ADDENDUM NO. 03

To: Bidders & Plan Holders

From: Craig A. Johnson, P.E.
Crist Engineers, Inc.

Date: June 4, 2024

Project: Conway Corporation
Roger Q Mills Jr.
Water Treatment Plant 8 MGD Expansion & Improvements

Bid Date: June 11, 2024

Bid Time: 10:00 AM

Location: Conway Corporation's Engineering Office
800 S. Harkrider Street
Conway, Arkansas 72032

The BIDDER shall properly acknowledge Addendum No. 03 as required in Article 3 of Document 004100 on the Bid Form as confirmation that the BIDDER has examined the following Addenda and the related changes to the Contract Documents. Lack of proper acknowledgement on the Bid Form may deem a bid non-responsive.

The Contract Documents dated May 3, 2024, and Addendum No. 02 issued May 28, 2024, are hereby amended as follows:

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 10220
CRAIG A. JOHNSON

CERTIFICATE OF AUTHORIZATION
CRIST ENGINEERS, INC.
CONSULTING ENGINEERS
No. 91
ARKANSAS ENGINEER

Digitally signed by Craig Johnson
Date: 2024.06.04 21:44:12-05'00'

IMPORTANT REMINDERS:

Please reference Section 002113 - Instructions to Bidders, provided in the contract documents for information required for the bid submission.

INFORMATION TO PROSPECTIVE BIDDERS:

1. Vacant

ADDENDUM NO. 02

1. Modify Page 1 Paragraph 1 as follows:
    a. "The BIDDER shall properly acknowledge Addendum No. ~~**01**~~ **02** as required in Article 3 of Document 004100….."
2. DIVISION 01 – GENERAL REQUIREMENTS 1.c.i.B modify as follows:
    a. "Water needed for testing water tightness of structures shall be provided by the Owner. Should testing demonstrate failure and subsequent testing thereof shall be the responsibility of the ~~**Owner**~~ **CONTRACTOR** at the current billing rates **at the** ~~**for**~~ current commercial rates."
3. SPECIFICATIONS: Specification 406113 1.a modify as follows:
    a. "……Section 406113 Process Control System General Provisions – Addendum No. ~~**01**~~ **02** attached hereto.**"**

DIVISION 00 – PROCUREMENT AND CONTRACT REQUIRMENTS:

1. Section 003000 - Davis Bacon Wage Determination:
    a. Insert Wage Determination – Addendum No. 03 attached hereto.

2. Section 00 41 10 – Bid Form:
    a. LIST OF MANUFACTURERS: Revised the table heading as follows:
        i. Modify the third column as follows: "Equipment Manufacturer ~~**& Model No.**~~"

DIVISION 06 – WOOD, PLASTICS, AND COMPOSTIES:

1. Specification 068017 – Fiberglass Reinforced Plastic Fabrications
    a. Delete in its entirety.

DIVISION 07 – THERMAL AND MOISTURE PROTECTION:

1. Specification 074113 – Metal Roof and Wall Panels
    a. Delete in its entirety.

DIVISION 08 – OPENINGS

1. Specification 083100 – Aluminum Hatches:
    a. Delete in its entirety.

DIVISION 13 – SPECIAL CONSTRUCTION

1. Specification 133419 – Metal Building Systems:
    a. Delete in its entirety.

DIVISION 40 – PROCESS INTERCONNECTIONS:

1. Specification 400531 – Polyvinyl Chloride and Chlorinated Polyvinyl Chloride Piping
    a. Delete Paragraph 3.4.2.d in its entirety and add the following:
        i. **"Color requirements for process piping shall adhere to the 2018 Recommended Standards for Waterworks Section 2.14 for coloring requirements."**

DIVISION 22 – PLUMBING:

1. Specification 220529 – Process Supports and Anchors:
    a. Insert the following below paragraph 2.1.C.3:
        i. Corrosive areas include rooms or containment containing Fluoride, Sodium hydroxide, Chlorine, or Chlorine dioxide.

2. Specification 221116 – Plumbing Piping
    a. Delete paragraph 2.1.B and insert the following in lieu thereof:
        i. Water piping within building:
            1. 3-inch and smaller shall be schedule 80 PVC
        ii. Piping below grade:
            1. 2-inch and smaller shall be schedule 80 PVC

DIVISION 43 – PROCESS GAS & LIQUID

1. Specification 434116 – Filament Wound Fiberglass Reinforced Plastic Tanks
    a. Delete paragraph 2.2.B.1 and insert the following in lieu thereof:
        1. Poly Processing, Assmann, and Snyder Industries

DIVISION 46 – WATER AND WASTEWATER EQUIPMENT:

1. Section 463605 – Lime and PAC System
    a. Delete it in its entirety and replace with Section 46 36 05 – Lime and PAC Systems - Addendum No. 03, attached hereto.

2. Section 464315 – Floating Bridge Sludge Collection
    a. Paragraph 2.1.B. Modify the second sentence as follows:
        i. **"…..shall be at least 5/8 ~~3/4~~ inch diameter."**
    b. Paragraph 2.3.A. Delete in its entirety.
    c. Paragraph 2.4.B. Delete the first sentence and add the following:
        i. **"The Bridge mechanism of the sludge collecting equipment shall consist of siphon piping and floats of sufficient size to adequately support the entire structure whereby the mechanism can rest on the floor at zero flow and a minimum clearance of 1-in. at design flow (based on 2-in. depth water nappe in V-notch weir)."**
    d. Paragraph 2.4.E. Delete the second sentence in its entirety and insert as follows:
        i. **"The siphon piping shall be 4-in. and/or 5-in. diameter and constructed of Schedule ~~S~~ 5 Type 304 Stainless Steel."**

DRAWINGS:

1. Drawing 05-X301 (Sheet No. 020):
    a. Add the following notes:
        i. "1. The OWNER will coordinate with the CONTRACTOR to optimize use of all available existing Lime and PAC into process prior to the demolition of the existing silos, whereby a nominal amount will remain.
        "2. Prior to the demolition of the existing Lime and PAC silos for the Old Plant and the New Plant, the contractor shall have demonstrated adequate operation of the proposed PAC and Lime equipment.
        "3. The OWNER shall have final authority regarding permission to demolish the existing Lime and PAC feed equipment."

2. Drawing 05-X301 (Sheet No. 20)
    a. Modify the Yard Piping Demolition Plan as shown on the Misc. Yard Piping Demolition 2 – Addendum No. 03, attached hereto.

3. Drawing 05-C102 (Sheet No. 22)

a. Modify the Overall Yard Piping 1 plan as shown on Overall Yard Piping 1 – Addendum No. 03, attached hereto. (Two 8.5 x 11; One 11x17 – Three Drawings)

4. Drawing 05-C103 (Sheet No. 23)
   a. Modify the Yard Piping Demolition Plan as shown on Overall Yard Piping 2 – Addendum No. 03, attached hereto.

5. Drawing 05-C104 (Sheet No. 24)
   a. Modify the Misc. Chemical Piping Plan as shown on the Misc. Chemical Piping Plan – Addendum No. 03, attached hereto.

6. Drawing 05-C105 (Sheet No. 25)
   a. Modify the Basin Fill Underdrain Plan as shown on the Basin Fill Underdrain Plan – Addendum No. 03, attached hereto.

7. Drawing 00-CZ101 (Sheet 27)
   a. Modify the Side Walk Detail shown on Civil Detail II – Addendum 03, attached hereto.

8. Drawing 00-CZ102 (Sheet No. 28)
   a. Modify the HDPE Feed Line Pull Box shown on Civil Detail III – Addendum No. 03, attached hereto.

9. Drawing 00-CZ105A (New Sheet)
   a. Add the following detail Lime Feed and Encasement Line Trenching as shown on Civil Details VII – Addendum No. 03, attached hereto.
   b. Add the following detail PAC Feed and Encasement Line Trenching as shown on Civil Details VII – Addendum No. 03, attached hereto.
   c. Add the following detail Concrete Encasement of Pipe Plan and Section as shown on Civil Details VII – Addendum No. 03, attached hereto.

10. Drawing 10-S400 (New Sheet)
    a. Add Foundation and Section Details as shown on the Drain Pump Station Structural Detail, attached hereto.

11. Drawing No. 15-S301 (Sheet No. 096)
    a. Delete Note 1 and replace with:

“OVER-EXCAVATE MIN 6" BELOW THE BOTTOM OF THE SLAB. SCARIFY TOP 8" OF EXPOSED SOIL AND MOISTURE CONDITION TO WITHIN +/- 2% OF OPTIMUM. COMPACT TO A MINIMUM OF 95% MAXIMUM DENSITY PER ASTM D695. IN LIEU OF MOISTURE CONDITION LAYER, AN 8" THICK CONCRETE MUD SLAB MAY BE USED.”

12. Drawing No. 15-P501 (Sheet 107)
    a. Modify the PAC Feed Plan as shown on Drawing No. 15-P501 – Addendum No. 03 attached hereto.

13. Drawing No. 15-P601 (Sheet 108)
    a. Modify the PAC Chemical Feed Piping Schedule as shown on the PAC Contactor Process Mech. And Chem. Feed Schedules – Addendum No. 03, attached hereto.

14. Drawing No. 21-C300 (Sheet 112)
    a. Modify the Flocc Influent and Drain as sown on the New Plant Flocculation Piping Plan and Profile – Addendum No. 03, attached hereto.

15. Drawing No. 21-X101 (Sheet No. 113)
    a. Delete the following in Note 4:
    ~~**“RELOCATE HOLE +/- 1’-0” IF REINFORCEMENT IS ENCOUNTER”**~~

16. Drawing No. 21-S301 (Sheet No. 120)
    a. Delete Note 1 and replace with:
    “OVER-EXCAVATE MIN 6" BELOW THE BOTTOM OF THE SLAB. SCARIFY TOP 8" OF EXPOSED SOIL AND MOISTURE CONDITION TO WITHIN +/- 2% OF OPTIMUM. COMPACT TO A MINIMUM OF 95% MAXIMUM DENSITY PER ASTM D695. IN LIEU OF MOISTURE CONDITION LAYER, AN 8" THICK CONCRETE MUD SLAB MAY BE USED.”

17. Drawing No. 21 P502 (Sheet No. 136)
    a. Modify the Rapid Mix Chem. Feed Plan – Callout as shown on the Chem. Feed Piping Plans and Details – Addendum No. 03, attached hereto.

18. Drawing No. 60-M302 (Sheet No. 218)
    a. Add callout pointing to HVAC concrete pad:
    “STANDARD DETAIL D03/3000-1000, TYPE F”

19. Drawing No. 71-S301 (Sheet No. 246)

a. Delete Keynote 1 and replace with:
“OVER-EXCAVATE MIN 6" BELOW THE BOTTOM OF THE SLAB. SCARIFY TOP 8" OF EXPOSED SOIL AND MOISTURE CONDITION TO WITHIN +/- 2% OF OPTIMUM. COMPACT TO A MINIMUM OF 95% MAXIMUM DENSITY PER ASTM D695. IN LIEU OF MOISTURE CONDITION LAYER, AN 8" THICK CONCRETE MUD SLAB MAY BE USED.”

20. Drawing No. 72 C201 (Sheet No. 253)
    a. Modify PAC Contractor and Lime Building Plan as shown on Lime& PAC Feed Site Grading Plan and Section – Addendum No. 03, attached hereto.
    b. Add Concrete Step Next to Lime & PAC Building as shown on Concrete Step Details – Addendum No 03

21. Drawing No. 72-A501 (Sheet No. 265)
    a. Revise Drawing as follows: delete “~~18” MIN~~” in Detail 4 – Tank to Roof Waterproofing and replace with **“12” MIN”.**

22. Insert the following new Drawing:
    a. Drawing 21 S502 (Sheet 128B) – New Plant Sedimentation Basin Sections and Detail II

23. Delete and replace the following Drawing attached hereto:
    a. 05-E101 - PROPOSED ELECTRICAL SITE PLAN - OVERVIEW (SHEET NO. 034)
    b. 08-1724 - PAC FEED AND STORAGE P&ID 1 (SHEET NO. 052)
    c. 21-S401 – NEW PLANT SEDIMENTATION BASIN ENLARGED VIEWS 1 (SHEET NO. 126)
    d. 21-S501 – NEW PLANT SEDIMENTATION BASIN SECTIONS AND DETAIL (SHEET NO. 128)
    e. 30-P101 - OLD PLANT FILTER BUILDING #1 PLAN (SHEET NO. 142)
    f. 30-P301 - OLD PLANT FILTER BUILDING #1 SECTIONS (SHEET NO. 143)
    g. 30-P901 - OLD PLANT FILTER BUILDING #1 ISOMETRIC (SHEET NO. 144)
    h. 31-S502 - NEW PLANT FILTER BUILDING #2 RETAINING WALL DETAILS (SHEET NO. 166)
    i. 60-X101 - HIGH SERVICE PUMP STATION DEMOLITION PLAN 1 (SHEET NO. 200)
    j. 60-S101 - HIGH SERVICE PUMP STATION ELECTRICAL ROOM WALL PLAN (SHEET NO. 203)
    k. 60-S102 - HIGH SERVICE PUMP STATION CAUSTIC AND FLUORIDE TANKS FOUNDATION PLAN (SHEET NO. 204)
    l. 60-S103 - HIGH SERVICE PUMP STATION CAUSTIC AND FLUORIDE TANKS WALL PLAN (SHEET NO. 205)
    m. 60-S301 - HIGH SERVICE PUMP STATION SECTION 1 (SHEET NO. 206)
    n. 60-S302 - HIGH SERVICE PUMP STATION SECTION 2 (SHEET NO. 207)

o. 60-M101 - HIGH SERVICE PUMP STATION HVAC PLAN (SHEET NO. 215)
p. 60-M102 - HIGH SERVICE PUMP STATION PLUMBING PLAN (SHEET NO. 216)
q. 60-M302 - HIGH SERVICE PUMP STATION HVAC SECTION AND ISOMETRIC (SHEET NO. 218)
r. 60-M303 - HIGH SERVICE PUMP STATION PLUMBING SECTION (SHEET NO. 219)
s. 60-M601 - HIGH SERVICE PUMP STATION HVAC SCHEDULES (SHEET NO. 220)
t. 70-E102 - CHEMICAL BUILDING POWER PLAN -ENLARGED (SHEET NO. 240)
u. 70-E601 - CHEMICAL BUILDING ELECTRICAL CONDUIT SCHEDULE (SHEET NO. 243)
v. 71-P101 - OLD PLANT ALUM FEED STORAGE PLAN (SHEET NO. 247)
w. 71-E101 - OLD PLANT ALUM FEED ELECTRICAL PLAN (SHEET NO. 250)
x. 72-A004 - LIME & PAC BUILDING FIRE RESISTANCE ASSEMBLIES (SHEET NO. 257)
y. 72-A101 - LIME & PAC BUILDING FLOOR PLAN (SHEET NO. 258)
z. 72-A201 - LIME & PAC BUILDING ELEVATIONS 1 (SHEET NO. 261)
aa. 72-A202 - LIME & PAC BUILDING ELEVATIONS 2 (SHEET NO. 262)
bb. 72-A302 - LIME & PAC BUILDING WALL SECTION (SHEET NO. 264)
cc. 72-A503 - LIME & PAC BUILDING SCHEDULES (SHEET NO. 267)
dd. 72-S201 - LIME & PAC BUILDING ELEVATIONS 1 (SHEET NO. 272)
ee. 72-S506 - LIME & PAC BUILDING DETAILS 5 (SHEET NO. 283)
ff. 72-P101 - LIME & PAC BUILDING LOWER PLAN (SHEET NO. 284)
gg. 72-P301 - LIME & PAC BUILDING SECTION 1 (SHEET NO. 286)
hh. 72-P302 - LIME & PAC BUILDING SECTION 2 (SHEET NO. 287)
ii. 72-P303 - LIME & PAC BUILDING SECTION 3 (SHEET NO. 288)
jj. 72-E102 - LIME & PAC BUILDING POWER PLAN 2 (SHEET NO. 299)
kk. 72-E601 - LIME & PAC BUILDING ELECTRICAL CONDUIT SCHEDULE (SHEET NO. 306)
ll. 72-E602 - LIME & PAC BUILDING ELECTRICAL CONDUIT SCHEDULE (SHEET NO. 307)
mm. 90-E503 - OPERATIONS BUILDING ONE-LINE DIAGRAM (SHEET NO. 311)
nn. 90-E601 - ELECTRICAL PANEL SCHEDULES (SHEET NO. 317)
oo. 90-E602 - ELECTRICAL DUCT BANK SECTIONS (SHEET NO. 318)

END ADDENDUM NO. 03

RESPONSE TO QUESTIONS:

1. The response to questions asked during the bid preparation process is provided as a convenience to the prospective bidders. The purpose of the response is to provide clarification to the Contract Documents. The response does not modify the contract documents. Only duly noted addendum items modify the contract documents.

SECTION 406113

PROCESS CONTROL SYSTEM GENERAL PROVISIONS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
1. The Work to furnish all materials, labor, equipment, tools, supplies, and incidentals necessary for the installation and testing of all process control systems.

B. Related Sections:
1. Section 40 61 96 – Process Control Descriptions
2. Section 40 63 43 – Programmable Logic Controllers
3. Section 40 66 13 – Networking Equipment
4. Section 40 66 33 – Fiber Optic Communication Systems
5. Section 40 67 23 – Control Panels
6. Section 40 70 00 – Instrumentation for Process Systems

1.2 REFERENCES

A. Definitions: Symbols, Definitions, and Abbreviations: All symbols, definitions, and engineering unit abbreviations utilized shall conform to IEEE 100-84, S50.1, and S51.1, where applicable.
1. SCADA – Supervisory Control and Data Acquisition
2. HMI – Human Machine Interface (Graphical Screens, Text Displays)
3. OIT – Operator Interface Terminal
4. PLC – Programmable Logic Controller
5. I/O – Input/Output
6. VFD – Variable Frequency Drive
7. SSRVS – Solid State Reduced Voltage Starter (“Soft Starter”)
8. RTU – Remote Telemetry Unit
9. MTU – Master Telemetry Unit
10. MCC – Motor Control Center
11. Operating Program – Operating system, SCADA, or other core software.
12. Integrated Operating Platform – System of installed, connected, and configured hardware, operating programs, and networking equipment.
13. PLC and HMI Programming – Software configuration of operating programs to implement process control strategies.
14. Control System Specialist – a company specializing in process control hardware and software, including instrumentation, PLCs, networking, installation, and configuration.
~~14.~~**15. Application Engineer – A company performing the PLC and HMI programming to implement process control strategies.**

1.3 QUALITY ASSURANCE

A. The Contractor shall designate in writing the qualified Control System Specialist, including a detailed listing of the firm, resumes and work history of each person working on the project, and project specific references. The qualifications of the Control System Specialist shall be subject to approval of the Owner and the Engineer.

B. The minimum qualifications for the Control System Specialist shall include:
1. An established firm in operation as a control and automation company for a minimum of 5 years, with demonstrated water and wastewater industry experience.

2. Staffed with experienced personnel capable of executing the required aspects of the project.

1.4 SCOPE OF WORK

A. The Contractor shall engage the services of a Control System Specialist, who shall furnish all materials, equipment, labor, and services to achieve a fully functional process control system for this project**, except for those services specifically excluded herein to be provided by an Application Engineer.**~~.~~

B. The Control System Specialist shall be responsible for providing and installing all instrumentation, PLC control panels, computer equipment, networking equipment, and other control system hardware as specified for a complete process control system installation.

C. **Items specifically excluded from the Control System Specialist's scope of work, and to be provided by the Application Engineer, include:**
   1. **Programmable Logic Controller (PLC) programming**
   2. **Human Machine Interface (HMI) graphics development and configuration**

~~B.~~D. **The Application Engineer providing PLC and HMI programming services for this project, under separate contract with the Owner, is Garver. The Control System Specialist shall provide support services to the Application Engineer as defined herein.**

~~C.~~E. In general, the Control System Specialist shall perform the following tasks:
   1. ~~**Provide PLC programming and HMI screen development to implement process control of equipment as described within Section 40 61 96 – Process Control Descriptions.**~~
   2. Furnish, install, configure, and calibrate instrumentation as detailed on the drawings and in the specifications.
   3. Fabricate and install all control panels as indicated in the drawings, except for those provided as part of a vendor supplied equipment package. Terminate all field control wiring inside control panels.
      a. Where existing control panels are being replaced with new, field investigate and develop as-builts of the existing instrumentation and control installation to identify and label all I/O and communication wiring entering the existing panels. The contractor shall be responsible for properly identifying and labelling all existing wiring and re-connecting to the new control panel. Perform point-to-point wiring checks and startup testing for re-connected existing components and wiring following the same requirements as new equipment.
   4. Provide all hardware required to properly communicate between all control panels and remote sites, whether or not explicitly identified in the drawings or specifications.
   5. Install networking equipment and communication cables between control devices as indicated in the drawings and specifications. Provide configuration of equipment, including network switches and firewalls, to ensure proper communication between all devices associated with the integrated operating platform.
   6. Provide all instrumentation and control device relocation work associated with the relocation of equipment, including disconnecting all existing wiring and conduit and terminating, calibrating, and replacing service to relocated equipment.
   7. Modification to existing instrumentation and control systems as required to new and existing equipment to maintain process operations.
   8. Provide overall coordination, installation, supervision, and installation of control panels, instrumentation, computer hardware, networking systems, and other miscellaneous control system components as specified.
   9. Provide coordination with the Contractor and participate in all meetings as directed by the specifications or Contractor.
   10. Execute the testing procedures outlined in this document.

~~D.~~F. Vendor system packages may be provided under other sections of this contract that may interface with the process control system via communications protocol and/or hard-wired I/O. Refer to the associated specification sections and the contract drawings for additional details. The Control System Specialist shall be responsible for coordination, furnishing, installing, and configuring any communication devices or drivers necessary to ensure proper communication with each of the vendor-furnished systems.

~~E.~~G. Vendor system packages may include instrumentation or control panels that shall be installed and configured by the Control System Specialist according to vendor instructions. Upon satisfactory installation, configuration, and calibration, the Control System Specialist shall coordinate with each vendor to inspect finished work. The Control System Specialist shall submit documentation indicating that the vendor has inspected and approved the installation.

1.5 SUBMITTALS

A. Product Data:
   1. Instrument Installation Details.
   2. Certified Calibration Sheets.
   3. Complete and detailed instruction manuals on each item furnished including but not limited to all devices and instruments. Information to be contained in the instruction manuals shall include but not be limited to drawings, dimensions, manufacturer's recommendations, ratings, performance charts, power requirements, schematics, maintenance requirements and procedures, calibration recommendations and procedures, repair instructions, complete and recommended spare parts lists and related information.
   4. Proposed tagging and attachment materials and methods.

B. Shop Drawings shall be submitted for approval by the Engineer.
   1. The Contractor shall submit to the Engineer, for approval, Shop Drawings of the equipment to be installed to meet the Specifications. The Drawings shall be supported by notes or written directions as required to fully define the installation. The submission shall be made as soon as feasible after award of the Contract and, in any event, shall be submitted and approval obtained before installation of the equipment.
   2. The information required on the Shop Drawings shall include, but is not necessarily limited to, the following:
      a. Full and complete specifications covering the equipment proposed to be furnished.
      b. Detail Drawings showing plan, network connections and elevation dimensions of the equipment proposed to be furnished.
      c. Guarantees of performance of the equipment proposed to be furnished.
      d. Nearest location of factory maintenance and service facilities that will be available to service the equipment offered.
      e. To scale plans, sections and elevations detailing entire installation. Include mounting hardware, brackets, assemblies, and other devices as required for a complete installation.
   3. Control panels:
      a. Panel and sub-panel layout
      b. Point-to-Point Wiring and Interconnection Diagrams
      c. System hardware

C. Contract Closeout Submittals:
   1. Project Record Documents
   2. Operating and Maintenance Data
   3. Warranty
   4. Final as-built copies of documented PLC and HMI programs for vendor supplied equipment packages, on electronic media, suitable for future troubleshooting or modifications by others.

D. Instrumentation and control testing documents shall be submitted for approval by the Engineer:
   1. Credentials of technicians doing the inspection and testing.
   2. Written certification as detailed under testing requirements in this specification section.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Storage and Protection: Delivery, storage, and handling shall be in accordance with Manufacturers' recommendation and the requirements of other sections herein.

1.7 PROJECT AND SITE CONDITIONS

A. Environmental Requirements:
   1. Instrumentation and control elements may be installed outdoors exposed to sun, rain and excessive humidity and shall be capable of continuous operation without significant reduction of their operating life under the following ambient conditions:
      a. Temperature:
         1) (-25)–80°C
      b. Pressure:
         1) 650-800 mm Hg
      c. Relative Humidity:
         1) 20-100% condensing
      d. Vibration Frequency:
         1) 10-2000 Hz
      e. Vibration Position:
         1) 1.5 mm peak-to-peak
      f. Vibration Acceleration:
         1) 10 G.

B. Where the ratings of individual components cannot meet the requirements, provide suitable means of physical protection. Suitable physical protection shall consist of an assembly which meets the requirements listed, while limiting the ambient conditions at the non-conforming component to 90% of the component's rating (Example: A component rated for vibration at only 5 G. acceleration would be required to be combined with vibration isolation to limit the acceleration of the component to 4.5 G. when subjected to ambient acceleration of 10 G. from 10 - 2000 Hz.).

C. Operating Environmental Conditions:
   1. All instruments and control devices provided shall be rated for continuous operation in their installed operating environment and shall be capable of continuous operation at the operating conditions without significant reduction of their operating life.

D. All controlling devices shall be NEMA or IEC rated.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.1 GENERAL

A. All meters, instruments, control units, and other components shall be the most recent field proven models marketed by their respective manufacturers at the time of the submittal of the shop drawings unless otherwise specified to match existing equipment.

B. Analog measurements and control signals shall be electrical and shall vary in direct linear proportion to the variable being measured. All analog signals whether inputs or outputs shall be 4-20mA DC unless otherwise noted. The analog input signals shall maintain loop integrity with the installation of properly sized resistors across the input terminals. Provide surge protection for all analog signal terminations.

C. All of the elements, instruments, accessories, and assemblies shall be installed in accordance with the manufacturer's installation instructions, and as detailed on the Drawings. Shielded instrumentation cables shall be used for all analog signals from the instruments to the programmable logic controller panels. Separate conduits shall be used for instrument power, instrument signals, and fiber optic cables.

D. All instruments installed outdoors subject to direct sunlight shall include a stainless-steel sunshade.

E. All digital outputs shall be isolated from the field equipment through an interposing relay. The relays shall be mounted inside the cabinet housing the associated programmable logic controller as shown on Drawings.

F. The Contractor shall make the necessary power connections and signal connections from the field devices (i.e., instruments, control valves, etc.) to the programmable logic controllers.

G. The Contractor shall configure and verify proper operation of the Integrated Operating Platform, included but not limited to the following requirements:
   1. The computers, PLCs, OITs, networking hardware, surge protection devices, uninterruptible power supplies, and other incidental equipment shall be configured and installed as shown on the Drawings and as specified herein.
   2. All networked devices shall be configured for proper communication via the topology and protocol shown on the Drawings or specified herein.
   3. Verify that all system devices power up, function, and properly communicate prior to commencing any startup or testing procedures as described herein.

3.2 SYSTEM WIRING COORDINATION

A. The Control System Specialist shall develop complete point-to-point interconnection wiring termination sheets for all control connections to be provided for the project. The sheets shall identify all external interconnecting wiring associated with all new control panels or existing control panels.
   1. Develop point-to-point interconnection wiring termination sheets for performance of the Work and to document terminations.
   2. Use information from shop drawings, record drawings, plan drawings, and field inspections to develop sheets. Contractor shall field investigate the existing installation to determine the connections for equipment that is to remain and reconnected.
   3. The interconnection wiring termination sheets shall include the following information:
      a. External wiring for each piece of equipment, panel, instrument, local control stations, and other field devices with an electrical connection.
      b. Numbered terminal block identification for each wire termination.
      c. Identification of the assigned wire numbers for all interconnections.
      d. Conduit tags, terminal numbers, and pull box identifications through which wiring is routed between end points.
      e. Identification equipment documents from which the wire numbering and termination information was obtained.
   4. Conduct point-to-point wiring checks to determine that wiring and terminations are installed in compliance with the point-to-point interconnection diagrams. The Control System Specialist shall document all wiring checks and sign-off on completed wiring termination sheets. Submit signed documentation to Owner and Engineer.

3.3 TESTING AND INSTALLATION REQUIREMENTS

A. Testing and Installation Requirements: The Contractor shall be required to coordinate the following services during construction related to the testing and installation of the process control system. The complete system testing shall include all PLCs, computer systems, SCADA software and hardware, network devices, interconnecting cables, and other peripheral devices required for a complete and functional system. The testing of the system shall occur in stages as defined below. The Contractor shall develop and submit proposed testing procedures and documentation for each test. Testing documentation shall include signature lines for representatives of the Control Systems Specialist, Engineer, and Owner. Signatures shall be provided for each portion of the test, including a final sign-off indicating satisfactory completion of the entire test. Any deviations from the test procedure or corrections made during test must be recorded on the documentation and initialed by individual making the record. Testing documentation submittals must be approved by the Engineer prior to the scheduling of any actual tests.

B. Factory Readiness Test
   1. A Factory Readiness Test shall be performed for each control panel fabricated and provided by the Control System Specialist. The test will be witnessed by, at minimum, representatives of both the Engineer and Owner. Additional witnesses may be present at the Engineer or Owner's discretion. The Control System Specialist shall provide notice to the Engineer a minimum of thirty (30) days in advance of the test.
   2. The purpose of the Factory Readiness Test is to verify that all hardware and wiring within the control panel has been properly constructed and ready for shipment to the project site, and to test the automatic and manual process control strategies through PLC and HMI programming. **This control strategy portion of the testing will be primarily performed by the Application Engineer, with support from the Control System Specialist as needed.**
   3. The Control System Specialist shall assemble all hardware components within the specified enclosure, including the instruments, PLCs, network components and other required items. This assembly shall be complete and considered suitable for field installation.
   4. For the Factory Readiness Test, the Control System Specialist shall demonstrate that the control panel is suitable for field installation by powering up each item and testing for proper network connections. In addition, the Control System Specialist shall test each PLC input and output for proper operation from each field connection point within the control panel. The Control System Specialist shall be responsible for all measurement and testing components required to complete the Factory Readiness Test.
   5. The Control System Specialist shall be responsible for connecting test instruments to each PLC and verifying proper operation of each input and output. All wire and terminal numbers shall be checked for conformance with the submittal drawings during this Readiness Test.
   6. Each analog I/O point shall be checked for proper operation from each field connection point in the control enclosure. The Control System Specialist shall simulate inputs and outputs in order to fully confirm the proper operation of each analog I/O.
   7. The Control System Specialist may load a test program in the PLCs in order to facilitate the Factory Readiness Test.
   8. Upon satisfactory completion of the control panel hardware and wiring portion of the test, **the Application Engineer will** load the PLC and HMI programming to begin functional testing of control strategies.
   9. Each analog and discrete I/O signal will be checked through the PLC to the HMI screens to verify proper mapping of tags.
   10. Functionality of the system will be checked to ensure conformance with process control strategies.
   11. Process conditions and field equipment feedback will be simulated or forced in order to prove proper PLC response and logic functionality.

12. If during the Factory Readiness Test the **Application Engineer,** Engineer, or Owner finds that process control is not achievable due to errors in the control panel wiring or construction, the functional testing shall stop, and the Control System Specialist shall correct the work and repeat the Factory Readiness Test at no additional cost to the Owner.
13. The Control System Specialist shall submit completed testing documentation as record to the Engineer upon satisfactory completion of the Factory Readiness Test prior to shipment of the control panels to the project site.

C. Site Readiness Test
1. A Site Readiness Test shall be performed after the installation of all control system components including PLC control panels, communications, control wiring, device configurations, instrument calibrations, motor controllers, and variable frequency controllers in accordance with the Contract Documents. The test will be witnessed by, at minimum, representatives of both the Engineer and Owner. Additional witnesses may be present at the Engineer or Owner's discretion. The Control System Specialist shall provide notice to the Engineer a minimum of thirty (30) days in advance of the test.
2. The purpose of this test is for the Control System Specialist to verify the following:
   a. All instruments have been properly configured and calibrated.
   b. All field control wiring has been properly installed and terminated.
   c. All PLC control panel hardware is operating and communicating properly.
   d. The installation is ready **for the Application Engineer** to load PLC and HMI programming and begin functional process control testing.
3. Site Readiness Test shall include energization and testing for correct hardware integration of all system components, including PLC remote I/O assemblies, and reliable communications between components with correct protocols.
4. Provide point-to-point wiring checks for continuity between field devices to final PLC I/O terminations.
5. To the greatest extent possible, the Control System Specialist shall check I/O under process conditions to the end elements. For example, I/O for valve limit switches shall be checked by operating the valve to fully open and closed positions, rather than using jumpers or other means to simulate valve operation. Any testing performed that could upset or affect any live process shall be coordinated with the Owner.
6. Provide verification and documentation of normally closed or normally open contacts for discrete I/O signals.
7. Discrete inputs shall be tested by operating the end device to force a signal change. Observe results on all indicators such as PLC register, panel light, etc.
8. Discrete output signals shall be tested by forcing a value in the PLC register. Observe that the connected equipment properly responds.
9. Analog inputs shall be verified at 0%, 25%, 50%, 75%, and 100% of span. Observe results on all indicators such as PLC register, digital panel meters, etc.
10. Analog outputs shall be tested by entering values in the PLC register to force the outputs at 0%, 25%, 50%, 75%, and 100% of span. Observe that the connected equipment properly responds.
11. Personnel performing the test shall have International Society of Automation (ISA) Certified Control Systems Technicians (CCST) or equivalent credentials as approved by the Engineer or Owner.
12. The Control System Specialist shall submit completed testing documentation as record to the Engineer upon satisfactory completion of the Site Readiness Test.

D. Functional System Test
1. Upon the Engineer's approval of the Site Readiness Test, **the Application Engineer will** load the PLC and HMI programming to begin functional testing of control strategies.
2. The test will be witnessed by, at minimum, representatives of both the Engineer and Owner. Additional witnesses may be present at the Engineer or Owner's discretion. Although the Control System Specialist must provide notice to the Engineer a minimum of

thirty (30) days in advance of the test, the Functional System Test may be performed consecutively with the Site Readiness Test if approved by the Engineer and Owner ahead of time.

3. The purpose of the functional system testing is to implement and test the automatic and manual process control strategies through PLC and HMI programming**. This testing will be primarily performed by the Application Engineer, with support from the Control System Specialist as needed.**
4. **The Control System Specialist shall be present during the functional testing to support the Application Engineer in the event that any hardware, wiring, or instrumentation modifications are required.** The Control System Specialist shall be available to assist with equipment operations, as necessary.
5. For this test, all equipment shall be installed, calibrated, and functioning as required in the contract documents.
6. Each analog and discrete I/O signal will be checked through the PLC to the HMI screens to verify proper mapping of tags.
7. Functionality of the system will be checked to ensure conformance with process control strategies.
8. PLC control loops will be tuned to achieve stable process control.
9. If during the Functional System Test the **Application Engineer,** Engineer, or Owner finds that process control is not achievable due to errors in the installation, the functional testing shall stop, and the Control System Specialist shall correct the installation and repeat the Site Readiness Test at no additional cost to the Owner.

E. Final Acceptance Test:

1. After the system has been started up and running in automatic control to the greatest extent possible as determined by the Engineer/Owner, the Control System Specialist shall conduct a Final Acceptance test of the completed installation. The test shall start after satisfactory completion of all previous tests, the Engineer has received marked record (as-built) drawings from the Contractor, and when directed by the Owner/Engineer.
2. During this test, the Owner and Engineer shall have full use of the system. The duration of the test shall be 30 days.
3. Control System Specialist personnel shall be readily available to address issues onsite during the acceptance test.
4. The system shall operate with 100% reliability during the test period. Failure shall be defined as the inability to control or indicate status of specified inputs or outputs or any specified function of the control systems as described herein caused by defective hardware or software furnished in this project. Failure of hardware or software shall require repair or remedy of the defect to the satisfaction of the Engineer/Owner within 2 days. If the problem cannot be repaired in this time, the test shall be aborted and restarted after the problem is corrected and when directed by the Owner/Engineer. Restarting and satisfactory completion of the test shall be conducted at no additional cost to the Owner.
5. Throughout the duration of the test, no modifications shall be made to the system without prior approval from the Engineer or Owner.

3.4 TRAINING, STARTUP ASSISTANCE, & WARRANTY

A. Training: The Contractor shall provide training for the purpose of familiarizing Owner's personnel with the process control system. All training shall be as scheduled by the Owner. The training shall be scheduled a minimum of thirty (30) days in advance of when it is to be given. Proposed training materials, including a detailed training agenda itemizing relative emphasis on various topics of each course, shall be submitted to the Owner and Engineer at least fourteen (14) days in advance of when the training is to begin. The course content shall include, but not be limited to, a description of system philosophy, all major hardware components utilized in the system and hardware maintenance practices.

B. Startup Assistance
   1. The Contractor shall be responsible for furnishing a qualified technical representative who shall supervise the installation of equipment and/or install equipment, and who shall test, adjust, field calibrate, and fully commission all flow metering equipment, instrumentation equipment, control equipment, and accessories specified herein and required as integral components of the complete systems. The commissioning will be deemed to be complete only after all systems are found to be performing satisfactorily following the final balancing of plant operation. The guarantee period, during which all defective materials shall be replaced, and all faulty workmanship will be corrected at no cost to the Owner, shall begin with the date on which the commissioning is judged to be complete.

C. Service:
   1. Manufacturers shall provide as part of the equipment cost sufficient days of service by a factory-trained service engineer specifically trained on the type of equipment herein specified to assist the Contractor during installation and start-up. The service time shall be sufficient to place the units in satisfactory service and instruct the Owner's personnel in proper operation and maintenance of the equipment.
   2. A minimum of three (3) days service Engineer time shall be provided.

D. Maintenance Instruction:
   1. Operating and maintenance instructions, along with a separate parts list, shall be furnished in three (3) copies to the Owner. Operating instructions shall also incorporate a functional description of the system, including the system schematics which reflect "as-built" modifications. Maintenance requirements particular to the system shall be clearly defined, along with calibration and test procedures.

E. Warranty:
   1. All equipment and workmanship furnished under this contract shall be guaranteed to be free of defects in materials and workmanship for a period of one (1) year from and after the date of final acceptance of the work by the Owner, and any such defects which appear within the stipulated guaranty period shall be repaired, replaced, or made good without charge. This guarantee shall include the capacity and integrated performance of the component's parts.

END OF SECTION

"General Decision Number: AR20240027 04/26/2024

Superseded General Decision Number: AR20230027

State: Arkansas

Construction Type: Building
BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

County: Faulkner County in Arkansas.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at

http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2024
1	03/22/2024
2	04/26/2024

BOIL0069-002 01/01/2021

	Rates	Fringes
BOILERMAKER	$ 30.49	23.13

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* CARP0216-003 01/01/2024

	Rates	Fringes
MILLWRIGHT	$ 31.65	11.83

ELEC0295-010 01/01/2024

	Rates	Fringes
ELECTRICIAN (Includes Low Voltage Wiring)	$ 28.94	14.95

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* PAIN0424-010 07/01/2021

	Rates	Fringes
PAINTER (Brush, Roller, and Spray, Excludes Drywall Finishing/Taping)	$ 16.25 **	10.42

PLUM0155-016 08/01/2023

	Rates	Fringes
PIPEFITTER (Excludes HVAC Pipe Installation)	$ 31.58	13.36

SHEE0036-034 06/01/2021

	Rates	Fringes
SHEET METAL WORKER (Includes HVAC Duct Installation)	$ 24.44	13.66

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* SUAR2015-024 01/09/2017

	Rates	Fringes
BRICKLAYER	$ 20.33	3.77
CARPENTER, Includes Acoustical Ceiling Installation, and Drywall		

Hanging.....$ 18.30 0.00

CEMENT MASON/CONCRETE FINISHER...$ 19.80 3.89

DRYWALL FINISHER/TAPER.....$ 15.38 ** 0.00

INSULATOR - MECHANICAL
(Duct, Pipe & Mechanical
System Insulation).....$ 17.16 ** 4.76

IRONWORKER, REINFORCING.....$ 14.00 ** 0.00

IRONWORKER, STRUCTURAL.....$ 19.61 0.00

LABORER: Common or General.....$ 12.69 ** 0.00

LABORER: Mason Tender - Brick...$ 12.37 ** 0.00

LABORER: Pipelayer.....$ 14.00 ** 0.00

OPERATOR:
Backhoe/Excavator/Trackhoe.....$ 28.21 0.00

OPERATOR: Bulldozer.....$ 16.74 ** 0.00

OPERATOR: Crane.....$ 17.52 0.00

OPERATOR: Grader/Blade.....$ 14.66 ** 0.00

OPERATOR: Paver (Asphalt,
Aggregate, and Concrete).....$ 23.75 0.00

OPERATOR: Roller.....$ 14.78 ** 0.00

PLUMBER, Includes HVAC Pipe
Installation.....$ 17.35 0.00

ROOFER.....$ 15.39 ** 0.00

SPRINKLER FITTER (Fire
Sprinklers).....$ 23.56 2.77

TRUCK DRIVER: Dump Truck.....$ 13.80 ** 0.71

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($17.20) or 13658 ($12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

State Adopted Rate Identifiers

Classifications listed under the ""SA"" identifier indicate that the prevailing wage rate set by a state (or local) government was adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 01/03/2024 reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION
"

SECTION 463605

LIME AND PAC SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. All labor, materials, equipment, accessories, and appurtenances required and delivered to place into operation two (2) complete bulk high density hydrated lime systems and one complete powder activated carbon (PAC) system.

B. Related Requirements:
1. Section 33 11 13 – Water Line Pipe and Fittings
2. Section 26 29 23 – Variable Frequency Motor Controllers
3. Section 40 67 23 – Control Panels
4. Section 40 05 31 – PVC and CPVC Piping
5. Section 40 05 60 – PVC and CPVC Valves
6. Section 40 23 39 – Miscellaneous Process Piping and Valves

C. References:
1. NFPA 499
2. NFPA 654

1.2 SUBMITTALS

A. Product Data:
1. Submit manufacturer information, with the appropriate mechanical and electrical component specifications, for the Lime and PAC systems, including but not limited to the following: storage silo, control panels as described within, volumetric feeder, dry chemical processing and mix tank, transfer pumps, bulk storage tanks, lime slurry metering pumps, painting, and preparation requirements.
2. Submit electrical drawings of all control and power systems.
3. Submit wiring, control schematics, control logic diagrams for all electrical and control components furnished.
4. Submit process, instrumentation, and diagrams of the complete systems.
5. Submit a process control narrative of the complete operation of the system provided.
6. Submit seismic calculations, stamped by a professional engineer registered in the state where the equipment is to be installed.
7. Submit calculations of **process sizing conditions to meet process design criteria**.
8. Provide detailed Operations and Maintenance manuals. Include storage, installation, start-up, operating instructions, control narratives, preventative maintenance, equipment short-term, and long-term shut down procedures. Provide safety precautions and warnings of all hazards operating equipment.
9. Submit a detailed scope of supply including clarification and exceptions if variation from the engineer's considerations is found.

B. Shop Drawings:
1. Complete plan, elevation, and sectional drawings showing critical dimensions.
2. Structural support member sizes, thickness, and attachment to foundation.
3. Weld types and sizes.
4. Ladder and ladder safety device details.
5. Access hatch details.
6. Signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual location and orientation of silos and appurtenances.

1.4 QUALITY ASSURANCE

A. All equipment shall be the product of one manufacturer or furnished by a single supplier to facilitate maintenance and provide a single source of responsibility over the system.
   1. The system supplier shall prepare shop drawings that verify that each system component is compatible with other components of the system, and that piping materials and sizes are appropriate, and that devices necessary for a properly functioning system have been provided.

B. The manufacturer shall maintain a service department with competent service personnel experienced in the start-up, commissioning, operation, troubleshooting, and service of the equipment furnished.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

B. Storage:
   1. Store materials according to manufacturer instructions.
   2. Store materials in areas protected from weather and moisture.
   3. Do not store products directly on ground.

C. Handling: Handle and transport materials in a manner to prevent damage to interior or exterior surfaces.

D. Protection:
   1. Protect materials from moisture and dust by storing them in a clean, dry location remote from construction operations areas.
   2. Provide additional protection according to manufacturer instructions.

1.6 WARRANTY

A. Furnish an 18-month warranty from equipment delivery or 12 months from start up, whichever is first.

PART 2 - PRODUCTS

2.1 LIME AND PAC SYSTEM

A. Manufacturers:
   1. VeloDyne
   2. Merrick/Conseco

B. Where manufacturer’s standard equipment name and/or model is listed, the equipment system shall be provided as modified.

C. All materials shall be suitable for exposure to and contact with hydrated lime and PAC products.

D. Manufacturer to design and provide piping support for process pipes, including silo fill piping. Coordinate with Contractor as needed.

2.2 HYDRATED LIME EQUIPMENT

A. The manufacture shall provide two units of hydrated lime system, each rated for 32 MGD of feed capacity and a feed rate of 10 ppm. One duty and one for redundancy.

B. Storage silo
   1. Each storage silo shall be of all welded, mild steel construction, the silo shall be leg supported. Silo roof, straight-wall, and cone shall be fabricated of ASTM A-36 steel per manufacturer's professional engineer's design based on the silo diameter, height, and configuration. The maximum overall silo height shall be approximately 41 feet, excluding bin vent filter and dust collector, and 12 feet in diameter. The height of the silo shall be such that the usable capacity of the storage section can hold 2,100 cubic feet of lime.
   2. A flange shall be provided on the silo for mating the building to the silo at the roof interface. Provisions should be made to allow for some field adjustments.
   3. The storage silo shall be designed to accommodate all dead loads including vibration from bin vibration devices plus a full live load of chemical having a bulk density of 35 pounds per cubic foot. Seismic load forces shall be per IBC 2021.
   4. The interior of the storage compartment shall be smooth with no inward projecting elements (except for plates to protect the bin level sensors specified elsewhere).
   5. The storage bin shall be completely dust-tight and watertight. All connections to the storage compartments shall be by flanged gasketed connections. Gaskets shall be of the full-faced type of neoprene or approved equal. All bolted connections shall utilize zinc plated or stainless-steel nuts, bolts, and washers.
   6. The storage section shall be structurally designed to store the required chemical. The storage section shall have all components including but not limited to level devices, and shaker style bin vent.
   7. Painting and Preparation:
      a. Sandblast to SSPC-SP-6.
      b. Primer shall be corrosion inhibitive polyamide epoxy primer.
      c. Finish coat shall be a two-coat polyurethane. It shall be factory applied and thermally cured.

C. Bin Roof:
   1. The bin roof shall be pitched 1:12 for drainage purposes. The roof shall be designed to support all roof appurtenances, plus superimposed live load of at least 50 pounds per square foot.
   2. At least four (4) lifting lugs shall be provided at the top of the bin. Lifting lugs shall be ¾-inch thick or larger steel plate with 2-inch diameter hole for use with lifting devices.
   3. Railings and kick plates shall be provided around the perimeter of the storage bin roof as shown on the drawings. All ladders, cages, platforms, and handrails shall conform to OSHA standards as well as any other applicable building or safety codes. All handrails shall be 2-rail handrail type with kick plate.
   4. The bin roof shall have the following connections:
      a. A flanged nozzle type connection of ¼-inch steel plate suitable to support the bin vent filter.
      b. A 24-inch diameter (minimum) steel man way with hinged, gasketed cover and handle-type locking mechanism.
      c. A flanged nozzle suitable for use with the high-level sensor.
      d. A flanged nozzle suitable for use with a pressure vacuum relief valve.
      e. A flanged nozzle suitable for use with the target box of the chemical supply piping.

D. Discharge Hopper:
   1. The discharge hopper shall be cone shaped with a side slope measuring 60 degrees from horizontal. The bottom of the hopper shall have a flanged connection and drilled to match the equipment specified herein.

2. The side of the storage compartment and silo discharge cone shall include opens for the **level transmitter, high- and low- level sensors,** and located to be accessible to the operators from the silo ladder. Pitched plates with angles greater than the angle of repose of the chemical being stored shall be positioned above the level sensor to protect the sensor from falling material during silo filling. These plates shall be the only protrusion on the inside silo wall.
3. Size of anchoring pressure plates **or stirrups** shall be determined by manufacturer's design as designed by a professional engineer.

E. Wall Penetrations:
1. All wall penetrations shall have a minimum thickness of 1/4-inch for all square or rectangular shapes, all round penetrations shall not be less than schedule 40. All penetrations shall be completely seal welded.

F. Flanges:
1. Where applicable, all flanges shall be a minimum 150-pound connection unless otherwise noted within these specifications.

G. Angle Rings shall be provided at the cone intersect and silo roof intersect if required by manufacturers manufacturing process. Angle rings shall be 3" x 3" x ¼" rolled angle. If required for structural purposes, a suitable **flat plate** is acceptable.

H. Bin Level Measurement:
1. **Provide a radar level meter with transmitter for each silo.**
2. Bin level switches shall be mounted for high- and low-level indication in the chemical storage bin. All bin level switches shall be easily accessible. An audible and visual alarm shall be activated when either high or low-level bin switch is activated. High- and low-level switches shall include an extra set of contacts for user direct hookup on terminal strips provided in the main control panel for remote monitoring purposes.

I. Bin Activators:
1. A heavy-duty, motor driven bin activator shall be mounted to the silo cone. The bin activator shall be a minimum of 6-foot diameter with a discharge opening suitably sized for the mating equipment. Controls of the bin activator will be inter-locked with the feeder control circuit and will operate only when the feeder is in operation.
2. The bin activator shall operate on 460 volt, three-phase power.

J. Maintenance / Knife Gate:
1. A manually operated, slide type maintenance gate shall be provided between the cone and flexible connection.
2. The bin gate shall be manually operated, dust tight and arranged for easy access by plant operators.
3. The bin gate shall be manually operated with a chain wheel arrangement for ease of operation from underneath the silo discharge cone.
4. The bin gate shall have a minimum clear opening of 144 square inches to provide chemical flow out of the storage bin.

K. Bin Vent Filter:
1. A bin vent filter shall be flange mounted on the chemical storage bin roof. The unit shall be pre-wired and functionally checked. Units shall be mounted by the installation contractor. Unit shall be an open bottom, flanged mounted mechanical shaker type collector designed to shake retained bag dust directly into the storage silo during shaker operation.
2. **The bin vent filter shall have a venting capacity of at least 1280 cfm.**
3. Filter shall be fabricated of weatherproof and drip-proof construction, with self-contained bag shaker and exhaust fan assemblies.

4. All parts of unit subject to service or maintenance, shall not be more than five feet above the mounting flange, and be accessible without the use of any service platforms or ladders.
5. The bin vent filter housing shall be fabricated of not less than 12-gauge carbon steel. The housing shall be of one-piece construction with all seams continuously welded. Spot welding or skip welding shall not be acceptable. The housing shall be able to open on a swing hinge assembly for quick inspection. The doors shall give complete access to the filter bag compartment and to the shaker compartment.
6. The cloth area of the filter shall be 300 square feet.
7. Filter bags shall be cylindrical and removable without the use of any tooling. Each bag shall pivot on a filter tube sheet and hang from the shaker mechanism with an automatic self-tensioning spring. Envelope type bags or bags without self-tensioning shall not be acceptable.
8. ~~**Unit shall be designed so that an operator may be able to open the inspection door during operation, without allowing dust to escape while unit is in operation.**~~ Each bag shall be constructed of materials suitable for handling the chemical specified. All bags shall be installed at the factory. The bag manifold shall be constructed to prevent filter bags from falling into the storage silo.
9. An electrically operated mechanical bag shaking mechanism shall be provided as an integral part of the bin vent filter. Shaker assembly shall be operated by a 1/3 HP, 230/460, 1725 RPM, TEFC motor.
10. The unit shall contain a mechanical oscillator assembly, sealed-for-life lubrication system, and be enclosed in a weatherproof enclosure.
11. An exhaust fan shall be included as an integral part of the bin vent assembly. The fan shall be a squirrel cage type, operating at 3450 RPM. The unit shall provide a negative pressure within the storage silo during truck unloading operation and shall be operated by a 3 HP, 230/460 VAC, TEFC motor.
12. NEMA 3R disconnect switches shall be furnished for the exhaust fan and shaker mechanism motors. Disconnects shall be factory mounted and wired adjacent to each motor.

L. Fill Piping:
1. Conveying Pipe: A 4-inch diameter, Schedule 40, carbon steel conveying pipe shall be furnished complete with all the necessary compression type couplings. The conveying pipe shall begin at the truck unloading station and terminate at the inlet target box. The fill system conveying pipe shall be mounted at the factory and removed for shipping purposes. The CONTRACTOR shall be responsible for re-mounting the conveying pipe in the field.
2. Long Radius Elbows: Wherever the filling pipe makes a turn, a 4-inch diameter Schedule 40, carbon steel elbow, 4 ft. radius (minimum), shall be provided and installed. Compression type couplings shall be provided to join the elbows with the vertical fill lines, the inlet target box, and the individual horizontal/vertical runs.
3. Fill System Pipe Adapter: A 4-inch bronze Kamlock type adapter shall be mounted on the fill pipe at the truck unloading station. A bronze or painted carbon steel dust cap and chain shall be provided.
4. Limit Switch:
   a. A limit switch shall be mounted on the pipe adapter to provide automatic operation of the bin vent filter, during and after truck unloading cycle. Limit switch assembly shall be adjustable and secured to a heavy-duty mounting bracket for dependable operation. Limit switch shall be complete with two sets of N.O. and two sets of N.C. contacts wired into the unloading control panel to numbered terminal strips for remote indication.

M. Inlet Target Box: A heavy-duty inlet target box shall be mounted on the storage bin roof flanged connection. Target box shall be designed to kill the velocity of the chemical being conveyed

and allow it to drop into the storage bin in an even pattern. Target box shall be provided with a removable end cap to facilitate cleaning of the fill system.

N. Truck Unloading Control Panel:
1. A NEMA 4X stainless steel control panel shall be wall mounted at the termination of the fill pipe and as shown in the drawings. Panel shall be pre-wired by the supplier and contain, but not be limited to the following items of equipment: **bin level display, high and low bin level** indicating lights, alarm horn with press-to-test pushbuttons, H-O-A switches for bin vent filter motor(s) for operating bin vent filter mechanical bag shaker. Numbered terminal strips pre-wired for connection of bin level alarms and unloading indication and a numbered terminal strip with at least 25 percent extra terminal blocks shall be provided. A truck unloading station shall be installed and tested at the factory. The truck unloading panel shall be integrated into the silo PLC. All wires shall be numbered with shrink-tube type labels.

O. Volumetric Feeder:
1. Provide a volumetric screw feeder to accurately and reliably meter Hydrated Lime from the feed hopper to the Hydrated Lime processing and mix tank.
2. The feeder body shall be fabricated of not less than 10-gauge 304 stainless steel.
3. All welds feeder body welds shall be ground smooth and polished, and shall be passivated.
4. The screw feeder auger shall be 304 stainless steel and of the solid shaft design.
5. A heavy-duty gear motor shall be mounted to the feeder body with a stainless-steel adapter having a double lip seal to seal the feed section of the hopper from the feeder drive.
6. The feeder shall be the Barracuda series (VeloDyne) or the 100-V2 series (Merrick).

P. Transitions:
1. Provide a flexible transition required to **interconnect lime feeder** to silo discharge while reducing vibration transfer from the bin activator to the process equipment.
2. Provide rigid transitions as required to **interconnect lime feeder** to the flexible transition at the silo discharge.

Q. Hydrated Lime Processing and Mix Tank:
1. The Hydrated Lime processing and mix tank shall have a minimum usable capacity of 125 gallons.
2. The tanks shall be constructed of 10-gauge type 304 stainless steel.
3. The tank shall be leg supported, rectangular, closed top with a sloped and angle bottom directing slurry to the single discharge of the tank.
4. The mix tank shall be leg supported.
5. Four load cells shall provide gain-in-weight slurry make-down control.
6. The slurry tank shall have, as a minimum, the following connections:
    a. Inlet water connection
    b. Tank drain connection
    c. Overflow connection
    d. Sock vent filter
    e. The drain valve shall be a pinch-type valve.
7. The solution tank shall have easy access to internal operating devices for observing operation and performing routine maintenance. Each solution tank shall have stainless steel hinged access covers.
8. A mechanical mixer shall be provided to effectively mix a **30 to 40% slurry** and maintain a uniform slurry. The mixer shaft and mixer blades shall be type 316 stainless steel.
9. The mixer shall be provided by Chemineer.
10. The mixer speed, motor horsepower, and impeller design shall use computational fluid dynamics to assure optimal slurry mixing based on the tank configuration. The motor shall be a TEFC, 480 VAC, 3 Ph, 60 Hz,

11. A dilution water system shall be supplied to control water to the slurry processing and mix tank. Piping shall be Schedule 80 PVC. The water supply lines, and distribution of inlet water shall have the following components as a minimum:
    a. Qty 1 - solenoid valve.
    b. Qty 1 – Pressure gauge with scale of 0 to 100 psi.
    c. Qty 1 – Magnetic Flow/Totalizer Meter
    d. Qty 1 – Globe Valve
    e. Isolation Valves as required.

R. Slurry Transfer Pumps:
1. Three (3) peristaltic slurry transfer pumps shall be provided **to pump 30% - 40% lime slurry** at a rate of **no less than 10 GPM** at 20 psi. There will be one duty per silo and one stand-by pump.
2. The motors shall be a minimum of 1.5 HP, TEFC, 460vac, 3 phase constant speed. The pumps shall be factory wired, piped, and mounted on a common skid.
3. The transfer pump shall include shut off valve and pressure gauges as shown on the plans.
4. The metering pump skid shall include the following components.
    a. (3) Pulsation Dampeners
    b. (3) Pressure relief valves with bypass to inlet side
    c. (3) Discharge pressure gauges with isolation
    d. (3) Flow indication devices on each discharge with an alarm for no flow
    e. (3) Calibration cylinders with isolation valves
    f. (1) Pressure gauge with guard
    g. (1) Inlet Y strainer
    h. Isolation valves for each pump unit and appurtenances
    i. Configure system to provide system flushing and at each suction and discharge line. Each flushing connection shall include a male 3/4" quick connect coupling.
    j. Each pump will be piped and configured to discharge to two feed pipes for discharge.
    k. (1) Junction Box
5. The transfer pumps shall be manufactured by Verder or Watson Marlow (Bredel).

S. Lime Bulk Storage Tanks:
1. Two (2) 2,500 gallon vertical, closed top, cone bottom, ~~**cylindrical**~~ tank(s) (one for each silo) shall be provided.
2. The tanks shall be painted welded steel.
3. Painting and Preparation:
    a. Sandblast to SSPC-SP-6.
    b. Primer shall be a corrosion inhibitive polyamide epoxy primer.
    c. Finish Coat shall be a two-component polyurethane. Factory-applied, thermally cured.
    d. The color shall be gloss white.
4. All tank connections shown on plans are to be fabricated at factory. Field cut fittings are not acceptable.
5. ~~**2-inch**~~ **Feed line** shall be provided from the mix tank to the lime silo transfer pumps to fill the lime bulk tank as programmed by the operator.
6. The tank shall conform to ATSM A36 construction, butt welded mild steel plate interior and exterior with welds ground smooth and free of weld spatter prior to sand blast and prime.
7. The plate thickness shall be determined by the manufacturer, as required for the storage capacity, size, material density, and seismic zone.
8. The mixer speed, motor horsepower, and impeller design for the storage tank shall use computational fluid dynamics to assure optimal slurry mixing based on the tank configuration. The motor shall be a TEFC, 480 VAC, 3 Ph, 60 Hz.
9. The mixers shall be provided by Chemineer.

