

**ADDENDUM NO. 2**  
**TO**  
**PROJECT MANUAL, TECHNICAL SPECIFICATIONS AND DRAWINGS**  
**FOR**  
**WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY**  
**FOR**  
**THE CITY OF ROCK HILL, SOUTH CAROLINA**

Bids Received until 10:00 AM, Local Time, January 25, 2024

**ACKNOWLEDGE RECEIPT OF THIS ADDENDUM BY INSERTING ITS NUMBER IN THE PROPOSAL; FAILURE TO DO SO MAY SUBJECT BONA FIDE BIDDER TO DISQUALIFICATION. THIS ADDENDUM FORMS A PART OF THE PROJECT DOCUMENTS; IT MODIFIES THEM AS FOLLOWS:**

**PROJECT MANUAL**

<b>Section 00100</b> <b>INSTRUCTIONS TO</b> <b>BIDDERS</b> <b>Paragraph 6.</b> <b>Page 2 of 14</b>	<p><b>Modify</b> the fifth paragraph of this section <b>to</b> read:</p> <p>"Identify any major subcontractors that will provide construction services for this Project, including their experience with similar projects and indicate if they have successfully provided similar services for your firm. <b><i>If not available, the experience/qualifications of proposed major subcontractors may be provided by the winning bidder following award of the contract.</i></b> At a minimum, <del>qualifications should be provided for</del> <b>provide with the bid, a list of the proposed</b> firms that will be performing the electrical, reinforcing steel, HVAC and any other appropriate construction firms that will be utilized on the project."</p>
<b>Section 00 94 00</b> <b>SUPPLEMENTARY</b> <b>CONDITIONS</b> <b>City of Rock Hill</b> <b>General Conditions,</b> <b>Article 4.5.3</b> <b>Page 2 of 6</b>	<p><b>Modify</b> the second sentence of this section <b>to</b> read:</p> <p>"<b>4.5.3.</b> All warranties and guarantees shall become effective on a date established by the Engineer. This date shall generally be the date of final <del>completion</del> <b>Certificate of Payment</b>. All warranties and guarantees shall include the effective date and the warranty period."</p>
<b>Section 00 94 00</b> <b>SUPPLEMENTARY</b> <b>CONDITIONS</b> <b>City of Rock Hill</b> <b>General Conditions,</b> <b>Article 4.5.5</b> <b>Page 2 of 6</b>	<p><b>Modify</b> this section <b>to</b> read:</p> <p>"<b>4.5.5.</b> In addition to the individual guarantees and warranties provided for components of the Work, the Contractor shall provide a general warranty on the entire Work, for a period of twenty-four (24) months, warranting the <del>work from faulty workmanship or materials or from negligence in accordance with these stipulations.</del> <b>The Contractor shall further warrant all work incorporated in this project to remain leak-proof and water-tight at all points for a period of 24 months from the effective date of this Warranty</b> <del>quality and performance of the Work in accordance with these stipulations.</del> The Contractor shall repair and/or replace any portions of the Work that are found to be defective or not in accordance with the Contract Documents at no additional cost to the City. Inspections will be held during the warranty period at 45 days before the expiration of the warranty and at such other times as may be determined by the City. The Contractor shall, immediately upon notification, repair or replace any portion of the Work that is defective or not in accordance with the Contract Documents. Items repaired or replaced during the warranty period shall either (i) have an extended warranty period of twelve (12) months from the date of repair or replacement of the item</p>

	or (ii) be warranted for the remainder of the original warranty period, whichever period is longer. This obligation shall survive termination of the Contract. This warranty shall be submitted on a form satisfactory to City.”
<b>Section 00 94 00 SUPPLEMENTARY CONDITIONS City of Rock Hill General Conditions, Article 13.2.2 Page 6 of 6</b>	<b>Modify</b> the first sentence of this section <b>to</b> read:  “ <b>13.2.2</b> If, within two years after the date of Final <b>Completion Certificate of Payment</b> or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the City to do so unless the City has previously given the Contractor a written acceptance of such condition. This obligation shall survive termination of the Contract. The City shall give such notice promptly after discovery of the condition.”
<b>Section 00 94 00 SUPPLEMENTARY CONDITIONS City of Rock Hill General Conditions, Article 13.2.7 Page 6 of 6</b>	<b>Modify</b> the second sentence of this section <b>to</b> read:  “ <b>13.2.7.</b> Nothing contained in this Paragraph 13.2 shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including Paragraph 4.5 hereof. The establishment of the time period of two years after the Date of Final <b>Completion Certificate of Payment</b> or such longer period of time as may be prescribed by law or by the terms of any warranty required by the Contract Documents relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which his obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to his obligations other than specifically to correct the Work.”
<b>Section 00970 FINAL CERTIFICATE OF PAYMENT Paragraph 3 Page 1 of 2</b>	<b>Modify</b> this paragraph of this section <b>to</b> read:  “Except as noted herein, the date of Final <b>Completion Certificate of Payment</b> is the date upon which all guarantees and warranties begin, including the two year guarantee specified in the Contract Documents for correction of any omissions or defects in the Work. The Contractor and his Sureties shall guarantee all work against defects as specified in the Contract for two years.”
<b>Section 00970 FINAL CERTIFICATE OF PAYMENT Paragraph 4 Page 1 of 2</b>	<b>Modify</b> this paragraph of this section <b>to</b> read:  “The following guarantees and warranties do not begin on the date of Final <b>Completion Certificate Of Payment.</b> ”

### SPECIFICATIONS

<b>Section 00 01 10</b>	<b>Revise</b> the Table of Contents <b>as</b> follows: <ul style="list-style-type: none"> <li>➤ “DIVISION 07 – THERMAL AND MOISTURE PROTECTION <ul style="list-style-type: none"> <li>○ <b>07 41 14 Standing Seam Metal Roof Panels</b></li> </ul> </li> <li>➤ DIVISION 40 – PROCESS INTEGRATION <ul style="list-style-type: none"> <li>○ <b>40 92 43 Rotary Actuators</b>”</li> </ul> </li> </ul>
<b>Section 04 22 00 Paragraph 2.5 Page 4 of 6</b>	<b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:  “GROUND FACE MASONRY <b>VENEER</b> UNITS”



Section 04 22 00 Paragraph 2.5 A.1 Page 4 of 6	<p><b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:</p> <p>“Units shall be of the hollow type, with ground-face <b>exterior</b> finish on one side and <b>normal/standard</b> face on <b>the other side</b>.”</p>												
Section 07 41 14 Add No. 2, Pages 1 – 9	<p><b>Add</b> the specification section “<b>07 41 14 Standing Seam Metal Roof Panels</b>” attached with this addenda.</p>												
Section 25 00 20 Paragraph 1.3 A. Page 2 of 15	<p><b>Modify</b> the table of this section of the Specifications <b>to</b> the following:</p> <table><tr><th>SCADA-LCP No.</th><th>Location</th><th>Enclosure</th></tr><tr><td></td><td></td><td></td></tr><tr><td>SCADA-LCP-DEWATERING</td><td>Dewatering Building – Electrical Room</td><td>NEMA <del>12</del> 4X SS</td></tr><tr><td>SCADA-LCP-CENTRATE PS</td><td><del>Centrate</del> PS (Outside)</td><td>NEMA 4X SS</td></tr></table>	SCADA-LCP No.	Location	Enclosure				SCADA-LCP-DEWATERING	Dewatering Building – Electrical Room	NEMA <del>12</del> 4X SS	SCADA-LCP-CENTRATE PS	<del>Centrate</del> PS (Outside)	NEMA 4X SS
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Section 40 91 00 Paragraph 1.1 A.a. Page 1 of 5	<p><b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:</p> <p>“a. The Rate of Flow controller shall consist of a differential pressure transmitter, venturi and butterfly valve <b>and rotary actuator</b>. The complete system shall be provided by the venturi meter manufacturer and shall be assembled and tested at the venturi meter manufacturer's factory. The testing shall include the factory calibration of the rate of flow controller assembly.”</p>												
Section 40 91 00 Paragraph 1.1 A.b. Page 1 of 5	<p><b>Remove</b> the following paragraph of this section of the Specifications:</p> <p><del>“b. The existing rotary valve actuator and mounting hardware installed on the butterfly valve for the existing backwash rate of flow controller to Filters 1-6 will be retrained and reinstalled on the new butterfly valve to be provided with the new rate of flow controller. The existing actuator is a Beck – Model 11-300 and is installed on a 16” – Pratt 2FII Butterfly Valve. Other manufacturers’ butterfly valves may be installed. With a different manufacturers’ valve, at a minimum, the mounting bracket, linkage and lever arm assembly from the existing actuator to the new valve will need to be replaced. Additionally, if another manufacturer's valve is installed, then the required seating torque must be confirmed/existing butterfly valve maximum torque maintained or a new Beck actuator to the same specifitication as the existing actuator provided and installed with the new butterfly valve.”</del></p>												
Section 40 91 00 Paragraph 1.1 Page 1 of 5	<p><b>Add</b> the following paragraph <b>to</b> the end of this section of the Specifications:</p> <p><b>“D. Refer to Specification 40 92 43 for the Rotary Actuators.”</b></p>												
Section 40 91 00 Paragraph 1.5 A. Page 2 of 5	<p><b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:</p> <p>“A. A period of twenty-five (25) years for the venturi meter portion of the rate of flow controller and five (5) years for the butterfly valve, <b>rotary actuator</b> and secondary instruments from the date of completion of the project as a whole.”</p>												
Section 40 91 00 Paragraph 2.1 A. Page 2 of 5	<p><b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:</p> <p>“A. The flow meter shall be a short form Venturi design utilizing pure static pressure sensing taps in the inlet and throat sections and shall produce a differential pressure, which shall be measured and transmitted by the specified differential pressure transmitter. The</p>												

	complete rate of flow controller shall consist of a true venturi meter, AWWA C-504 approved butterfly valve <b>and electric rotary actuator</b> and shall be designed for the specific application requirements to include modulating 4:20 mA service, and a smart type differential pressure transmitter with 316 stainless steel 3-valve manifold. The complete system shall be provided by the venturi meter manufacturer and shall be assembled and tested at the venturi meter manufacturer's factory."
<b>Section 40 92 43</b> <b>Add No. 2, Pages 1 – 17</b>	<b>Add</b> the specification section " <b>40 92 43 Rotary Actuator</b> attached with this addenda.
<b>Section 43 23 57</b> <b>Paragraph 1.1 B.</b> <b>Page 1 of 11</b>	<b>Replace</b> this paragraph of this section of the Specifications <b>with</b> the following:  <b><i>"B. It is the intent of this specification, whether specifically indicated or not, to have a single supplier provide the positive displacement progressing cavity pumps, complete with electric motors, controls, all specified appurtenances required for a complete and fully operational system that can be easily installed by a general contractor."</i></b>
<b>Section 43 23 57</b> <b>Paragraph 1.1</b> <b>Page 1 of 11</b>	<b>Add</b> the following paragraph <b>to</b> the end of this section of the Specifications:  <b><i>"C. Pumps shall be manufactured with materials for the chemicals specified.</i></b> <ol style="list-style-type: none"> <li><b><i>1. Chemical service: Liquid Anionic Polymer (29% active)</i></b> <ol style="list-style-type: none"> <li><b><i>a. Specific gravity: 1.0-1.1.</i></b></li> <li><b><i>b. Bulk Viscosity (cP): 500 to 2400"</i></b></li> </ol> </li> </ol>
<b>Section 43 23 57</b> <b>Paragraph 2.1 A.</b> <b>Page 3 of 11</b>	<b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:  <b><i>"A. <del>Seepex</del> Progressive Cavity Pump shall be type BN, complete with electric motors, and packaged with all accessories</i></b> complete as manufactured by Seepex."
<b>Section 43 23 57</b> <b>Paragraph 2.2.B.1.a</b> <b>Page 4 of 11</b>	<b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:  <b><i>"a. The <del>Lantern</del>, Suction Casing, <del>Packing Gland</del>, and Pressure Branch shall be constructed of 316 stainless steel."</i></b>
<b>Section 43 23 57</b> <b>Paragraph 2.2.B.2.</b> <b>Page 4 of 11</b>	<b>Replace</b> this paragraph <b>with</b> the following:  <b><i>"2. Shaft shall be sealed using a single internal mechanical seal (SEEPEx single bellows seal). The shaft shall be solid through the sealing area, but of a two part design which allows the rotating unit to be removed from the pump without disassembly of the gearmotor bearings. Seal materials shall be solid silicon carbide faces with 316 stainless steel metal parts and viton (EPDM) elastomers. Seals which require flushing liquid or drip for lubrication are not acceptable."</i></b>
<b>Section 43 23 57</b> <b>Paragraph 2.4.A.1.</b> <b>Page 5 of 11</b>	<b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:  <b><i>"1. The gear reduced shall be sized for a minimum service factor of <del>8.83</del> 1.5."</i></b>
<b>Section 43 23 57</b> <b>Paragraph 2.6.B.2.a.</b> <b>5)</b> <b>Page 9 of 11</b>	<b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:  <b><i>"5) End plates shall be 316 stainless steel, and elastomeric sleeve shall</i></b>

