#12 GND	480VAC	VCP-10110	ME-10121	
P10130	2"	3#1 W/#6 GND	480VAC	MCC-HW	P-10130	
P10140	2"	3#1 W/#6 GND	480VAC	MCC-HW	P-10140	
P10150	2"	3#1 W/#6 GND	480VAC	MCC-HW	P-10150	
P10160	2"	3#1 W/#6 GND	480VAC	MCC-HW	P-10160	
P10170	1"	3#12 W/#12 GND	480VAC	MCC-HW	P-10170	
P10191	1"	3#6 W/#8 GND	480VAC	MCC-HW	ME-10191	
P10201	1"	3#12 W/#12 GND	480VAC	MCC-HW	LCP-FV-10201	
P10201A	1"	3#12 W/#12 GND	480VAC	LCP-FV-10201	FV-10201	
P10201B	1"	2#12 W/#12 GND	120VAC	LP-HW	FIT-10201	
P10300	1"	2#12 W/#12 GND	120VAC	LP-HW	LCP-10300	
P10321	1"	3#12 W/#12 GND	480VAC	MCC-HW	P-10321	
P10331	1"	3#12 W/#12 GND	480VAC	MCC-HW	P-10331	
P10341	1"	2#12 W/#12 GND	120VAC	LP-HW	FE/FIT-10341	
P10500	1"	3#6 W/#8 GND	480VAC	MCC-HW	LCP-10500	
P10501	1"	3#10 W/#10 GND	480VAC	LCP-10500	H-10501	
P10502	1"	3#10 W/#10 GND	480VAC	LCP-10500	H-10502	
P10521	3"	3 4/0 W/#4 GND	480VAC	MCC-HW	H-10521	CONDUIT CONTINUES THROUGH LCP-H-10521
P15201	1"	3#12 W/#12 GND	480VAC	MCC-HW	ME-15201	
P15202	1"	3#12 W/#12 GND	480VAC	MCC-HW	P-15202	
P15211	1"	3#12 W/#12 GND	480VAC	MCC-HW	ME-15211	
P15212	1"	3#12 W/#12 GND	480VAC	MCC-HW	P-15212	
P15221	1"	3#12 W/#12 GND	480VAC	MCC-HW	ME-15221	
P20251	1"	3#12 W/#12 GND	480VAC	MCC-HW	ME-20251	CONDUIT CONTINUES THROUGH LCP-ME-PC1
P20261	1"	3#12 W/#12 GND	480VAC	MCC-HW	ME-20261	CONDUIT CONTINUES THROUGH LCP-ME-PC2
P20271	1"	3#12 W/#12 GND	480VAC	MCC-HW	ME-20271	CONDUIT CONTINUES THROUGH LCP-ME-PC3
P20281	1"	3#12 W/#12 GND	480VAC	MCC-HW	ME-20281	CONDUIT CONTINUES THROUGH LCP-ME-PC4
P31302	1"	2#12 W/#12 GND	120VAC	LP-BB	LE/LIT-31302	
P31320	2"	3#4 W/#8 GND	480VAC	MCC-BB	P-31320	
P31330	2"	3#1 W/#6 GND	480VAC	MCC-BB	P-31330	
P31340	2"	3#1 W/#6 GND	480VAC	MCC-BB	P-31340	
P31350	2"	3#1 W/#6 GND	480VAC	MCC-BB	P-31350	
P31360	1"	3#12 W/#12 GND	480VAC	MCC-BB	P-31360	
P31801	1"	2#12 W/#12 GND	120VAC	LP-BB	H-31801	
P33101	1"	3#12 W/#12 GND	480VAC	MCC-BB	ME-33101	
P33201	1"	3#12 W/#12 GND	480VAC	MCC-BB	P-33201	
P33301	1"	3#12 W/#12 GND	480VAC	MCC-BB	ME-33301	
P35301	1"	3#12 W/#12 GND	480VAC	DP-DCB	ME-35301	
P35480	4-3"	EACH W/ 350KCMIL W/ 4/0 GND	480VAC	MCC-BB	MCP-35480	
P35481	3"	3 4/0 W/#4 GND	480VAC	MCP-35480	ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35481A	1"	2#12 W/#12 GND	120VAC	LCP-ME-35481	GEARBOX HEATER	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35481B	1"	2#12 W/#12 GND	120VAC	LCP-ME-35481	OIL RESERVIOR HEATER	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35481C	1"	2#12 W/#12 GND	120VAC	LCP-ME-35481	OIL DEMISTER	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35481D	1"	2#12 W/#12 GND	120VAC	LCP-ME-35481	AUX OIL PUMP	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35481E	1"	2#12 W/#12 GND	120VAC	LCP-ME-35481	AIR COOLED HEAT EXCHANGER	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35481F	1"	2#10 W/#10 GND	120VAC	LP-BB	LPC-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35482	3"	3 4/0 W/#4 GND	480VAC	MCP-35482	ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35482A	1"	2#12 W/#12 GND	120VAC	LCP-ME-35482	GEARBOX HEATER	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35482B	1"	2#12 W/#12 GND	120VAC	LCP-ME-35482	OIL RESERVIOR HEATER	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35482C	1"	2#12 W/#12 GND	120VAC	LCP-ME-35482	OIL DEMISTER	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35482D	1"	2#12 W/#12 GND	120VAC	LCP-ME-35482	AUX OIL PUMP	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35482E	1"	2#12 W/#12 GND	120VAC	LCP-ME-35482	AIR COOLED HEAT EXCHANGER	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35481F	1"	2#10 W/#10 GND	120VAC	LP-BB	LPC-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35483	3"	3 4/0 W/#4 GND	480VAC	MCP-35480	ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35483A	1"	2#12 W/#12 GND	120VAC	LCP-ME-35483	GEARBOX HEATER	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35483B	1"	2#12 W/#12 GND	120VAC	LCP-ME-35483	OIL RESERVIOR HEATER	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35483C	1"	2#12 W/#12 GND	120VAC	LCP-ME-35483	OIL DEMISTER	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35483D	1"	2#12 W/#12 GND	120VAC	LCP-ME-35483	AUX OIL PUMP	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35483E	1"	2#12 W/#12 GND	120VAC	LCP-ME-35483	AIR COOLED HEAT EXCHANGER	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35483F	1"	2#10 W/#10 GND	120VAC	LP-BB	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P35801	1"	3#6 W/#8 GND	480VAC	MCC-BB	H-35801	
P35811	1"	3#6 W/#8 GND	480VAC	MCC-BB	H-35811	
P35821	1"	3#10 W/#10 GND	480VAC	MCC-BB	H-35821	
P35831	1"	3#12 W/#12 GND	480VAC	MCC-BB	H-35831	
P37101	1"	2#12 W/#12 GND	120VAC	FE/FIT-37101	LP-BB	
P37101A	1"	3#12 W/#12 GND	480VAC	MCC-BB	FV-37101	
P37101B	1"	2#12 W/#12 GND	120VAC	LP-BB	AIT-37101/DO	
P37102	1"	2#12 W/#12 GND	120VAC	FE/FIT-37102	LP-BB	
P37102A	1"	3#12 W/#12 GND	480VAC	MCC-BB	FV-37102	
P37201	1"	2#12 W/#12 GND	120VAC	FE/FIT-37201	LP-BB	
P37201A	1"	3#12 W/#12 GND	480VAC	MCC-BB	FV-37201	
P37202	1"	2#12 W/#12 GND	120VAC	FE/FIT-37202	LP-BB	
P37202A	1"	3#12 W/#12 GND	480VAC	MCC-BB	FV-37202	
P37303	1"	3#12 W/#12 GND	480VAC	MCP-35480	FV-37303	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P38201	1"	3#12 W/#12 GND	480VAC	MCC-BB	P-38201	
P40110	1"	3#12 W/#12 GND	480VAC	MCC-BB	ME-40110	CONDUIT CONTINUES THROUGH LCP-ME-40110
P40120	1"	3#12 W/#12 GND	480VAC	MCC-BB	ME-40120	CONDUIT CONTINUES THROUGH LCP-ME-40120
P40130	1"	3#12 W/#12 GND	480VAC	MCC-BB	ME-40130	CONDUIT CONTINUES THROUGH LCP-ME-40130
P40140	1"	3#12 W/#12 GND	480VAC	MCC-BB	ME-40140	CONDUIT CONTINUES THROUGH LCP-ME-40140
P40201	1"	3#12 W/#12 GND	480VAC	MCC-BB	ME-40201	

CONDUIT SCHEDULE 1

1 SHEET ADDED

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/01/2024	RSP	DCL	RSP

REVISIONS

1	04/19/2024	RSP	DCL	RSP

SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

1800 W 1200 N WEST BOUNTIFUL, UT 84087

ELECTRICAL - POWER DISTRIBUTION

CONDUIT SCHEDULE 1

skm
533 W 2600 S, Suite 25
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AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E803

SHEET

POWER CONDUIT						
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	NOTES
P60101	1"	2#12 W/#12 GND	120VAC	LP-BB	P-60101	
P60101A	1"	2#12 W/#12 GND	120VAC	LP-BB	AIT-60101/CL	
P60102	1"	2#12 W/#12 GND	120VAC	LP-BB	P-60102	
P60105	1"	3#12 W/#12 GND	480VAC	MCC-BB	ME-60105	
P60108	1"	3#12 W/#12 GND	480VAC	MCC-BB	ME-60108	
P60108A	1"	2#12 W/#12 GND	120VAC	LP-BB	AIT-60108/ORP	
P60110	1"	2#12 W/#12 GND	120VAC	LP-BB	VFD-P-60110	
P60113	1"	2#12 W/#12 GND	120VAC	LP-BB	FN-60113	
P60120	1"	2#12 W/#12 GND	120VAC	LP-BB	VFD-P-60120	
P60130	1"	2#12 W/#12 GND	120VAC	LP-BB	VFD-P-60130	
P60140	1"	2#12 W/#12 GND	120VAC	LP-BB	VFD-P-60140	
P62101	1"	3#12 W/#12 GND	480VAC	DP-DCB	LCP-ME-62101	
P62102	1"	3#12 W/#12 GND	480VAC	DP-DCB	ME-62102	CONDUIT CONTINUES THROUGH LCP-ME-62102
P62110	1"	3#8 W/#10 GND	480VAC	MCC-DCB	P-62110	
P62120	1"	3#8 W/#10 GND	480VAC	MCC-DCB	P-62120	
P62125	1"	2#12 W/#12 GND	120VAC	FE/FIT-62125	LP-DCB	
P62151	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-62151	
P62151A	1"	2#12 W/#12 GND	120VAC	LP-DCB	LCP-62151	
P62152	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-62152	
P63105	1"	3#12 W/#12 GND	480VAC	MCC-DCB	ME-63105	
P63105A	1"	2#12 W/#12 GND	120VAC	LP-DCB	LCP-63105	
P63110	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-63110	
P63110A	1"	2#12 W/#12 GND	120VAC	LP-DCB	LCP-63110	
P63120	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-63120	
P63125	1"	2#12 W/#12 GND	120VAC	LP-DCB	FE/FIT-63125	
P63131	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-63131	
P63131A	1"	2#12 W/#12 GND	120VAC	LP-DCB	LCP-63131	
P63132	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-63132	
P68211	1"	3#6 W/#8 GND	480VAC	MCC-DCB	P-68211	
P68212	1"	3#6 W/#8 GND	480VAC	MCC-DCB	P-68212	
P68213	1"	3#8 W/#10 GND	480VAC	MCC-DCB	P-68213	
P68510	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-68510	
P68520	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-68520	
P68530	1"	3#10 W/#10 GND	480VAC	MCC-DB	ME-68530	
P68540	1"	3#12 W/#12 GND	480VAC	MCC-DB	P-68540	
P68545	1"	3#12 W/#12 GND	480VAC	MCC-DB	P-68545	
P68550	1"	2#12 W/#12 GND	120VAC	LP-DB	FE/FIT-68550	
P68570	1"	3#12 W/#12 GND	480VAC	MCC-DB	P-68570	
P68575	1"	3#12 W/#12 GND	480VAC	MCC-DB	P-68575	
P68580	1"	2#12 W/#12 GND	120VAC	LP-DB	FE/FIT-68580	
P68590	1"	3#12 W/#12 GND	480VAC	MCC-DB	P-68590	
P68590A	1"	2#12 W/#12 GND	120VAC	LP-DB	LCP-P-68590	
P69801	1"	3#10 W/#10 GND	480VAC	MCC-DB	H-69801	
P69804	1"	3#12 W/#12 GND	480VAC	MCC-DB	H-69804	
P69810	1"	3#12 W/#12 GND	480VAC	MCC-DB	H-69810	
P69811	1"	3#12 W/#12 GND	480VAC	MCC-DB	H-69811	
P69812	1"	3#12 W/#12 GND	480VAC	MCC-DB	H-69812	
P69815	1"	3#10 W/#10 GND	480VAC	MCC-DB	H-69815	
P69830	1"	3#12 W/#12 GND	480VAC	MCC-DB	H-69330	
P70101	1"	3#10 W/#10 GND	480VAC	MCC-DWB	P-70101	
P70111	1"	3#10 W/#10 GND	480VAC	MCC-DWB	P-70111	
P70131	1"	2#12 W/#12 GND	120VAC	AE/AIT-70131	PLC-DWB	
P70132	1"	2#12 W/#12 GND	120VAC	AE/AIT-70132	PLC-DWB	
P70151	1"	3#12 W/#12 GND	480VAC	MCC-DWB	P-70151	
P70152	1"	2#12 W/#12 GND	120VAC	LP-DWB	P-70152	
P70201	1"	3#12 W/#12 GND	480VAC	DP-DCB	CP-ME-70201	
P70211	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-70211	
P70211A	1"	2#12 W/#12 GND	120VAC	LP-DCB	LCP-70211	
P70212	1"	3#12 W/#12 GND	480VAC	DP-DCB	P-70212	
P70212A	1"	2#12 W/#12 GND	120VAC	LP-DCB	LCP-70212	
P70505	1"	3 4/0 W/#4 GND	480VAC	MCC-DB	LCP-ME-70505	
P70520	1"	3#12 W/#12 GND	480VAC	MCC-DB	P-70520	
P70520A	1"	2#12 W/#12 GND	120VAC	LP-DB	FE/FIT-70520	
P70525	1"	3#12 W/#12 GND	480VAC	MCC-DB	P-70525	
P70530	1"	3#12 W/#12 GND	480VAC	MCC-DB	P-70530	
P70540	1"	3#12 W/#12 GND	480VAC	MCC-DB	P-70540	
P72545B	1"	2#12 W/#12 GND	120VAC	LP-DB	FE/FIT-72545B	
P73211	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-73211	
P73212	1"	2#12 W/#12 GND	120VAC	TIT-73212	PLC-DCB	
P73213	1"	2#12 W/#12 GND	120VAC	TIT-73213	PLC-DCB	
P73214	1"	2#12 W/#12 GND	120VAC	TIT-73214	PLC-DCB	
P73215	1"	2#12 W/#12 GND	120VAC	TIT-73215	PLC-DCB	
P73216	1"	2#12 W/#12 GND	120VAC	TIT-73216	PLC-DCB	
P73217	1"	2#12 W/#12 GND	120VAC	TIT-73217	PLC-DCB	
P73218	1"	2#12 W/#12 GND	120VAC	TIT-73218	PLC-DCB	
P73219	1"	2#12 W/#12 GND	120VAC	TIT-73219	PLC-DCB	
P73221	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-73221	
P76220	1"	3#12 W/#12 GND	480VAC	DP-DCB	LCP-ME-76220	
P76250	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-76250	
P76260	1"	3#12 W/#12 GND	480VAC	MCC-DCB	P-76260	
P80100	1"	2#6 W/#8 GND	120VAC	MCC-DWB	VCP-80100	
P80100A	1"	2#10 W/#10 GND	120VAC	VCP-80100	P-80100	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P80100B	1"	2#10 W/#10 GND	120VAC	VCP-80100	ME-80100	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES

CONDUIT SCHEDULE 2

1 SHEET ADDED

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DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

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SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

1800 W 1200 N WEST BOUNTIFUL, UT 84087

ELECTRICAL - POWER DISTRIBUTION

CONDUIT SCHEDULE 2

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www.skmeng.com

AQUA ENGINEERING
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PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E804

SHEET

POWER CONDUIT						
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	NOTES
P80300	1"	3#10 W/#10 GND	480VAC	MCC-DWB	VCP-80300	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P80300A	1"	2#12 W/#12 GND	120VAC	LP-DWB	FE/FIT-80300	
P80300B	1"	3#12 W/#12 GND	480VAC	VCP-80300	ME-80300B	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P80300C	1"	3#12 W/#12 GND	480VAC	VCP-80300	ZS-80300B	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P80320	1"	3#12 W/#12 GND	480VAC	VCP-80300	ME-80320	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P80500	1"	2#12 W/#12 GND	120VAC	VCP-80300	FE/FIT-80500	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
P80510	1"	3#12 W/#12 GND	480VAC	MCC-DWB	ME-80510	
P80515	1"	3#12 W/#12 GND	480VAC	MCC-DWB	ME-80515	
P80517	1"	3#12 W/#12 GND	480VAC	MCC-DWB	ME-80517	
P80520	1"	3#12 W/#12 GND	480VAC	MCC-DWB	ME-80520	
P80522	1"	3#12 W/#12 GND	480VAC	LCP-80522	G-80522	
P80523	1"	3#12 W/#12 GND	480VAC	LCP-80522	G-80523	
P80522A	1"	3#10 W/#10 GND	480VAC	MCC-DWB	LCP-80522	
P80601	1"	3#6 W/#8 GND	480VAC	MCC-DWB	ME-80601	
PADMIN	3-3"	EACH W/ 3-350KCMIL AND 2/0 GND	480VAC	DP-MAIN	ADMIN BLDG POWER DISTRIBUTION	
PAHFMAIN	3"	4 3/0 W/#6 GND	480VAC	SWGR-MAIN	ACTIVE HARMONIC FILTER (MAIN)	OR PER UTILITY REQUIREMENTS
AHRDWB	1"	3#8 W/#10 GND	480VAC	MCC-DWB	ACTIVE HARMONIC FILTER (DWB)	
PATS	10-4"	EACH W/ 4-600 KCMIL AND 2/0 GND	480VAC	ATS	SWGR-MAIN	
PBLTCP	1"	2#6 W/#8 GND	120VAC	LP-HW	BELLY LEVEL TANK CTRL PANEL	
PCBLP	3"	3-250 KCMIL AND 1/0 GND	480VAC	DP-MAIN	EX. CTRL BLDG LP	
PCSB3	1"	3#12 W/#12 GND	480VAC	DP-UW	ME-CSB-3	
PDCBAC	1"	3#12 W/#12 GND	480VAC	DP-DCB	EX. DCB-AC PNL	
PDCBBOILER	1"	3#12 W/#12 GND	480VAC	DP-DCB	EX DCB-1 BOILER	
PDCB14	1"	3#12 W/#12 GND	480VAC	DP-DCB	ME-DCB-14	
PDPMAIN	4-4"	EACH W/ 4-500 KCMIL AND 2/0 GND	480VAC	SWGR-MAIN	DP-MAIN	OR PER UTILITY REQUIREMENTS
PGEN	10-4"	EACH W/ 4-600 KCMIL AND 2/0 GND	480VAC	GENERATOR	ATS	
PDPDCB	3-4"	EACH W/ 3-500 KCMIL AND 2/0 GND	480VAC	SWGR-MAIN	DP-DCB	
PESBPP1	3"	3-350KCMIL AND 2/0 GND	480VAC	DP-DCB	ESB-PP-1	
PLPBB	2"	4 #2 W/#6 GND	208/120VAC	XFMR-LP-BB	LP-BB	
PLPDB	2"	4#2 W/#6 GND	208/120VAC	XFMR-LP-DB	LP-DB	
PLPDWB	2"	4#3 W/#6 GND	208/120VAC	XFMR-LP-DWB	LP-DWB	
PLPHW	2"	4 #2 W/#6 GND	208/120VAC	XFMR-LP-HW	LP-HW	
PLS2P	1"	3#10 W/#10 GND	480VAC	MCC-BB	EX. NW LIFT STATION PUMP CTRL PNL	
PLS3CS	1"	3#10 W/#10 GND	480VAC	MCC-DWB	EX. LIFT STATION 3 CONTACT SKIMMER	
PMCCBB	7-4"	EACH W/ 3-500 KCMIL AND 2/0 GND	480VAC	SWGR-MAIN	MCC-BB	
PMCCDCB	2-3"	EACH W/ 3-250 KCMIL AND 1/0 GND	480VAC	DP-DCB	MCC-DCB	
PMCCDB	2-4"	EACH W/ 3-500 KCMIL AND 2/0 GND	480VAC	SWGR-MAIN	MCC-DB	
PMCCDWB	2-4"	EACH W/ 3-350 KCMIL AND 2/0 GND	480VAC	DP-MAIN	MCC-DWB	
PMCCHW	4-4"	EACH W/ 3-500 KCMIL AND 2/0 GND	480VAC	SWGR-MAIN	MCC-HW	OR PER UTILITY REQUIREMENTS
PPPMS1	3"	3 4/0 W/#4 GND	480VAC	MCC-DB	EX. PP-MS-1	
PSESA	10-4"	EACH W/ 4-600 KCMIL AND 2/0 GND	480VAC	UTILITY TRANSFORMER	SES	
PSESB	10-4"	EACH W/ 4-600 KCMIL AND 2/0 GND	480VAC	SES	ATS	
PSCUW	1"	3#12 W/#12 GND	480VAC	DP-UW	EX. SWAMP COOLER	
PSWP	1"	3#6 W/#8 GND	480VAC	DP-UW	EX. SECONDARY WATER PUMP	
PUTI	4-4"	PER UTILITY REQUIREMENTS	MEDIUM VOLTAGE	UTILITY	UTILITY TRANSFORMER	
PDPUW	3"	3-250KCMIL AND 1/0 GND	480VAC	DP-MAIN	DP-UWB	
PUWPS	1"	3#12 W/#12 GND	480VAAC	DP-UW	EX. P-UWPS-1	
PXFMRLPBB	1"	3 #8 W/#10 GND	480VAC	MCC-BB	XFMR-LP-BB	
PXFMRLPDB	1"	3 #8 W/#10 GND	480VAC	MCC-DB	XFMR-LP-DB	
PXFMRLPDWB	1"	3#8 W/#10 GND	480VAC	MCC-DWB	XFMR-LP-DWB	
PXFMRLPGB	1"	3#10 W/#10 GND	480VAC	MCC-DWB	EX. XFMR LP-GB	
PXFMRLPD	1"	3#10 W/#10 GND	480VAC	DP-DCB	XFMR-LP-D	
PXFMRLPHW	1"	3 #8 W/#10 GND	480VAC	MCC-HW	XFMR-LP-HW	
PXFMRLPG	1"	3#10 W/#10 GND	480VAC	DP-DCB	XFMR-LP-G	
PXFMRLPODB	1"	3#10 W/#10 GND	480VAC	DP-DCB	XFMR-LP-ODB	
PXFMRLPP1	1"	3#10 W/#10 GND	480VAC	MCC-HW	EX. XFMR-LP-P1	
PXFMRLPP2	1"	3#10 W/#10 GND	480VAC	MCC-BB	EX. XFMR-LP-P2	
PXFMRLPSP	1"	3#10 W/#10 GND	480VAC	DP-DCB	XFMR-LP-SP	
PXFFMRLPUW	1"	3#8 W/#10 GND	480VAC	DP-UW	EX. XFMR-LP-UW	

CONDUIT SCHEDULE 3

1 SHEET ADDED

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SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

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CONDUIT SCHEDULE 3

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DRAWING NO.