10. The storage tank shall be provided with an ultrasonic level device to detect the level in the tank.

T. Lime Slurry Metering Pump Skid:
1. Five (5) peristaltic slurry metering pumps (4 duty, 1 standby) shall be provided **to pump 30% - 40% lime slurry** at a rate of 0.05 to 0.13 GPM at 50 psi.
2. The motors shall be a minimum of 1/2 HP, TEFC, 460vac, 3 phase constant speed. The pumps shall be factory wired, piped, and mounted on a common skid.
3. The metering pump skid shall be fabricated of 304 stainless steel and include all piping, valves, instruments, and controls.
4. The metering pump skid shall include the following components.
   a. (5) Pulsation Dampeners
   b. (5) Pressure relief valves with bypass to inlet side
   c. (5) Discharge pressure gauges with isolation
   d. (5) Flow indication devices on each discharge with an alarm for no flow
   e. (5) Calibration cylinders with isolation valves
   f. (1) Pressure gauge with guard
   g. (1) Inlet Y strainer
   h. Isolation valves for each pump unit and appurtenances
   i. Configure system to provide system flushing and at each suction and discharge line. Each flushing connection shall include a male 3/4" quick connect coupling.
   j. Each pump will be piped and configured to discharge to two feed pipes for discharge.
   k. (1) Junction Box
5. The metering pump shall include shut off valve and pressure gauges as shown on the plans.
6. The metering pumps shall be manufactured by Verder or Watson Marlow (Bredel).

U. Lime System Controls:
1. Provide the following control panels for the lime system:
   a. Lime Silo #1 Main Control Panel (72CP72-12)
   b. Lime Silo #2 Main Control Panel (72CP72-13)
   c. Lime Silo #1 Fill Station Control Panel (72LCP101)
   d. Lime Silo #2 Fill Station Control Panel (72LCP201)
2. The main control panels shall be installed in NEMA 12 floor-mounted enclosures as shown in the drawings. The main control panels shall house all electrical components required for a fully functional system. Each main control panel shall accept a 480 VAC, 3 phase power supply. The control panel shall supply all required transformers and power supplies required for a fully functional system.
3. The fill station panels shall be installed in NEMA 4X wall-mounted enclosures as shown on the drawings. Each fill station panel shall house all electrical and controls components required to control the filling of each respective lime silo.
4. Each main control panel shall utilize a programmable logic controller. The PLC shall be capable of communicating with the supervisory system via Ethernet/IP. The PLC shall be an Allen Bradley CompactLogix, without exception.
5. The operator interface terminal shall be located on the front of the enclosure. The operator interface shall have all required software pushbuttons and selector switches for a fully functional system. The operator interface shall display all running indications, all alarm messages. The operator interface shall be an Allen Bradley PanelView Plus 10” display, without exception.
6. Allen-Bradley PowerFlex 525 AC drives shall be provided for each metering pump.
7. All lime system control panels shall be manufactured by the high-density lime system manufacturer in an in-house UL508 panel shop. All control panels with control switches shall be UL508 certified and labeled. Control panels that do not have a UL label will not be accepted.

8. All control panel I/O that is field terminated within classified areas shall be provided with intrinsic safety barriers and all wiring and instrumentation work done in accordance with NFPA70 for Class 2 Division 1 areas.
9. The operator interface terminal shall have the following features:
    a. Control
        1) Manual control of each component of the systems.
        2) Fully automatic control of the slurry make-down process using gain-in-weight control.
        3) Numeric Inputs for the following:
            a) Desired Concentration input (30-40%)
            b) Desired Batch Tank Mix Time input
            c) Desired Storage Tank Mixer Run Duration
            d) Desired Storage Tank Mixer Run Frequency
        4) Running / status indications for the following:
            a) Feeder
            b) Mixer
            c) Water Solenoid Valves
            d) Bin Activator
            e) Exhaust Fan
            f) Transfer Pump 1
            g) Transfer Pump 2
            h) Transfer Pump 3 (standby)
            i) Storage Tank Mixer
            j) Metering Pump 1
            k) Metering Pump 2
            l) Metering Pump 3
            m) Metering Pump 4
            n) Metering Pump 5 (standby)
        5) Numeric Displays for the following:
            a) Actual Feeder Speed (0-100%)
            b) Batch Tank Weight (0-max lbs)
            c) Actual Dilution Water Flow Rate **(Vendor Dependent)**
            d) Actual Silo Level (0-100%)
    b. Metering Pump
        1) Local – Off – Remote for the following:
            a) Metering Pump 1
            b) Metering Pump 2
            c) Metering Pump 3
            d) Metering Pump 4
            e) Metering Pump 5
        2) Numeric Input for the following:
            a) Metering Pump 1 Local Speed Command (0-max gpm)
            b) Metering Pump 2 Local Speed Command (0-max gpm)
            c) Metering Pump 3 Local Speed Command (0-max gpm)
            d) Metering Pump 4 Local Speed Command (0-max gpm)
            e) Metering Pump 5 Local Speed Command (0-max gpm)
        3) Numeric Displays for the following:
            a) Metering Pump 1 Actual Speed (0-max gpm)
            b) Metering Pump 2 Actual Speed (0-max gpm)
            c) Metering Pump 3 Actual Speed (0-max gpm)
            d) Metering Pump 4 Actual Speed (0-max gpm)
            e) Metering Pump 5 Actual Speed (0-max gpm)
            f) Actual Storage Tank 1 Level (0-100%)
            g) Actual Storage Tank 2 Level (0-100%)
        4) Running Indication for the following:
            a) Metering Pump 1

b) Metering Pump 2
c) Metering Pump 3
d) Metering Pump 4
e) Metering Pump 5

c. Alarms (each alarm shall have trouble shooting procedure displayed below alarm message)
1) Alarm messages for the following components:
a) Feeder Fault
b) Bin Activator Overload
c) Hydrated Lime Processing & Mix Tank Mixer Overload
d) Loss of Water Flow
e) Mix Tank Empty
f) Mix Tank High Level
g) Transfer Pump 1 Overload
h) Transfer Pump 2 Overload
i) Storage Tank Mixer 1 Overload
j) Storage Tank Mixer 2 Overload
k) Metering pump 1 Fault
l) Metering Pump 2 Fault
m) Metering Pump 3 Fault
n) Metering Pump 4 Fault
o) Metering Pump 5 Fault
p) Metering Pump 1 Leak Detected
q) Metering Pump 2 Leak Detected
r) Metering Pump 3 Leak Detected
s) Metering Pump 4 Leak Detected
t) Metering Pump 5 Leak Detected

2.3 PAC EQUIPMENT

A. The manufacture shall provide one unit of powder activated carbon (PAC) system rated for 25.6 MGD (80% of full flow) of feed capacity and the following conditions.

Dosage (mg/L)	Flow (MGD)
2.0	**3**
5.3	**8.6**
10	**12.8**
40	**12.8**

B. Storage silo
1. Each storage silo shall be of all welded, mild steel construction, the silo shall be leg supported. Silo roof, straight-wall, and cone shall be fabricated of ASTM A-36 steel per manufacturer's professional engineer's design based on the silo diameter, height, and configuration. The maximum overall silo height shall be approximately 46 feet, excluding bin vent filter and dust collector, and 12 feet in diameter. The height of the silo shall be such that the usable capacity of the storage section can hold 2,500 cubic feet of PAC.
2. A flange shall be provided on the silo for mating the building to the silo at the roof interface.
3. The storage silo shall be designed to accommodate all dead loads including vibration from bin vibration devices plus a full live load of chemical having a bulk density of 25 pounds per cubic foot. Seismic load forces shall be per IBC 2021.
4. The interior of the storage compartment shall be smooth with no inward projecting elements (except for plates to protect the bin level sensors specified elsewhere).
5. The storage bin shall be completely dust-tight and watertight. All connections to the storage compartments shall be by flanged gasketed connections. Gaskets shall be of the

full-faced type of neoprene or approved equal. All bolted connections shall utilize zinc plated or stainless-steel nuts, bolts, and washers.

6. The storage section shall be structurally designed to store the required chemical. The storage section shall have all components including but not limited to level devices, and ~~**shaker style**~~ bin vent.
7. Painting and Preparation:
   a. Sandblast to SSPC-SP-6.
   b. Primer shall be corrosion inhibitive polyamide epoxy primer.
   c. Finish coat shall be a two-coat polyurethane. It shall be factory applied and thermally cured.

C. Bin Roof:
1. The bin roof shall be pitched 1:12 for drainage purposes. The roof shall be designed to support all roof appurtenances, plus superimposed live load of at least 50 pounds per square foot.
2. At least four (4) lifting lugs shall be provided at the top of the bin. Lifting lugs shall be ¾-inch thick or larger steel plate with 2-inch diameter hole for use with lifting devices.
3. Railings and kick plates shall be provided around the perimeter of the storage bin roof as shown on the drawings. All ladders, cages, platforms, and handrails shall conform to OSHA standards as well as any other applicable building or safety codes. All handrails shall be 2-rail handrail type with kick plate.
4. The bin roof shall have the following connections:
   a. A flanged nozzle type connection of ¼-inch steel plate suitable to support the bin vent filter.
   b. A 24-inch diameter (minimum) steel man way with hinged, gasketed cover and handle-type locking mechanism.
   c. A flanged nozzle suitable for use with the high-level sensor.
   d. A flanged nozzle suitable for use with a guided radar sensor.
   e. A flanged nozzle suitable for use with the target box of the chemical supply piping.

D. Discharge Hopper:
1. The discharge hopper shall be cone shaped with a side slope measuring 60 degrees from horizontal. The bottom of the hopper shall have a flanged connection and drilled to match the equipment specified herein.
2. The side of the storage compartment and silo discharge cone shall include opens for **the level transmitter, high- and low-level sensors**, and located to be accessible to the operators from the silo ladder. Pitched plates with angles greater than the angle of repose of the chemical being stored shall be positioned above the level sensor to protect the sensor from falling material during silo filling. These plates shall be the only protrusion on the inside silo wall.
3. Size of anchoring pressure plates **or stirrups** shall be determined by manufacturer's design as designed by a professional engineer.

E. Wall Penetrations:
1. All wall penetrations shall have a minimum thickness of 1/4-inch for all square or rectangular shapes, all round penetrations shall not be less than schedule 40. All penetrations shall be completely seal welded.

F. Flanges:
1. Where applicable, all flanges shall be a minimum 150-pound connection unless otherwise noted within these specifications.

G. Angle Rings shall be provided at the cone intersect and silo roof intersect if required by manufacturers manufacturing process. Angle rings shall be 3" x 3" x ¼" rolled angle. If required for structural purposes, a suitable flat plate is acceptable.

H. Bin Level Measurement:

1. **Provide a radar level meter with transmitter for the silo.**
2. Bin level switches shall be mounted for high- and low-level indication in the chemical storage bin. All bin level switches shall be easily accessible. An audible and visual alarm shall be activated when either high or low-level bin switch is activated. High- and low-level switches shall include an extra set of contacts for user direct hookup on terminal strips provided in the main control panel for remote monitoring purposes.

I. Bin Activators:

1. A heavy-duty, motor driven bin activator shall be mounted to the silo cone. The bin activator shall be a minimum of 6-foot diameter with a discharge opening suitably sized for the mating equipment. Controls of the bin activator will be inter-locked with the feeder control circuit and will operate only when the feeder is in operation.
2. The bin activator shall operate on 460 volt, three-phase power.

J. Maintenance / Knife Gate:

1. A manually operated, slide type maintenance gate shall be provided between the cone and flexible connection.
2. The bin gate shall be manually operated, dust tight and arranged for easy access by plant operators.
3. The bin gate shall be manually operated with a chain wheel arrangement for ease of operation from underneath the silo discharge cone.
4. The bin gate shall have a minimum clear opening of 144 square inches to provide chemical flow out of the storage bin.

K. Bin Vent Filter:

1. **Reverse Jet Filter**
   a. Fan assisted, reverse jet cleaned cartridge filter, with base mounting flange for silo venting applications.
   b. Hot rolled mild steel, 7 gauge thick, fully welded fabrication, powder coated.
   c. Thermal bonded pleated polyester tubular filter cartridges incorporating *uniclean* enhanced cleaning insert:
      1) Total number of cartridges: 6
      2) Individual filter cartridge area: 43 ft^2
      3) Total filter area: 258 ft^2
      4) Cartridge media: CA100 polyester.
   d. Air compressor with compressed air reservoir (steel, 2.3 gallon).
      1) Max working pressure: 102 psi
      2) Test Pressure: 189 psi
      3) Normal cleaning pressure cartridges: 80 psi
      4) Compressed air consumption (typical): 2.1 ft^3 per pulse
      5) * For standard 10 sec. interval between pulses, this is equivalent to (3.9 cfm@NTP) for continuous operation over typical duty cycle.
   e. Cleaning valves, a combination 1" diaphragm / solenoid valves, 24vdc.
   f. Number of cleaning valves: 3 (each valve services 2 cartridges)
   g. Reverse jet timer with 6 way printed circuit board, IP65 enclosure and 1 amp fuse.
   h. Fan assist to be high efficiency backward curved fan, 3 hp, 230/460 3 phase induction motor.
   i. A 1" copper airline shall be installed on the side of the silo to supply air to the bin vent.
2. **Alternatively, provide a mechanical shaker type collector, like Section 2.2 K above.**

L. Fill Piping:

1. Conveying Pipe: A 4-inch diameter, Schedule 40, carbon steel conveying pipe shall be furnished complete with all the necessary compression type couplings. Conveying pipe shall begin at the truck unloading station and terminate at the inlet target box. Fill system

conveying pipe shall be mounted at the factory and removed for shipping purposes. The CONTRACTOR shall be responsible for re-mounting the conveying pipe in the field.

2. Long Radius Elbows: Wherever the filling pipe makes a turn, a 4-inch diameter Schedule 40, carbon steel elbow, 4 ft. radius (minimum), shall be provided and installed. Compression type couplings shall be provided to join the elbows with the vertical fill lines, the inlet target box, and the individual horizontal/vertical runs.
3. Fill System Pipe Adapter: A 4-inch bronze Kamlock type adapter shall be mounted on the fill pipe at the truck unloading station. A bronze or painted carbon steel dust cap and chain shall be provided.
4. Limit Switch:
    a. A limit switch shall be mounted on the pipe adapter to provide automatic operation of the bin vent filter, during and after truck unloading cycle. Limit switch assembly shall be adjustable and secured to a heavy-duty mounting bracket for dependable operation. Limit switch shall be complete with two sets of N.O. and two sets of N.C. contacts wired into the unloading control panel to numbered terminal strips for remote indication.

M. Inlet Target Box: A heavy-duty inlet target box shall be mounted on the storage bin roof flanged connection. Target box shall be designed to kill the velocity of the chemical being conveyed and allow it to drop into the storage bin in an even pattern. Target box shall be provided with a removable end cap to facilitate cleaning of the fill system.

N. Truck Unloading Control Panel:
1. A NEMA 4X stainless steel control panel shall be wall mounted at the termination of the fill pipe and as shown in the drawings. Panel shall be pre-wired by the supplier and contain, but not be limited to the following items of equipment: **Bin level display, high- and low- bin level indicating lights**, alarm horn with press-to-test pushbuttons, H-O-A switches for bin vent filter motor(s) for operating bin vent filter ~~**mechanical bag shaker**~~. Numbered terminal strips pre-wired for connection of bin level alarms and unloading indication and a numbered terminal strip with at least 25 percent extra terminal blocks shall be provided. A truck unloading station shall be installed and tested at the factory. The truck unloading panel shall be integrated into the silo PLC. All wires shall be numbered with shrink-tube type labels.

O. Volumetric Feeder:
1. Provide a volumetric screw feeder to accurately and reliably meter PAC from the feed hopper to the PAC processing and mix tank.
2. The feeder body shall be fabricated of not less than 10-gauge 304 stainless steel.
3. All welds feeder body welds shall be ground smooth and polished, and shall be passivated.
4. The screw feeder auger shall be 304 stainless steel and of the solid shaft design.
5. A heavy-duty gear motor shall be mounted to the feeder body with a stainless-steel adapter having a double lip seal to seal the feed section of the hopper from the feeder drive.
6. The feeder shall be the Barracuda series (VeloDyne) or the 100-V2 series (Merrick).

P. Transitions:
1. Provide a flexible transition required to **interconnect PAC feeder** to silo discharge while reducing vibration transfer from the bin activator to the process equipment.
2. Provide rigid transitions as required to **interconnect PAC feeder** to the flexible transition at the silo discharge.

Q. PAC Processing and Mix Tank:
1. The PAC processing and mix tank shall have a minimum usable capacity of 100 gallons.
2. The tanks shall be constructed of 10-gauge type 304 stainless steel.

3. The tank shall include a minimum of four (4) hold down clips for anchoring to silo floor structure.
4. The tank design shall provide for a minimum of 6" freeboard and will include overflow and drain connections.
5. The mix tank shall have, as a minimum, the following connection:
    a. Inlet water connection with air gap
    b. Inlet dust / vapor remover connection with air gap
    c. Level Sensor
    d. Tank drain / overflow connection
    e. Pump Suction
6. All PAC mix tank piping shall be rigidly mounted on the tank at the factory.
7. The mix tank will have a dilution water assembly consisting of:
    a. Isolation ball valve
    b. Pressure reducing valve with strainer
    c. Low pressure switch, explosion proof (Class 2, Div 1 per NFPA 499)
    d. Pressure gauge
    e. Rotameter Flowmeter, 2-20 GPM
    f. Solenoid valve, explosion proof (Class 2, Div 1 per NFPA 499)
    g. Globe valve, one for dilution water fill control, one for dust / vapor suppression system
    h. Schedule 80 PVC piping and fittings
8. The tank shall have easy access to internal operating devices for observing operation and performing routine maintenance. The solution tank shall have gasketed stainless steel hinged or lift-off cover to observe operation and provide access to all system components within the tank.
9. A mechanical mixer shall be provided to maintain a uniform strength solution or slurry. The mixer shaft and mixer blades shall be type 316 stainless steel. The mixer motor shall be a minimum 3/4 HP, TEFC, 460 VAC, 3 Ph, 60 Hz. The motor shall be explosion proof (Class 2, Div 1 per NFPA 499).
10. The PAC mix tank shall be provided with an ultrasonic-type level sensor for controlling the batch process and monitoring high-high and low-low level alarm conditions. All alarm functions will include a common alarm silence push-button on the main control panel HMI. The level points shall be as follows:
    a. High-Level Alarm: This alarm function shall illuminate an indicator on the control panel HMI, sound an audible alarm on the control panel, close a dry contact for remote alarm indication, close the water supply solenoid, and shut off the dry chemical feeder.
    b. Low-Level Alarm: This alarm function shall illuminate an indicator on the control panel HMI, sound an audible alarm on the control panel, close a dry contact for remote alarm indication, close the water supply solenoid, shut off the dry chemical feeder and shutdown the metering pumps.

R. PAC Slurry Metering Pump Skid:
1. **The design of the metering pump skid is delegated to the manufacturer. Manufacturer to determine the size and number of pumps required to provide a combination of peristaltic slurry metering pumps (with one standby), rated with a capacity of 50 psi, to dose a 5% to 10% PAC slurry to each PAC contactor (2) at the following conditions.**

Dosage (mg/L)	Flow (MGD)
2.0	3
5.3	8.6
10	12.8
40	12.8

Should the proposed pump combination differ from the drawings (72-P101), submit proposal for engineer's approval.

2. The motors shall be a minimum of 1/2 HP, inverter duty, 480vac, explosion proof (Class 2, Div 1 per NFPA 499). The pumps shall be factory wired, piped, and mounted on a common skid.
3. The metering pump skid shall be fabricated of 304 stainless steel and include all piping, valves, instruments, and controls.
4. The metering pump skid shall include the following components.
    a. Pulsation Dampeners for each pump unit
    b. Pressure relief valves with bypass to inlet side for each pump unit
    c. Discharge pressure gauges with isolation for each pump unit
    d. Flow indication devices on each discharge with an alarm for no flow
    e. Calibration cylinders with isolation valves for each pump unit
    f. (1) Pressure gauge with guard
    g. (1) Inlet Y strainer
    h. Isolation valves for each pump unit and appurtenances
    i. Configure system to provide system flushing and at each suction and discharge line. Each flushing connection shall include a male 3/4" quick connect coupling.
    j. All piping on the skid shall be SS braided flexible piping with camlock connections
    k. (1) Junction Box
5. The metering pump shall include shut off valve and pressure gauges as shown on the plans.
6. The metering pumps shall be manufactured by Verder or Watson Marlow (Bredel).

S. Carrier Water Panel:
1. A carrier water panel shall be provided for the slurry metering pumps, consisting of the following:
    a. One (1) inlet
    b. One (1) isolation ball valve
    c. One (1) pressure reducing valve with strainer
    d. One (1) low pressure switch, explosion proof (Class 2, Div 1 per NFPA 499)
    e. One (1) pressure gauge, 0-100 PSI
    f. Three (3) flowmeter
    g. Three (3) solenoid valves, explosion proof (Class 2, Div 1 per NFPA 499)
    h. Three (3) Globe valves
2. Schedule 80 PVC piping and fittings
3. Wall mountable back panel frame: 304 stainless steel.

T. PAC System Controls:
1. Provide the following control panels for the lime system:
2. PAC Silo Main Control Panel (72CP72-11)
3. PAC Silo Fill Station Control Panel (72LCP301)
4. The main control panel shall be installed in NEMA 12 floor-mounted enclosure as shown in the drawings. The main control panels shall house all electrical components required for a fully functional system. Each main control panel shall accept a 480 VAC, 3 phase power supply. The control panel shall supply all required transformers and power supplies required for a fully functional system.
5. The fill station panel shall be installed in an outdoor, Class 2, Division 2 rated wall-mounted enclosures as shown on the drawings. The PAC fill station panel shall house all electrical and controls components required to control filling of the PAC silo.
6. The system shall utilize a programmable logic controller. The PLC shall be capable of communicating with the supervisory system via Ethernet/IP. The PLC shall be an Allen Bradley CompactLogix, without exception.
7. The operator interface terminal shall be located on the front of the enclosure. The operator interface shall have all the required software pushbuttons and selector switches for a fully functional system. The operator interface shall display all running indications, all alarm messages. The operator interface shall be an Allen Bradley PanelView Plus 10” display, without exception.

8. Provide Allen-Bradley PowerFlex 525 AC drives for each metering pumps.
9. The main control panel shall be manufactured by the PAC system manufacturer in an in-house UL508 panel shop. All control panels with control switches shall be UL508 certified and labeled. Control panels that do not have a UL label will not be accepted.
10. All control panel I/O that is field terminated within classified areas shall be provided with intrinsic safety barriers and all wiring and instrumentation work done in accordance with NFPA70 for Class 2 Division 1 areas.
11. The operator interface terminal shall have the following features:
    a. Auto Control
        1) System LOCAL/AUTO
        2) Bin Activator ON/OFF (LOCAL mode only)
        3) Bin Activator JOG
        4) Feeder ON/OFF (LOCAL mode only)
        5) Dilution Water Solenoid Valve OPEN/CLOSE (LOCAL mode only)
        6) Tank Mixer ON/OFF (LOCAL mode only)
        7) When in LOCAL mode, the system shall have START/STOP selector switches for manual starting and stopping of each component and for setting the desired volumetric feed rate.
        8) When in AUTO mode, the system shall automatically start & stop based on tank level. The volumetric feeder will run based on a desired slurry concentration set by the operator.
    b. Metering Pump & Carrier Water Control
        1) Metering pump #X ON/OFF/REMOTE – for all metering pumps provided by manufacturer.
        2) When the metering pump is in the ON mode, the metering pump will start, and the rate will be adjustable at the local HMI. When the metering pump is in the REMOTE mode, the metering pump will receive remote start / stop signals from SCADA and the rate will be controlled from SCADA.
        3) Metering pump #X carrier water ON/OFF/AUTO - for all metering pumps provided by manufacturer.
        4) When the carrier water is in the ON mode, the carrier water solenoid valve will open. When the carrier water is in the AUTO mode, the carrier water solenoid valve will open when the pump is started either locally or remotely.
    c. Running / Open indications for the following:
        1) Feeder
        2) Tank Mixer
        3) Dilution Water Solenoid Valve
        4) Bin Activator
        5) Metering Pump #X – All metering pumps
        6) Carrier Water Dilution Water Solenoid Valve #X – as determined by manufacturer.
    d. Actual Speed Readout for the following:
        1) Actual Feeder Speed (0-100%)
        2) Metering Pump #X (0-100%) - for all metering pumps provided by manufacturer.
    e. Alarms
        1) Alarm messages for the following alarms:
            a) Tank Mixer Overload
            b) Feeder Fault
            c) Bin Activator Overload
            d) Pump #X Overload – for all metering pumps provided by manufacturer
            e) Pump #X High Discharge Pressure – for all metering pumps provided by manufacturer
            f) Carrier Water System Low Pressure
            g) Mix Tank Low-Low Level

h) Mix Tank High-High Level

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify layout and orientation of tank, equipment, accessories, and connections.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

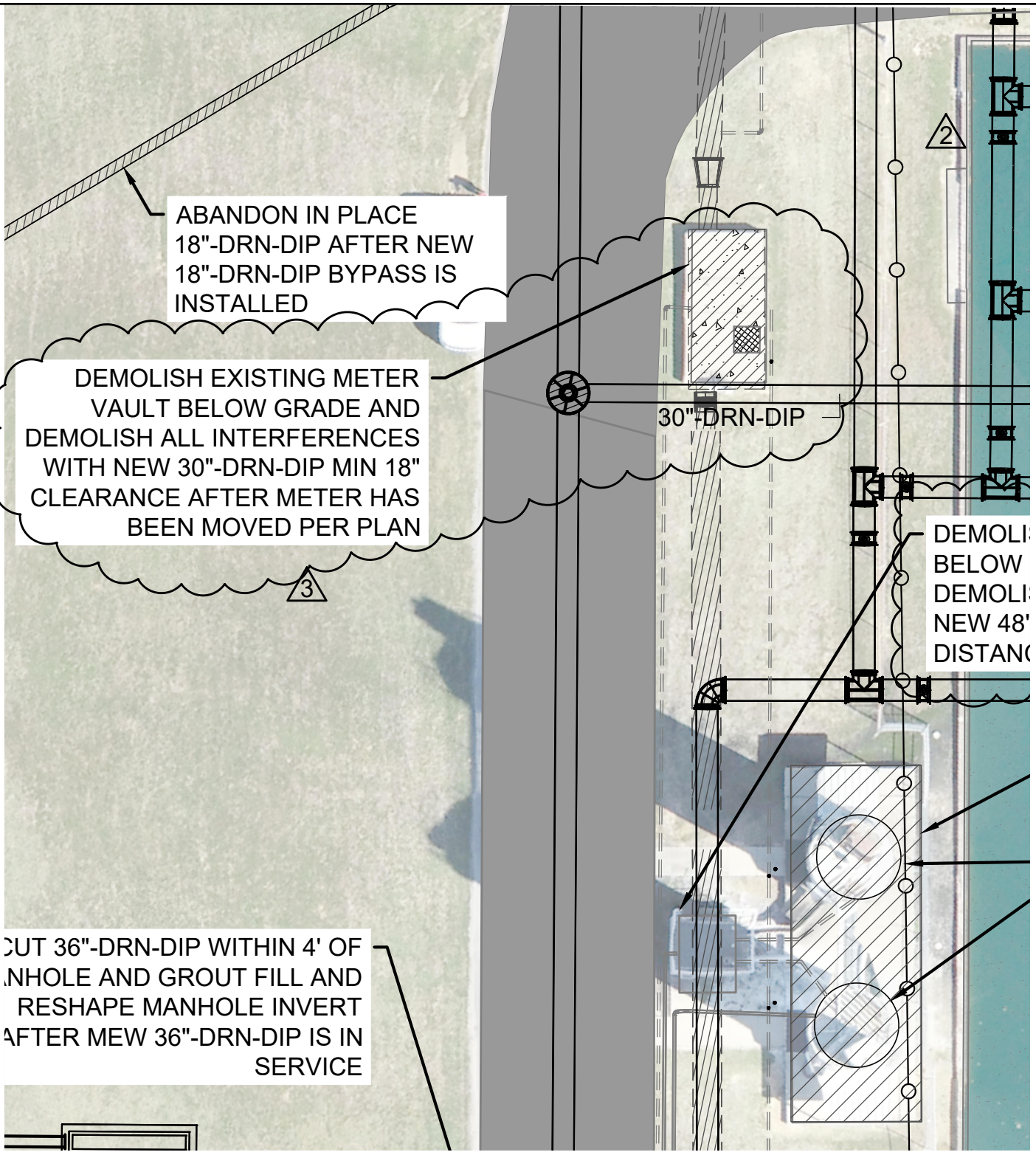
3.2 INSTALLATION

A. The contractor shall assume full responsibility for installation of the hydrated lime and PAC system, including the sub-assembly of major components, field, piping, interconnecting wiring, and all supports, and miscellaneous hardware not specifically stated. The work shall include bringing the required sources of power, water, and compressed air to the system suppliers' termination points.

3.3 DEMONSTRATION

A. Manufacturer Services:
   1. **The manufacturer's factory representative shall remain on site to observe installation and operation of equipment and advise personnel for all 3 systems. Selected vendor will be required to assist with startup and training, up to 3 separate trips, for a total of 7 days.**

END OF SECTION



YARD PIPING DEMOLITION

PLAN

SCALE = 1" = 20'

N

0 1"

1" = 1"

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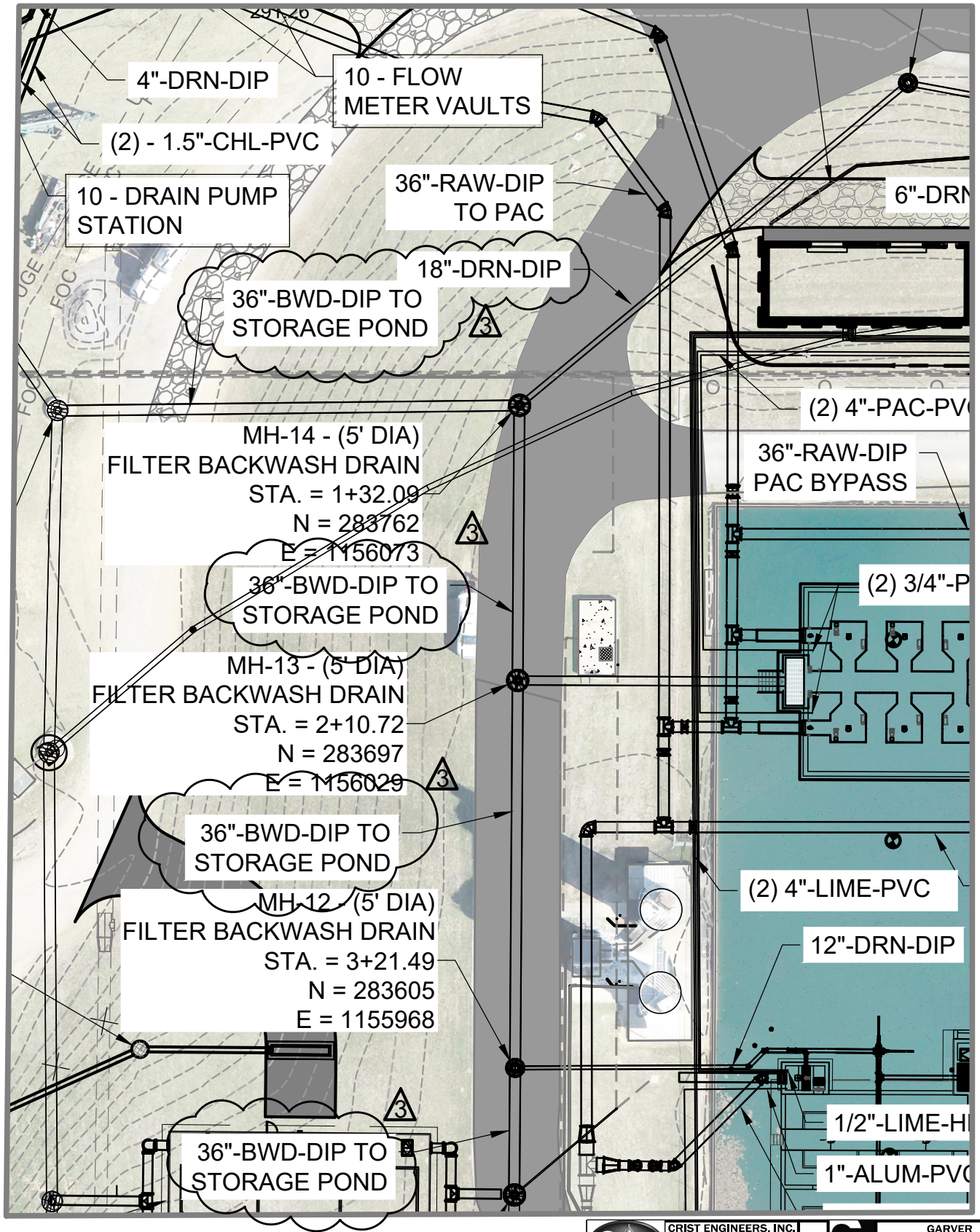
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ROGER Q. MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

MSC. YARD PIPING DEMOLITION 2

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OVERALL YARD PIPING 1

PLAN

SCALE = 1"= 40'

N

0 1"

1" = 1"

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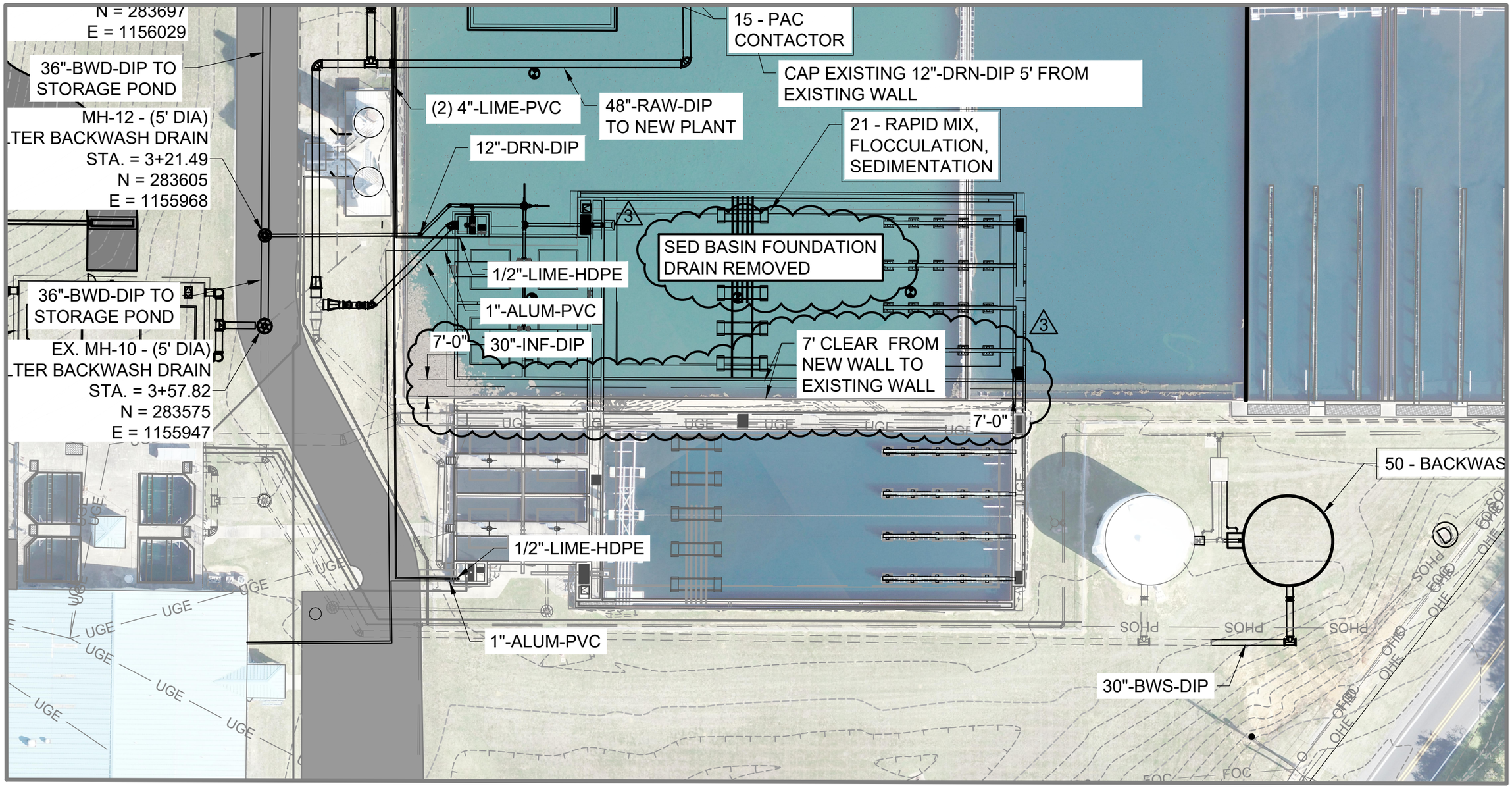
ROGER Q. MILLS JR. WATER TREATMENT PLANT

8 MGD EXPANSION & IMPROVEMENTS

OVERALL YARD PIPING 1

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OVERALL YARD PIPING 1

PLAN

SCALE = 1"= 40'

N

0 1"

1" = 1"

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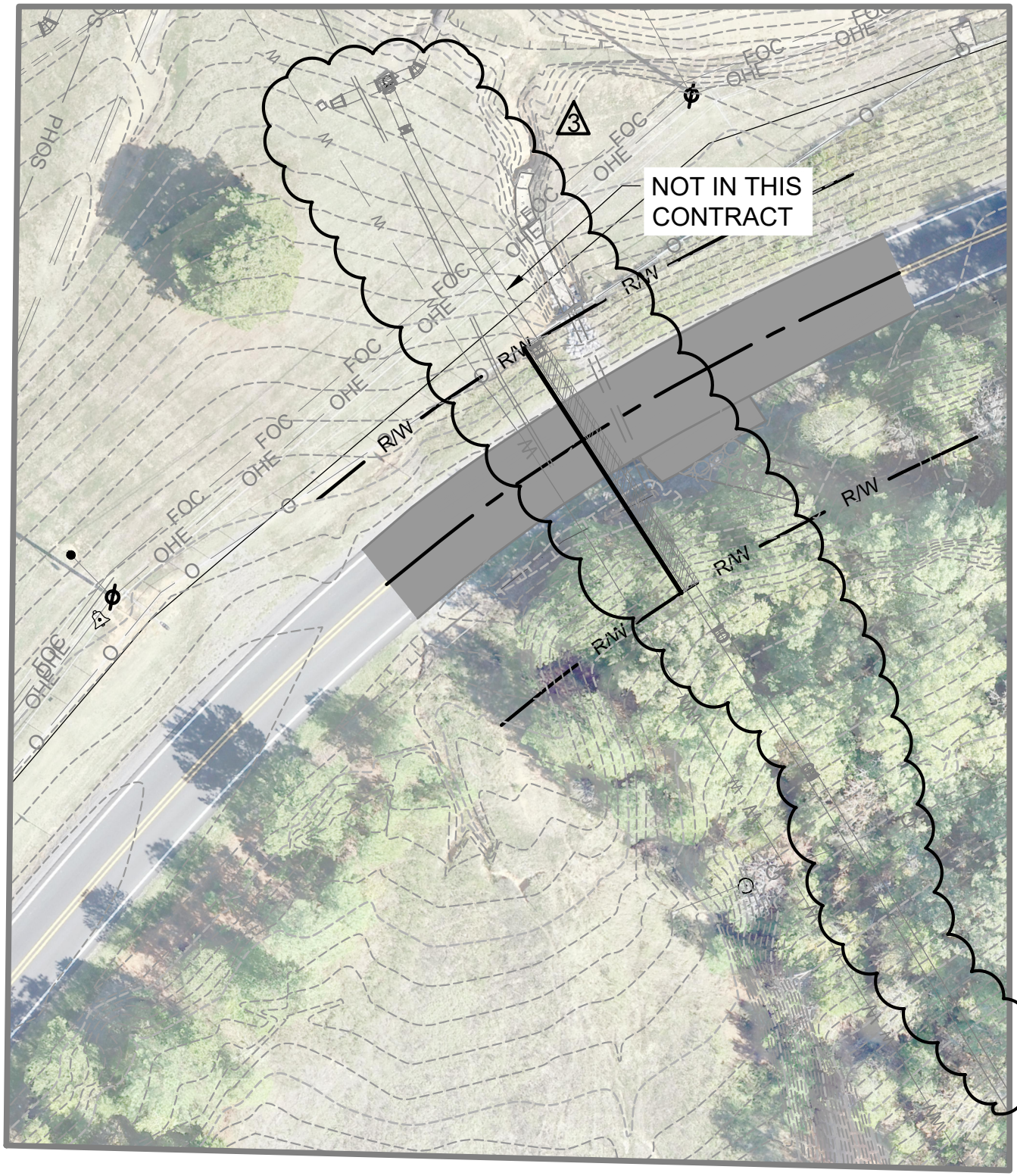
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8 MGD EXPANSION & IMPROVEMENTS

OVERALL YARD PIPING 1

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OVERALL YARD PIPING 1

PLAN

SCALE = 1"= 40'

N

0 1"

1" = 1"

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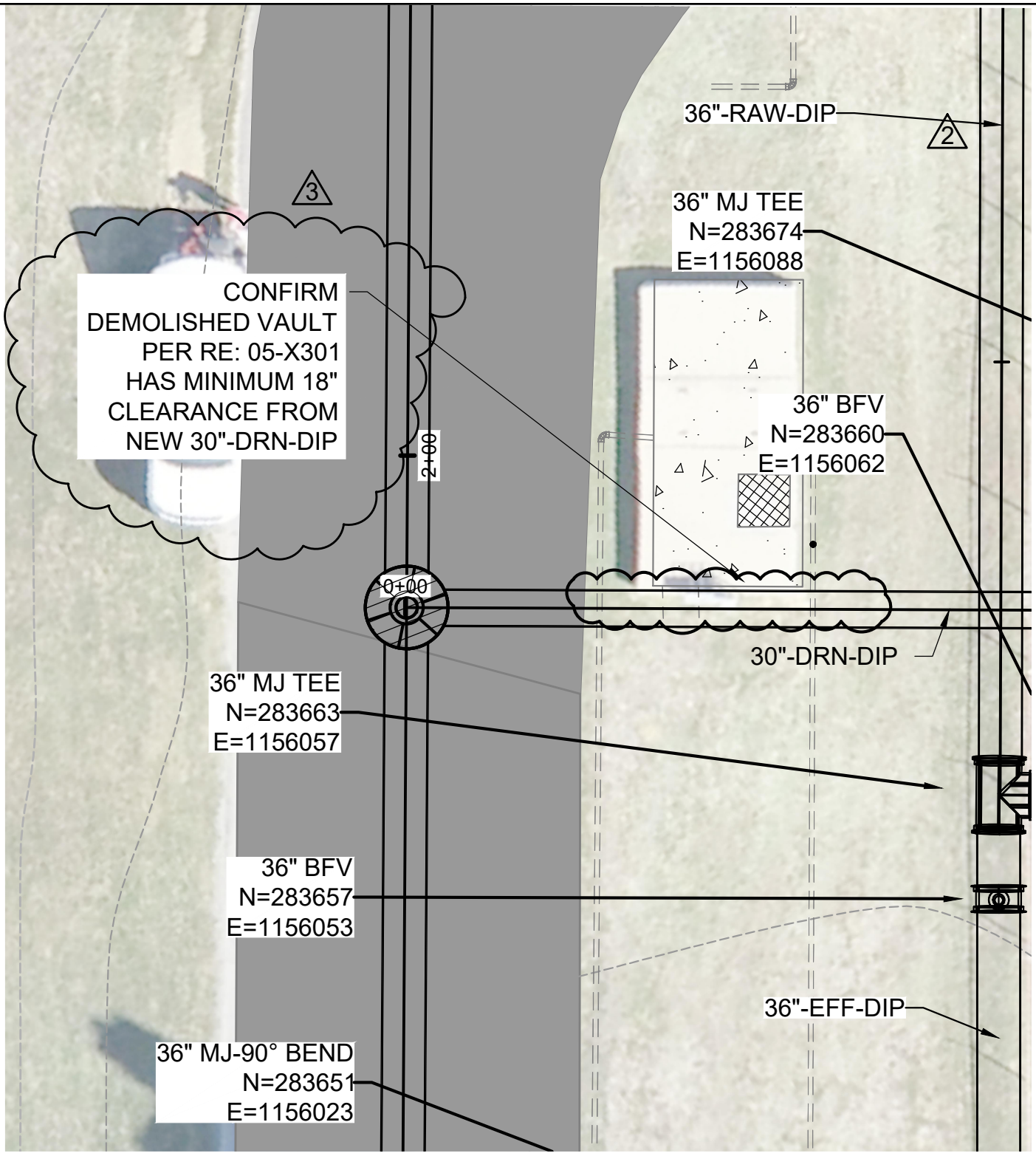
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8 MGD EXPANSION & IMPROVEMENTS

OVERALL YARD PIPING 1

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YARD PIPING DEMOLITION

PLAN

SCALE = 1" = 10'

N

0 1"

1" = 1"

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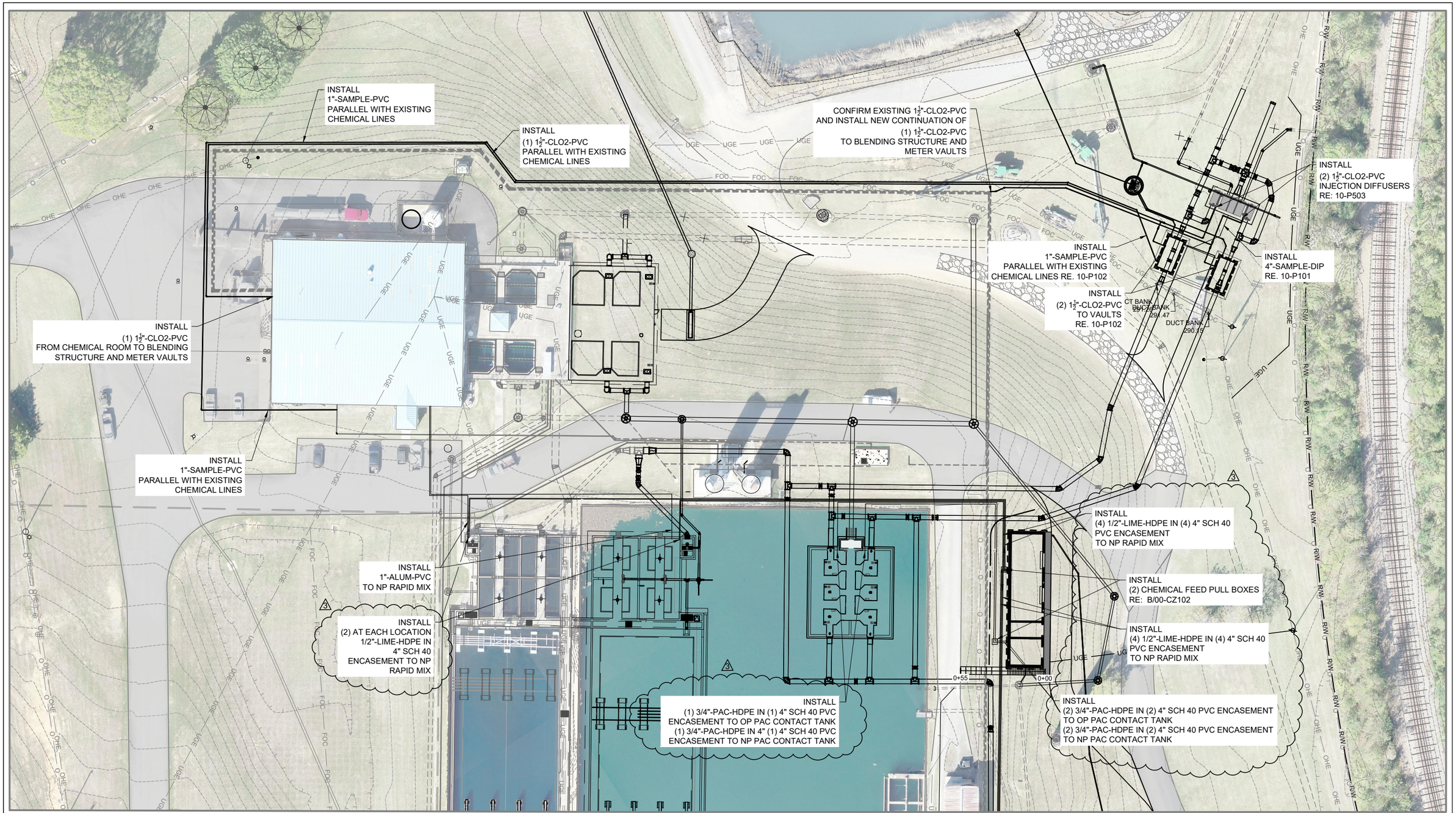
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8 MGD EXPANSION & IMPROVEMENTS

OVERALL YARD PIPING 2

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MISC. CHEMICAL PIPING
PLAN
SCALE = #########

0 1"
1" = 1"

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MISC. CHEMICAL PIPING PLAN

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CHECKED: CAJ	SCALE: NOT TO SCALE		REF SHEET 05-C104

0+00

0+55

PAC EFFLUENT

CONTRACTOR RESPONSIBLE TO INVESTIGATE EXISTING 12"-DRN-DIP AND WORK WITH ENGINEER FOR ATTACHMENT DETAIL TO UTILIZE EXISTING DRAIN LINE.

8" HDPE TO 12" DI WITH FERNCO TRANSITION WITH SS BANDS RE: DETAIL C\ 00-CZ105

UGE

3

DAYLIGHT 12"-DRN-DIP @ ELEVATION FLOWLINE 297.40. INSTALL 12" PRECAST HEADWALL WITH SLIP ON DUCKBILL WITH SS BANDS

12" UD-DIP

12"-DRN-DIP @ -1.42% GRADE

12" DIP THROUGH EXISTING WALL FLOWLINE=299.5 RE: DETAIL C\ 00-CZ105

8" HDPE TO 12" DIP WITH FERNCO TRANSITION WITH SS BANDS RE: DETAIL C\ 00-CZ105

8" X 8" HDPE TEE (TYP. OF SAME INTERSECTIONS)

8"-UD-HDPE (TYP. OF LATERALS)

8"-UD-HDPE

8" X 8" HDPE TEE (TYP. OF SAME INTERSECTIONS)

30'-0"±

10'-0"±

25'-0"±

22'-0"±

30'-0"±

(2)8" X 8" HDPE TEE (TYP. OF SAME INTERSECTIONS)

RE: DETAIL C\ 00-CZ105

COMPOSIT DRAINAGE NET RE: DETAIL E\ 00-CZ105

8" HDPE 90° BEND (TYP. OF SAME INTERSECTIONS)

295

296

P:\2021 Projects\2135 – Conway Corporation RQMJWTP Design Memorandum\06 – CADD\02 – Civil\2135 – 3d yard piping.dwg

BASIN FILL UNDERDRAIN

PLAN

SCALE = 1"= 40'

N

0 1"

1" = 1"

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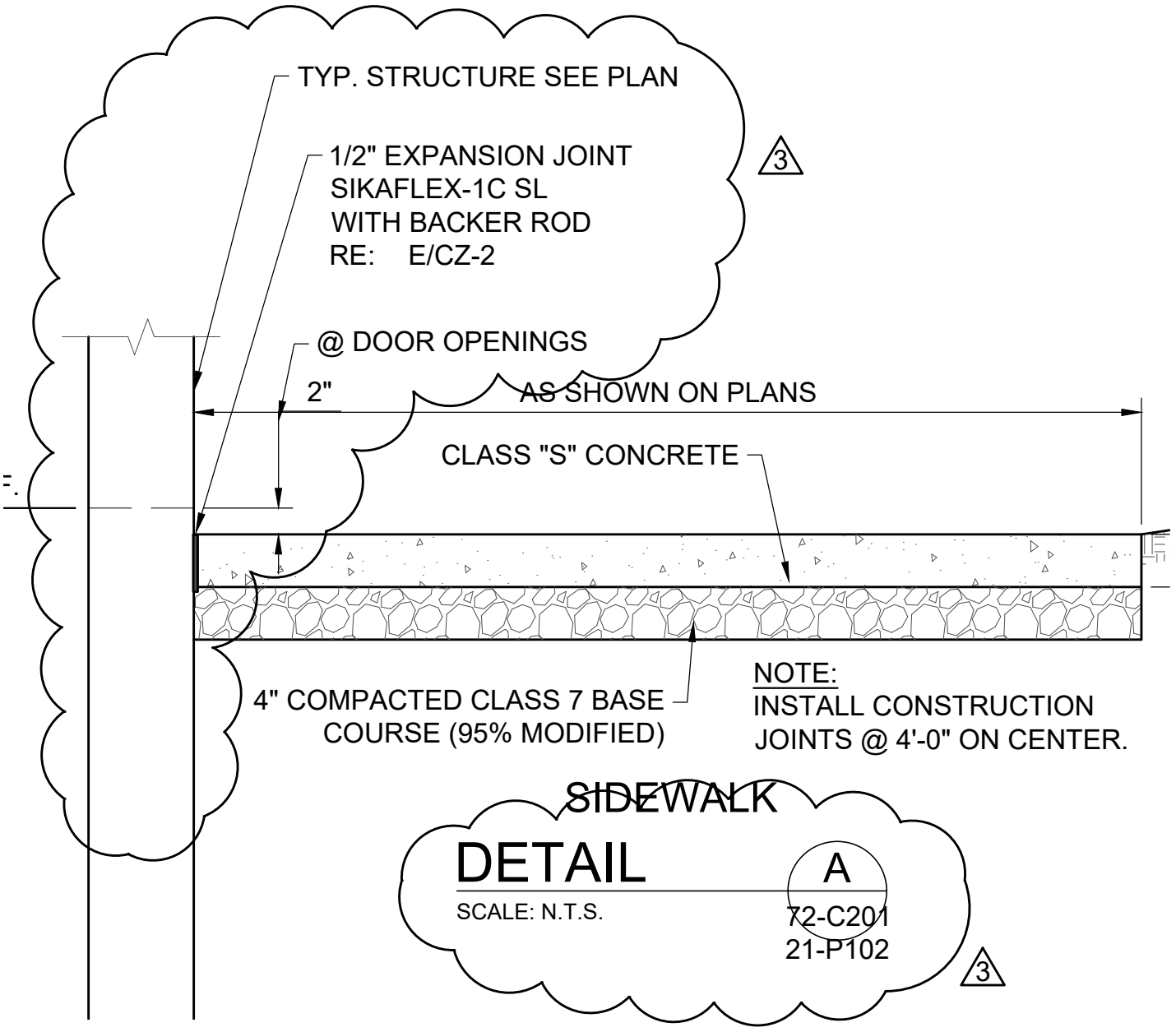
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8 MGD EXPANSION & IMPROVEMENTS

BASIN FILL UNDERDRAIN PLAN

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CHECKED: CAJ	SCALE: NOT TO SCALE		REF SHEET 05-C105



SIDEWALK DETAIL A

SCALE: N.T.S.