	be <del>EPDM</del> <b>Viton.</b> "
<b>Section 46 23 14</b> <b>Add No. 2,</b> <b>Pages 1 – 17</b>	<b>Replace</b> the specification section " <b>46 23 14 Shaftless Screw Conveyors</b> " with the <b>Revised</b> specification section attached with this addenda.
<b>Section 46 33 33</b> <b>Paragraph 2.1 A.</b> <b>Page 4 of 9</b>	<b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:  "A. PolyBlend® Magnum Model <b>MM1200-PS7.6AA MM601-T7.6AA</b> as <i>manufactured by UGSI Chemical Feed, Inc or approved equal.</i> "
<b>Section 46 33 33</b> <b>Paragraph 2.5 A.</b> <b>Page 8 of 9</b>	<b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:  "A. Dilution water – <b>30-800 GPH</b> <del>30-300 GPH primary</del> <del>30-300 GPH post dilution</del> "
<b>Section 46 76 33</b> <b>Paragraph 2.2 F.</b> <b>Page 9 of 28</b>	<b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:  "F. The entire centrifuge assembly shall be within the lifting capacity of a 7.5 ton monorail and the lifting height identified on the Construction Drawings. <b>The centrifuge manufacturer shall assist the Contractor to demonstrate using the motor operated wire rope hoist and electric trolley system that each centrifuge bowl/scroll can be removed vertically from the installed centrifuge housing and reinstalled in the housing:</b> <ol style="list-style-type: none"> <li>1.       <b>Bowl/scroll shall be removed from the housing and placed on the floor directly in front of the bay door on the second floor.</b></li> <li>2.       <b>Bowl/scroll shall then be moved from the floor and reinstalled in the installed centrifuge housing.</b></li> <li>3.       <b>The factory supplied lifting tools provided to lift the bowl/scroll assembly shall be used for the demonstration."</b></li> </ol>
<b>Section 46 76 33</b> <b>Paragraph 2.13 B. 5.</b> <b>Page 24 of 28</b>	<b>Remove</b> the following paragraph of this section of the Specifications:  <b><del>"5. Total Solids Meter</del></b> <del><b>i. A new total solids meter installed on the common sludge feed to the centrifuges is provided for status feedback to the centrifuge control system for sludge feed and polymer feed closed loop PID control. This will provide optimum conditions for proper operator optimization and long-term operation."</b></del>
<b>Section 46 76 33</b> <b>Paragraph 2.13 B. 6.</b> <b>Page 24 of 28</b>	<b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:  <b><del>"5 6. Transfer Conveyors"</del></b>
<b>Section 46 76 33</b> <b>Paragraph 3.3 B.</b> <b>Page 26 of 28</b>	<b>Modify</b> this paragraph of this section of the Specifications <b>to</b> the following:  "B. Each centrifuge shall run for 4 hours without failure. <b>A functional test shall be performed for each centrifuge operating independently and with both centrifuges operating together.</b> At the beginning, middle, and at the end of this test, all temperature indicators, pressure gauges, and flow indicators shall be recorded. All safety devices shall be checked for satisfactory operation. The no-load amperage of the main drive motor shall be recorded. The start timer and acceleration time to running speed shall be adjusted, if necessary. The belt tension shall be checked and readjusted if necessary, at the end of the test."

**DRAWINGS**

<b>DRAWING E.04 SHEET 8 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>E.04</b> attached with this addendum dated January 22, 2024.
<b>DRAWING C.01 SHEET 10 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>C.01</b> attached with this addendum dated January 22, 2024.
<b>DRAWING C.02 SHEET 11 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>C.02</b> attached with this addendum dated January 22, 2024.
<b>DRAWINGS C.05 – C.07 SHEETS 14-16 OF 149</b>	<b>Replace</b> drawings with revised Drawings <b>C.05 thru C.07</b> attached with this addendum dated January 22, 2024.
<b>DRAWINGS C.09 – C.11 SHEETS 18-20 OF 149</b>	<b>Replace</b> drawings with revised Drawings <b>C.09 thru C.11</b> attached with this addendum dated January 22, 2024.
<b>DRAWING C.14 SHEET 23 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>C.14</b> attached with this addendum dated January 22, 2024.
<b>DRAWING C.16 SHEET 25 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>C.16</b> attached with this addendum dated January 22, 2024.
<b>DRAWING ESC.01 SHEET 30 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>ESC.01</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.ML.02 SHEET 39 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.ML.02</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.ML.04 SHEET 41 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.ML.04</b> attached with this addendum dated January 22, 2024.
<b>DRAWINGS 01.M.01 – 01.M.05 SHEETS 42-46 OF 149</b>	<b>Replace</b> drawings with revised Drawings <b>01.M.01 thru 01.M.05</b> attached with this addendum dated January 22, 2024.
<b>DRAWINGS 01.M.07 – 01.M.11 SHEETS 48-52 OF 149</b>	<b>Replace</b> drawings with revised Drawings <b>01.M.07 thru 01.M.11</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.M.13 SHEET 54 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.M.13</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.S.06 SHEET 61 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.S.06</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.S.07 SHEET 62 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.S.07</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.S.09 SHEET 64 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.S.09</b> attached with this addendum dated January 22, 2024.
<b>DRAWINGS 01.S.11 – 01.S.13 SHEETS 66-68 OF 149</b>	<b>Replace</b> drawings with revised Drawings <b>01.S.11 thru 01.S.13</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.S.16 SHEET 71 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.S.16</b> attached with this addendum dated January 22, 2024.
<b>DRAWINGS 01.E.01 – 01.E.04 SHEETS 72-75 OF 149</b>	<b>Replace</b> drawings with revised Drawings <b>01.E.01 thru 01.E.04</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.E.06 SHEET 77 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.E.06</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.E.08 SHEET 79 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.E.08</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.P.01</b>	<b>Replace</b> drawing with revised Drawing <b>01.P.01</b> attached with this

<b>SHEET 81 OF 149</b>	addendum dated January 22, 2024.
<b>DRAWING 01.P.02 SHEET 82 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.P.02</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.P.04 SHEET 84 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.P.04</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.H.01 SHEET 85 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.H.01</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.H.02 SHEET 86 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.H.02</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.H.04 SHEET 88 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.H.04</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 01.H.10 SHEET 94 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>01.H.10</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 02.DM.01 SHEET 96 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>02.DM.01</b> attached with this addendum dated January 22, 2024.
<b>DRAWINGS 02.M.01 – 02.MS.02 SHEETS 98-100 OF 149</b>	<b>Replace</b> drawings with revised Drawings <b>02.M.01 thru 02.MS.02</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 04.DM.01 SHEET 105 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>04.DM.01</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 07.S.01 SHEET 113 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>07.S.01</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 08.DM.01 SHEET 114 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>08.DM.01</b> attached with this addendum dated January 22, 2024.
<b>DRAWING 10.M.01 SHEET 120 OF 149</b>	<b>Replace</b> drawing with revised Drawing <b>10.M.01</b> attached with this addendum dated January 22, 2024.
<b>DRAWINGS 01.I.01 – 01.I.03 SHEETS 125-127 OF 149</b>	<b>Replace</b> drawings with revised Drawings <b>01.I.01 thru 01.I.03</b> attached with this addendum dated January 22, 2024.

### **QUESTIONS AND ANSWERS**

In response to questions that have been formally submitted by bidders, responses are provided as follows and form a part of the Contract Documents:

SECTION 07 41 14

STANDING-SEAM METAL ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes standing-seam metal roof panels for the alum sludge dewatering building at the concrete slab extension. The work included in this Section consists of furnishing all labor, materials, equipment and services necessary for installing standing seam metal roof panels and accessories as shown on the Contract Drawings for a complete installation.

1.2 SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
- B. Shop Drawings:
  - 1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
  - 2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches.
  - 3. Qualification Data: For Installer.
  - 4. Product Test Reports: For each product, indicating compliance of products with requirements.
  - 5. Field quality-control reports.
  - 6. IAS Accreditation Certificate: Indicating that manufacturer is accredited under provisions of IAS AC 472.
  - 7. Sample Warranties
- C. Samples for Initial Selection: For each exposed product specified, including sealants, provide representative color charts of manufacturer's full range of colors.
- D. Samples for Verification: For each type of exposed finish required, prepared on samples of size indicated below.
  - 1. Metal Panels: 12 inches long by actual panel width. Provide color chip verifying color selection.

1.3 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For metal panels to include in maintenance manuals.
- B. Manufacturer's Warranty: Executed copy of manufacturer's warranties.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum five years of experience in manufacture of similar products in successful use in similar applications.
- B. Installer Qualifications: Experienced installer, certified by metal panel manufacturer, with minimum five of years of experience with successfully completed projects of a similar nature and scope.
- C. Field Supervisor Qualifications: Experienced mechanic, certified by metal panel manufacturer, supervising work whenever work is underway.
- D. Buy American Act Certification: Manufacturer's letters of compliance, acceptable to authorities having jurisdiction, indicating that products comply with requirements.
- E. Pre-installation Conference: Conduct conference at Project site.
- F. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
  - 1. Build mockups, of complete installation at concrete extension, including wall panels, solid alum soffit and accessories.
    - a. Size: Min. 48" long
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal panels during installation.

1.6 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed in accordance with manufacturers' written instructions and warranty requirements.

1.7 COORDINATION

- A. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.8 WARRANTY

- A. Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in finish, materials or workmanship or that fail to remain weathertight within specified warranty period:
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures including rupturing, cracking, or puncturing.
    - b. Deterioration of metals and other materials beyond normal weathering.
    - c. Warranty Period: Two years from date of completion of the project as a whole.
  - 2. The manufacturer shall furnish a warranty covering water-tightness of the roofing system for the period of 20 years from the date of completion of the project as a whole.
  - 3. Finish shall have a 20-year warranty against cracking, chalking, peeling, and fading from the date of completion of the project as a whole.
- B. The applicator/installer shall furnish a warranty covering water tightness of the roofing system for a period of three years from date of completion of the project as a whole.
- C. These warranties shall include all costs associated with making the repairs, including, but not limited to, parts, labor, travel, lodging, expenses.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing in accordance with ASTM E1592:
  - 1. Wind Loads: As indicated on Drawings.
  - 2. Other Design Loads: As indicated on Drawings
  - 3. Deflection Limits: For wind loads, no greater than 1/180 of the span.
- B. Air Infiltration: Air leakage of not more than 0.0250 cfm/sq. ft. when tested in accordance with ASTM E1680 at the following test-pressure difference:
  - 1. Test-Pressure Difference: 6.24 lbf/sq. ft.
- C. Water Penetration under Static Pressure: No water penetration when tested in accordance with ASTM E1646 at the following test-pressure difference:
  - 1. Test-Pressure Difference: 6.24 lbf/sq. ft.



- D. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
  - 1. Uplift Rating: UL 60.
- E. FM Global Listing: Provide metal roof panels and component materials that comply with requirements in FM Global 4471 as part of a panel roofing system and that are listed in FM Global's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
  - 1. Fire/Windstorm Classification: Class 1A90.
  - 2. Hail Resistance: MH
- F. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 180 deg F, material surfaces.

## 2.2 STANDING-SEAM METAL ROOF PANELS

- A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.
  - 1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1514.
- B. Source Limitations: Obtain metal roof panel assembly and accessories from a single source with resources to provide fixed base roll forming, and accredited under IAS AC 472 Part B.
- C. Vertical-Rib, Seamed-Joint, Standing-Seam Metal Roof Panels: Formed with vertical ribs at panel edges and smooth with striations in pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and mechanically seaming panels together.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide MBCI: BattenLok® HS (BLMSMBCI) or comparable product by one of the following:
    - a. Berridge Mfg Co
    - b. Englert
    - c. Substitutions: Section 01 33 00 – Shop Drawings, Product Data and Samples.
  - 2. Metallic-Coated Steel Sheet: Aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M, Class AZ50 coating designation; structural quality, prepainted by the coil-coating process to comply with ASTM A755/A755M or aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M Class AZ55 coating designation; structural quality, unpainted Galvalume Plus Coating.

- a. Nominal Thickness: 0.0212 inch.
  - b. Exterior Finish: Two-coat fluoropolymer.
  - c. Color: As selected by Architect from manufacturer's full range, not limited to standard pricing range.
3. Clips: One-piece fixed to accommodate thermal movement.
  - a. Material: 0.030-inch nominal thickness, ASTM A653/A653M, G90 hot-dip galvanized zinc coating.
  - b. Material: 0.030-inch- and 0.059-inch- ASTM C645, with ASTM A653/A653M, G90 hot-dip galvanized zinc coating.
  - c. Configured for concealment in panel joints.
4. Joint Type: As standard with manufacturer.
5. Panel Coverage: 12 inches.
6. Panel Height: 2.0 inches.