E805

SHEET

CONTROL CONDUIT						
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	NOTES
C06021	1"	14#14 W/#14 GND	CONTROL	ME-06021D	LSL/LSH-06021,A-C	
C10105	1"	2#14 W/#14 GND	CONTROL	LSH-10105	PLC-HW	
C10111	1"	4 #12 W/#12 GND	CONTROL	ME-10111	VCP-10110	
C10112	1"	4 #12 W/#12 GND	CONTROL	ME-10112	VCP-10110	
C10112A	1"	4 #14 W/#14 GND	CONTROL/120VAC	SV-10112	VCP-10110	
C10121	1"	4 #12 W/#12 GND	CONTROL	ME-10121	VCP-10110	
C10122	1"	4 #12 W/#12 GND	CONTROL	ME-10122	VCP-10110	
C10122A	1"	4 #14 W/#14 GND	CONTROL/120VAC	SV-10122	VCP-10110	
C10128	1"	4#14 W/#14 GND	CONTROL	LSL/LSH-10128	PLC-HW	
C10130	1"	4#12 W/#12 GND	CONTROL	P-10130	MCC-HW	
C10130A	1"	8#12 W/#12 GND	CONTROL	LCP-10130	MCC-HW	
C10321	1"	4#12 W/#12 GND	CONTROL	MCC-HW	P-10321	
C10321A	1"	2#14 W/#14 GND	CONTROL	PSH-10321	PLC-HW	
C10331	1"	4#12 W/#12 GND	CONTROL	MCC-HW	P-10331	
C10331A	1"	4#14 W/#14 GND	CONTROL	PSH-10331	PLC-HW	
C10140	1"	4#12 W/#12 GND	CONTROL	P-10140	MCC-HW	
C10150	1"	4#12 W/#12 GND	CONTROL	P-10150	MCC-HW	
C10160	1"	4#12 W/#12 GND	CONTROL	P-10160	MCC-HW	
C10170	1"	4#12 W/#12 GND	CONTROL	MCC-HW	P-10170	
C10170A	1"	2#12 W/#12 GND	CONTROL	LCP-P-10170	MCC-HW	
C10170B	1"	6#14 W/#14 GND	CONTROL	LSHH/LSH/LSL-10170	PLC-HW	
C10180	1"	2#14 W/#14 GND	CONTROL	FSH-10180	PLC-HW	
C10181	1"	2#14 W/#14 GND	CONTROL	FSH-10181	PLC-HW	
C10201A	1"	6#14 W/#14 GND	CONTROL	LCP-FV-10201	PLC-HW	
C10201B	1"	6#14 W/#14 GND	CONTROL	LCP-FV-10201	FV-10201	
C10303	1"	2#14 W/#14 GND	CONTROL	LSH-10303	PLC-HW	
C10313	1"	2#14 W/#14 GND	CONTROL	LSH-10313	PLC-HW	
C15201	1"	4#12 W/#12 GND	CONTROL	ME-15201	PLC-HW	
C15201A	1"	10#12 W/#12 GND	CONTROL	LCP-15201	PLC-HW	
C15202	1"	4#12 W/#12 GND	CONTROL	P-15202	MCC-HW	
C15211	1"	4#12 W/#12 GND	CONTROL	ME-15211	PLC-HW	
C15212	1"	4#12 W/#12 GND	CONTROL	P-15212	MCC-HW	
C15221	1"	4#12 W/#12 GND	CONTROL	ME-15221	PLC-HW	
C20251	1"	8#12 W/#12 GND	CONTROL	MCC-HW	ME-20251	CONDUIT CONTINUES THROUGH LCP-ME-PC1
C20261	1"	8#12 W/#12 GND	CONTROL	MCC-HW	ME-20261	CONDUIT CONTINUES THROUGH LCP-ME-PC2
C20271	1"	8#12 W/#12 GND	CONTROL	MCC-HW	ME-20271	CONDUIT CONTINUES THROUGH LCP-ME-PC3
C20281	1"	8#12 W/#12 GND	CONTROL	MCC-HW	ME-20281	CONDUIT CONTINUES THROUGH LCP-ME-PC4
C31301	1"	4#14 W/#14 GND	CONTROL	LSH/LSL-31301	PLC-BB	
C31320	1"	4#12 W/#12 GND	CONTROL	P-31320	MCC-BB	
C31320A	1.5"	24#12 W/#12 GND	CONTROL	LCP-31320	MCC-BB	
C31330	1"	4#12 W/#12 GND	CONTROL	P-31330	MCC-BB	
C31340	1"	4#12 W/#12 GND	CONTROL	P-31340	MCC-BB	
C31350	1"	4#12 W/#12 GND	CONTROL	P-31350	MCC-BB	
C31360	1"	4#12 W/#12 GND	CONTROL	P-31360	MCC-BB	
C31360A	1"	4#12 W/#12 GND	CONTROL	LCP-31360	MCC-BB	
C31361	1"	6#14 W/#14 GND	CONTROL	LSHH/LSH/LSL-31361	PLC-BB	
C33101	1"	4#12 W/#12 GND	CONTROL	ME-33101	MCC-BB	
C33103	1"	4#14 W/#14 GND	CONTROL/120VAC	SV-33103	PLC-BB	CONDUIT CONTINUES THROUGH HAND SWITCH
C33201	1"	4#12 W/#12 GND	CONTROL	ME-33201	MCC-BB	
C33301	1"	4#12 W/#12 GND	CONTROL	ME-33301	MCC-BB	
C33302	1"	4#14 W/#14 GND	CONTROL/120VAC	SV-33302	PLC-BB	CONDUIT CONTINUES THROUGH HAND SWITCH
C35301	1"	4#12 W/#12 GND	CONTROL	ME-35301	PLC-DCB	
C35303	1"	4#14 W/#14 GND	CONTROL	PSL/PSH-35303	PLC-DCB	
C35313	1"	2#14 W/#14 GND	CONTROL	PSH-35313	PLC-DCB	
C35313A	1"	24#14 W/#14 GND	CONTROL	LCP-35313	PLC-DCB	
C35313B	1"	6#14 W/#14 GND	CONTROL	LCP-35313	SV-35313	
C35323	1"	2#14 W/#14 GND	CONTROL	PSH-35323	PLC-DCB	
C35323A	1"	6#14 W/#14 GND	CONTROL	LCP-35313	SV-35323	
C35333	1"	2#14 W/#14 GND	CONTROL	PSH-35333	PLC-DCB	
C35333A	1"	6#14 W/#14 GND	CONTROL	LCP-35313	SV-35333	
C35343A	1"	6#14 W/#14 GND	CONTROL	LCP-35313	SV-35343	
C35481	1"	4#14 W/#14 GND	CONTROL/120VAC	LCP-ME-35481	FV-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C35481A	1"	2#14 W/#14 GND	CONTROL	PDSH-35481A	LCP-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C35481B	1"	2#14 W/#14 GND	CONTROL	PSH-35481A	LCP-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C35481C	1"	2#14 W/#14 GND	CONTROL	XS-35481	LCP-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C35482A	1"	2#14 W/#14 GND	CONTROL	PDSH-35482A	LCP-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C35482B	1"	2#14 W/#14 GND	CONTROL	PSH-35482A	LCP-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C35482C	1"	2#14 W/#14 GND	CONTROL	XS-35482	LCP-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C35483A	1"	2#14 W/#14 GND	CONTROL	PDSH-35483A	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C35483B	1"	2#14 W/#14 GND	CONTROL	PSH-35483A	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C35483C	1"	2#14 W/#14 GND	CONTROL	XS-35483	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C37101	1"	4#12 W/#12 GND	CONTROL	FV-37101	PLC-BB	
C37101A	1"	2#14 W/#14 GND	CONTROL	LSH-37101	PLC-BB	
C37102	1"	10#12 W/#12 GND	CONTROL	FV-37102	PLC-BB	
C37201	1"	4#12 W/#12 GND	CONTROL	FV-37201	PLC-BB	
C37201A	1"	2#14 W/#14 GND	CONTROL	LSH-37201	PLC-BB	
C37202	1"	10#12 W/#12 GND	CONTROL	FV-37202	PLC-BB	
C37303	1"	4#12 W/#12 GND	CONTROL	FV-37303	MCP-35480	
C38101A	1"	2#14 W/#14 GND	CONTROL	PSH-38101	PLC-MBR	
C38201	1"	4#12 W/#12 GND	CONTROL	MCC-HW	P-38201	
C38201A	1"	2#14 W/#14 GND	CONTROL	PSH-38201	PLC-MBR	
C38301	1"	2#14 W/#14 GND	CONTROL	FSH-38301	PLC-BB	
C38302	1"	2#14 W/#14 GND	CONTROL	FSH-38302	PLC-BB	
C40110	1"	4#12 W/#12 GND	CONTROL	ME-40110	MCC-BB	CONDUIT CONTINUES THROUGH LCP-ME-40110
C40120	1"	4#12 W/#12 GND	CONTROL	ME-40120	MCC-BB	CONDUIT CONTINUES THROUGH LCP-ME-40120
C40130	1"	4#12 W/#12 GND	CONTROL	ME-40130	MCC-BB	CONDUIT CONTINUES THROUGH LCP-ME-40130
C40140	1"	4#12 W/#12 GND	CONTROL	ME-40140	MCC-BB	CONDUIT CONTINUES THROUGH LCP-ME-40140
C40201	1"	4#12 W/#12 GND	CONTROL	ME-40201	MCC-BB	
C60100	1"	2#14 W/#14 GND	CONTROL	LSH-60100	PLC-BB	
C60105	1"	4#12 W/#12 GND	CONTROL	ME-60105	MCC-BB	
C60110	1"	8#12 W/#12 GND	CONTROL	VFD-P-60110	PLC-BB	

CONDUIT SCHEDULE 4

1 SHEET ADDED

4/18/2024 C:\USERS\DANIEL.LEAVITT\DCACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\999 ELECTRICAL\999-E806 CONDUIT SCHEDULE.DWG

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/01/2024	RSP	DCL	RSP

REVISIONS

1	04/19/2024	RSP	DCL	RSP

SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

1800 W 1200 N WEST BOUNTIFUL, UT 84087

ELECTRICAL - POWER DISTRIBUTION

CONDUIT SCHEDULE 4

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AQUA ENGINEERING
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PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E806

SHEET

CONTROL CONDUIT						
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	NOTES
C60120	1"	8#12 W/#12 GND	CONTROL	VFD-P-60120	PLC-BB	
C60121	1"	2#14 W/#14 GND	CONTROL	LSH-60121	PLC-BB	
C60130	1"	8#12 W/#12 GND	CONTROL	VFD-P-60130	PLC-BB	
C60140	1"	8#12 W/#12 GND	CONTROL	VFD-P-60140	PLC-BB	
C62102	1"	8#12 W/#12 GND	CONTROL	LCP-ME-62102	ME-62102	
C62110	1"	4#12 W/#12 GND	CONTROL	LCP-62110	MCC-DCB	
C62150	1"	6#14 W/#14 GND	CONTROL	LSHH/LSH/LSL-62150	PLC-DCB	
C62151	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-62151	
C62151A	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	LCP-62151	
C62152	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-62152	
C63105	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	ME-63105	
C63105A	1"	4#12 W/#12 GND	CONTROL	LCP-63105	PLC-DCB	
C63110	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-63110	
C63110A	1"	4#14 W/#14 GND	CONTROL	PSH-63110 / TSH-63110	MCC-DCB	
C63120	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-63120	
C63120A	1"	4#14 W/#14 GND	CONTROL	PSH-63120 / TSH-63120	MCC-DCB	
C63130	1"	6#14 W/#14 GND	CONTROL	LSHH/LSH/LSL-63130	PLC-DCB	
C63131	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-63131	
C63131A	1"	4#12 W/#12 GND	CONTROL	LCP-63131	MCC-DCB	
C63132	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-63132	
C68203	1"	2#14 W/#14 GND	CONTROL	ZSH-68203	PLC-DCB	
C68211	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-68211	
C68212	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-68212	
C68213	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-68213	
C68223	1"	2#14 W/#14 GND	CONTROL	ZSH-68223	PLC-DCB	
C68510	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-68510	
C68510A	1"	4#14 W/#14 GND	CONTROL	PSH-68510 / TSH-68510	MCC-DCB	
C68510B	1"	12#12 W/#12 GND	CONTROL	LCP-68510	MCC-DCB	
C68520	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-68520	
C68520A	1"	4#14 W/#14 GND	CONTROL	PSH-68520 / TSH-68520	MCC-DCB	
C68530	1"	4#12 W/#12 GND	CONTROL	MCC-DB	ME-58530	
C68537	1"	2#14 W/#14 GND	CONTROL/120VAC	PLC-DB	SV-68537	
C68537A	1"	4#14 W/#14 GND	CONTROL	LSH/LSL-68537	PLC-DB	
C68539	1"	2#14 W/#14 GND	CONTROL/120VAC	PLC-DB	SV-68539	
C68540	1"	4#12 W/#12 GND	CONTROL	MCC-DB	P-68540	
C68545	1"	4#12 W/#12 GND	CONTROL	MCC-DB	P-68545	
C68570	1"	4#12 W/#12 GND	CONTROL	MCC-DB	P-68570	
C68570A	1"	4#14 W/#14 GND	CONTROL	PSH-68570 / TSH-68570	MCC-DB	
C68575	1"	4#12 W/#12 GND	CONTROL	MCC-DB	P-68575	
C687575A	1"	4#14 W/#14 GND	CONTROL	PSH-68575 / TSH-68575	MCC-DB	
C68590	1"	6#14 W/#14 GND	CONTROL	LSHH/LSH/LSL-68590	PLC-DB	
C68590A	1"	2#12 W/#12 GND	CONTROL	LCP-P-68590	MCC-DB	
C70101	1"	4#12 W/#12 GND	CONTROL	MCC-DWB	P-70101	
C70111	1"	4#12 W/#12 GND	CONTROL	MCC-DWB	P-70111	
C70141	1"	2#14 W/#14 GND	CONTROL	MSH-70141	PLC-DWB	
C70142	1"	4#14 W/#14 GND	CONTROL	LSH/LSL-70142	PLC-DWB	
C70151	1"	4#12 W/#12 GND	CONTROL	MCC-DWB	P-70151	
C70201	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	CP-ME-70201	
C70211	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-70211	
C70211A	1"	2#12 W/#12 GND	CONTROL	LCP-70211	MCC-DCB	
C70221	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-70221	
C70221A	1"	2#12 W/#12 GND	CONTROL	LCP-70221	MCC-DCB	
C70509	1"	2#14 W/#14 GND	CONTROL	FS-70509	PLC-DB	
C70520	1"	4#12 W/#12 GND	CONTROL	MCC-DB	P-70520	
C70525	1"	4#12 W/#12 GND	CONTROL	MCC-DB	P-70525	
C70530	1"	4#12 W/#12 GND	CONTROL	MCC-DB	P-70530	
C70540	1"	4#12 W/#12 GND	CONTROL	MCC-DB	P-70540	
C72510	1"	14#12 W/#12 GND	CONTROL	PLC-DCB	ME-72510	
C72549	1"	2#14 W/#14 GND	CONTROL	PSH-72549	PLC-DCB	
C73211	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-73211	
C73221	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-73221	
C76250	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-76250	
C76260	1"	4#12 W/#12 GND	CONTROL	MCC-DCB	P-76260	
C80100A	1"	2#14 W/#14 GND	CONTROL	FSL-80100	VCP-80100	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C80100B	1"	2#14 W/#14 GND	CONTROL/120VAC	SV-80100	VCP-80100	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C80100C	1"	2#14 W/#14 GND	CONTROL	PDSL-80100	VCP-80100	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C80300A	1"	4#14 W/#14 GND	CONTROL	ZS-80300A/B	VCP-80300	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C80300B	1"	2#14 W/#14 GND	CONTROL	PS-80300B	VCP-80300	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C80300C	1"	10#14 W/#14 GND	CONTROL	SV-80300A,B,C,D,E	VCP-80300	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C80300H	1"	2#14 W/#14 GND	CONTROL	PS-80300A	VCP-80300	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C80300I	1"	2#14 W/#14 GND	CONTROL	HS-80300H/ESTOP	VCP-80300	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C80300J	1"	2#14 W/#14 GND	CONTROL	HS-80300I/ESTOP	VCP-80300	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C80300K	1"	2#14 W/#14 GND	CONTROL	HS-80300J/ESTOP	VCP-80300	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
C80300L	1"	2#14 W/#14 GND	CONTROL	VCP-80300	ME-80300B	
C80300M	1"	2#14 W/#14 GND	CONTROL	VCP-80300	ZS-80300B	
C80500	1"	2#14 W/#14 GND	CONTROL	FSH-80500	PLC-DWB	
C80510	1"	6#12 W/#12 GND	CONTROL	MCC-DWB	ME-80510	
C80515	1"	6#12 W/#12 GND	CONTROL	MCC-DWB	ME-80515	
C80517	1"	6#12 W/#12 GND	CONTROL	MCC-DWB	ME-80517	
C80520	1"	6#12 W/#12 GND	CONTROL	MCC-DWB	ME-80520	
C80522	1"	24#14 W/#14 GND	CONTROL	LCP-80522	PLC-DWB	
C80522A	1"	4#14 W/#14 GND	CONTROL	G-80522	LCP-80522	
C80523A	1"	4#14 W/#14 GND	CONTROL	G-80523	LCP-80522	
CATS	1"	6#14 W/#14 GND	CONTROL	ATS	PLC-HW	
CGENA	1"	8#14 W/#14 GND	CONTROL	PLC-HW	GENERATOR	
CGENB	1"	8#14 W/#14 GND	CONTROL	ATS	GENERATOR	
CPLCHW	2"	50#12 W/#12 GND	CONTROL	MCC-HW	PLC-HW	

CONDUIT SCHEDULE 5

1 SHEET ADDED

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DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/01/2024	RSP	DCL	RSP

REVISIONS

1	04/19/2024	RSP	DCL	RSP

SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE

1800 W 1200 N WEST BOUNTIFUL, UT 84087

ELECTRICAL - POWER DISTRIBUTION

CONDUIT SCHEDULE 5

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AQUA ENGINEERING
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PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E807