72-C201
21-P102

3

0 1"

1" = 1"

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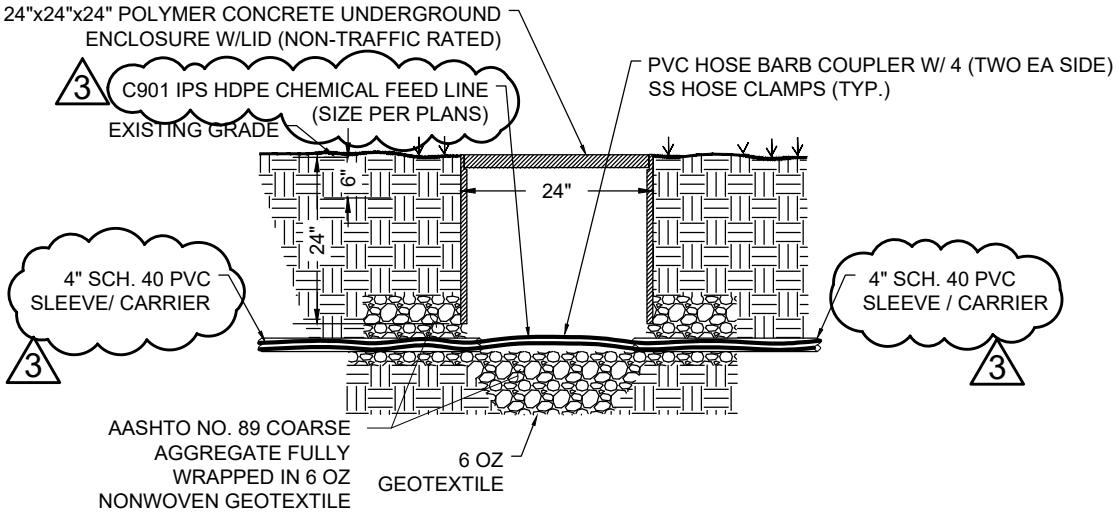
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8 MGD EXPANSION & IMPROVEMENTS

CIVIL DETAILS II

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HDPE FEED LINE PULL BOX

DETAIL B

N.T.S. 05-C104

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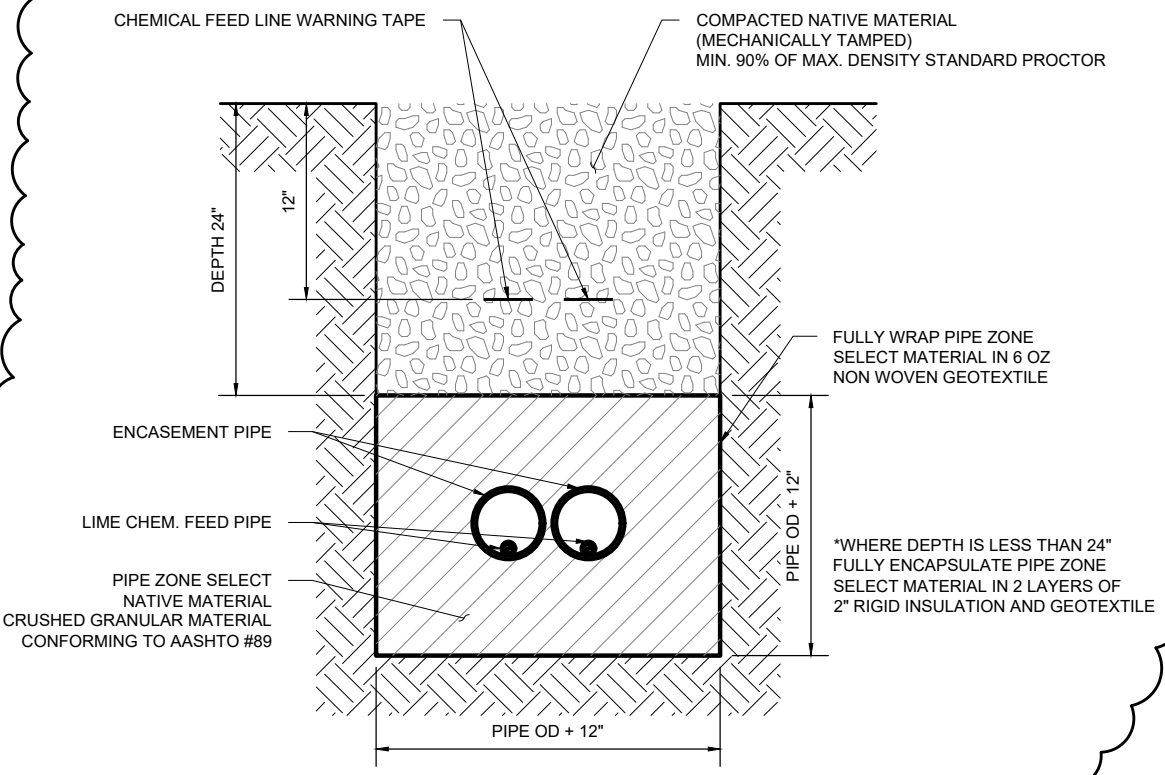
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8 MGD EXPANSION & IMPROVEMENTS

CIVIL DETAILS III

DESIGNED: CAJ	CRIST JOB NO. 2135	DATE 6/04/24	ADD. NO. 3
DRAFTED: MAB	GARVER JOB NO. 19W01300		
CHECKED: CAJ	SCALE: NOT TO SCALE		REF SHEET 00-CZ102

FEED POINT LOCATION	SIZE	TYPE	QUANTITY
OLD PLANT (OP) RAPID MIX No. 1	1/2"	CHEM. FEED-HDPE	2
	4"	ENCASEMENT-SCH. 40 PVC	2
OLD PLANT (OP) RAPID MIX No. 2	1/2"	CHEM. FEED-HDPE	2
	4"	ENCASEMENT-SCH. 40 PVC	2
NEW PLANT (NP) RAPID MIX No. 3	1/2"	CHEM. FEED-HDPE	2
	4"	ENCASEMENT-SCH. 40 PVC	2
NEW PLANT (NP) RAPID MIX No. 4	1/2"	CHEM. FEED-HDPE	2
	4"	ENCASEMENT-SCH. 40 PVC	2



LIME FEED AND ENCASEMENT LINE TRENCHING

DETAIL B
N.T.S. 05-C104

3

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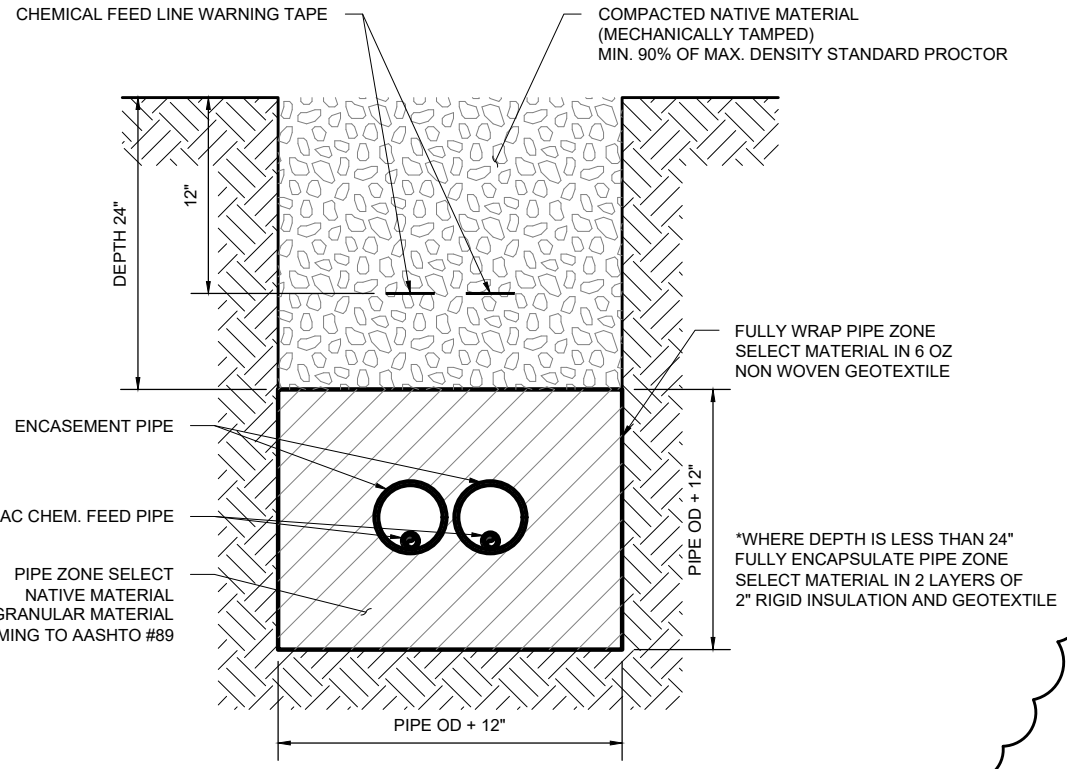
ROGER Q. MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

CIVIL DETAILS VII

DESIGNED: CAJ	CRIST JOB NO. 2135	DATE	ADD. NO.
DRAFTED: KEG	GARVER JOB NO. 19W01300	6/04/24	3
CHECKED: CAJ	SCALE: NOT TO SCALE		REF SHEET NEW 00-CZ105A

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FEED POINT LOCATION	SIZE	TYPE	QUANTITY
OLD PLANT (OP) CONTACT BASIN TRAIN 1	3/4"	CHEM. FEED-HDPE	1
	4"	ENCASEMENT-SCH. 40 PVC	1
NEW PLANT (NP) CONTACT BASIN TRAIN 2	3/4"	CHEM. FEED-HDPE	1
	4"	ENCASEMENT-SCH. 40 PVC	1



PAC FEED AND ENCASEMENT LINE TRENCHING

DETAIL C

N.T.S. 05-C104

3

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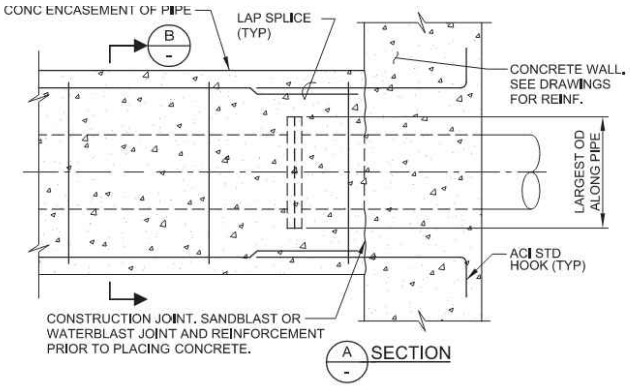
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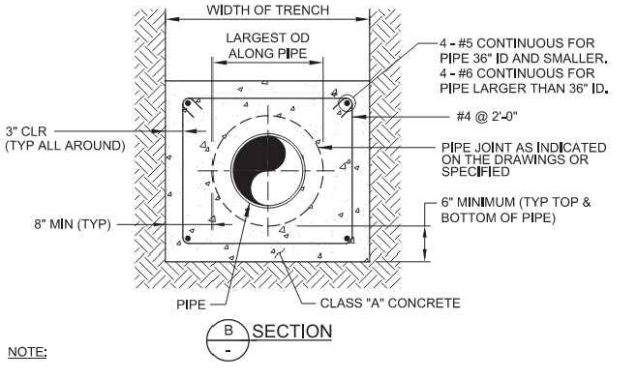
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8 MGD EXPANSION & IMPROVEMENTS

CIVIL DETAILS VII

DESIGNED: CAJ	CRIST JOB NO. 2135	DATE	ADD. NO.
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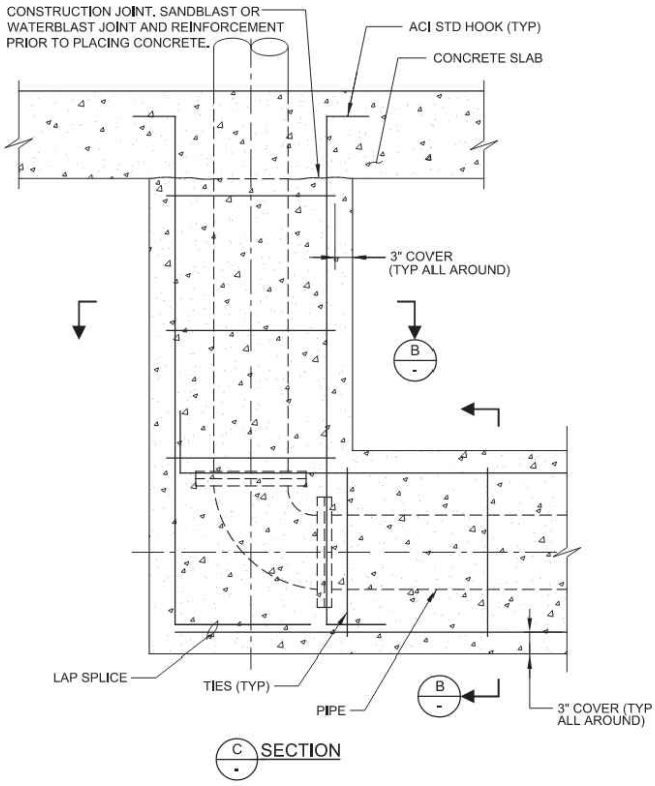
NOTE:

1. TYPE OF PIPE AND TYPE OF PIPE JOINT OR COUPLER AS INDICATED ON THE DRAWINGS.

P040 TYP — CONCRETE ENCASEMENT OF PIPE

NS

SHEET 1 OF 2 03/24/15



P040 TYP — CONCRETE ENCASEMENT OF PIPE

NS

SHEET 2 OF 2 03/24/15

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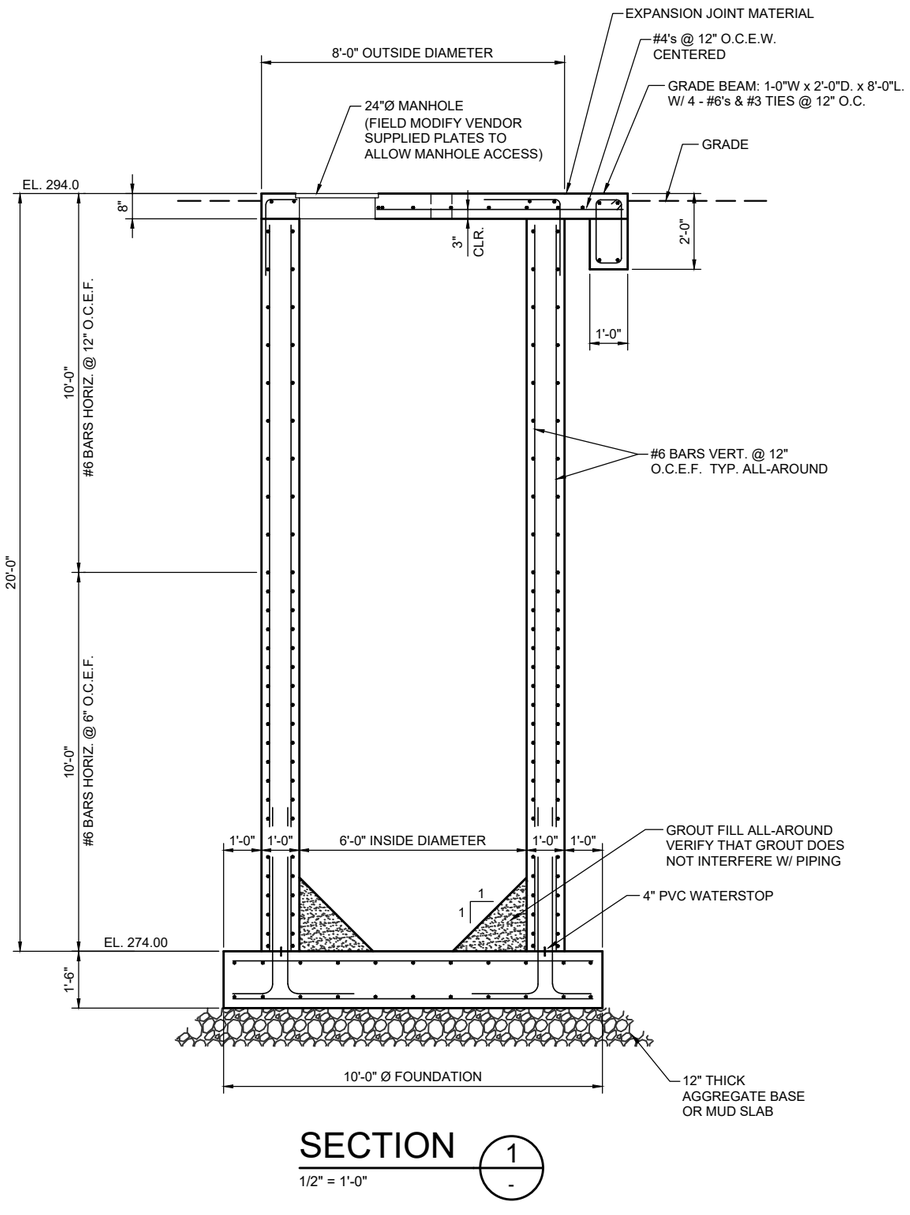
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ROGER Q. MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

CIVIL DETAILS VII

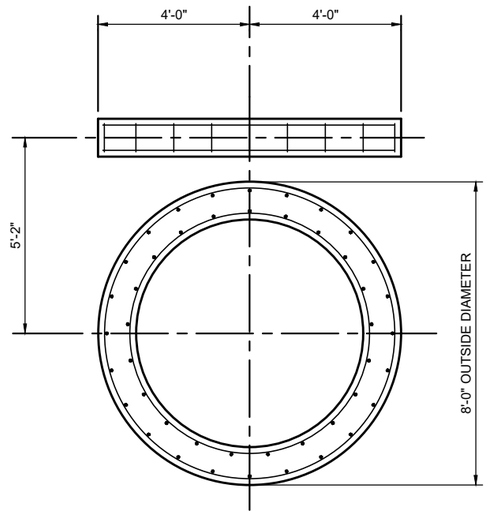
DESIGNED: CAJ	CRIST JOB NO. 2135	DATE	ADD. NO.
DRAFTED: KEG	GARVER JOB NO. 19W01300	6/04/24	3
CHECKED: CAJ	SCALE: NOT TO SCALE		REF SHEET NEW 00-CZ105D

P:\2021 Projects\2135 – Conway Corporation ROMJWTP Design Memorandum\06 – CADD\02 – Civil\CIVIL DETAILS V.dwg



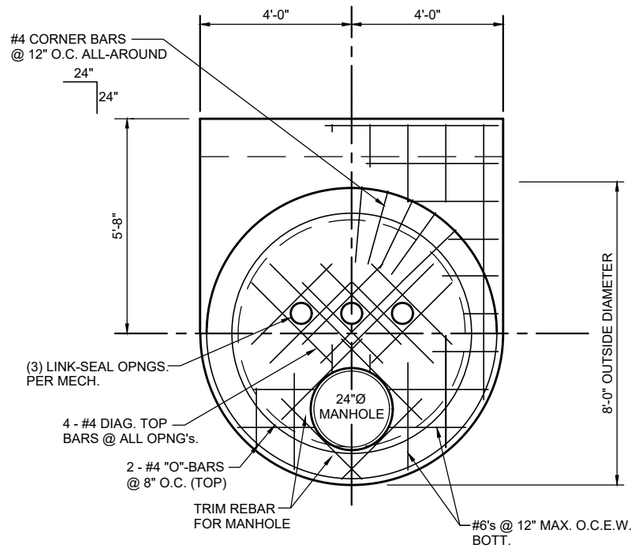
SECTION 1/-

1/2" = 1'-0"



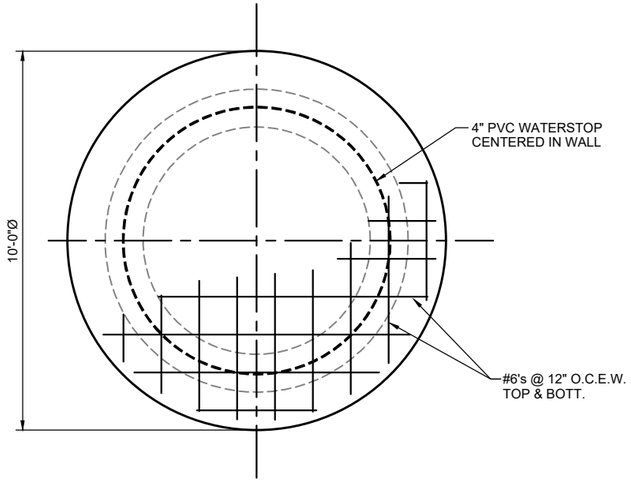
WALL REINFORCING PLAN

1/2" = 1'-0"



TOP SLAB REINFORCING PLAN

1/2" = 1'-0"



FOUNDATION PLAN

1/2" = 1'-0"

THIS PLAN REDUCED ½ SIZE

0 1"

1" = 1"

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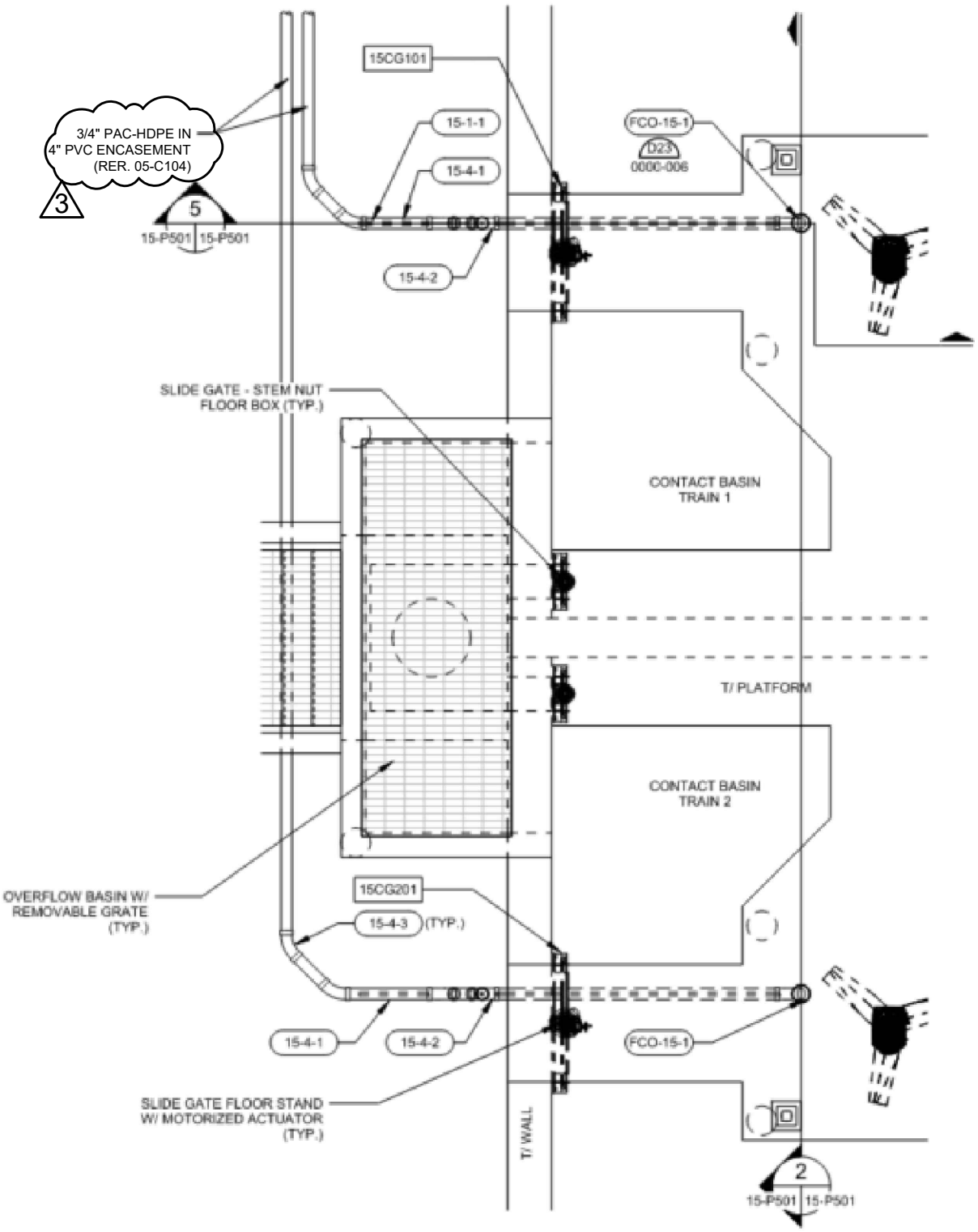
CONWAY CORPORATION

ROGER Q. MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

DRAIN PUMP STATIOON STRUCTURAL DETAIL

DESIGNED: CAJ	CRIST JOB NO. 2135	DATE 6/04/24	ADD. NO. 3
DRAFTED: MAB	GARVER JOB NO. 19W01300		
CHECKED: CAJ	SCALE: NOT TO SCALE		REF SHEET NEW 10-S400

P:\2021 Projects\2135 - Conway Corporation ROMJWTP Design Memorandum\06 - CADD\07 - Structural\DRAIN PUMP STATION STRUCTURAL.dwg



1
15-P301 15-P501

PAC FEED PLAN

SCALE: 3/8" = 1'-0"

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CONWAY CORPORATION

ROGER Q. MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

PAC CHEMICAL FEED PIPING PLANS, SECTIONS AND DETAILS

DESIGNED: CAJ	CRIST JOB NO. 2135	DATE	ADD. NO.
DRAFTED: KEG	GARVER JOB NO. 19W01300	6/04/24	3
CHECKED: CAJ	SCALE: NOT TO SCALE		REF SHEET 15-P501

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PAC CHEMICAL FEED PIPING SCHEDULE

MARK	QTY	SIZE	CONNECTION	DESCRIPTION	
15-1-1	6	3/4"	PE x PE	C901 IPS HDPE CHEMICAL FEED PIPE	x LENGTH AS REQ'D SPOOL
15-4-1	11	4	PE x PE	SCH. 40 PVC ENCASEMENT	x LENGTH AS REQ'D SPOOL
15-4-2	1	4	SOC X SOC	90° BEND SCH. 40 PVC	
15-4-3	8	4	SOC X SOC	45° BEND SCH. 40 PVC	
15-6-1	2	6	PE x PE	SCH. 40 PVC	x LENGTH AS REQ'D SPOOL
15-6-2	2	6 X 6 X 4	SOC X SOC X SOC	WYE COMBINATION W/ 8TH BEND SCH. 40 PVC	
FCO-15-1	2	6	INSIDE CAULK	FLOOR CLEANOUT (ADJUSTABLE), CAST IRON BODY W/ SCORIATED POLISHED NICKEL BRONZE TOP	

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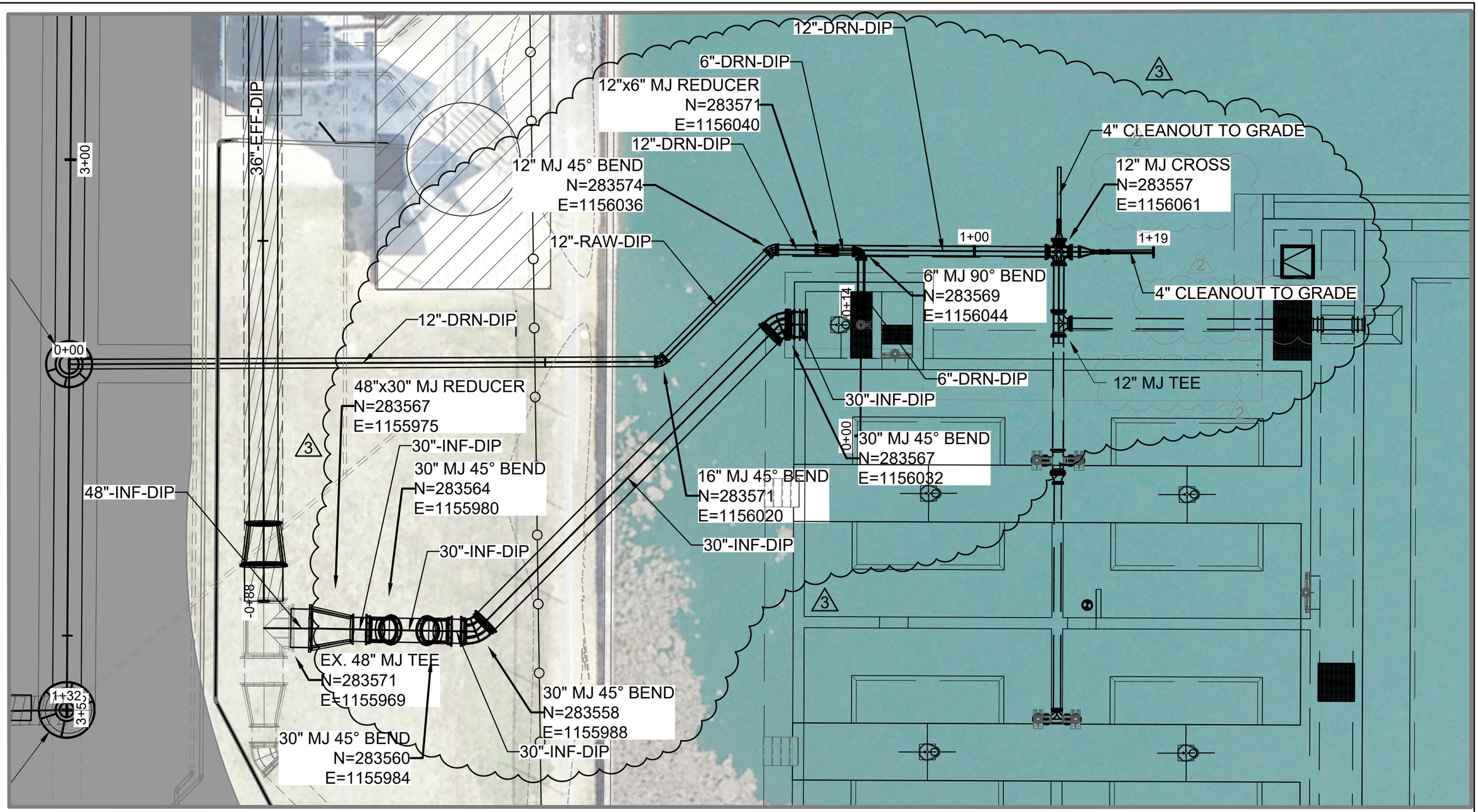
CONWAY CORPORATION

ROGER Q. MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

PAC CONTACTOR PROCESS MECH. AND CHEM. FEED SCHEDULES

DESIGNED: CAJ	CRIST JOB NO. 2135 GARVER JOB NO. 19W01300	DATE 6/04/24	ADD. NO. 3
DRAFTED: KEG			
CHECKED: CAJ	SCALE: NOT TO SCALE		REF SHEET 15-P601

P:\2021 Projects\2135 - Conway Corporation RQMJWTP Design Memorandum\06 - CADD\02 - Civil\CIVIL DETAILS V1.dwg



FLOCC INFLUENT AND DRAIN
PLAN
SCALE = 1" = 10'

N

0 1"

1" = 1"

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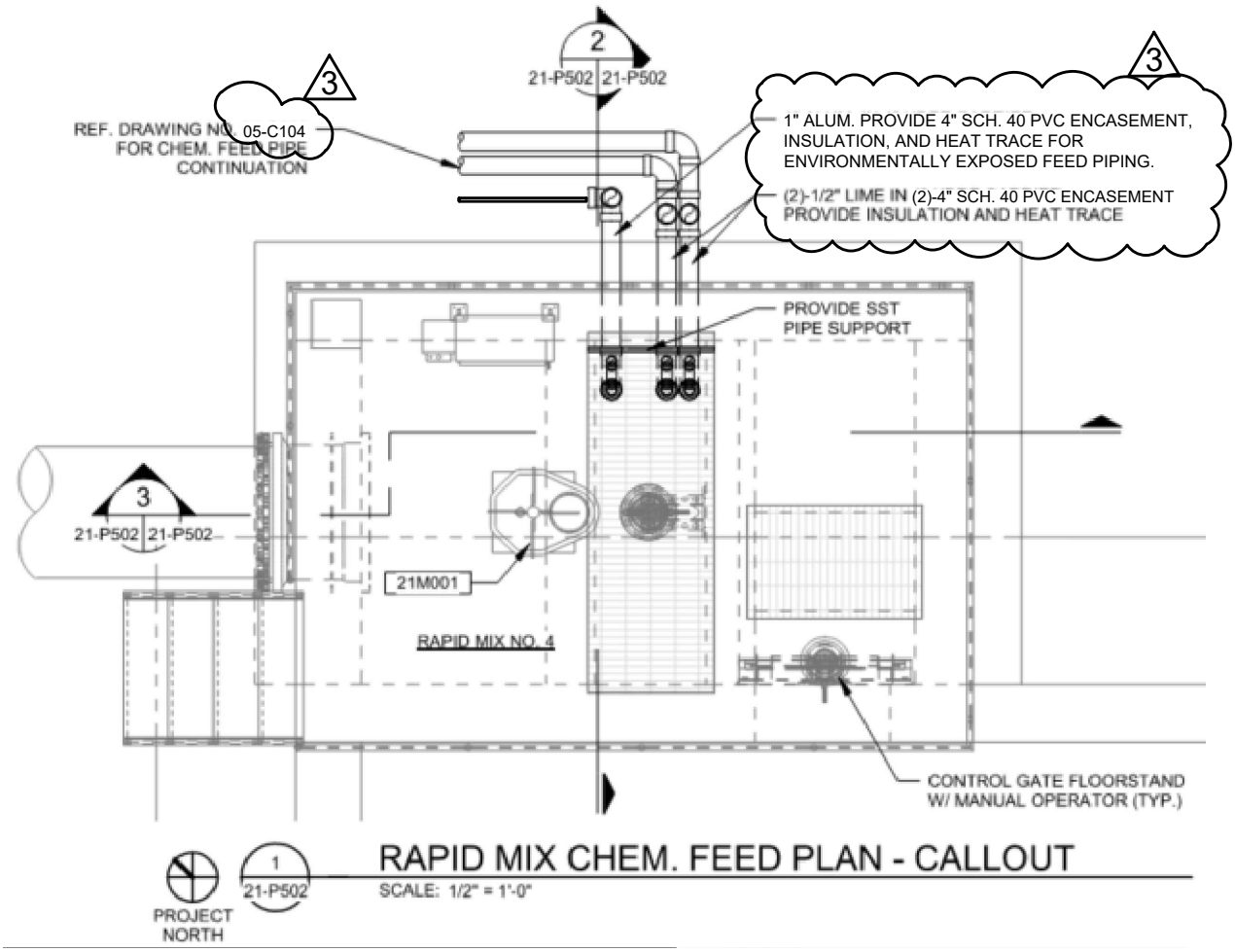
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ROGER Q. MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
NEW PLANT FLOCCULATION PIPING PLAN AND PROFILE

DESIGNED: CAJ	CRIST JOB NO. 2135	DATE	ADD. NO.
DRAFTED: MAB	GARVER JOB NO. 19W01300	6/04/24	3
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RAPID MIX CHEM. FEED PLAN - CALLOUT

SCALE: 1/2" = 1'-0"

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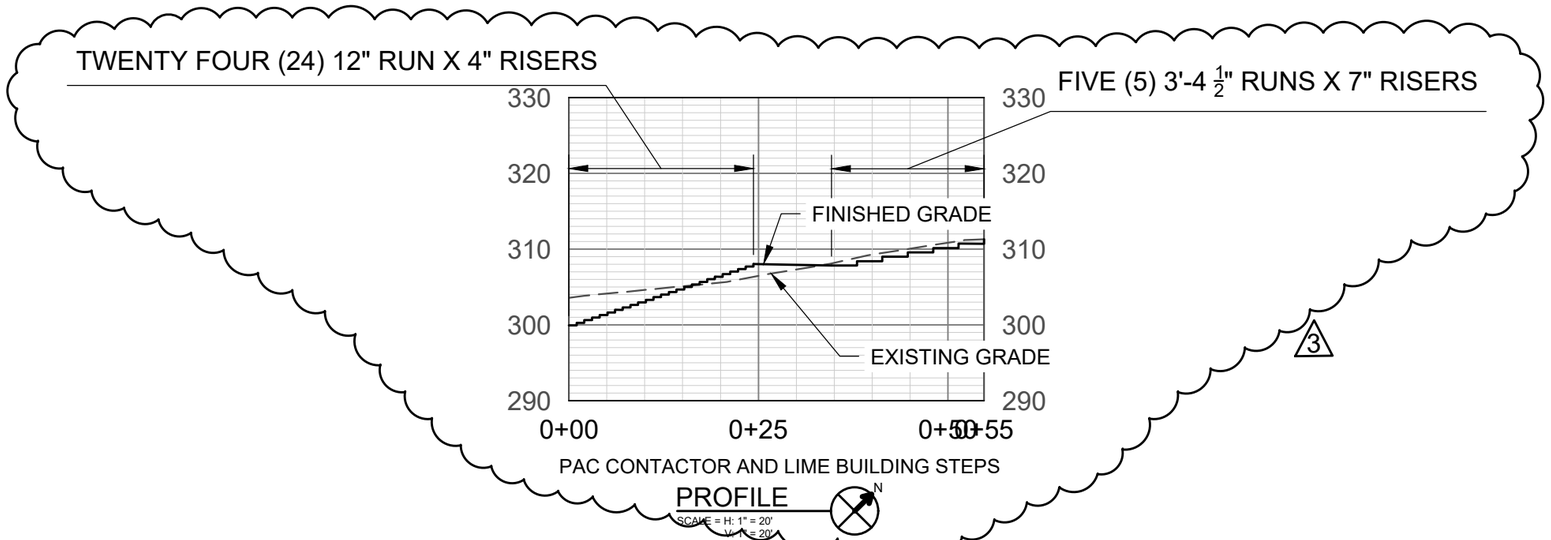
CONWAY CORPORATION

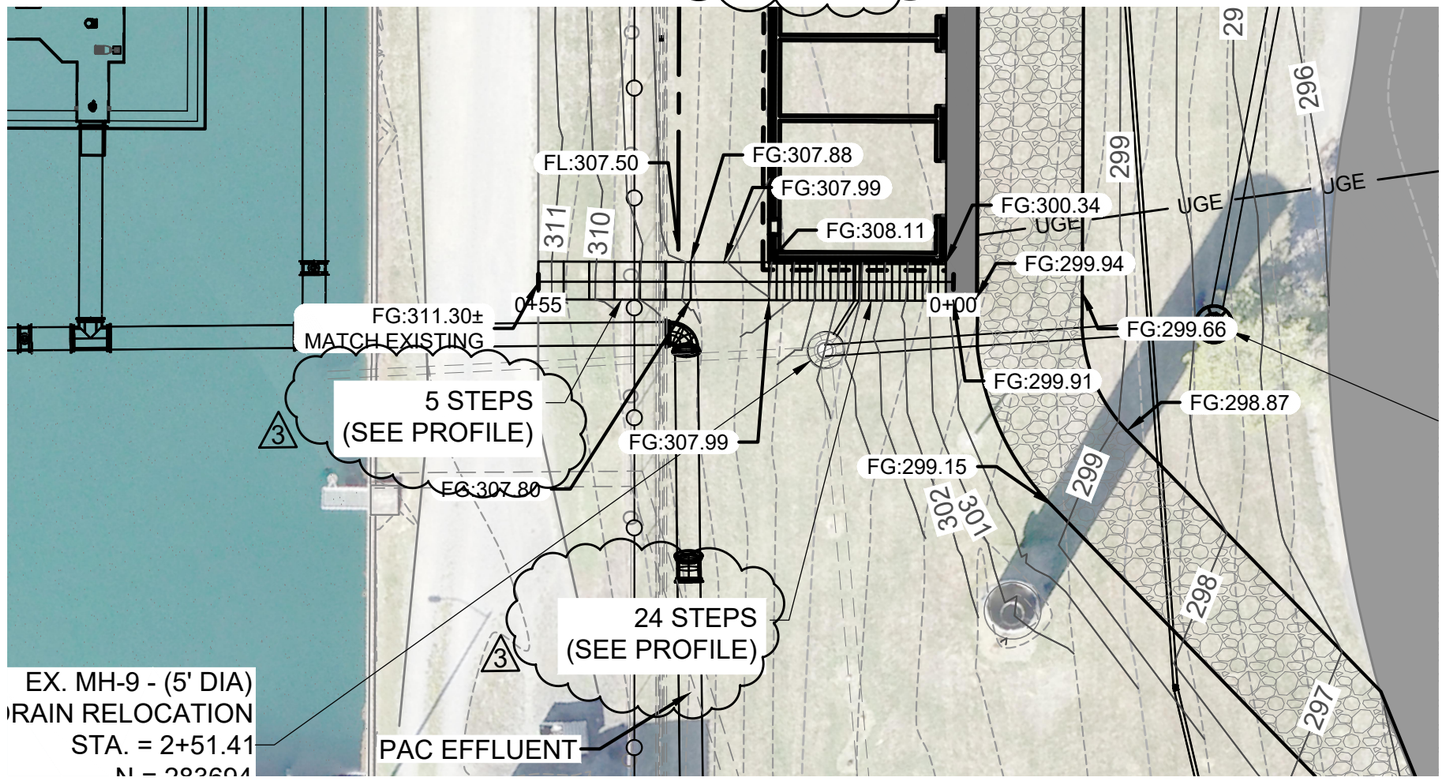
ROGER Q. MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

CHEM. FEED PIPING PLANS AND DETAILS

DESIGNED: CAJ	CRIST JOB NO. 2135	DATE	ADD. NO.
DRAFTED: KEG	GARVER JOB NO. 19W01300	6/04/24	3
CHECKED: CAJ	SCALE: NOT TO SCALE		REF SHEET 21-P502

P:\2021 Projects\2135 - Conway Corporation RQMJWTP Design Memorandum\06 - CADD\02 - Civil\CIVIL DETAILS V1.dwg



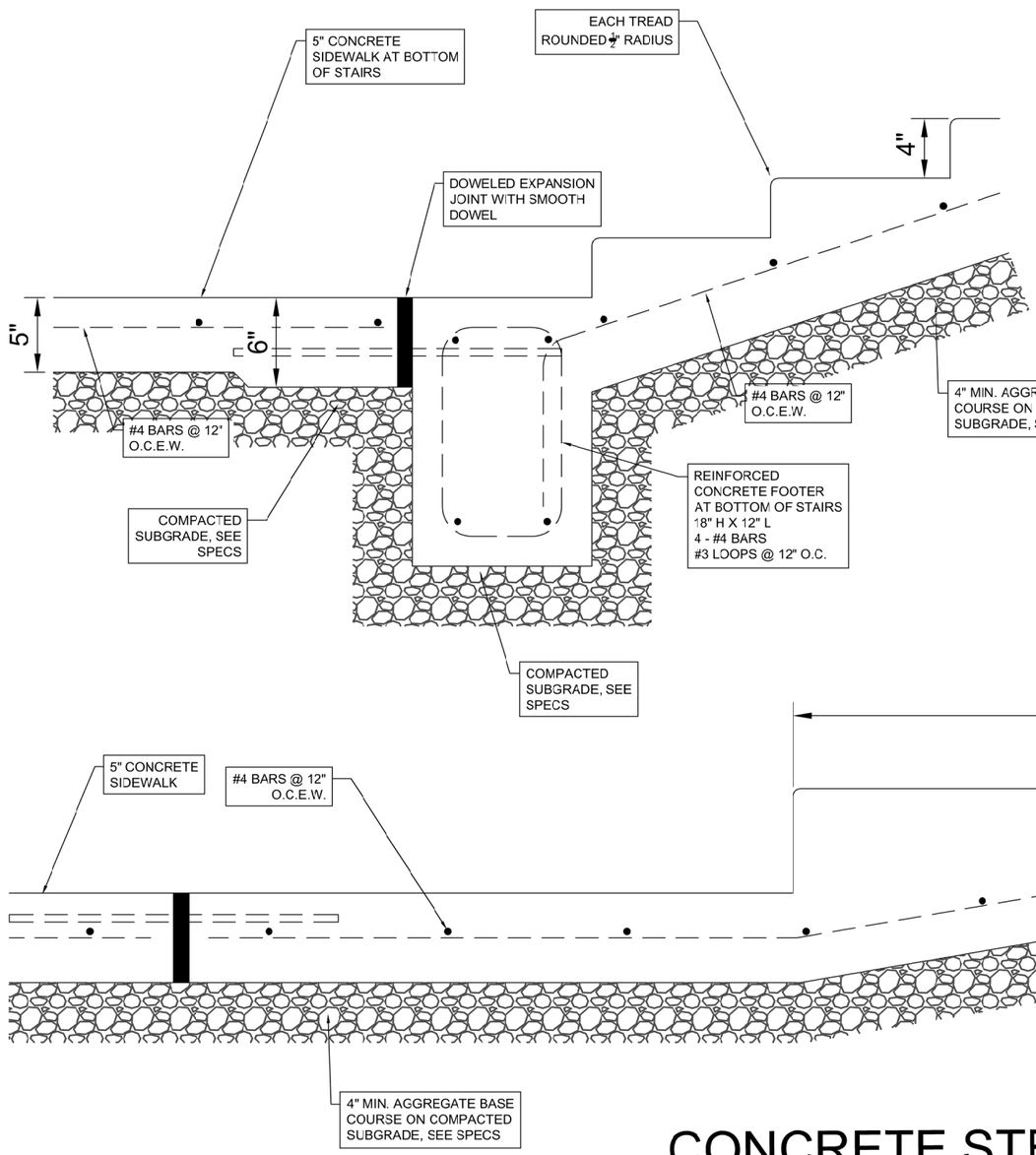


PAC CONTACTOR AND LIME BUILDING
PLAN
SCALE = ########

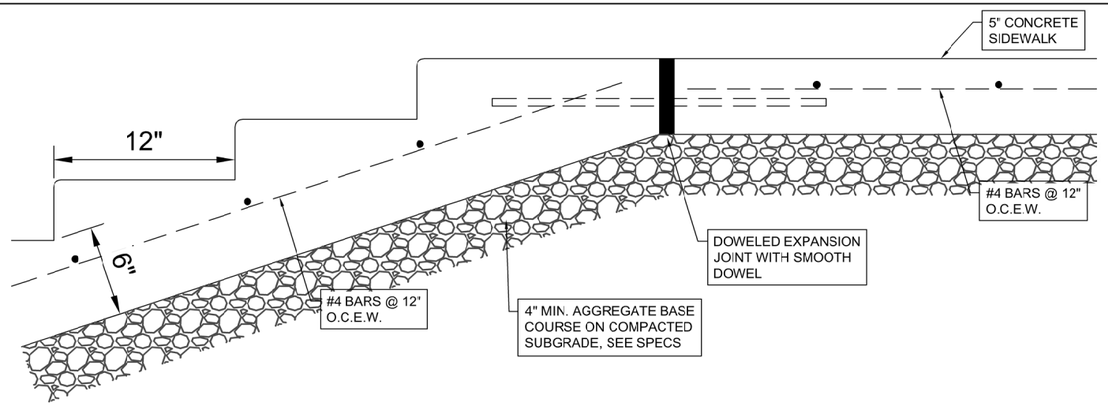
0 1"
1" = 1"

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CONWAY CORPORATION			
ROGER Q. MILLS JR. WATER TREATMENT PLANT			
8 MGD EXPANSION & IMPROVEMENTS			
LIME & PAC FEED SITE GRADING PLAN AND SECTION			
DESIGNED: CAJ	CRIST JOB NO. 2135	DATE 6/04/24	ADD. NO. 3
DRAFTED: MAB	GARVER JOB NO. 19W01300		
CHECKED: CAJ	SCALE: NOT TO SCALE		REF SHEET 72-C201

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SECTION A - LOWER STEPS



NOTE: RE: PROFILE ON 72-C201 FOR ELEVATIONS

SECTION B - UPPER STEPS

CONCRETE STEPS NEXT TO LIME & PAC BUILDING

GENERAL NOTE:

1. REFER TO PLAN FOR STEP TREAD AND RISER QUANTITY AND DIMENSIONS.
2. SLOPE TREAD @ 1.0% MAX FOR DRAINAGE.
3. UNLESS NOTED OTHERWISE, STAIR FINISH SHALL BE A NON-SLIP HORIZONTAL BROOM FINISH.
4. ALL DIMENSIONS AND MATERIALS FOR STAIRS SHALL COMPLY WITH THE TECHNICAL SPECIFICATIONS.

0 1"

1" = 1"

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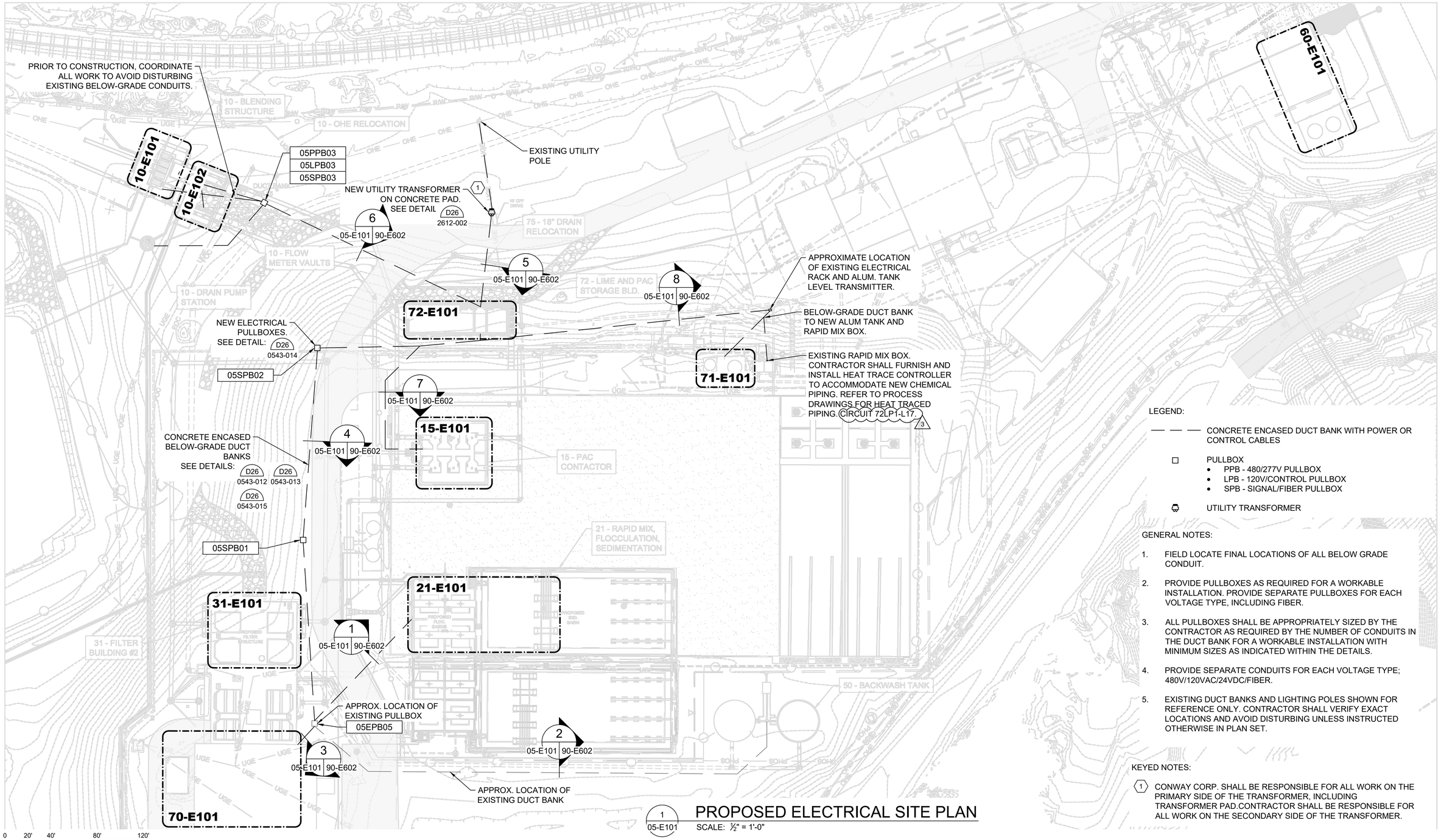
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ROGER Q. MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
CONCRETE STEP DETAILS

DESIGNED: CAJ	CRIST JOB NO. 2135	DATE 5/31/24	ADD. NO. 3
DRAFTED: MAB	GARVER JOE NO. 19W01300		
CHECKED: CAJ	SCALE: NOT TO SCALE		REF SHEET 72-C201

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1 / 05-E101 PROPOSED ELECTRICAL SITE PLAN

SCALE: ½" = 1'-0"

LEGEND:

- CONCRETE ENCASED DUCT BANK WITH POWER OR CONTROL CABLES
- PULLBOX
  - PPB - 480/277V PULLBOX
  - LPB - 120V/CONTROL PULLBOX
  - SPB - SIGNAL/FIBER PULLBOX
- UTILITY TRANSFORMER

GENERAL NOTES:

1. FIELD LOCATE FINAL LOCATIONS OF ALL BELOW GRADE CONDUIT.
2. PROVIDE PULLBOXES AS REQUIRED FOR A WORKABLE INSTALLATION. PROVIDE SEPARATE PULLBOXES FOR EACH VOLTAGE TYPE, INCLUDING FIBER.
3. ALL PULLBOXES SHALL BE APPROPRIATELY SIZED BY THE CONTRACTOR AS REQUIRED BY THE NUMBER OF CONDUITS IN THE DUCT BANK FOR A WORKABLE INSTALLATION WITH MINIMUM SIZES AS INDICATED WITHIN THE DETAILS.
4. PROVIDE SEPARATE CONDUITS FOR EACH VOLTAGE TYPE; 480V/120VAC/24VDC/FIBER.
5. EXISTING DUCT BANKS AND LIGHTING POLES SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND AVOID DISTURBING UNLESS INSTRUCTED OTHERWISE IN PLAN SET.

KEYED NOTES:

1. CONWAY CORP. SHALL BE RESPONSIBLE FOR ALL WORK ON THE PRIMARY SIDE OF THE TRANSFORMER, INCLUDING TRANSFORMER PAD.CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK ON THE SECONDARY SIDE OF THE TRANSFORMER.

REV	DATE	DESCRIPTION	BY
3	05/22/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.22116 HUNTER WICK
Digitally Signed 06/03/2024

0 1" 1" = 1"
THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: HGW
DRAWN BY: LCB
CHECKED BY: JCW
DATE: MAR. 2024

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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT 8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

PROPOSED ELECTRICAL SITE PLAN - OVERVIEW

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER: **05-E101**
SHEET NUMBER: **34**

File: L:\2019\19W01300 - Conway Corp WTP Improvements\Drawings\05-E10X.dwg Last Save: 6/3/2024 9:57 AM Last saved by: LCBridges
Last plotted by: Bridges, Landon C. (Cade) Plot Style: ---- Plot Scale: 1:2.5849 Plot Date: 6/3/2024 2:47 PM Plotter used: None

NOTES:

1. SIGNAL LINES TO EQUIPMENT INTENDED ONLY TO INDICATE A REQUIRED ELECTRICAL CONNECTION. REFER TO PLAN SHEETS, CONTROL SCHEMATICS, AND I/O LISTS FOR ADDITIONAL INFORMATION ABOUT NUMBER AND TYPES OF SIGNAL WIRING.
2. EQUIPMENT TAGS WITH "X", INSERT EQUIPMENT NUMBER.
3. EQUIPMENT TAGS AND NAMES CONTAINING " * " ARE MANUFACTURER SUPPLIED AS PART OF EQUIPMENT PACKAGE.

HMI LEVEL

PLC LEVEL

PLC72-11*

MCC/CP LEVEL

FV NR

FV NR

V

FV NR

72CP72-11*

VENT H/O/A

HS

SS

SHAKER TIMER

LEVEL HIGH

YAL

YAL

LEVEL LOW

YL

REORDER

PAC SILO FILL STATION CONTROL PANEL 72LCP301*

TO 724M103*

TO 724M104*

DUST COLLECTION

TRUCK FILL STATION

724 LIT 101*

724 LE 101*

724SV101*

M

724M101*

724 LS 101*

724 LS 102*

3

POWDERED ACTIVATED CARBON STORAGE SILO

M

724M102*

BIN ACTIVATOR

TO 72CP72-11*

M

724M103*

VIBRATOR

TO 72CP72-11*

VOLUMETRIC FEEDER

M

724M104*

PAC FEED STORAGE SYSTEM*

TO 120VAC

M

724M105*

AIR COMPRESSOR

724 PI 101*

COMPRESSED AIR TANK

08-I725

PAC SLURRY SYSTEM

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.22116 HUNTER WICK

Digitally Signed 06/03/2024

0 1" 1" = 1"

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DESIGNED BY: JCW

DRAWN BY: WBW

CHECKED BY: JCW

DATE: MAY 2024

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CONWAY CORPORATION

ROGER Q. MILLS WTP IMPROVEMENTS
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

PAC FEED AND STORAGE P&ID 1

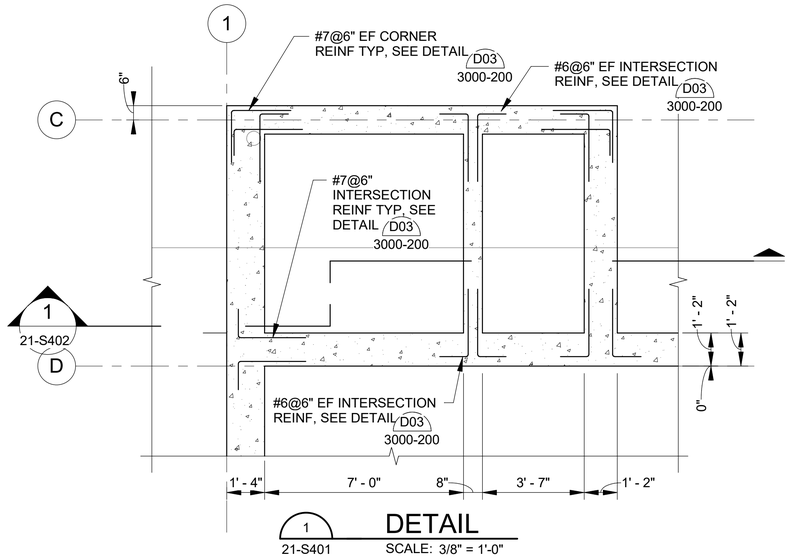
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GARVER JOB NO.: 19W01300

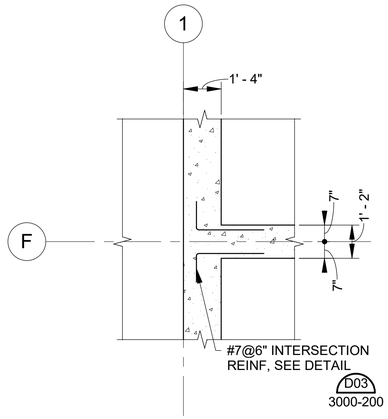
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SHEET NUMBER **052**

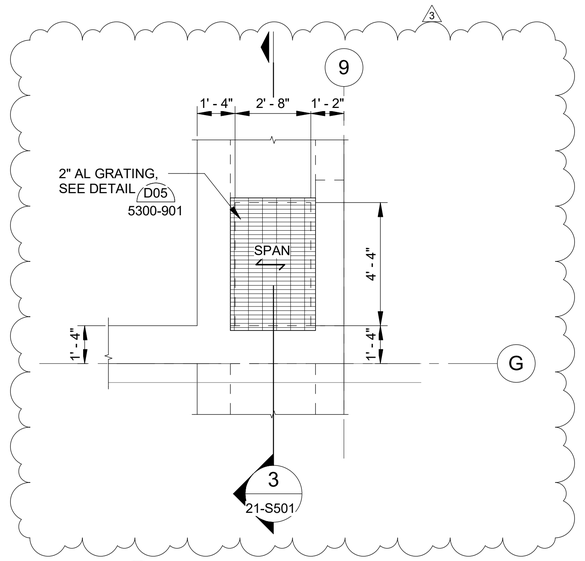
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Plot Date: 6/3/2024 4:07:32 PM



1 21-S401 **DETAIL** SCALE: 3/8" = 1'-0"



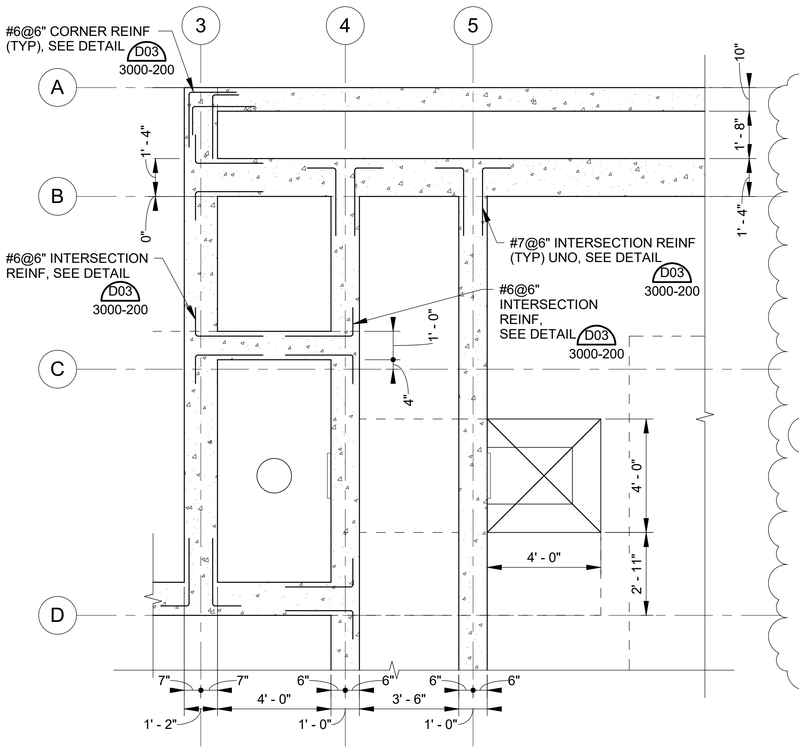
2 21-S401 **DETAIL** SCALE: 3/8" = 1'-0"



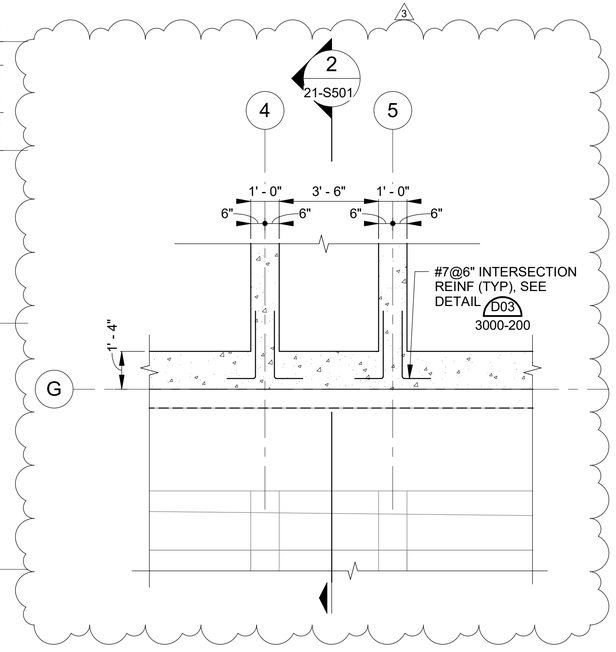
3 21-S106 | 21-S401 **ENLARGED PLAN** SCALE: 3/8" = 1'-0"

NOTES:

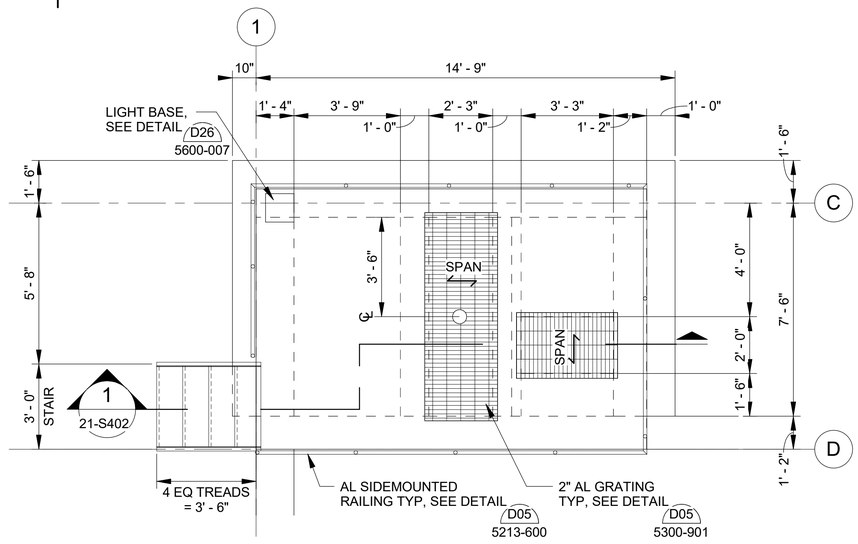
1. CORNER REINFORCEMENT SHALL BE IN ACCORDANCE WITH D03/3000-200.
2. ADDITIONAL REINFORCEMENT AT OPENINGS SHALL BE IN ACCORDANCE WITH D03/3000-600.
3. WALL TO FOUNDATION JOINTS SHALL BE IN ACCORDANCE WITH D03/0315-003.
4. SLAB AND WALL CONSTRUCTION JOINTS SHALL BE IN ACCORDANCE WITH D03/0315-003.
5. SEE CIVIL FOR FACILITY LOCATION AND FINISHED GRADE.