## 2.3 MISCELLANEOUS MATERIALS

- A. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closures, and similar items. Match material and finish of metal panels unless otherwise indicated.
  1. Closures: Provide closures fabricated of same metal as metal panels.
  2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
- B. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- C. Panel Fasteners: Self-tapping screws and other acceptable corrosion-resistant fasteners recommended by manufacturer. Where exposed fasteners cannot be avoided, supply fasteners with EPDM or neoprene gaskets, with heads matching color of metal panels by means of factory-applied coatings, designed to withstand design loads.
- D. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
  1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.
  2. Joint Sealant: Manufacturer's standard or recommended liquid and preformed sealers and tapes and as follows:
    - a. Factory-Applied Seam Sealant: Manufacturer's standard hot-melt type.
    - b. Concealed Joint Sealant: Non-curing butyl, AAMA 809.2.
  3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

## 2.4 FABRICATION

- A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- C. Fabricate metal panel joints with factory-installed sealant that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
  - 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
  - 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
  - 3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
  - 4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
  - 5. Conceal fasteners and expansion provisions where possible.
  - 6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
    - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal panel manufacturer for application, but not less than thickness of metal being secured.

## 2.5 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Steel Panels and Accessories:
  - 1. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages in accordance with ASTM C754 and metal panel manufacturer's written recommendations.

#### 3.3 METAL PANEL INSTALLATION

- A. General: Install metal panels in accordance with manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
  1. Shim or otherwise plumb substrates receiving metal panels.
  2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
  3. Install screw fasteners in predrilled holes.
  4. Locate and space fastenings in uniform vertical and horizontal alignment.
  5. Install flashing and trim as metal panel work proceeds.
  6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
  7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
- B. Fasteners:
  1. Steel Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.
- C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners in accordance with manufacturers' written instructions.

- D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.
- E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.
  - 1. Install clips to supports with self-tapping fasteners.
  - 2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
  - 3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
  - 4. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
  - 5. Watertight Installation:
    - a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
    - b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
    - c. At panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with sealant and fastened together by interlocking clamping plates.
- F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
  - 1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal roof panel manufacturers; or, if not indicated, types recommended by metal roof panel manufacturer.
- G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
  - 1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.

### 3.4 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align metal panel units within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

### 3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.

- B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.
- C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.
- D. Prepare test and inspection reports.

### 3.6 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07 41 14

SECTION 40 92 43  
ROTARY ACTUATOR

PART 1 GENERAL

1.1 SCOPE

- A. The rotary actuators shall be installed on butterfly valves in this project.
- B. See the Drawings for actuator locations.
- C. All of the rotary actuators on this project will be for modulating service.
- D. For this project:
  - 1. There will be one new rotary actuator installed for the new backwash supply rate of flow controller to filters 1- 6.

1.2 RELATED SECTIONS:

- A. Section 09 90 00 – Painting and Coating.
- B. Section 10 14 00 – Signage
- C. Section 40 05 64 - Butterfly Valves
- D. Section 40 91 00 – Rate of Flow Controller

1.3 SUBMITTALS

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

1.4 REFERENCES

- A. ASTM International:
  - 1. ASTM A36 - Standard Specification for Carbon Structural Steel.
  - 2. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - 3. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - 4. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
  - 5. ASTM A1011 Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
  - 6. ASTM B211 - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire.
  - 7. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

8. ASTM B429 - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.
- B. American Welding Society:
  1. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination.
  2. AWS D1.1 - Structural Welding Code - Steel.
  3. AWS D1.2 - Structural Welding Code - Aluminum.
- C. Green Seal:
  1. GC-03 - Anti-Corrosive Paints.
- D. National Association of Architectural Metal Manufacturers:
  1. NAAMM MBG 531 - Metal Bar Grating Manual.
  2. NAAMM MBG 532 - Heavy Duty Metal Bar Grating Manual.
- E. SSPC: The Society for Protective Coatings:
  1. SSPC - Steel Structures Painting Manual.
  2. SSPC SP 1 - Solvent Cleaning.
  3. SSPC SP 10 - Near-White Blast Cleaning.
  4. SSPC Paint 15 - Steel Joist Shop Paint.
  5. SSPC Paint 20 - Zinc-Rich Primers (Type I - Inorganic and Type II - Organic).

#### 1.5 DESIGN REQUIREMENTS

- A. Actuators shall operate between -40°F to 185°F
- B. Maximum power shall be 400W.
- C. Actuator shall be operated using 120V AC power.
- D. Maximum output shaft rotation 100°. The operating time between full limits shall be 100 seconds or less.
- E. Modulating valve actuators shall be designed to respond to an externally generated 4-20 mA setpoint signal and shall position the valve to match the setpoint.
- F. The torque capacity of the operators shall be sufficient to operate the valves with a minimum safety factor of 1.5 times the maximum pressure differential of the associated valve.
  1. Refer to Section 40 05 64 – Butterfly Valves.
  2. Contractor shall be responsible for coordinating the valves and the rotary actuators.

#### 1.6 STORAGE

- A. Actuators should be stored in a clean, dry area where the temperature is between -40°F and 185°F.

#### 1.7 WARRANTY

- A. Section 01 70 00 – Execution and Closeout Requirements: Product warranties and product bonds.



- B. Refer to Section 40 91 00 – Rate of Flow Controller for warranty requirements for rotary actuators supplied with the rate of flow controller.

## 1.8 OPERATION AND MAINTENANCE MANUALS

- A. One (1) draft or preliminary electronic copy shall be emailed for review 60 days prior to shipping the equipment.
- B. See Section 01 70 00 for required paper and digital copies.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

- A. Rotary Actuator and its components shall be Group 11 rotary valve drives as manufactured by Harold Beck & Sons.

### 2.2 COMPONENTS

- A. Limit Switches: Two (2) SPDT, one for CW and one for CCW limit of travel.
- B. Auxiliary Switches:
  - 1. Four (4) 6 A, 120 V contacts to be assigned after installing and testing by Engineer and Owner.
  - 2. “Fail” status of the actuator shall be monitored from a separate terminal.
  - 3. In normal operation, the terminal shall not be energized.
  - 4. The “Fail” contact shall activate upon a stall condition or loss of signal event, as a minimum.
- C. Control Options:
  - 1. Provide the capability of being controlled by a remote 4-20 mA signal.
  - 2. Provide an integral 4-20 mA position feedback signal.
  - 3. HART capable
- D. Hand switch:
  - 1. A five position hand switch shall be provided to permit local electrical operation.
  - 2. The five positions shall be CW, STOP, CCW, STOP and AUTO.
  - 3. The hand switch shall be independent of controller signal.
  - 4. The hand switch shall include an auxiliary, unpowered contact for “AUTO” status indication.
- E. Hand wheel: Provide manual operation without electrical power.
- F. Motor assembly:
  - 1. 120 VAC, TENV, single phase, no-burnout, non-coasting, suitable for high duty cycle condition, motor has instant magnetic braking.
  - 2. Requires no contacts or moving parts.
  - 3. Gearing and motor shall not be damaged when actuator is in a continuously stalled condition for a cumulative 72 hours.
  - 4. Motors for modulating service shall include Class H insulation.

5. Motors shall be specifically designed for modulating service.
- G. Gear train:
  1. The gear train is a four-stage reduction spur gear drive.
  2. It shall be constructed with only heat treated alloy steel and ductile iron gears.
  3. Interchangeable gear modules permit field change of torque and timing.
  4. Gear train shall be permanently lubricated with lithium-based grease.
- H. Mechanical stops: Prevent over travel during automatic or manual operation.
- I. Enclosure:
  1. Precision-machined, aluminum alloy castings coated with corrosion-resistant polyurethane paint.
  2. Provide a rugged dust-tight weatherproof enclosure.
  3. Enclosure shall be NEMA 4X.
  4. Enclosure shall provide two (2) 1" NPT conduits for power and signal wiring.
  5. A mechanical indicator of valve position shall be provided.
- J. Actuators shall be factory coated in accordance with the manufacturer's standard paint system.
- K. The operators shall include a feedback digital position display.
  1. The display shall provide a continuous digital indication of actuator position from 0 to 100%.
  2. The position sensing unit shall be provided integral with the operator and shall provide a linear 4-20 mA output signal for valve position feedback, approximately proportional to valve percent open.
  3. The display shall also include configurable, bright red and green LED lights for indication of discrete position points such as open and closed.
    - a. Provide a green light for open.
    - b. Provide a red light for closed.
- L. Mounting requirements vary by location. Refer to Construction Drawings. As required by the manufacturer to ensure proper operation of the actuator and valve and to position/orient the actuator with any space restrictions for the installation.
  1. Remote-Connection:
    - a. Actuator shall be provided with factory supplied mounting pedestal kits, including pedestal and fasteners to secure the actuator to the pedestal.
    - b. In addition, Beck shall provide a valve bushing plate, valve lever arm and appropriate pipe linkage kit.
    - c. Baseplates have 1 1/16-inch diameter holes.
      - 1) The Contractor shall be responsible for providing 5/8-inch diameter stainless steel epoxy anchors.
      - 2) See Section 05 05 19 for requirements.
      - 3) See the Drawings for anchor embedment depth into concrete.
    - d. The Contractor shall be responsible for providing the linkage pipe for field installation.
  2. Linkage-Connection:
    - a. Actuator shall be provided with factory supplied L-bracket, valve lever arm, pre-assembled linkage kit and all fasteners necessary to adapt to the valve.
  3. Direct-Connection:

- a. Direct coupled actuators shall be provided with factory supplied mounting hardware, couplings and fasteners to directly connect the valve shaft to the actuator shaft.

M. Stainless Steel Tags:

- 1. See Section 10 14 00
- 2. Provide stainless steel tags on each actuator.

## 2.3 LINKAGE

- A. Must be rigid enough to carry the link thrust without bending or deforming.
- B. Must have a built-in means of adjustment so that the length of the connecting link can be changed a small amount.
- C. Rod end bearings should be used at both ends of the connecting link to permit small angular misalignments and helps prevent binding of the linkage.
- D. Crank arm radius must be calculated so that the actuator arm will move through a 100° arc and the driven lever will move through its correct arc, typically 90 degrees.
- E. The starting angles of the actuator and driven shafts shall be characterized to produce an appropriate torque profile for the given valve.

## PART 3 EXECUTION

### 3.1 FIELD MEASUREMENTS

- A. Verify field measurements prior to ordering and fabrication.

### 3.2 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate Work with other trades.

### 3.3 MANUFACTURER'S FIELD SERVICES

- A. The services of a qualified manufacturer's technical representative from the rotary actuator manufacturer shall be provided for this project.
- B. These actuator field services shall be independent and in addition to the field services required from the Rate of Flow Controller.
- C. Include the following minimum number of site visits for this project's rotary actuators:
  - 1. One (1) trip for the installation/testing/startup of the actuator for the backwash supply rate of flow controller to filters #1 to #6. Coordinate with the startup of the backwash rate of flow controller.
  - 2. One (1) trip for services after startup at the end of the thirty (30) day operating period to make final adjustment to equipment and to again discuss operation and maintenance

procedures and answer questions concerning equipment operation for the Owner's personnel.

3. Each trip shall be for a minimum of one (1) 8-hour day.

- D. NOTE: Additional manufacturer's services required to accommodate the construction sequencing or additional time required to achieve a successful installation and operation shall be the Contractor's responsibility and provided at no additional cost to the Owner.

### 3.4 SHOP TESTING

- A. Shop testing shall be done with the following additional requirements:
  1. Conduct a complete functional check of each unit. Correct any deficiencies found in shop testing prior to shipment.
  2. Submit written certification that:
    - a. The actuator assembly meets its torque rating and is free from any defects.
  3. Each actuator shall be performance tested and individual test certificates shall be supplied free of charge. The following parameters should be recorded:
    - a. Current at torque rating
    - b. Maximum torque output
    - c. Flash test voltage
    - d. Actuator output speed or operating time
    - e. In addition, the test certificate should record details of specification, such as actuator serial number, opening direction on increasing signal and wiring diagram part number.

### 3.5 INSTALLATION

- A. Actuator: Body should be grounded. Use the green grounding screw in the wiring compartment of the actuator.
  1. Inspect the valve and pipe flanges are clean prior to installation.
  2. Ensure other pipelines in the area are free from pipe scale or welding slag which could damage the gasket surfaces.
  3. Carefully lift the assembly and position the valve in the pipeline.
  4. Install and tighten the flange bolts according to the valve manufacturer's instructions.
- B. Bolts, Nuts, and Screws:
  1. Steel bolts and nuts for jointing miscellaneous steel shall conform to ASTM A325 or A490 and shall be American National Standard dimensions.
  2. Anchor bolts in concrete shall be post installed according to Section 05 05 19.
  3. All anchor bolts shall be Type 316 stainless steel.
- C. Stainless Steel:
  1. Unless otherwise specified, all fabricated work indicated on the Drawings and/or required for proper installation shall be stainless steel shall be Type 316, in accordance with ASTM A276 as amended to date.