SHEET

SIGNAL CONDUIT						
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	NOTES
S06021	1"	2#18 TW/SH PAIR	SIGNAL	ME-06021D	LIT-06021	
S10103	1"	2#18 TW/SH PAIR	SIGNAL	ME-10103	PLC-HW	
S10104	1"	2#18 TW/SH PAIR	SIGNAL	ME-10104	PLC-HW	
S10105	1"	2#18 TW/SH PAIR	SIGNAL	FE-10105	FIT-10105	
S10105A	1"	8#18 TW/SH PAIR	SIGNAL	FIT-10105	PLC-HW	
S10106	1"	2#18 TW/SH PAIR	SIGNAL	ME-10106	PLC-HW	
S10110	1"	4#18 TW/SH PAIR	SIGNAL	LE-10110A/B	VCP-10110	
S10120	1"	4#18 TW/SH PAIR	SIGNAL	LE-10120A/B	VCP-10110	
S10130	1"	MFR CABLES	SIGNAL	ME-10130	FIT-10105	CONTINUES THROUGH FN-10140
S10201	1"	2#18 TW/SH PAIR	SIGNAL	FE-10201	FIT-10201	
S10201A	1"	2#18 TW/SH PAIR	SIGNAL	FIT-10201	PLC-HW	
S10300	1"	4#18 TW/SH PAIR	SIGNAL	LCP-10300	PLC-HW	
S10303	1"	2#18 TW/SH PAIR	SIGNAL	LE/LIT-10303	LCP-10300	
S10313	1"	2#18 TW/SH PAIR	SIGNAL	LE/LIT-10313	LCP-10300	
S10341	1"	2#18 TW/SH PAIR	SIGNAL	FE/FIT-10341	PLC-HW	
S33201	1"	2#18 TW/SH PAIR	SIGNAL/24VDC	PLC-BB	PIT-33201	
S31302	1"	2#18 TW/SH PAIR	SIGNAL	LE-31302	PLC-BB	CONDUIT CONTINUES THROUGH LIT-31302
S35481	1"	2#18 TW/SH PAIR	SIGNAL	TE-35481	LCP-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35481A	1"	2#18 TW/SH PAIR	SIGNAL	TE-35481A	LCP-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35481B	1"	2#18 TW/SH PAIR	SIGNAL	TE-35481B	LCP-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35481C	1"	2#18 TW/SH PAIR	SIGNAL	PIT-35481A	LCP-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35481D	1"	8#18 TW/SH PAIR	SIGNAL	TE-35481C-F	LCP-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35481E	1"	2#18 TW/SH PAIR	SIGNAL	VE/VXT-35481	LCP-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35481F	1"	2#18 TW/SH PAIR	SIGNAL	PIT-35481B	LCP-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35481G	1"	2#18 TW/SH PAIR	SIGNAL	TE-335481N	LCP-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35481H	1"	2#18 TW/SH PAIR	SIGNAL	PDT-35481B	LCP-ME-35481	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35482	1"	2#18 TW/SH PAIR	SIGNAL	TE-35482	LCP-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35482A	1"	2#18 TW/SH PAIR	SIGNAL	TE-35482A	LCP-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35482B	1"	2#18 TW/SH PAIR	SIGNAL	TE-35482B	LCP-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35482C	1"	2#18 TW/SH PAIR	SIGNAL	PIT-35482A	LCP-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35482D	1"	8#18 TW/SH PAIR	SIGNAL	TE-35482C-F	LCP-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35482E	1"	2#18 TW/SH PAIR	SIGNAL	VE/VXT-35482	LCP-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35482F	1"	2#18 TW/SH PAIR	SIGNAL	PIT-35482B	LCP-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35482G	1"	2#18 TW/SH PAIR	SIGNAL	TE-335482N	LCP-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35482H	1"	2#18 TW/SH PAIR	SIGNAL	PDT-35482B	LCP-ME-35482	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35483	1"	2#18 TW/SH PAIR	SIGNAL	TE-35483	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35483A	1"	2#18 TW/SH PAIR	SIGNAL	TE-35483A	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35483B	1"	2#18 TW/SH PAIR	SIGNAL	TE-35483B	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35483C	1"	2#18 TW/SH PAIR	SIGNAL	PIT-35483A	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35483D	1"	8#18 TW/SH PAIR	SIGNAL	TE-35483C-F	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35483E	1"	2#18 TW/SH PAIR	SIGNAL	VE/VXT-35483	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35483F	1"	2#18 TW/SH PAIR	SIGNAL	PIT-35483B	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35483G	1"	2#18 TW/SH PAIR	SIGNAL	TE-335483N	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35483H	1"	2#18 TW/SH PAIR	SIGNAL	PDT-35483B	LCP-ME-35483	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S35490	1"	2#18 TW/SH PAIR	SIGNAL	PIT-35490	MCP-35480	OR PER MANUFACTURER SPECIFICATIONS/PROVIDED CABLES
S37101	1"	2#18 TW/SH PAIR	SIGNAL	FE/FIT-37101	PLC-BB	
S37101A	1"	4#18 TW/SH PAIR	SIGNAL	FV-37101	PLC-BB	
S37101B	1"	2#18 TW/SH PAIR	SIGNAL	AE-37101/DO	AIT-37101	
S37101C	1"	4#18 TW/SH PAIR	SIGNAL	AIT/37101/DO	PLC-BB	
S37102	1"	2#18 TW/SH PAIR	SIGNAL	FE/FIT-37102	PLC-BB	
S37102A	1"	4#18 TW/SH PAIR	SIGNAL	FV-37102	PLC-BB	
S37201	1"	2#18 TW/SH PAIR	SIGNAL	FE/FIT-37201	PLC-BB	
S37201A	1"	4#18 TW/SH PAIR	SIGNAL	FV-37201	PLC-BB	
S37201B	1"	2#18 TW/SH PAIR	SIGNAL	AE-37201/DO	AIT-37101	
S37202	1"	2#18 TW/SH PAIR	SIGNAL	FE/FIT-37202	PLC-BB	
S37303	1"	4#18 TW/SH PAIR	SIGNAL	FV-37303	MCP-35480	
S60101	1"	2#18 TW/SH PAIR	SIGNAL	AE-60101/CL	PLC-BB	
S60101A	1"	2#18 TW/SH PAIR	SIGNAL/24VDC	LIT-60101	PLC-BB	
S60108	1"	2#18 TW/SH PAIR	SIGNAL	AIT-60108	PLC-BB	
S60110	1"	4#18 TW/SH PAIR	SIGNAL	VFD-P-60110	PLC-BB	
S60111	1"	2#18 TW/SH PAIR	SIGNAL/24VDC	LIT-60111	PLC-BB	
S60113	1"	2#18 TW/SH PAIR	SIGNAL	FN-60113	PLC-BB	
S60120	1"	4#18 TW/SH PAIR	SIGNAL	VFD-P-60120	PLC-BB	
S60121	1"	2#18 TW/SH PAIR	SIGNAL/24VDC	LIT-60121	PLC-BB	
S60130	1"	4#18 TW/SH PAIR	SIGNAL	VFD-P-60130	PLC-BB	
S60131	1"	2#18 TW/SH PAIR	SIGNAL/24VDC	LIT-60131	PLC-BB	
S60140	1"	4#18 TW/SH PAIR	SIGNAL	VFD-P-60140	PLC-BB	
S60141	1"	2#18 TW/SH PAIR	SIGNAL/24VDC	LIT-60141	PLC-BB	
S60151	1"	2#18 TW/SH PAIR	SIGNAL/24VDC	LIT-60151	PLC-BB	
S62101	1"	2#18 TW/SH PAIR	SIGNAL	LCP-ME-62101	PLC-DCB	
S62102	1"	2#18 TW/SH PAIR	SIGNAL	LCP-ME-62102	PLC-DCB	
S62110	1"	4#18 TW/SH PAIR	SIGNAL	LCP-62110	PLC-DCB	
S62125	1"	2#18 TW/SH PAIR	SIGNAL	FE/FIT-62125	PLC-DCB	
S63125	1"	2#18 TW/SH PAIR	SIGNAL	FE/FIT-63125	PLC-DCB	
S63110	1"	4#18 TW/SH PAIR	SIGNAL	LCP-63110	MCC-DCB	
S68201	1"	2#18 TW/SH PAIR	SIGNAL	PT-68201	PLC-DCB	
S68221	1"	2#18 TW/SH PAIR	SIGNAL	PT-68221	PLC-DCB	
S68230	1"	2#18 TW/SH PAIR	SIGNAL	PIT-68230	PLC-DCB	
S68510	1"	6#18 TW/SH PAIR	SIGNAL	LCP-68510	PLC-DCB	
S68530	1"	2#18 TW/SH PAIR	SIGNAL	PIT-68530	PLC-DB	
S68530A	1"	2#18 TW/SH PAIR	SIGNAL	TE/TIT-68530	PLC-DB	
S68536	1"	2#18 TW/SH PAIR	SIGNAL	PIT-68536	PLC-DB	
S68536A	1"	2#18 TW/SH PAIR	SIGNAL	TE/TIT-68536	PLC-DB	
S68540	1"	2#18 TW/SH PAIR	SIGNAL	PIT-68540	PLC-DB	
S68545	1"	2#18 TW/SH PAIR	SIGNAL	PIT-68545	PLC-DB	
S68550	1"	2#18 TW/SH PAIR	SIGNAL	FE/FIT-68550	PLC-DB	
S68550A	1"	2#18 TW/SH PAIR	SIGNAL	TE/TIT-68550	PLC-DB	
S68565	1"	2#18 TW/SH PAIR	SIGNAL	TE/TIT-68565	PLC-DB	
S68580	1"	2#18 TW/SH PAIR	SIGNAL	FE/FIT-68580	PLC-DB	

CONDUIT SCHEDULE 6

1 SHEET ADDED

DRAWING IS TO SCALE
IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE
0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
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SOUTH DAVIS SEWER DISTRICT

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DRAWING NO.

E808

SHEET

SIGNAL CONDUIT						
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	NOTES
S70122	1"	2#18 TW/SH PAIR	SIGNAL	PIT-70122	PLC-DWB	
S70131	1"	2#18 TW/SH PAIR	SIGNAL	AE/AIT-70131/CL	PLC-DWB	
S70132	1"	2#18 TW/SH PAIR	SIGNAL	AE/AIT-70132/CL	PLC-DWB	
S70512A	1"	2#18 TW/SH PAIR	SIGNAL	TE/TIT-70512	PLC-DB	
S70512B	1"	2#18 TW/SH PAIR	SIGNAL	PIT-70512	PLC-DB	
S70520A	1"	2#18 TW/SH PAIR	SIGNAL	TE/TIT-70520	PLC-DB	
S70520B	1"	2#18 TW/SH PAIR	SIGNAL	PIT-70520	PLC-DB	
S70520	1"	2#18 TW/SH PAIR	SIGNAL	FE/FIT-70520	PLC-DB	
S70530A	1"	2#18 TW/SH PAIR	SIGNAL	TE/TIT-70530A	PLC-DB	
S70530B	1"	2#18 TW/SH PAIR	SIGNAL	TE/TIT-70530B	PLC-DB	
S70540A	1"	2#18 TW/SH PAIR	SIGNAL	TE/TIT-70540A	PLC-DB	
S70540B	1"	2#18 TW/SH PAIR	SIGNAL	TE/TIT-70540B	PLC-DB	
S72545A	1"	2#18 TW/SH PAIR	SIGNAL	FE/FIT-72545	PLC-DCB	
S72545B	1"	2#18 TW/SH PAIR	SIGNAL	FE/FIT-72545B	PLC-DB	
S72548	1"	2#18 TW/SH PAIR	SIGNAL	PIT-72548	PLC-DCB	
S73212	1"	2#18 TW/SH PAIR	SIGNAL	TIT-73212	PLC-DCB	
S73213	1"	2#18 TW/SH PAIR	SIGNAL	TIT-73213	PLC-DCB	
S73214	1"	2#18 TW/SH PAIR	SIGNAL	TIT-73214	PLC-DCB	
S73215	1"	2#18 TW/SH PAIR	SIGNAL	TIT-73215	PLC-DCB	
S73216	1"	2#18 TW/SH PAIR	SIGNAL	TIT-73216	PLC-DCB	
S73217	1"	2#18 TW/SH PAIR	SIGNAL	TIT-73217	PLC-DCB	
S73218	1"	2#18 TW/SH PAIR	SIGNAL	TIT-73218	PLC-DCB	
S73219	1"	2#18 TW/SH PAIR	SIGNAL	TIT-73219	PLC-DCB	
S80320	1"	2#18 TW/SH PAIR	SIGNAL	PIT-80320	VCP-80300	

COMMUNICATION CONDUIT						
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	NOTES
N06021A	1"	CAT6	COMMUNICATIONS	FUEL MASTER SYSTEM ME-06021D	PLC-HW	
N10110	1"	CAT 6	COMMUNICATIONS	VCP-10110	PLC-HW	
N35480	1"	CAT 6	COMMUNICATIONS	MCP-35480	PLC-BB	
N35481	1"	CAT 6	COMMUNICATIONS	MCP-35480	LCP-ME-35481	
N35482	1"	CAT 6	COMMUNICATIONS	MCP-35480	LCP-ME-35482	
N35483	1"	CAT 6	COMMUNICATIONS	MCP-35480	LCP-ME-35483	
N62101	1"	CAT 6	COMMUNICATIONS	LCP-62101	PLC-DCB	
N62102	1"	CAT 6	COMMUNICATIONS	LCP-62102	PLC-DCB	
N70505	1"	CAT 6	COMMUNICATIONS	LCP-ME-70505	PLC-DB	
N76220	1"	CAT 6	COMMUNICATIONS	LCP-ME-76220	PLC-DCB	
N80100	1"	CAT 6	COMMUNICATIONS	VCP-ME-80100	PLC-DWB	
NADMIN	1"	12 STRAND SINGLE MODE FIBER	COMMUNICATIONS	PLC-BB	ADMIN BUILDING CTRL RACK	
NBB	1"	12 STRAND SINGLE MODE FIBER	COMMUNICATIONS	PLC-UWB	PLC-BB	
NBTLCP	1"	CAT 6	COMMUNICATIONS	BELLY TANK LEVEL CONTROL PANEL	PLC-HW	
NDB	1"	12 STRAND SINGLE MODE FIBER	COMMUNICATIONS	PLC-HW	PLC-DB	
NHW	1"	12 STRAND SINGLE MODE FIBER	COMMUNICATIONS	ADMIN BUILDING CTRL RACK	PLC-HW	
NDCB	1"	12 STRAND SINGLE MODE FIBER	COMMUNICATIONS	PLC-DB	PLC-DCB	
NDW	1"	12 STRAND SINGLE MODE FIBER	COMMUNICATIONS	PLC-DCB	PLC-DWB	
NGCP	1"	CAT 6	COMMUNICATIONS	GENERATOR CONTROL PANEL	PLC-HW	
NMCCBB	1"	5 - CAT 6	COMMUNICATIONS	PLC-BB	MCC-BB	
NMCCDB	1"	5-CAT6	COMMUNICATIONS	PLC-DB	MCC-DB	
NMCCDCB	1"	5-CAT6	COMMUNICATIONS	PLC-DCB	MCC-DCB	
NMCCDWB	1"	5-CAT6	COMMUNICATIONS	PLC-DWB	MCC-DWB	
NMCCHW	1"	5 - CAT 6	COMMUNICATIONS	PLC-HW	MCC-HW	
NUWB	1"	12 STRAND SINGLE MODE FIBER	COMMUNICATIONS	PLC-DWB	PLC-UWB	
NUWBSW	1"	5 - CAT 6	COMMUNICATIONS	PLC-UWB	UTILITY WATER BLDG NETWORK SWITCH	

SPARE CONDUIT						
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	NOTES
SPP35484	3"	PULL STRING	SPARE	MCP-35480	FUTURE ME-35484 BLOWER	FOR FUTURE EQUPMENT
SPN35484	1"	PULL STRING	SPARE	FUTURE ME-35484 BLOWER	MCP-35480	FOR FUTURE EQUPMENT
SPP80400	1"	PULL STRING	480VAC	MCC-DWB	VCP-80400	FOR FUTURE EQUPMENT
SPP80400A	1"	PULL STRING	120VAC	LP-DWB	FE/FIT-80400	FOR FUTURE EQUPMENT
SPP80400B	1"	PULL STRING	480VAC	VCP-80400	ME-80400B	FOR FUTURE EQUPMENT
SPP80400C	1"	PULL STRING	480VAC	VCP-80400	ZS-80400B	FOR FUTURE EQUPMENT
SPP80420	1"	PULL STRING	480VAC	VCP-80400	ME-80420	FOR FUTURE EQUPMENT
SPC80400A	1"	PULL STRING	CONTROL	ZS-80400A/B	VCP-80400	FOR FUTURE EQUPMENT
SPC80400B	1"	PULL STRING	CONTROL	PS-80400B	VCP-80400	FOR FUTURE EQUPMENT
SPC80400C	1"	PULL STRING	CONTROL	SV-80400A,B,C,D,E	VCP-80400	FOR FUTURE EQUPMENT
SPC80400H	1"	PULL STRING	CONTROL	PS-80400A	VCP-80400	FOR FUTURE EQUPMENT
SPC80400I	1"	PULL STRING	CONTROL	HS-80400H/ESTOP	VCP-80400	FOR FUTURE EQUPMENT
SPC80400J	1"	PULL STRING	CONTROL	HS-80400I/ESTOP	VCP-80400	FOR FUTURE EQUPMENT
SPC80400K	1"	PULL STRING	CONTROL	HS-80400J/ESTOP	VCP-80400	FOR FUTURE EQUPMENT
SPC80400L	1"	PULL STRING	CONTROL	VCP-80400	ME-80400B	FOR FUTURE EQUPMENT
SPC80400M	1"	PULL STRING	CONTROL	VCP-80400	ZS-80400B	FOR FUTURE EQUPMENT
SPP68530	1"	PULL STRING	480VAC	MCC-DCB	P-68530	FOR FUTURE EQUPMENT
SPC68530A	1"	PULL STRING	CONTROL	PSH-68530 / TSH-68530	MCC-DCB	FOR FUTURE EQUPMENT
SPP10000	6-4"	PULL STRING	480VAC	MAIN SWITCHGEAR	MANHOLE OUTSIDE ADMIN	FOR FUTURE EQUPMENT
SPP10001	6-2"	PULL STRING	480VAC	MANHOLE NEAR MAIN SWITCHGEAR	MANHOLE OUTSIDE ADMIN	FOR FUTURE EQUPMENT
SPP10002	12-1"	PULL STRING	480VAC	MANHOLE NEAR MAIN SWITCHGEAR	MANHOLE OUTSIDE ADMIN	FOR FUTURE EQUPMENT
SPN10000	2-1"	PULL STRING	COMM	MANHOLE NEAR MAIN SWITCHGEAR	MANHOLE OUTSIDE ADMIN	FOR FUTURE EQUPMENT
SPC10000	12-1"	PULL STRING	CONTROL	MANHOLE NEAR MAIN SWITCHGEAR	MANHOLE OUTSIDE ADMIN	FOR FUTURE EQUPMENT
SPP20000	2-1"	PULL STRING	120VAC	LP-DWB	RIO-CB	FOR FUTURE EQUPMENT
**NOTE - CONTRACTOR SHALL PROVIDE MINIMUM 4-1" AND 2-2" SPARE CONDUITS WITH PULL STRINGS IN EACH NEW DUCT BANK BETWEEN MANHOLES AND/OR HANDHOLES						

CONDUIT SCHEDULE 7

1 SHEET ADDED

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
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SOUTH DAVIS SEWER DISTRICT

NORTH PLANT UPGRADE
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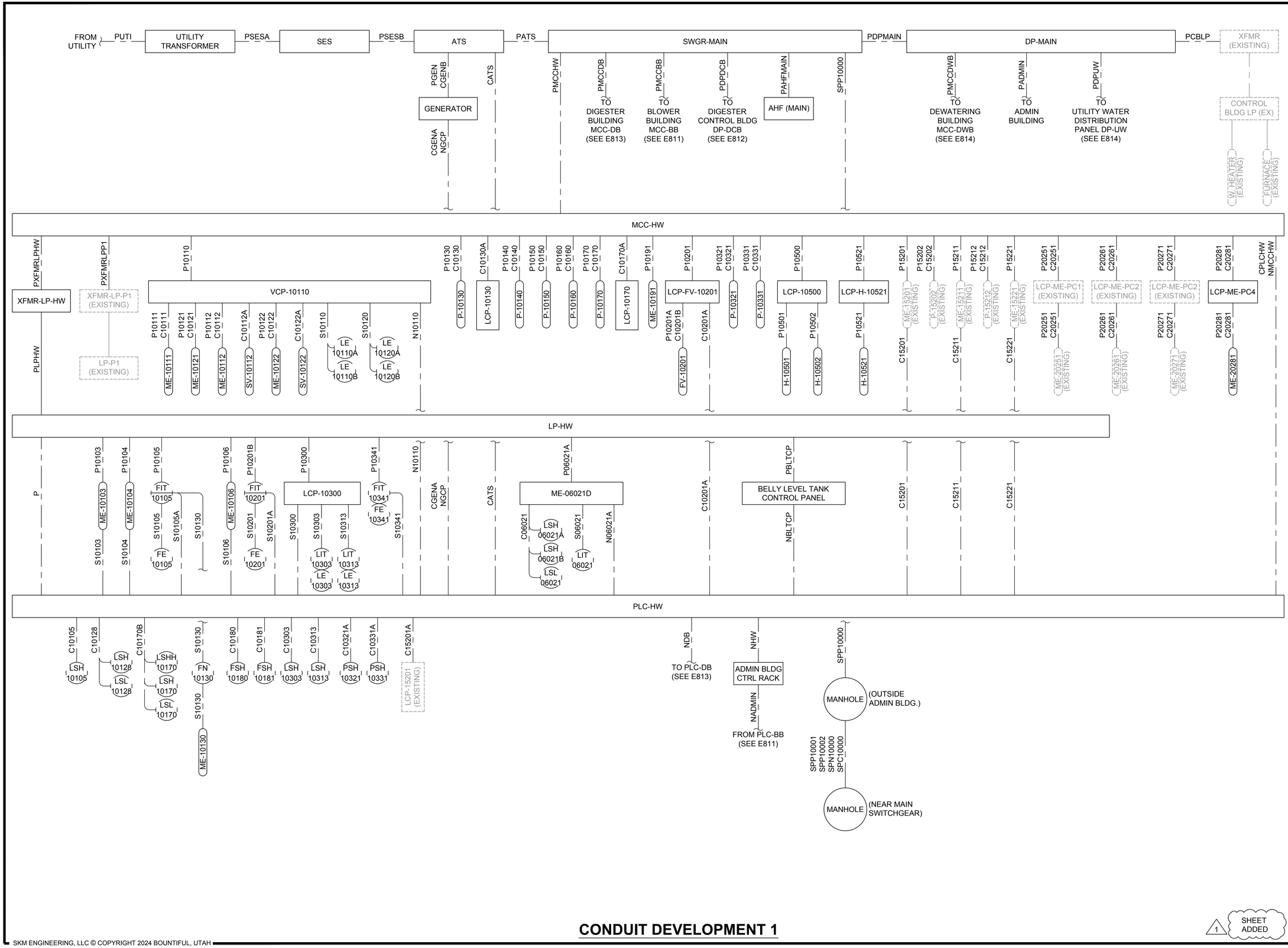
DRAWING NO.
E809
SHEET



CONDUIT DEVELOPMENT 1

1 SHEET ADDED

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

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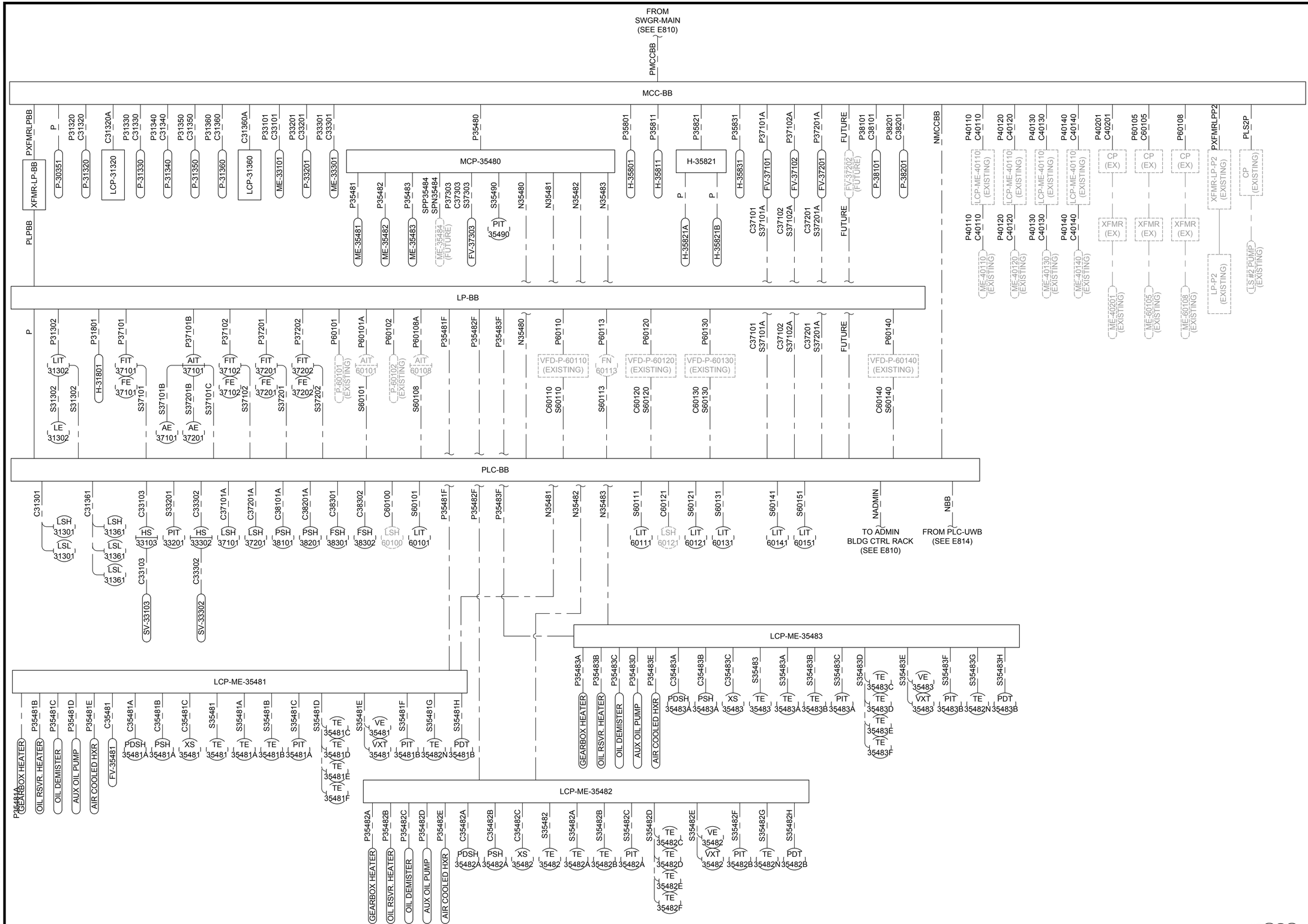
DRAWING NO.