4 21-S401 **DETAIL** SCALE: 3/8" = 1'-0"



5 21-S401 **DETAIL** SCALE: 3/8" = 1'-0"



6 21-S105 | 21-S401 **ENLARGED PLAN** SCALE: 3/8" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

CERTIFICATE OF AUTHORIZATION — GARVER LLC No. 766 — ARKANSAS ENGINEER

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No.15272 — KIPP A. MARTIN
Digitally Signed 05/29/2024

0 1" — 1" = 1"
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DESIGNED BY: TWF
DRAWN BY: RLF
CHECKED BY: KAM
DATE: MAY 2024

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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT 8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 3

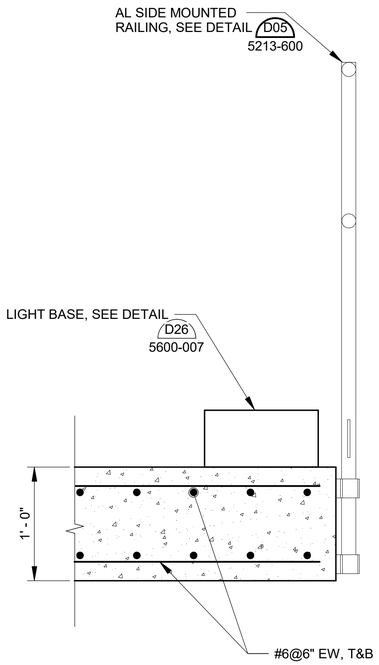
NEW PLANT SEDIMENTATION BASIN ENLARGED VIEWS 1

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **21-S401**
SHEET NUMBER **126**

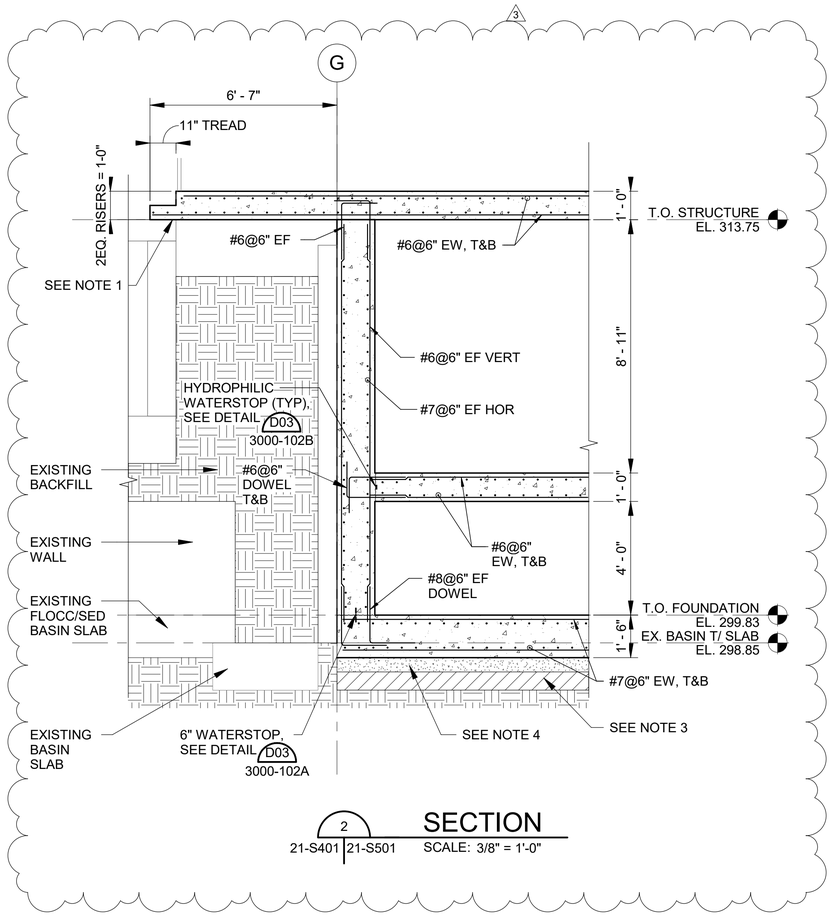
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NOTES:

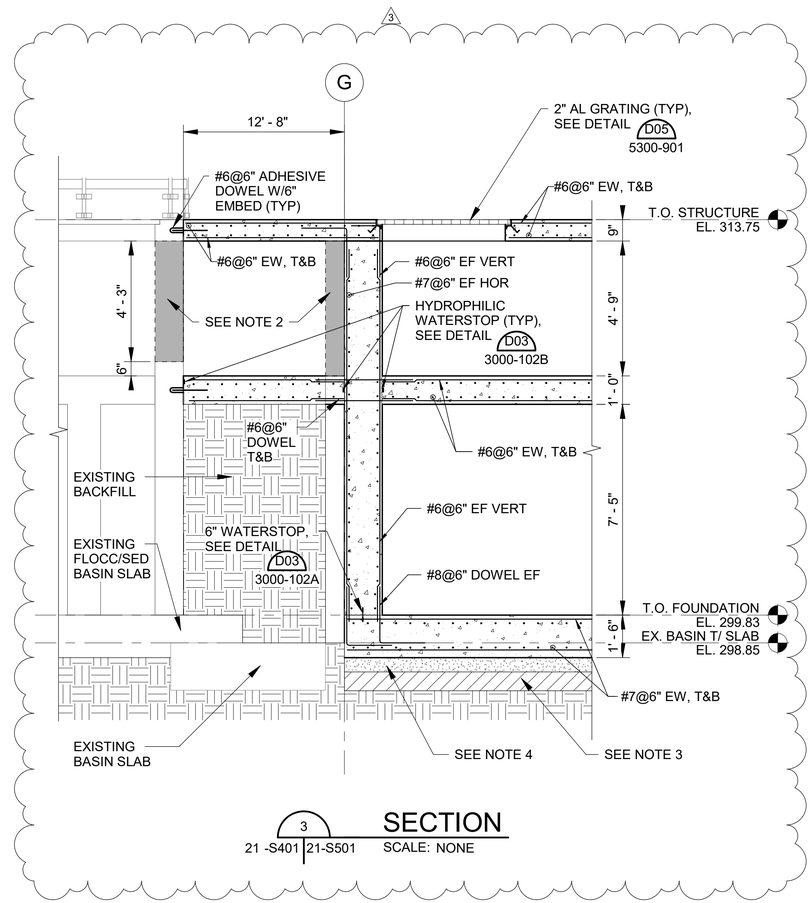
1. PROVIDE 5'-0" LONG X 6" WIDE X 1/2" THICK PTFE SLIDE BEARING PAD WITH STAINLESS STELL BEARING PLATE AT INTERFACE BETWEEN EW AND EXISTING WALKWAY PRIOR TO CONCRETE PLACEMENT. SLIDE BEARING PAD SHALL BE JVI DYNALON OR APPROVED EQUAL.
2. DEMO EXISTING WALL AS SHOWN, FULL WIDTH OF CHANNEL. SAWCUT AND GRIND SMOOTH, EPOXY COAT EXPOSED REINFORCEMENT.
3. OVEREXCAVATE MIN 6" BELOW BOTTOM OF SLAB. SCARIFY TOP 8" OF EXPOSED SOIL AND MOISTURE CONDITION TO WITHIN +/-2% OF OPTIMUM. COMPACT TO MINIMUM OF 95% MAXIMUM DENSITY PER ASTM D695.
4. ARDOT CLASS 7 GRANULAR BASE, COMPACT PER ARDOT SPECIFICATIONS.



1 DETAIL
21-S501 SCALE: 1 1/2" = 1'-0"



2 SECTION
21-S401 21-S501 SCALE: 3/8" = 1'-0"



3 SECTION
21 -S401 21-S501 SCALE: NONE

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS–ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.15272 TIPP A. MARTIN
Digitally Signed 05/29/2024

0 1" 1" = 1"
THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: TWF
DRAWN BY: RLF
CHECKED BY: KAM
DATE: MAY 2024

CRIST ENGINEERS, INC.
CONSULTING ENGINEERS
1 EXECUTIVE CENTER COURT
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CONWAY CORPORATION
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 3

NEW PLANT SEDIMENTATION BASIN SECTIONS AND DETAIL

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **21-S501**
SHEET NUMBER **128**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_21_NEW PLANT RAPID MIX_FLOCC_SEDIMENTATION BASINS.rvt
Plot Date: 5/23/2024 11:57:41 AM

PROCESS PIPING SCHEDULE

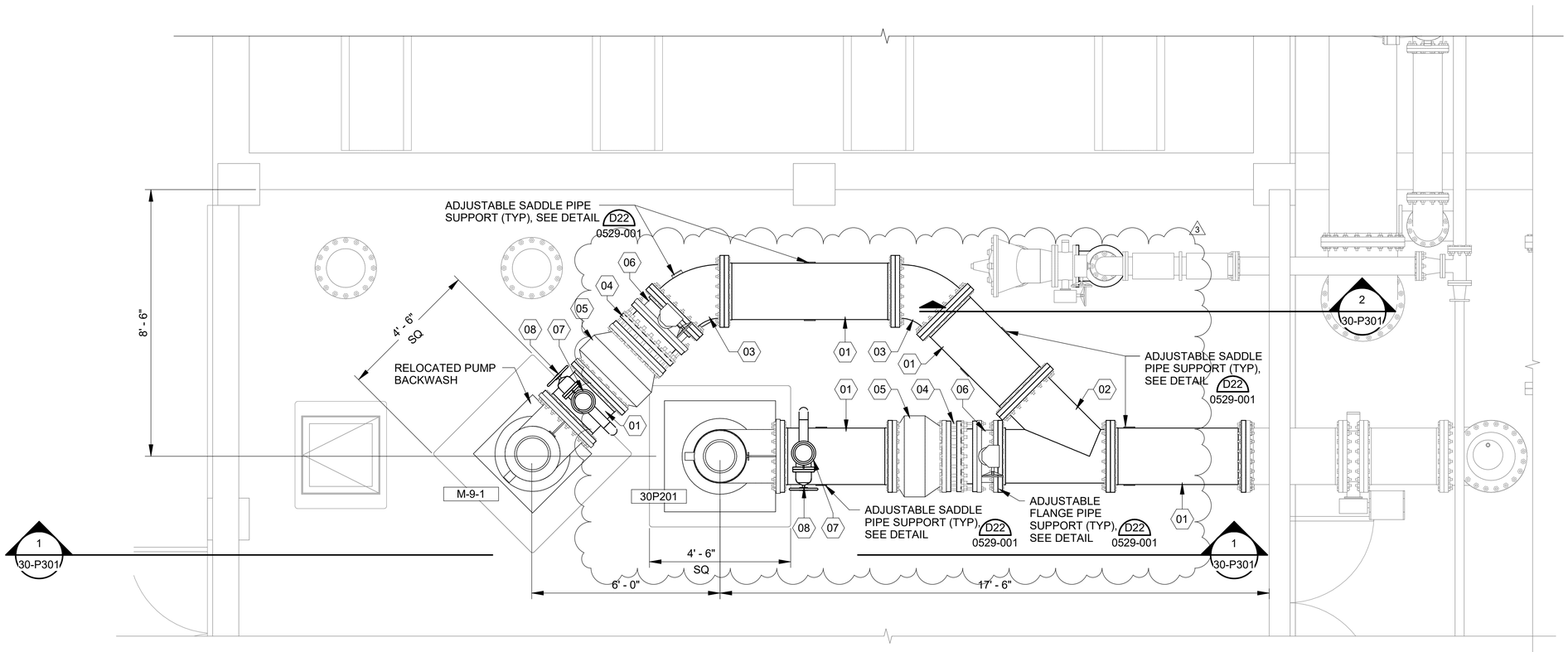
SERVICE	FLOW STREAM IDENTIFIER	INSTALLATION	NOMINAL DIAMETER	MATERIAL	COATING	SPEC DATA/SHEET NO.	MAX OPERATING TEMP (F°)	MAX OPERATING PRESSURE (PSIG)	TEST PRESSURE (PSIG) & METHOD	PIPE COLOR	REMARKS
BACKWASH SUPPLY	BWS	EXPOSED	ALL	CEMENT LINED DUCTILE IRON (CLDI)	HIGH SOLIDS EPOXY	331113	AMBIENT	50	100, HIGH HEAD	TNEMEC 68BR - TWINE	
SURFACE WASH	FW	EXPOSED	ALL	CEMENT LINED DUCTILE IRON	HIGH SOLIDS EPOXY	331113	AMBIENT	208	150, HIGH HEAD	TNEMEC 68BR - TWINE	

VALVE SCHEDULE

P&ID	SPEC	FLOW STREAM ID	VALVE TYPE	OPERATION	OPERATOR	BODY SIZE (IN)	MAX FLOW (GPM)	MAX PRESSURE
08-I301	331419	BWS	GLOBE STYLE SILENT CHECK VALVE	N/A	N/A	20	8500	68 FT
08-I301	331419	BWS	BUTTERFLY VALVE	OPEN/CLOSE	MANUAL	20	8500	68 FT
08-I301	402339	BWS	AIR RELEASE VALVE	N/A	N/A	4	8500	68 FT
08-I301	331419	BWS	GATE VALVE	OPEN/CLOSE	MANUAL	4	8500	68 FT

KEYNOTES: DENOTED BY SYMBOL (X)

01	20" CLDI X LENGTH AS REQ'D SPOOL (FLG x FLG)
02	20" WYE (FLG x FLG x FLG)
03	20" 45° BEND (FLG x FLG)
04	20" DISMANTLING JOINT ROMAC DJ400 OR EQUAL (FLG x FLG)
05	20" GLOBE STYLE SILENT CHECK VALVE (FLG X FLG)
06	20" BUTTERFLY VALVE (FLG X FLG)
07	4" AIR RELEASE VALVE (FLG)
08	4" GATE VALVE (FLG x FLG)
09	10" TEE (FLG x FLG x FLG)
10	10" CLDI X LENGTH AS REQ'D SPOOL (FLG x FLG)



PROJECT NORTH

1 30-P101

UPPER GALLERY PLAN

SCALE: 1/2" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS-ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER JOHN ANDREW PRUITT No. 15176

Digitally Signed 05/22/2024

0 1" — 1" = 1"

THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: MYL
DRAWN BY: GBA
CHECKED BY: JAP
DATE: MAY 2024

CRIST ENGINEERS, INC.
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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

OLD PLANT FILTER BUILDING #1 PLAN

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER: **30-P101**
SHEET NUMBER: **142**

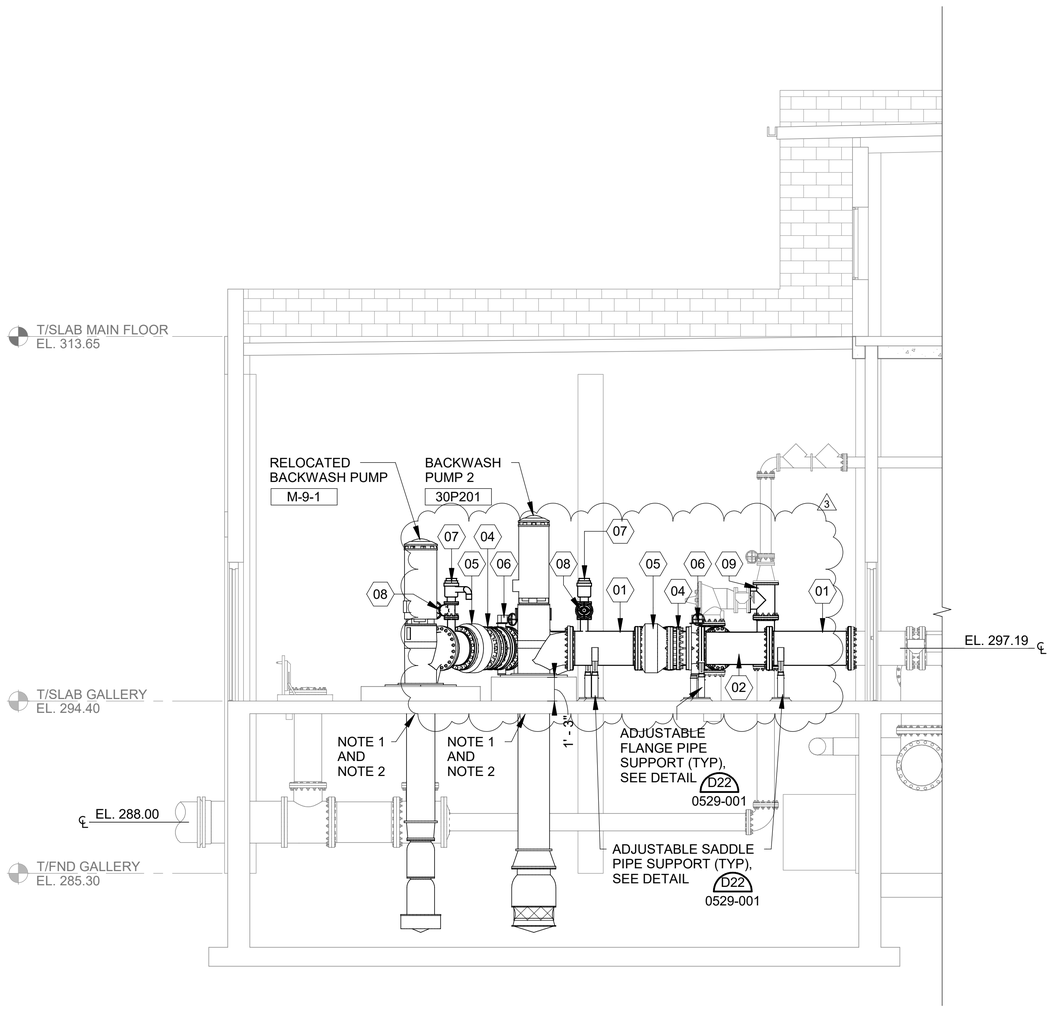
Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_30_OLD PLANT FILTER BUILDING #1, FILTERS 1-14.rvt
Plot Date: 5/22/2024 11:11:32 AM

NOTE:

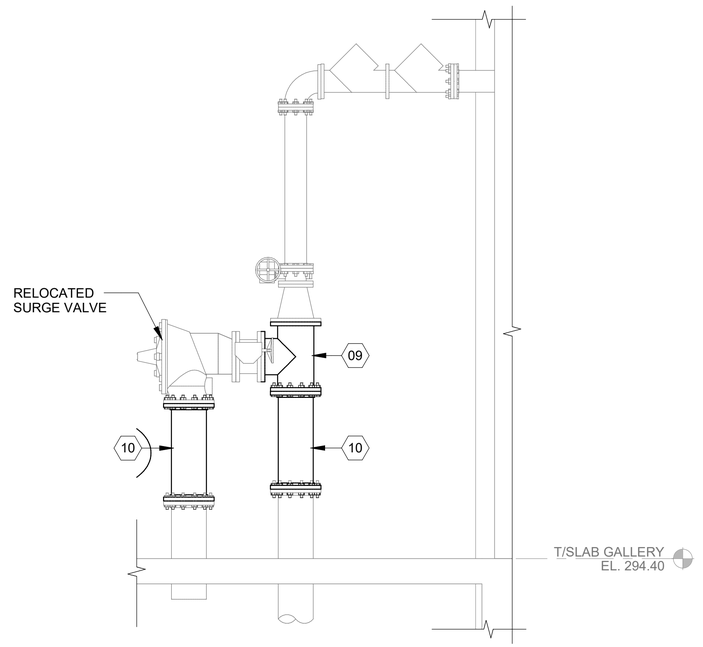
1. CONTRACTOR TO FIELD VERIFY PUMP COLUMN AND PUMP OPENING BEFORE EQUIPMENT SUBMITTAL.
2. CONSTRUCT NEW PUMP BASES. SEE DETAIL D03 TYPE D. CORE DRILL TO ENLARGE SLAB OPENING FOR PUMP AS REQUIRED. PROVIDE OPENING IN NEW BASE TO MATCH SLAB OPENING. 3000-1000

3 KEYNOTES: DENOTED BY SYMBOL X

01	20" CLDI X LENGTH AS REQ'D SPOOL (FLG x FLG)
02	20" WYE (FLG x FLG x FLG)
03	20" 45° BEND (FLG x FLG)
04	20" DISMANTLING JOINT ROMAC DJ400 OR EQUAL (FLG x FLG)
05	20" GLOBE STYLE SILENT CHECK VALVE (FLG X FLG)
06	20" BUTTERFLY VALVE (FLG X FLG)
07	4" AIR RELEASE VALVE (FLG)
08	4" GATE VALVE (FLG x FLG)
09	10" TEE (FLG x FLG x FLG)
10	10" CLDI X LENGTH AS REQ'D SPOOL (FLG x FLG)



1 SECTION
30-P101 | 30-P301 SCALE: 1/4" = 1'-0"



2 SECTION
30-P101 | 30-P301 SCALE: 1/2" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 — CERTIFICATE OF AUTHORIZATION — ARKANSAS ENGINEER

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 15176 — JOHN ANDREW PRULITT
Digitally Signed 05/22/2024

0 1" — 1" = 1"
THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: MYL
DRAWN BY: GBA
CHECKED BY: JAP
DATE: MAY 2024

CRIST ENGINEERS, INC.
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CONWAY CORPORATION

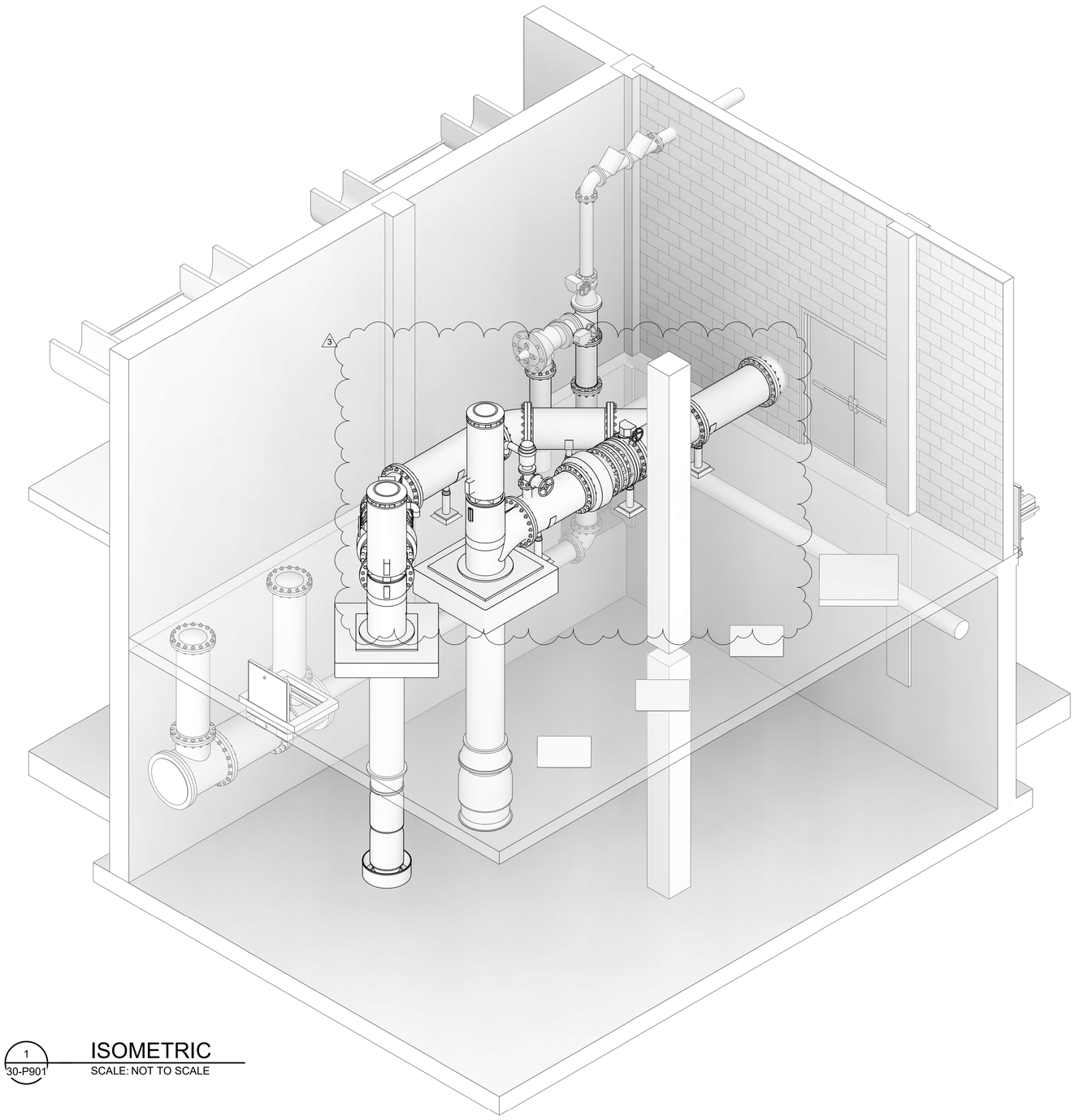
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

OLD PLANT FILTER BUILDING #1 SECTIONS

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER: 30-P301
SHEET NUMBER: 143

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_30_OLD PLANT FILTER BUILDING #1, FILTERS 1-14.rvt
Plot Date: 5/22/2024 11:11:32 AM



1
30-P901

ISOMETRIC

SCALE: NOT TO SCALE

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 — CERTIFICATE OF AUTHORIZATION — ARKANSAS ENGINEER

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 15176 — JOHN ANDREW PRUITT

Digitally Signed 05/22/2024

0 1"

1" = 1"

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DESIGNED BY: MYL
DRAWN BY: ADA
CHECKED BY: JAP
DATE: MAY 2024

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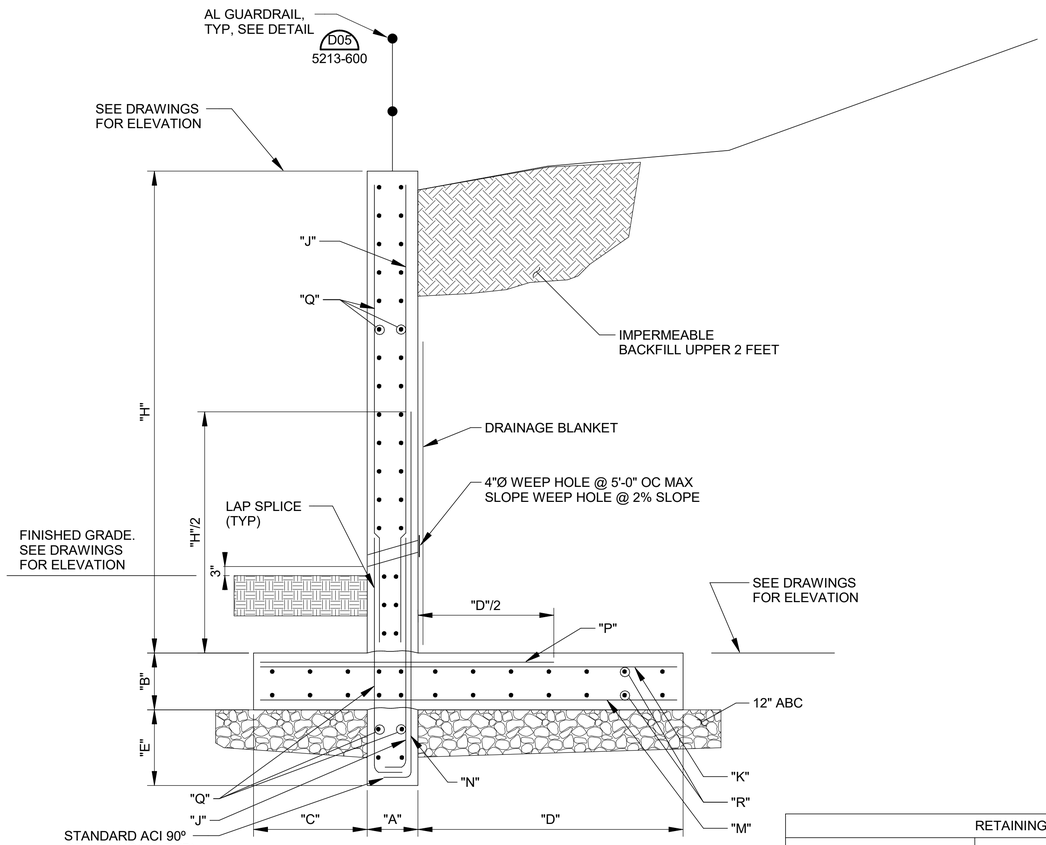
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

OLD PLANT FILTER BUILDING #1 ISOMETRIC

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **30-P901**
SHEET NUMBER **144**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_30_OLD PLANT FILTER BUILDING #1, FILTERS 1-14.rvt
Plot Date: 5/22/2024 11:11:36 AM



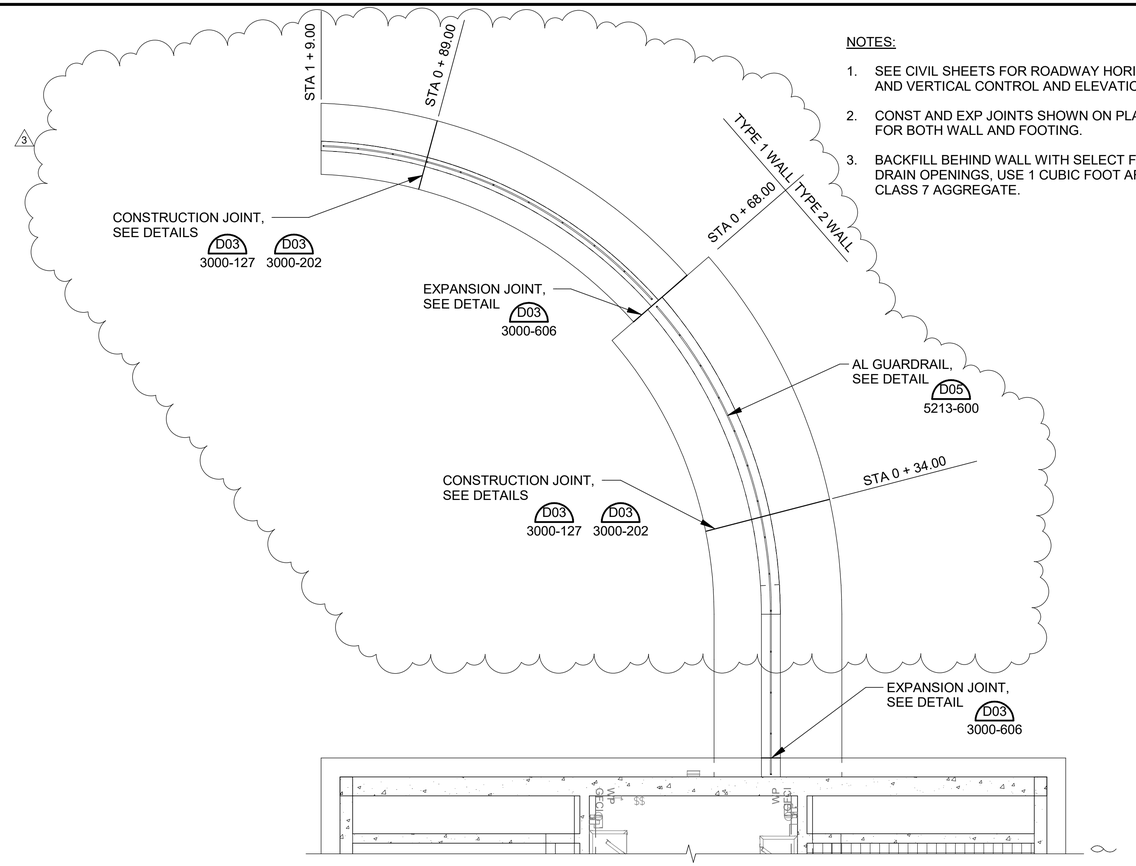
2 / 31-S502 — RETAINING WALL SECTION

SCALE: NOT TO SCALE

RETAINING WALL SCHEDULE		
	TYPE 1	TYPE 2
WALL WIDTH "A"	1'-0"	2'-0"
FOOTING DEPTH "B"	1'-0"	2'-0"
TOE WIDTH "C"	2'-6"	5'-0"
HEEL WIDTH "D"	4'-0"	6'-6"
KEY DEPTH "E"	-----	4'-0"
WALL HEIGHT "H"	<= 10'-0"	17'-0" > "H" > 10'-0"
WALL VERTICAL REINF BARS "J"	#7 @ 12" ALT W/ N BARS AT 6" SPACING	#10 @ 12" ALT W/ N BARS AT 6" SPACING
FOOTING REINF BARS (TOP) "K"	#6 @ 12"	#8 @ 12"
FOOTING REINF BARS (BOT) "M"	#6 @ 12"	#8 @ 12"
ADDITIONAL WALL REINF BARS "N" *	#7 @ 12" ALT W/ J BARS AT 6" SPACING	#10 @ 12" ALT W/ J BARS AT 6" SPACING
ADDITIONAL FOOTING REINF BARS (TOP) "P" *	-----	-----
REINF BARS "Q"	#5 @ 12"	#7 @ 12"
REINF BARS "R"	#6 @ 12"	#8 @ 12"

NOTE:

1. ALTERNATE WITH TYP BARS AT 6" SPACING.



NOTES:

1. SEE CIVIL SHEETS FOR ROADWAY HORIZONTAL AND VERTICAL CONTROL AND ELEVATIONS.
2. CONST AND EXP JOINTS SHOWN ON PLAN ARE FOR BOTH WALL AND FOOTING.
3. BACKFILL BEHIND WALL WITH SELECT FILL. AT DRAIN OPENINGS, USE 1 CUBIC FOOT ARDOT CLASS 7 AGGREGATE.

PROJECT NORTH

1 / 31-S502 — RETAINING WALL PLAN

SCALE: 1/8" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

CERTIFICATE OF AUTHORIZATION — GARVER LLC No. 766 — ARKANSAS ENGINEER

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No.15272 — KIPP A. MARTIN

Digitally Signed 05/29/2024

0 1" — 1" = 1"

THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: HWE
DRAWN BY: WTL
CHECKED BY: KAM
DATE: MAY 2024

CRIST ENGINEERS, INC.
CONSULTING ENGINEERS
1 EXECUTIVE CENTER COURT
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WWW.GARVERUSA.COM

CONWAY CORPORATION

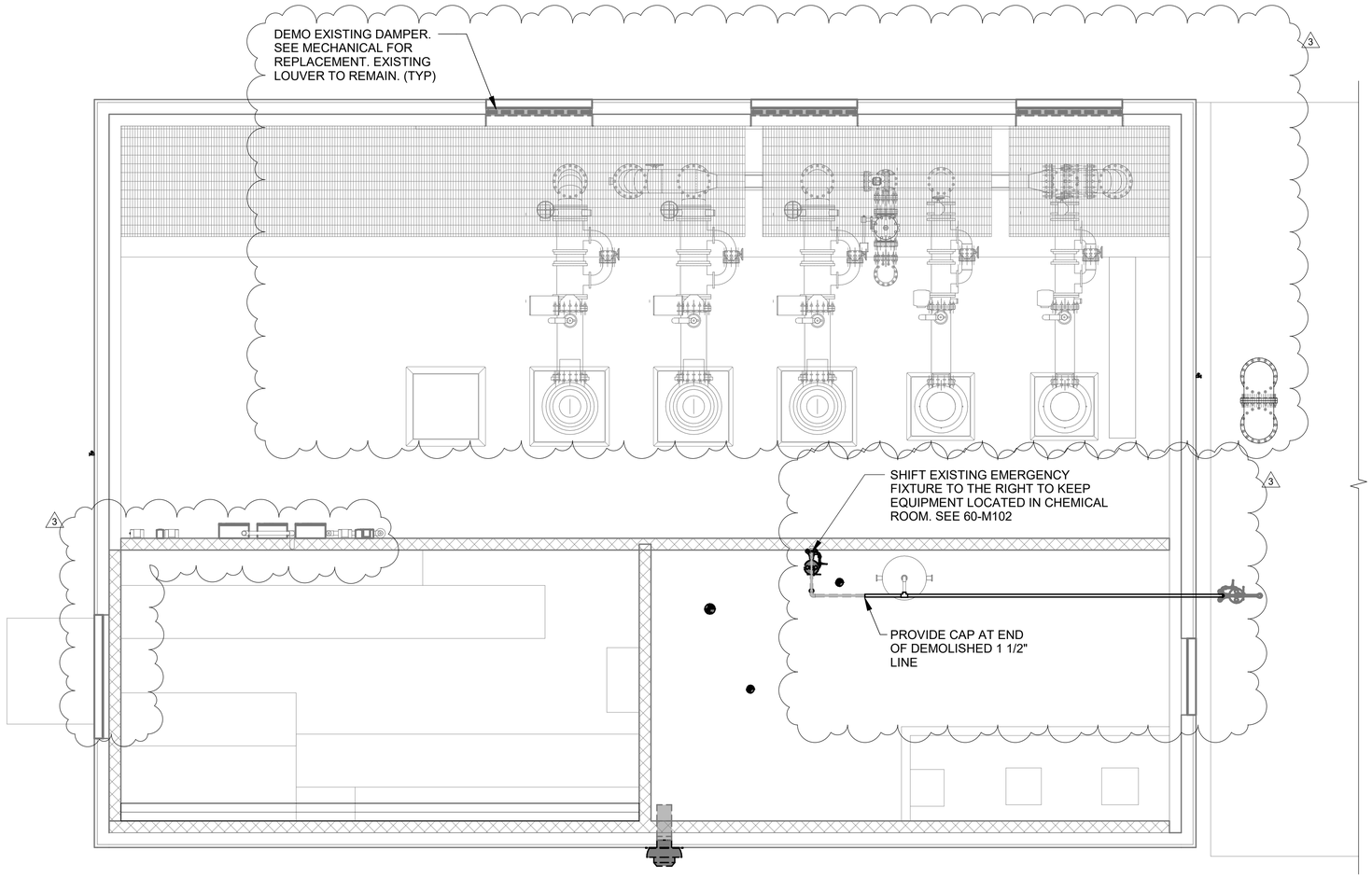
ROGER Q MILLS JR. WATER TREATMENT PLANT 8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

NEW PLANT FILTER BUILDING #2 RETAINING WALL DETAILS

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER: 31-S502
SHEET NUMBER: 166

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_31_NEW PLANT FILTER BUILDING #2_FILTERS 1-8.rvt
Plot Date: 5/23/2024 4:21:37 PM



HIGH SERVICE PUMP STATION DEMOLITION PLAN

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

PROJECT NORTH

1 / 60-X101

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.18337 BENJAMIN C. ROSS

Digitally Signed 06/03/2024

0 1" 1" = 1"

THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: KAU
DRAWN BY: GBA
CHECKED BY: KAM
DATE: MAY 2024

CRIST ENGINEERS, INC.
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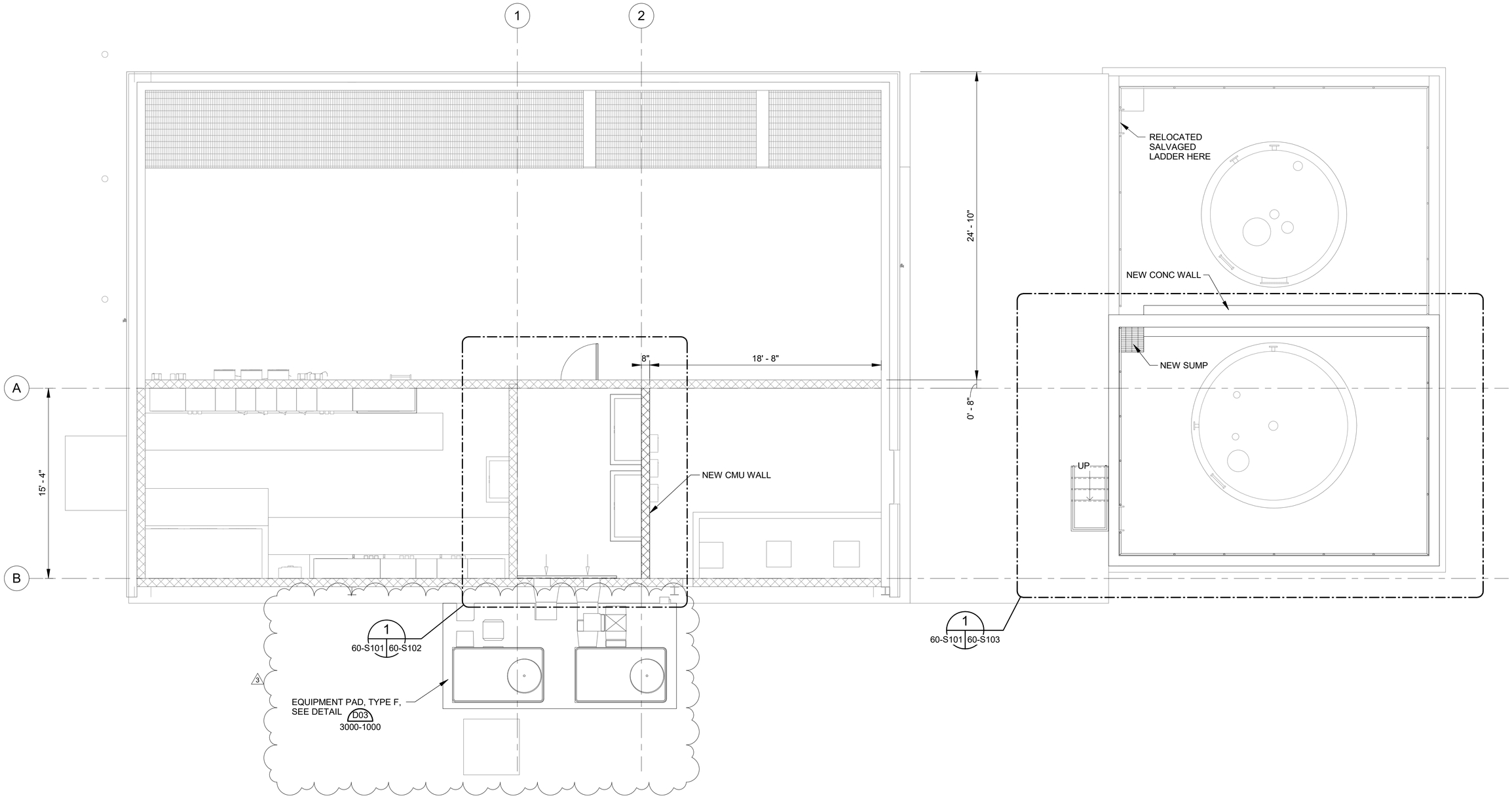
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

HIGH SERVICE PUMP STATION DEMOLITION PLAN 1

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **60-X101**
SHEET NUMBER **200**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_60_HIGH SERVICE PUMP STATION.rvt
Plot Date: 6/3/2024 12:18:53 PM



HIGH SERVICE PUMP STATION OVERALL WALL PLAN

PROJECT NORTH

1 / 60-S101

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

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC CERTIFICATE OF AUTHORIZATION No. 766 ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.15272 KIPPA A. MARTIN

Digitally Signed 05/29/2024

0 — 1" = 1"

THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: JMS

DRAWN BY: MBI

CHECKED BY: TLH

DATE: MAY 2024

CRIST ENGINEERS, INC.
CONSULTING ENGINEERS
1 EXECUTIVE CENTER COURT
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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

HIGH SERVICE PUMP STATION ELECTRICAL ROOM WALL PLAN

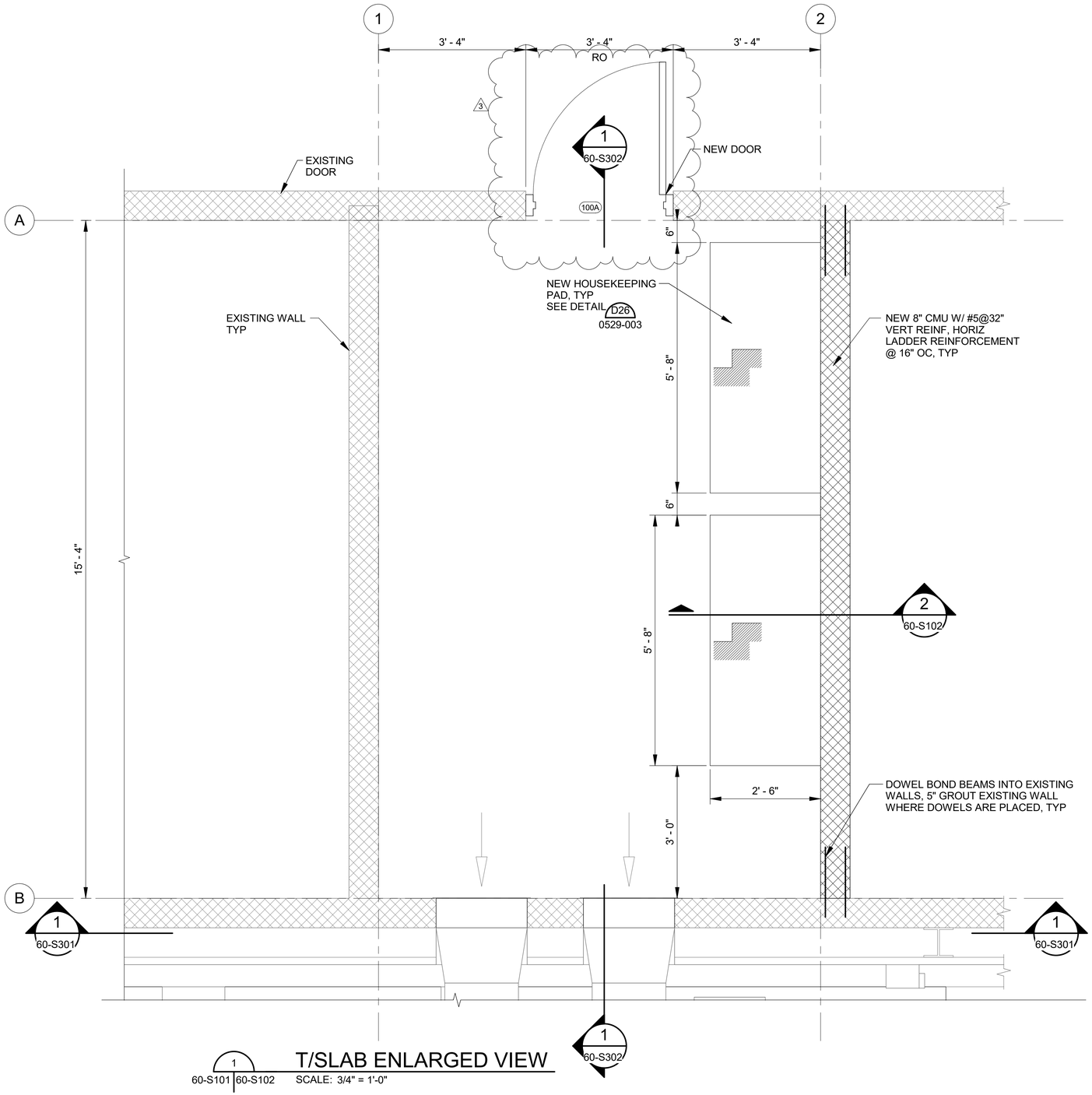
CEI JOB NO.: 2135

GARVER JOB NO.: 19W01300

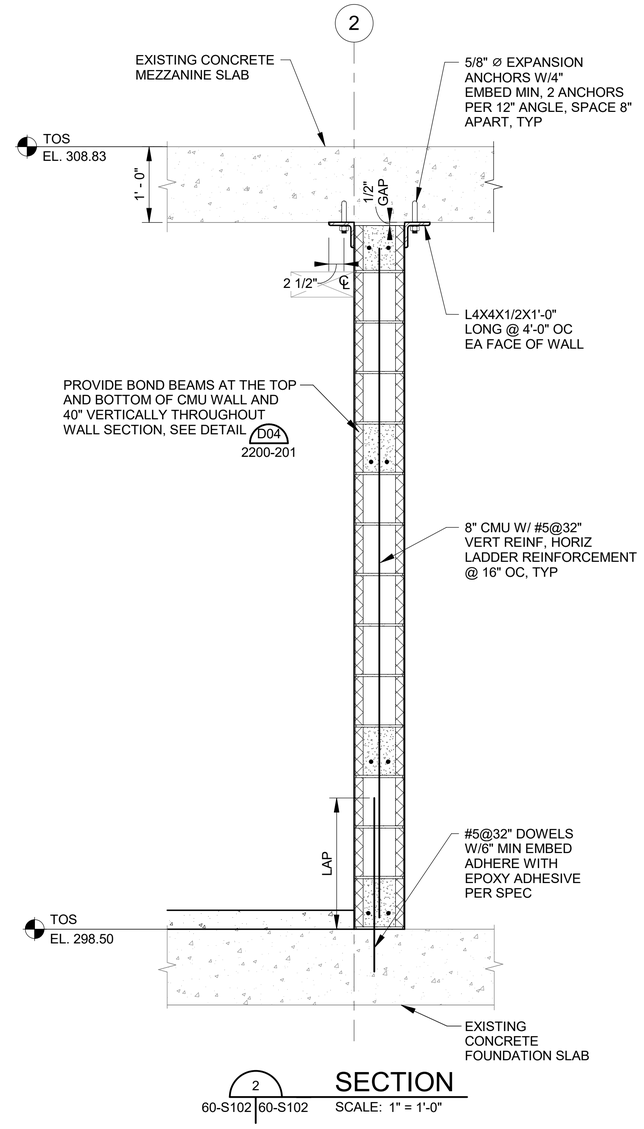
DRAWING NUMBER **60-S101**

SHEET NUMBER **203**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_60_HIGH SERVICE PUMP STATION.rvt
Plot Date: 5/23/2024 3:11:02 PM



1 60-S101 | 60-S102 T/SLAB ENLARGED VIEW
SCALE: 3/4" = 1'-0"



2 60-S102 | 60-S102 SECTION
SCALE: 1" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS-ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.15272 KIPP A. MARTIN
Digitally Signed 05/29/2024

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DESIGNED BY: JMS
DRAWN BY: MBI
CHECKED BY: TLH
DATE: MAY 2024

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CONWAY CORPORATION

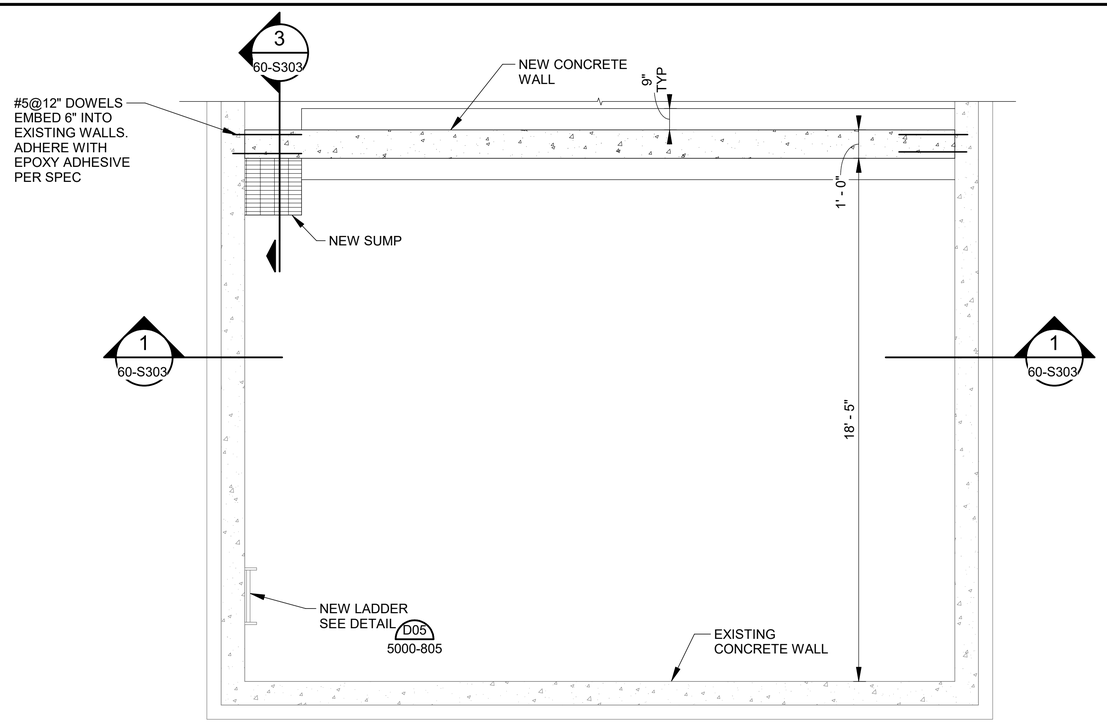
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

HIGH SERVICE PUMP STATION CAUSTIC AND FLUORIDE TANKS FOUNDATION PLAN

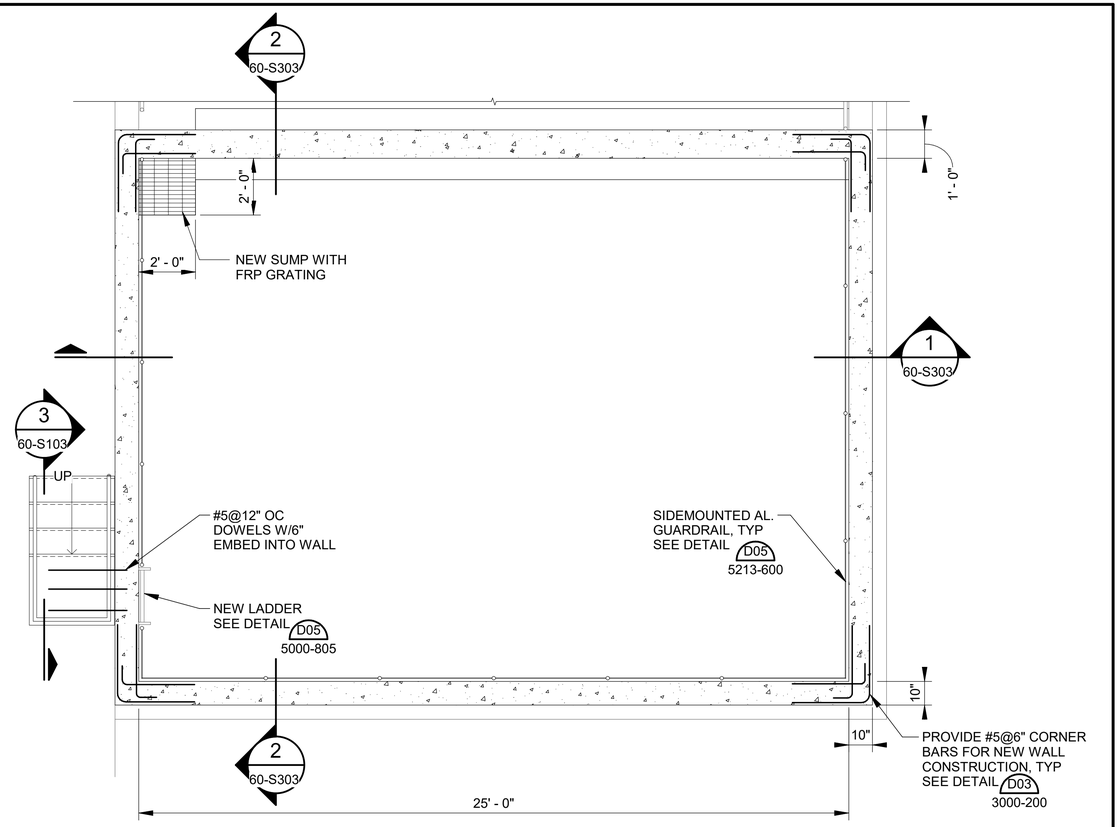
CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **60-S102**
SHEET NUMBER **204**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_60_HIGH SERVICE PUMP STATION.rvt
Plot Date: 5/23/2024 2:33:39 PM



1 60-S101 | 60-S103 T/SLAB ENLARGED LOWER PLAN

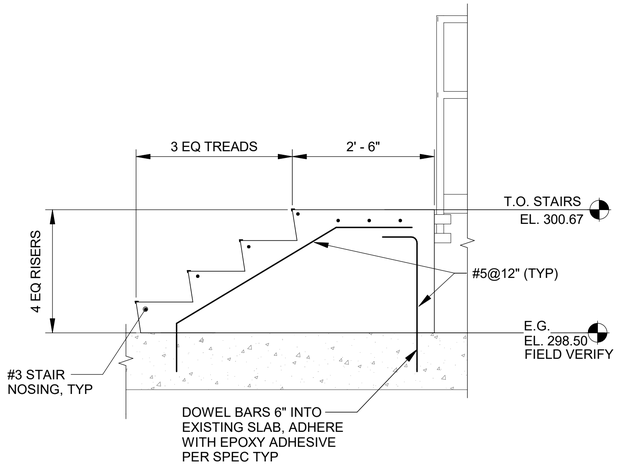
SCALE: 3/8" = 1'-0"



PROJECT NORTH

2 60-S103 T/SLAB ENLARGED PLAN @ EL 300.50

SCALE: 3/8" = 1'-0"



3 60-S103 | 60-S103 SECTION A - A

SCALE: 3/4" = 1'-0"

3

DOOR SCHEDULE

DOOR NO.	ROOM NAME	DOOR					FRAME				DOOR HARDWARE	REMARKS
				SIZE				DETAILS				
		TYPE	MATERIAL	WIDTH	HEIGHT	THICKNESS	FRAME TYPE	HEAD	JAMB	SILL		
100A	ELECTRICAL ROOM	B		3' - 8"	8' - 0"	1 3/4"	HM-1	D08/1613-217	D08/1613-218	D08/7100-206	1	DETAIL D08/1613-100A FOR DOOR

NOTE:

1. COAT ALL EXPOSED CONCRETE SURFACES WITH VINYL ESTER COATING, SEE SPEC 09 96 00 HIGH PERFORMANCE COATINGS. REPAIR ANY AREAS WHERE COATING IS DAMAGED DURING CONSTRUCTION.