### 3.6 MANUFACTURER FIELD TEST

- A. Section 01 75 00 - Manufacturer's Services: Requirements for manufacturer's field services.
- B. Section 01 75 10 – Systems Startup: Requirements starting up equipment.

- C. The Contractor shall demonstrate proper start up and shut down for the actuator.
- D. Field testing shall be done with the following additional requirements:
  - 1. Valve actuators shall be field tested together with the associated valves.
  - 2. Test all valves at the operating pressures at which the particular line will be used.
  - 3. Test all valves for control operation as directed.
  - 4. Field testing shall include optimization of opening and closing times of the valves.
    - a. Valve opening and closing times shall be adjusted based on process requirements to optimize operation of the valve.
    - b. Final valve opening and closing times as determined by field tests shall be approved by the Engineer prior to final acceptance of the system.
- E. Preliminary Field Tests
  - 1. General: Preliminary field tests shall be conducted prior to start-up and shall include a functional check of the entire valve operator system and all system components.
  - 2. Scope: preliminary field tests shall demonstrate that the valve operator system performs according to specifications and that all equipment, valves, controls, alarms, interlocks, etc. function properly.
  - 3. Based on results of preliminary field tests, the Contractor shall make any adjustments required to settings, etc. to achieve the required valve closing time and operation, as specified or otherwise directed.
- F. Final Field Tests
  - 1. Final field tests shall be conducted in accordance with the latest revision of AWWA C500.
  - 2. Final field tests shall be conducted simultaneously with the start-up and field testing of the facility where the actuators will be installed.
  - 3. Final field tests shall be conducted for the full range of operating modes and conditions specified and as directed by the Engineer. Each of the valves shall be tested at minimum, maximum, and normal head/flow conditions, and under all specified conditions of opening and closing.
  - 4. Certification of Equipment Compliance: After the final field tests are completed and passed, submit certification.

### 3.7 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.
- B. Clean welds and damaged coatings and apply two coats of touch-up primer.

END OF SECTION

SECTION 46 23 14

SHAFTLESS SCREW CONVEYORS

1. GENERAL

1.1. WORK OF THIS SECTION

- A. This section covers furnishing of a complete Shaftless screw conveyor system as specified herein. The Shaftless screw conveyor equipment shall be designed for installation having the dimensions and functionality as indicated herein and on the drawings.
  - 1. This project includes furnishing, delivering and testing four (4) shaftless screw conveyors for the new alum sludge dewatering building.
  - 2. The conveyors will be used to transport dewatered alum sludge from the discharge chute of a centrifuge to a waste trailer that will be located below each conveyor. The dewatered sludge shall fall by gravity from the centrifuge into the inlet spout of the conveyor.
  - 3. There are two (2) centrifuges. Each centrifuge will have one (1) inclined conveyor and one (1) horizontal conveyor. Control of the operation of the conveyors will be, in part, from the centrifuge control panel.
  - 4. The alum sludge will have sticky properties with an anticipated solids concentration (percent TS) after dewatering of 20-percent to 30-percent.
  - 5. All conveyors and controls shall be supplied by a single manufacturer.
  - 6. The conveyor manufacturer shall supply and guarantee all conveyors, controls, gates and well as other accessories so that there will be one responsibility for the entire conveying system.
- B. The Shaftless screw conveyor arrangement shown on the Contract Drawings is general in nature to convey the fundamental requirements for the conveying system. The actual structural, mechanical and process design and details including the location of structural supports shall be based upon shop drawings developed by the manufacturer and submitted by the contractor for review and approval of the Engineer. It is the intent of this specification, whether specifically indicated or not, to have the manufacturer provide all components, bolts, gaskets, fasteners, and other accessories required for a complete and fully operational system that can be easily installed by a general contractor.
- C. The contractor shall furnish all labor, materials, equipment, and incidentals as shown, specified and required to provide a complete Shaftless screw conveyor system as specified herein.
- D. The equipment finished under this section shall be fabricated and assembled in full conformity with drawings, specifications, engineering data, instructions, and recommendations by the named equipment manufacturer.

1.2. REFERENCES

- A. The following is a list of standards which may be referenced in this section:
  - 1. American Society for Testing and Materials (ASTM)
  - 2. ASTM A240 – Type 304 & 316 Stainless Steel
  - 3. American National Standards Institute (ANSI)

4. American Welding Society (AWS)
5. American Gear Manufacturers Association (AGMA)
6. Conveyor Equipment Manufacturers Association (CEMA)
7. National Electrical Manufacturers Association (NEMA)
8. Occupational Safety and Health Administration (OSHA)

B. The following is a list of specifications which may be referenced in this section:

1. Section 01 33 00 – Submittal Procedures
2. Section 01 75 00 - Manufacturer's Services
3. Section 01 75 10 – Systems Startup
4. Section 25 00 20 - Panels
5. Section 40 05 58 – Electric Valve Actuators
6. Section 46 76 33 – Dewatering Centrifuges

### 1.3. SUBMITTALS

A. Section 01 33 00 – Submittal Procedures Requirements for Submittals.

B. Shop drawings should include the following:

1. Submit scope, process calculations, hp calculations, mechanical and structural calculations, motor speeds, catalog cuts, and drawings.
2. Manufacturer's literature, illustrations, specifications, and engineering data including total weight of each unit, structural loads at supports, connection details, and performance data.
3. Drawings shall show dimensions, overall arrangement of equipment and materials of construction.
4. Literature and certified shop drawings describing the equipment and showing all important details of construction and dimensions. Dimensions shall show overall size and space requirements including that for installation, leveling, dismantling and maintenance.
5. Complete installation drawings.
6. Electrical schematics.
7. Cross sections and details that show all components are in conformance with the intent of the specification and are satisfactory from the standpoint of design and physical arrangement.
8. All information required for the detailed design and location of all connecting or adjacent structural, mechanical, items, such as foundations, anchor bolts, steel supports, piping, conduit, etc. Any recommended or required deviations from the dimensions and locations of connecting or adjacent items as shown in the Construction Drawings shall be described completely in the submittal. No additional cost will be approved for changes and modifications required to provide a complete and fully operational conveying system.
9. The Contractor shall coordinate all details, locations, clearances and other conditions with the various equipment suppliers so that the conveyors function as part of a complete system. The screw conveyor submittal shall be coordinated with the Centrifuge equipment and the centrifuge platform.
10. Screen shots of the Operator Interface Terminal.
11. Operational / Functional Description of the System

C. Operations and Maintenance Manuals

1. See Section 01 70 00 for required paper and digital copies.
2. One (1) draft or preliminary electronic copy shall be emailed for review 60 days prior to shipping the equipment.
3. The manual shall include: Equipment Introduction and Operation, Warranty, Troubleshooting, Maintenance, and Drawings.
4. Field start-up reports as described in Paragraph 3.3 (Manufacture's Services) shall be submitted after start-up for owner's insertion into approved O&M manual.

#### 1.4. QUALITY ASSURANCE

- A. The shaftless screw conveyor manufacturer shall supply all equipment specified in this Section.
- B. The equipment shall be the product of a manufacturer engaged in the design and manufacture of similar Shaftless screw conveyor equipment in successful operation in similar applications conveying dewatered alum sludge. The manufacturer shall have a minimum of 10 years of United States municipal water/wastewater experience with 25 installations of the same type of equipment as specified herein with documented successful operation conveying dewatered alum sludge.
- C. Shop welding shall be performed by welders certified by the American Welding Society (AWS) welding process standard AWS D1.6. Letters of current certification shall be provided with the submittals.
- D. Field splicing of flighting sections shall be full penetration welds done in strict accordance with the manufacturer's instructions using only AWS certified welders. No other field welding is allowed.
- E. Adequate lubrication shall be provided for bearings. Lubrication points shall be readily accessible or piped to an accessible point with an appropriate label.
- F. The manufacturer of the Shaftless screw conveyor equipment shall be responsible for the proper function and structural integrity of the complete Shaftless screw conveyor system as specified. The equipment covered by this specification is intended to be standard equipment of a manufacturer with documented extensive experience in the production of such equipment.
- G. Structural Design: Structural design and supports shall include the conveyor system, supports, and anchor bolts and shall be designed based upon local building codes in addition to the following criteria:
  1. Complete structural calculations shall be provided. The calculations shall be stamped and signed by a Registered Professional Engineer in the State of South Carolina.
  2. Seismic Design Parameters shall conform to the latest adopted IBC and ASCE 7 editions for the State in which the project is located:
    - a. Also, see seismic design requirements and recommendations in the Geotechnical Report for the project (see Section 02 32 00) and Section 01 35 73.10 – Wind and Design Criteria.



H. Responsibilities

1. The Shaftless screw conveyor manufacturer is responsible for delivery of equipment and supplies required under these specifications. The contractor is responsible for proper coordination and integration of the conveyors with the Centrifuge and other ancillary equipment required for installation and all other associated work shown on the drawings and specified in the Contract Documents. The contractor is responsible for ensuring that the Shaftless screw conveyor system is properly coordinated and will function as a unit in accordance with these specifications. The contractor shall bear ultimate responsibility for equipment coordination, installation, operation, and guarantees.

I. Workmanship

1. Workmanship in the fabrication of the inclined Shaftless screw conveyors shall be first-class, and of new construction.
2. All exterior surfaces and edges shall be smooth.
3. Sharp corners shall be ground round and smooth.

1.5. PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Shaftless screw conveyors shall be factory assembled and shipped to the greatest extent practical. All equipment shall be shipped with suitable in transit protection. Special handling instructions shall be included.
- B. Equipment shall be stored and protected in accordance with the manufacturer's recommendations.

1.6. SYSTEM DESCRIPTION

- A. The Shaftless screw conveyors shall be designed for operation as indicated on the Contract Drawings. The equipment shall be designed for the following conditions as listed in the Process Table B below.

B. PROCESS & CONVEYOR DESIGN TABLE

Conveyor Designation – Inclined Conveyor	INCL CONV-1A & 2A
Product Conveyed	Alum Sludge
Number of Conveyors	2
Mass Capacity, Wet lbs./hour (EACH)	10,095
Density, lbs./ft <sup>3</sup>	64
Volumetric Capacity, cubic Ft./hour (EACH)	160
Conveyor trough fill rate, design (see note 1)	35
Conveyor trough dia. inches	13
Approximate conveyor length, horizontal, ft.	As shown on Construction Drawings
Conveyor sectional screw dia. nominal, inches	12
Conveyor sectional screw pitch	12
Conveyor inclination, degrees	5
Trough Section Length, feet	12' typ.

Conveyor Screw Rotating Speed, max. rpm	21
Conveyor motor Hp, Min.	3
Minimum Inlet Size	20-inch (wide) x 30-inch (long)
Conveyor Outlet/inches	13 x 13
Conveyor motor safety factor	2.8x
Conveyor Inlet, quantity (EACH)	1
Conveyor discharge, quantity (EACH)	1
<b>OPTIONS IF REQUIRED</b>	
Slide gates, number required	NA
Slide gate actuator type	NA
Number of Drains	1
Drain, dia., inches	8
Spray nozzles (EACH in discharge chute)	1
Control panels quantity (TOTAL), includes a panel for Conveyor 1A/1B and 2A/2B	2
Pressure Relief Cover, quantity required	2
Special Requirements (See notes below)	
Note 1: Under loss of power the centrifuge will control to scroll out residual solids. The residual solids will not be taken by the conveyor, which will not have power. The residual solids will be contained in the discharge chute. When the conveyor starts backup the trough fill rate will be 100%. The conveyor motor safety factor design shall be sized based on a 100% conveyor trough fill rate.	

Conveyor Designation – Horizontal Conveyor	CONV-1B & 2B
Product Conveyed	Alum Sludge
Number of Conveyors	2
Mass Capacity, Wet lbs./hour (EACH)	10,095
Density, lbs./ft <sup>3</sup>	64
Volumetric Capacity, cubic Ft./hour (EACH)	160
Conveyor trough fill rate, design	35
Conveyor trough dia. inches	13
Approximate conveyor length, horizontal, ft.	As shown on Construction Drawings
Conveyor sectional screw dia. nominal, inches	12
Conveyor sectional screw pitch	12
Conveyor inclination, degrees	0
Trough Section Length, feet	12' typ.
Conveyor Screw Rotating Speed, max. rpm	20
Conveyor motor Hp, Min.	5
Conveyor motor safety factor	2.8x
Conveyor Inlet, quantity	1
Conveyor discharge, quantity	5

<b>OPTIONS IF REQUIRED</b>	
Slide gates, number required	3
Slide gate actuator type	Electric
Number of Drains	NA
Drain, dia. inches	NA
Spray nozzles (EACH)	NA
Control panels quantity (TOTAL), includes a panel for Conveyor 1A/1B and 2A/2B	2
Pressure Relief Cover, quantity required/conveyor	2
Special Requirements (See notes below)	0

## 2. PRODUCTS

### 2.1. ACCEPTABLE MANUFACTURERS

A. The equipment shall be manufactured by:

1. Basis of Design: Jim Myers & Sons, Inc. (JMS), of Charlotte, NC
2. Custom Conveyor, a division of Schwing Bioset
3. Or Approved equal

### 2.2 SHAFTLESS SCREW CONVEYOR SYSTEM

A. The Shaftless screw conveyor system shall be fabricated in accordance with the details indicated on the drawings and the requirements specified herein.