E810

SHEET

4/19/2024 C:\USERS\DANIEL.LEAVITT\DC\ACCDOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\999 ELECTRICAL\999-E810 CONDUIT DEVELOPMENT.DWG



CONDUIT DEVELOPMENT 2

1 SHEET ADDED

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DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED
ORIGINAL				
B	04/01/2024	RSP	DCL	RSP
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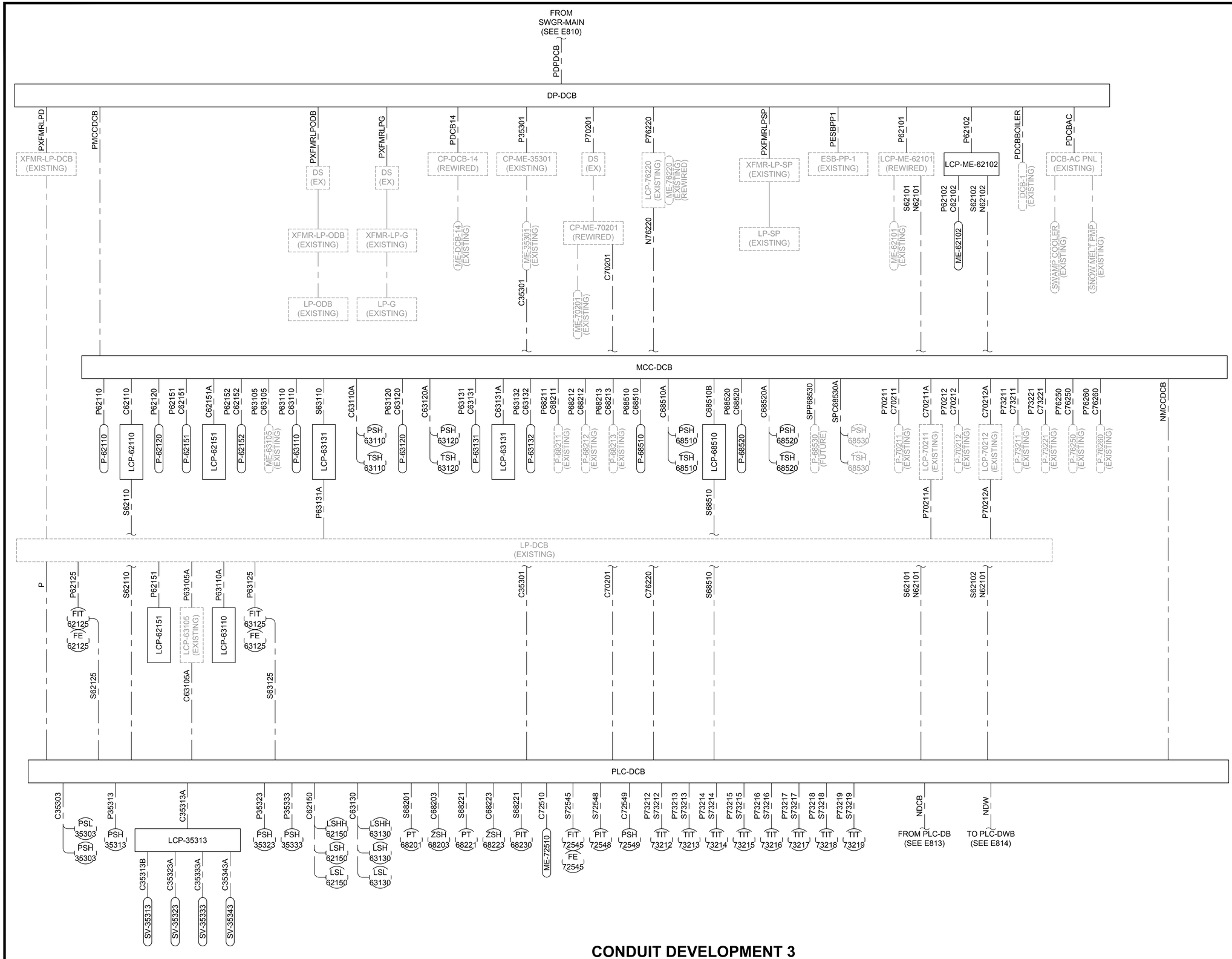
DRAWING NO.

E811

SHEET



CONDUIT DEVELOPMENT 3

1 SHEET ADDED

0 1/2 1 DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
B	04/01/2024	RSP	DCL	RSP

REVISIONS

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DRAWING NO.
E812

SHEET

4/18/2024
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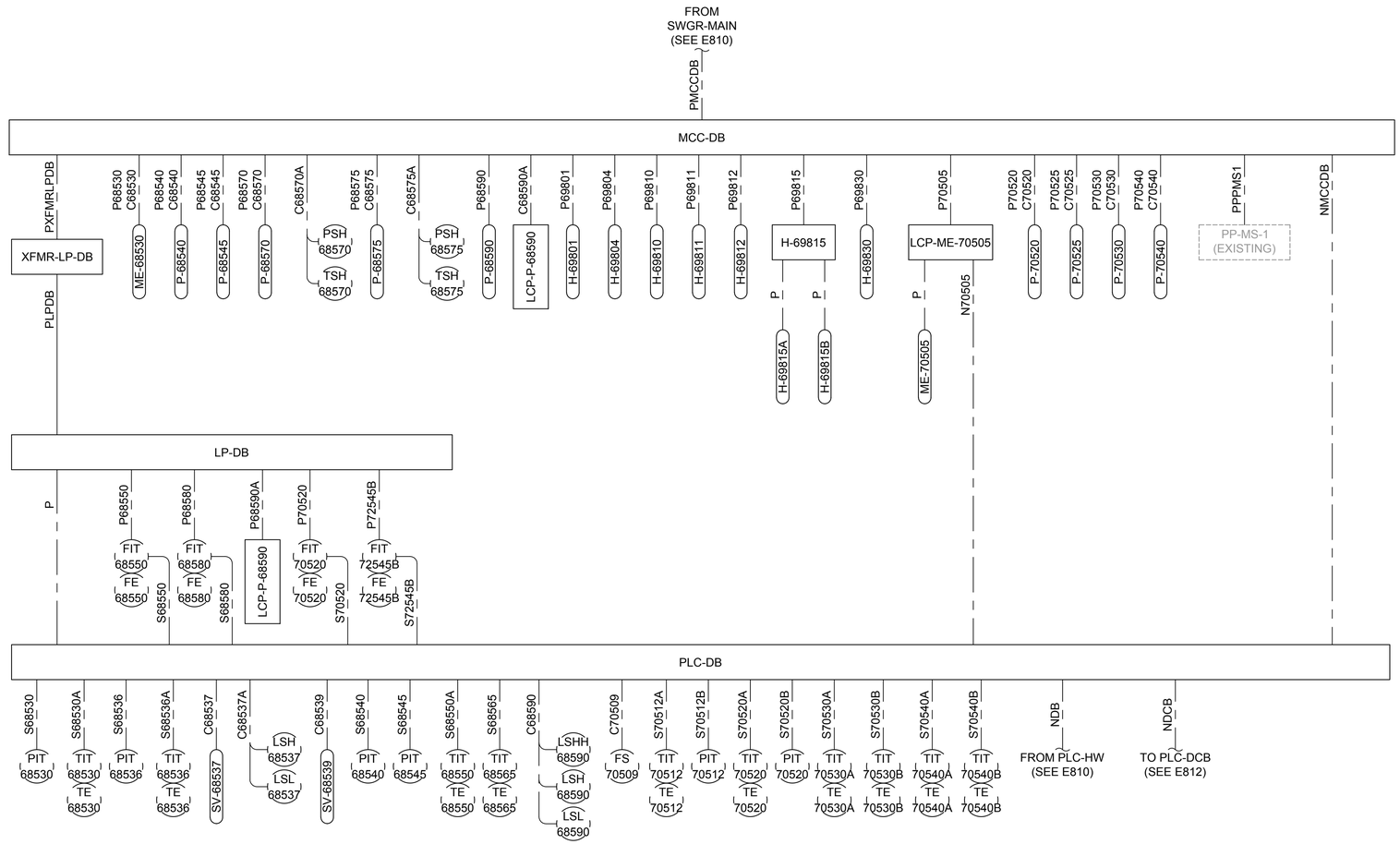

CONDUIT DEVELOPMENT 4

1 SHEET ADDED

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0 1/2 1 DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

ORIGINAL

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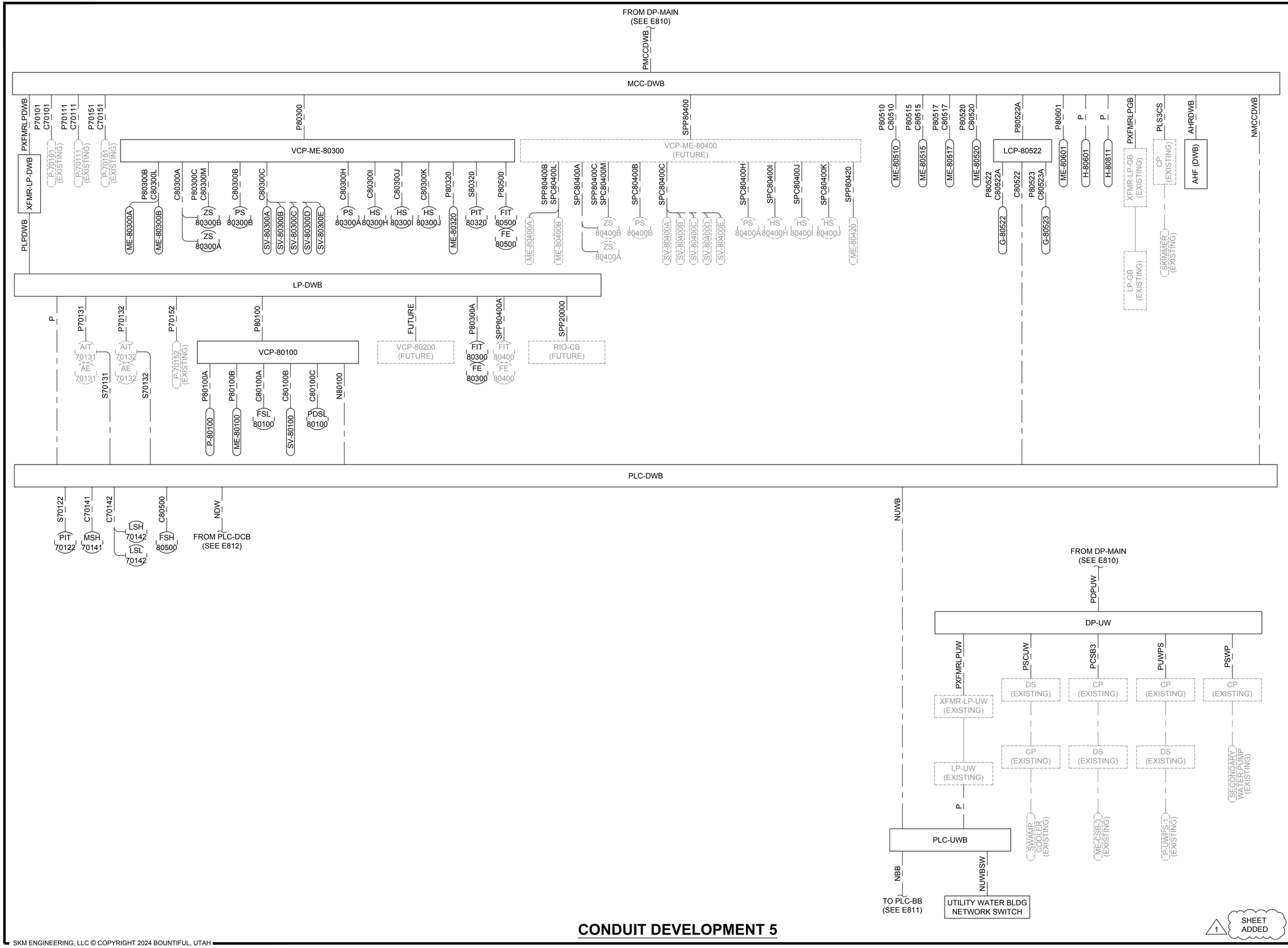
DRAWING NO.

E813

SHEET



CONDUIT DEVELOPMENT 5

1 SHEET ADDED

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0 1/2 1 DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
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REVISIONS

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DRAWING NO.

E814

SHEET

SECTION 263213 – ENGINE GENERATORS

PART 1 - GENERAL

1.1 SUMMARY

A. General: The CONTRACTOR shall provide a factory assembled standby diesel electric generator system complete and operable with digital electronic controls, in conformance to the Contract Documents.

B. The provisions of this Section apply to standby diesel electric generators throughout the Contract Documents, except as indicated otherwise.

C. Provide factory test, startup by a supplier authorized by the manufacturer, and on-site testing of the system.

D. The generator set manufacturer shall warrant all equipment provided under this section, whether or not is manufactured by the generator set manufacturer, so that there is one source for warranty and product service. Technicians specifically trained and certified by the manufacturer to support the product and employed by the generator set supplier shall service the generator set.

E. The CONTRACTOR shall be responsible for obtaining any required air quality permits on behalf of the OWNER, posting all public notices, and shall include all associated fees in their bid, listed as separate line items in the schedule of values. The generator vendor shall provide the Contractor with the documentation required for permitting, showing published proof of EPA certification on the engine specified and furnished herein.

1.2 CODES AND STANDARDS

A. The generator set and its installation and on-site testing shall conform to the requirements of the following codes and standards:

1. CSA C22.2, No. 14 – M91 Industrial Control Equipment
2. CSA 282, 1989 Emergency Electrical Power Supply for Buildings
3. EN50082-2, Electromagnetic Compatibility – Generic Immunity Requirements, Part 2: Industrial.
4. EN55011, Limits and Methods of Measurement of Radio Interference Characteristics of Industrial, Scientific and Medical Equipment.
5. FCC Part 15, Subpart B.
6. IEC8528 part 4. Control Systems for Generator Sets.
7. IEC Std 801.2, 801.3, and 801.5 for susceptibility, conducted, and radiated electromagnetic emissions.
8. IEEE446 – Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications.
9. IEEE587 for voltage surge resistance.
10. Mil Std 461D –1993. Military Standard, Electromagnetic Interference Characteristics.
11. Mil Std 462D - 1993. Military Standard, Measurement of Electromagnetic Interference Characteristics.
12. NEMA ICS10-1993 – AC Generator sets.
13. NFPA70 – National Electrical Code. Equipment shall be suitable for use in systems in compliance to Article 700, 701, and 702

14. NFPA99 – Essential Electrical Systems for Health Care Facilities.
15. NFPA110 – Emergency and Standby Power Systems. The generator set shall meet all requirements for Level 1 systems. Level 1prototype tests required by this standard shall have been performed on a complete and functional unit, component level type tests will not substitute for this requirement
16. UL508. The entire control system of the generator set shall be UL508 listed and labeled.
17. UL2200. The generator set shall be listed to UL2200 or submit to an independent third-party certification process to verify compliance as installed.

B. The generator set manufacturer shall be certified to ISO 9001 International Quality Standard and shall have third party certification verifying quality assurance in design/development, production, installation, and service, in accordance with ISO 9001.

1.3 ACCEPTABLE MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Kohler Power Systems; Generator Division.
b. Onan/Cummins Power Generation; Industrial Business Group.
c. Caterpillar; Engine Div.

1.4 CONTRACTOR SUBMITTALS

A. Furnish submittals in accordance with Section 013000 - Contractor Submittals.

B. Submit shop drawings containing actual dimensions, complete wiring and schematic diagrams, control diagrams, and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. Shop drawings shall show proposed layout, anchoring, support and appurtenances, including clearances for maintenance and operations. Shop drawings shall show details of piping connections for fuel.

C. Submit a complete list of equipment and material, including manufacturer's specifications, performance charts, catalog cuts and installation instructions, and recommended spare parts list. Submit data for each different item of equipment specified, including but not limited to engine, generator, switchgear, automatic transfer switch, vibration isolators, radiator, and other components. The data shall include a complete list of parts and source of supply.

D. Submit performance test reports in booklet form showing all field tests, and adjustments performed to prove compliance with specified criteria.

E. Operation and maintenance (O&M) manuals shall describe the step-by-step procedure required for system start-up, operation and routine maintenance. The O&M manuals shall include troubleshooting and repair guidelines, as well as wiring diagrams of the system as installed.

F. Miscellaneous:

1. Dimensions, dry and wet weight.
2. Manufacturer’s kilowatts output curve and fuel consumption.

3. Manufacturer's transient response data of the complete engine generator set upon 50%, 75%, and 100% block loads at 1.0 pf. Data shall include maximum voltage dips, maximum frequency dips, and recovery time periods.
4. Engine altitude duration curve
5. Generator motor starting curves showing the voltage dips versus starting KVA.
6. Prototype test certifications showing all components comply with specifications.

G. The following spare parts for the engine generator shall be supplied to the OWNER prior to acceptance of work: Two sets of oil filters, two sets of heavy-duty air filters, one dozen spare lamps, two fuses (for each control circuit).

1. Two set of oil filters.
2. Two sets of heavy-duty air filters
3. One dozen spare lamps
4. Fuses (for each control circuit)

PART 2 -- PRODUCTS

2.1 ENGINE GENERATOR SET

A. Requirements

1. All materials, equipment, and parts comprising the units specified herein, shall be new and unused, and of the highest grade.

2. The engine, generator and all major items of auxiliary equipment shall be manufactured by manufacturers currently engaged in the production of such equipment. The unit shall be factory assembled and tested by the engine SUPPLIER and shipped to the job site by his authorized dealer having a parts and service facility in the area. The performance of the electric plant shall be certified by SUPPLIER as to the plant's full power rating, stability and voltage and frequency regulation, and field load tested at site.

3. The units offered under these Contract Documents shall be covered by the SUPPLIER's standard warranty, or guarantee, on new machines, and shall be a minimum of two years after the date of substantial completion.

B. Ratings

1. The generator set shall operate at 1800 rpm and at a voltage of: 480 Volts AC, Three phase, Four-wire, 60 hertz.

2. The generator set shall be rated at as indicated on the drawings, at 0.8 PF, after de-rating, based on site conditions of: Altitude 4300 ft. (1300 meters), ambient temperatures up to 122 degrees F (50 degrees C). The sizing is an approximation, and it is the supplier's responsibility to properly size the generator based upon the following steps (include capacity for 20% additional future expansion):

3. The generator set rating shall be based on emergency/standby service.

C. Performance

1. Voltage regulation shall be plus or minus 0.5 percent for any constant load between no load and rated load for both parallel and non-parallel applications. Random voltage variation with any steady load from no load to full load shall not exceed plus or minus 0.5 percent.

2. Frequency regulation shall be isochronous from steady state no load to steady state rated load. Random frequency variation with any steady load from no load to full load shall not exceed plus or minus 0.25%.

3. The diesel engine-generator set shall be capable of single step load pick up of 100% nameplate kW and power factor, less applicable derating factors, with the engine-generator set at operating temperature.

4. The generator set shall be capable of sustaining a minimum of 90% of rated no load voltage with the specified kVA load at near zero power factor applied to the generator set.

5. The alternator shall produce a clean AC voltage waveform, with not more than 5% total harmonic distortion at full linear load, when measured from line to neutral, and with not more than 3% in any single harmonic. Telephone influence factor shall be less than 40.

D. Construction

1. The engine-generator set shall be mounted on a heavy-duty steel base to maintain alignment between components. The base shall incorporate a battery tray with hold-down clamps within the rails.

2. All switches, lamps, and meters in the control system shall be oil-tight and dust-tight, and the enclosure door shall be gasketed. There shall be no exposed points in the control (with the door open) that operate in excess of 50 volts.

E. Connections

1. The generator set load connections shall be composed of tin-plated copper bus bars, drilled to accept mechanical or compression terminations of the number and type as shown on the drawings. Sufficient lug space shall be provided for use with cables of the number and size as shown on the drawings.

2. Power connections to auxiliary devices shall be made at the devices, with required protection located at a wall-mounted common distribution panel.

3. Generator set control interfaces to other system components shall be made on a common, permanently labeled terminal block assembly.