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.15272 KIPP A. MARTIN

Digitally Signed 06/04/2024

0 1" 1" = 1"

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DRAWN BY: MBI
CHECKED BY: TLH
DATE: MAY 2024

CRIST ENGINEERS, INC.
CONSULTING ENGINEERS
1 EXECUTIVE CENTER COURT
LITTLE ROCK, ARKANSAS 72211
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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

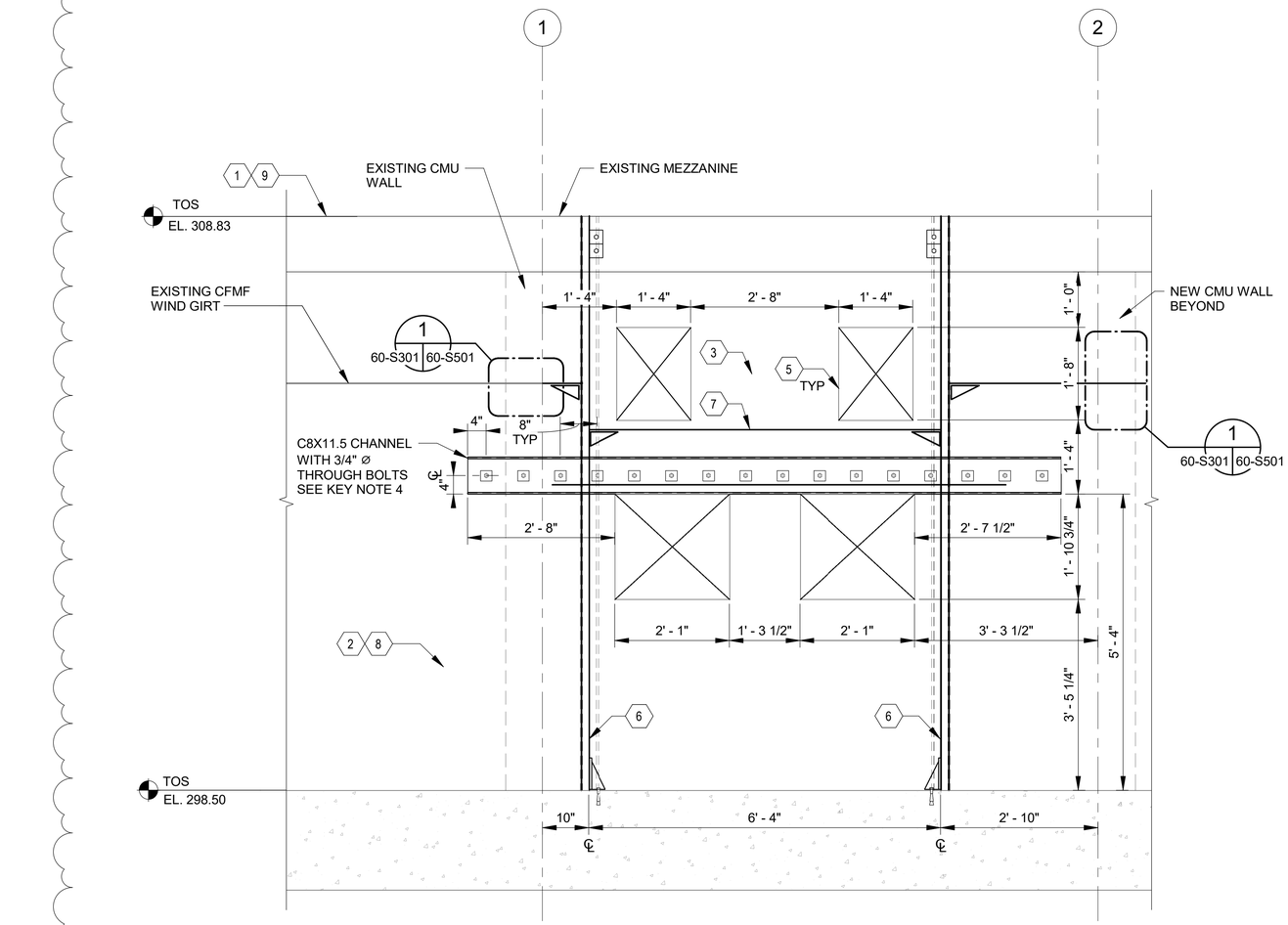
HIGH SERVICE PUMP STATION CAUSTIC AND FLUORIDE TANKS WALL PLAN

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **60-S103**
SHEET NUMBER **205**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_60_HIGH SERVICE PUMP STATION.rvt
Plot Date: 6/4/2024 11:35:45 AM

NOTES:

1. PRIOR TO CUTTING INTO EXISTING WALL: GROUT THE WALL INSTALL THE THROUGH BOLTS, INSTALL THE CHANNELS, INSTALL THE PLATE WASHERS BEFORE CUTTING ANY NEW OPENINGS.



1 60-S102 | 60-S301 SECTION
SCALE: 3/4" = 1'-0"

KEYNOTES

1	CAREFULLY REMOVE EXISTING FLASHING AS REQUIRED. UNIQUELY PIECE MARK EACH PIECE OF FLASHING, AND CREATE A SKETCH INDICATING WHERE EACH PIECE GOES.
2	PRIOR TO REMOVING EXISTING CLADDING, CAREFULLY MARK WHERE NEW OPENINGS ARE TO BE CUT. CAREFULLY REMOVE EXISTING CLADDING AS REQUIRED TO ACCESS EXISTING WALL GIRTS. UNIQUELY PIECE MARK EACH SECTION OF CLADDING, AND CREATE A SKETCH INDICATING WHERE EACH PIECE GOES.
3	CAREFULLY CUT EXISTING WALL GIRT AS SHOWN. SAVE CUT PIECE FOR RELOCATION.
4	INSTALL C8x11.5 LINTEL AS SHOWN.
5	CUT NEW OPENINGS IN EXISTING CMU WALL AS SHOW. GROUT WALL SOLID AS SHOWN ON SHEET 60-S302.
6	INSTALL NEW WALL COLUMNS AS SHOWN. COPE FLANGES OF C8x11.5 AS REQURED TO FIT COLUMNS. COLUMNS TO BE COLD-FORMED ZEE SHAPES, SIZE 600Z250-135. USE COLD-FORMED CLIPS TO CONNECT EXISTING WALL GIRT TO NEW COLUMN AND NEW COLUMN TO CONCRETE. CLIPS TO BE GC2-6 OR GC2-8 BY FLEXOSPAN OR EQUAL. BOLTS TO BE 1/2" DIA. A307 BOLTS OR EQUAL. CONNECTIONS TO CONCRETE TO USE 1/2" DIA. SS WEDGE ANCHORS, HILTI KWIK-BOLT TZ2 OR EQUAL, WITH MIN. 4" OF EMBEDMENT.
7	REINSTALL REMOVED PIECE OF EXISTING WALL GIRT IN LOCATION SHOWN. CONNECT TO NEW AND EXISTING COLUMNS USING COLD-FORMED CLIPS. GIRT TO BE IN LINE WITH CLADDING. SEE KEY NOTE 5 FOR MORE INFORMATION ON CLIPS.
8	CUT NEW OPENINGS IN EXISTING CLADDING. REINSTALL CLADDING IN ORIGINAL POSITION USING NEW SELF-DRILLING SCREWS WITH COLORED HEADS TO MATCH CLADDING. USE EXISTING SCREW HOLES WHERE POSSIBLE.
9	REINSTALL EXISTING FLASHING IN ORIGINAL POSITION USING NEW SELF-DRILLING SCREWS. USE EXISTING SCREW HOLES WHERE POSSIBLE. PROVIDE NEW SEALANT AS REQUIRED.

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.15272
KIPPA A. MARTIN
Digitally Signed 06/04/2024

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DATE: MAY 2024

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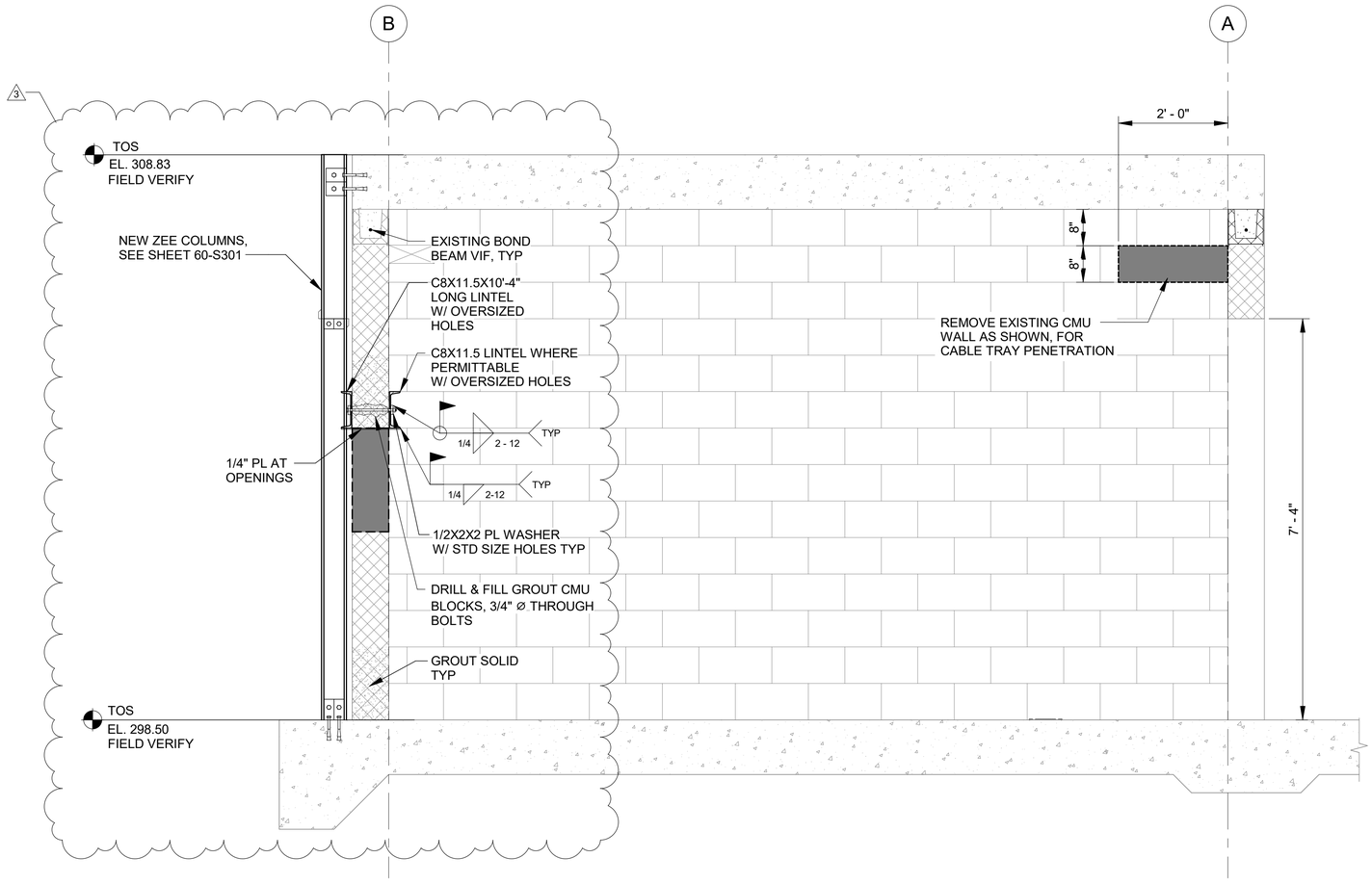
CONWAY CORPORATION
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 03
3
HIGH SERVICE PUMP STATION SECTION 1

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **60-S301**
SHEET NUMBER **206**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_60_HIGH SERVICE PUMP STATION.rvt
Plot Date: 6/4/2024 10:04:42 AM

NOTES:

1. PRIOR TO CUTTUNG INTO EXISTING WALL; GROUT THE WALL, INSTALL THE THROUGH BOLTS, INSTALL THE CHANNELS, INSTALL THE PLATE WASHERS BEFORE CUTTING ANY NEW OPENINGS.



1 SECTION
60-S102 | 60-S302 SCALE: 3/4" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.15272
KIPP A. MARTIN
Digitally Signed 06/04/2024

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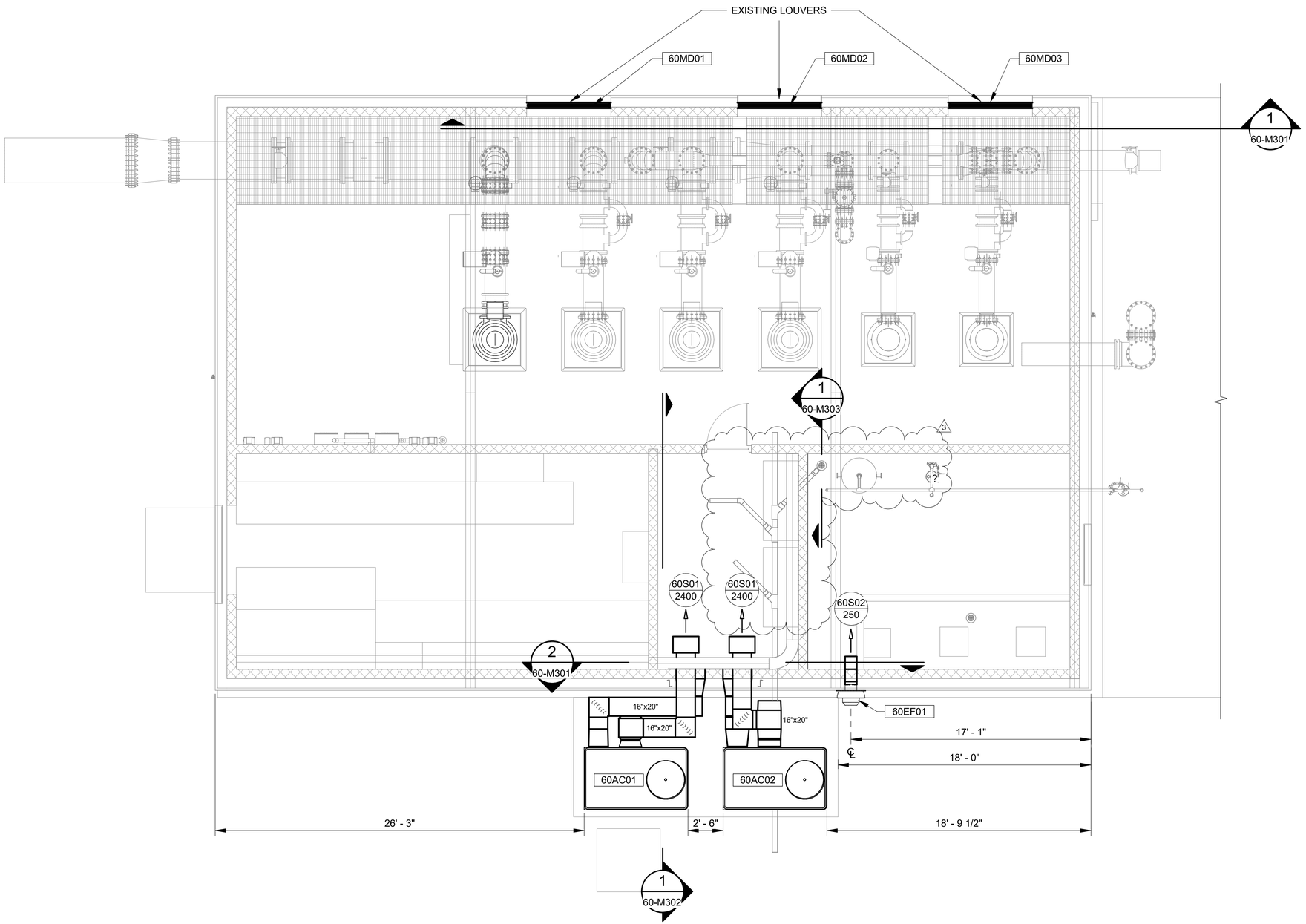
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CONWAY CORPORATION
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 03
3
HIGH SERVICE PUMP STATION SECTION 2

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **60-S302**
SHEET NUMBER **207**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_60_HIGH SERVICE PUMP STATION.rvt
Plot Date: 6/4/2024 10:05:50 AM



HIGH SERVICE PUMP STATION HVAC PLAN

PROJECT NORTH

1
60-M101

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

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.18337 BENJAMIN C. ROSS
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CHECKED BY: BCR
DATE: MAY 2024

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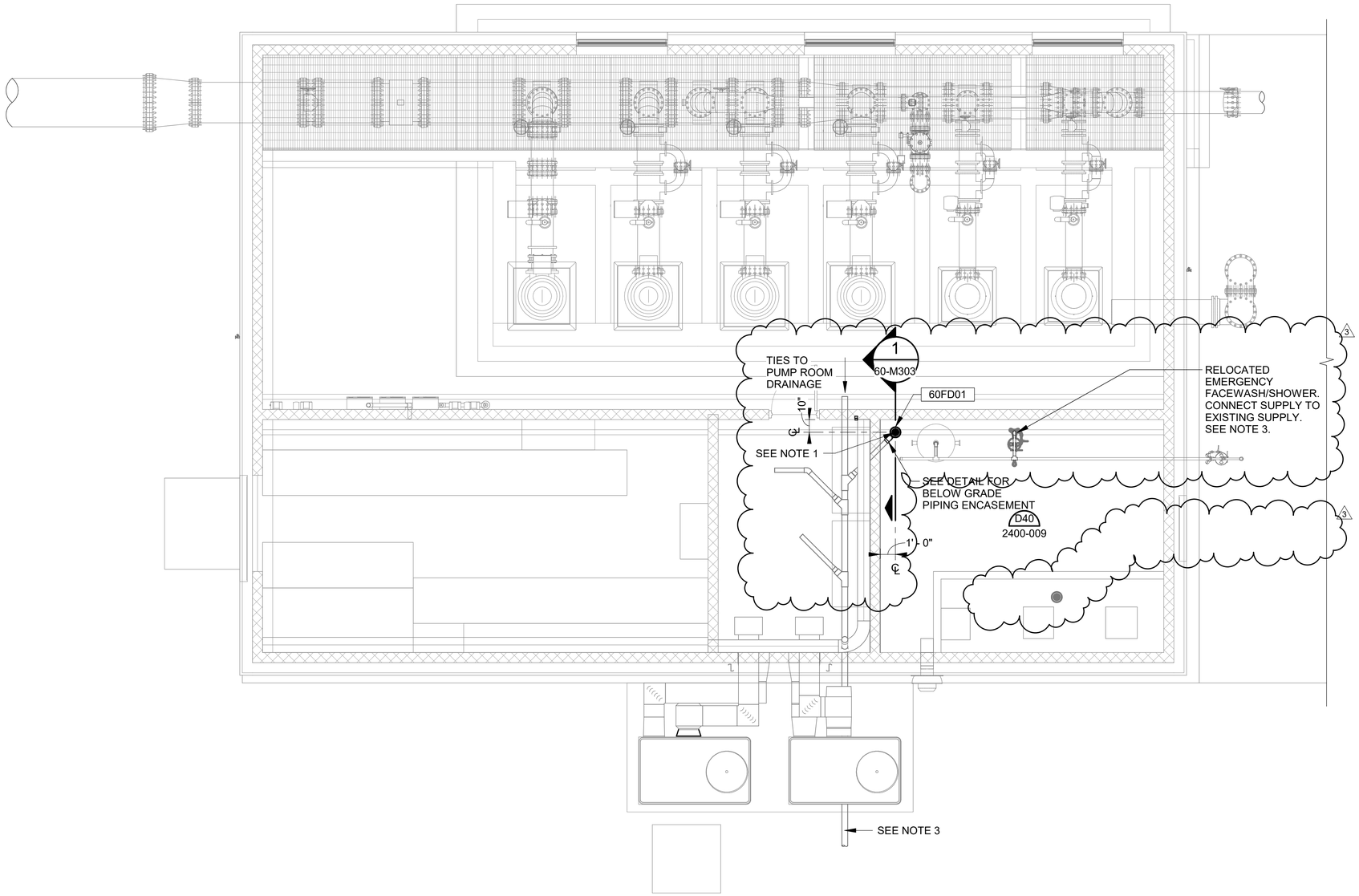
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CONWAY CORPORATION
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 03

HIGH SERVICE PUMP STATION HVAC PLAN

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **60-M101**
SHEET NUMBER **215**

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Plot Date: 6/3/2024 12:18:55 PM



NOTES:

1. ADD NEW FLOOR DRAIN AND APPROPRIATE P-TRAP HERE AND TIE INTO EXISTING SANITARY DRAINLINE.
2. EXISTING 4" SANITARY DRAIN LINE.
3. TAP EXISTING W1 SUPPLY TO RELOCATED EMERGENCY FACEWASH/SHOWER. RECORD DRAWINGS INDICATE THE EXISTING PIPE SIZE IS 1-1/2". EXISTING PIPE IS INSULATED AND PIPE MATERIAL TO BE FIELD VERIFIED BY CONTRACTOR. INSULATION SHALL BE REPAIRED AND PROVIDED ON NEW BRANCH TO MATCH EXISTING.

PROJECT NORTH

2
60-M102

HIGH SERVICE PUMP STATION PLUMBING PLAN

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

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

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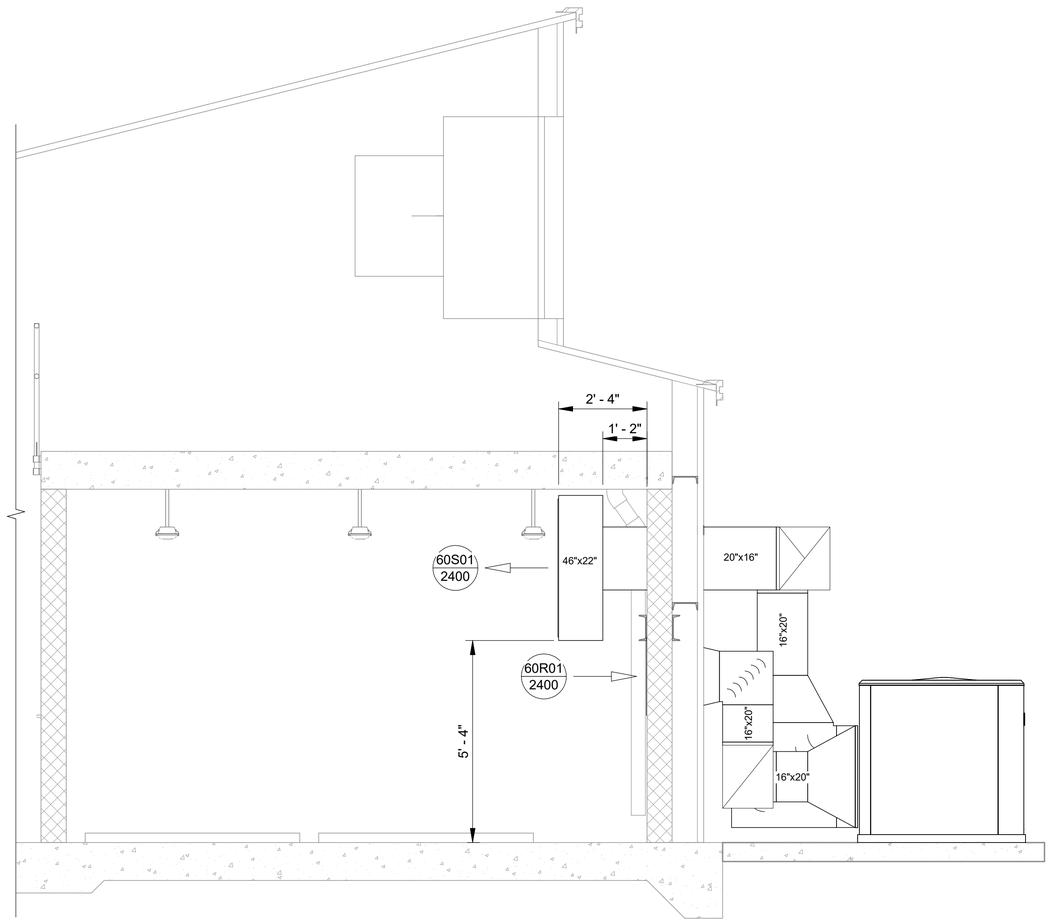
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

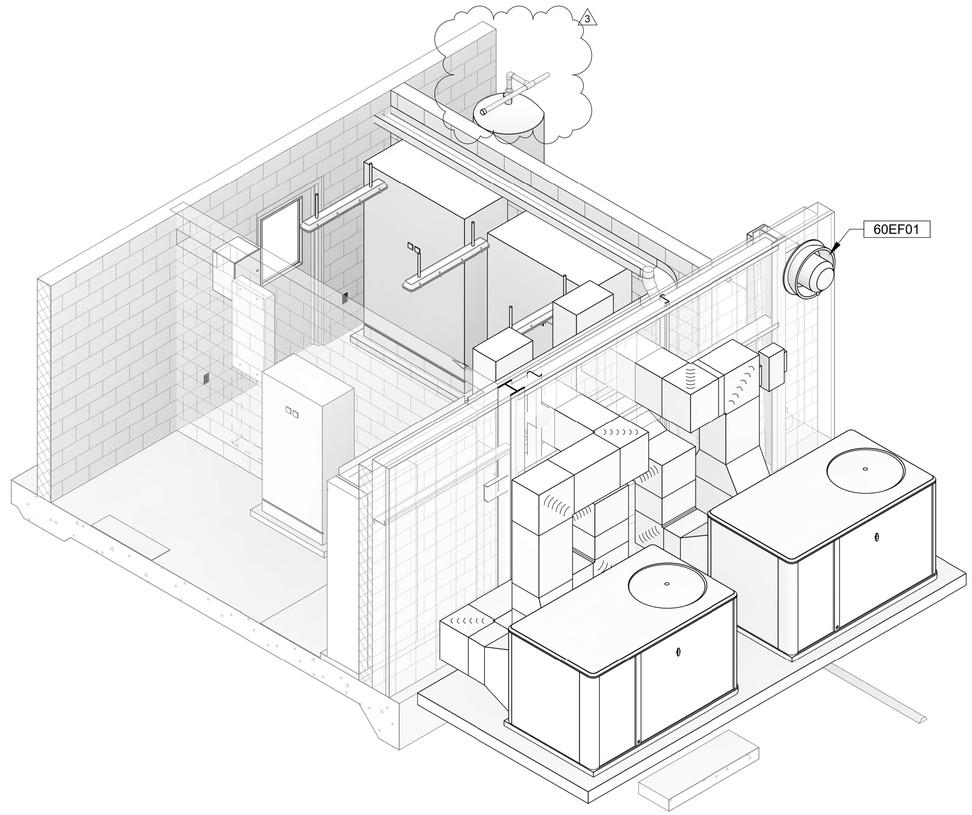
HIGH SERVICE PUMP STATION PLUMBING PLAN

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **60-M102**
SHEET NUMBER **216**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_60_HIGH SERVICE PUMP STATION.rvt
Plot Date: 6/3/2024 12:18:57 PM



1 SECTION
60-M101 | 60-M302 SCALE: 1/2" = 1'-0"



2 HVAC ISOMETRIC
60-M302 SCALE: NOT TO SCALE

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

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STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.18337 BENJAMIN C. ROSS
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CONWAY CORPORATION
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 03

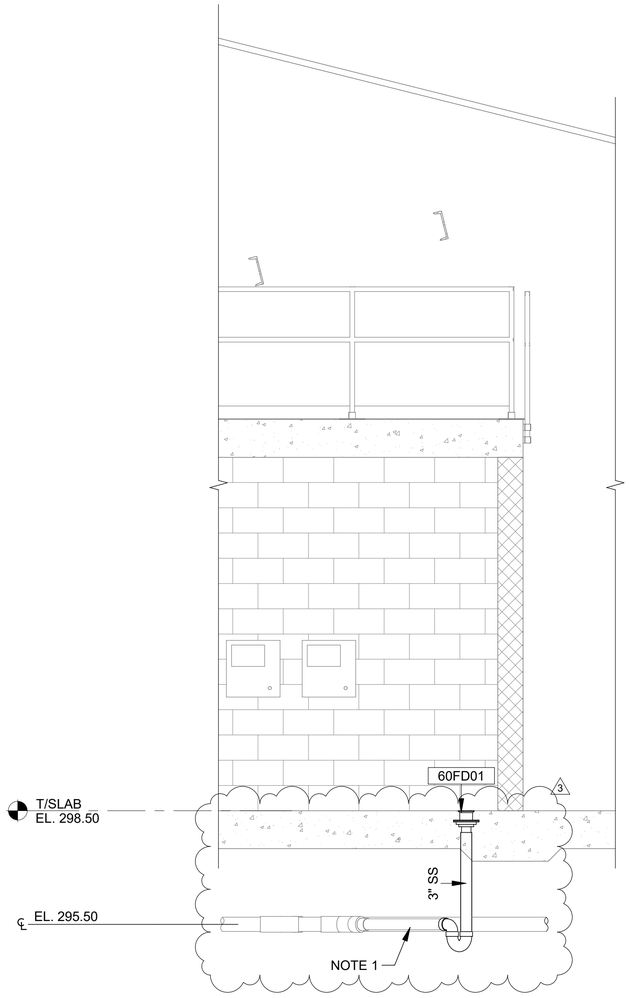
HIGH SERVICE PUMP STATION HVAC SECTION AND ISOMETRIC

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **60-M302**
SHEET NUMBER **218**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_60_HIGH SERVICE PUMP STATION.rvt
Plot Date: 6/3/2024 12:18:59 PM

NOTES:

1. CONNECT NEW FLOOR DRAIN TO EXISTING SANITARY BRANCH. RECORD DRAWINGS INDICATE SANITARY BRANCH IS 3", FIELD VERIFY SIZE AND TYPE AND MATCH EXISTING.



1
60-E101 | 60-M303

SECTION

SCALE: 1/2" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 — CERTIFICATE OF AUTHORIZATION — ARKANSAS ENGINEER

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No.18337 — BENJAMIN C. ROSS
Digitally Signed 06/03/2024

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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

HIGH SERVICE PUMP STATION PLUMBING SECTION

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **60-M303**
SHEET NUMBER **219**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_60_HIGH SERVICE PUMP STATION.rvt
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FAN SCHEDULE

MARK	AREA SERVED	MANUFACTURER	TYPE	MODEL	AIRFLOW (SCFM)	E.S.P. ("-W.C.)	DRIVE	RPM	ELECTRICAL DATA			CONTROLS	MOUNTING HEIGHT AFF	SOUND LEVEL (SONES)	WEIGHT (LB)	ACCESSORIES	NOTES
									MOTOR HP (KW)	V	PH						
60EF01	CHEMICAL ROOM	GREENHECK	WALL MOUNTED CENTRIFUGAL EXHAUST FAN	CUBE-100	500	0.2	BELT	914	1/4	115	1	SWITCH	8'-0"	2.0	61	ALL	-

ACCESSORIES:

1. HI-PRO POLYESTER COATING
2. DISCONNECT SWITCH
3. AUTO BELT TENSIONER
4. WALL HOUSING
5. ALUMINUM BIRD SCREEN
6. SPARE BELT SET

DUCT DAMPER

MARK	AREA SERVED	MANUFACTURER	DESCRIPTION	MODEL	SIZE (IN)		ACCESSORIES	NOTES
					WIDTH	HEIGHT		
60MD01	PUMP ROOM	GREENHECK	INSULATED, THERMALLY BROKEN CONTROL DAMPER	ICD-45	72	56	ALL	-
60MD01	PUMP ROOM	GREENHECK	INSULATED, THERMALLY BROKEN CONTROL DAMPER	ICD-45	72	56	ALL	-
60MD02	PUMP ROOM	GREENHECK	INSULATED, THERMALLY BROKEN CONTROL DAMPER	ICD-45	72	56	ALL	-
60MD02	PUMP ROOM	GREENHECK	INSULATED, THERMALLY BROKEN CONTROL DAMPER	ICD-45	72	56	ALL	-
60MD03	PUMP ROOM	GREENHECK	INSULATED, THERMALLY BROKEN CONTROL DAMPER	ICD-45	72	56	ALL	-
60MD03	PUMP ROOM	GREENHECK	INSULATED, THERMALLY BROKEN CONTROL DAMPER	ICD-45	72	56	ALL	-

ACCESSORIES:

1. 120V, MOTORIZED ACTUATOR
2. RE-WIRE INTO EXISTING CONTROL CIRCUIT. FURNISH ADDITIONAL WIRE AND CONDUIT AS REQUIRED.

PACKAGED AIR CONDITIONING UNIT SCHEDULE

MARK	AREA SERVED	MANUFACTURER	DESCRIPTION	MODEL	NOMINAL TONS	AIRFLOW (SCFM)	COOLING DATA					ELECTRICAL DATA								WEIGHT (LB)	ACCESSORIES	NOTES
							TEMPERATURES (°F)			CAPACITY (MBH)		INDOOR FAN HP	OUTDOOR FAN HP	KW	DRIVE	V	PH	MCA	MOCP			
							AMB	EDB	EWB	TOTAL	SENSIBLE											
60AC01	ELECTRICAL ROOM	TRANE	PACKAGED AC	THJ090A4S00	7.5	3000	105	80	67	86.08	67.91	3	1	8.3	DIRECT	460	3	24	30	1036	ALL	-
60AC02	ELECTRICAL ROOM	TRANE	PACKAGED AC	THJ090A4S00	7.5	3000	105	80	67	86.08	67.91	3	1	8.3	DIRECT	460	3	24	30	1036	ALL	-

ACCESSORIES:

1. HI-PRO POLYESTER COATING
2. HAIL GUARDS
3. LOW AMBIENT COOLING TO 0° F
4. POWERED CONVENIENCE OUTLET
5. HINGED ACCESS PANELS
6. DUCT SMOKE DETECTOR - RETURN
7. LEAD/LAG CONTROLLER
8. POWERED EXHAUST

DIFFUSER & GRILLE SCHEDULE

MARK	AREA SERVED	MANUFACTURER	DESCRIPTION	MODEL	SIZE (IN)		ACCESSORIES	NOTES
					WIDTH	HEIGHT		
60R01	ELECTRICAL ROOM	TITUS	RETURN GRILLE	50F	24	22	-	ALL
60S01	ELECTRICAL ROOM	TITUS	SUPPLY GRILLE	272F	18	42	-	ALL
60S02	CHEMICAL ROOM	TITUS	SUPPLY GRILLE	272F	6	10	-	ALL

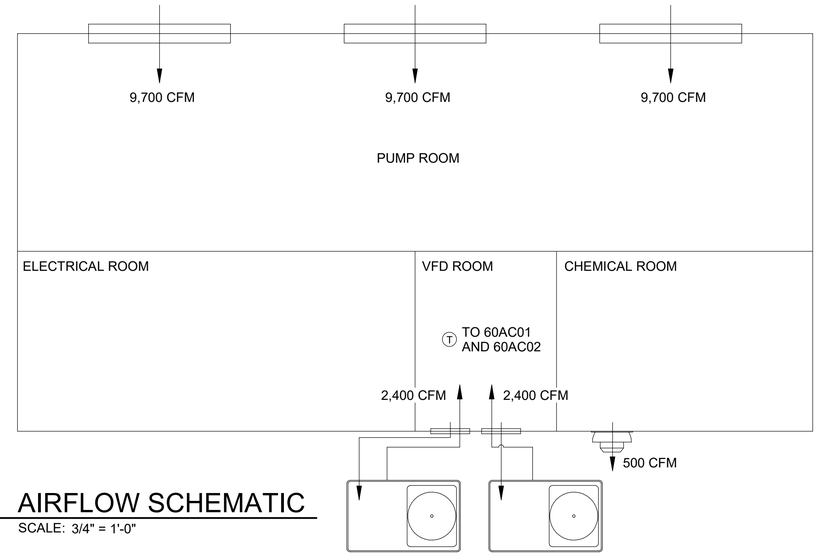
NOTES:

1. SURFACE MOUNT

3

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL	NOTES/ACCESSORIES
60FD01	FLOOR DRAIN	WADE	1100-A	3" OUTLET, ADJUSTABLE TOP, 6" STAINLESS STEEL GRATE. PROVIDE TRAP GUARD INSERT.



1 60-M601 AIRFLOW SCHEMATIC

SCALE: 3/4" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.18337 BENJAMIN C. ROSS

Digitally Signed 06/03/2024

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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

HIGH SERVICE PUMP STATION HVAC SCHEDULES

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **60-M601**
SHEET NUMBER **220**

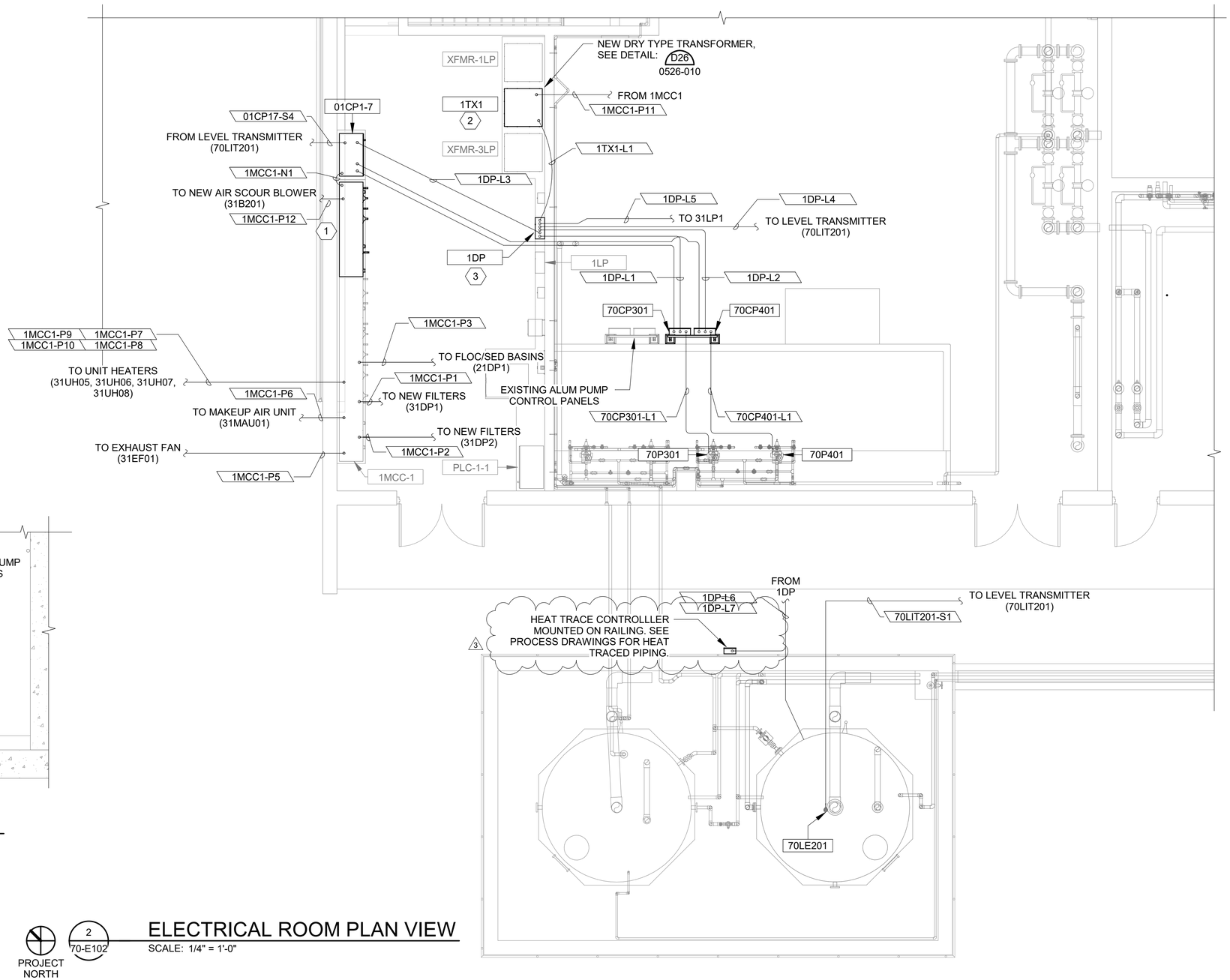
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Plot Date: 6/3/2024 12:18:59 PM

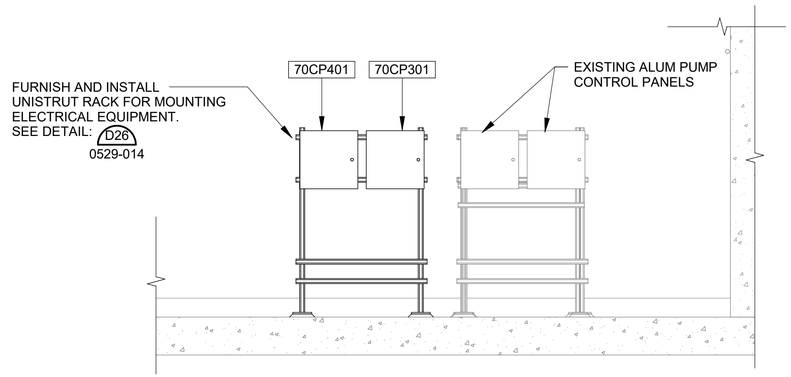
GENERAL NOTES:

1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, WIRING, TERMINATIONS, DISCONNECTS, CONTROL RELAYS, CONTROL ENCLOSURES AND OTHER ITEMS AS NECESSARY FOR COMPLETE HVAC AND INFLUENT PUMP STATION SYSTEMS. CONTRACTOR SHALL REFER TO THE SPECIFICATIONS AND OTHER SECTIONS OF THE PLANS FOR ITEMS AS MAY BE REQUIRED.
2. SOME CONDUIT RUNS OMITTED FOR CLARITY. COORDINATE ALL CONDUIT ROUTING OF SUPPLIED EQUIPMENT WITH ENGINEER PRIOR TO INSTALLATION.
3. CONDUIT ROUTING AS SHOWN IS DIAGRAMMATIC IN NATURE AND SHOWN FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING NUMBER OF REQUIRED CONDUITS AND PLACEMENT OF THESE CONDUITS. THE CONTRACTOR SHALL DEVELOP AND SUBMIT A CONDUIT ROUTING PLAN FOR REVIEW PRIOR TO INSTALLATION.
4. SIGNAL AND CONTROL CONDUCTORS OF LIKE VOLTAGES MAY BE COMBINED IN A SINGLE CONDUIT. MULTI-CONDUCTOR CONTROL AND SIGNAL CABLE MAY BE SUBSTITUTED FOR INDIVIDUAL CONDUCTORS.
5. VERIFY LOCATIONS OF ALL EQUIPMENT PRIOR TO INSTALLATION.

KEYNOTES:

1. NEW MCC SECTIONS TO BE APPENDED ONTO EXISTING 1MCC-1. SEE ONE-LINE DIAGRAM FOR MORE INFORMATION.
2. DEMOLISH EXISTING TRANSFORMER AND INSTALL NEW TRASFORMER. SEE ONELINE FOR MORE INFORMATION.
3. REPLACE EXISTING PANEL 1DP WITH A NEW 54 SPACE PANELBOARD. PROVIDE BRANCH CIRCUIT BREAKERS AS REQUIRED TO PROVIDE DEDICATED BREAKERS TO EACH DEVICE CURRENTLY SUPPLIED BY THE EXISTING PANELS. SEE ONELINE DIAGRAM FOR MORE INFROMATION.





1 / 70-E102 CONTROL PANEL SECTION
SCALE: 1/2" = 1'-0"

PROJECT NORTH

2 / 70-E102 ELECTRICAL ROOM PLAN VIEW
SCALE: 1/4" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.22116 HUNTER WICK
Digitally Signed 06/03/2024

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THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: HGW
DRAWN BY: GBA
CHECKED BY: JCW
DATE: MAY 2024

CRIST ENGINEERS, INC.
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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

CHEMICAL BUILDING POWER PLAN - ENLARGED

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **70-E102**
SHEET NUMBER **240**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_70_OPERATIONS & CHEMICAL FEED BUILDING.rvt
Plot Date: 6/3/2024 4:19:40 PM

CONDUIT #	DESCRIPTION	SIZE	CONDUCTORS	TYPE	FROM EQUIPMENT	TO EQUIPMENT
01CP17-C1	EFFLUENT CHANNEL & SLUDGE TROUGH LEVEL HI	1"	4-#14, #14G	CONTROL	01CP1-7	21LSH501 & 21LSH601
01CP17-C2	SLUDGE CORRECTION DRIVE CONTROL	1"	20-#14, #14G	CONTROL	01CP1-7	21LCP501
01CP17-C3	ALUM. PUMP #3 CP CONTROL	1"	4-#14, #14G	CONTROL	01CP1-7	70CP301
01CP17-C4	ALUM. PUMP #4 CP CONTROL	1"	4-#14, #14G	CONTROL	01CP1-7	70CP401
01CP17-S1	BACKWASH TANK #2 LEVEL SIGNAL	EXISTING 2"	1-PAIR STP	4-20MA	01CP1-7	50LT201
01CP17-S2	ALUM. PUMP #3 CP SIGNAL	1"	1-PAIR STP	4-20MA	01CP1-7	70CP301
01CP17-S3	ALUM. PUMP #4 CP SIGNAL	1"	1-PAIR STP	4-20MA	01CP1-7	70CP401
01CP17-S4	ALUM. TANK LEVEL TRANSMITTER SIGNAL	1"	1-PAIR STP	4-20MA	01CP1-7	70LIT201
01CP17-S5	NEW PLANT FLOW TRANSMITTER SIGNAL	1"	1-PAIR STP	4-20MA	01CP1-7	70FIT301
1DP-L1	ALUM PUMP #3 STARTER	1"	2-#12, #12G	120VAC	1DP	70CP301
1DP-L2	ALUM PUMP #4 STARTER	1"	2-#12, #12G	120VAC	1DP	70CP401
1DP-L3	01CP1-7 SUPPLY	1"	2-#12, #12G	120VAC	1DP	01CP1-7
1DP-L4	70LIT201 SUPPLY	1"	2-#12, #12G	120VAC	1DP	70LIT201
1DP-L5	31LP1 SUPPLY	1-1/4"	3-#1,#8G	240VAC	1DP	31LP1
1DP-L6	NEW PLANT ALUM TANK HEAT TAPE	1"	2-#12, #12G	120VAC	1DP	NEW ALUM HEAT TAPE
2 3 1DP-L7	NEW PLANT ALUM TANK HEAT TRACE CONTROLLER	1"	2-#12, #12G	120VAC	1DP	HEAT TRACE CONTROLLER
1MCC1-P1	PANEL 31DP1 SUPPLY	2"	4-#1, #8G	480VAC	1MCC-1	31DP1
1MCC1-P10	FILTER VAULT UNIT HEATER #4	1"	3-#12, #12G	480VAC	1MCC-1	31UH08
1MCC1-P11	TRANSFORMER 1TX1 SUPPLY	2-1/2"	2-#4/0, #4G	480VAC	1MCC-1	1TX1
1MCC1-P12	AIR SCOUR BLOWER #2	2-1/2"	3-#250, #4G	480VAC	1MCC-1	31B201
1MCC1-P2	PANEL 31DP2 SUPPLY	2"	4-#1, #8G	480VAC	1MCC-1	31DP2
1MCC1-P3	PANEL 21DP1 SUPPLY	2"	4-#1, #6G	480VAC	1MCC-1	21DP1
1MCC1-P4	FILTER VAULT EXHAUST FAN #1 SUPPLY	1"	3-#12, #12G	480VAC	1MCC-1	PRV-301
1MCC1-P5	FILTER VAULT EXHAUST FAN #2 SUPPLY	1"	3-#12, #12G	480VAC	1MCC-1	31EF01
1MCC1-P6	FILTER VAULT MAKEUP AIR UNIT SUPPLY	2"	3-#2/0, #6G	480VAC	1MCC-1	31MAU01
1MCC1-P7	FILTER VAULT UNIT HEATER #1	1"	3-#12, #12G	480VAC	1MCC-1	31UH05
1MCC1-P8	FILTER VAULT UNIT HEATER #2	1"	3-#12, #12G	480VAC	1MCC-1	31UH06
1MCC1-P9	FILTER VAULT UNIT HEATER #3	1"	3-#12, #12G	480VAC	1MCC-1	31UH07
1MCC1-N1	AIR SCOUR BLOWER #2 DEVICENET	3/4"	DEVICENET	DEVICENET	1MCC1	01CP1-7
21VFD001-N1	RAPID MIXER DEVICENET	1"	DEVICENET	DEVICENET	01CP1-7	21VFD001
1TX1-L1	PANEL 1DP SUPPLY	4"	3-#500, #3G	240VAC	1TX1	1DP
70CP301-L1	NEW PLANT ALUM PUMP #3 SUPPLY	1"	2-#12, #12G	VDC	70CP301	70P301
70CP401-L1	NEW PLANT ALUM PUMP #4 SUPPLY	1"	2-#12, #12G	VDC	70CP401	70P401
70FIT301-S1	NEW PLANT FLOW ELEMENT SIGNAL	1"	1-PAIR STP	4-20MA	70FIT301	70FE301
70LIT201-S1	ALUM. TANK LEVEL ELEMENT SIGNAL	1"	1-PAIR STP	4-20MA	70LIT201	70LE201

1
70-E601

FACILITY 70 CONDUIT SCHEDULE

SCALE: NONE

REV	DATE	DESCRIPTION	BY
2	05/17/24	ADD 02	
3	06/03/24	ADD 03	

GARVER LLC No. 766 — CERTIFICATE OF AUTHORIZATION — ARKANSAS ENGINEER

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No.22116 — HUNTER WICK

Digitally Signed 06/03/2024

0 1"

1" = 1"

THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: HGW
DRAWN BY: ECB
CHECKED BY: JCW
DATE: MAY 2024

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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

CHEMICAL BUILDING ELECTRICAL CONDUIT SCHEDULE

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER: **70-E601**
SHEET NUMBER: **243**

File: L:\2019\19W01300 - Conway Corp WTP Improvements\Drawings\XX-E601.dwg Last Save: 6/3/2024 2:27 PM Last saved by: LCBridges
Last plotted by: Bridges, Landon C. (Cadet) Plot Style: ---- Plot Scale: 1:2.5849 Plot Date: 6/3/2024 2:34 PM Plotter used: None

PROCESS PIPING SCHEDULE

SERVICE	FLOW STREAM IDENTIFIER	INSTALLATION	NOMINAL DIAMETER	MATERIAL	COATING	SPEC DATA/SHEET NO.	MAX OPERATING TEMP (°F)	MAX OPERATING PRESSURE (PSIG)	TEST PRESSURE (PSIG) & METHOD	PIPE COLOR	REMARKS
ALUM SOLUTION	ALUM	EXPOSED	ALL	PVC	NONE	400531	AMBIENT	10	50, HIGH HEAD	PROVIDE IDENTIFICATION	1, 2
VENT	V	EXPOSED	ALL	PVC	NONE	400531	AMBIENT	-	AIR METHOD	NONE	3

REMARKS:

1. FLANGE PVC, PUSHON PVC, SOLVENT WELD PVC WHERE SHOWN.
2. HEAT TRACE, PER NOTE 3 AS SPECIFIED IN SECTION 40 41 13 - HEAT TRACING.
3. ENSURE CHEMICAL COMPATABILITY FOR ALL CHEMICAL WELDING AGENTS.

VALVE SCHEDULE

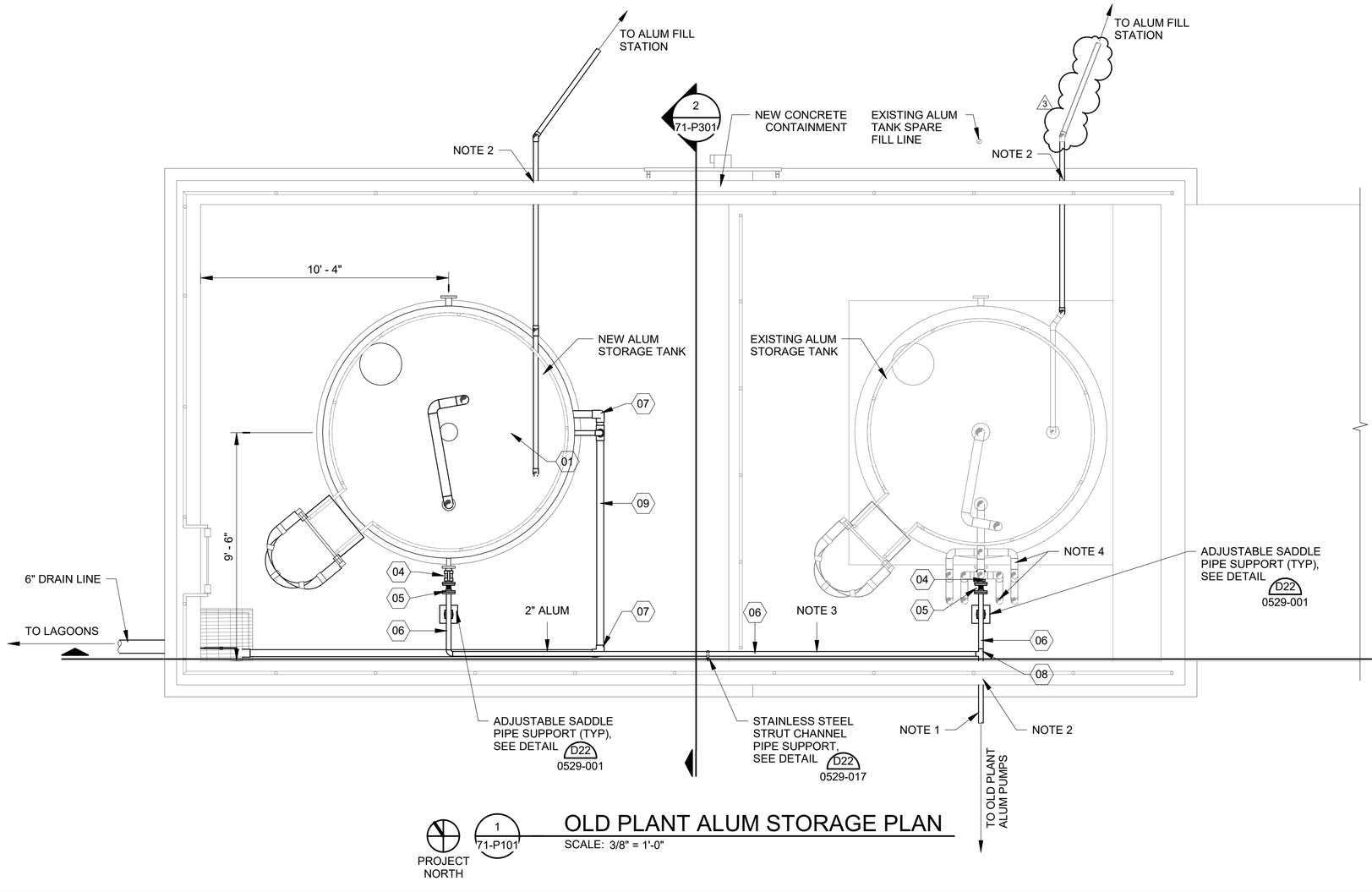
SPEC	P&ID	FLOW STREAM ID	VALVE TYPE	OPERATION	OPERATOR	BODY SIZE (IN)	MAX FLOW (GPM)	MAX PRESSURE
400560	08-I701	ALUM	BALL VALVE	OPEN/CLOSE	MANUAL	ALL	0.5	10 PSI
331419	331419	DR	BUTTERFLY VALVE	OPEN/CLOSE	MANUAL	6	N/A	N/A

KEYNOTES: DENOTED BY SYMBOL (X)

01	2" x LENGTH AS REQ'D SPOOL (SOC x SOC)
03	2" 90° BEND (SOC x SOC)
04	2" BALL VALVE (FLG x FLG)
05	2" EXPANSION JOINT (FLG x FLG)
06	2" x LENGTH AS REQ'D SPOOL (WLD x WLD)
07	3" 90° BEND (SOC x SOC)
08	3" TEE (WLD x WLD x WLD)
09	3" x LENGTH AS REQ'D SPOOL (SOC x SOC)
10	3" x 3" x 3" TEE (SOC x SOC x SOC)
11	4" 90° BEND (WLD x WLD)
12	4" x LENGTH AS REQ'D SPOOL (WLD x WLD)
13	6" x LENGTH AS REQ'D SPOOL (SOC x SOC)

NOTE:

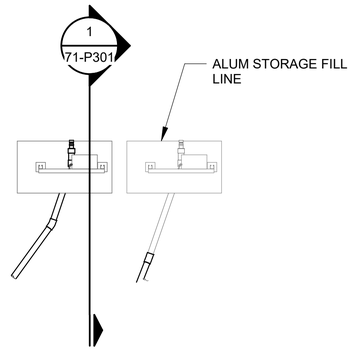
1. FIELD LOCATE AND CONNECT TO EXISTING OLD PLANT ALUM PUMP FEED LINE.
2. CORE DRILL AND PROVIDE LINK SEAL AT PENETRATION. REFER TO DETAIL D40 2400-001
3. PROVIDE HEAT TRACING FOR SUCTION LINES IN THE CONTAINMENT.
4. FIELD LOCATE ALUM ANTI-SIPHON LINES. REROUTE OR SUPPORT PIPES WHERE NEEDED



PROJECT NORTH (1) 71-P101

OLD PLANT ALUM STORAGE PLAN

SCALE: 3/8" = 1'-0"



PROJECT NORTH (2) 71-P101

OLD PLANT ALUM FEED PANEL

SCALE: 3/8" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER JOHN ANDREW PRUITT No. 15176

Digitally Signed 06/04/2024

0 1" — 1" = 1"

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DESIGNED BY: MYL
DRAWN BY: GBA
CHECKED BY: JAP
DATE: MAY 2024

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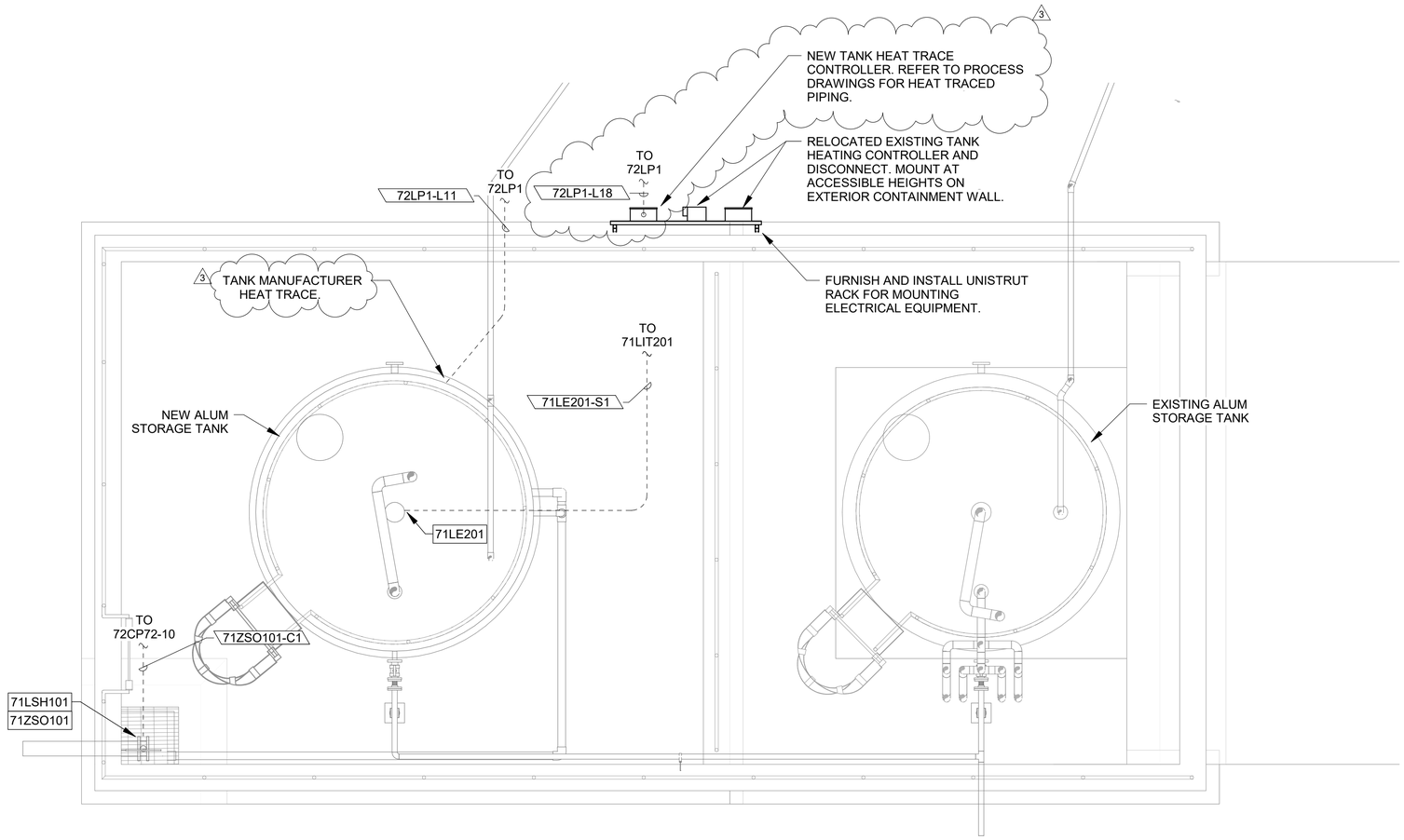
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

OLD PLANT ALUM FEED STORAGE PLAN

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **71-P101**
SHEET NUMBER **247**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_71_OLD PLANT ALUM FEED.rvt
Plot Date: 5/31/2024 2:16:51 PM

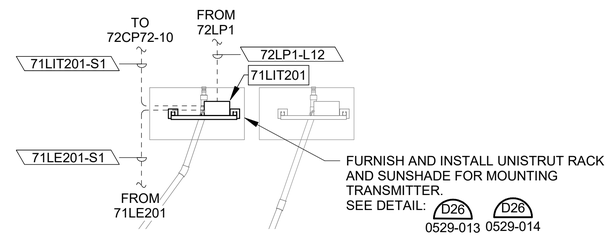


OLD PLANT ALUM FEED ELECTRICAL PLAN

PROJECT NORTH

1 / 71-E101

SCALE: 3/8" = 1'-0"



OLD PLANT ALUM TANK FILL STATION ELECTRICAL PLAN

PROJECT NORTH

2 / 71-E101

SCALE: 3/8" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	05/22/24	ADD 03	

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STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No.22116 — HUNTER WICK

Digitally Signed 06/03/2024

0 1" — 1" = 1"

THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: HGW
DRAWN BY: RHH
CHECKED BY: HGW
DATE: MAY 2024

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ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

OLD PLANT ALUM FEED ELECTRICAL PLAN

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER: **71-E101**
SHEET NUMBER: **250**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_71_OLD PLANT ALUM FEED.rvt
Plot Date: 5/28/2024 10:24:31 AM

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- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the produc manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information fo each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

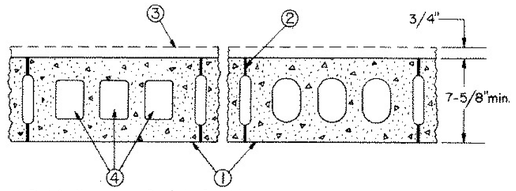
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U901

January 11, 2022

Bearing Wall Rating — 4 HR.
Nonbearing Wall Rating — 4 HR.
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall b used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Concrete Blocks* —** Various designs. Classification B-4 (4 hr).
See Concrete Blocks category for lists of eligible manufacturers.