EQUIPMENT DESIGN TABLE (Material Thickness Minimum Requirements):

<b>Conveyor Designation</b>	<b>CONV-1A, 1B, 2A, 2B</b>
Trough, Cover, Inlets, Discharge, material/grade	304
Trough material thickness, min. inch	0.1875
Cover material thickness, min. ga.	12
Cover fastener type	SS
Supports, material/grade	304
Supports min. thickness	0.25"
Support type, floor/hanging	Floor
Spiral material/grade	A8620
Screw flight, min. thickness	0.75"
Inlet chute, material thickness, ga./in. min.	0.125"
Gaskets durometer	50
Gaskets, thickness	0.12"
Slide gate material/grade	304
Slide gate, size W x L, inches	13" Square
Spray nozzles, material	NA
Control enclosures, material/grade	SS – NEMA 4X
<b>Special Requirements (See notes below)</b>	

### B. TROUGHS

1. Trough shall conform to CEMA Standard No. 350.
2. Troughs shall be U-trough design and have formed top flanges.

3. A neoprene or rubber gasket shall be provided at each trough flange and between trough top and covers.
4. CEMA standard trough end plates shall be provided with a split gland packing ring consisting of two Teflon coated packing rings to seal the drive shaft at its penetration through the end plate.
5. Stiffeners shall be placed across the top of the trough and fastened to both sides of the trough to maintain trough shape. Stiffeners shall be removable. Welded stiffeners are not allowed. Stiffeners shall be located so as not to impede the removal of maximum screw lengths as listed herein.
6. In addition to any other drain connections recommended by the manufacturer, drains as required by the design table shall be located per the drawings. Contractor shall install piping to connect drain ports to the drain piping.
7. Shaftless screw troughs shall also be furnished with anti-flotation devices. Antiflotation devices shall be fabricated of high-density polyethylene flat bars 3/8-inch thick by 2-inch wide running the entire length of the conveyor and shall be located above the screw on each side of the trough. Bars shall be supported by stainless steel brackets attached to the trough cover flange every two feet.
8. Each trough shall be equipped with filling and/or discharge spouts at the location shown on the drawings. Each filling and discharge spout shall be flanged suitable for interconnection to other devices.

C. Conveyor Covers

1. Sectional stainless steel plate shall cover the entire trough, with the exception of where the inlet solids chute connections are located.
  - a. The covers for the inclined conveyors shall be bolted in place.
  - b. The covers for the horizontal conveyors shall be hinged. The hinge shall remain attached to the conveyor trough in the open or closed position. Covers shall be secured in the closed position with a spring-clamp or toggle clamp quick release closure. Hinge plates shall be welded to the cover sections and trough cover flanges.
2. Each cover section shall be not greater than 4 feet in length.
3. The cover segments shall be arranged so that the trough flange and a trough stiffener provide support to each edge.
4. The covers shall open for maintenance and cleaning purposes.
5. Gaskets shall be installed along each trough cover flange and each stiffener to ensure a drip proof connection and minimize air leakage through the conveyor cover.
6. Pressure relief covers shall be provided at conveyor discharge ends when required by the conveyor schedule and shall expose the full width of the conveyor trough when opened. Pressure relief covers shall be designed to open upon build-up and packing of material at the discharge endpoint. Pressure relief covers shall be supplied with safety limit switches.

D. Conveyor End Plates

1. End plates shall be fabricated from stainless steel plate and shall be bolted and gasketed to the trough end flange. End plates shall be designed to support the drives, and gear reduction assembly.
2. The end plate assembly shall be supported independently of the conveyor troughs. Support points for the drive and tail end assemblies shall be welded to the end plates.

3. Where shafts penetrate the end plates, the end plate shall be provided to accommodate the sealing devices.

E. Conveyor Chutes

1. Trough inlet solid chutes and discharge chutes shall be bolted to the adjoining equipment as shown on the Contract Drawings. Inlet and discharge chutes shall be supplied with reinforced square or rectangular flanges.
2. Trough inlet chute connection flanges shall be located approximately 3-inches above the top of the conveyor trough. Trough discharge chute connection flanges shall be located approximately 3-inches below the bottom of the conveyor trough.
3. The Conveyor Equipment Supplier shall furnish the discharge chute to receive the dewatered solids from the centrifuge and other transition pieces between the conveyors and related equipment.
  - a. Under loss of power the centrifuge will scroll out residual solids. The residual solids will not be taken by the conveyor, which will not have power. The discharge solids chute must have adequate volume to accept the full contents of the bowl of the centrifuge during loss of power. The full contents of the bowl is 0.45 cubic yards.
  - b. The flexible connectors from the cake discharge of the centrifuge will be provided by others and will be designed and constructed with flanged fittings at the top and bottom for attachment of the solids chute.
  - c. Each solids chute must be equipped with a conveniently located solids sample port with a removable plug of adequate size to collect samples of the solids.
  - d. The solids chute must be coordinated with the height of the solids discharge flange and flexible coupling on the centrifuge and the trough inlet connection on the conveyor.
4. Where shown on the drawings, conveyor equipment supplier shall furnish flexible discharge chutes fabricated from heavy duty rubber resistant to deterioration from contact with dewatered sludge or outdoor exposure.
5. Gaskets shall be provided between each flanged inlet, discharge, connection and transition chute.
6. The Conveyor Equipment Supplier shall furnish the discharge chute to receive the dewatered solids from the centrifuge and other transition pieces between the conveyors and related equipment.
7. The outlet of each discharge chute shall be provided with a flexible discharge chute extension. The flexible chute extension shall be constructed of 1/8-inch black neoprene. All hardware shall be constructed of 304 stainless steel.

2.3 DRIVE TRAIN EQUIPMENT

- A. The drive train equipment shall transmit power to the conveyor drive shaft using a shaft mounted speed reducer with integral gearmotor. The drive shaft shall have adequate diameter to handle all radial and thrust loads.
- B. The gear reducer and drive shall be designed to provide an applied torque adequate to operate at the design load at the safety factor per the design table herein.
- C. SEW Eurodrive OS4 paint system shall be required.
- D. Drive Shaft Assembly
  1. The drive end assembly shall consist of the following components.
    - a. Drive Shaft
    - b. Packing Gland/Stuffing Box

- c. Bulkhead/Drive Mount
- d. Hollow Shaft Gear Reducer
- e. Drive Motor
- 2. An adjustable packing gland seal shall be provided where the shafts project through the conveyor end plate. Packing glands shall have bronze lantern ring and packing seals of five ring construction per stuffing box. Packing shall be grease lubricated. Grease fitting(s) shall be provided to lubricate the packing rings.
- E. Drive Motor
  - 1. Drive motors shall be as follows:

Conveyor Designation	<b>CONV-1A, 1B, 2A, 2B</b>
<b>Motors</b>	
Rating	460V/3PH/60Hz
Horsepower	3 + 5
Speed, rpm (nominal)	1800
Enclosure	TEFC
Insulation	Type F
Drive Type, reversing/non-reversing	Reversing
Service Factor	1.15
<b>OPTIONS</b>	
Inverter Duty	No
Space Heater	Yes
Temperature Switches	No

- 2. Drive motors shall be suitable for continuous severe duty service.
- F. Speed Reducer
  - 1. The speed reducer shall be a direct driven, enclosed shaft mount type unit. The speed reducer shall mount directly on the driven shaft. All gears shall be AGMA Class II, single or double reduction, helical gear units with high capacity roller bearings. The reducer will be the standard air-cooled unit with no auxiliary cooling.
  - 2. The speed reducer bearings shall be ball or tapered roller type and provide a 50,000-hour B-10 life at the expected design loading rate.
  - 3. Screw thrust shall be accommodated by internal reducer thrust bearing assembly.
  - 4. Speed reducer gears and bearings shall be splash lubricated using petroleum- based oil, containing anti-foam and rust inhibiting additives.
  - 5. The speed reducer shall be manufactured to Quality Class 8 per AGMA Standard 6001-C88, minimum. The gear reducer shall be selected for AGMA Class II service with a 1.4 service factor based on motor nameplate horsepower.
  - 6. SEW Eurodrive OS4 paint system shall be required.
  - 7. The speed reducer shall be as manufactured by SEW Eurodrive, Inc. or equal.

## 2.4 SHAFTLESS SPIRAL & LINER

- A. Spiral
  - 1. Spiral shall be manufactured from alloy A8620 steel with a Brinell hardness of 220, and maximum yield strength of 80,000 psi.
  - 2. Spiral flighting shall be designed to convey material without a center shaft.
  - 3. Manufacturer shall demonstrate by submission of calculations that at its torsional rating, the stress in the auger flighting does not exceed 30 percent of the Fy value of the

flight material.

4. The spiral flights shall be designed with the stability to prevent distortion and jumping in the trough. The torsional rating of the spiral shall be such that, at 250% of the motor nameplate horsepower, the drive unit cannot produce more torque than the torsional rating of the flighting.
5. Dual ribbon spirals shall be provided on conveyors greater than 18' long, all inclined conveyors over 10°, and or conveyors designed with a trough fill rate of over 30%.
6. Spiral flights shall be cold formed from hot rolled A8620 flat bar stock. Sectional flighting formed from plate, shall not be permitted.
7. Outer spirals shall be 0.75-inch-thick x 2.5 inches up 10" diameter. Spirals 12" and larger shall be 1-inch thick x 3 inch minimum. Inner spirals when applied shall be 0.5-inch-thick x 1 inch up 10" diameter spirals.
8. Connect spiral flighting to drive shaft by welding spirals to minimum 0.75-inch circular torque plate reinforced with curved gusset plate for 180 degrees. Drive shaft shall have a mating flange for bolting to the spiral flighting.
9. Edges: Smooth in the as-rolled condition

B. Liner

1. Liner shall be minimum 0.375-inch for spirals up 10" diameter. Liners for 12" and larger shall be 0.5-inch minimum.
2. Liner to be virgin white UHMW-PE with sintered wear resistant filler and synthetic lubricant.
3. Liner that is 0.5-inch thick shall have a two-color wear indicator. The bottom 0.125-inch layer shall be a contrasting color as a visible indicator that the liner is nearing its useful life and maintenance should be planned.
4. Wear liners shall be provided in 4-foot long sections, maximum, for ease of replacement.
5. The liners shall be attached and secured in place using stainless steel clips welded or bolted to the inside of the trough. Clips and bolts shall be placed away from the conveyor spiral path.

C. Slide Gate, General

1. Slide gates to be provided in accordance with conveyor design schedule (qty., size, and material of construction).
2. The slide gate and actuator shall be fully supported by the conveyor or as otherwise indicated by the drawings.
3. The slide gates shall be fabricated with material as stated in conveyor design schedule – includes frame and gate blade.
4. Gates shall be factory assembled, adjusted, and tested.

D. Slide Gate Frame

1. The slide gate body shall be 1/4-inch minimum thickness frame. Greater thickness shall be provided based on actual actuator thrust forces.
2. Construct gate frame of structural members or formed plate welded to create a rigid 1-piece frame.
3. The frame shall incorporate a dust-proof metal cover plate/guard to cover the blade retraction area. Guards or covers shall be bolted to facilitate maintenance.
4. Slide gate frame shall be flanged top and bottom with CEMA trough flange bolt hole patterns.
5. Frame shall be designed to support the gate actuator, accessories, and any required

restraint connections.

E. Blade

1. The minimum thickness of the gate blade shall be 1/4-inch minimum. Greater thickness shall be provided based on head pressure.
2. Blade will have provision for a ramping system that will ensure the gate blade will make positive contact with the gate seal in the closed position.

F. Guides & Seals

1. The gate shall be provided with plastic guides, rollers and a ramping mechanism to seal when in the fully closed position. The seal shall be neoprene 60 Durometer, vulcanized at all corners or connections.
2. Frame shall have ultra-high molecular weight polyethylene insert in contact with gate blade edges to eliminate racking and misalignment during the open and closing cycling of the gate.
3. Sealing and sliding surfaces shall provide a low coefficient of friction with the surface of the slide.
4. Rollers shall be T-440C stainless steel. Guides shall be UHMW PE.