2.2 ENGINE AND ENGINE EQUIPMENT

A. The engine shall be diesel, 4 cycle, radiator and fan cooled with 6 cylinders. The horsepower rating of the engine at its minimum tolerance level shall be sufficient to drive the alternator and all connected accessories. Two cycle engines are not acceptable. Engine accessories and features shall include:

B. An electronic governor system shall provide automatic isochronous frequency regulation. The governing system dynamic capabilities shall be controlled as a function of engine coolant temperature to provide fast, stable operation at varying engine operating temperature conditions. The control system shall actively control the fuel rate and excitation as appropriate to the state of the generator set. Fuel rate shall be regulated as a function of starting, accelerating to start disconnect speed, accelerating to rated speed, and operating in various isochronous or parallel states.

C. Skid-mounted radiator and cooling system rated for full load operation in 122 degrees F (50 degrees C) ambient as measured at the generator air inlet, based on 0.5 in H_2O external static head. Radiator shall be sized based on a core temperature which is 20F higher than the rated operation temperature, or prototype tested to verify cooling performance of the engine/radiator/fan operation in a controlled environment. Radiator shall be provided with a duct adapter flange. The cooling system shall be filled with a 50/50-ethylene glycol/water mixture by the equipment SUPPLIER. Rotating parts shall be guarded against accidental contact.

D. Electric starter(s) capable of three complete cranking cycles without overheating.

E. Positive displacement, mechanical, full pressure, lubrication oil pump.

F. Full flow lubrication oil filters with replaceable spin-on canister elements and dipstick oil level indicator.

G. An engine driven, mechanical, positive displacement fuel pump. Fuel filter with replaceable spin-on canister element. Fuel cooler, suitable for operation of the generator se at full rated load in the ambient temperature specified shall be provided if required for operation due to the design of the engine and the installation.

H. Replaceable dry element air cleaner with restriction indicator.

I. Flexible supply and return fuel lines.

J. Engine mounted battery charging alternator, 40-ampere minimum, and solid-state voltage regulator.

K. Fuel return pump shall be provided where an external fuel system is utilized. Generator manufacturer to coordinate with Fuel tank supplier to ensure size of pump and control for pump are coordinated and function properly.

L. Coolant heater.

1. Engine mounted, thermostatically controlled, coolant heater(s) for each engine. Heater voltage shall be as shown on the project drawings. The coolant heater shall be UL499 listed and labeled.

2. The coolant heater shall be installed on the engine with silicone hose connections. Steel tubing shall be used for connections into the engine coolant system wherever the length of pipe run exceeds 12 inches. The coolant heater installation shall be specifically designed to provide proper venting of the system. The coolant heaters shall be installed using quick disconnect couplers to isolate the heater for replacement of the heater element. The quick disconnect/automatic sealing couplers shall allow the heater element to be replaced without draining the engine cooling system or significant coolant loss.

3. The coolant heater shall be provided with a 24VDC thermostat, installed at the engine thermostat housing. An AC power connection box shall be provided for a single AC power connection to the coolant heater system.

4. The coolant heater(s) shall be sized as recommended by the engine SUPPLIER to warm the engine to a minimum of 100F (40C) in a 40F ambient, in compliance with

NFPA110 requirements, or the temperature required for starting and load pickup requirements of this specification.

M. Provide vibration isolators, spring/pad type, quantity as recommended by the generator set SUPPLIER. Isolators shall include seismic restraints if required by site location.

N. Starting and Control Batteries shall be calcium/lead antimony type, 24-volt DC, sized as recommended by the engine SUPPLIER, complete with battery cables and connectors.

O. Provide an exhaust silencer for each engine of size and type as recommended by the generator set SUPPLIER and approved by the engine manufacturer. The mufflers shall be critical grade. Exhaust system shall be installed according to the engine manufacturer's recommendations and applicable codes and standards.

P. A UL listed/CSA certified 10-amp voltage regulated battery charger shall be provided for each engine-generator set. The charger may be located in an automatic transfer switch, or may be wall mounted, at the discretion of the installer. Input AC voltage and DC output voltage shall be as required. Chargers shall be equipped with float, taper and equalize charge settings. Operational monitors shall provide visual output along with individual form C contacts rated at 4 amps, 120 VAC, 30VDC for remote indication of:

1. Loss of AC power - red light
2. Low battery voltage - red light
3. High battery voltage - red light
4. Power ON - green light (no relay contact)
5. Charger shall include an Analog DC voltmeter and ammeter, 12-hour equalize charge timer, and AC and DC fuses

Q. Provide a dual wall sub-base fuel storage tank with 24 hours of capacity at full load. The tank shall be constructed of corrosion resistant steel and shall be UL listed. The equipment, as installed, shall meet all local and regional requirements for above ground tanks.

2.3 GENERATOR

A. The AC generator shall be; synchronous, four pole, 2/3 pitch, revolving field, drip-proof construction, single prelubricated sealed bearing, air cooled by a direct drive centrifugal blower fan, and directly connected to the engine with flexible drive disc. All insulation system components shall meet NEMA MG1 temperature limits for Class H insulation system. Actual temperature rise measured by resistance method at full load shall not exceed 105 degrees Centigrade.

B. The generator shall be capable of delivering rated output (kVA) at rated frequency and power factor, at any voltage not more than 5 percent above or below rated voltage.

C. A permanent magnet generator (PMG) shall be included to provide a reliable source of excitation power for optimum motor starting and short circuit performance. The PMG and controls shall be capable of sustaining and regulating current supplied to a single phase or three phase fault at approximately 300% of rated current for not more than 10 seconds.

D. The subtransient reactance of the alternator shall not exceed 12 percent, based on the standby rating of the generator set.

2.4 GENERATOR SET CONTROL

A. The generator set shall be provided with a microprocessor-based control system that is designed to provide automatic starting, monitoring, and control functions for the generator set. The control system shall also be designed to allow local monitoring and control of the generator set, and remote monitoring and control as described in this specification.

B. The control shall be mounted on the generator set. The control shall be vibration isolated and prototype tested to verify the durability of all components in the system under the vibration conditions encountered.

C. The generator set mounted control shall include the following switches:

1. MODE SELECT switch. The mode select switch shall initiate the following control modes. When in the RUN or Manual position the generator set shall start and accelerate to rated speed and voltage as directed by the operator. In the OFF position the generator set shall immediately stop, bypassing all time delays. In the AUTO position the generator set shall be ready to accept a signal from a remote device to start and accelerate to rated speed and voltage.

2. EMERGENCY STOP switch. Switch shall be Red "mushroom-head" push-button. Depressing the emergency stop switch shall cause the generator set to immediately shut down and be locked out from automatic restarting.

3. RESET switch. The RESET switch shall be used to clear a fault and allow restarting the generator set after it has shut down for any fault condition.

4. PANEL LAMP switch. Depressing the panel lamp switch shall cause the entire panel to be lighted with DC control power. The panel lamps shall automatically be switched off 10 minutes after the switch is depressed, or after the switch is depressed a second time.

D. The generator set mounted control shall include the following AC Output Metering with the following features and functions:

1. Analog voltmeter, ammeter, frequency meter, and kilowatt (KW) meter. Voltmeter and ammeter shall display all three phases. Ammeter and KW meter scales shall be color coded in the following fashion: readings from 0-90% of generator set standby rating: green; readings from 90-100% of standby rating: amber; readings in excess of 100%: red.

2. Digital metering set, 0.5% accuracy, to indicate generator RMS voltage and current, frequency, output current, output KW, KW-hours, and power factor. Generator output voltage shall be available in line-to-line and line-to-neutral voltages and shall display all three phase voltages (line to neutral or line to line) simultaneously.

3. Both analog and digital metering are required. The analog and digital metering equipment shall be driven by a single microprocessor, to provide consistent readings and performance.

E. The generator set shall be provided with alarm and status indicating lamps to indicate non-automatic generator status, and existing warning and shutdown conditions. The lamps shall be high-intensity LED type. The lamp condition shall be clearly apparent under bright

room lighting conditions. The generator set control shall indicate the existence of the following alarm and shutdown conditions on an alphanumeric digital display panel.

1. Low Oil Pressure (alarm).
2. Low Oil Pressure (shutdown).
3. Oil Pressure Sender Failure (alarm).
4. Low Coolant Temperature (alarm).
5. High Coolant Temperature (alarm).
6. High Coolant Temperature (shutdown).
7. Engine Temperature Sender Failure (alarm).
8. Low Coolant Level (alarm or shutdown—selectable)
9. Fail to Crank (shutdown)
10. Fail to Start/Overcrank (shutdown)
11. Overspeed (shutdown)
12. Low DC Voltage (alarm)
13. High DC Voltage (alarm)
14. Weak Battery (alarm)
15. Low Fuel-Daytank (alarm)
16. High AC Voltage (shutdown)
17. Low AC Voltage (shutdown)
18. Under Frequency (shutdown)
19. Over Current (warning)
20. Over Current (shutdown)
21. Short Circuit (shutdown)
22. Over Load (alarm)
23. Emergency Stop (shutdown)
24. Provisions shall be made for indication of four customer-specified alarm or shutdown conditions. Labeling of the customer-specified alarm or shutdown conditions shall be of the same type and quality as the above specified conditions. The non-automatic indicating lamp shall be red and shall flash to indicate that the generator set is not able to automatically respond to a command to start from a remote location.

F. Remote Alarm Annunciator: Comply with NFPA 99. An LED labeled with proper alarm conditions shall identify each alarm event and a common audible signal shall sound for each alarm condition. Silencing switch in face of panel shall silence signal without altering visual indication. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset. Cabinet and faceplate are surface- or flush-mounting type to suit mounting conditions indicated.

G. The generator set mounted control shall include the following engine status monitoring:

1. Engine Oil Pressure (psi or kPA)
2. Engine Coolant Temperature (degrees F or C)
3. Engine Oil Temperature (degrees F or C)
4. Engine Speed (rpm)
5. Number of Hours of Operation (hours)
6. Number of Start Attempts
7. Battery Voltage (DC volts)
8. The control system shall also incorporate a data logging and display provision to allow logging of the last 10 warning or shutdown indications on the generator set, as well as total time of operation at various loads, as a percent of the standby rating of the generator set.

H. The generator set mounted control shall include the following engine control functions:

1. The control system provided shall include a cycle cranking system, which allows for user selected crank time, rest time, and # of cycles. Initial settings shall be for 3 cranking periods of 15 seconds each, with 15-second rest period between cranking periods.

2. The control system shall include an idle mode control, which allows the engine to run in idle mode in the RUN position only. In this mode, the alternator excitation system shall be disabled.

3. The control system shall include an engine governor control, which functions to provide steady state frequency regulation as noted elsewhere in this specification. The governor control shall include adjustments for gain, damping, and a ramping function to control engine speed and limit exhaust smoke while the unit is starting. The governor control shall be suitable for use in paralleling applications without component changes.

4. The control system shall include time delay start (adjustable 0-300 seconds) and time delay stop (adjustable 0-600 seconds) functions.

5. The control system shall include sender failure monitoring logic for speed sensing, oil pressure, and engine temperature which is capable of discriminating between failed sender or wiring components, and an actual failure conditions.

6. The generator system shall be provided with a communications system that allows for monitoring of the system via a Modbus TCP connection to the facility's control system. Provide a Modbus memory map that allows for monitoring of the generator's operational state, alarm conditions, output voltage, current & power and fuel level.

I. Alternator Control Functions:

1. The generator set shall include an automatic digital voltage regulation system that is matched, and prototype tested by the engine manufacturer with the governing system provided. It shall be immune from misoperation due to load-induced voltage waveform distortion and provide a pulse width modulated output to the alternator exciter. The voltage regulation system shall be equipped with three-phase RMS sensing and shall control buildup of AC generator voltage to provide a linear rise and limit overshoot. The system shall include a torque-matching characteristic, which shall reduce output voltage in proportion to frequency below a threshold of [58-59] HZ. The voltage regulator shall include adjustments for gain, damping, and frequency roll-off. Adjustments shall be broad range, and made via digital raise-lower switches, with an alphanumeric LED readout to indicate setting level. Rotary potentiometers for system adjustments are not acceptable.

2. Controls shall be provided to monitor the output current of the generator set and initiate an alarm (over current warning) when load current exceeds 110% of the rated current of the generator set on any phase for more than 60 seconds. The controls shall shut down and lock out the generator set when output current level approaches the thermal damage point of the alternator (over current shutdown). The protective functions provided shall be in compliance to the requirements of NFPA70 article 445.

3. Controls shall be provided to individually monitor all three phases of the output current for short circuit conditions. The control/protection system shall monitor the current level and voltage. The controls shall shut down and lock out the generator set when output current level approaches the thermal damage point of the alternator (short circuit

shutdown). The protective functions provided shall be in compliance to the requirements of NFPA70 article 445.

4. Controls shall be provided to monitor the KW load on the generator set and initiate an alarm condition (overload) when total load on the generator set exceeds the generator set rating for in excess of 5 seconds. Controls shall include a load shed control, to operate a set of dry contacts (for use in shedding customer load devices) when the generator set is overloaded.

5. An AC over/under voltage monitoring system that responds only to true RMS voltage conditions shall be provided. The system shall initiate shutdown of the generator set when alternator output voltage exceeds 110% of the operator-set voltage level for more than 10 seconds, or with no intentional delay when voltage exceeds 130%. Under voltage shutdown shall occur when the output voltage of the alternator is less than 85% for more than 10 seconds.

6. A battery monitoring system shall be provided which initiates alarms when the DC control and starting voltage is less than 25VDC or more than 32 VDC. During engine cranking (starter engaged), the low voltage limit shall be disabled, and if DC voltage drops to less than 14.4 volts for more than two seconds a "weak battery" alarm shall be initiated.

J. The generator set shall be provided with a mounted main line circuit breaker, sized to carry the rated output current of the generator set. The circuit breaker shall incorporate an electronic trip unit that operates to protect the alternator under all overcurrent conditions, or a thermal-magnetic trip with other overcurrent protection devices that positively protect the alternator under overcurrent conditions. The supplier shall submit time overcurrent characteristic curves and thermal damage curve for the alternator, demonstrating the effectiveness of the protection provided.

2.5 OUTDOOR WEATHER-PROTECTIVE HOUSING

A. The enclosure shall include hinged doors for access to both sides of the engine and alternator, and the control equipment. Key-locking and padlockable door latches shall be provided for all doors. Door hinges shall be stainless steel.

B. The CONTRACTOR shall be responsible for appropriate sizing, location, and proper functioning as per the manufacturer’s requirements.

C. All sheet metal shall be primed for corrosion protection and finish painted with the manufacturers standard color. All surfaces of all metal parts shall be primed and painted.

D. Painting of hoses, clamps, wiring harnesses, and other non-metallic service parts shall not be acceptable. Fasteners used shall be corrosion resistant and designed to minimize marring of the painted surface when removed for normal installation or service work.

E. Generator Sound Attenuation: The outdoor weather-protection housing shall also provide sound attenuation by allowing a maximum of 85 dBA at a distance of 23 feet from the generator enclosure.

F. If the housing doors are elevated due to the fuel tank base, provide a portable platform system that is designed specifically for the generator assembly.

2.6 AUXILIARY POWER SYSTEM

A. The generator shall be provided a 480V auxiliary feeder from the facility power distribution system. The generator assembly shall be designed to accept that feeder and provide disconnecting means, step down transformer (120/208V) and distribution panelboards as required for a complete and operable system.

B. Provide lights and a light switch for the interior of the enclosure.

C. Provide fans and heaters as necessary to prevent cold starts and overheating.

D. Provide a 20A 120V convenience receptacle.

E. Provide power to the battery charging system.

2.7 FUEL OIL SYSTEM

A. Main Fuel Tank (Bulk Tank): Coordinate with Section 23 13 23.

B. Day Tank:

1. Provide an integral belly tank, double-wall UL-142, with all required tank trim equipment, including normal and emergency vents, auxiliary fill port, signage/decals, fuel supply and return transfer pumps, valves, and automatic controls suitable for operation in the configuration to be installed.

a. Tank Capacity: Size tank for a minimum of 8 hours of continuous operation at 100% load capacity, up to code-allowed maximum.

b. Supply Pump: Supply pump shall be equal to or greater than four times the generator consumption rate, minimum 4 GPM.

c. Return Pump: Return pump shall be at least 1.5x the Supply Pump flow rate, minimum 7 GPM.

d. Supply and Return Pumps shall be positive-displacement type with appropriately sized TEFC motor, single phase.

e. Day Tank Level Controller: Belly tank shall be equipped with a Level Control Panel, independent of the Generator Control Panel.

1) Day Tank Level Control Panel shall be UL-508A listed and labeled.

2) Panel shall be PLC-based, and equipped with Hand-Off-Auto control for each pump.

3) Panel shall have (4) Programmable Dry-contact relay outputs, Form C, for General Alarm, High Alarm, Low Alarm, Leak Alarm and/or Solenoid Valve Control.

4) Panel shall be equipped with ModBus protocol to communicate with BMS.

a) BMS points shall include:

(a) Supply Pump Status

(b) Supply Pump H-O-A Status

(c) Return Pump Status

(d) Return Pump H-O-A Status

(e) High Level Alarm

(f) Low Level Alarm

(g) Loss of Flow Alarm

(h) Leak Detected Alarm

(i) Generator Run Status

(j) Belly Tank Fuel Level in Gallons (if equipped with 4-20mA Level Sensor)

f. Sequence of Operations: Belly tank shall be equipped with a minimum of four independent level control devices. These devices shall be dedicated to the Day Tank Level Controller only:

1) 95% High Level / Return Pump Start

2) 90% Pump Stop Level

3) 70% Refill Start Level

4) 50% Low Level

5) As fuel level falls below 70%, Supply Pump and Inlet Solenoid Valve shall activate. A Flow Switch monitors for the successful delivery of fuel into the belly tank. Should the Flow Switch fail to detect flow within 30 seconds of activation, the Controller shall alarm and disable the supply pump. Manual reset shall be required to restart.

6) When fuel level reaches 90%, Supply Pump and Inlet Solenoid Valve shall deactivate.

7) Should the level in the belly tank reach 95%, the High Level Alarm shall sound, and the Return Pump shall activate and pump fuel back to the Main Tank until the belly tank level falls below 90%.

8) Should the level fall below 50%, the Low Level Alarm shall sound. Supply Pump and Inlet Solenoid Valve shall remain engaged.

9) If a Leak is detected, the Leak Alarm shall activate. If the Generator is Running, Leak Alarm shall be alarm only. Refill operation would continue to operate.

g. Day Tank Level Controller shall be Control Systems International SDT-115, or Engineer approved equal.

PART 3 -- EXECUTION

3.1 SEQUENCE OF OPERATION

A. Generator set shall start on receipt of a start signal from remote equipment. The start signal shall be via hardwired connection to the generator set control.

B. The generator set shall complete a time delay start period as programmed into the control.

C. The generator set control shall initiate the starting sequence for the generator set. The starting sequence shall include the following functions:

1. The control system shall verify that the engine is rotating when the starter is signaled to operate. If the engine does not rotate after two attempts, the control system shall shut down and lock out the generator set and indicate “fail to crank” shutdown.

2. The engine shall fire and accelerate as quickly as practical to start disconnect speed. If the engine does not start, it shall complete a cycle cranking process as described elsewhere in this specification. If the engine has not started by the completion of the cycle cranking sequence, it shall be shut down and locked out, and the control system shall indicate “fail to start”.

3. The engine shall accelerate to rated speed and the alternator to rated voltage. Excitation shall be disabled until the engine has exceeded programmed idle speed and regulated to prevent over voltage conditions and oscillation as the engine accelerates and the alternator builds to rated voltage.

D. On reaching rated speed and voltage, the generator set shall operate as dictated by the control system in isochronous, synchronize, load share, load demand, or load govern state.

E. When all start signals have been removed from the generator set, it shall complete a time delay stop sequence. The duration of the time delay stop period shall be adjustable by the operator.

F. On completion of the time delay stop period, the generator set control shall switch off the excitation system and shall shut down.

G. Any start signal received after the time stop sequence has begun shall immediately terminate the stopping sequence and return the generator set to isochronous operation.

3.2 INSTALLATION

A. Equipment shall be installed by the CONTRACTOR in accordance with Final Submittals and Contract Documents. Installation shall comply with applicable state and local codes as required by the authority having jurisdiction. Install equipment in accordance with SUPPLIER's instructions and instructions included in the listing or labeling of UL listed products.

B. Installation of equipment shall include furnishing and installing all interconnecting wiring between all major equipment provided for the on-site power system. The CONTRACTOR shall also perform interconnecting wiring between equipment sections (when required), under the supervision of the equipment SUPPLIER.

C. Equipment shall be installed on concrete housekeeping pads. Equipment shall be permanently fastened to the pad in accordance with SUPPLIER’s instructions and seismic requirements of the site.

D. Equipment shall be initially started and operated by representatives of the SUPPLIER.

E. All equipment shall be physically inspected for damage. Scratches and other installation damage shall be repaired prior to final system testing. Equipment shall be thoroughly cleaned to remove all dirt and construction debris prior to initial operation and final testing of the system.

F. Related electrical WORK involving connections, controls, switches, and disconnects shall be performed in accordance with the applicable sections of Division 16.

3.3 FACTORY TESTING

A. The generator set SUPPLIER shall perform a complete operational test on the generator set prior to shipping from the factory. A certified test report shall be provided to the ENGINEER. Equipment supplied shall be fully tested at the factory for function and performance.

B. Factory testing may be witnessed by the OWNER and ENGINEER. Costs for travel expenses will be the responsibility of the OWNER and ENGINEER. SUPPLIER is responsible to provide two weeks’ notice for testing.

C. Generator set factory tests on the equipment shall be performed at rated load and rated power factor. Generator sets that have not been factory tested at rated power factor will not be acceptable. Tests shall include run at full load, maximum power, voltage regulation, transient and steady-state governing, single step load pickup, and function of safety shutdowns.

3.4 ON-SITE ACCEPTANCE

A. The complete installation shall be tested for compliance with the specification following completion of all site work. Testing shall be conducted by representatives of the SUPPLIER, with required fuel supplied by Contractor. The ENGINEER shall be notified in advance and shall have the option to witness the tests.

B. Installation acceptance tests to be conducted on-site shall include a "cold start" test, a two-hour full load test, and a one step rated load pickup test in accordance with NFPA 110.

Provide a resistive load bank and make temporary connections for full load test, if necessary.

3.5 TRAINING

A. The equipment SUPPLIER shall provide training for the facility operating personnel covering operation and maintenance of the equipment provided. The training program shall be not less than 4 hours in duration and the class size shall be limited to 5 persons. Training date shall be coordinated with the facility owner.