2. **Mortar —** Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.

3. **Portland Cement Stucco or Gypsum Plaster —** If used, add 1/2 hr. to Classification.

4. **Loose Masonry Fill —** If all *core* spaces are filled with loose dry expanded slag, burned clay or shale (rotary kiln process), water repellent vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation, Class D-2 (2 hr) or C-3 (3 hr) concrete blocks will provide a 4 hr fire resistance rating.

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Last Updated on 2022-01-11

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- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
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- Only products which bear UL's Mark are considered Certified.

XHEZ - Through-penetration Firestop Systems

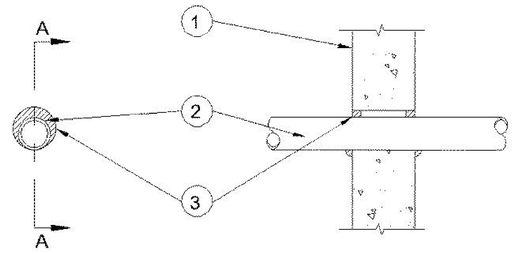
See General Information for Through-penetration Firestop Systems

System No. W-J-2149

October 29, 2003

F Rating — 1, 2, 3 and 4 Hr (See Item 1)

T Rating — 1, 2, 3 and 4 Hr (See Item 1)



SECTION A-A

1. **Wall Assembly —** Min 4-7/8, 6-1/8, 7-3/8 and 8-5/8 in. thick normal weight or lightweight (100-150 pcf) concrete for 1, 2, 3 and 4 hour rated wall assemblies, respectively. Wall may also be constructed of any UL Classified **Concrete Blocks**. Max diam of opening is 3-1/8 in.
See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

The F and T Ratings of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through Penetrants —** One nonmetallic pipe or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe and periphery of opening shall be min 0 in. to max 7/8 in. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes or tubing may be used:

A. **Chlorinated Polyvinyl Chloride (CPVC) Pipe —** Nom 2 in. diam (or smaller) SDR11 CPVC pipe for use in closed (process or supply) piping systems.

B. **Polyvinyl Chloride (PVC) Pipe —** Nom 2 in. diam (or smaller) Schedule 40 (or heavier) cellular or solid core PVC pipe for use in closed (process or supply) piping systems.

C. **Crosslinked Polyethylene (PEX) Tubing —** Nom 3/4 in. diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) piping systems.

3. **Fill, Void or Cavity Material* — Sealant —** Min 5/8 and 1-1/4 in. thickness of fill material for 1 and 2 hour rated wall assemblies, respectively, applied within the annulus, flush with both surfaces of wall. At point contact location between penetrant and periphery of opening, a min 1/2 in. diam bead of fill material shall be applied at the concrete/penetrant interface on both surfaces of wall.
GRABBER CONSTRUCTION PRODUCTS INC — GrabberGard IFC

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Last Updated on 2003-10-29

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BXUVC - Fire-resistance Ratings

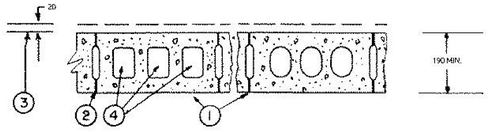
See General Information for Fire-resistance Ratings

Design No. U904

March 15, 2017

Assembly Rating - 3 h

Load Restricted — Assembly evaluated in accordance with Working Stress Design methods, for use under Limit States Design methods; refer to information under Guide BXUVC.



Horizontal Section

Bearing or Nonbearing Wall

• 1. **Concrete Blocks of Various Designs —** (CAZTC). 3 h rating based on noncombustible members framed into wall. Rating is 1 h when combustible members are framed into wall.
BASALITE CONCRETE PRODUCTS VANCOUVER ULC

2. **Mortar —** Blocks laid in full bed of mortar, 13 mm thick, of 3 parts of clean and sharp sand to 1 part Portland Cement (proportioned by volume) and 15% hydrated lime (by cement volume. Vertical joints staggered.

3. **Portland Cement, Stucco or Gypsum Plaster —** Add 1/2 h to Classification if used. Where combustible members are framed in wall, plaster or stucco must be applied on the face opposite framing to achieve a max Classification of 1-1/2 h.

4. **Loose Masonry Fill —** If all core spaces are filled with loose dry expanded slag, burned clay or shale (Rotary Kiln process) or water repellent vermiculite masonry fill insulation, add 1 h to Classification.

Last Updated on 2017-03-15

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REV	DATE	DESCRIPTION	BY
3	05/24/24	ADD 03	CMR

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

REGISTERED ARCHITECT Greg A. Archer License No. 2671 STATE OF ARKANSAS 5.24.24

0 1" — 1" = 1"

THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: CMR
DRAWN BY: RAG
CHECKED BY: GAA
DATE: MAY 2024

CRIST ENGINEERS, INC.
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ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 03

LIME & PAC BUILDING FIRE RESISTANCE ASSEMBLIES

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **72-A004**
SHEET NUMBER **257**

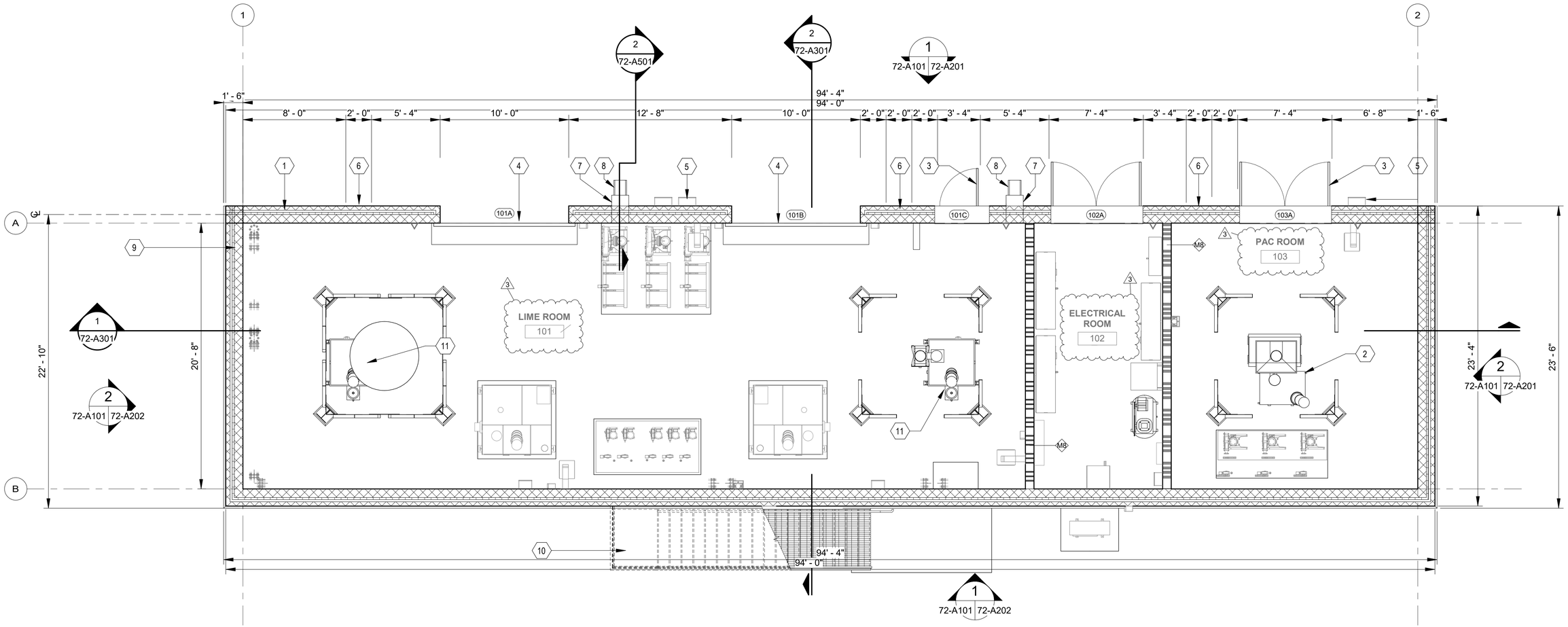
Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_72_LIME AND PAC FEED AND STORAGE.rvt
Plot Date: 5/30/2024 1:40:35 PM

GENERAL NOTES:

1. REFER TO GENERAL SHEETS FOR OTHER GENERAL NOTES.
2. REFER TO ALL CIVIL/MEP/STRUCTURAL SHEETS FOR REQUIRED WORK.
3. ALL DIMENSIONS ARE TO FACE OF CMU OR CONCRETE OR CENTER LINE OF GRID.
4. INSIDE FACE OF DOOR FRAME JAMBS (HINGE SIDE) ARE LOCATED 6" MIN. FROM ADJACENT PERPENDICULAR WALLS (UNLESS NOTED OTHERWISE).
5. PROVIDE BLOCKING/BRACING FOR ALL WALL MOUNTED, ATTACHED, AND RECESSED EQUIPMENT AND FURNISHINGS AS RECOMMENDED BY MANUFACTURERS.
6. PROVIDE 1'-6" CLEAR AREA AT PULL SIDE OF DOORS.
7. PROVIDE 1'-0" CLEAR AREA AT PUSH SIDE OF DOORS WITH LATCH AND CLOSER.
8. REFER TO 72-A504 FOR FLOOR FINISHES.
9. REFER TO 72-A503 & 72-A504 FOR DOOR TYPES & TYPICAL DETAILS.
10. SEE 72-A504 FOR HARDWARE SETS.

KEYNOTES

1	CMU VENEER - INTEGRAL COLOR SPLIT FACE
2	PAC BATCH TANK
3	HOLLOW METAL DOOR
4	MOTORIZED ROLL-UP DOOR
5	ELECTRICAL COMPONENTS, SEE ELEC.
6	FIXED LOUVER
7	PREFINISHED METAL SCUPPER AND DOWNSPOUT
8	CONCRETE SPLASH BLOCK
9	CAST-IN-PLACE CONCRETE
10	METAL STAIRS INDUSTRIAL
11	LIME BATCH TANK



FLOOR PLAN

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

PROJECT NORTH

REV	DATE	DESCRIPTION	BY
3	05/24/24	ADD 03	CMR

GARVER LLC No. 766 — CERTIFICATE OF AUTHORIZATION — ARKANSAS ENGINEER

REGISTERED ARCHITECT — Greg A. Archer — License No. 2671 — STATE OF ARKANSAS — 5.24.24

0 1" — 1" = 1"

THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: CMR
DRAWN BY: RAG
CHECKED BY: GAA
DATE: MAY 2024

CRIST ENGINEERS, INC.
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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

LIME & PAC BUILDING FLOOR PLAN

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER: **72-A101**
SHEET NUMBER: **258**

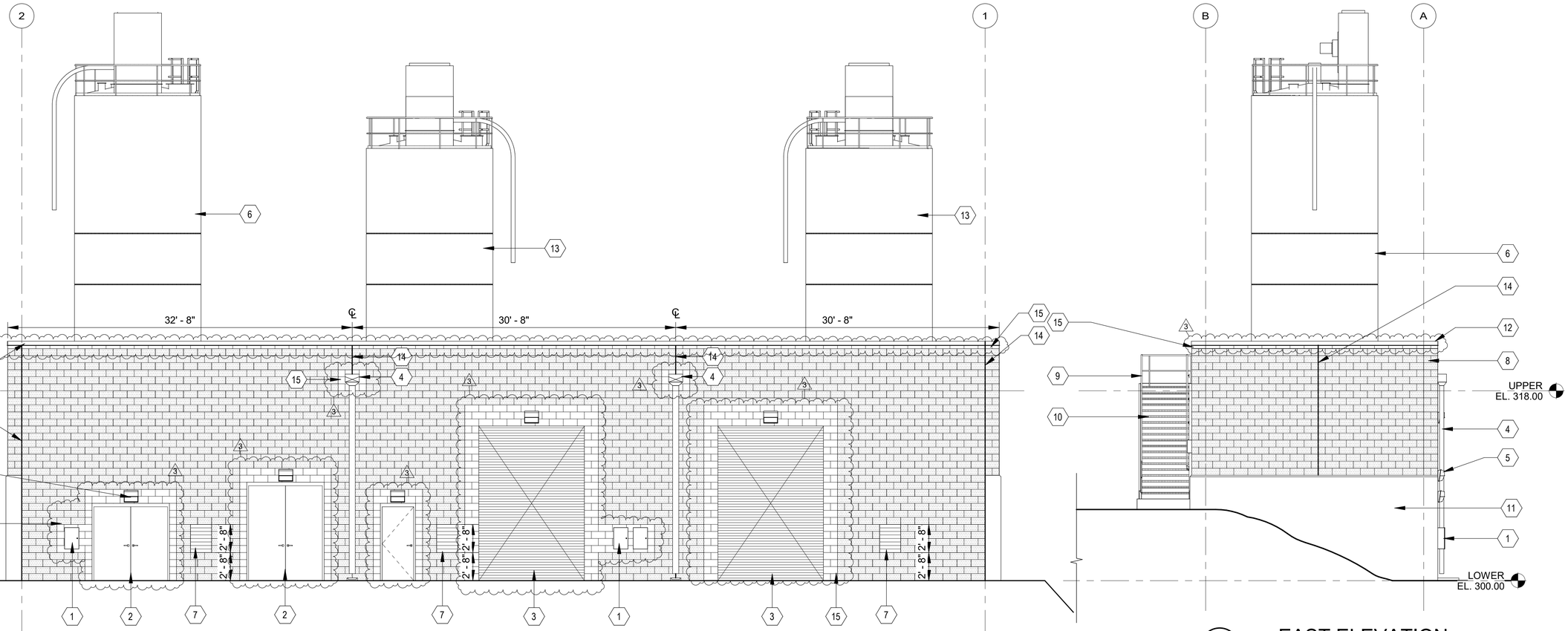
Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_72_LIME AND PAC FEED AND STORAGE.rvt
Plot Date: 5/30/2024 1:40:37 PM

KEYNOTES

1	ELECTRICAL COMPONENTS, SEE ELEC.
2	HOLLOW METAL DOOR
3	MOTORIZED ROLL-UP DOOR
4	PREFINISHED METAL SCUPPER AND DOWNSPOUT
5	WALL MOUNTED DOWN LIGHT
6	PAC BATCH TANK
7	FIXED LOUVER
8	CMU VENEER - INTEGRAL COLOR SPLIT FACE
9	STEEL STAIR RAILING
10	METAL STAIRS INDUSTRIAL
11	CAST-IN-PLACE CONCRETE
12	PREFINISHED METAL PARAPET CAP
13	LIME BATCH TANK
14	MASONRY CONTROL JOINT
15	CMU VENEER - INTEGRAL COLOR SMOOTH FACE

GENERAL NOTES:

1. REFER TO GENERAL SHEETS FOR OTHER GENERAL NOTES
2. SLOPE ASPHALT PAVING AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING (MIN. OF 1/4" PER FT. SLOPE FOR NOT LESS THAN 5FT. IN ANY DIRECTION); FLUSH WITH FINISH FLOOR AT PERSONNEL DOORS: 1/2" BELOW CONCRETE APRONS/DRIVES
3. ALL EXPOSED SURFACES (INTERIOR AND EXTERIOR) THAT ARE NOT PRE-FINISHED, SHALL BE PAINTED; BUILDING STRUCTURAL SYSTEM, EXPOSED METAL PIPING, ELECTRICAL CONDUITS,DUCTS, HANGERS, ETC.
4. REFER TO 72-A503 FOR EXTERIOR FINISHES
5. REFER TO 72-A302 FOR WALL SECTIONS.
6. REFER TO 72-A501 FOR SECTIONS DETAILS.



1 / 72-A101 | 72-A201 — NORTH ELEVATION
SCALE: 3/16" = 1'-0"

2 / 72-A101 | 72-A201 — EAST ELEVATION
SCALE: 3/16" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	05/24/24	ADD 03	CMR

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REGISTERED ARCHITECT — Greg A. Archer — License No. 2671 — STATE OF ARKANSAS — 5.24.24

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DRAWN BY: RAG
CHECKED BY: GAA
DATE: MAY 2024

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CONWAY CORPORATION
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 03

LIME & PAC BUILDING ELEVATIONS 1

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **72-A201**
SHEET NUMBER **261**

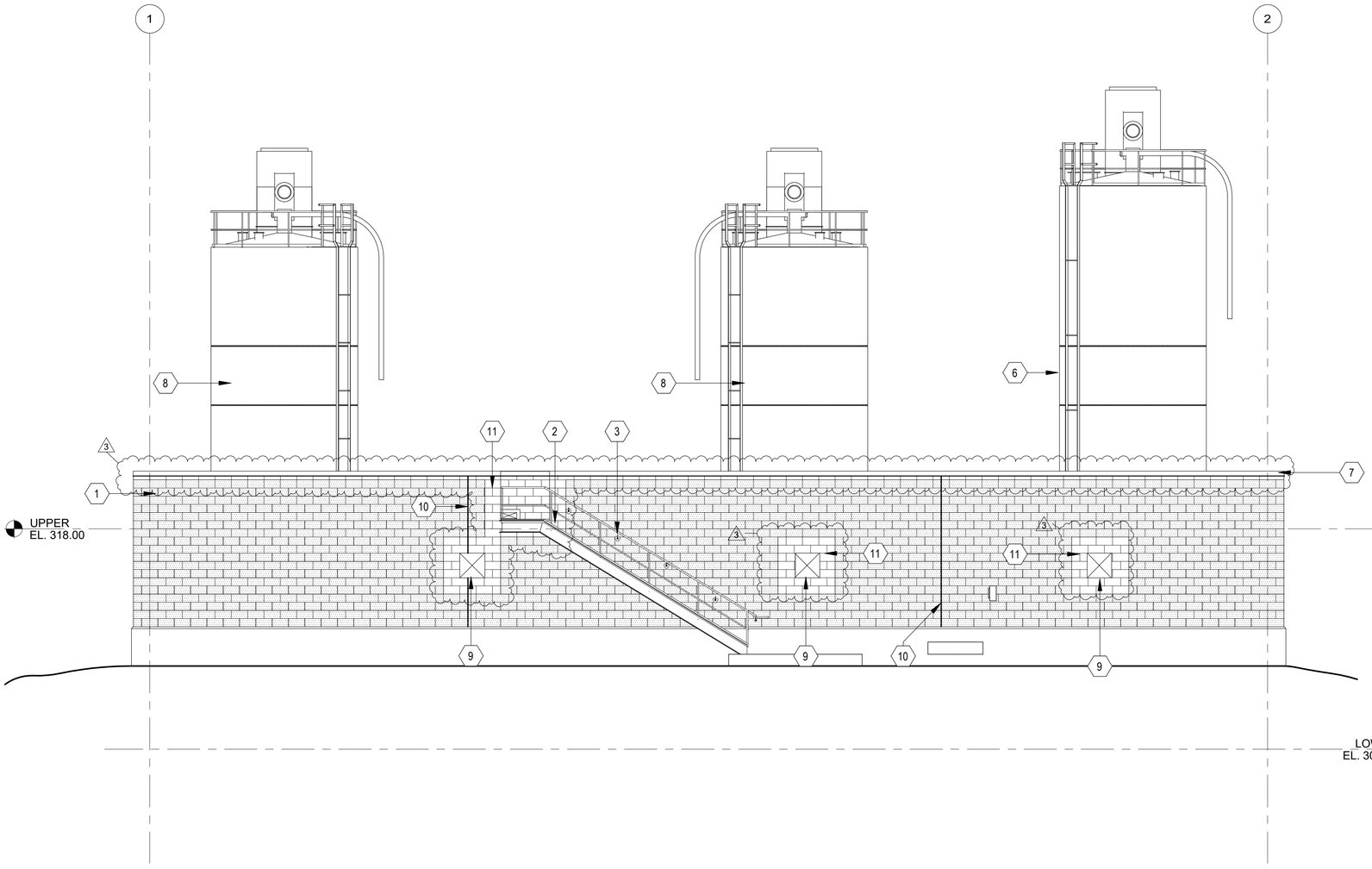
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KEYNOTES

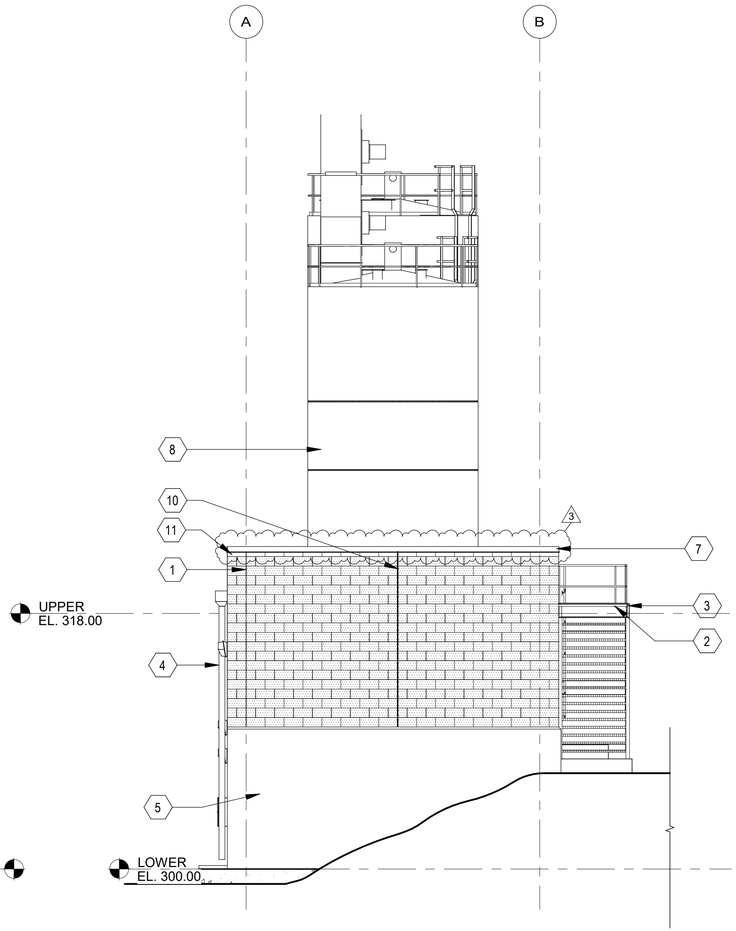
1	CMU VENEER - INTEGRAL COLOR SPLIT FACE
2	METAL STAIRS INDUSTRIAL
3	STEEL STAIR RAILING
4	PREFINISHED METAL SCUPPER AND DOWNSPOUT
5	CAST-IN-PLACE CONCRETE
6	PAC BATCH TANK
7	PREFINISHED METAL PARAPET CAP
8	LIME BATCH TANK
9	HVAC EQUIPMENT; RE:MECHANICAL
10	MASONRY CONTROL JOINT
11	CMU VENEER - INTEGRAL COLOR SMOOTH FACE

GENERAL NOTES:

1. REFER TO GENERAL SHEETS FOR OTHER GENERAL NOTES
2. SLOPE ASPHALT PAVING AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING (MIN. OF 1/4" PER FT. SLOPE FOR NOT LESS THAN 5FT. IN ANY DIRECTION); FLUSH WITH FINISH FLOOR AT PERSONNEL DOORS: 1/2" BELOW CONCRETE APRONS/DRIVES
3. ALL EXPOSED SURFACES (INTERIOR AND EXTERIOR) THAT ARE NOT PRE-FINISHED, SHALL BE PAINTED; BUILDING STRUCTURAL SYSTEM, EXPOSED METAL PIPING, ELECTRICAL CONDUITS,DUCTS, HANGERS, ETC.
4. REFER TO 72-A503 FOR EXTERIOR FINISHES
5. REFER TO 72-A302 FOR WALL SECTIONS.
6. REFER TO 72-A501 FOR SECTIONS DETAILS.



1 / 72-A101 | 72-A202 SOUTH ELEVATION
SCALE: 3/16" = 1'-0"



2 / 72-A101 | 72-A202 WEST ELEVATION
SCALE: 3/16" = 1'-0"

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REGISTERED ARCHITECT Greg A. Archer License No. 2671 STATE OF ARKANSAS
5.24.24

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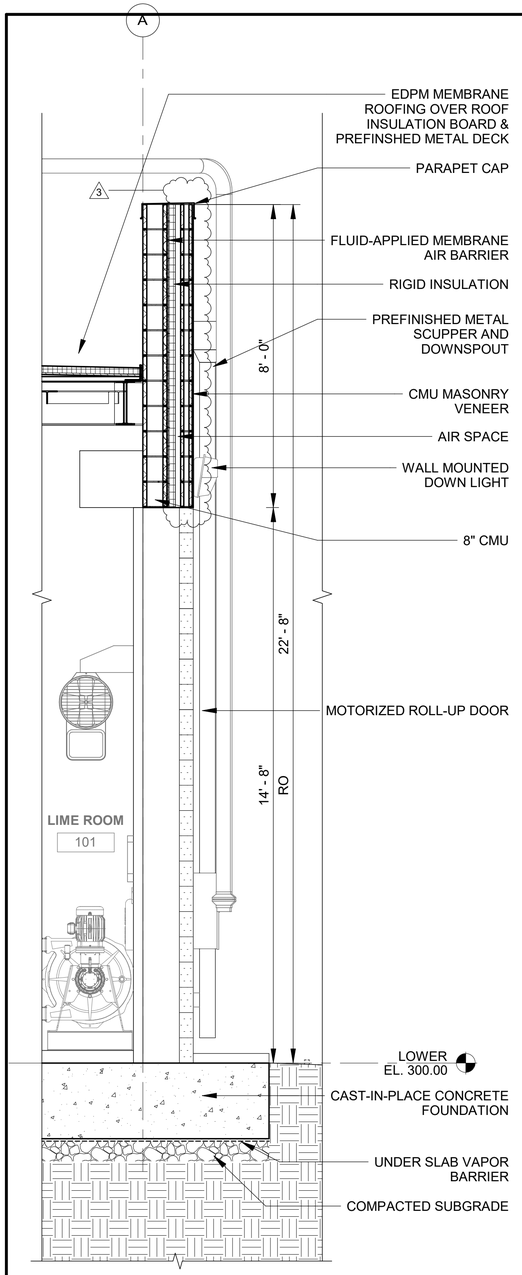
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CONWAY CORPORATION
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 03

LIME & PAC BUILDING ELEVATIONS 2

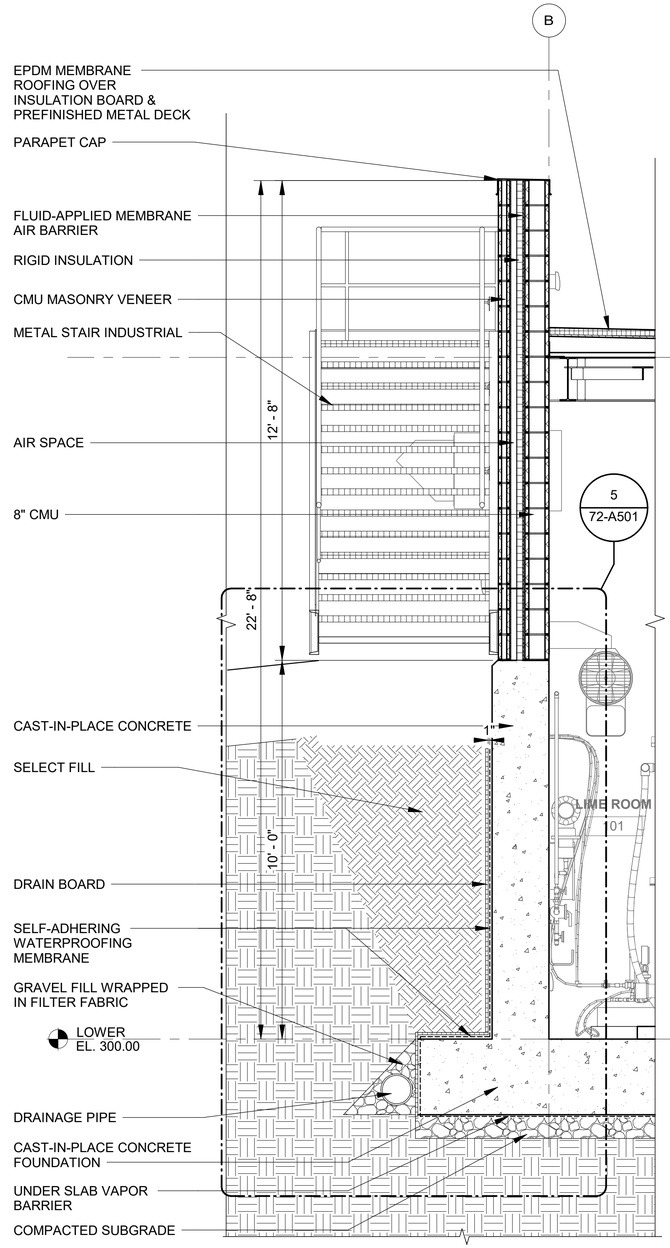
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GARVER JOB NO.: 19W01300
DRAWING NUMBER **72-A202**
SHEET NUMBER **262**

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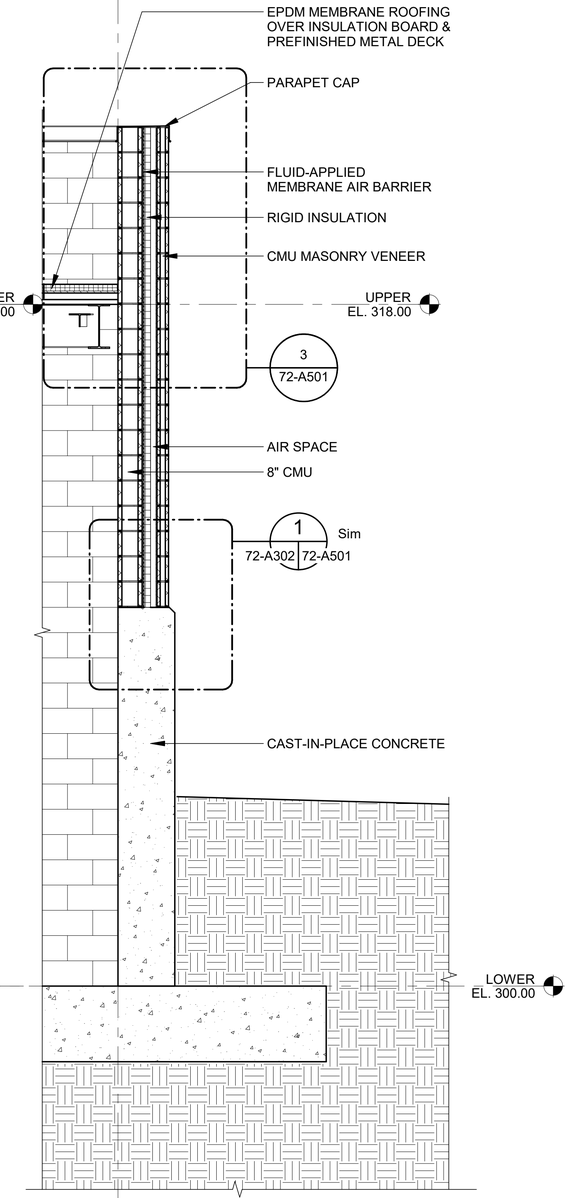
1 / 72-A301 | 72-A302 WALL SECTION

SCALE: 1/2" = 1'-0"



2 / 72-A301 | 72-A302 WALL SECTION

SCALE: 1/2" = 1'-0"

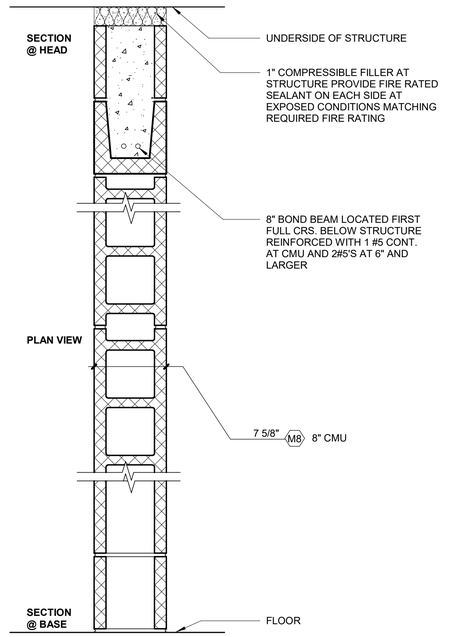


3 / 72-A301 | 72-A302 WALL SECTION

SCALE: 1/2" = 1'-0"

GENERAL NOTES

1. REFER TO GENERAL SHEETS FOR OTHER GENERAL NOTES.
2. REFER TO ALL CIVIL/MEP/STRUCTURAL SHEETS FOR REQUIRED WORK.
3. ALL DIMENSIONS ARE TO FACE OF CMU, CONCRETE OR CENTER LINE OF GRID.
4. PROVIDE BLOCKING/BRACING FOR ALL WALL MOUNTED, ATTACHED, AND RECESSED EQUIPMENT AND FURNISHINGS AS RECOMMENDED BY MANUFACTURERS.
5. SEE 72-A504 FOR HARDWARE SETS.
6. SEE ENERGY CODE ON 72-A002 FOR MINIMUM INSULATION R-VALUE REQUIREMENTS.



PARTITION TYPE	LIMITING HEIGHT	FIRE RATING
M8	20'	BASED ON UL DESIGNS U901, U902, RE: 72-A004

PARTITION TYPE - M

4 / PARTITION DETAIL

SCALE: 1 1/2" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	05/24/24	ADD 03	CMR

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

REGISTERED ARCHITECT Greg A. Archer License No. 2671 STATE OF ARKANSAS

5.24.24

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DRAWN BY: RAG
CHECKED BY: GAA
DATE: MAY 2024

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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

LIME & PAC BUILDING WALL SECTION

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **72-A302**
SHEET NUMBER **264**

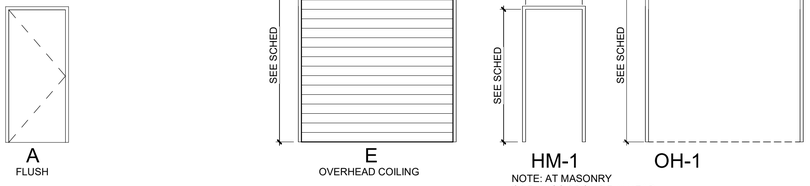
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Plot Date: 5/30/2024 1:40:43 PM

DOOR SCHEDULE

DOOR NO.	ROOM NAME	DOOR TYPE	DOOR MATERIAL	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR SIZE THICKNESS	FRAME TYPE	FRAME DETAILS HEAD	FRAME DETAILS JAMB	FRAME DETAILS SILL	DOOR HARDWARE	DOOR NO.	REMARKS
101A	LIME ROOM	E	GALV.	10' - 0"	14' - 8"	2"	OH-1	3/72-A502	8/72-A502	7/72-A502	3	101A	MOTORIZED ROLL-UP DOOR
101B	LIME ROOM	E	GALV.	10' - 0"	14' - 8"	2"	OH-1	3/72-A502	8/72-A502	7/72-A502	3	101B	MOTORIZED ROLL-UP DOOR
101C	LIME ROOM	A	HM	3' - 0"	7' - 0"	1 3/4"	HM-1	2/72-A502	5/72-A502	6/72-A502	1	101C	
102A	ELECTRICAL ROOM	A	HM	7' - 0"	9' - 0"	1 3/4"	HM-1	2/72-A502	5/72-A502	6/72-A502	2	102A	DOUBLE-DOOR
103A	PAC ROOM	A	HM	7' - 0"	7' - 0"	1 3/4"	HM-1	2/72-A502	5/72-A502	6/72-A502	2	103A	DOUBLE-DOOR

HM - HOLLOW METAL

SEE SCHEDULE FOR OVERALL DIMENSIONS & DOOR MATERIAL



A
FLUSH

E
OVERHEAD COILING

HM-1

OH-1

NOTE: AT MASONRY OPENINGS PROVIDE 4" HEAD

DOOR TYPES
1/4" = 1'-0"

HOLLOW METAL FRAME
1/4" = 1'-0"

DOOR HARDWARE SETS

HARDWARE SET 1

(1)	CONTINOUS HINGE	CFM__SLF-HD1	-	PE
(1)	RIM PANIC	6100 x AU 427F NL x FACILITY KEYING	630	YA
(1)	DROP PLATE & MOUNTING HARDWARE	AS REQUIRED	689	YA
(1)	SURFACE CLOSER	UNI4400	689	YA
(1)	KICK PLATE	K1050 10" HIGH x LDW CSK	US32D	RO
(1)	HD THRESHOLD	1715 x WIDTH	-	PE
(1)	PERIMETER SEAL	BY DOOR / FRAME MFR	-	-
(1)	SWEEP	315CN x WIDTH	-	PE
(1)	DOOR STOP	441 CU EXP	US32D	RO

HARDWARE SET 2

(2)	CONTINOUS HINGE	CFM__SLF-HD1	-	PE
(2)	SVR PANIC	6170 x LBR x AU 427F NL x FAC KEY	630	YA
(2)	DROP PLATE & MOUNTING HARDWARE	AS REQUIRED	689	YA
(2)	SURFACE CLOSER	UNI4400	689	YA
(2)	KICK PLATES	K1050 10" HIGH x LDW CSK	US32D	RO
(1)	THRESHOLD	1715 x WIDTH	-	PE
(2)	PERIMETER SEALS	BY DOOR / FRAME MFR	-	-
(2)	SWEEPS	315CN x WIDTH	-	PE
(2)	DOOR STOP	441 CU EXP	US32D	RO

HARDWARE SET 3

(1) CYLINDER
(*) BALANCE OF HARDWARE BY OVERHEAD DOOR MANUFACTURER

ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR FINISH	FLOOR BASE	PLAN NORTH WALL FINISH	PLAN EAST WALL FINISH	PLAN SOUTH WALL FINISH	PLAN WEST WALL FINISH	CEILING FINISH	NOTES & REMARKS
101	LIME ROOM	CONC.	SC	W1	W1	W1	W1	P1	
102	ELECTRICAL ROOM	CONC.	SC	W1	W1	W1	W1	P1	
103	PAC ROOM	CONC.	SC	W1	W1	W1	W1	P1	

INTERIOR - FINISH AND MATERIALS LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER	SIZE	MODEL	FINISH	REMARKS
FLOORING						
SC	SEALED CONCRETE	SHERWIN WILLIAMS	3	CEMLACK DENSIFIER FOR CONCRETE	CLEAR	3 SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS. PARTIAL BUFFING TO ALLOW FOR SLIP RESISTANCE
WALLS						
W1	INTEGRAL COLOR CMU	SPECIFICATIONS		SMOOTH FACE	WHITE	UNFINISHED SMOOTH FACE
CEILINGS						
P1	PAINT - EPOXY METAL CEILING	SHERWIN WILLIAMS		INTERIOR EXPOSED EPOXY SYSTEM	PURE WHITE SW7005	EGGSHELL FINISH, UNDERSIDE OF METAL ROOF CEILINGS
MATERIAL FINISHES						
HMD	HOLLOW METAL DOOR	SHERWIN WILLIAMS		PRO INDUSTRIAL ACRYLIC SEMI-GLOSS	GAUNTLET GRAY SW7019	PRO INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER

NOTE:
1. FOLLOW THE MANUFACTURERS PREP AND INSTALLATION INSTRUCTIONS.
2. EPOXY FOLLOW MANUFACTURERS PREP AND INSTALLATION INSTRUCTIONS.
3. ALL FINISHES TO BE SELECTED AND FINALIZED BY OWNER.

BUILDING EXTERIOR FINISH SCHEDULE

CATEGORY	TYPE	DESCRIPTION
EXTERIOR WALL		
	4" CMU VENEER; INTEGRAL COLOR	SPLIT FACE, RUNNING BOND; WHITE (COLOR)
	4" CMU VENEER; INTEGRAL COLOR	SMOOTH FACE, RUNNING BOND; WHITE (COLOR)
PRE-FINISHED METALS		
	GUTTERS, DOWNSPOUTS, FASCIA	PREWEATHERD GALVALUME (COLOR)
OPENINGS		
	OVERHEAD DOORS, LOUVERS, EXT. DOORS	ARCHITECTURAL KYNAR 500 PVF SLATE GREY (COLOR)

REV	DATE	DESCRIPTION	BY
3	05/24/24	ADD 03	CMR

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

REGISTERED ARCHITECT Greg A. Archer License No. 2671 STATE OF ARKANSAS
5.24.24

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DESIGNED BY: CMR
DRAWN BY: RAG
CHECKED BY: GAA
DATE: MAY 2024

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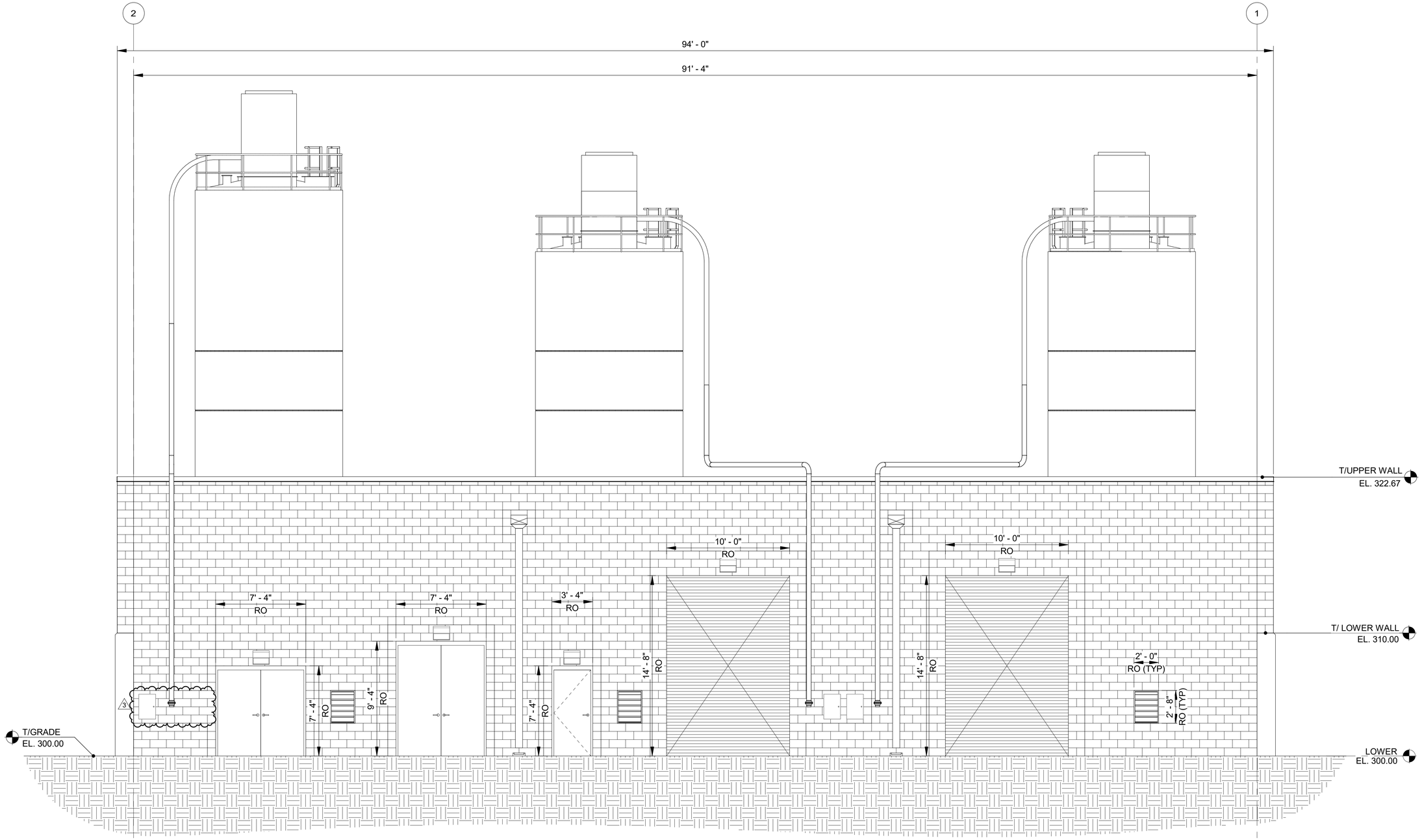
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8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 03

LIME & PAC BUILDING SCHEDULES

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **72-A503**
SHEET NUMBER **267**

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Plot Date: 5/30/2024 1:40:45 PM



1 ELEVATION
72-S102 | 72-S201 SCALE: 1/4" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	CMR

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEERING

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.15272 KIPP A. MARTIN
Digitally Signed 06/03/2024

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DRAWN BY: GBA
CHECKED BY: KAU
DATE: MAY 2024

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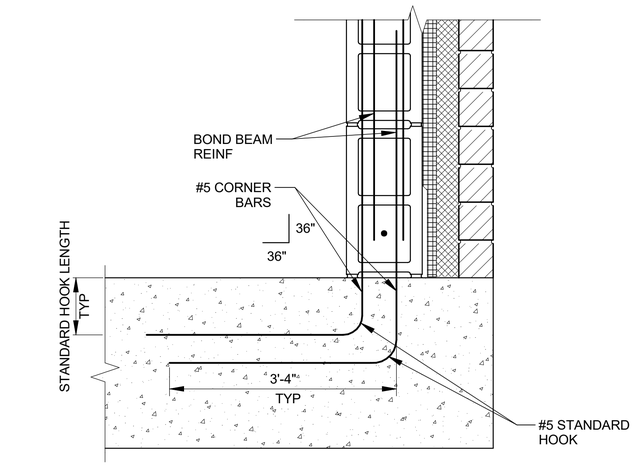
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CONWAY CORPORATION
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 03

LIME & PAC BUILDING ELEVATIONS 1

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **72-S201**
SHEET NUMBER **272**

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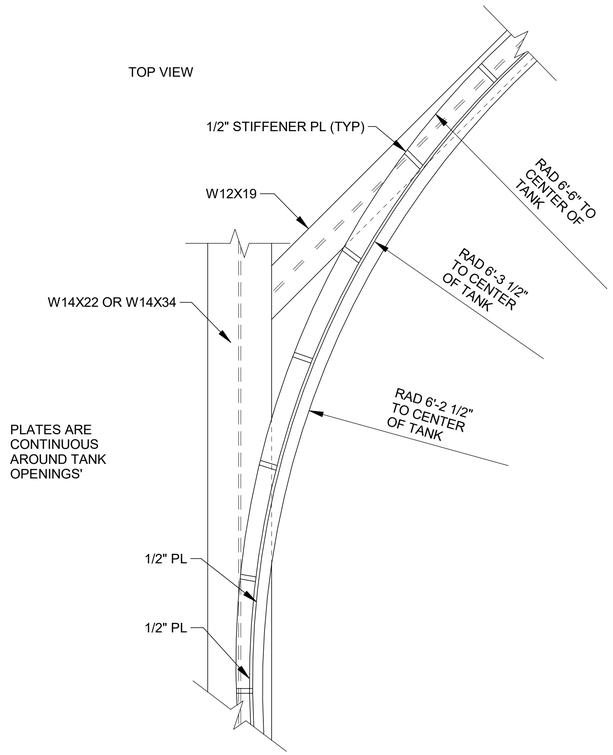


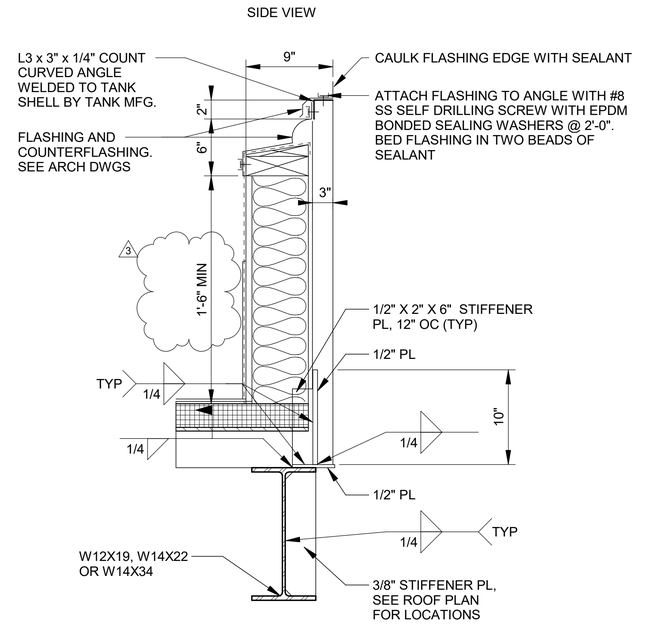
NOTES:

1. CENTER VERTICAL REINF. IN CELL AND EXTEND THRU BOND BEAMS. LAP 36" MIN AS REQ'D.
2. FILL REINF. CELLS SOLID WITH GROUT.
3. SEE STRUCTURAL DRAWINGS FOR REINFORCED HOLLOW CMU NOTES.
4. SEE SECTION FOR CONCRETE REINFORCEMENT DETAIL

1 TYPICAL MASONRY BOND BEAM TO CONCRETE CORNER DETAIL

SCALE: NOT TO SCALE





2 TANK OPENING DETAIL

SCALE: NOT TO SCALE

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 — CERTIFICATE OF AUTHORIZATION — ARKANSAS ENGINEER

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No.15272 — KIPPA A. MARTIN

Digitally Signed 05/29/2024

0 1" — 1" = 1"

THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: KAU
DRAWN BY: GBA
CHECKED BY: KAM
DATE: MAY 2024

CRIST ENGINEERS, INC.
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WWW.GARVERUSA.COM

CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

LIME & PAC BUILDING DETAILS 5

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **72-S506**
SHEET NUMBER **283**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_72_LIME AND PAC FEED AND STORAGE.rvt
Plot Date: 5/23/2024 3:59:08 PM

PROCESS PIPING SCHEDULE

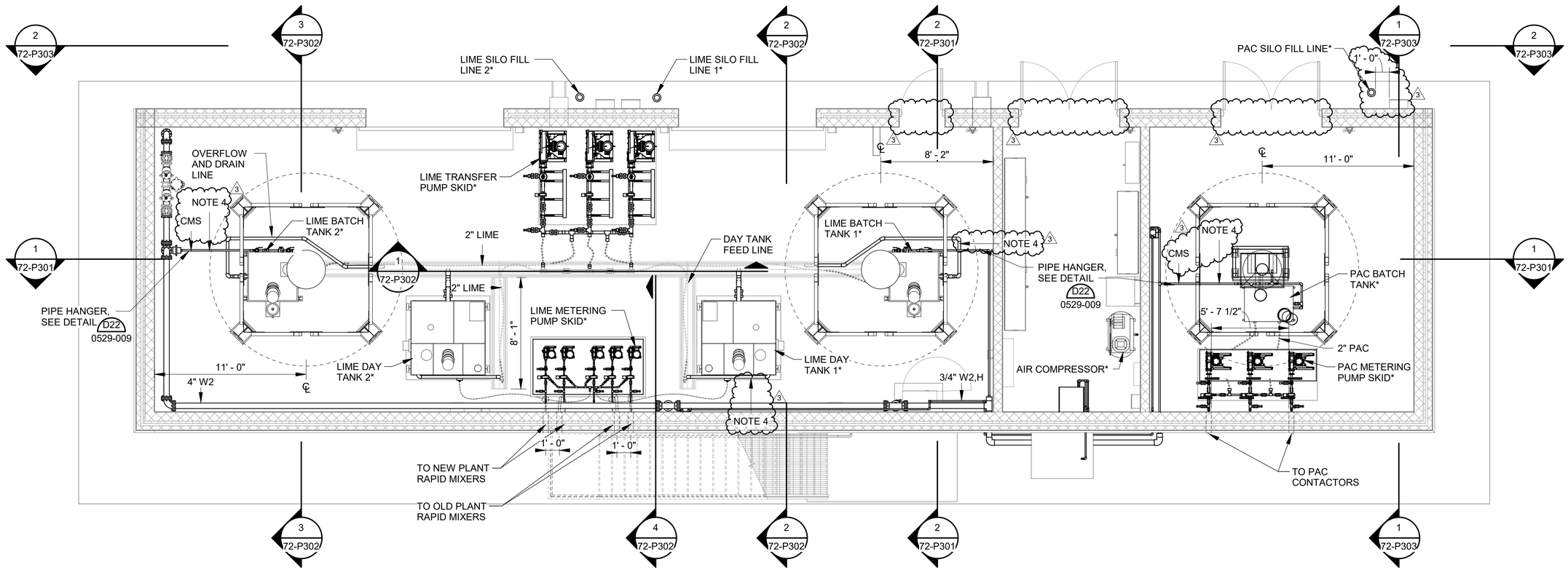
SERVICE	FLOW STREAM IDENTIFIER	INSTALLATION	NOMINAL DIAMETER	MATERIAL	COATING	SPEC DATA/SHEET NO.	MAX OPERATING TEMP (°F)	MAX OPERATING PRESSURE (PSIG)	TEST PRESSURE (PSIG) & METHOD	PIPE COLOR	REMARKS
CHEMICAL MAKEUP SUPPLY	CMS	EXPOSED - INDOORS	ALL	PVC	NONE	400531	AMBIENT	10	50, HIGH HEAD	PROVIDE IDENTIFICATION	1
LIME SOLUTION	LIME	EXPOSED	ALL	BRAIDED PVC HOSE	NONE	402339.60	AMBIENT	232	100, HIGH HEAD	PROVIDE IDENTIFICATION	
PAC SOLUTION	PAC	EXPOSED	ALL	HIGH DENSITY POLYETHYLENE	NONE	402339.56	AMBIENT	232	100, HIGH HEAD	PROVIDE IDENTIFICATION	
WATER, NON - POTABLE	W2	EXPOSED - INDOORS	≤3"	PVC	NONE	400531	AMBIENT	100	150, HIGH HEAD	PROVIDE IDENTIFICATION	
WATER, NON - POTABLE	W2	EXPOSED - INDOORS	>3"	CEMENT LINED DUCTILE IRON	HIGH SOLIDS EPOXY	331113	AMBIENT	100	150, HIGH HEAD	PROVIDE IDENTIFICATION	1
WATER, NON - POTABLE, HOT	W2	EXPOSED - INDOORS	ALL	CPVC	NONE	400531	160	100	150, HIGH HEAD	RED	
WATER, POTABLE	W1	EXPOSED - INDOORS	ALL	CEMENT LINED DUCTILE IRON	HIGH SOLIDS EPOXY	331113	AMBIENT	100	150, HIGH HEAD	TNEMEC 11SF SAFETY BLUE	
PLANT DRAIN	PD	BURRIED	ALL	PVC	NONE	331113	AMBIENT	10	15, LOW HEAD	PROVIDE IDENTIFICATION	

REMARKS:

1. FL PVC, PO PVC, OR SW PVC WHERE SHOWN.

GENERAL NOTES:

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2. ALL PVC TO FLEXIBLE PVC PIPING AND PVC TO HDPE PIPING SHALL BE CONNECTED USING QUICK CONNECT STYLE COUPLING.
3. ALL FLUSHING CONNECTIONS ON PUMP SKIDS SHALL BE INSTALLED WITH A 3/4" MALE QUICK CONNECT COUPLING.
4. CONTRACTOR TO COORDINATE WITH SELECTED VENDOR TO DETERMINE PIPE SIZE.