G. Actuator

1. The conveyor manufacturer shall provide electric motor operated actuators for open/close operation or as indicated in the conveyor design schedule.
2. The actuators shall have a rising stem with cover. The stem connection shall allow for movement of the blade during ramping. Stem shall be stainless steel machine cut or rolled threads.
3. The actuators shall be 3/60/460, NEMA 4X.
4. The actuators shall include an integral reversing motor starter, internal adjustable limit switches, integral controls, and manual hand-wheel back-up with clutch release.
5. Electric actuators shall be type M2CP as manufactured by EIM -Emerson Process Management Valve Automation or equal.
6. See Specification 40 05 58

## 2.5 SUPPORTS

- A. Provide supports suitable for mounting as shown on the drawings and as required by supplier's design. The supports shall be capable of supporting the equipment weight when fully loaded. The supports shall be fabricated from standard shapes and plates. Supports shall be match marked and shipped to the job site for installation in the field.
- B. At a minimum, each conveyor shall be provided with supports at the inlet and discharge end, with intermediate supports at 12 ft maximum intervals.
- C. For floor supports, provide base plates at each support leg for anchor bolting.
- D. Height of supports are as indicated on Drawings and shall be coordinated with the installation height of the centrifuge and the solids discharge chute.
- E. The supports shall be designed to avoid interference with other equipment or equipment supports.
- F. All structural supporting members shall be designed such that the ratio of the unbraced length to least radius of gyration (slenderness ratio) shall not exceed 120 for any compression member and shall not exceed 240 for any tension member. In addition, all structural members and connections shall be designed so that the unit stresses will not exceed the American Institute of Steel Construction allowable stresses by more than 1/3 when subject to loading of twice the maximum design operating torque of the spiral conveyor drive motors.



- G. Supports shall be provided per the material in the conveyor design schedule.
- H. Anchor bolts shall be included and be minimum 5/8-inch diameter. Anchor bolts shall be stainless steel adhesive anchors.

## 2.6 INSPECTION HATCHES

- A. Inspection hatches shall be provided with the bolted covers for the inclined conveyors to allow clearing of jammed contents along the full length of screw conveyor.

## 2.7 CONTROL SYSTEM OPERATION

- A. There are two (2) centrifuges. Each complete conveyor system (Conveyor 1A/1B and 2A /2B) receives dewatered solids from a respective centrifuge. Control of the operation of the conveyor system, in part, is from the respective centrifuge.
  - 1. Control of the starting and stopping of the sludge conveyors shall be provided by the centrifuge. An emergency stop (i.e., engaging safety stop switch/emergency pull cables) shall take precedence and stop the conveyor even if they are called to run by the centrifuge. The centrifuge will also stop if the conveyors are placed in an emergency stop.
  - 2. Control of the direction of operation of the inclined conveyor for each centrifuge shall be provided by the centrifuge.
  - 3. Control of the direction of operation of the horizontal conveyor is from the Conveyor Control System and not the centrifuge controls and will be manual – either locally (Hand Mode – Forward / Reverse) or from Owner's SCADA (Auto Mode – Forward / Reverse).
    - i. Each horizontal reversing screw conveyor has 3 gates and 2 open discharges. The gates that are open are selected by direction of operation of the screw and a command to open the gate in that direction. Open discharges are selected by the direction of the screw and keeping all gates closed. Selection of which slide gate is open and the direction of the screw is manual, but maybe made remotely via SCADA or at the conveyor controls with a selector switch.
    - ii. A radar sensor installed at each drop zone will continuously monitor the level of the sludge in the truck at the drop zone. Each sensor shall activate an alarm if a high level is reached.
  - 4. The operation of the spray nozzle in the discharge chute at the lower end of the inclined conveyor is from the centrifuge.
- B. A control panel shall be provided for each system. Each conveyor (inclined and horizontal) shall be powered through its own Hand-Off-Auto circuit controlled by a three position switch. In the Hand position, each conveyor will be powered and operate based on the Forward-Off-Reverse switch. In the Auto position, each conveyor will accept a run command from the centrifuge control system. In the Off position, the conveyors (and centrifuge) shall be locked out of operation.
- C. In the Auto switch position, the unit shall accept a run signal from the centrifuge.
  - 1. After pushing the Start button, the control system for the centrifuge will issue a Run command to the centrifuge main drive motor and the bowl will begin to accelerate and both the inclined conveyor and horizontal conveyor will start. The centrifuge will control the direction of the inclined conveyor. Operation of the conveyors will be verified by the discharge conveyor zero speed switches on each of the conveyors. After a preset timed interval, during which the centrifuge bowl has reached full operating speed and entered production mode, the centrifuge will be manually placed in production mode, and the sludge feed and polymer feed will start automatically and the inclined conveyor will operate in reverse towards the discharge chute at the

low end of the inclined conveyor. Additionally, the inclined conveyor discharge chute wash water valve shall open to feed wash washer and the dewatered sludge shall initially flow into the centrate discharge. As the percent solids in the dewatered sludge increases, the torque on the centrifuge will increase until it exceeds an adjustable setpoint and the inclined conveyor will change direction and operate forwards to discharge the dewatered sludge onto the horizontal conveyor and the discharge chute wash water solenoid valve will close after a field adjustable preset timed interval.

2. Upon stopping the centrifuge, through a normal stop or a fault condition, the sludge feed and polymer feed to the centrifuge will stop. After the torque falls below a setpoint during shutdown, the following shall occur:
  - a. The inclined conveyor will change direction and operate in reverse, the inclined conveyor discharge chute wash water valve shall open to feed wash washer and an automatic high-speed flush valve will also be opened for a pre-determined configurable time during shutdown. The cake discharge flush valve will stay open for an adjustable time period and then close.
  - b. The horizontal transfer conveyor will continue to operate for a field adjustable time period to clear the solids in the conveyor and then stop.
3. If a clean-in place/low-speed flush is manually initiated at the centrifuge the inclined conveyor discharge chute wash water ball valve will open to feed wash washer. The conveyor will continue to operate in reverse and the discharge flush valve will stay open for a field adjustable time period after the LS flush is complete and then the conveyor will stop and the flush valve will close automatically.

## 2.8 ELECTRICAL AND CONTROL COMPONENTS

### A. Control Panel

1. Provide a control panel for each centrifuge conveyor system. Control panels shall be designated "System #1 Control Panel" and "System #2 Control Panel". System #1 control panel will be interlocked with Centrifuge #1 and System #2 control panel will be interlocked with Centrifuge #2. See section 2.7 of this specification for control system operation.
2. Panel enclosure shall be NEMA 4X stainless steel, free standing with single continuous hinged door with handle. Enclosure shall be 36" wide.
3. Panel enclosure shall include a through the door disconnect switch.
4. See Specification Section 25 00 20 "Panels" for additional requirements, including, but not limited, to ferrules, screw type terminals, UL Listings, manufacturer requirements, and submittal requirements.
5. Control panel shall be rated for 480V, and include, as a minimum, the following:
  - a. Main 480V breaker with through the door disconnect switch.
  - b. NEMA sized full voltage reversing starters for Horizontal and Inclined Conveyors
  - c. 480V Feeder breakers for the three slide gates
  - d. Each conveyor shall include internal current transformers (CTs) on phase A and phase C wired to over torque relays.
  - e. Allen Bradley PLC with Ethernet/IP. All components (radars, conveyors, gates, switches, lights, horn, OIT, e-stops, etc.) shall be wired to the PLC such that entire system will communicate with the Owner's SCADA system.
  - f. 10.4" Operator Interface Terminal (OIT) – Allen Bradley Panel View Plus.
    1. OIT shall display status of system including, but not limited to, discharge zone levels (continuous level, high alarm, high-high alarm) from each

- radar, gate positions, conveyor status, truck over weight limit, and centrifuge status (permissive / interlocks).
  - 2. OIT shall clearly display which discharge zone is activated.
  - 3. OIT shall include adjustable time delay (0-300 seconds) to stop horizontal conveyor during centrifuge stop sequence.
  - g. 480-120VAC transformer and 120V-24VDC power supply.
  - h. Provide internal light and receptacle.
  - i. Provide internal On/Off switch and white light on front of panel for 120V control power confirmation.
  - j. Provide master emergency stop on front of panel.
  - k. Internal ethernet switch
  - l. Provide a 30mm H-O-A and F-O-R switch on front of panel for each conveyor. H-O-A switch shall include auxiliary set of contacts for Auto position.
  - m. Provide a 30mm H-O-A and Open – Close switch on front of panel for each slide gate. H-O-A switch shall include auxiliary set of contacts for Auto position.
  - n. The inclined conveyor starting / stopping / direction will be controlled from the Centrifuge Control Panel.
  - o. The starting / stopping of the horizontal conveyor will be controlled from the Centrifuge Control Panel. The direction of the horizontal conveyor will be controlled manually (Hand Position [Forward-Off-Reverse] or Auto Position [Owner's SCADA]).
  - p. Provide a 30mm Amber over torque alarm light and reset button on front of panel for each torque relay.
  - q. Provide a 30mm Red common alarm light on front of panel.
  - r. Provide elapsed time meter for each conveyor.
  - s. Provide 120V fuse blocks, if required, to the zero speed switches.
  - t. Provide alarm horn.
  - u. Provide analog inputs for each radar.
  - v. Provide terminals for all field connections including, but not limited to, e-stops, Centrifuge Control Panel interlocks/permissives, Radars, Scale Summing Totalizer (Stop On Truck Over Weight Limit), and actuators.
  - w. Provide the following terminals for interlocks / permissives to the Centrifuge Control Panel:
    - 1. Call to Forward (Inclined Conveyor) – From Centrifuge Control Panel
    - 2. Call to Reverse (Inclined Conveyor) – From Centrifuge Control Panel
    - 3. Call to Run (Horizontal Conveyor) – From Centrifuge Control Panel
    - 4. System Ready (Inclined Conveyor Switch in Auto, Horizontal Conveyor Switch Not In Off, No Faults, Control Power On) – To Centrifuge Control Panel
    - 5. System Running (Inclined Conveyor Running / Horizontal Conveyor Running (with time delay to allow operator to manually change discharge zone) – To Centrifuge Control Panel
    - 6. High High Trailer Fault – To Centrifuge Control Panel
    - 7. Emergency Stop – To Centrifuge Control Panel
- B. Emergency Stop (E-Stop) System
- 1. Each screw conveyor shall be furnished with emergency pull cables running on both sides of the conveyor and a safety stop switch in compliance with OSHA standards.
  - 2. Pull cabling shall be 3/16-inch O.D. fabricated of internal 3/32-inch 7 x 7 strand

galvanized aircraft cable and orange colored nylon outer sheathing. Limit pull cable length to 200 feet of conveyor length. Cabling shall be supported by stainless steel eyebolts every 10 feet. Wire clamps shall be stainless steel.

3. Safety switch shall be housed in a NEMA 4X enclosure, stainless steel, and shall have a DPDT micro-switch and stainless steel external hardware. Emergency pull cord and safety switch shall be Conveyor Components Company Model RS-2, or equal.

C. Zero Speed Switches

1. Provide non-contacting, proximity-type speed switch on screw conveyors to detect zero speed condition. The zero-speed switch shall consist of a sensor/pre-amplifier and an amplifier/output unit. For Shaftless screw conveyors, the switch shall be located on the non-driven end of Shaftless conveyors.
2. The sensor/pre-amplifier shall utilize magnetic proximity effect to detect equipment rotational speed without physical connection to the rotating equipment. Sensors shall provide output pulses in proportion to rotational speed by detection of a ferrous target mounted on the rotating equipment for shaftless screw assembly and by detection of the rotating flights of a Shaftless screw assembly. The sensor shall operate satisfactorily with air gaps of up to 4". The sensor/pre-amplifier shall be provided complete with mounting flange, threaded body and locknut.
3. The amplifier/output switch unit shall provide two SPDT contacts that operate on detection of an under-speed operating condition. The SPDT contact outputs shall be rated for 5A at 120 volts AC. The unit shall include an adjustable start-up delay of 0 to 60 seconds to override zero speed alarm during initial acceleration. Units shall operate on 120-volt AC power. Provide set point adjustment range of 2 to 3,000 pulses per minute.
4. Zero speed detection switches shall be Milltronics MFA-4 with MSP-12 sensor/pre-amplifier, or equal.

D. Torque Overload Protection

1. Torque overload protection shall be provided to protect the drive components and shaftless screws from torsional loadings exceeding the torsional rating of the shaftless auger. Current transformers shall be provided and shall sense the current draw of the motor leads. The signals shall be transmitted to the current overload protection devices, which are set as recommended by the equipment manufacturer. The overcurrent relay shall be Tsubaki, or equal.

E. Pressure Relief Cover and Position Switches

1. Pressure relief covers, if required per conveyor design schedule, shall be furnished at each discharge end of the conveyor and include a position switch for detection of a pressure relief operating condition and initiation of conveyor shutdown. For reversible conveyors, pressure relief covers shall be provided at both ends. Position switches shall be of a heavy-duty design as furnished by Square "D", or equal.