3.6 SERVICE AND SUPPORT

A. The generator set shall be serviced by a local service organization that is trained and factory certified in generator set service. The SUPPLIER shall maintain an inventory of critical replacement parts at the local service organization, and in-service vehicles. The service organization shall be on call 24 hours per day, 365 days per year.

B. The SUPPLIER shall maintain model and serial number records of each generator set provided for at least 20 years.

3.7 WARRANTY

A. The generator set and associated equipment shall be warranted for a period of not less than 2 years from the date of commissioning against defects in materials and workmanship.

B. The warranty shall be comprehensive. No deductibles shall be allowed for travel time, service hours, repair parts cost, etc.

END OF SECTION 263213

SYMBOLS

PLAN

- BUS
- EXPOSED CONDUIT
- CONDUIT CONCEALED ABOVE FLOOR.
- CONDUIT RUN UNDERGROUND OR IN CONCRETE
- EXPOSED CONDUIT RUN BEHIND OBSTRUCTION
- BARE COPPER GROUND TO GROUND WIRE IN SLAB, SIZE AS NOTED.
- HOMERUN TO PANEL "LA." CIRCUITS NO. 3 AND 7. CROSS MARKS ON CONDUIT INDICATE NO. OF NO.12 WIRES ONLY. 3/4" CONDUIT WITH 5 NO.12 WIRES SHOWN. CIRCUITS 1 AND 3 WITH COMMON NEUTRAL; CIRCUIT 7 WITH SEPARATE NEUTRAL. CONDUIT RUNS NOT MARKED ARE 3/4"C. WITH 2 NO.12 (LA-1/3,7)
- CONDUIT RUN - CHANGE IN ELEVATION
- CONDUIT BENDS TOWARD OBSERVER
- CONDUIT BENDS AWAY FROM OBSERVER
- GROUND ROD AND GROUND ROD BOX
- GROUND INSERT
- CEILING OR PENDANT INCANDESCENT, MERCURY VAPOR, OR SIMILAR LAMP FIXTURE. "2" INDICATES CIRCUIT NUMBER. "a" INDICATES FIXTURE CONTROLLED BY SWITCH "a". (2a)
- FLEXIBLE LIQUID - TIGHT CONDUIT CONNECTION
- C218 — INDICATES CONDUIT NUMBER "C218" IN CONDUIT AND CONDUCTOR SCHEDULE
- WALL BRACKET INCANDESCENT, MERCURY VAPOR, OR SIMILAR LAMP FIXTURE WITH EXPOSED BACK BOX AND CONDUIT.
- WALL BRACKET FLOOD OR SPOTLIGHT WITH CONCEALED BACK BOX AND CONDUIT.
- POLE MOUNTED FIXTURE
- STREETLIGHT
- POST-TOP INCANDESCENT, MERCURY VAPOR, OR SIMILAR LAMP FIXTURE
- (A 2/40 3) FIXTURE TYPE A, 2 - 40 WATT LAMPS, 3 - NUMBER OF TYPE "A" FIXTURES
- (C) CLOCK HANGER RECEPTACLE
- (M) MOTOR
- (SS) PUSHBUTTON STATION "SS" START - STOP, "LOS" LOCK - STOP, "SLOS" START - LOCK OUT - STOP
- (J) EQUIPMENT JUNCTION BOX
- (J) JUNCTION BOX OR FITTING
- WALL TYPE TEL. OUTLET. M.H. = 12" OR AS NOTED.
- FLOOR TYPE TELEPHONE OUTLET
- (M) MOTOR OPERATED VALVE
- (SV) SOLENOID VALVE
- SOUND OR PAGING SYSTEM DEVICE. * DENOTES NUMBER TO DIFFERENTIATE BETWEEN DIFFERENT DEVICES.
- PUBLIC TELEPHONE SYSTEM DEVICE
- PRIVATE TELEPHONE (ANY TYPE) SYSTEM DEVICE
- OTHER SIGNAL SYSTEMS DEVICE

- (LS) LIMIT SWITCH
- (FS) FLOAT SWITCH
- (PS) PRESSURE SWITCH
- (EF) ELECTRODE FITTING WITH ELECTRODES
- LIGHTING PANEL
- POWER PANEL
- MOTOR CONTROL CENTER
- —T— TELEPHONE CONDUIT ONLY 1 IN. UNLESS OTHERWISE NOTED.
- FLUORESCENT LIGHTING FIXTURE
- (T) THERMOSTAT
- (H) HEATER
- HORN
- (1) INDEX TO NOTE 1. "SEE NOTE 1"
- S_a SINGLE POLE SWITCH. "a" INDICATES OUTLET CONTROLLED
- S_2 DOUBLE POLE SWITCH
- S_3 THREE-WAY SWITCH
- S_4 FOUR-WAY SWITCH
- S_K KEY-OPERATED SWITCH
- S_P SWITCH AND PILOT LIGHT
- S_{MC} MOMEMTARY CONTACT SWITCH
- S_M MANUAL MOTOR STARTER

WALL	FLOOR	
⊖	⊡	120V SINGLE RECEPTACLE, NEMA CONFIGURATION 5-20.
⊖	⊡	120V DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20
⊖	⊡	240V DUPLEX RECEPTACLE, NEMA CONFIGURATION 6-20
⊖	⊡	COMBINATION DUPLEX RECEPTACLE, NEMA CONFIGURATIONS 5-20 AND L5-20
⊘	⊘	SINGLE SPECIAL-PURPOSE RECEPTACLE, ASTERISK INDICATES NUMBER, SUCH AS AMPERAGE, TO DIFFERENTIATE BETWEEN TWO OR MORE DIFFERENT TYPES. 120 OR 240 V.A.C.
⊖		SINGLE SPECIAL PURPOSE RECEPTACLE 480 V.A.C.

- DISCONNECT SWITCH
- PULLBOX

WARNING
THIS DRAWING APPROXIMATELY ONE-HALF ORIGINAL SCALE

DIAGRAM

- ACROSS-THE-LINE, NON-REVERSING NEMA SIZE 2
- (V PW) NEMA SIZE 4 MAGNETIC STARTER: PW-PART WINDING, YD-WYE DELTA, R-REVERSING
- (V RV) NEMA SIZE 4 MAGNETIC STARTER: RV-REDUCED VOLTAGE AUTOTRANSFORMER
- (50A) MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED: 50A-TRIP RATING IN AMPERE NA-NON-AUTOMATIC
- TRANSFORMER, DETAILS AS NOTED WITH GROUNDED SECONDARY
- CONTROL RELAY OR COIL
  - IT2 PUMP NO.1, TIME DELAY RELAY NO.2
  - 2RI PUMP NO.2, GENERAL PURPOSE RELAY NO.1
  - CRI CONTROL RELAY IN STARTER NO.1
  - MI STARTER NO. MAIN COIL
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- NORMALLY OPEN LIMIT SWITCH (SPECIFY WHEN CLOSED)
- NORMALLY CLOSED LIMIT SWITCH (SPECIFY WHEN OPEN)
- FLOAT TYPE LIQUID LEVEL SWITCH, CLOSING ON RISING LEVEL
- FLOAT TYPE LIQUID LEVEL SWITCH, OPENING ON RISING LEVEL
- VACUUM OR PRESSURE SWITCH, CLOSING ON RISING PRESSURE
- VACUUM OR PRESSURE SWITCH, OPENING ON RISING PRESSURE
- TEMPERATURE ACTUATED SWITCH; CLOSING ON RISING TEMPERATURE
- TEMPERATURE ACTUATED SWITCH; OPENING ON RISING TEMPERATURE
- FLOW SWITCH (AIR, WATER, ETC.); CLOSING ON FLOW INCREASE
- FLOW SWITCH (AIR, WATER, ETC.); OPENING ON FLOW INCREASE
- NORMALLY OPEN PUSHBUTTON, MOMENTARY CLOSE
- NORMALLY CLOSE PUSHBUTTON, MOMENTARY OPEN
- MANUAL MOTOR STARTER WITH OVERLOAD PROTECTION
- FUSE
- (RES) RESISTOR (FIXED)
- RESISTOR (CONTINUOUSLY ADJUSTABLE)
- (R) PUSH-TO-TEST INDICATING LIGHT
- (R) INDICATING LIGHT; R-RED, G-GREEN, A-AMBER.
- (ET) ELAPSED TIMER
- TWO-POSITION SELECTOR SWITCH: H-HAND, M-MANUAL, R-REMOTE, L-LOCAL, A-AUTOMATIC, O-OFF (L, R)
- THREE-POSITION SELECTOR SWITCH. (SAME AS ABOVE) (H, O, A)
- SINGLE POLE TOGGLE SWITCH ("ON-OFF", ETC.)
- THREE-POSITION SPRING RETURN-TO-CENTER MOMENTARY CONTACT SWITCH ("LATCH-UNLATCH," "ON-OFF," ETC.)
- HEATER

- CONTACT-TIME DELAY
  - T.C.: NORMALLY OPEN WITH TIME DELAY CLOSING (T.C.)
  - I.C.-T.O.: NORMALLY OPEN WITH INSTANT CLOSING AND TIME DELAY OPENING
  - T.C.-T.O.: NORMALLY OPEN WITH TIME DELAY CLOSING AND TIME DELAY OPENING AFTER DEENERGIZATION
- CONTACT-TIME DELAY
  - T.O.: NORMALLY CLOSED WITH TIME DELAY OPENING (T.O.)
  - T.O.-T.C.: NORMALLY CLOSED WITH TIME DELAY OPENING AND TIME DELAY CLOSING AFTER DEENERGIZATION
  - I.O.-T.C.: NORMALLY CLOSED WITH INSTANT OPENING AND TIME DELAY CLOSING

- CROSSING OF CONDUCTORS-NOT CONNECTED
- CONNECTION OF CONDUCTORS, FITTING AS REQUIRED
- RESET PUSHBUTTON
- SELECTOR SWITCH
- ▲ DEVICE LOCATED AT FIELD
- ■ DEVICE LOCATED AT CONTROL PANEL
- ● DEVICE LOCATED AT MOTOR CONTROLLER
- DISCONNECT SWITCH

ABBREVIATIONS

AA	ALARM ANNUNCIATOR
A/C	AIR CONDITIONING
AF	AMPERE FRAME SIZE OF CKT.BKR.
AMP	AMPERES, AMPERAGE
APPR	APPROVED
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BKR	BREAKER
BBL	BUBBLER
CAB	CABINET
CHLOR	CHLORINE, CHLORINATION
CKT	CIRCUIT
CO	CONDUIT ONLY
COND	CONDUIT
COMPT	COMPARTMENT
COMPR	COMPRESSOR
CPT	CONTROL POWER TRANSFORMER (IN INDIVIDUAL STARTER CUBICLE)
CR	CONTROL RELAY (MAGNETICALLY HELD)
CT	CURRENT TRANSFORMER
CU	COPPER
DISC	DISCONNECT
DISTR	DISTRIBUTION
DWG	DRAWING
ELEV	ELEVATION
EMERG	EMERGENCY
ENCL	ENCLOSURE
EQPT	EQUIPMENT
EXH	EXHAUST
EXIST	EXISTING
FDR	FEEDER
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FUT	FUTURE
GALV	GALVANIZED
GEN	GENERATOR
GRD	GROUND
HH	HAND HOLE
HOA	HAND - OFF - AUTOMATIC
HTR	HEATER
HLL	HIGH LIQUID LEVEL SWITCH
HZ	HERTZ
INCAND	INCANDESCENT
IND	INDICATION (SYSTEM)
INSTR	INSTRUMENT
Isc	SHORT CIRCUIT CURRENT, AMPS
J BOX	JUNCTION BOX
LOC	LOCAL
LOS	PUSHBUTTON W/"LOCK-OUT-STOP"
LS	LIMIT SWITCH
LT, LTS	LIGHT, LIGHTS
LTG	LIGHTING
LTNG	LIGHTING
MA	MILLIAMPS
MAN	MANUAL
MAG	MAGNETIC
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCB	MAIN CONTROL BOARD
MCM	THOUSAND CIRCULAR MILS
MFM	MAGNETIC FLOW METER
MH	MANHOLE
MIN	MINUTES, MINIMUM
MOV	MOTOR OPERATED VALVE
MS	MANUAL MOTOR STARTER
MT, MTD	MOUNT, MOUNTED
NA	NON-AUTOMATIC
NO, NOS	NUMBER, NUMBERS
NP	NAMEPLATE
NIC	NOT IN CONTRACT
NITS	NOT IN THIS SECTION
NTS	NOT TO SCALE
OC	ON CENTER
CC	CENTER TO CENTER
OL	OVERLOAD RELAY
PB	PUSHBUTTON
PNL	PANEL
PNLBD	PANELBOARD
POS	POSITION
POT	POTENTIOMETER
PRI	PRIMARY
PS	PRESSURE SWITCH
PVC	POLYVINYL CHLORIDE
PW	PART WINDING
PWR	POWER
REC	RECEPTACLE
RECPTS	RECEPTACLES
REQ'D	REQUIRED
RM	RUN CONTACTOR COIL
SA	STATUS ANNUNCIATOR
SCH	SCHEDULE
SEC	SECONDS, SECONDARY
SECT	SECTION
SEL SW	SELECTOR SWITCH
SEQ	SEQUENCE
SHLD	SHIELDED
SHT	SHEET
SIG	SIGNAL
SM	START CONTACTOR COIL
SPECS	SPECIFICTIONS
SP HTR	SPACE HEATER
ST	SHUNT TRIP
STA	STATION
STD	STANDARD
STL	STEEL
STR	STARTER
SV	SOLENOID VALVE
SW	SWITCH
SYS	SYSTEM
TACH	TACHOMETER
TEMP	TEMPERATURE
TERM	TERMINAL
THERM	THERMOSTAT
TR	TIME DELAY RELAY
TS	TIME SWITCH
TYP	TYPICAL
UG	UNDERGROUND
VP	VAPORPROOF
VS	VARIABLE SPEED
W	WATTS, WIRE
WP	WEATHERPROOF
XFMR	TRANSFORMER
XMTR	TRANSMITTER
XP	EXPLOSION-PROOF

REGISTERED PROFESSIONAL ENGINEER — No. 4824 — LEONARD H. ALLEN, JR. — STATE OF UTAH

REV	DATE	BY	DESCRIPTION

SCALE: NONE

DESIGNED JMM STANDARD
DRAWN JMM STANDARD
CHECKED SIL/RED

SUBMITTED
Leonard H. Allen Jr. 4824 6-10-88
PROJECT ENGINEER R. C. E. NO. DATE
Winfried J. Langer Calif/9639 6-10-88
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. R. E. NO. DATE

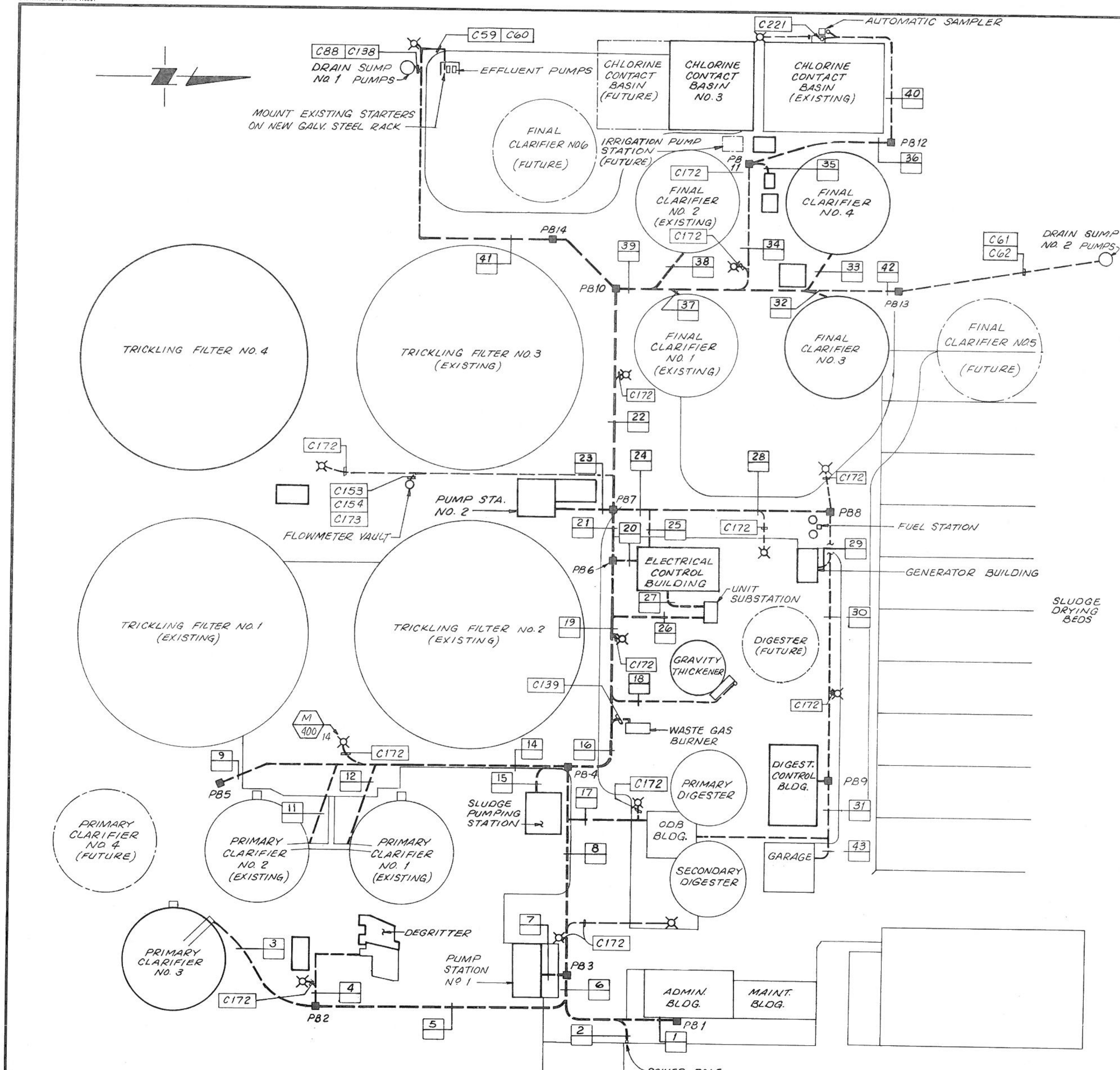
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
4525 South Wasatch Blvd., Suite 200, Salt Lake City, Utah 84124

APPROVED Vernon B. Carr 6-7-88 DATE
APPROVED Karl D Waymont 6-7-88 DATE

SOUTH DAVIS COUNTY SEWER IMPROVEMENT DISTRICT
NORTH PLANT REHABILITATION AND EXPANSION
ELECTRICAL SYMBOLS AND ABBREVIATIONS

SHEET E-1 OF SHEETS

Certified Blueprint



CONDUIT DUCT BANK SCHEDULE	
SECTION	CONDUIT NUMBERS
1	C85, C114, C115, C170, C171, C230, C232
2	C10
3	C42, C89
4	C33, C34, C36, C38, C39, C90, C125-1, C125-2, C126, C172
5	C33, C34, C36, C38, C39, C42, C89, C90, C125, C172, C233, C234
6	C10, C33, C34, C36, C38, C39, C42, C85, C89, C90, C114, C115, C125, C170, C171, C172, C230, C232, C233, C234
7	C25, C26, C27, C28, C29, C30, C31, C32, C81, C89, C90, C100, C101, C110, C111, C170
8	C10, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C36, C38, C39, C42, C81, C85, C100, C101,C110, C111, C114, C115, C125, C170, C171, C172, C230, C232
9	C93, C122, C172
10	
11	C41, C92
12	C40, C91
13	
14	C40, C41, C91, C92, C93, C122, C172
15	C63, C64, C65, C83, C91, C92, C93, C102, C103, C112, C113, C127, C139, C170
16	C10, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C36, C38, C39, C40, C41, C42, C63, C64, C65, C81, C83, C85, C100, C101, C102, C103, C110, C111, C112, C113, C114, C115, C122, C125, C127, C139, C170, C171, C172, C230, C231
17	C170, C172, C231, C232
18	C66, C94, C95
19	C10, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C36, C38, C39, C40, C41, C42, C63, C64, C65, C66, C81, C83, C85, C94, C95, C100, C101, C102, C103, C110, C111, C112, C113, C114, C115, C122, C125, C127, C170, C171, C172, C230, C231
20	C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C36, C38, C39, C40, C41, C42, C63, C64, C65, C66, C81, C83, C85, C94, C95, C100, C101, C102, C103, C110, C111, C112, C113, C114, C115, C122, C125, C127, C170, C171, C172, C221, C230, C231
21	C170, C221, C223, C224, C225, C226, C227
22	C54, C55, C56, C57, C58, C59, C60, C61, C62, C88, C96, C97, C98, C99, C138, C146, C147, C148, C169, C172, C215, C216, C217, C218, C221, C235, C236
23	C44, C47, C49, C51, C53, C82, C104, C105, C119, C120, C170, C215, C216, C217, C218
24	C44, C47, C49, C51, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C82, C88, C96, C97, C98, C99, C104, C105, C119, C120, C138, C146, C147, C148, C169, C170, C172
25	C21-1, C21-2, C21-3, C21-4, C22, C23, C44, C47, C49, C51, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C82, C84, C87, C88, C96, C97, C98, C99, C104, C105, C106, C107, C108, C116, C117, C118, C119, C120, C121, C123, C124, C138, C140, C141, C146, C147, C148, C166, C169, C170, C172, C238, C280
26	C10
27	C20-1, C20-2, C20-3, C20-4
28	C21-1, C21-2, C21-3, C21-4, C22, C23, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C84, C87, C106, C107, C108, C116, C117, C118, C121, C123, C124, C140, C141, C166, C170, C172, C238, C280
29	C21-1, C21-2, C21-3, C21-4, C22, C23, C80, C121, C166, C170, C238
30	C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C84, C87, C106, C107, C108, C116, C117, C118, C123, C124, C140, C141, C170, C172, C280
31	C77, C78, C87, C108, C109, C118, C123, C140, C141, C185
32	C57, C98
33	C58, C99
34	C146, C147, C148, C172, C215, C216, C217, C218, C219, C220, C221, C222, C228, C229
35	C146, C215, C216, C217, C218
36	C172, C219, C220, C221, C222
37	C55, C96
38	C56, C97
39	C54, C55, C56, C57, C58, C61, C62, C96, C97, C98, C99, C146, C147, C148, C167, C172, C215, C216, C217, C218, C219, C220, C221, C222, C228, C229
40	C172, C219, C220, C221
41	C59, C60, C88, C138, C172
42	C54, C61, C62, C167, C172
43	C140, C141

REGISTERED PROFESSIONAL ENGINEER No. 4824 LEONARD H. ALLEN, JR. STATE OF UTAH

PULL BOX SCHEDULE	
PB NO.	SIZE (L x W x D)
PB1, PB5, PB12, PB13, PB14	2' x 2' x 3'
PB2, PB11	3' x 3' x 5'
PB8, PB9, PB10	4' x 4' x 5'
PB3, PB4, PB6, PB7	6' x 6' x 6'

DIMENSIONS ARE MINIMUM INSIDE THE BOX. ALL PULLBOXES SHALL HAVE 30" DIAMETER TRAFFIC TYPE MANHOLE COVER EXCEPT 2' x 2' BOXES.