PROJECT NORTH

1 / 72-P101 LOWER PLAN

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

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	CMR

GARVER LLC CERTIFICATE OF AUTHORIZATION No. 766 ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 15176 JOHN ANDREW PRUITT

Digitally Signed 06/04/2024

0 1" — 1" = 1"

THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: MYL
DRAWN BY: RLF
CHECKED BY: JAP
DATE: MAY 2024

CRIST ENGINEERS, INC.
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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

LIME & PAC BUILDING LOWER PLAN

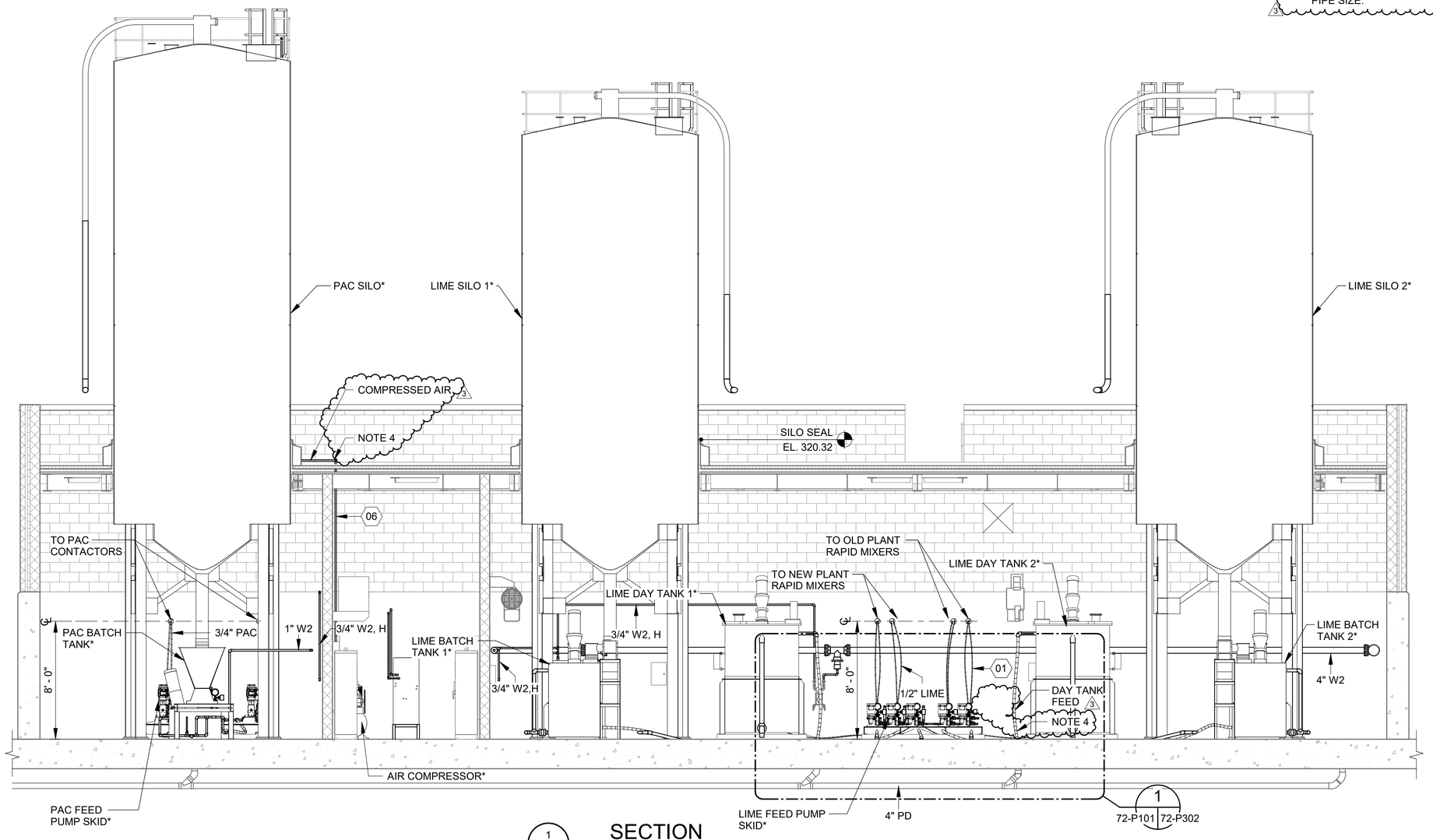
CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER: **72-P101**
SHEET NUMBER: **284**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CC\WTP_72_LIME AND PAC FEED AND STORAGE.rvt
Plot Date: 5/31/2024 2:11:34 PM

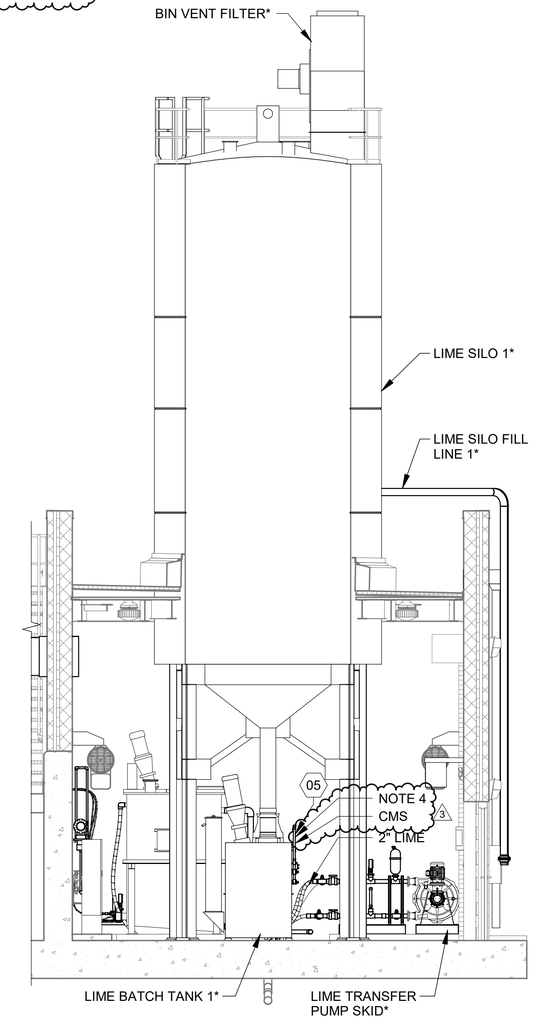
GENERAL NOTES:

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4. CONTRACTOR TO COORDINATE WITH SELECTED VENDOR TO DETERMINE PIPE SIZE.

KEYNOTES:	DENOTED BY SYMBOL (X)
01	1/2" FLEXIBLE PVC PIPE
02	1/2" PVC PIPE
03	3/4" PVC PIPE
04	3/4" HDPE PIPE
05	1" PVC PIPE
06	1" COPPER PIPE
07	2" FLEXIBLE PVC PIPE
08	2" PVC PIPE
09	4" BRONZE KAMLOCK TYPE ADAPTER*
10	4" PVC CARRIER PIPE
11	4" CARBON STEEL LONG ELBOW*
12	4" CARBON STEEL PIPE*
13	4" REDUCED PRESSURE ZONE/BACKFLOW PREVENTER



1 SECTION
72-P101 | 72-P301 SCALE: 1/4" = 1'-0"



2 SECTION
72-P101 | 72-P301 SCALE: 1/4" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	CMR

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS—ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER JOHN ANDREW PRUITT No. 15176
Digitally Signed 06/04/2024

0 1" 1" = 1"
THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: MYL
DRAWN BY: RLF
CHECKED BY: JAP
DATE: MAY 2024

CRIST ENGINEERS, INC.
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CONWAY CORPORATION
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 03

LIME & PAC BUILDING SECTION 1

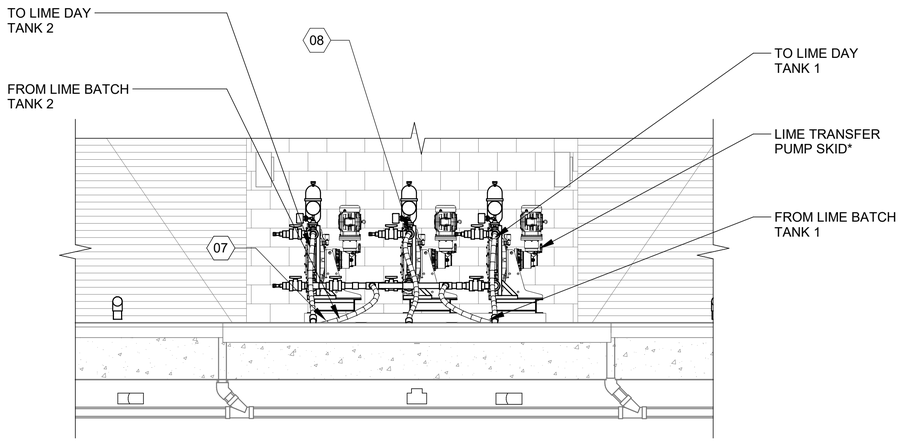
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GARVER JOB NO.: 19W01300
DRAWING NUMBER **72-P301**
SHEET NUMBER **286**

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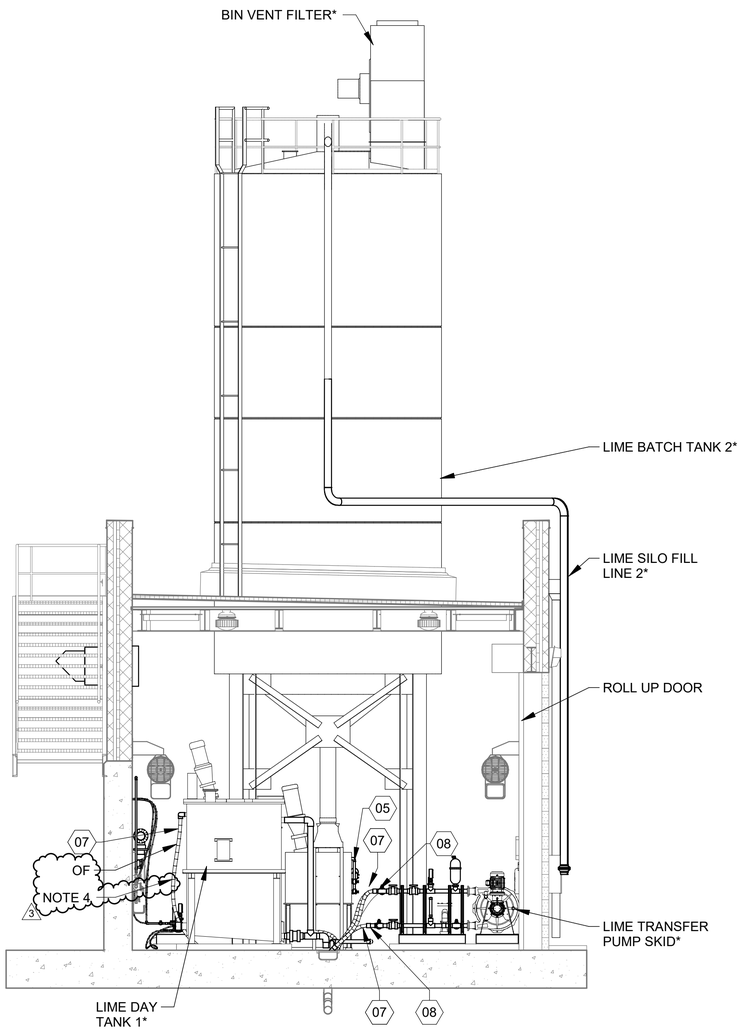
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02	1/2" PVC PIPE
03	3/4" PVC PIPE
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10	4" PVC CARRIER PIPE
11	4" CARBON STEEL LONG ELBOW*
12	4" CARBON STEEL PIPE*
13	4" REDUCED PRESSURE ZONE/BACKFLOW PREVENTER

GENERAL NOTES:

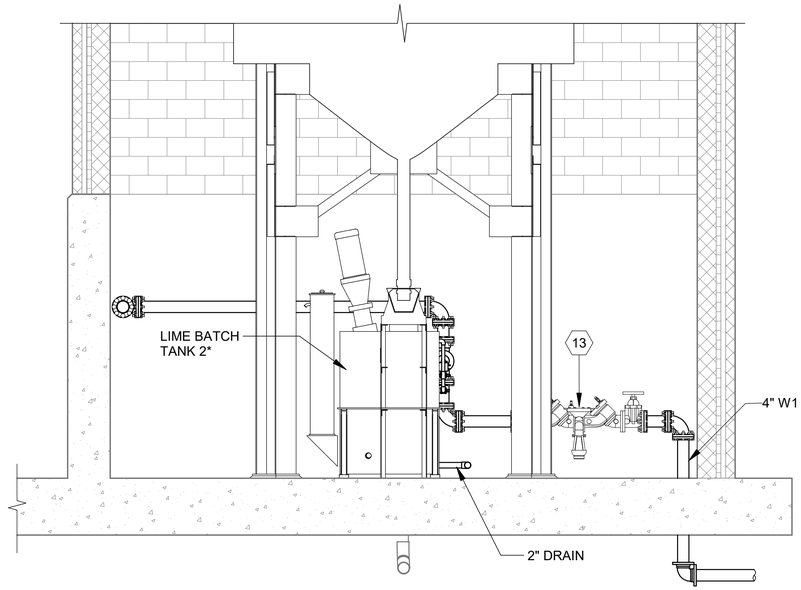
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4. CONTRACTOR TO COORDINATE WITH SELECTED VENDOR TO DETERMINE PIPE SIZE. (3)



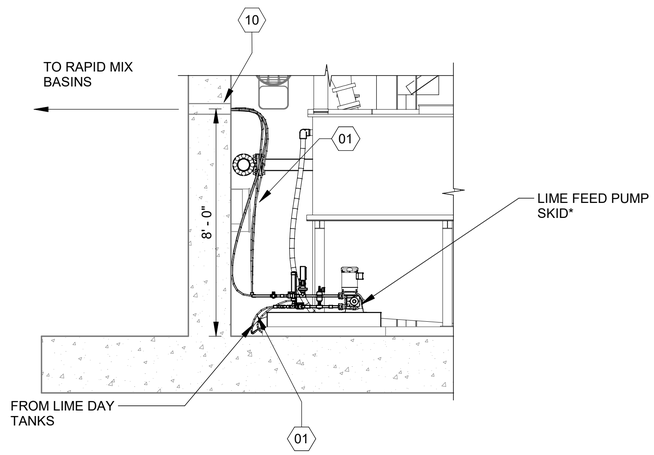
1 SECTION
72-P101 | 72-P302 SCALE: 3/8" = 1'-0"



2 SECTION
72-P101 | 72-P302 SCALE: 1/4" = 1'-0"



3 SECTION
72-P101 | 72-P302 SCALE: 3/8" = 1'-0"



4 SECTION
72-P101 | 72-P302 SCALE: 3/8" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	CMR

GARVER LLC CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER No. 766

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER JOHN ANDREW PRUITT No. 15176
Digitally Signed 06/04/2024

0 1" 1" = 1"
THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: MYL
DRAWN BY: GBA
CHECKED BY: JAP
DATE: MAY 2024

CRIST ENGINEERS, INC.
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1 EXECUTIVE CENTER COURT
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WWW.GARVERUSA.COM

CONWAY CORPORATION
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 03

LIME & PAC BUILDING SECTION 2

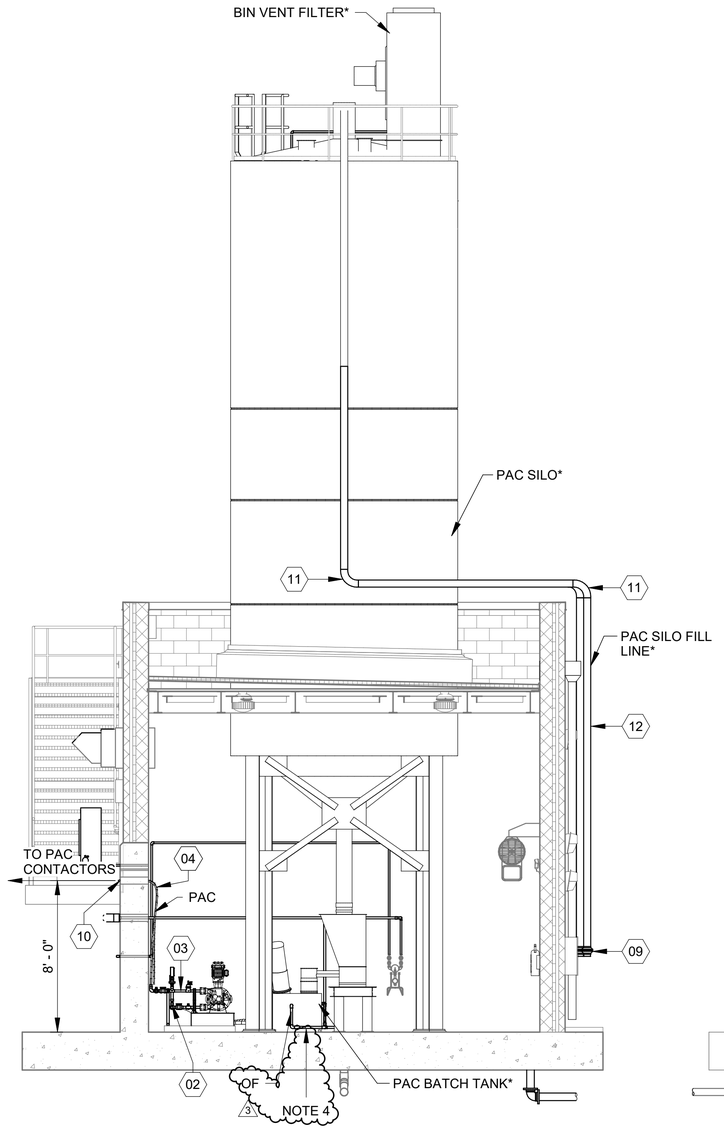
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GARVER JOB NO.: 19W01300
DRAWING NUMBER **72-P302**
SHEET NUMBER **287**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_72_LIME AND PAC FEED AND STORAGE.rvt
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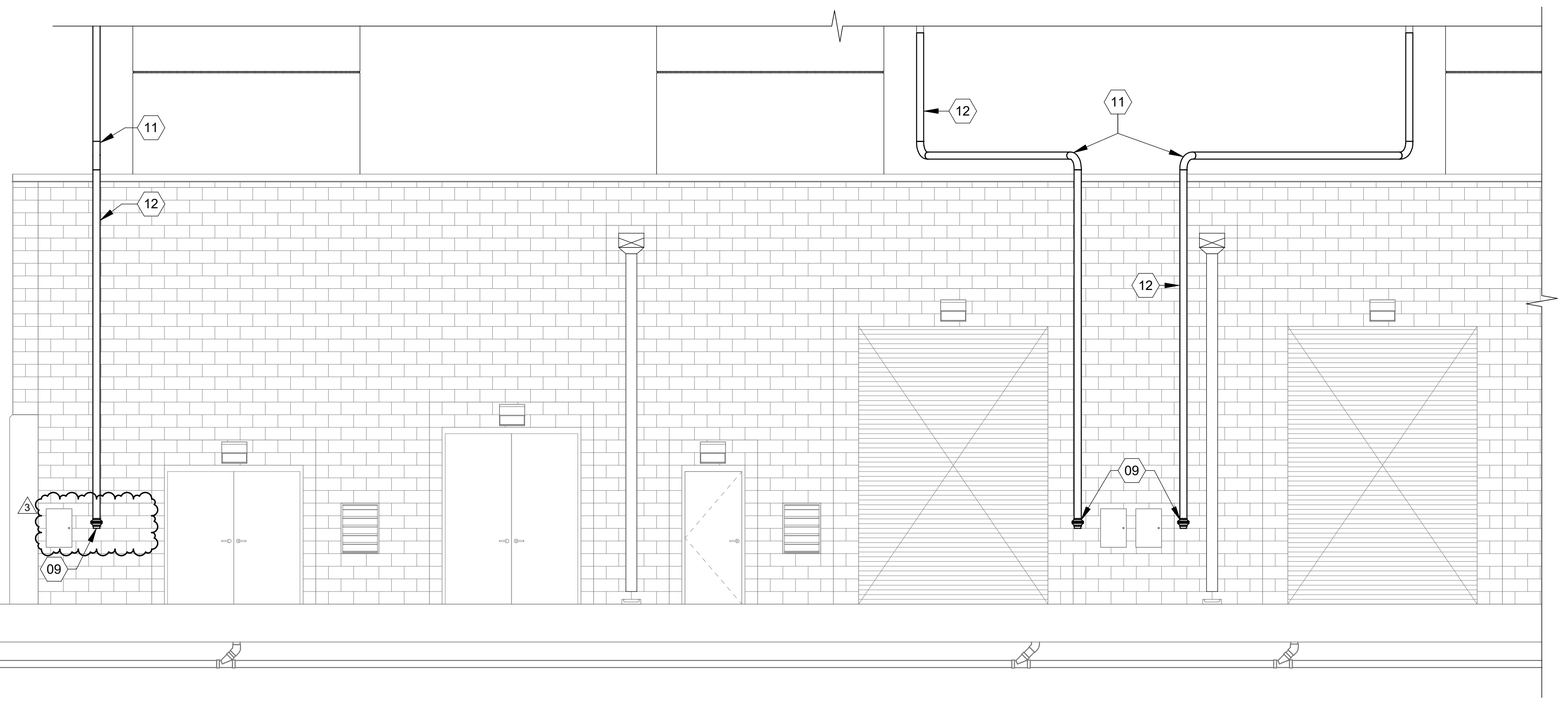
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07	2" FLEXIBLE PVC PIPE
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10	4" PVC CARRIER PIPE
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12	4" CARBON STEEL PIPE*
13	4" REDUCED PRESSURE ZONE/BACKFLOW PREVENTER



1 SECTION
72-P101 | 72-P303 SCALE: 1/4" = 1'-0"



2 SECTION
72-P101 | 72-P303 SCALE: 1/4" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	CMR

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 15176 JOHN ANDREW PRUITT
Digitally Signed 06/04/2024

0 1" 1" = 1"
THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: MYL
DRAWN BY: GBA
CHECKED BY: JAP
DATE: MAY 2024

CRIST ENGINEERS, INC.
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CONWAY CORPORATION
ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS
ADDENDUM NO. 03

LIME & PAC BUILDING SECTION 3

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **72-P303**
SHEET NUMBER **288**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_72_LIME AND PAC FEED AND STORAGE.rvt
Plot Date: 5/31/2024 2:11:40 PM

GENERAL NOTES:

1. ALL LOCATIONS WITHIN THE PAC STORAGE ROOM AND WITHIN 3' OF ALL PAC STORAGE ROOM DOORS SHALL BE CONSIDERED A CLASS 2, DIVISION 1 LOCATION IN ACCORDANCE WITH NFPA 499. ALL LOCATIONS GREATER THAN 3' BUT NOT EXCEEDING 10' OF ANY PAC STORAGE ROOM DOOR SHALL BE CONSIDERED A CLASS 2, DIVISION 2 LOCATION IN ACCORDANCE WITH NFPA 499.

2. THE CONTRACTOR SHALL STRICTLY ADHERE TO THE REQUIREMENTS IN NFPA 70, ARTICLE 500, HAZARDOUS (CLASSIFIED) LOCATIONS FOR ALL AREAS REFERENCED IN THE NOTE ABOVE. THIS INCLUDES PROVIDING APPROPRIATE SEAL FITTINGS ON CONDUITS AND CABLES ALONG WITH PROVIDING EXPLOSION PROOF EQUIPMENT, RATED FOR THE CLASSIFICATION REFERENCED ABOVE.

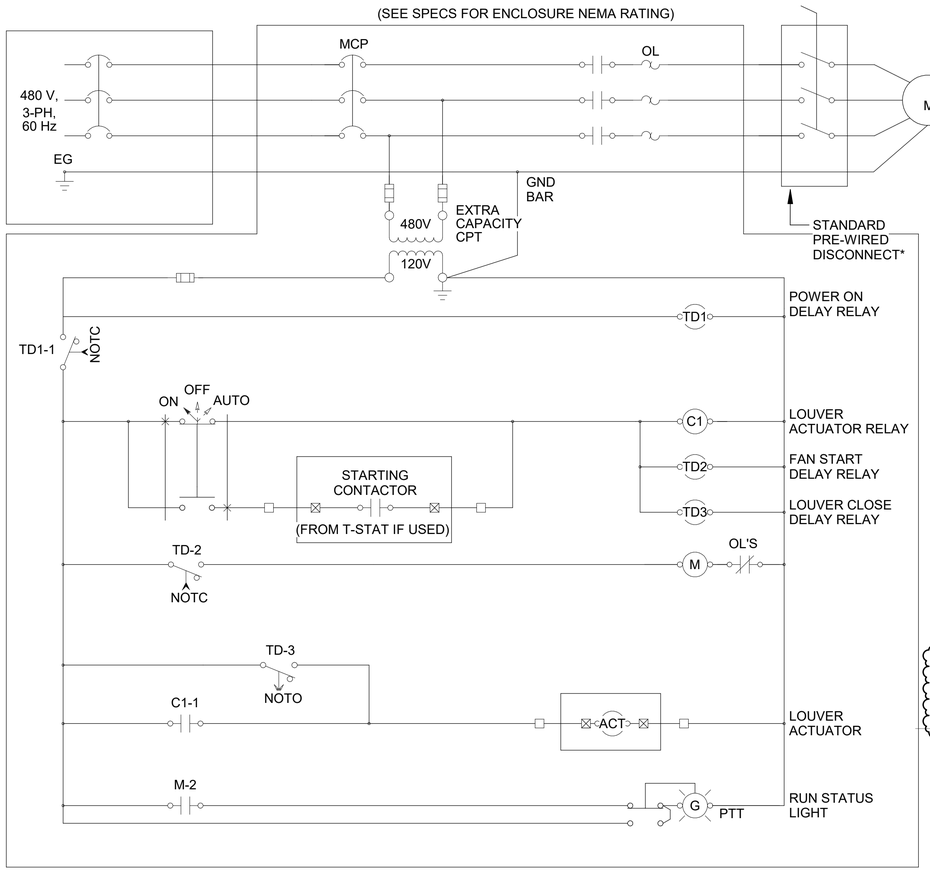
3. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, WIRING, TERMINATIONS, DISCONNECTS, CONTROL RELAYS, CONTROL ENCLOSURES AND OTHER ITEMS AS NECESSARY FOR A COMPLETE AND FUNCTIONAL INSTALLATION. CONTRACTOR SHALL REFER TO THE SPECIFICATIONS AND OTHER SECTIONS OF THE PLANS FOR ITEMS AS MAY BE REQUIRED.

4. SOME CONDUIT RUNS OMITTED FOR CLARITY. COORDINATE ALL CONDUIT ROUTING OF SUPPLIED EQUIPMENT WITH ENGINEER PRIOR TO INSTALLATION.

5. CONDUIT ROUTING AS SHOWN IS DIAGRAMMATIC IN NATURE AND SHOWN FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING NUMBER OF REQUIRED CONDUITS AND PLACEMENT OF THESE CONDUITS. THE CONTRACTOR SHALL DEVELOP AND SUBMIT A CONDUIT ROUTING PLAN FOR REVIEW PRIOR TO INSTALLATION.

6. SIGNAL AND CONTROL CONDUCTORS OF LIKE VOLTAGES MAY BE COMBINED IN A SINGLE CONDUIT. MULTI-CONDUCTOR CONTROL AND SIGNAL CABLE MAY BE SUBSTITUTED FOR INDIVIDUAL CONDUCTORS.

7. VERIFY LOCATIONS OF ALL EQUIPMENT PRIOR TO INSTALLATION.



PROPOSED EXHAUST FAN CONTROL SCHEMATIC (480V, 3 PHASE)

NOTES:

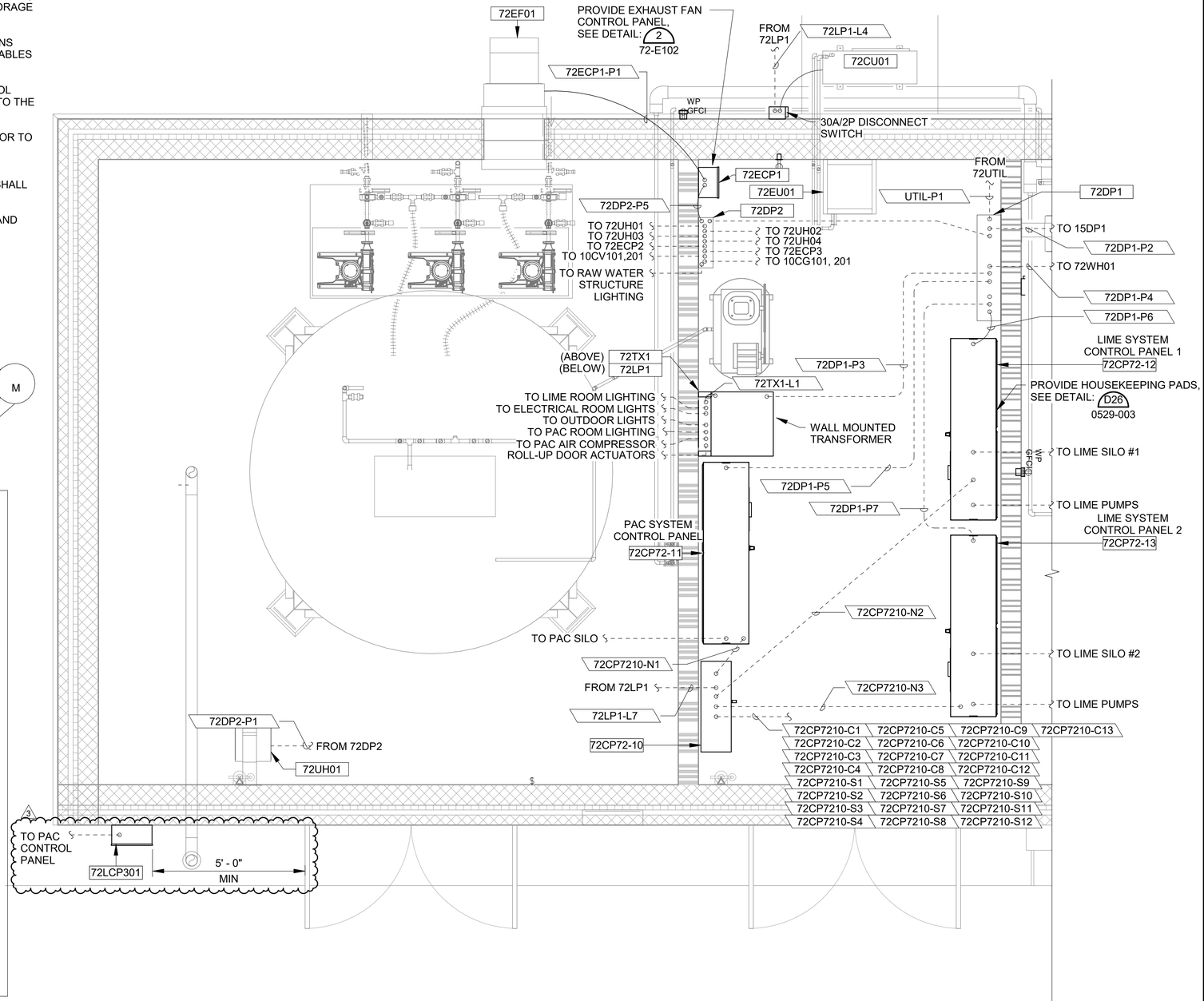
1. COORDINATE T-STAT VOLTAGE REQUIREMENTS WITH MECHANICAL PLANS AND SPECIFICATIONS. PROVIDE LV TRANSFORMER IF REQUIRED. COORDINATE REQUIRED NUMBER OF LOUVERS AND CONTACTS WITH PLAN SHEETS.

* VENDOR SUPPLIED EQUIPMENT. COORDINATE CONNECTION REQUIREMENTS WITH EQUIPMENT PLANS AND SPECS.

PROPOSED EXHAUST FAN SCHEMATICS

2 / 72-E102

SCALE: 3/4" = 1'-0"



PROJECT NORTH

LIME & PAC BUILDING POWER PLAN 2

1 / 72-E102

SCALE: 1/2" = 1'-0"

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	CMR

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.22116 HUNTER WICK
Digitally Signed 06/03/2024

0 1" — 1" = 1"
THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: HGW
DRAWN BY: LCB
CHECKED BY: JCW
DATE: MAY 2024

CRIST ENGINEERS, INC.
CONSULTING ENGINEERS
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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

LIME & PAC BUILDING POWER PLAN 2

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER **72-E102**
SHEET NUMBER **299**

Revit File: Autodesk Docs://19W01300 - Conway Corp WTP Improvements/CCWTP_72_LIME AND PAC FEED AND STORAGE.rvt
Plot Date: 6/3/2024 11:53:48 AM

CONDUIT #	DESCRIPTION	SIZE	CONDUCTORS	TYPE	FROM EQUIPMENT	TO EQUIPMENT
UTIL1-P1 (SET 1)	PANEL 72DP1 SUPPLY (SET 1)	3"	4-#350	480VAC	72UTIL	72DP1
UTIL1-P1 (SET 2)	PANEL 72DP1 SUPPLY (SET 2)	3"	4-#350	480VAC	72UTIL	72DP1

1 72-E601 UTILITY CONDUIT SCHEDULE

SCALE: NONE

3

CONDUIT #	DESCRIPTION	SIZE	CONDUCTORS	TYPE	FROM EQUIPMENT	TO EQUIPMENT
72CP7210-N4	FIBER TO LIME & PAC	1"	FIBER OPTICS	NETWORK	72CP72-10	OPERATIONS BUILDING NETWORK RACK
72CP7210-N5	FIBER TO LIME & PAC (FUTURE CAMERAS)	1"	FIBER OPTICS	NETWORK	72CP72-10	OPERATIONS BUILDING NETWORK RACK
15VFD101-N1	PAC TRAIN #1, MIXER #1 DEVICENET	1"	DEVICENET	DEVICENET	PLC72-10	15VFD101
71LIT201-S1	OLD PLANT ALUM. TANK LEVEL	1"	1-PAIR STP	4-20MA	72CP72-10	71LIT201
71ZSO101-C1	OLD PLANT ALUM. CONTAINMENT INSTRUMENTATION	1"	4-#14, #14G	CONTROL	72CP72-10	71ZSO101 & 71LSH101
72CP7210-C1	10CG101 GATE CONTROL	1"	8-#14, #14G	CONTROL	72CP72-10	10CG101
72CP7210-C10	PAC TRAIN #1 INFLUENT GATE CONTROL	1"	12-#14, #14G	CONTROL	72CP72-10	15CG101
72CP7210-C11	PAC TRAIN #1 EFFLUENT GATE CONTROL	1"	12-#14, #14G	CONTROL	72CP72-10	15CG102
72CP7210-C12	PAC TRAIN #2 INFLUENT GATE CONTROL	1"	12-#14, #14G	CONTROL	72CP72-10	15CG201
72CP7210-C13	PAC TRAIN #2 EFFLUENT GATE CONTROL	1"	12-#14, #14G	CONTROL	72CP72-10	15CG202
72CP7210-C14	SAMPLE PUMP CONTROL	1"	2-#14, #14G	CONTROL	72CP72-10	10LCP001
72CP7210-C2	10CG201 GATE CONTROL	1"	8-#14, #14G	CONTROL	72CP72-10	10CG201
72CP7210-C3	10CV101 MOV CONTROL	1"	8-#14, #14G	CONTROL	72CP72-10	10CV101
72CP7210-C4	10CV201 MOV CONTROL	1"	8-#14, #14G	CONTROL	72CP72-10	10CV201
72CP7210-C5	SPLITTER LEVEL HI CONTROL	1"	2-#14, #14G	CONTROL	72CP72-10	10LSH001
72CP7210-C6	METER VAULT 1 LEVEL HI CONTROL	1"	2-#14, #14G	CONTROL	72CP72-10	10LSH101
72CP7210-C7	METER VAULT 2 LEVEL HI CONTROL	1"	2-#14, #14G	CONTROL	72CP72-10	10LSH201
72CP7210-C8	PAC CONTACTOR NORTH BASIN HI LEVEL	1"	2-#14, #14G	CONTROL	72CP72-10	15LSH101
72CP7210-C9	PAC CONTACTOR SOUTH BASIN HI LEVEL	1"	2-#14, #14G	CONTROL	72CP72-10	15LSH201
72CP7210-S1	10CG101 GATE SIGNAL	1"	2-PAIR STP	4-20MA	72CP72-10	10CG101
72CP7210-S10	METER VAULT 1 PRESSURE SIGNAL	1"	1-PAIR STP	4-20MA	72CP72-10	10PT101
72CP7210-S11	METER VAULT 2 FLOW SIGNAL	1"	1-PAIR STP	4-20MA	72CP72-10	10FIT201
72CP7210-S12	METER VAULT 2 PRESSURE SIGNAL	1"	1-PAIR STP	4-20MA	72CP72-10	10PT201
72CP7210-S2	10CG201 GATE SIGNAL	1"	2-PAIR STP	4-20MA	72CP72-10	10CG201
72CP7210-S3	10CV101 MOV SIGNAL	1"	2-PAIR STP	4-20MA	72CP72-10	10CV101
72CP7210-S4	10CV201 MOV SIGNAL	1"	2-PAIR STP	4-20MA	72CP72-10	10CV201
72CP7210-S5	SPLITTERBOX NORTH BOX LEVEL	1"	1-PAIR STP	4-20MA	72CP72-10	10LT101
72CP7210-S6	SPLITTERBOX SOUTH BOX LEVEL	1"	1-PAIR STP	4-20MA	72CP72-10	10LT201
72CP7210-S7	SPLITTERBOX INFLUENT BOX LEVEL	1"	1-PAIR STP	4-20MA	72CP72-10	10LT001
72CP7210-S8	SPLITTERBOX INFLUENT BOX LEVEL	1"	1-PAIR STP	4-20MA	72CP72-10	10LT002
72CP7210-S9	METER VAULT 1 FLOW SIGNAL	1"	1-PAIR STP	4-20MA	72CP72-10	10FIT101
72CP7210-N1	ETHERNET TO PAC SYSTEM	1"	CAT6	NETWORK	72CP72-10	72CP72-11
72CP7210-N2	ETHERNET TO LIME SYSTEM 1	1"	CAT6	NETWORK	72CP72-10	72CP72-12
72CP7210-N3	ETHERNET TO LIME SYSTEM 2	1"	CAT6	NETWORK	72CP72-10	72CP72-13
72LCP101-C1	LIME SILO #1 FILL STATION CONTROL	1"	12-#14, #14G	CONTROL	72LCP101	72CP72-12
72LCP201-C1	LIME SILO #2 FILL STATION CONTROL	1"	12-#14, #14G	CONTROL	72LCP201	72CP72-13
72LCP101-S1	LIME SILO #1 SIGNALS	3/4"	1-PAIR STP	4-20MA	72LCP101	72CP72-12
72LCP201-S1	LIME SILO #2 SIGNALS	3/4"	1-PAIR STP	4-20MA	72LCP201	72CP72-13
72DP1-P1	PANEL 72DP2 SUPPLY	3"	4-#3/0, #6G	480VAC	72DP1	72DP2
72DP1-P2	PANEL 15DP1 SUPPLY	2"	4-#1, #6G	480VAC	72DP1	15DP1
72DP1-P3	PAC & LIME LIGHTING TRANSFORMER SUPPLY	2"	2-#1, #6G	480VAC	72DP1	72TX1
72DP1-P4	PAC & LIME WATER HEATER SUPPLY	3"	3-#3/0, #6G	480VAC	72DP1	72WH01
72DP1-P5	PAC SYSTEM CONTROL PANEL SUPPLY	2"	3-#6, #10G	480VAC	72DP1	72CP72-11
72DP1-P6	LIME SYSTEM #1 CONTROL PANEL SUPPLY	2"	3-#6, #10G	480VAC	72DP1	72CP72-12
72DP1-P7	LIME SYSTEM #2 CONTROL PANEL SUPPLY	2"	3-#6, #10G	480VAC	72DP1	72CP72-13
72DP1-P8	DRAINAGE PUMP STATION SUPPLY	2"	3-#6, #10G	480VAC	72DP1	10CP300
10CP300-C1	DRAINAGE PUMP CONTROL PANEL	1"	4-#14, #14G	CONTROL	72CP72-10	10CP300
72DP2-P1	UNIT HEATER #1	1"	3-#12, #12G	480VAC	72DP2	72UH01
72DP2-P2	UNIT HEATER #2	1"	3-#12, #12G	480VAC	72DP2	72UH02
72DP2-P3	UNIT HEATER #3	1"	3-#12, #12G	480VAC	72DP2	72UH03
72DP2-P4	UNIT HEATER #4	1"	3-#12, #12G	480VAC	72DP2	72UH04
72DP2-P5	EXHAUST FAN CONTROL PANEL #1	1"	3-#12, #12G	480VAC	72DP2	72ECP1
72DP2-P6	EXHAUST FAN CONTROL PANEL #2	1"	3-#12, #12G	480VAC	72DP2	72ECP2
72DP2-P7	EXHAUST FAN CONTROL PANEL #3	1"	3-#12, #12G	480VAC	72DP2	72ECP3
72DP2-P10	10CG101 GATE SUPPLY	1"	3-#10, #10G	480VAC	72DP2	10CG101
72DP2-P11	10CG201 GATE SUPPLY	1"	3-#10, #10G	480VAC	72DP2	10CG201
72DP2-P12	RAW WATER STRUCTURE STAIRWAY LIGHTING	1"	2-#10, #10G	277VAC	72DP2	RAW WATER STRUCTURE
72DP2-P13	RAW WATER STRUCTURE PLATFORM LIGHTING	1"	2-#10, #10G	277VAC	72DP2	RAW WATER STRUCTURE
72DP2-P8	10CV101 MOV SUPPLY	1"	3-#10, #10G	480VAC	72DP2	10CV101
72DP2-P9	10CV201 MOV SUPPLY	1"	3-#10, #10G	480VAC	72DP2	10CV201
72ECP1-P1	EXHAUST FAN #1	1"	3-#12, #12G	480VAC	72ECP1	72EF01
72ECP2-P1	EXHAUST FAN #2	1"	3-#12, #12G	480VAC	72ECP2	72EF02
72ECP3-P1	EXHAUST FAN #3	1"	3-#12, #12G	480VAC	72ECP3	72EF03
72TX1-L1	PAC & LIME LIGHTING PANEL SUPPLY	3"	3-#3/0, #6G	240VAC	72TX1	72LP1
72LCP301-C1	PAC SILO FILL STATION CONTROL	1"	12-#14, #14G	CONTROL	72CP72-11	72LCP301
72LCP301-S1	PAC SILO FILL STATION SIGNALS	1"	1-PAIR STP	4-20MA	72LCP301	72CP72-11
72LP1-L1	10LP1 LIGHTING PANEL	2"	3-#4, #8G	240VAC	72LP1	10LP1
72LP1-L2	LIME & PAC BLDG OUTDOOR LIGHTS	1"	2-#12, #12G	120VAC	72LP1	72
72LP1-L3	LIME & PAC ELEC ROOM LIGHTS	1"	2-#12, #12G	120VAC	72LP1	72
72LP1-L4	CONDENSER UNIT SUPPLY	1"	2-#12, #12G	120VAC	72LP1	72CU01
72LP1-L5	PAC AIR COMPRESSOR	1"	2-#12, #12G	120VAC	72LP1	724M105
72LP1-L6	ROLL-UP DOOR ACTUATOR #1	1"	2-#12, #12G	120VAC	72LP1	LIME/PAC BAY DOOR #1
72LP1-L7	72CP72-10 SUPPLY	1"	2-#12, #12G	120VAC	72LP1	72CP72-10
72LP1-L8	ROLL-UP DOOR ACTUATOR #2	1"	2-#12, #12G	120VAC	72LP1	LIME/PAC BAY DOOR #2
72LP1-L9	LIME ROOM LIGHTING	1"	2-#12, #12G	120VAC	72LP1	72
72LP1-L10	PAC ROOM LIGHTING	1"	2-#12, #12G	120VAC	72LP1	72
72LP1-L11	OLD PLANT, NEW ALUM TANK HEAT TRACE	1"	2-#8, #10G	120VAC	72LP1	OLD PLANT ALUM HEAT TRACE
72LP1-L12	71LIT201 SUPPLY	1"	2-#12, #12G	120VAC	72LP1	71LIT201
72LP1-L13	INDOOR RECEPTACLES CKT #1	1"	2-#12, #12G	120VAC	72LP1	72
72LP1-L14	OUTDOOR RECEPTACLES CKT #1	1"	2-#12, #12G	120VAC	72LP1	72
72LP1-L15	INDOOR RECEPTACLES CKT #2	1"	2-#12, #12G	120VAC	72LP1	72
72LP1-L16	OUTDOOR RECEPTACLES CKT #2	1"	2-#12, #12G	120VAC	72LP1	72
72LP1-L17	OLD PLANT RAPID PLANT HEAT TRACE	1"	2-#12, #12G	120VAC	72LP1	OLD PLANT RAPID MIX
72LP1-L18	OLD ALUM HEAT TRACE CONTROLLER	1"	2-#12, #12G	120VAC	72LP1	71
724LIT101-S1	PAC SILO LEVEL	3/4"	1-PAIR STP	4-20MA	72CP72-11	724LIT101
724LE101-S1	PAC SILO TRANSMITTER TO ELEMENT	3/4"	1-PAIR STP	4-20MA	724LIT101	724LE101
724SV101-C1	PAC SILO SOLENOID CONTROL	3/4"	2#14,#14G	CONTROL	72CP72-11	724SV101
725PS401-C1	PAC WATER SUPPLY PRESSURE SWITCH	3/4"	2#14,#14G	CONTROL	72CP72-11	725PS401
725FIT401-S1	PAC WATER SUPPLY FLOW	3/4"	1-PAIR STP	4-20MA	72CP72-11	725FIT401
725FE401-S1	PAC WATER SUPPLY FLOW ELEMENT SUPPLY	3/4"	1-PAIR STP	4-20MA	725FIT401	725FE401
725LIT001-S1	PAC SLURRY TANK LEVEL	3/4"	1-PAIR STP	4-20MA	72CP72-11	725LIT001
725LE001-S1	PAC SLURRY TANK TRANSMITTER TO ELEMENT	3/4"	1-PAIR STP	4-20MA	725LIT001	725LE001
725PS101-C1	PAC SLURRY METERING PRESSURE SWITCH #1	3/4"	2#14,#14G	CONTROL	72CP72-11	725PS101
725PS201-C1	PAC SLURRY METERING PRESSURE SWITCH #2	3/4"	2#14,#14G	CONTROL	72CP72-11	725PS201
725PS301-C1	PAC SLURRY METERING PRESSURE SWITCH #3	3/4"	2#14,#14G	CONTROL	72CP72-11	725PS301
725FS101-C1	PAC SLURRY METERING FLOW #1	3/4"	2#14,#14G	CONTROL	72CP72-11	725FS101
725FS201-C1	PAC SLURRY METERING FLOW #2	3/4"	2#14,#14G	CONTROL	72CP72-11	725FS201
725FS301-C1	PAC SLURRY METERING FLOW #3	3/4"	2#14,#14G	CONTROL	72CP72-11	725FS301

2 72-E601 FACILITY 72 CONDUIT SCHEDULE PART 1

SCALE: NONE

REV	DATE	DESCRIPTION	BY
3	05/22/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS–ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.22116 HUNTER WICK

Digitally Signed 06/03/2024

0 1"

1" = 1"

THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED BY: HGW

DRAWN BY: ECB

CHECKED BY: JCW

DATE: MAR. 2024

CRIST ENGINEERS, INC.
CONSULTING ENGINEERS
1 EXECUTIVE CENTER COURT
LITTLE ROCK, ARKANSAS 72211
TELEPHONE: (501) 664-1552
FAX: (501) 664-8579
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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT 8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

LIME & PAC BUILDING ELECTRICAL CONDUIT SCHEDULE

CEI JOB NO.: 2135

GARVER JOB NO.: 19W01300

DRAWING NUMBER **72-E601**

SHEET NUMBER **306**

File: L:\2019\19W01300 - Conway Corp WTP Improvements\Drawings\XX-E601.dwg Last Save: 6/3/2024 2:27 PM Last saved by: LCBridges
Last plotted by: Bridges, Landon C. (Cade) Plot Style: ---- Plot Scale: 1:2.8849 Plot Date: 6/3/2024 2:33 PM Plotter used: None

721LIT102-S1	LIME SILO #1 LEVEL	3/4"	1-PAIR STP	4-20MA	72CP72-12	721LIT102
721LE102-S1	LIME SILO #1 TRANSMITTER TO ELEMENT	3/4"	1-PAIR STP	4-20MA	721LIT102	721LE102
721LS102-C1	LIME SILO #1 LIMIT SWITCH #1	3/4"	2#14,#14G	CONTROL	72CP72-12	721LS102
721PDI101-C1	LIME SILO #1 DIFFERENTIAL PRESSURE	3/4"	2#14,#14G	CONTROL	72CP72-12	721PDI101
721LS103-C1	LIME SILO #1 LIMIT SWITCH #2	3/4"	2#14,#14G	CONTROL	72CP72-12	721LS103
721SS101-C1	LIME SILO #1 CONVEYOR CONTROL	3/4"	2#14,#14G	CONTROL	72CP72-12	721SS101
721PS202-C1	LIME SYSTEM #1 WATER PRESSURE SWITCH	3/4"	2#14,#14G	CONTROL	72CP72-12	721PS202
721FIT203-S1	LIME SYSTEM #1 WATER FLOW	3/4"	1-PAIR STP	4-20MA	72CP72-12	721FIT203
721FE203-S1	LIME SYSTEM #1 WATER FLOW ELEMENT SUPPLY	3/4"	1-PAIR STP	4-20MA	721FIT203	721FE203
721WIT301-S1	BATCH TANK #1 WEIGHT TRANSMITTER	3/4"	1-PAIR STP	4-20MA	72CP72-12	721WIT301
721WE301-S1	BATCH TANK #1 WEIGHT ELEMENT	3/4"	1-PAIR STP	4-20MA	72CP72-12	721WE301
723PS101-C1	LIME SLURRY TRANSFER PRESSURE SWITCH #1	3/4"	2#14,#14G	CONTROL	72CP72-12	723PS101
723FS101-C1	LIME SLURRY TRANSFER FLOW #1	3/4"	2#14,#14G	CONTROL	72CP72-12	723FS101
723PS201-C1	LIME SLURRY TRANSFER PRESSURE SWITCH #2	3/4"	2#14,#14G	CONTROL	72CP72-12	723PS201
723FS201-C1	LIME SLURRY TRANSFER FLOW #2	3/4"	2#14,#14G	CONTROL	72CP72-12	723FS201
723LIT101-S1	LIME DAY TANK #1 LEVEL	3/4"	1-PAIR STP	4-20MA	72CP72-12	723LIT101
723LE101-S1	LIME DAY TANK #1 TRANSMITTER TO ELEMENT	3/4"	1-PAIR STP	4-20MA	723LIT101	723LE101
723PS102-C1	LIME SLURRY METERING PRESSURE SWITCH #1	3/4"	2#14,#14G	CONTROL	72CP72-12	723PS102
723PS103-C1	LIME SLURRY METERING PRESSURE SWITCH #2	3/4"	2#14,#14G	CONTROL	72CP72-12	723PS103
723PS202-C1	LIME SLURRY METERING PRESSURE SWITCH #5	3/4"	2#14,#14G	CONTROL	72CP72-12	723PS202
723FS102-C1	LIME SLURRY METERING FLOW #1	3/4"	2#14,#14G	CONTROL	72CP72-12	723FS102
723FS103-C1	LIME SLURRY METERING FLOW #2	3/4"	2#14,#14G	CONTROL	72CP72-12	723FS103
723FS202-C1	LIME SLURRY METERING FLOW #5	3/4"	2#14,#14G	CONTROL	72CP72-12	723FS202
722LIT101-S1	LIME SILO #2 LEVEL	3/4"	1-PAIR STP	4-20MA	72CP72-13	722LIT101
722LE101-S1	LIME SILO #2 TRANSMITTER TO ELEMENT	3/4"	1-PAIR STP	4-20MA	722LIT102	722LE101
722LS102-C1	LIME SILO #2 LIMIT SWITCH #1	3/4"	2#14,#14G	CONTROL	72CP72-13	722LS102
722PDI101-C1	LIME SILO #2 DIFFERENTIAL PRESSURE	3/4"	2#14,#14G	CONTROL	72CP72-13	722PDI101
722LS103-C1	LIME SILO #2 LIMIT SWITCH #2	3/4"	2#14,#14G	CONTROL	72CP72-13	722LS103
722SS101-C1	LIME SILO #2 CONVEYOR CONTROL	3/4"	2#14,#14G	CONTROL	72CP72-13	722SS101
722PS202-C1	LIME SYSTEM #2 WATER PRESSURE SWITCH	3/4"	2#14,#14G	CONTROL	72CP72-13	722PS202
722FIT203-S1	LIME SYSTEM #2 WATER FLOW	3/4"	1-PAIR STP	4-20MA	72CP72-13	722FIT203
722FE203-S1	LIME SYSTEM #2 WATER FLOW ELEMENT SUPPLY	3/4"	1-PAIR STP	4-20MA	722FIT203	722FE203
722WIT301-S1	BATCH TANK #2 WEIGHT TRANSMITTER	3/4"	1-PAIR STP	4-20MA	72CP72-13	722WIT301
722WE301-S1	BATCH TANK #2 WEIGHT ELEMENT	3/4"	1-PAIR STP	4-20MA	72CP72-13	722WE301
723PS301-C1	LIME SLURRY TRANSFER PRESSURE SWITCH #3	3/4"	2#14,#14G	CONTROL	72CP72-13	723PS301
723FS301-C1	LIME SLURRY TRANSFER FLOW #3	3/4"	2#14,#14G	CONTROL	72CP72-13	723FS301
723LIT201-S1	LIME DAY TANK #2 LEVEL	3/4"	1-PAIR STP	4-20MA	72CP72-13	723LIT201
723LE201-S1	LIME DAY TANK #2 TRANSMITTER TO ELEMENT	3/4"	1-PAIR STP	4-20MA	723LIT201	723LE201
723PS302-C1	LIME SLURRY METERING PRESSURE SWITCH #3	3/4"	2#14,#14G	CONTROL	72CP72-13	723PS302
723PS303-C1	LIME SLURRY METERING PRESSURE SWITCH #4	3/4"	2#14,#14G	CONTROL	72CP72-13	723PS303
723FS302-C1	LIME SLURRY METERING FLOW #3	3/4"	2#14,#14G	CONTROL	72CP72-13	723FS302
723FS303-C1	LIME SLURRY METERING FLOW #4	3/4"	2#14,#14G	CONTROL	72CP72-13	723FS303
72CP7211-P1	PAC SILO BLOWER SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-11	724M101
72CP7211-P2	PAC SILO ACTIVATOR SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-11	724M102
72CP7211-P3	PAC VOLUMETRIC FEEDER VIBRATOR SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-11	724M103
72CP7211-P4	PAC VOLUMETRIC FEEDER CONVEYOR SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-11	724M104
72CP7211-P5	PAC WATER SUPPLY SOLENOID SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-11	725SV401
72CP7211-P6	PAC SLURRY METERING PUMP #1 SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-11	725P101
72CP7211-P7	PAC SLURRY METERING PUMP #2 SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-11	725P201
72CP7211-P8	PAC SLURRY METERING PUMP #3 SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-11	725P301
72CP7212-P1	LIME SILO #1 EXHAUST FAN SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-12	721EF1
72CP7212-P2	LIME SILO #1 SHAKER SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-12	721M1
72CP7212-P3	LIME SILO #1 BIN ACTIVATOR SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-12	721M2
72CP7212-P4	LIME SILO #1 CONVEYOR SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-12	721COV1
72CP7212-P5	LIME SYSTEM #1 SOLENOID SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-12	721SV1
72CP7212-P6	BATCH TANK #1 MIXER SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-12	721M3
72CP7212-P7	SLURRY TRANSFER PUMP #1 SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-12	723P101
72CP7212-P8	SLURRY TRANSFER PUMP #2 SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-12	723P201
72CP7212-P9	LIME DAY TANK #1 MIXER SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-12	723M1
72CP7212-P10	SLURRY METERING PUMP #1 SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-12	723P102
72CP7212-P11	SLURRY METERING PUMP #2 SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-12	723P103
72CP7212-P12	SLURRY METERING PUMP #5 SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-12	723P202
72CP7213-P1	LIME SILO #2 EXHAUST FAN SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-13	722EF1
72CP7213-P2	LIME SILO #2 SHAKER SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-13	722M1
72CP7213-P3	LIME SILO #2 BIN ACTIVATOR SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-13	722M2
72CP7213-P4	LIME SILO #2 CONVEYOR SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-13	722COV1
72CP7213-P5	LIME SYSTEM #2 SOLENOID SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-13	722SV1
72CP7213-P6	BATCH TANK #2 MIXER SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-13	722M3
72CP7213-P7	SLURRY TRANSFER PUMP #3 SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-13	723P301
72CP7213-P8	LIME DAY TANK #2 MIXER SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-13	723M2
72CP7213-P9	SLURRY METERING PUMP #3 SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-13	723P302
72CP7213-P10	SLURRY METERING PUMP #4 SUPPLY	3/4"	3-#12,#12G	480VAC	72CP72-13	723P303
72CP7212-L1	LIME SILO #1 LEVEL	3/4"	2-#12,#12G	120VAC	72CP72-12	721LIT102
72CP7212-L2	LIME SYSTEM #1 WATER FLOW	3/4"	2-#12,#12G	120VAC	72CP72-12	721FIT203
72CP7212-L3	BATCH TANK #1 WEIGHT TRANSMITTER	3/4"	2-#12,#12G	120VAC	72CP72-12	721WIT301
72CP7212-L4	LIME DAY TANK #1 LEVEL	3/4"	2-#12,#12G	120VAC	72CP72-12	723LIT101
72CP7213-L1	LIME SILO #2 LEVEL	3/4"	2-#12,#12G	120VAC	72CP72-13	722LIT101
72CP7213-L2	LIME SYSTEM #2 WATER FLOW	3/4"	2-#12,#12G	120VAC	72CP72-13	722FIT203
72CP7213-L3	BATCH TANK #2 WEIGHT TRANSMITTER	3/4"	2-#12,#12G	120VAC	72CP72-13	722WIT301
72CP7213-L4	LIME DAY TANK #2 LEVEL	3/4"	2-#12,#12G	120VAC	72CP72-13	723LIT201

1 / 72-E602 FACILITY 72 CONDUIT SCHEDULE PART 2

SCALE: NONE

REV	DATE	DESCRIPTION	BY
3	05/22/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.22116 HUNTER WICK

Digitally Signed 06/03/2024

0 1" — 1" = 1"

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DESIGNED BY: DES
DRAWN BY: DRW
CHECKED BY: CHK
DATE: MAR. 2024

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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

LIME & PAC BUILDING ELECTRICAL CONDUIT SCHEDULE

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER: 72-E602
SHEET NUMBER: 307

File: I:\2019\19W01300 - Conway Corp WTP Improvements\Drawings\XX-E601.dwg Last Save: 6/3/2024 2:27 PM Last saved by: LCBridges
Last plotted by: Bridges, Landon C. (Cade) Plot Style: ---- Plot Scale: 1:2.5849 Plot Date: 6/3/2024 2:33 PM Plotter used: None

LEGEND:

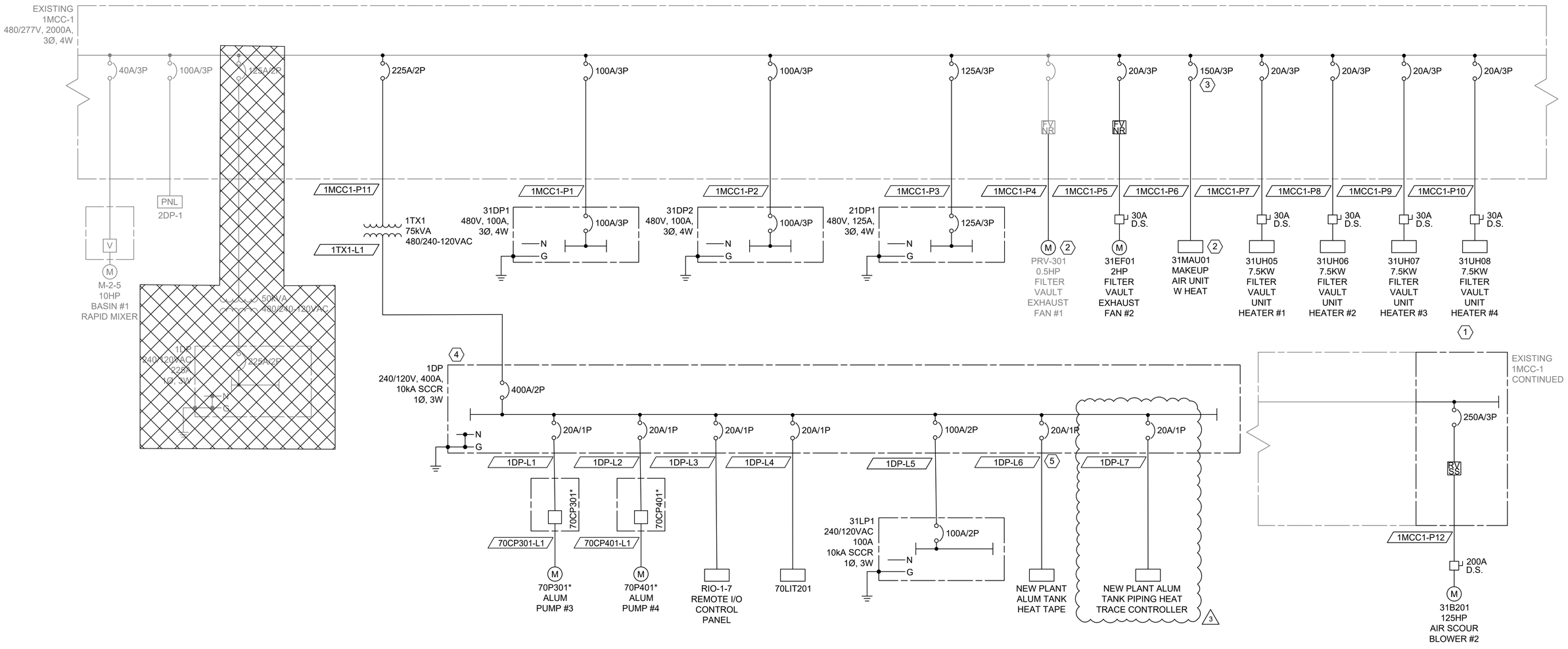
TO BE REMOVED

GENERAL NOTES:

1. MAKE ALL FINAL CONNECTIONS PER MANUFACTURERS' INSTRUCTIONS.
2. EXISTING EQUIPMENT SHOWN ON DRAWING FOR REFERENCE ONLY. ACTUAL FIELD CONDITIONS MAY VARY.
3. NEW EQUIPMENT IS SHOWN AS DARK/BOLD. EXISTING EQUIPMENT IS SHOWN AS LIGHT/FADED.