2.9 ZONE RADARS

- A. Each horizontal conveyor has five drop zones from the conveyor into the storage trucks on the first floor. At each zone, a radar sensor shall be provided to measure the height of the dewatered solids in the truck. A total of ten radars shall be provided. The radar sensor shall be VEGAPULS C11, or equal. Each radar shall be provided with factory supplied ceiling mount.

2.10 HARDWARE

- A. All fasteners shall be stainless steel T-316. Zinc plated fasteners shall not be used.
- B. All stainless steel bolts shall be assembled using an anti-seize compound

2.11 FABRICATION

- A. All parts and components shall be factory-assembled to the furthest extent practical. Assemblies shall be provided in sections to allow for convenient field handling and installation.
- B. All assembled parts and components shall be securely packaged and adequately protected from damage and corrosion during shipment and storage.

2.12 SURFACE PREPERATION

- A. Fabricated stainless steel components shall be shop passivated at welds only per ASTM A380.
- B. Fabricated carbon steel support components shall be hot dipped galvanized.
- C. Component parts shall have the manufacturer's standard wash down duty paint system with the exception of the gear reducer which shall utilize the SEW OS4 coating spec (chemical wet operation) or equivalent.

2.13 SPARE PARTS

- A. Two sets of shaft packing material
- B. No special tools are required.

3. EXECUTION

3.1. INSTALLATION

- A. The Contractor shall install the equipment in strict accordance with the manufacturer's recommendations.
- B. Assemble and install equipment in accordance with the manufacturer's recommendations and the drawings.
- C. Operation shall be smooth, free of vibration or unwarranted noise, or unwarranted high starting or no-load running amperage draw. Alignment shall be demonstrated to the satisfaction of the Engineer.
- D. Conveyors shall be set upon level, fully grouted foundations so that connecting flanges, screwed connection, or flexible connections will meet without strain or distortion.

3.2. WARRANTY

- A. The supplier shall guarantee in writing that the equipment furnished is appropriate for the intended service and shall be free of manufacturing and fabrication defects in material and workmanship for a period of 1 year from completion of the project as a whole.

3.2. Painting

- A. All surface preparation, shop painting, field repairs, field painting and other pertinent detailed painting specifications shall conform to applicable sections of Section 09 90 00 – Painting and Coating.

### 3.3. MANUFACTURER'S SERVICES

- A. The services of a qualified manufacturer's technical representative shall inspect the final installation and supervise the field acceptance tests of the equipment. The equipment shall be field tested after installation to demonstrate satisfactory operation without jamming, excessive noise, vibration or overheating.
1. Certify in writing that equipment has been properly installed and is ready for start-up and testing.
  2. Startup of the conveyors must be coordinated with startup of the centrifuges and the functional testing of the centrifuges. The Manufacturer's technical representative must be present for the functional test of the centrifuge.
  3. Field services, excluding the functional testing, shall include the following site visits:

<b>Service</b>	<b>Number of Trips</b>	<b>Number of 8-hour Days/Trip</b>
Installation inspection and Testing	2	2
Startup and O&M Training	1	2
Centrifuge Startup with Centrifuge Manufacturer	2	2
At the end of the 30-day Operating Period	1	1

4. Separate field service hours shall be provided for the Functional Testing.
- B. Manufacturer's Field Services: The Contractor shall provide the following services in addition to any other services specified herein and required by these Specifications.
1. A factory trained manufacturer's representative shall be provided for installation inspection, start-up, field testing services, and O&M training services. The installation inspection services shall be coordinated between the Contractor and the manufacturer.
  2. After installation supervision and field testing services by the manufacturer, the Manufacturer shall submit to the Contractor, start-up reports and a certification letter on the manufacturer's letterhead signed by an authorized representative certifying the equipment was installed per the manufacturer's recommendations.
  3. The quantity and duration of the trips described above is a minimum requirement. Additional manufacturer's services required to accommodate the construction sequencing or additional time required to achieve a successful installation and operation shall be the Contractor's responsibility and provided at no additional cost to the Owner.

END OF SECTION

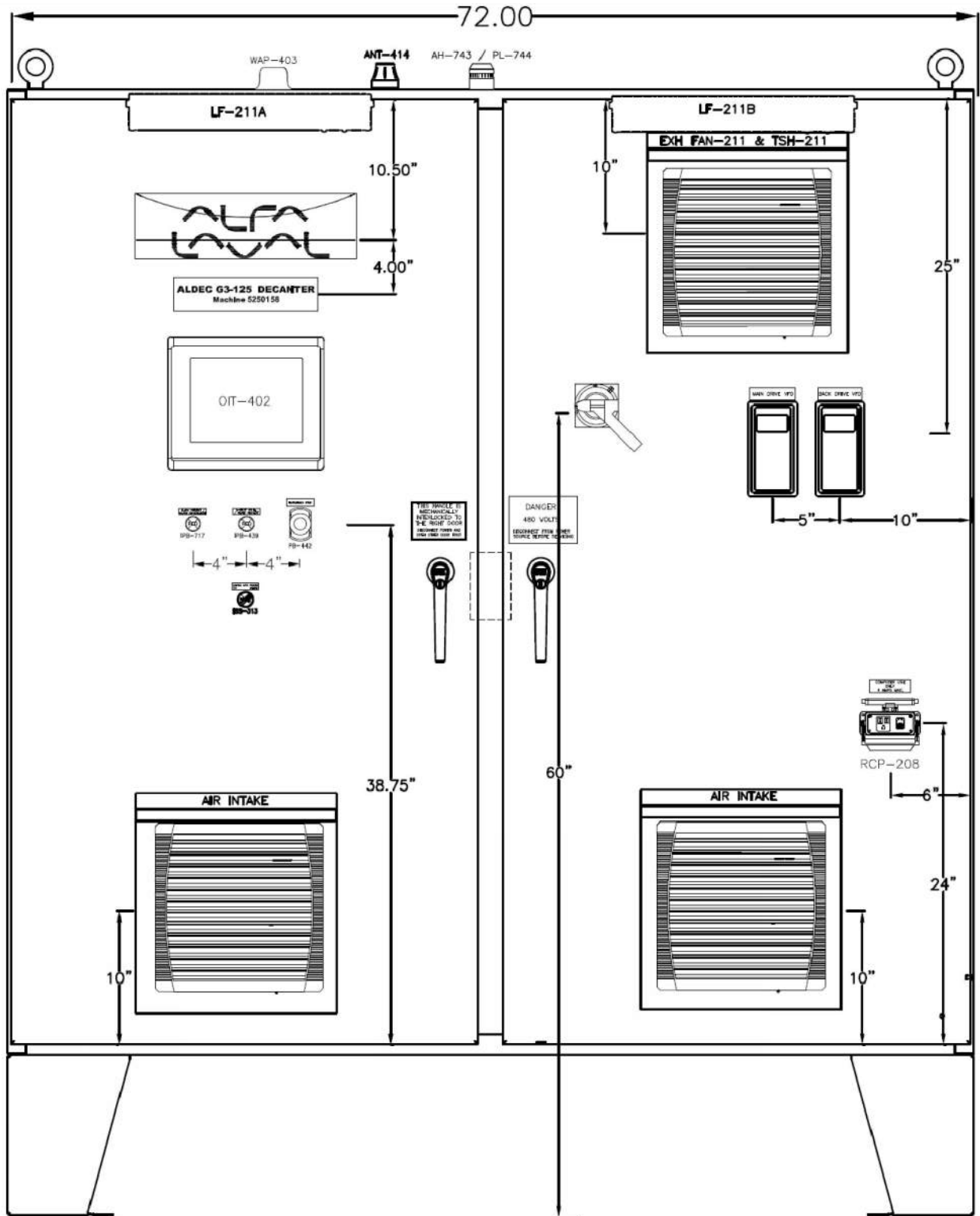


PANEL DEWAT-120 SECT. 1																									
VOLTAGE: 208Y/120V 3 PHASE, 4 WIRE										AMPS: 250 MB TOTAL LOAD: 46.7 KVA					MOUNTING: SURFACE										
No.	SERVES	LOAD (KVA)						BRKR		PH			BRKR		LOAD (KVA)						SERVES	No.			
		LTG	RCPT	MTR	A/C	KITCH	MISC	TRIP	P	A	B	C	P	TRIP	MISC	KITCH	A/C	MTR	RCPT	LTG					
1	1st Floor Lights - Bay 2	1.30						20	1	2.74			1	20					1.44		1st Floor Recepts (8)	2			
3	1st Floor Lights - Bay 1	1.00						20	1		2.44		1	20					1.44		1st Floor Recepts (8)	4			
5	1st Floor Lights	1.00						20	1			2.44	1	20					1.44		1st Floor Recepts (8)	6			
7	2nd Floor Lights	1.10						20	1	2.54			1	20					1.44		1st Floor Recepts (8)	8			
9	2nd Floor Lights	1.20						20	1		2.64		1	20					1.44		2nd Floor Recepts (8)	10			
11	2nd Floor Lights - Rooms	1.10						20	1			1.46	1	20					0.36		2nd Floor Recepts (2)	12			
13	Exterior Wall Packs (7)	1.20						20	1	1.56			1	20					0.36		2nd Floor Recepts (2)	14			
15	Exterior Wall Packs (7)	1.20						20	1		1.92		1	20					0.72		2nd Floor Recepts (4)	16			
17	Roof Lights	0.10						20	1			0.28	1	20					0.18		DEIONIZED H2O RECEPT	18			
19	SCADA-LCP-Dewatering	0.50						20	1	1.94			1	20					1.44		2nd Floor Recepts (8)	20			
21	Lighting Contactor	0.10						20	1		0.60		1	20	0.50						MAU-1 CONTROL PANEL	22			
23	AIT-GAS-MSTR						0.20	20	1		3.20		2	50	3.00						208V/1PH, 50A	24			
25	SPARE							20	1	3.00					3.00						RECEPTACLE	26			
27	Flood Lights (2)	1.00						20	1		1.10		1	20	0.10						SCALE TOTALIZERS	28			
29	Exterior Pole Lights (3)	0.50						20	1			1.00	1	20	0.50						MAU-2 CONTROL PANEL	30			
31	HPIU-1 (INDOOR)				3.75			60	2	4.95			1	20				1.20			POLY TOTE 1 MIXER RECEPT	32			
33					3.75					4.95			1	20		1.20					POLY TOTE 2 MIXER RECEPT	34			
35	HPIU-2 (INDOOR)				3.75			60	2			3.75	1	20							FLOW METER FIT-8510	36			
37					3.75					3.75			1	20							FLOW METER FIT-8511	38			
39	DOOR LOCK CABINET						0.20	20	1		0.20		1	20							SPARE	40			
41	CCTV CABINET						0.20	20	1			0.20	1	20							SPARE	42			
										20.48	13.85	12.33			7.70	0.00	15.00	2.40	10.26	11.30	CONNECTED KVA	46.66			

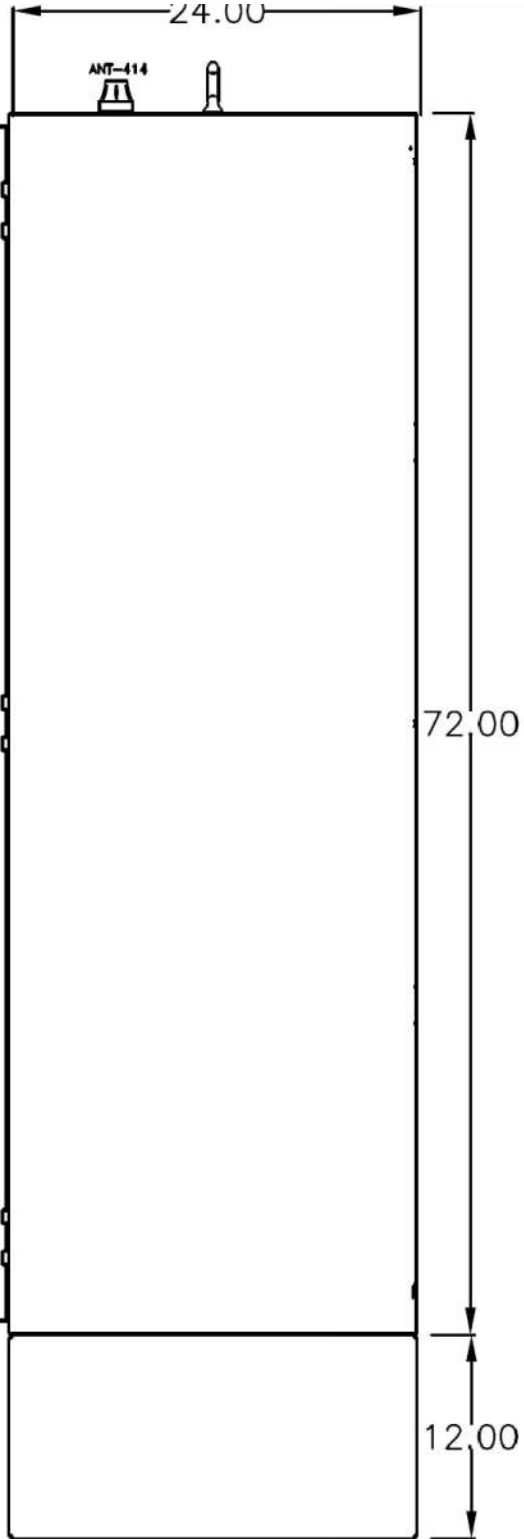
NOTES:  
1. ROUTE CIRCUITS 13, 15, 29 THROUGH LIGHTING CONTACTOR.  
2. ROUTE 3 #12 IN 3/4" C. TO ALL 120V, 20A, 1P LOADS.