WARNING
THIS DRAWING APPROXIMATELY ONE-HALF ORIGINAL SCALE

REV	DATE	BY	DESCRIPTION

SCALE: 1" = 40'-0

DESIGNED: L. Larsen
DRAWN: J. Olsen
CHECKED: SIL/PED

SUBMITTED: Leonard H. Allen Jr. 4824 R.C.E. NO. 6-10-88 DATE — PROJECT ENGINEER
RECOMMENDED: Wilfried Langer Calif 8439 R.C.E. NO. 6-10-88 DATE — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
4525 South Wasatch Blvd., Suite 200, Salt Lake City, Utah 84124

APPROVED: 6-7-88 DATE
APPROVED: Val D Waymont 6-7-88 DATE

SOUTH DAVIS COUNTY SEWER IMPROVEMENT DISTRICT
NORTH PLANT REHABILITATION AND EXPANSION
SITE PLAN

SHEET E-2 OF SHEETS

JOB NO. 1466.0090 FILE

CONDUIT NUMBER	CONDUIT SIZE	OH	UG	CONDUCTOR NO.	CONDUCTOR SIZE	P	C	I	FROM	TO	REMARKS
C10	4"		X	3	#2	X			POWER POLE	750 KVA SUBSTATION	15 KV CABLE
				1	#2 G	X			POWER POLE	750 KVA SUBSTATION	
C20-1	4"		X	3	750MCM	X			SUBSTATION SWITCHGEAR	1200 A ATS	
				1	#2/0 G				SUBSTATION SWITCHGEAR	1200 A ATS	
C20-2	4"		X	3	750MCM	X			SUBSTATION SWITCHGEAR	1200 A ATS	
				1	#2/0 G				SUBSTATION SWITCHGEAR	1200 A ATS	
C20-3	4"		X	3	750MCM	X			SUBSTATION SWITCHGEAR	1200 A ATS	
				1	#2/0 G				SUBSTATION SWITCHGEAR	1200 A ATS	
C20-4	4"		X	3	750MCM	X			SUBSTATION SWITCHGEAR	1200 A ATS	
				1	#2/0 G				SUBSTATION SWITCHGEAR	1200 A ATS	
C21-1	4"		X	3	750MCM	X			750 KVA GENERATOR	1200 A ATS	
				1	#2/0 G				750 KVA GENERATOR	1200 A ATS	
C21-2	4"		X	3	750MCM	X			750 KVA GENERATOR	1200 A ATS	
				1	#2/0 G				750 KVA GENERATOR	1200 A ATS	
C21-3	4"		X	3	750MCM	X			750 KVA GENERATOR	1200 A ATS	
				1	#2/0 G				750 KVA GENERATOR	1200 A ATS	
C21-4	4"		X	3	750MCM	X			750 KVA GENERATOR	1200 A ATS	
				1	#2/0 G				750 KVA GENERATOR	1200 A ATS	
C22	2"		X		#12		X		750 KVA GENERATOR	1200 A ATS	PROVIDE CONDUCTORS AS REQ'D
C23	2"		X	3	#8				POWER PANEL PP-1	EMER. GEN. BLDG. LTG. PNL. LP-GB	
C24-1	3"		X	3	250MCM	X			MCC	POWER PANEL PP-1	1 #2 GROUND REQ'D
C24-2	3"		X	3	250MCM	X			MCC	POWER PANEL PP-1	1 #2 GROUND REQ'D
C25	2"		X	4	#12	X			POWER PANEL PP-1	COMPACTOR ME-IPS-2	
				8	#12	X			MCB	COMPACTOR ME-IPS-2	ROUTE IN C100 FROM MCB TO PB-6
C26	2"		X	4	#12	X			POWER PANEL PP-1	BAR SCREEN ME-IPS-1	
C27	2"		X		-				POWER PANEL PP-1	BAR SCREEN ME-IPS-3	CONDUIT ONLY
C28	2"		X	3	#2	X			PUMP STA. NO.1 VFD CONTROL SYSTEM	PUMP P-IPS-1	1 #8G REQUIRED
				2	#12	X			PUMP STA. NO.1 VFD CONTROL SYSTEM	PUMP P-IPS-1	FOR SPACE HEATERS
C29	2"		X	3	#2	X			PUMP STA. NO.1 VFD CONTROL SYSTEM	PUMP P-IPS-2	1 #8G REQUIRED
				2	#12	X			PUMP STA. NO.1 VFD CONTROL SYSTEM	PUMP P-IPS-2	FOR SPACE HEATERS
C30	2"		X	3	#2	X			PUMP STA. NO.1 VFD CONTROL SYSTEM	PUMP P-IPS-3	1 #8G REQUIRED
				2	#12	X			PUMP STA. NO.1 VFD CONTROL SYSTEM	PUMP P-IPS-3	FOR SPACE HEATERS
C31	2"		X	3	#2	X			PUMP STA. NO.1 VFD CONTROL SYSTEM	PUMP P-IPS-4	1 #8G REQUIRED
				2	#12	X			PUMP STA. NO.1 VFD CONTROL SYSTEM	PUMP P-IPS-4	FOR SPACE HEATERS
C32	2"			50	#12		X		MCC	PUMP STATION NO.1 CONTROL PANEL	
C33	2"		X	4	#12	X			MCC	DEGRITTER ME-GC-1	
				10	#12		X		MCC	DEGRITTER ME-GC-1	
C34	2"		X	4	#12	X			MCC	DEGRITTER ME-GC-3	
				10	#12		X		MCC	DEGRITTER ME-GC-3	
C35	1"			4	#12	X			POWER PANEL PP-1	GRIT CLASSIFIER ME-GC-2 VFD	
C36	2"			4	#12	X			GRIT CLASSIFIER ME-GC-2 VFD	GRIT CLASSIFIER ME-GC-2	
				4	#12		X		GRIT CLASSIFIER ME-GC-2 VFD	GRIT CLASSIFIER ME-GC-2	CONT. WIRE. ROUTE IN C126 @ PB-2
C37	1"		X	4	#12	X			POWER PANEL PP-1	GRIT CLASSIFIER ME-GC-4 VFD	
C38	2"		X	4	#12	X			GRIT CLASSIFIER ME-GC-4 VFD	GRIT CLASSIFIER ME-GC-4	
				4	#12		X		GRIT CLASSIFIER ME-GC-4 VFD	GRIT CLASSIFIER ME-GC-4	
C39	2"		X	4	#12	X			MCC	GRIT CONVEYOR ME-GC-5	
				10	#12		X		MCC	GRIT CONVEYOR ME-GC-5	
C40	2"		X	4	#12	X			MCC	PRIMARY CLARIFIER NO.1	
				7	#12		X		MCC	PRIMARY CLARIFIER NO.1	
C41	2"		X	4	#12	X			MCC	PRIMARY CLARIFIER NO.2	
				7	#12		X		MCC	PRIMARY CLARIFIER NO.2	
C42	2"		X	4	#12	X			MCC	PRIMARY CLARIFIER NO.3	
				7	#12		X		MCC	PRIMARY CLARIFIER NO.3	

CONDUIT NUMBER	CONDUIT SIZE	OH	UG	CONDUCTOR NO.	CONDUCTOR SIZE	P	C	I	FROM	TO	REMARKS
C43											
C44	2"		X	40	#14		X		PUMP STATION NO.2 VFD CONTROL SYS.	PUMP STATION NO.2 CONTROL PANEL	
C45	4"		X	3	#1	X			MCC	PUMP STA. NO.1 VFD CONTROL SYSTEM	
				1	#6 G				MCC	PUMP STA. NO.1 VFD CONTROL SYSTEM	
C46	4"		X	3	#1	X			MCC	PUMP STA. NO.2 VFD CONTROL SYSTEM	
				1	#6 G				MCC	PUMP STA. NO.2 VFD CONTROL SYSTEM	
C47	2"		X	3	#2	X			PUMP STA. NO.2 VFD CONTROL SYSTEM	PUMP P-SPS-1	
				1	#8 G				PUMP STA. NO.2 VFD CONTROL SYSTEM	PUMP P-SPS-1	
C49	2"		X	3	#2	X			PUMP STA. NO.2 VFD CONTROL SYSTEM	PUMP P-SPS-2	
				1	#8 G				PUMP STA. NO.2 VFD CONTROL SYSTEM	PUMP P-SPS-2	
C51	2"		X	3	#2	X			PUMP STA. NO.2 VFD CONTROL SYSTEM	PUMP P-SPS-3	
				1	#8 G				PUMP STA. NO.2 VFD CONTROL SYSTEM	PUMP P-SPS-3	
C53	2"		X	3	#2	X			PUMP STA. NO.2 VFD CONTROL SYSTEM	PUMP P-SPS-4	
				1	#8 G				PUMP STA. NO.2 VFD CONTROL SYSTEM	PUMP P-SPS-4	
C54	2"		X						MCC	FINAL CLARIFIER NO.5 (PB13)	CONDUIT ONLY
C55	2"		X	4	#12	X			MCC	FINAL CLARIFIER NO.1	
				7	#12		X		MCC	FINAL CLARIFIER NO.1	
C56	2"		X	4	#12	X			MCC	FINAL CLARIFIER NO.2	
				7	#12		X		MCC	FINAL CLARIFIER NO.2	
C57	2"		X	4	#12	X			MCC	FINAL CLARIFIER NO.3	
				7	#12		X		MCC	FINAL CLARIFIER NO.3	
C58	2"		X	4	#12	X			MCC	FINAL CLARIFIER NO.4	
				7	#12		X		MCC	FINAL CLARIFIER NO.4	
C59	3"		X	3	350MCM	X			MCC	EFFLUENT PUMP P-YD-1 & P-YD-2	
				1	#1/0 G				MCC	EFFLUENT PUMP P-YD-1 & P-YD-2	
C60	2"		X	8	#12		X		MCC	EFFLUENT PUMP P-YD-1 & P-YD-2	
C61	2"		X	3	#10	X			MCC	DRAIN SUMP NO.2 PUMPS	
				1	#10 G				MCC	DRAIN SUMP NO.2 PUMPS	
C62	2"			4	#12		X		MCC	DRAIN SUMP PUMPS	
C63	2"		X	4	#12	X			POWER PANEL PP-1	SLUDGE GRINDER PANEL ME-SP-1	
C64	2"		X	4	#12	X			POWER PANEL PP-1	SLUDGE PUMP P-RS-1 VFD	
C64-1	1"		X	4	#12	X			SLUDGE PUMP P-RS-1 VFD	SLUDGE PUMP P-RS-1	
C65	2"		X	4	#12	X			MCC	SLUDGE PUMP P-RS-2	
C66	2"		X	4	#12	X			MCC	GRAVITY THICKENER ME-GT-1	
				7	#12		X		MCC	GRAVITY THICKENER ME-GT-1	
C67	2"		X	4	#12	X			MCC	THICKENED SLUDGE PUMP P-DCB-9	
				6	#12		X		MCC	THICKENED SLUDGE PUMP P-DCB-9	
C68	2"		X	4	#12	X			MCC	THICKENED SLUDGE PUMP P-DCB-10	
				6	#12		X		MCC	THICKENED SLUDGE PUMP P-DCB-10	
C69	2"		X	4	#6	X			MCC	SLUDGE MIX PUMP P-DCB-1	
				6	#12		X		MCC	SLUDGE MIX PUMP P-DCB-1	
C70	2"		X	4	#6	X			MCC	SLUDGE MIX PUMP P-DCB-2	
				6	#12		X		MCC	SLUDGE MIX PUMP P-DCB-2	
C71	2"		X	4	#12	X			MCC	SLUDGE CIRC. PUMP P-DCB-3	
				2	#12		X		MCC	SLUDGE CIRC. PUMP P-DCB-3	
C72	2"		X	4	#12	X			MCC	SLUDGE CIRC. PUMP P-DCB-4	
				2	#12		X		MCC	SLUDGE CIRC. PUMP P-DCB-4	

LEGEND

OH - OVERHEAD
UG - UNDERGROUND
P - POWER
C - CONTROL
I - INSTRUMENTATION

WARNING
THIS DRAWING APPROXIMATELY ONE-HALF ORIGINAL SCALE

REGISTERED PROFESSIONAL ENGINEER No. 4024 LEONARD H. ALLEN, JR. STATE OF UTAH

REV	DATE	BY	DESCRIPTION

SCALE: NONE

DESIGNED L. Larsen
DRAWN G. OLSEN
CHECKED SIL/PEO

SUBMITTED Leonard H. Allen Jr. 4824 6-10-88
PROJECT ENGINEER R. C. E. NO. DATE
Wilfried F. Langer Calif/9639 6-10-88
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. R. C. E. NO. DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
4525 SOUTH WASATCH BLVD., SUITE 200, SALT LAKE CITY, UTAH 84124

JMM

APPROVED Vernon B. Carr 6-7-88 DATE
APPROVED Lyle D. Waymunt 6-7-88 DATE

SOUTH DAVIS COUNTY SEWER IMPROVEMENT DISTRICT
NORTH PLANT REHABILITATION AND EXPANSION
CONDUIT AND CONDUCTOR SCHEDULE I

SHEET E-12
OF • SHEETS

CONDUIT				CONDUCTOR					FROM	TO	REMARKS
NUMBER	SIZE	OH	UG	NO.	SIZE	P	C	I			
C73	2"		X						MCC	SLUDGE CIRC. PUMP NO.3	CONDUIT ONLY
C74	2"		X	4	#12	X			MCC	WATER CIRC. PUMP NO.1 ME-DCB-6	
				2	#12				MCC	WATER CIRC. PUMP NO.1 ME-DCB-6	
C75	2"		X	4	#12	X			MCC	WATER CIRC. PUMP NO.2 ME-DCB-7	
				2	#12		X		MCC	WATER CIRC. PUMP NO.2 ME-DCB-7	
C76	2"		X						MCC	WATER CIRC. PUMP NO.3	CONDUIT ONLY
C77	2"		X	4	#12	X			MCC	SLUDGE TRANSFER PUMP NO.1	
				2	#12		X		MCC	SLUDGE TRANSFER PUMP NO.1	
C78	2"		X	4	#12	X			MCC	SLUDGE TRANSFER PUMP NO.2	
				2	#12		X		MCC	SLUDGE TRANSFER PUMP NO.2	
C79	2"		X	4	#12	X			POWER PANEL PP-1	BOILER CONTROL PANEL	
C80	2"		X	4	#10	X			POWER PANEL PP-1	F.C. VALVES AIR COMPRESSOR ME-GB-10	IN GENERATOR BUILDING
C81	2"		X	3	#8	X			POWER PANEL PP-1	PUMP STA. NO.1 LTG. PNL. LP-P1 TRANS.	
C82	2"		X	3	#8	X			POWER PANEL PP-1	PUMP STA. NO.2 LTG. PNL. LP-P2 TRANS.	
C83	2"		X	3	#8	X			POWER PANEL PP-1	SLUDGE PUMP STA. LTG. PNL. LP-SP	
C84	2"		X	3	#8	X			POWER PANEL PP-1	DIGEST. CONT. BLDG. PNL. LP-D TRANS.	
C85	2"		X	3	#4	X			POWER PANEL PP-1	ADMIN. BLDG. POWER TRANSFORMER	
C86	2"		X	2	#2/0	X			MCC	ELECTRICAL BLDG. LTG. PNL. LP-E	PROVIDE #4 GROUND
C87	2"		X	3	#8	X			POWER PANEL PP-1	OLD DIGESTER BLDG. LTG. PNL.	
C88	2"		X	4	#10	X			POWER PANEL PP-1	DRAIN SUMP NO.1 PUMPS	
C89	2"		X	3	#12	X			PUMP STATION NO.1 LTG. PNL. LP-P2	PRIMARY CLARIFIER NO.3	LT'S, RECEPT'S
C90	2"		X	3	#12	X			PUMP STATION NO.1 LTG. PNL.	DEGRITTER	LT'S, RECEPT'S
C91	2"		X	3	#12	X			SLUDGE PUMP STA. LTG. PNL. LP-SP	PRIMARY CLARIFIER NO.1	LT'S, RECEPT'S
C92	2"		X	3	#12	X			SLUDGE PUMP STA. LTG. PNL. LP-SP	PRIMARY CLARIFIER NO.2	LT'S, RECEPT'S
C93	2"		X			X			SLUDGE PUMP STA. LTG. PNL. LP-SP	PRIMARY CLARIFIER NO.4 (PULLBOX PB5)	CONDUIT ONLY
C94	2"		X	3	#12	X			ELECTRICAL BLDG. LTG. PNL. LP-E	GRAVITY THICKENER	LT'S, RECEPT'S
C95	2"		X				X		MCB	GRAVITY THICKENER	CONDUIT ONLY
C96	2"		X	3	#12	X			ELECTRICAL BLDG. LTG. PNL. LP-E	FINAL CLARIFIER NO.1	LT'S, RECEPT'S
C97	2"		X	3	#12	X			ELECTRICAL BLDG. LTG. PNL. LP-E	FINAL CLARIFIER NO.2	LT'S, RECEPT'S
C98	2"		X	3	#12	X			ELECTRICAL BLDG. LTG. PNL. LP-E	FINAL CLARIFIER NO.3	LT'S, RECEPT'S
C99	2"		X	3	#12	X			ELECTRICAL BLDG. LTG. PNL. LP-E	FINAL CLARIFIER NO.4	LT'S, RECEPT'S
C100	2"		X	30	#14		X		MCB	PUMP STATION NO.1 CONTROL PANEL	
C101	2"		X	5	2/C #16			X	MCB	PUMP STATION NO.1 CONTROL PANEL	
C102	2"		X	40	#14		X		MCB	RAW SLUDGE CONTROL PANEL	CONT. 20 #12 TO MCC IN C175
C103	2"		X	4	2/C #16			X	MCB	SLUDGE PUMP STATION	
C104	2"		X	50	#14		X		MCB	PUMP STATION NO.2 CONTROL PANEL	
C105	2"		X	5	2/C #16			X	MCB	PUMP STATION NO.2 CONTROL PANEL	
C106	2"		X	40	#14		X		MCB	DIGESTER CONTROL BUILDING	
C107	2"		X	12	2/C #16			X	MCB	DIGESTER CONTROL BUILDING	
C108	2"		X				X		MCB	OLD DIGESTER CONTROL BUILDING	CONDUIT ONLY
C109	2"		X	2	NOTE 4			X	DIGESTER CONTROL BUILDING	OLD DIGESTER CONTROL BUILDING	CONTINUE IN C190, C197, C207, C208
C110	2"		X						ELECTRICAL BUILDING	PUMP STATION NO.1 PULLBOX	CONDUIT ONLY
C111	2"		X						ELECTRICAL BUILDING	PUMP STATION NO.1 PULLBOX	CONDUIT ONLY
C112	2"		X						ELECTRICAL BUILDING	SLUDGE PUMP STATION PULL BOX	CONDUIT ONLY
C113	2"		X						ELECTRICAL BUILDING	SLUDGE PUMP STATION PULL BOX	CONDUIT ONLY
C114	2"		X						ELECTRICAL BUILDING	ADMINISTRATION BUILDING (PB1)	CONDUIT ONLY
C115	2"		X						ELECTRICAL BUILDING	ADMINISTRATION BUILDING (PB1)	CONDUIT ONLY
C116	2"		X						ELECTRICAL BUILDING	DIGESTER CONTROL BUILDING PULLBOX	CONDUIT ONLY
C117	2"		X						ELECTRICAL BUILDING	DIGESTER CONTROL BUILDING PULLBOX	CONDUIT ONLY
C118	2"		X						ELECTRICAL BUILDING	OLD DIGESTER CONTROL BUILDING	CONDUIT ONLY
C119	2"		X						ELECTRICAL BUILDING	PUMP STATION NO.2 PULLBOX	CONDUIT ONLY
C120	2"		X						ELECTRICAL BUILDING	PUMP STATION NO.2 PULLBOX	CONDUIT ONLY