KEY NOTES:

1. NEW MCC SECTION TO BE APPENDED ONTO EXISTING 1MCC-1.
2. FOR INDICATED LOADS, CONTRACTOR MAY UTILIZE EXISTING CONDUIT AND CONDUCTORS IF FOUND TO BE UNDAMAGED AND OTHERWISE SUITABLE. WHERE NEW CONDUIT OR CONDUCTORS IS DEEMED NECESSARY, CONTRACTOR SHALL REFER TO CONDUIT SCHEDULE FOR QUANTITY AND SIZE. NO SPLICING OR JUNCTIONS SHALL BE PERMITTED.
3. CONTRACTOR SHALL FURNISH AND INSTALL INDICATED NEW CIRCUIT BREAKER IN LOCATION OF EXISTING 175A/3P BREAKER SUPPLYING EXISTING MAKEUP AIR UNIT. RETURN EXISTING BREAKER CUBICLE TO OWNER.
4. REPLACE EXISTING PANEL 1DP WITH NEW 54 SPACE PANELBOARD. PROVIDE BRANCH CIRCUIT BREAKERS AS REQUIRED TO PROVIDE DEDICATED BREAKERS TO EACH DEVICE CURRENTLY SUPPLIED BY THE EXISTING PANEL.
5. CONTRACTOR SHALL COORDINATE BREAKER AND CONDUCTOR SIZES WITH TANK MANUFACTURER AND ADJUST AS REQUIRED.



1MCC-1 ONE-LINE DIAGRAM

1 / 90-E503 SCALE: NONE

REV	DATE	DESCRIPTION	BY
3	06/03/24	ADD 03	

GARVER LLC No. 766 CERTIFICATE OF AUTHORIZATION ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.22116 HUNTER WICK
Digitally Signed 06/03/2024

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DESIGNED BY: HGW
DRAWN BY: LCB
CHECKED BY: JCW
DATE: MAR. 2024

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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT 8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

OPERATIONS BUILDING ONE-LINE DIAGRAM

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER: **90-E503**
SHEET NUMBER: **311**

File: L:\2019\19W01300 - Conway Corp WTP Improvements\Drawings\90-E50X.dwg Last Save: 6/3/2024 4:31 PM Last saved by: LCBridges
Last plotted by: Bridges, Landon C. (Cade) Plot Style: ---- Plot Scale: 1:2.5849 Plot Date: 6/3/2024 4:31 PM Plotter used: None

DESCRIPTION	CONDUIT #	BREAKER POLE	BREAKER AMP.	CKT #	PHASE	CKT #	BREAKER AMP.	BREAKER POLE	CONDUIT #	DESCRIPTION
10FIT101 SUPPLY	10LP1-L1	1	20	1	A	2	20	1	10LP1-L2	10FIT201 SUPPLY
NORTH METER VAULT RECEP.	10LP1-L3	1	20	3	B	4	20	1	10LP1-L4	SOUTH METER VAULT RECEP.
RAW WATER STRUCTURE RECEP.	10LP1-L5	1	20	5	A	6	30	1	10LP1-L6	SAMPLE PUMP STARTER
HEAT TRACE CONTROLLER	10LP1-L7	1	30	7	B	8	20	1		SPARE
SPARE		1	20	9	A	10	20	1		SPARE
SPARE		1	20	11	B	12	20	1		SPARE
SPARE		1	20	13	A	14	20	1		SPARE
SPARE		1	20	15	B	16				
SPARE		1	20	17	A	18	20	1		SPARE
SPACE				19	B	20				
SPACE				21	A	22				SPACE
SPACE				23	B	24				SPACE

2 RAW WATER STRUCTURE RECEP. / HEAT TRACE CONTROLLER

1 / 90-E601 — 10LP1 PANEL SCHEDULE

SCALE: NONE

DESCRIPTION	CONDUIT #	BREAKER POLE	BREAKER AMP.	CKT #	PHASE	CKT #	BREAKER AMP.	BREAKER POLE	CONDUIT #	DESCRIPTION
FILTER GALLERY LIGHTS	31LP1-L1	1	20	1	A	2	20	1	31LP1-L2	RECEPTACLES
FILTER OUTDOOR WALL LIGHTS	31LP1-L3	1	20	3	B	4	20	1	31LP1-L4	EMERGENCY LIGHT
FILTER POLE LIGHTS	31LP1-L5	1	20	5	C	6	20	1	31LP1-L6	PLC31-8 SUPPLY
PLC31-9 SUPPLY	31LP1-L7	1	20	7	A	8	20	1	31LP1-L8	ROLL UP DOOR ACTUATOR
LEVEL TRANSMITTER SUPPLY (31LIT601)	31LP1-L9	1	20	9	B	10	20	1	31LP1-L10	LEVEL TRANSMITTER SUPPLY (31LIT501)
LEVEL TRANSMITTER SUPPLY (31LIT801)	31LP1-L11	1	20	11	C	12	20	1	31LP1-L12	LEVEL TRANSMITTER SUPPLY (31LIT701)
TURBIDIMETER #1 SUPPLY (31AIT501)	31LP1-L13	1	20	13	A	14	20	1	31LP1-L14	TURBIDIMETER #2 SUPPLY (31AIT601)
SPARE		1	20	15	B	16	20	1		SPARE
SPARE		1	20	17	C	18	20	1		SPARE
SPARE		1	20	19	A	20	20	1		SPARE
SPARE		1	20	21	B	22	20	1		SPARE
SPARE		1	20	23	C	24	20	2		SPARE
SPARE		1	20	25	A	26				
SPARE		2	20	27	B	28	20	2		SPARE
				29	C	30				
SPARE		2	20	31	A	32				SPACE
				33	B	34				SPACE
SPACE				35	C	36				SPACE
SPACE				37	A	38				SPACE
SPACE				39	B	40				SPACE
SPACE				41	C	42				SPACE

1 / 90-E601 — 31LP1 PANEL SCHEDULE

SCALE: NONE

DESCRIPTION	CONDUIT #	BREAKER POLE	BREAKER AMP.	CKT #	PHASE	CKT #	BREAKER AMP.	BREAKER POLE	CONDUIT #	DESCRIPTION
VFD ROOM RECEPTACLES	60LP1-L1	1	20	1	A	2	20	1	60LP1-L2	OUTDOOR RECEPTACLES
VFD ROOM LIGHTS	60LP1-L3	1	20	3	B	4	20	1		SPARE
SPARE		1	20	5	A	6	20	1		SPARE
SPARE		1	20	7	B	8	20	1		SPARE
SPARE		1	30	9	A	10	20	1		SPARE
SPARE		1	20	11	B	12	20	1		SPARE
SPARE		1	20	13	A	14	20	1		SPARE
SPARE		1	20	15	B	16	20	1		SPARE
SPARE		1	20	17	A	18	20	1		SPARE
SPARE		1	20	19	B	20	20	1		SPARE
SPARE		1	20	21	A	22	20	1		SPARE
SPARE		1	20	23	B	24	20	1		SPARE
SPARE		1	20	25	A	26	20	1		SPARE
SPARE		1	20	27	B	28	20	1		SPARE
SPARE		1	20	29	A	30	20	1		SPARE
SPARE		2	20	31	B	32	20	2		SPARE
				33	A	34				
SPARE		2	30	35	B	36	30	2		SPARE
				37	A	38				
SPACE				39	B	40				SPACE
SPACE				41	A	42				SPACE

2 / 90-E601 — 60LP1 PANEL SCHEDULE

SCALE: NONE

DESCRIPTION	CONDUIT #	BREAKER POLE	BREAKER AMP.	CKT #	PHASE	CKT #	BREAKER AMP.	BREAKER POLE	CONDUIT #	DESCRIPTION
10LP1 SUPPLY	72LP1-L1	2	60	1	A	2	20	1	72LP1-L2	LIME & PAC BLDG OUTDOOR LIGHTS
				3	B	4	20	2	72LP1-L4	72CU01
LIME & PAC ELEC ROOM LIGHTS	72LP1-L3	1	20	5	C	6				
PAC AIR COMPRESSOR	72LP1-L5	1	20	7	A	8	20	1	72LP1-L6	ROLL-UP DOOR ACTUATOR #1
72CP72-10 SUPPLY	72LP1-L7	1	20	9	B	10	20	1	72LP1-L8	ROLL-UP DOOR ACTUATOR #2
LIME ROOM LIGHTING	72LP1-L9	1	20	11	C	12	20	1	72LP1-L10	PAC ROOM LIGHTING
OLD ALUM PLANT HEAT TRACE	72LP1-L11	1	20	13	A	14	20	1	72LP1-L12	71LIT201 SUPPLY
INDOOR RECEPTACLES CKT #1	72LP1-L13	1	20	15	B	16	20	1	72LP1-L14	OUTDOOR RECEPTACLES CKT #1
INDOOR RECEPTACLES CKT #2	72LP1-L15	1	20	17	C	18	20	1	72LP1-L16	OUTDOOR RECEPTACLES CKT #2
OLD PLANT RAPID MIX HEAT TRACE	72LP1-L17	1	20	19	A	20	20	1	72LP1-L18	OLD PLANT ALUM TANK PIPING HEAT TRACE
SPARE		1	20	21	B	22	20	1		SPARE
SPARE		1	20	23	C	24	20	2		SPARE
SPARE		1	20	25	A	26				
SPARE		2	20	27	B	28	20	2		SPARE
				29	C	30				
SPARE		2	20	31	A	32				SPACE
				33	B	34				SPACE
SPACE				35	C	36				SPACE
SPACE				37	A	38				SPACE
SPACE				39	B	40				SPACE
SPACE				41	C	42				SPACE

3 / 90-E601 — 72LP1 PANEL SCHEDULE

SCALE: NONE

KEY NOTES:

1 CONTRACTOR SHALL COORDINATE BREAKER AND CONDUCTOR SIZES WITH TANK MANUFACTURER AND ADJUST AS REQUIRED.

REV	DATE	DESCRIPTION	BY
2	05/17/24	ADD 02	
3	05/22/24	ADD 03	

GARVER LLC No. 766 — CERTIFICATE OF AUTHORIZATION — ARKANSAS ENGINEER

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No.22116 — HUNTER WICK

Digitally Signed 06/03/2024

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DESIGNED BY: HGW
DRAWN BY: LCB
CHECKED BY: JCW
DATE: MAY 2024

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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

ELECTRICAL PANEL SCHEDULES

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER: **90-E601**
SHEET NUMBER: **317**

File: L:\2019\19W01300 - Conway Corp WTP Improvements\Drawings\90-E601.dwg Last Save: 6/3/2024 4:20 PM Last saved by: LCBridges
Last plotted by: Bridges, Landon C. (Cade) Plot Style: ---- Plot Scale: 1:2.5849 Plot Date: 6/3/2024 4:20 PM Plotter used: None

2

GENERAL NOTES:

1. REFER TO CONDUIT SCHEDULES FOR CONDUIT AND CONDUCTOR SIZES.
2. CONSTRUCT DUCT BANKS IN ACCORDANCE WITH SPECIFICATIONS AND STANDARD DETAILS.
3. DUCT BANK SECTIONS ARE PROVIDED FOR REFERENCE ONLY. CONTRACTOR SHALL REVIEW PLAN SHEETS FOR INDIVIDUAL STRUCTURES AND VERIFY CONDUITS THAT MAY BE REQUIRED.
4. NOT ALL DUCT BANKS ON PROJECT SITE ARE DEPICTED. CONTRACTOR SHALL COORDINATE THE REQUIRED DUCT BANKS BETWEEN AND WITHIN FACILITIES AS REQUIRED FOR A COMPLETE INSTALLATION.
5. DUCT BANK SECTIONS SHOWN SEPARATED BASED ON POWER/CONTROL/SIGNAL PURPOSES. SECTIONS MAY BE POURED IN SAME TRENCH FOLLOWING SPACING GUIDELINES FOUND IN STANDARD DETAILS.
6. CONDUIT ARRANGEMENTS IN DUCT BANK SECTIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR MAY MODIFY ARRANGEMENT FOLLOWING SPACING GUIDELINES FOUND IN STANDARD DETAILS.
7. FOR SECTIONS WHERE NO SPARE CONDUITS ARE DEPICTED, CONTRACTOR SHALL PROVIDE ONE (1) SPARE CONDUIT EQUIVALENT TO THE LARGEST SIZE CONDUIT IN THAT DUCT BANK.

05EPB05--21		05EPB05--50		05EPB05--70		05EPB05--72		72 UTILITY--72		72--10		72--15		72--71	
CONDUIT	SIZE	CONDUIT	SIZE	CONDUIT	SIZE	CONDUIT	SIZE	CONDUIT	SIZE	CONDUIT	SIZE	CONDUIT	SIZE	CONDUIT	SIZE
01CP17-C1	1"	01CP17-S1	EXISTING 2"	72CP7210-N4	1"	72CP7210-N4	1"	UTIL1-P1 (SET 1)	3"	72CP7210-C1	1"	15VFD101-N1	1"	71LIT201-S1	1"
01CP17-C2	1"			72CP7210-N5	1"	72CP7210-N5	1"	UTIL1-P1 (SET 2)	3"	72CP7210-C14	1"	72CP7210-C10	1"	71ZSO101-C1	1"
1MCC1-P3	2"			01CP17-C1	1"					72CP7210-C2	1"	72CP7210-C11	1"	72LP1-L11	1"
21VFD001-N1	1"			01CP17-C2	1"					72CP7210-C3	1"	72CP7210-C12	1"	72LP1-L12	1"
				01CP17-S1	EXISTING 2"					72CP7210-C4	1"	72CP7210-C13	1"	72LP1-L17	1"
				1MCC1-P3	2"					72CP7210-C5	1"	72CP7210-C8	1"	72LP1-L18	1"
				21VFD001-N1	1"					72CP7210-C6	1"	72CP7210-C9	1"		
										72CP7210-C7	1"	72DP1-P2	2"		
										72CP7210-S1	1"				
										72CP7210-S10	1"				
										72CP7210-S11	1"				
										72CP7210-S12	1"				
										72CP7210-S2	1"				
										72CP7210-S3	1"				
										72CP7210-S4	1"				
										72CP7210-S5	1"				
										72CP7210-S6	1"				
										72CP7210-S7	1"				
										72CP7210-S8	1"				
										72CP7210-S9	1"				
										72DP1-P8	2"				
										10CP300-C1	1"				
										72DP2-P10	1"				
										72DP2-P11	1"				
										72DP2-P12	1"				
										72DP2-P13	1"				
										72DP2-P8	1"				
										72DP2-P9	1"				
										72LP1-L1	2"				
										10LCP1-C1	1"				

3

1 90-E602 | 05-E101

2 90-E602 | 05-E101

3 90-E602 | 05-E101

4 90-E602 | 05-E101

5 90-E602 | 05-E101

6 90-E602 | 05-E101

7 90-E602 | 05-E101

8 90-E602 | 05-E101

REV	DATE	DESCRIPTION	BY
2	05/17/24	ADD 02	
3	05/22/24	ADD 03	

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STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.22116 HUNTER WICK

Digitally Signed 06/03/2024

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CHECKED BY: JCW
DATE: MAY 2024

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CONWAY CORPORATION

ROGER Q MILLS JR. WATER TREATMENT PLANT
8 MGD EXPANSION & IMPROVEMENTS

ADDENDUM NO. 03

ELECTRICAL DUCT BANK SECTIONS

CEI JOB NO.: 2135
GARVER JOB NO.: 19W01300
DRAWING NUMBER: **90-E602**
SHEET NUMBER: **318**

File: L:\2019\19W01300 - Conway Corp WTP Improvements\Drawings\90-E601.dwg Last Save: 6/3/2024 9:57 AM Last saved by: LCBridges
Last plotted by: Bridges, Landon C. (Cade) Plot Style: ---- Plot Scale: 1:2.5849 Plot Date: 6/3/2024 2:33 PM Plotter used: None

CRIST ENGINEERS CONTRACT NO. 2135
ROGER Q. MILLS WATER TREATMENT PLANT
8 MGD EXPANSION AND IMPROVEMENTS

RESPONSE TO QUESTIONS

Ref No.	Question	Contractor	Response
1	Confirm 6-month admin period will not run concurrent with the 730/760 duration. Confirm 910/940	Tolm Group (BR)	See Addendum No. 02
2	Can you provide expanded Wage Rate classifications. Ie… pipefitter, millwright, iron worker, plumber, HVAC, controls, masonry. Will the "Building" Construction Type Apply? If so, can you provide the appropriate wage scale?	Tolm Group (BR)	See Addendum No. 03
3	Bid form states bid acceptance window of 90 days. Advertisement for bids states 60 days. Does 60 days govern?	Tolm Group (BR)	See Addendum No. 02
4	Request is made that the manufacturer subcontractor listing be allowed to be submitted within 24 hours of the bid opening by the apparent low bidder.	Tolm Group (BR)	Contractor to submit in accordance with requirements stated on the bid form without exception
5	Bid Item #1- Request is made to modify the % split of the first pay application and the last pay application….. Front end costs far exceed actual demobilization costs that ultimately only get paid upon the final pay application. This 35% is essentially additional retainage. This would represent a significant unbalance in actual costs. Consideration is made for 80/20 split.	Tolm Group (BR)	See Addendum No. 02
6	Please confirm retainage amounts. 5% up to 50% of the contract? Confirm retainage will not be withheld on approved material stored invoice. SRF supplementals state 5%.	Tolm Group (BR)	Retainage and payment is identiied in the SRF Supplemental Documents
7	Is a city building permit required?	Tolm Group (BR)	See Addendum No. 02
8	Can you confirm that the owner will allow for partial payment (as material stored, no retention) for the approved submittals of major equipment supplies. Pumps, filters, WTP Equipment, PEMB, etc….. An amount equal 10% or more is required by most major providers and incentivizes the submittal approval process by the material suppliers.	Tolm Group (BR)	See Addendum No. 02
9	SC-15.01.D is unreasonable. My interpretation is that pay applications would be made by the end of each month. Then engineer has 10 days to review and then owner has 60 days to pay. At the longest path…that's 100 days. Effort should be made to offer favorable pay terms to the providers under this contract.	Tolm Group (BR)	See Addendum No. 02

10	Contract document precedence state that the SRF Supplementals govern ahead of the general supplemental GC's. Following on the question above….. SRF stipulates 30 day payment by owner unless interest charges are to bear. SRF and GC Supplementals differ in many places.	Tolm Group (BR)	See Addendum No. 02
11	Section 010000, B. States equipment should be stored indoors climate controlled above 40 degrees? Would this apply to equipment that will be in service outdoors? Is the following sentence that states storage to be in accordance with manufacturer the governing requirement for all storage?	Tolm Group (BR)	See Addendum No. 02
12	Section 010000, 1.11… Will it be the practice to bill the contractor for Saturday oversight? It is expected that shutdowns and weekend work will be required. Rainouts often drive for weekend catch up. Can you provide the hourly rate? Something we could budget for.	Tolm Group (BR)	Hourly rate is $175 / hour
13	Specs require contractor to pay for water usage. 015000,1.6. Is this the intent? Can owner provide site water at no charge? To include water used for hydraulic testing, temp facilities, etc..it appears that the hydraulic testing spec allows for owner to provide water at no charge.	Tolm Group (BR)	See Addendum No. 02
14	Confirm temp office trailer requirements. Will we need to provide engineer/inspector office space?	Tolm Group (BR)	See Addendum No. 02
15	Spec 133419 Field Quality requirements. Confirm that those tests and then inspections are actually required by the contractor. Should these tests fall into the owners third party inspection scope as required across other scope sections.	Tolm Group (BR)	This specification is deleted, See Addendum No. 03
16	Spec 220529 process supports require FRP supports in corrosive areas. Could you confirm categorically the chemical carrier piping or rooms that would require FRP supports?	Tolm Group (BR)	Fluoride, sodium hydroxide, chlorine or chlorine dioxide rooms or containment
17	It was expressed that an addendum may come out next Tuesday. Is the bid form anticipated to be changed at all? The bid items or deductive alternates? Only ask because as estimate grows with quantity takeoff bid item assignments….. reconfiguring becomes more difficult later on. It's better to be tipped off ahead of time.	Tolm Group (BR)	No Action Required
18	Need clarification on the wet well requirements for the Smith & Loveless Drain Pump Station. Specs (333216) reference a fabricated top to be hoisted into place? This existing? Plans depict a possible Precast wet well? Sheet 060, 054	Tolm Group (BR)	See Addendum No. 03

19	Sheet 096 Note 1- Moisture conditioning typically proves to be tough and not cost effective. Could a lean concrete/flow fill mud mat be considered in lieu of moisture conditioning and subgrade? Cement stabilized soil section? Could you offer a contractor alternative? Typical question for Sed structure- Sheet 120…Typical Also Sheet 246	Tolm Group (BR)	An 8" mud slab in lieu of the scarrifed and moisture conditioned layer would be acceptable. Contractor alernative would need to be reviewed during submittal process to determine if it is acceptable. See revised notes in Addendum No. 3
20	Sheet 113- Do you know the approximate slab thickness of the basin? Are there any asbuilt drawings?	Tolm Group (BR)	See Addendum No. 01
21	Is the concrete walkway shown on sheet 130 intended to be detail A/Sheet027?	Tolm Group (BR)	See Addendum No. 03
22	Do you have any detail of the Trench Sump shown on Sheet 150?	Tolm Group (BR)	See Addendum No. 02
23	What concrete detail should the HVAC pad be on sheet 210? A/Sheet 027? Something reinforcing?	Tolm Group (BR)	Use Standard Detail D03/3000-1000, Type F. See Addendum No. 3
24	What is going on with the access at the Southeast corner of the lime & pac building? Transitioning from South to North? Concrete stairs, Misc.Metal? Fence gate needed. Sheet 308	Tolm Group (BR)	Pending for Addendum No. 03
25	Is the Material Testing allowance intended to cover the costs of the crack injection testing spec 036400, 3.5, C/?	Tolm Group (BR)	Pending for Addendum No. 03
26	Is the Maintenance of Concrete Specification 030100 intended to be applied at any existing concrete locations? I see this specification if referenced in 033000, 3.5, M. As the patching requirement. I wasn't sure if there was any existing concrete surfaces or structures that were being rehabilitated via that specification.	Tolm Group (BR)	Currently, there are no areas known to require patching. However, there are areas of the existing plant that will be uncovered during construction that may require patching. This spec is provided for reference
27	Can you confirm that the 5000 psi mix in Spec 033000, severe sulfate, and wastewater doesn't apply? Sanitary sewer or drainage manholes?	Tolm Group (BR)	The 5000 psi mix does not apply to any cast-in-place items on this project. Concrete for Precast Manholes will be governed by the specification for those items.
28	Sheet 025…. Confirm piping material at basin underdrain. I see requirements for PVC fittings and DIP piping. I believe all the underdrain is intended to be perforated HDPE?	Tolm Group (BR)	Clarified in Addendum No. 02
29	The meter vault on sheet 020 and 023 appears to have differing instruction. Should we demo the vault entirely or just remove the portion where there is conflict with the new piping?	Tolm Group (BR)	See Addendum No. 03
30	Is there some scope or something we are supposed to do at the bold pipeline that's under the highway from R/W to R/W on Sheet 022?	Tolm Group (BR)	Not in this contract. See Addendum No. 03
31	Can you provide an Autocad file of the site/project please? We can sign a release form.	Tolm Group (BR)	See Addendum No. 02
32	Where the new adjoining filter wall pours up to existing. Sheet 160. What prep or care will we be required to do prior to pouring the new wall? Will we be required to pressure wash or deep clean it? Is any bonding agent required to be sprayed or applied?	Tolm Group (BR)	No cleaning or preparation of the existing walls is required. No bonding agent is required.
33	Confirm the tank opening detail (Height required)…. Sheet 283 and 265. One is 18" one is 12"	Tolm Group (BR)	Unkown Reference to tank opening to referenced drawings

34	Assuming that when it comes time to demo the existing lime silos…that they will more or less be empty except for residual? Sheet 020,019	Tolm Group (BR)	See Addendum No. 03
35	I am having a tough time locating the materials specified in Spec 068017 Fiberglass Reinforced Plastic Fabrications. Weirs and Baffles, Stop Plates and Logs, Diffuser Walls, etc…. I recognize the V-Notch Weirs on the Sed effluent. Some direction would be helpful.	Tolm Group (BR)	See Addemdum No. 03
36	Metal Roofing and Wall Panels…Where do these occur? Spec 074113. I am following this to what appears to be a wall furr out at the HS PS building where the new HVAC penetrates the wall. Sheet 206. Looks like engineering calcs are required? Is the metal panel, light gauge, and other structural adjustments to make way for the HVAC limited to the local area with patching and tie in of materials. Is the intent to "bump" out the entire West elevation wall? Rework the eve, gutters and downspouts?	Tolm Group (BR)	See Addendum No. 03
37	On sheet 204 there is a new door required. There does not appear to be a door schedule with the details. Assuming 30x70… would it require half lite glass? Similar to door that will be adjacent?	Tolm Group (BR)	See Addendum No. 03
38	Confirm there is no floor coating requirements at the filter addition. At the Lime & PAC, a Sherwin Williams Seal coat densifier was specified.	Tolm Group (BR)	Pending for Addendum No. 03 - Crist will match
39	05-X301 shows a new line under the current asphalt roadway. I do not see a spec section for asphalt paving in the spec book. Please add.	Tolm Group	Clarified in Addendum No. 02
40	For pipe backfill….. Spec 312302, 3.5 requires flowable fill to be provided full depth. Also review the backfill details on Sheet 029. Can you clarify what will be required?	Tolm Group	Will be clarified
41	Confirm that Owner will provide the Process Control System integration and that the requirements of specification 406113 will be provided by the owner in its entirety. Do you know who this company will be?	Tolm Group	This was covered in the Pre - Bid. Contractor will be responsible for purchase, power and termination, Owner is responsible for programming. No one has been hired at this time. GARVER currently conducts this service for the owner.
42	Can you specify the approved FRP Tank manufacturers. Spec 434116…. Current is listed at Tankinetics. I believe they are closed….. There is poly processing, KBK/belco, assmann, and others.	Tolm Group	See Addendum No. 03
43	I can't make sense of the piping arrangement for the drain pump station…… pipe sizes, etc…. I am seeing 4" Forcemain, 6" discharge, 8x6" MJ Tee, so 6" drain? Then I am seeing an 8" MJ GV but should there be 6" GV on the back side of the 8x6 tee? See sheets 054, 060, etc.	Tolm Group	See Addendum No. 02
44	At the 36" Welded Steel Pipe to 36" DIP pipe crossover….how would you like this transition to be made? See Sheet 057. Is there a particular transition coupling that should be used?	Tolm Group	Clarified in Addendum No. 02

45	Sheet 212. Where is the 6” drain line to tie into? Do you have any as-builts?	Tolm Group	There is an existing 6” drain line in the northeast corner of the containment area, approximately 25 feet from the new sump. No as-builts are available for the existing 6” drain line location beyond the containment area.
46	Confirm that we are not to re-lay the existing Alum Tank fill line. On Sheet 247..Note 2 and the bold lines have me confused.	Tolm Group	See Addendum No. 03
47	On the New Plant Alum Tank….confirm that we are only to heat trace and insulate the suction line. On the Old Plan Alum “New” Tank…confirm that we are to Heat Trace and Insulate All Lines per sheet 247. There is a note floating around that states to heat trace and insulate “All” exposed piping.	Tolm Group	See Addendum No. 02
48	Does the beneath slab process piping, sludge at the sedimentation basin need to be encased. Please clarify where encasement is required.	Tolm Group	See Addendum No. 03
49	ON Sheet 112 and 129… Aerial shows a 12” Cross outside the basin on 112…..129 shows a 12” Tee…… Confirm that the Tee is correct.	Tolm Group	Clarified in Addendum No. 02
50	Can you depict the 6” Foundation drain in more detail? It is hard to know the limits and routing. Sheet 112 and Civil sheets…….Does it go around the entire structure? Does it locate outside the footer? Is fabric required? What is going on with the 4” Drain on sheet 112?	Tolm Group	Omit Foundation drain, not required.
51	Please clarify how many 4” carrier pipes with ½” lime feeds route to the four Rapid Mix Tanks. The series 72 drawings (Lime and PAC Building) shows a quantity of four 4” Lime carrier pipes leaving the structure, and Drawing Sheets 024 and 025 seem to depict that each one is dedicated to a particular Rapid Mix Tank, one for RM #1, one for RM #2, one for RM #3 and one for RM #4. Drawing Series 21 (New Plant Sed Basin) however depicts two 4” Lime carrier pipes, shown as typical, for each Rapid Mix Tank.	MFC (JS)	See Addendum No. 03
52	If two 4” carrier pipes are routed to each Rapid Mix Tank, then please provide the detail of how they leave the Lime and Pac Building.	MFC (JS)	Please reference detail B, plan sheet 028, Details, A, B, C, D, E, 1, G on plan sheet 030 and details A, B, D on plan sheet 031. Please reference notes 1 through 17, specifically note no. 16.
53	Please confirm the call-out on Drawing sheet 136 for ‘4” HDPE Carrier’ is incorrect and the carrier pipe is actually Sch 40 PVC as noted in the piping schedule on sheet 137.	MFC (JS)	Confirmed

54	Addendum 2 adds Note 12 to Drawing Sheet 006 which states 'All exposed chemical piping shall be heat traced'. However, as an example, Drawing Sheet 247, (Old Plant Alum Feed Storage Plan) states in Note 3 to heat trace the suction lines. Elsewhere throughout the drawings, particular chemical lines are called to be heat traced and insulated, and seem to exclude, for example, Chemical Tank Fill Lines. To what extent does the 'All exposed chemical piping' apply? The drawings appear to dictate and note the particular lines requiring HT&I, the added note from Addendum #2 seems to add a bit of ambiguity.	MFC (JS)	Concur, please see Note 12 as shown on plan sheet 024.
55	Section 464315 – Part 2 2.1 B. – Please replace ¾" with 5/8". Our standards for the anchor bolts for the ClariVac system is 5/8" instead of ¾"	ISI Equipment (PS)	See Addendum No. 03
56	Section 464315 – Part 2 2.3 A. – Please remove this section completely. We are not familiar with this requirement. It is not a typical requirement for a ClariVac system.	ISI Equipment (PS)	See Addendum No. 03
57	Section 464315 – Part 2 2.4 B. – Note – at "zero" flow the mechanism will rest on the basin floor. At design flow clearance will be 1". Please change these values.	ISI Equipment (PS)	See Addendum No. 03
58	Section 464315 – Part 2 2.4 E – We assume there is a typo "Schedule S"? Should read Schedule 5?	ISI Equipment (PS)	See Addendum No. 03
59	Section 464315 – Part 2 2.4 F – This section calls for siphon piping to be 4". Please change this to read 4" and/or 5".	ISI Equipment (PS)	See Addendum No. 03
60	We cannot locate a specification for precast manholes. Please provide.	MFC (JW)	See Addendum No. 02
61	Are any pipelines on the project required to have restrained pipe joints beyond the fittings? We don't see any indication on the drawings. However, spec section 33 11 13-2.7.T, 33 34 00-2.8.J and 40 05 20-2.11.J reference the use of EBAA Megalug series 1700 to restrain pipe joints with an alternate to use propriety restrained joint pipe if approved 15 days prior to the bid.	MFC (JW)	Yes, per plan sheet No. 026, Detail A.
62	Spec section 33 11 13 (Water Line Pipe and Fittings) paragraph 2.3.I.2 calls for fusion bonded epoxy exterior coating on DIP "where identified". Is this required on the project? We can't identify any locations on the drawings. This is also referenced is section 33 40 06 (Force Main Pipe and Fittings) paragraph 2.2.I.2 and 40 05 20 (Process Pipe and Fittings) paragraph 2.4.G.2. Section 40 05 20-2.9.C.1 calls for all DI fittings to have a fusion bonded epoxy coating.	MFC (JW)	This is not correct, please see Section 400520, page 21, 2.9.C.1
63	Spec section 33 11 13-2.3.J.2 calls for fusion bonded interior lining in pipe at a chemical injection point and 40' downstream of the injection location. I'm told this is not available on ductile iron pipe. Please clarify. This is also referenced in section 40 04 20-2.4.H.2.	MFC (JW)	Confirmed, this secion references chemical injection quill locations and interior coatings per AWWA C116. Please see references for American DIP and US Pipe.

64	Spec section 01 64 00 (Supports, Hangers and Anchors) Part 2 paragraph A and paragraph J, calls for 316SS anchors and bolts in wetted or any location where corrosion is a concern. Paragraph D calls for the supports to be stainless steel but does not specify 304 or 316. Please clarify. Additionally, spec section 33 11 13-2.3.G, section 33 34 00-2.2.G and section 40 05 20-2.5.A call for carbon steel pipe supports, epoxy coated and anchors to be fluoropolymer coated. Please clarify this contradiction with section 01 64 00.	MFC (JW)	All process piping floor supported shall be horizontally or vertically supported per 400520, page 16, 2.5.A. with a concrete or carbon steel saddle support (coated per requirements). Misc, suspended, chemical feed or other piping, stainless steel supports and hardware per 016400 and Plan Sheet No. 028, Detail B, C, D, E, will be required.
65	Spec section 33 24 00 (Force Main Pipe and Fittings) paragraph 2.2.B and 2.2.C calls for pressure class 350 pipe for all pipe sizes. Is this just for the two 16" Raw Water Force Mains that feed the Blending Structure? Spec sections 33 11 13-2.3.B and 40 05 50-2.4.B call for different pressure classes depending on pipe size.	MFC (JW)	Section 332400 references any sanitary sewer or waste force main piping only. Raw water piping and/ or in plant water conveyance piping references 400520. Finished water or in plant distribution piping of finished water references 331113.
66	**Please ref the notes on sheet 024 of the Bid Drawings:** 1. Note 11 states that exposed (or where identified) chemical piping and conduit shall be Tnemec coated and labeled with adhesive labels. Please confirm that this applies only on interior chemical piping that does not receive heat tracing and insulation. 2. In regards to question 1, spec section 400531, page 4 3.4-A.2.d tells you to refer to section 334000 for coloring requirements. I cannot locate that spec section. 3. Please clarify to what extent the insulated pipe is identified. It is assumed that these lines would only receive adhesive labels. Per note 12, that would be all exterior above ground chemical lines 4. Note 16 states that a plumber licensed in Arkansas shall install the chemical lines and conduit. Is it the Engineer's intent to have all (buried and exposed) chemical lines on the project installed by a licensed plumber? That would be an unusual requirement in our xperience, and costly. 5. Note 16 also states that shop drawings shall be submitted for chemical lines and conduit. What are the expectations for these shop drawings? Are new CAD type drawings expected or would neatly prepared PDF sketches / notations on the contract drawings be acceptable?	MFC (JS)	1. Confirmed, interior, exposed chemical feed lines are to be coated with adhesive labels. Insulated see below No. 3. 2. We will issue an addendum referencing the "2018 Recommended Standards for Waterworks", Section 2.14 for coloring requirements. SEE ADDENDUM NO. 03 3. Confirmed, all exposed chemical lines that are insulated with heat trace to receive adhesive labels. SEE ADDENDUM NO. 02 4. A contractor provided competent, PVC line installer may be acceptable in lieu of licensed plumber. SEE ADDENDUM NO. 02 5. Yes, that is acceptable.

67	Spec section 33 34 00 (Force Main Pipe and Fittings) paragraph 2.2.J calls for P401 Lining in DIP. Is this required anywhere on the project? Spec section 40 05 20-2.4.H.3 calls for P401 lining on “sanitary sewage conveyance”. Would this apply anywhere?	MFC (JW)	These reference any sanitary seqer or waste force main piping only
68	See Questions regarding spec deviations and exclusions from Merrick Industries	ETEC (CC)	See Addendum No. 03
69	Asphalt Pavement AR, D32-1216-001-AR, in the Set of Standard Details, includes 8” of Flyash Stabilized Subgrade. Does this apply to the Roger Q Mills Jr. WTP project?	MFC (JS)	No, asphalt trenching details can be found on Drawing No.: 00-CZ103 (Sheet 029)
70	There is reference to an Elevated Storage Tank in Section 099000, Article 1.1.A of the Project Specifications. Does this section apply to the existing above ground Backwash Tank #1 or is there an offsite elevated storage tank that requires the coating rehabilitation?	MFC (JS)	There is no elevated tank…only the BW GST. Coating for BW GST will be in accordance with Section 099000
71	Where does Section 133419-Metal Building Systems apply. The PEMB’s shown on the Bid Drawings appear to be existing. Please clarify.	MFC (JS)	Specification deleted per Addendum No. 03
72	Please confirm General Note 4 on Drawing 72-A201 and 72-A202 should reference Drawing 72-A503 for the Exterior Finish Schedule and there is not a Drawing 72-A504.	MFC (DT)	Confirmed; Sheets should reference 72-A503 for the Exterior Finish Sched.
73	Wall Section 1 on Drawing 72-A302 appears to depict Brick Veneer at the upper 8’-0” section. Please confirm the intent is to furnish 4” Colored CMU for the exterior veneer of the Lime & PAC Building.	MFC (DT)	Confirmed; all exterior veneer is 4" Colored CMU for this building
74	On the Exterior Finish Schedule on Drawing 72-A503, what locations are the 4” Smooth Face CMU to be installed?	MFC (DT)	Sheets 72-A301 & 72-A302 Elevations have will be updated to show the locations of Integral Color Smooth Face CMU Veneer.
75	On the Interior Finish Legend on Drawing 72-A503, please clarify where the W1 walls apply and confirm the intent is to have White Unfinished Split Face CMU at these locations.	MFC (DT)	Interior Finish Legend on Sheet 72-A503 has been updated to show W1 wall to now be White Unfinished Integral Color Smooth face CMU
76	Drawings 72-A101 and 72-S101 appear to detail the west interior wall as 3-HR Rated and the east interior wall as 4-HR Rated. Drawing 72-A004 appears to only specify requirements for the 4-HR Rated classification. Please clarify the required Fire Rating for the interior west partition wall.	MFC (DT)	Detail U904 3 HR CMU wall has has been added to 72-A003
77	Please provide the size, material of construction and hardware set ID for the new interior Door in the HSPS on Drawing 60-S101.	MFC (DT)	See Addendum No. 03
78	Please confirm Door No. 100A on the Door Schedule on Drawing 60-S101 is HM and not FRP per 2/31-S503.	MFC (DT)	See Addendum No. 03
79	Please confirm Section 083100-Horizontal Access Doors applies to this Project and Section 083100-Aluminum Hatches does not apply.	MFC (DT)	See Addendum No. 03
80	Clarify where Sections 074113 and 075000 are to be applied on the Project.	MFC (DT)	Deleted per Addendum No. 03

81	Will either of the 36” influent tie-in or the 16” force main tie-ins at the blending structure require a bypass? Is yes, please provide flow data or length of time the lines can be out of service to make a tie-in.	MFC (JW)	Plant shutdowns limited to 12 Hours. 16-in. FM's to Cadron Creek are for emergency use only
82	Please clarify the pipe material for the 36” drain from MH 10 to existing MH3. Sheet 22 calls it to be PVC while sheet 152 calls it DIP.	MFC (JW)	See Addendum No. 03
83	Please clarify the pipe material for the 18” drain from MH9 to MH14. Sheet 22 calls if PVC while sheet 308 call it DIP.	MFC (JW)	See Addendum No. 03
84	What is the diameter of the various manholes? We do not see a size indicated.	MFC (JW)	See Addendum No. 02
85	Please clarify the size of the discharge force main from the drain pump station. Sheet 22 calls it 6”, sheet 56 calls it 4” and sheet 60 calls it 8”.	MFC (JW)	See Addendum No. 02
86	We are told by a manhole supplier in the area that Conway doesn’t allow precast manholes and they must be poured in place. Is this correct? If yes, please provide a size and reinforcing. Also, is the drain pump station to be precast or cast in place?	MFC (JW)	See Addendum No. 02
87	Currently ISI is not quoting valves as the rep for Val-Matic. Spec section 33 14 19 (Potable Water Valves) lists Prat, Dezurik and Val-Matic as acceptable manufacturers. Spec section 40 05 57 (Electric Motor Actuators) lists Limitorque, Beck and Rotork as acceptable manufacturers. Please clarify.	MFC (JW)	Provide bid in accordance with the specifications and drawings
88	Please provide the missing detail sheets: D22-0529-017 D22-0529-013 D22-0529-008 D40-2343-001	MFC (JS)	See Addendum No. 02
89	Reference Drawing Sheet 045. The Fill Lines to the Fluoride and Sodium Hydroxide tanks appear bold or traced over. The lines depicting the dosing pump feeds from both tanks appear bold also. Are these bold lines indicating new piping? If so, to what extent?	MFC (JS)	Gray piping indicated existing piping. See drawing 60-X103 for note one sodium hydroxide fill line reroute over new containment wall.
90	Reference Drawing Sheet 200. Is there any additional information that can be provided on the size, type and routing of the existing pipe feeding the safety shower that’s to be relocated?	MFC (JS)	The safety shower is currently fed from the water storage tank. Record drawings indicate the size is 1-1/2". Pipe is insulated and pipe material to be field verified by Contractor. Insulation shall be repaired and provided on new branch to match existing. See Addendum No. 03
91	Reference Drawing Sheet 216, note 2. It’s unclear whether note 2 indicates the pump is existing or the drain line is existing. Please clarify. If the floor drain and drain line associated with note 2 is new, please provide the size, material, routing and details for tying into the Caustic Containment.	MFC (JS)	See Addendum No. 03

92	Reference Drawings 202 and 213. Is the intent for the Sodium Hydroxide Tank Fill and Pump Feed lines to remain in place except at the new wall, where 45° fittings are to be used to route up, over and back down?	MFC (JS)	Yes, that is correct.
93	Specify whether the Sodium Hydroxide pipe is threaded or welded and confirm that it is not insulated or heat traced.	MFC (JS)	Pipe is welded and no heat tracing required.
94	Reference Sheet 212, note 2. The new 6” Sodium Hydroxide containment drain line is called to be PVC, please confirm SCH 40. Confirm the tie-in point to the existing Fluoride drain is located near the existing sump. There are no yard pipe drawings showing existing piping in this area of the job.	MFC (JS)	Confirm to be schedule 40. Contactor to field locate the existing fluoride drain (approx at northeast corner of containment.)
95	At New filters…confirm the Process Drain Pipe Size…some sheets show 4”, some show 6”.	Tolm Group (BR)	Branch PD Pipes are 4". Header PD Pipe is 6"
96	On sheet 171….. Have concerns as to how to make the 42”x24” Reducer and Tee installation…..It will basically be “tucked” up under the existing slab, and deep on top of that…… We would like to sawcut the slab to acceptable limits, then backfill with a flowable fill and then dowel and repour the slab. Thoughts?	Tolm Group (BR)	This is means and methods, alternates will be evaluated and submitted via RFI process under contract
97	Still need direction as to where below slab or structure concrete encasement or minimally flowable fill would be required.	Tolm Group (BR)	Encasement detail will be added
98	We appear to still be missing reference detail documents….Garver standard details…..Example….. D40/2339-003. There are others……can the catalog be made available?	Tolm Group (BR)	This standard was provided in the Standard Details catalog issue with the Contract Documents
99	Can you confirm if seismic or structural monitoring will be required? This is expensive and burdensome to do, in general; but owner may require it. Would recommend narrowing the scope…or make it part of owner provided qa/qc program?	Tolm Group (BR)	If determined necessary, this will be provided through the Materials Testing Allowance
100	Would like to continue to petition further for the release of CAD data ahead of time…….We have to design and program our excavation program in order to produce a bid……. We basically are tasked with recreating the plan documents from scratch, scanning pdfs, converting, redrawing, etc…….. Also note from your grading plans you do not depict contour labeling of existing survey data and scant final grading contour information. We’ll happily sign a release and hold harmless	Tolm Group (BR)	See Addendum No. 02
101	At the existing basin where the the underdrain system is going. Can you provide final grading information? Where should the it slope, will drain somewhere? A corner with a wall cut out? Might recommend grading a swale in somewhere. What are the backfill requirement? Common fill? Then topsoil at the top 12”?	Tolm Group (BR)	See Addendum No. 02

102	On Sheet 180, Confirm that the 2” water pipe is to be sch40 pvc in accordance with spec 221116.	Tolm Group (BR)	Schedule 80 - See Addendum No. 03
103	Section 466119 – Wash Water Troughs – This section describes standard wash water troughs but the contract drawings (31-P502) show what seems to be troughs with media retaining baffles. There is plenty of freeboard depth in the filters that media retaining baffles are not required and they are not specified. Please confirm that the media baffles on the troughs are not part of this project. If they are part of the project, please provide the specification for them.	ISI Equipment (PS)	Confirmed, media retaining baffles are not included.
104	Regarding spec section 04 41 16 - List of manufactureres for the Bid Form. It says to list the Equipment Manufacturer & Model No. Is the model number necessary, can we just list manufacturer? Typically there is a lot of last minute pricing coming in and this will just add difficulty to filing out the form correctly	MFC (PI)	See Addendum No. 03
105	Please confirm the intent is to fill the abandoned treatment unit with fill except where the new PAC Contactors and Flocc/Sed structures are.	MFC (PI)	YES - See Addendum No. 02
106	There are several sections in the PAC Contactor & Flocc/Sed drawings that show backfill and say “See Civil”. Ex. Sheet 096. Some of the piping profiles indicate final grade of elevation 312. Ex. Sheet 091. Please confirm the final grade in the abandoned treatment unit is 312. If not, please clarify.	MFC (PI)	YES, FINAL GRADE IN ABANDONED BASIN SHALL BE 312.00±
107	Please provide the thickness of the abandoned treatment unit slab. We do not see this	MFC (PI)	See Addedndum No. 01
108	Reference plan sheet 113. Note 1 says to demolish an existing wall inside the abandoned treatment unit. Please provide the height & thickness of this wall.	MFC (PI)	All existing sedimentation walls to remain shall be removed 3-ft below existing grade other than those in conflict with proposed constructoin. Penerations to permit the passage of underdrain piping will be required
109	Reference plan sheet 120, section 3. The right side of the section shows backfill. This does not appear to be correct. Please clarify.	MFC (PI)	See Addendum No. 03
110	Reference plan sheet 031. Detail C calls out structural back fill to be in accordance with spec section 31 23 01. We assume this is the requirement for all of the fill in the abandoned treatment unit. Is the material to be used for filling the abandoned treatment unit to be granular fill, select fill or select granular fill as defined in section 31 23 01?	MFC (PI)	Correct
111	Is there a detail for the gravel surface access like the one shown on sheet 054 at the blending structure?	MFC (PI)	See Addendum No. 02
112	Regarding the asphalt drive going to the new filter structure: Does detail D32 - 1216-001-AR contained in the Standard Details apply to this? We saw no other asphalt paving details	MFC (PI)	See Addendum No. 02
113	Referencing Plan sheet 150. There is a note that says “Trench Sump See detail sheet 31-C201”. We do not see this detail.	MFC (PI)	See Addendum No. 02

114	Reference plan sheet 246. Keynote 1 says to over excavate a minimum of 2’ below the slab. Keynote 2 calls out CL 7granular base under the slab. It scales 1’ to 1.5’ thick. Is it the intent to backfill the 2’ under-cut with CL 7 granular base?	MFC (PI)	The over-excavation (2’ min.) below the slab shall be backfilled with Compacted Class 7 per Keynote 2. The compacted layer of Class 7 is not to scale in the drawing.
115	Referencing plan sheet 006. Note 5 under General Construction Sequencing says unless otherwise indicated by The Owner the Contractor will have to provide a temporary hypochlorite feed solution during shut downs. If require what is the feed rate? Will the Contractor have to provide the hypochlorite? Will the Contractor have to provide pumps or just temporary piping?	MFC (PI)	This is means and methods, should any disruption be planned the contractor is responsible for compling a temporary feed plan approved by the Owner and Engineer, all equipment related thereto, will be the responsbility of the Contractor
116	Will a Building Permit be required for this project?	MFC (PI)	See Addendum No. 02
117	Reference plan sheet 060. The Drain Pump Station wet well is called out to be 6’Ø. The scale is called out to be 3/8” = 1’. This does not match the dimensions given. We cannot find a scale that does match. Please clarify. Also the dimensions on the Front Section Elevation do not match wit the top & bottom elevations given.	MFC (PI)	See Addendum No. 03
118	Regarding the Administrative Period called out in 00 21 13 paragraph 9.02 and 00 41 10. It reads to us that the Admin Period (up to 180 days) is part of the overall time of construction 760 days. If so we do not believe the time of construction would be long enough. Could you please clarify the intent.	MFC (PI)	See Addendum No. 02
119	We do not see any named integrators in section 40 61 13 – Process Control Systems or any related spec sections. Is this correct?	MFC (PI)	See Addendum No. 02 and Addendum No. 03
120	Referencing plan sheet 019. There is a note to demolish existing concrete walls within the existing abandoned treatment basin to 3’ below grade of the final fill material. Plan sheet 113 note 1 says to demolish the wall running North and South flush with the existing slab. We understand the wall will have to be completely removed within the footprint of the new flocc/sed structure but which is correct for the remainder if the wall?	MFC (PI)	All existing sedimentation walls to remain shall be removed 3-ft below existing grade other than those in conflict with proposed constructoin. Penerations to permit the passage of underdrain piping will be required
121	Referencing sheet 019. Are there any drawings available of the abandoned treatment unit especially where it calls to demo existing equipment and plug pipe penetrations?	MFC (PI)	See Addendum No. 02
122	Reference plan sheet 020. There is a note that says to demolish the existing meter vault structure that is to the East of the new PAC structure. If you reference plan sheet 023 there is a note stating to demolish the existing meter vault structure “in conflict with the installation”. Does the entire vault demolish or only the part in conflict with the new piping?	MFC (PI)	See Addendum No. 02

123	Reference plan sheet 119. On the lower right side the trough appears to extend and tie in to the trough on the existing treatment basin. We see no details for this. Please clarify. Also, there is a similar situation for the trough between flocc and sed basins, reference sheet 118.	MFC (PI)	See Addendum No. 03
124	Referencing plan sheets 21 & 22. There is a pipe line shown to the East of the existing basins that appears to be proposed or new. It runs under the existing road and ties in to existing piping. Is this line part of this project?	MFC (PI)	Not a part of this Contract, See Addendum No. 03
125	Please provide details for the sed basin trough tie-in to the existing basin	MFC (PI)	See Addendum No. 02
126	Referencing sheet 120, section 3-21-S301 will fill be required under the trough slab at EL 304.83?	MFC (PI)	See Addendum No. 02
127	Referencing plan sheet 166 retaining wall details: Station 34+00 scales 20' from the wall. Station 68+00 to 80+00 (21') scales approximately 30'. Please clarify dimensions.	MFC (PI)	See Addendum No. 02
128	Referencing plan sheet 281: Section 6 shows the Lime/PAC Building slab at 2'. Sheet 273 per the elevations show the slab as 2.5'. Please clarify	MFC (PI)	Plan Sheet 281 shows the top of the exposed wall at 2.5’. This not a slab.
129	Referencing plan sheet 117: There is a dashed line to either side of the North end of the column line 7. We do not see what this represents, please clarify.	MFC (PI)	The dashed lines represent a vertical wall below the channel.
130	The specifications require an insurance endorsement CG 20 10 11 85 (or equivalent) that will name the Owner and Engineer as additional insured. We have run into this before and this form or any equivalent is not available for this purpose. We or our carriers cannot do this. We would ask that you remove this requirement	MFC (PI)	See Addendum No. 02
131	Referencing specification section 00 72 00: This required $5M of pollution coverage. We currently have $2M, which is standard. We can get the $5M but it will be expensive. Would the Owner consider lowing the coverage to $2M?	MFC (PI)	See Addendum No. 02
132	Reference plan sheet 079 & 080: The process drawings for the Raw Water Meter Vault and Mixing Structure show gravel backfill on the sides. This is not shown on the structural drawings. Will this be required? If so, what is the width?	MFC (PI)	See Addemdum No. 02
133	Reference Lim and PAC System Specs: Can Lightnin or Philadelphia be used in lieu of Chemineer? Lightnin is closer to Chemineer than Philadelphia	ISI Equipment (PS)	See Addendum No. 03
134	We are requesting Golden Harvest be added to the list of acceptable manufacturers in spec section 400559 SS Slide & Weir gates. Please note all products sold by Golden Harvest are manufactured in Oregon and source only USA manufactured materials.	ISI Equipment (JS)	Please reference permissible manufacturer in the specifications

135	Reference plan sheet 119. On the lower right side the trough appears to extend and tie in to the trough on the existing treatment basin. We see no details for this. Please clarify. Also, there is a similar situation for the trough between flocc and sed basins, reference sheet 118.		See Addendum No. 03
136	Max Foote is advising that note 4 is going to cost quite a bit of money to deal with. Considering the density of holes, is re-bar avoidance a must?	MFC (PI)	See Addendum No. 03
137	[31-S502] Station 34+00 scales 20’ from the wall. Station 68+00 to 89+00 (21’) scales approximately 30’. Please clarify dimensions.		Stationing should govern.
138	[72-S504] Section 6 shows the Lime/PAC Building slab at 2’. Sheet 273 per the elevations show the slab as 2.5’. Please clarify.		Slab thickness shown on 72-S504 (sheet 281) shows the correct slab thickness of 2'-0". What you are seeing on 72-S202 (sheet 273) is not the slab thickness, but the elevation difference from the top of the concrete wall at elevation 310.00 and finished grade at elevation 307.50
140	[21-S104] There is a dashed line to either side of the North end of column line 7. We do not see what this represents, please clarify.		This does not indicate anything. Please ignore.
141	[46 36 05/Lime] Merrick takes the following exceptions in Part 2.2, F: - Exception taken to the 35% - 38% slurry concentration; the lime system will be designed for 30% - 40% depending on manufacturer’s testing of current lime being used. - The 2” drain shall be 3”, and the drain valve shall be butterfly type in lieu of pinch type. - There’s a discrepancy, there’s 1” inlet water connection, therefore the inlet water electric actuated valve shall be 2” in lieu of 1”. - Plan drawing 08-I722 shows a Water Supply Panel in the P&ID for the mix tanks. The inlet water piping shall be mounted on the tank, rather than on a water panel.	ETEC (CC)	See Addendum No. 03
142	[46 36 05/Lime] Merrick takes following exceptions in Part 2.2, G: - Exception taken to 32% - 38% lime slurry concentration; the lime system will be designed for 30% - 40% depending on manufacturer’s testing of current lime being used. - The lime slurry transfer rate shall be 25 GPM in lieu of 10 GPM. - Take exception to the pressure relief valve. Pressure transmitter that will shut the pump off prior to pressure relieve valve. The same applies to the metering pumps in Part 2.2, I.	ETEC (CC)	See Addendum No. 03 - A pressure relief valve will be required
143	[46 36 05/Lime] - There’s a discrepancy between the spec and plans, the spec calls for round tanks and the plans show square tanks. Merrick quoted square tanks and appeared as though they were included in the bid plans. - Please not the listed 2” feed line is field installed and provided by the contractor.	ETEC (CC)	See Addendum No. 03

144	[46 36 05/Lime] Part 2.2, J calls for two main control panels, one per silo, each to control silo components and all system equipment. Please clarify as to how this configuration is to be accomplished. Note: During the design phase we had two silo control panels, one per silo, for its dedicated silo components, feeder and weigh batch tank, then a single control panel for all transfer pumps, a single control panel for the two day tanks, and a single control panel for all metering pumps, for a total of five control panels (not including the truck fill panels). This configuration would provide the maximum flexibility and redundancy. Please see below comments to Part 2.2J from Merrick's engineering group: "Not possible when wishing to run pumps from two different control panels. (In reference to the configuration as specified.) In this configuration each control panel would need to include a transfer pump, tank mixer and metering pumps. It seems they wish to reduce the number of control panels; the minimum number of control panels would be three. Combine the LIME TRANSFER PUMP CONTROL PANEL, LIME DAY TANK CONTROL PANEL, LIME METERING PUMP CONTROL PANEL into a single panel." (In reference to configuration that was quoted in Merrick Proposal WT22-7341Rev2)	ETEC (CC)	The design intent behind splitting equipment between two panels was to ensure that the failure of any one PLC would not bring down the entire facility (e.g., if all transfer pumps were on a single PLC). Provide a system comprising of the control panel count and layout as shown on the drawings and depicted in the specifications. Contractor is responsible for identifying and accounting for differences between vendor packages. Process and control functionality shall meet the requirements of the specifications.
145	[46 36 05/Lime] Merick takes exception to following in Part 2.2, J: - Exception taken to the NFPA 70 for Class 2 Division 1 areas requirement in Part 2.2,J. The lime panels shall be placed in a safe non-hazardous environment. - Part 2.2, J, e, 3.a lists a 30% - 48% concentration; the lime system will be designed for 30% - 40% depending on manufacturer's testing of current lime being used. - Part 2.2, J, e, 4.e lists an exhaust fan. Please clarify, these are leg supported silos. - Part 2.2, J, e, 5.c lists the inlet water flowrate at 10 GPM, should be 30 GPM.	ETEC (CC)	No exceptions will be taken for Class 2 Div 1 requirements. Exhaust fan is part of the silo dust control unit.
146	[46 36 05/PAC] There is a discrepancy, please clarify the number of point level indicators.	ETEC (CC)	Specification revised in Addendum No. 3 to include high and low-level switches and a level transmitter
147	[46 36 05/PAC] There are discrepancies in the specs and plans. Consistency in parts/bags. Note: The lime silos will have shaker type dust collectors; using same the shaker type dust collector for the PAC will provide consistency in parts/filter bags. It would also eliminate the need for compressed air.	ETEC (CC)	See Addendum No. 03
148	[46 36 05/PAC] Merrick does not use pressure plates; stirrups are used. The stirrup information is included in the submittal package.	ETEC (CC)	Acknowledged
149	[46 36 05/PAC]There's a discrepancy, volumetric or loss-in-weight, please clarify.	ETEC (CC)	See addendum No. 3.

150	[46 36 05/PAC]Please clarify. Is the water supply panel in the addition the inlet water assembly rigidly mounted to the mix tank? What its function? It appears to be located outside of the PAC equipment.	ETEC (CC)	"Water supply panel" is representative of the "inlet water assembly" that is mounted to the mix tank
151	[46 36 05/PAC] Merrick takes exception to the Class 2, Divion 2 classification. The truck fill panels will be located outdoors, outside of the PAC equipment room, in a safe non-hazardous environment.	ETEC (CC)	Class 2, Div 2 will be required.
152	[46 36 05/PAC] Exception taken to the NFPA 70 for Class 2 Division 1 areas requirement in Part 2.2,J. The PAC panels shall be placed in a safe non-hazardous environment.	ETEC (CC)	No exceptions will be taken for Class 2 Div 1 requirements.
153	[46 36 05/PAC]It reads as though the manufacturer has to be on site during the installation of equipment. Also, a total of seven (7) days for startup and training is listed that is to be provided in three (3) trips, is that for all three silo systems? Please clarify.	ETEC (CC)	Selected vendor will be required to assist with startup and training with up to 3 separate trips, for a total of 7 days, for all three silos.
154	[Site Walk] Can the new sed basin wall be poured against the existing basin wall and use that existing wall as a form?		See Addendum No. 03
155	[21-X101] Do we need to demo wall flush to existing basin floor on area outside of new sed basin (see note 1)?		Existing wall at this location will be removed. See detail provided in addendum