CONDUIT				CONDUCTOR					FROM	TO	REMARKS
NUMBER	SIZE	OH	UG	NO.	SIZE	P	C	I			
C121	2"		X						ELECTRICAL BUILDING	GENERATOR BUILDING	CONDUIT ONLY
C122	2"		X						MCC	PRI. CLARIF. NO.4 (PULLBOX PB-5)	CONDUIT ONLY
C123	2"		X	6	#12	X	X		MCC	SLUDGE TRANSFER PUMP NO.3	
C124	2"		X						POWER PANEL PP-1	BOILER (FUTURE)	CONDUIT ONLY
C125	2"		X	4	3/C #16	X	X		GRIT CLASSIFIER VFD'S	PULL BOX PB-2	SPEED CONT. & INDICATION CABLES
C125-1	1"		X	2	3/C #16	X	X		PULL BOX PB- 2	ME-GC-4 LOCAL SPEED CONT. PNL.	
C125-2	1"		X	2	3/C #16	X	X		PULL BOX PB- 2	ME-GC-2 LOCAL SPEED CONT. PNL.	
C126	1"		X	4	#12	X			PULL BOX PB- 2	ME-GC-2 LOCAL SPEED CONT. PNL.	CONTINUE IN C36 TO VFD
C127	2"		X	4	#12	X			POWER PANEL PP-1	COMPRESSOR ME-SP-3	
C128	1"		X	3	#12	X			PANEL LP-SP	SUMP PUMP PNL. (RS PUMP STATION)	
C129	3/4"		X	2	#14		X		FLOOD SWITCH	RAW SLUDGE CONTROL PANEL	CONTINUE TO MCB IN C102
C130	3/4"		X	6	#14		X		COMPRESSOR CONTROL PANEL	RAW SLUDGE CONTROL PANEL	CONTINUE TO MCB IN C102
C131	3/4"		X	2	#14		X		PRESSURE SWITCH	RAW SLUDGE CONTROL PANEL	
C132	3/4"		X	6	#14		X		GRINDER CONTROL PANEL	RAW SLUDGE CONTROL PANEL	
C133	3/4"		X	5	#14		X		PRIMARY CLARIF. NO.1 VALVE V-RS-1	RAW SLUDGE CONTROL PANEL	
C134	3/4"		X	5	#14		X		PRIMARY CLARIF. NO.1 VALVE V-RS-2	RAW SLUDGE CONTROL PANEL	
C135	3/4"		X	5	#14		X		PRIMARY CLARIF. NO.1 VALVE V-RS-3	RAW SLUDGE CONTROL PANEL	
C136	1"		X	10	#12	X	X		GRINDER ME-RS-1	GRINDER CONTROL PANEL	
C137											
C138	2"		X	4	#12			X	MCB	YARD SUMP NO.1 PUMPS	
C139	2"		X	3	#12	X			LIGHTING PANEL LP-SP	WASTE GAS BURNER	IGNITOR AND HEAT TRACING
C140	2"		X	3	#8	X			POWER PANEL PP-1	GARAGE LIGHTING PANEL LP-G	
C141	2"		X						ELECTRICAL BUILDING	GARAGE	CONDUIT ONLY
C142											
C143	3/4"	X		3	#12	X			LIGHTING PANEL LP-P1	PUMP STATION NO.1 CONTROL PANEL	
C144	1"	X		3	#12	X			LIGHTING PANEL LP-P1	PROPELLER FLOWMETER FIT-4	
C145	2"	X	X	1	2/C#16			X	PUMP STATION NO.1 CONTROL PANEL	PROPELLER FLOWMETER FIT-4	
C146	2"		X	8	#12	X	X		MCC	CHLORINE INJECTOR / MIX PUMP	
C147	2"		X						MCC	IRRIGATION PUMP (PULLBOX PB-11)	CONDUIT ONLY
C148	2"		X						MCC	IRRIGATION PUMP (PULLBOX PB-1)	CONDUIT ONLY
C149	3/4"		X					X	LEVEL TRANSDUCER (LE-2) P.S. NO.2	LEVEL TRANSMITTER (LIT-2)	VENDOR FURNISHED CABLE
C150	3/4"		X	3	#14	X		X	LIGHTING PANEL LP-P2	LEVEL TRANSMITTER (LIT-2)	
C151	3/4"		X	1	2/C#16			X	LEVEL TRANSMITTER (LIT-2)	PUMP STATION NO.2 CONTROL PANEL	CONTINUE IN C105 TO MCB
C152	3/4"		X	4	#14	X			LEVEL TRANSMITTER (LIT-2)	PUMP STATION NO.2 CONTROL PANEL	CONTINUE IN C104 TO MCB
C153	1"		X	3	#12	X			LIGHTING PANEL LP-P2	FLOW METER VAULT	INST. PWR. & RECEPT'S
C154	1"		X	1	#2/C#16		X		PUMP STATION NO.2 CONTROL PANEL	FIT-4 (FLOWMETER VAULT)	CONTINUE IN C105 TO MCB
C155	3/4"		X	2	#14		X		CHLOR. STOR. RM. CHLORINE DETECTOR	PUMP STATION NO.2 CONTROL PANEL	CONTINUE IN C104 TO MCB
C156	3/4"	X		3	#14	X			CHLOR. STOR. RM. CHLORINE DETECTOR	LIGHTING PANEL LP-P2	
C157	3/4"		X	4	#12	X			CHLORINATORS	LIGHTING PANEL LP-P2	
C158	3/4"		X	6	#14			X	CHLORINATORS	PUMP STATION NO.2 CONTROL PANEL	CONTINUE IN C105 TO MCB
C159	3/4"	X		3	#12	X			LIGHTING PANEL LP-P2	PUMP STATION NO.2 CONTROL PANEL	CONTINUE IN C160 TO VALVE
C160	1-1/2		X	13	#12	X	X		MODULATING VALVE V-SPS-13	PUMP STATION NO.2 CONTROL PANEL	
C161	1"		X	2	2/C#16		X		MODULATING VALVE V-SPS-13	PUMP STATION NO.2 CONTROL PANEL	
C162	3/4"	X		2	#12			X	CHLORINE VACUUM SWITCH	PUMP STATION NO.2 CONTROL PANEL	CONTINUE IN C104 TO MCB
C163	3/4"	X		3	#12	X			LIGHTING PANEL LP-P1	MOD. VALVE V-IPS-14	
C164	1"	X		10	#12		X		PUMP STATION NO.1 CONTROL PANEL	MOD. VALVE V-IPS-14	
C165	1"	X		2	2/C#16		X		PUMP STA. NO.1 CONTROL PNL.	MOD. VALVE V-IPS-14	
C166	2"		X	10	#14		X	X	MCB	GENERATOR BUILDING	AIR COMP. AND GEN. ALARMS
C167	2"		X						PULL BOX PB-10	FINAL CLARIFIER NO.5 (PULLBOX PB-13)	CONDUIT ONLY
C168	2"		X						PULL BOX PB-10	FINAL CLARIFIER NO.6 (PULLBOX PB-14)	CONDUIT ONLY
C169	2"		X						MCC	FINAL CLARIFIER NO.6 (PULLBOX PB-14)	CONDUIT ONLY
C170	4"	X		[1]					ELECTRICAL BUILDING	COMMUNICATION HANDSETS & SPEAKERS	COMMON CONDUIT THRU-OUT PLANT
C171	2"	X		[2]					ELECTRICAL BUILDING	ADMINISTRATIO BUILDING (PB-1)	BELL TELEPHONE CONDUIT
C172	2"	X		4	#12	X			AREA LTG. CONTACTOR MCC	AREA LIGHTS	COMMON CONDUIT THRU-OUT PLANT
C173	1"		X	2	#14				PUMP STATION NO.2 CONTROL PANEL	PUMP STATION NO.2 CONTROL PANEL	

LEGEND

OH - OVERHEAD
UG - UNDERGROUND
P - POWER
C - CONTROL
I - INSTRUMENTATION

WARNING
THIS DRAWING
APPROXIMATELY ONE-HALF
ORIGINAL SCALE

NOTES

[1] POWER, PAGE AND PARTY LINE CONDUCTORS AS DETERMINED BY COMMUNICATION SYSTEM. (BY COMMUNICATION SUBCONTRACTOR)
2. 12 PAIR COMMUNICATION CABLE. (BY COMMUNICATION SUBCONTRACTOR)
3. ALL 2/C #16 ARE SHIELDED CABLES.
[4] VENDOR FURNISHED CABLES.

REGISTERED PROFESSIONAL ENGINEER No. 4824 LEONARD H. ALLEN, JR. STATE OF UTAH

REV	DATE	BY	DESCRIPTION

SCALE: NONE

DESIGNED: S. Larsen
DRAWN: G. OLSEN
CHECKED: SIL / PED

SUBMITTED: Leonard H. Allen Jr. 4824 6-10-88
PROJECT ENGINEER — R. C. E. NO. — DATE
Wilfried Langer Cal/9639 6-0-88
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — R. C. E. NO. — DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
4525 SOUTH WASATCH BLVD., SUITE 200, SALT LAKE ..., UTAH 84124

APPROVED: Duane B. Lowe 6-7-88 DATE
APPROVED: Dal D. Wixymont 6-7-88 DATE

SOUTH DAVIS COUNTY SEWER IMPROVEMENT DISTRICT
NORTH PLANT REHABILITATION AND EXPANSION
CONDUIT AND CONDUCTOR SCHEDULE II

SHEET E-13 OF • SHEETS

JOB No. 1466.0090 FILE No.

CONDUIT				CONDUCTOR					FROM	TO	REMARKS
NUMBER	SIZE	OH	UG	NO.	SIZE	P	C	I			
C175	3"		X	75	#14		X		MCC	MCB	
C176	3"		X	75	#14		X		MCC	MCB	
C177	1"		X	10	#14		X		PUMP STATION NO.1 VFD PANEL	MCB	
C178	1"		X	1	2/C#16S		X		PUMP STATION NO.1 VFD PANEL	MCB	
C179	1"		X	10	#14		X		PUMP STATION NO.2 VFD PANEL	MCB	
C180	1"		X	1	2/C#16S		X		PUMP STATION NO.2 VFD PANEL	MCB	
C181	1"		X	3	#8	X			LIGHTING PANEL LP-E	A/C COMPRESSOR	
C182	1"		X	3	#12	X			LIGHTING PANEL LP-E	FURNACE	
C183	1"		X	8	#12	X			LIGHTING PANEL LP-E	MCB	
C185	2"		X	2	NOTE 2			X	DCB PULLBOX	LT J-BOX (ODB BLDG.)	CONTINUED IN C186, C193, C205, C206
C186	3/4"	X						X	LT J-BOX	LEVEL TRANSDUCER LE-3	VENDOR FURNISHED CABLE
C187	3/4"		X		2/C#16			X	LEVEL TRANSMITTER LIT-3	DCB PULLBOX	CONTINUE IN C107 TO MCB
C188	3/4"		X	4	#14			X	LEVEL TRANSMITTER LIT-3	DCB PULLBOX	CONTINUE IN C106 TO MCB
C189	3/4"		X	3	#14	X			LEVEL TRANSMITTER LIT-3 & LIT-4	LIGHTING PANEL LP-D	115 V. POWER
C190	3/4"		X						ODB PULLBOX	FLOWMETER SENSOR FE-5	VENDOR FURNISHED CABLE
C191	3/4"		X	1	2/C#16			X	FLOW TRANSMITTER FIT-5	DCB PULLBOX	CONTINUE IN C107
C192	3/4"		X	3	#14	X			FLOW TRANSMITTER FIT-5 & FIT-6	LIGHTING PANEL LP-D	115 V. POWER
C193	3/4"	X						X	LT J-BOX	LEVEL TRANSDUCER LE-4	VENDOR FURNISHED CABLE
C194	1"		X	1	2/C#16			X	LEVEL TRANSMITTER LIT-4	DCB PULLBOX	CONTINUE IN C107 TO MCB
C195	3/4"		X	4	#14			X	LEVEL TRANSMITTER LIT-4	DCB PULLBOX	CONTINUE IN C106 TO MCB
C196											
C197	3/4"		X					X	ODB PULLBOX	FLOWMETER SENSOR FE-6	VENDOR FURNISHED CABLE
C198	3/4"	X		1	2/C#16			X	FLOW TRANSMITTER FIT-6	DCB PULLBOX	CONTINUE IN C107 TO MCB
C199											
C200	3/4"		X					X	FLOW TRANSMITTER FIT-7	FLOWMETER SENSOR FE-7	VENDOR FURNISHED CABLE
C201	3/4"		X	1	2/C#16			X	FLOW TRANSMITTER FIT-7	DCB PULLBOX	CONTINUE IN C107 TO MCB
C202	3/4"		X	3	#14	X			FLOW TRANSMITTER FIT-7	LIGHTING PANEL LP-D	
C203	1"		X	10	#14		X	X	BOILER ME-DCB-1	DCB PULLBOX	CONTINUE IN C106 TO MCB
C204	1"								BOILER (FUTURE)	DCB PULLBOX	
C205	3/4"		X		NOTE 2			X	DCB PULLBOX	LEVEL TRANSMITTER LIT-3	CONTINUE IN C185, C186
C206	3/4"		X		NOTE 2			X	DCB PULLBOX	LEVEL TRANSMITTER LIT-4	CONTINUE IN C185, C193
C207	3/4"		X		NOTE 2			X	DCB PULLBOX	FLOW TRANSMITTER FIT-5	CONTINUE IN C109, C190
C208	3/4"		X		NOTE 2			X	DCB PULLBOX	FLOW TRANSMITTER FIT-6	CONTINUE IN C109, C197
C210	3/4"	X		3	#12		X		CHLOR. BLDG. EXHAUST FAN CONTROL BOX	FAN ME-SPS-6	
C211	3/4"	X		2	#12		X		CHLOR. BLDG. EXHAUST FAN CONTROL BOX	ROOF MOUNTED STROBE LIGHT	
C212	3/4"	X		4	#12		X		CHLOR. BLDG. EXHAUST FAN CONTROL BOX	EAST DOOR SWITCH AND LIGHT	
C213	3/4"	X		5	#12		X		CHLOR. BLDG. EXHAUST FAN CONTROL BOX	WEST DOOR SWITCH AND LIGHT	
C214	3/4"	X		3	#12	X			LIGHTING PANEL LP-P2	CHLOR. BLDG. EXHAUST FAN CONTROL BOX	
C215	2"		X	1	2/C#16			X	EFFLUENT FLOWMETER	PUMP STATION NO.2	
C216	2"		X						EFFLUENT FLOWMETER BOX	PUMP STATION NO.2	CONDUIT ONLY
C217	2"		X						EFFLUENT FLOWMETER BOX	PUMP STATION NO.2	CONDUIT ONLY
C218	2"		X	5	#12	X			EFFLUENT FLOWMETER	PUMP STATION NO.2	CONDUIT ONLY
C219	2"		X	3	#12				PULLBOX PB-10	EFFLUENT AUTOMATIC SAMPLER	CONTINUE IN C218 LTG. PNL. LP-PS
C220	2"		X	1	2/C#16			X	PULLBOX PB-10	EFFLUENT AUTOMATIC SAMPLER	CONTINUE IN C215 TO PS NO.2
C221	2"		X	2	#12			X	MCB	CHLORINE CONTACT BASIN LEVEL SW.	
C222	2"		X						PULLBOX PB-10	PULLBOX PB-12	CONDUIT ONLY
C223	2"		X						PULLBOX PB-6	PULLBOX PB-7	CONDUIT ONLY
C224	2"		X						PULLBOX PB-6	PULLBOX PB-7	CONDUIT ONLY
C225	2"		X						PULLBOX PB-6	PULLBOX PB-7	CONDUIT ONLY
C226	2"		X						PULLBOX PB-6	PULLBOX PB-7	CONDUIT ONLY
C227	2"		X						PULLBOX PB-6	PULLBOX PB-7	CONDUIT ONLY
C228	2"		X						PULLBOX PB-10	PULLBOX PB-11	CONDUIT ONLY

CONDUIT				CONDUCTOR					FROM	TO	REMARKS
NUMBER	SIZE	OH	UG	NO.	SIZE	P	C	I			
C229	2"		X						PULLBOX PB-10	PULLBOX PB-11	CONDUIT ONLY
C230	2"		X						MCB	ADMINISTRATION BLDG. PULLBOX PB-1	CONDUIT ONLY
C231	2"		X						MCB	ODB BUILDING	CONDUIT ONLY
C232	2"		X						ADMINISTRATION BLDG. PULLBOX PB-1	ODB BUILDING	CONDUIT ONLY
C233	2"		X						PULLBOX PB-2	PULLBOX PB-3	CONDUIT ONLY
C234	2"		X						PULLBOX PB-2	PULLBOX PB-3	CONDUIT ONLY
C235	2"		X						PULLBOX PB-7	PULLBOX PB-10	CONDUIT ONLY
C236	2"		X						PULLBOX PB-7	PULLBOX PB-10	CONDUIT ONLY
C238	2"		X	30	#12			X	MCB	GEN. BLDG. INST. TERMINAL BOX	
C239	1"		X	2	#12			X	GEN. BLDG. INST. TERMINAL BOX	DIESEL FUEL STORAGE TANK LEVEL SW.	
C240	1"		X	3	#12	X			LIGHTING PANEL LP-G	FINAL CLARIF. SLUDGE VALVE PANEL	
C241	1"		X	3	#12	X			LIGHTING PANEL LP-G	DAY TANK PUMP	
C242	1"		X	3	#12	X			LIGHTING PANEL LP-G	BATTERY CHARGER	
C243	1"		X	3	#12	X			LIGHTING PANEL LP-G	ENGINE WATER JACKET HEATER	
C244	2"		X		NOTE 2	X			24 V. BATTERY	ENGINE STARTING SYSTEM	
C245	3/4"	X		3	#12	X			LIGHTING PANEL LP-G	EXHAUST FAN ME-GB-8	
C246	1"		X	3	#12	X			GENERATOR BATTERY	LOUVER CONTROL PANEL	
C247	1"		X	2	#12		X		LOUVER CONTROL PLANEL	GENERATOR CONTROL PANEL	
C248	1"		X	3	#12	X			LOUVER CONTROL PLANEL	LOUVER DAMPER MOTOR ME-GB-	
C249	1"		X	3	#12	X			LOUVER CONTROL PLANEL	LOUVER DAMPER MOTOR ME-GB-	
C250	3/4"	X		3	#12	X			LOUVER CONTROL PLANEL	LOUVER DAMPER MOTOR ME-GB-	
C251	3/4"	X		3	#12	X			LIGHTING PANEL LP-G	RADIANT HEATER ME-GB-9	
C252	1"		X	12	#12			X	FINAL CLARIF. SLUDGE VALVE PANEL	GEN. BLDG. INST. TERMINAL BOX	CONTINUE IN C238
C253	3/4"		X	2	#12			X	BAR SCREEN ME-PPS-1	PUMP STATION NO.1 CONTROL PANEL	CONTINUE IN C100 TO MCB
C254	3/4"	X		3	#12	X			LIGHTING PANEL LP-P1	FLOW TRANSMITTER FIT-1	
C255	3/4"	X		3	#12	X			LIGHTING PANEL LP-P1	LEVEL TRANSMITTER LIT-1	
C256	3/4"	X							FLOW TRANSDUCER FX-1	FLOW TRANSMITTER FIT-1	CONDUCTORS BY MANUFACTURER
C257	3/4"	X		1	2/C#16			X	FLOW TRANSMITTER FIT-1	PUMP STATION NO.1 CONTROL PANEL	CONTINUE IN C101 TO MCB
C258	3/4"	X							LEVEL TRANSDUCER LX-1	LEVEL TRANSMITTER LIT-1	CONDUCTORS BY MANUFACTURER
C259	3/4"	X		1	2/C#16			X	LEVEL TRANSMITTER LIT-1	PUMP STATION NO.1 CONTROL PANEL	CONTINUE IN C101 TO MCB
C260	3/4"	X		8	#12		X		LEVEL TRANSMITTER LIT-1	PUMP STATION NO.1 CONTROL PANEL	CONTINUE IN C100 TO MCB
C261	3/4"	X		1	2/C#16			X	INFLUENT AUTOMATIC SAMPLER	PUMP STATION NO.1 CONTROL PANEL	PACING SIGNAL
C263	3/4"	X		1	2/C#16			X	TIT-3 TRANSMITTER	PULLBOX DCB	CONTINUE IN C107
C264	3/4"	X		1	2/C#16			X	TIT-4 TRANSMITTER	PULLBOX DCB	CONTINUE IN C107
C265	3/4"	X		3	#12	X			LIGHTING PANEL LP-P1	SEAL WATER PUMP P-IPS-5 & P-IPS-6	
C266	3/4"	X		3	#12	X			LIGHTING PANEL LP-P2	SEAL WATER PUMP P-SPS-5 & P-SPS-6	
C267	1"		X	8	#12	X			LIGHTING PANEL LP-G	FUEL STATIONS	ROUTE THROUGH POWER CUTOFF SW.
C268	1"		X	2	#12			X	GASOLINE TANK LEVEL SWITCH	GEN. BLDG. INSTRUMENT TERMINAL BOX	
C269	1"		X	2	#12			X			
C270	1"		X	2	#4	X			LIGHTING PANEL LP-E	WATER HEATER NO.1	PROVIDE #8 GROUND
C271	1"		X	2	#4	X			LIGHTING PANEL LP-E	WATER HEATER NO.2	PROVIDE #8 GROUND
C272	3/4"	X		3	#12	X			LIGHTING PANEL LP-D	HEATER ME-DCB-6	
C273	3/4"	X		3	#12	X			LIGHTING PANEL LP-D	HEATER ME-DCB-7	
C274	3/4"	X		3	#12	X			LIGHTING PANEL LP-D	HEATER ME-DCB-8	
C275	3/4"	X		3	#12	X			LIGHTING PANEL LP-D	ROOF EXHAUST FAN ME-DCB-10	
C276	3/4"	X		3	#12	X			LIGHTING PANEL LP-D	EVAP. COOLER ME-DCB-12	
C277	3/4"	X		3	#12	X			LIGHTING PANEL LP-D	EVAP COOLER ME-DCB-13	
C278	3/4"	X		3	#12	X			LIGHTING PANEL LP-D	SUMP PUMP PANEL	
C279	3/4"	X		3	#12	X			LIGHTING PANEL LP-D	HOT WATER CIRC. PUMP P-DCB-13	
C280	2"		X	4	#12	X			POWER PANEL PP-1	COMPRESSOR ME-DCB-14	
C281	3/4"	X		6	#14			X	COMPRESSOR ME-DCB-14	PULLBOX DCB	CONTINUE IN C106 TO MCB

LEGEND

OH - OVERHEAD
UG - UNDERGROUND
P - POWER
C - CONTROL
I - INSTRUMENTATION

NOTES

1. ALL 2/C #16 CABLES ARE SHIELDED.
2. SIZE CONDUCTORS AS REQUIRED.

WARNING
THIS DRAWING APPROXIMATELY ONE-HALF ORIGINAL SCALE

REGISTERED PROFESSIONAL ENGINEER No. 4824 LEONARD H. ALLEN, JR. STATE OF UTAH

REV	DATE	BY	DESCRIPTION

SCALE: NONE
DESIGNED SIL
DRAWN G. OLSEN
CHECKED SIL/PED
SUBMITTED Leonard H. Allen Jr. 4824 6-10-88 PROJECT ENGINEER R. C. E. NO. DATE
Wilfried F. Langer Calif 9639 6-10-88 JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. R. C. E. NO. DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
4525 SOUTH WASATCH BLVD., SUITE 200, SALT LAKE CITY, UTAH 84124

APPROVED Vernon B. Carr 6-7-88 DATE
APPROVED Dale D. Waymont 6-7-88 DATE

SOUTH DAVIS COUNTY SEWER IMPROVEMENT DISTRICT
NORTH PLANT REHABILITATION AND EXPANSION
CONDUIT AND CONDUCTOR SCHEDULE III

SHEET E-14 OF • SHEETS

JOB No. FILE No.