PANEL DEWAT-120 SECT. 2																									
VOLTAGE: 208Y/120V 3 PHASE, 4 WIRE										AMPS: 250 MLO TOTAL LOAD: 2.8 KVA					MOUNTING: SURFACE										
No.	SERVES	LOAD (KVA)						BRKR		PH			BRKR		LOAD (KVA)						SERVES	No.			
		LTG	RCPT	MTR	A/C	KITCH	MISC	TRIP	P	A	B	C	P	TRIP	MISC	KITCH	A/C	MTR	RCPT	LTG					
43	SPARE							20	1	0.00														SPACE	44
45	SPARE							20	1		0.00													SPACE	46
47	POLY SYST. #1 CP						1.00	15	1			1.00												SPACE	48
49	POLY SYST #2 CP						1.00	15	1	1.00														SPACE	50
51	WL-1 & WL-2			0.20				20	1		0.20													SPACE	52
53	WL-3 & WL-4			0.20				20	1			0.20												SPACE	54
55	HOT WATER RECIRC PUMP			0.10				20	1	0.10														SPACE	56
57	FIRE ALARM CONTROL PANEL						0.10	20	1		0.10													SPACE	58
59	SPARE							20	1			0.00												SPACE	60
61	SPARE							20	1	0.00														SPACE	62
63	SPARE							20	1		0.00													SPACE	64
65	SPARE							20	1			0.00												SPACE	66
67	SPARE							20	1	0.00														SPACE	68
69	SPARE							20	1		0.00													SPACE	70
71	SPARE							20	1			0.00												SPACE	72
73	SPARE							20	1	0.00														SPACE	74
75	SPARE							20	1		0.00													SPACE	76
77	SPARE							20	1			0.00												SPACE	78
79	SPARE							20	1	0.00														SPACE	80
81	SPARE							20	1		0.00													SPACE	82
83	SPARE							20	1			0.20	1	20							0.20			NIGHT LIGHT	84
										1.10	0.30	1.40			2.10	0.00	0.00	0.50	0.00	0.20	CONNECTED KVA		2.8		

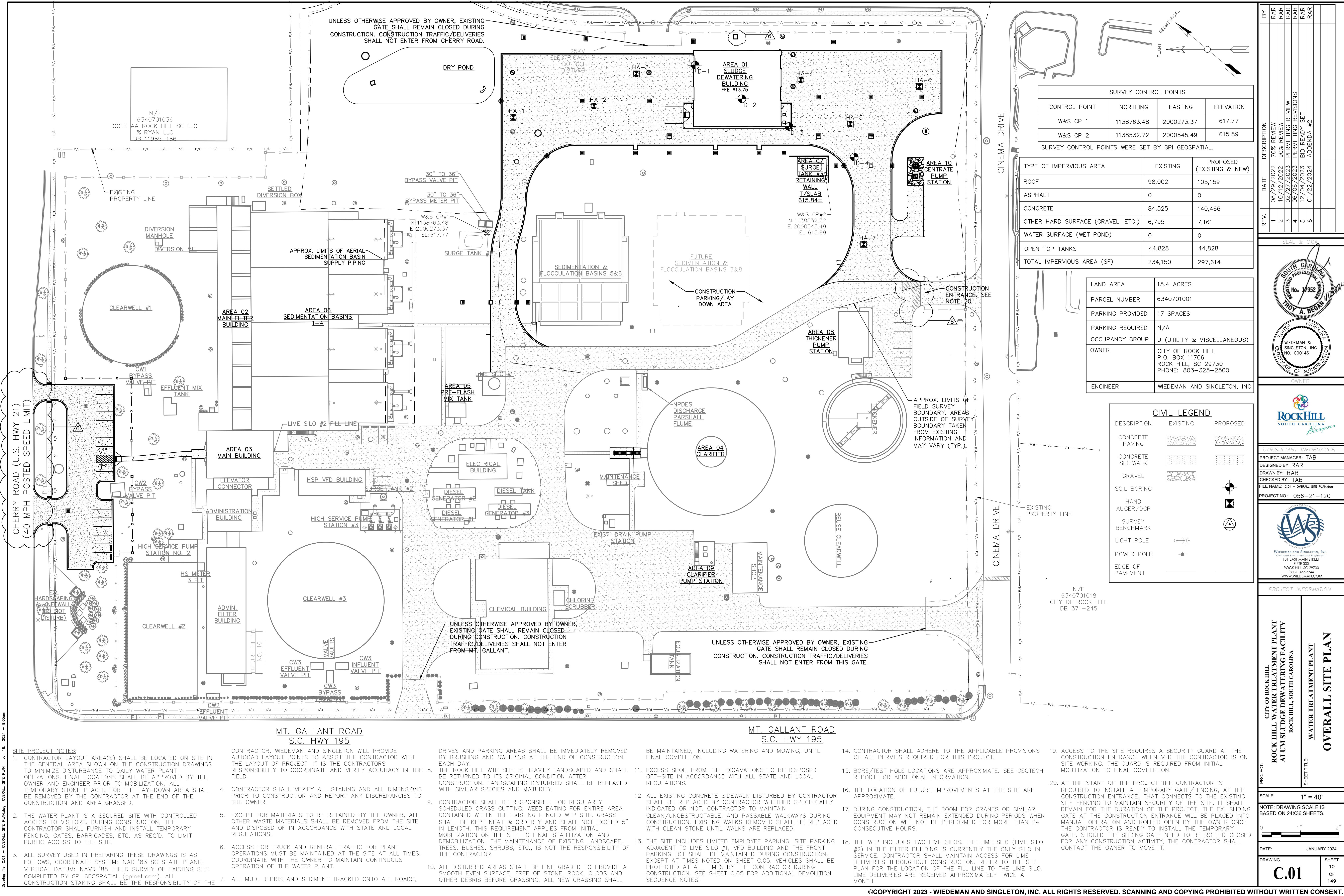
NOTES:  
1. PAINT NIGHT LIGHT CIRCUIT (84) YELLOW AND LABEL 'DO NOT SWITCH. NIGHT LIGHTS'.  
2. ROUTE 3 #12 IN 3/4" C. TO ALL 120V, 20A, 1P LOADS.



CENTRIFUGE CONTROL PANEL  
(TYPICAL FOR 2 - 72"Wx24"Dx72"H)







SURVEY CONTROL POINTS			
CONTROL POINT	NORTHING	EASTING	ELEVATION
W&S CP 1	1138763.48	2000273.37	617.77
W&S CP 2	1138532.72	2000545.49	615.89

SURVEY CONTROL POINTS WERE SET BY GPI GEOSPATIAL.

TYPE OF IMPERVIOUS AREA	EXISTING	PROPOSED (EXISTING & NEW)
ROOF	98,002	105,159
ASPHALT	0	0
CONCRETE	84,525	140,466
OTHER HARD SURFACE (GRAVEL, ETC.)	6,795	7,161
WATER SURFACE (WET POND)	0	0
OPEN TOP TANKS	44,828	44,828
TOTAL IMPERVIOUS AREA (SF)	234,150	297,614

LAND AREA	15.4 ACRES
PARCEL NUMBER	6340701001
PARKING PROVIDED	17 SPACES
PARKING REQUIRED	N/A
OCCUPANCY GROUP	U (UTILITY & MISCELLANEOUS)
OWNER	CITY OF ROCK HILL P.O. BOX 11706 ROCK HILL, SC 29730 PHONE: 803-325-2500
ENGINEER	WIEDEMAN AND SINGLETON, INC.

CIVIL LEGEND		
DESCRIPTION	EXISTING	PROPOSED
CONCRETE PAVING		
CONCRETE SIDEWALK		
GRAVEL		
SOIL BORING		
HAND AUGER/DCP		
SURVEY BENCHMARK		
LIGHT POLE		
POWER POLE		
EDGE OF PAVEMENT		

BY

70% REVIEW

90% REVIEW

PERMITTING REVIEW

PERMITTING REVISIONS

BID READY SET

ADDENDA #2

DESCRIPTION

DATE

REV.

1

2

3

4

5

6

08/29/2022

10/12/2022

02/27/2023

06/06/2023

12/04/2023

01/22/2024

SEAL & CO.

OWNER

CITY OF ROCK HILL

ROCK HILL WATER TREATMENT PLANT

ALUM SLUDGE DEWATERING FACILITY

ROCK HILL, SOUTH CAROLINA

WIEDEMAN AND SINGLETON, INC.

131 EAST MAIN STREET

SUITE 300

ROCK HILL, SC 29730

(803) 329-2944

WWW.WIEDEMAN.COM

PROJECT INFORMATION

CITY OF ROCK HILL

ROCK HILL WATER TREATMENT PLANT

ALUM SLUDGE DEWATERING FACILITY

ROCK HILL, SOUTH CAROLINA

WATER TREATMENT PLANT

OVERALL SITE PLAN

PROJECT:

SCALE:

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.

DATE:

JANUARY 2024

DRAWING

C.01

SHEET

10 OF 149

1. CONTRACTOR LAYOUT AREA(S) SHALL BE LOCATED ON SITE IN THE GENERAL AREA SHOWN ON THE CONSTRUCTION DRAWINGS TO MINIMIZE DISTURBANCE TO DAILY WATER PLANT OPERATIONS. FINAL LOCATIONS SHALL BE APPROVED BY THE OWNER AND ENGINEER PRIOR TO MOBILIZATION. ALL TEMPORARY STONE PLACED FOR THE LAY-DOWN AREA SHALL BE REMOVED BY THE CONTRACTOR AT THE END OF THE CONSTRUCTION AND AREA GRASSED.

2. THE WATER PLANT IS A SECURED SITE WITH CONTROLLED ACCESS TO VISITORS. DURING CONSTRUCTION, THE CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY FENCING, GATES, BARRICADES, ETC. AS REQ'D. TO LIMIT PUBLIC ACCESS TO THE SITE.

3. ALL SURVEY USED IN PREPARING THESE DRAWINGS IS AS FOLLOWS, COORDINATE SYSTEM: NAD '83 SC STATE PLANE, VERTICAL DATUM: NAVD '88. FIELD SURVEY OF EXISTING SITE COMPLETED BY GPI GEOSPATIAL (gpinet.com). ALL CONSTRUCTION STAKING SHALL BE THE RESPONSIBILITY OF THE

CONTRACTOR, WIEDEMAN AND SINGLETON WILL PROVIDE AUTOCAD LAYOUT POINTS TO ASSIST THE CONTRACTOR WITH THE LAYOUT OF PROJECT. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND VERIFY ACCURACY IN THE FIELD.

4. CONTRACTOR SHALL VERIFY ALL STAKING AND ALL DIMENSIONS PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE OWNER.

5. EXCEPT FOR MATERIALS TO BE RETAINED BY THE OWNER, ALL OTHER WASTE MATERIALS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.

6. ACCESS FOR TRUCK AND GENERAL TRAFFIC FOR PLANT OPERATIONS MUST BE MAINTAINED AT THE SITE AT ALL TIMES. COORDINATE WITH THE OWNER TO MAINTAIN CONTINUOUS OPERATION OF THE WATER PLANT.

7. ALL MUD, DEBRIS AND SEDIMENT TRACKED ONTO ALL ROADS,

DRIVES AND PARKING AREAS SHALL BE IMMEDIATELY REMOVED BY BRUSHING AND SWEEPING AT THE END OF CONSTRUCTION EACH DAY.

8. THE ROCK HILL WTP SITE IS HEAVILY LANDSCAPED AND SHALL BE RETURNED TO ITS ORIGINAL CONDITION AFTER CONSTRUCTION. LANDSCAPING DISTURBED SHALL BE REPLACED WITH SIMILAR SPECIES AND MATURITY.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR REGULARLY SCHEDULED GRASS CUTTING, WEED EATING FOR ENTIRE AREA CONTAINED WITHIN THE EXISTING FENCED WTP SITE. GRASS SHALL BE KEPT NEAT & ORDERLY AND SHALL NOT EXCEED 5" IN LENGTH. THIS REQUIREMENT APPLIES FROM INITIAL MOBILIZATION ON THE SITE TO FINAL STABILIZATION AND DEMOBILIZATION. THE MAINTENANCE OF EXISTING LANDSCAPE, TREES, BUSHES, SHRUBS, ETC., IS NOT THE RESPONSIBILITY OF THE CONTRACTOR.

10. ALL DISTURBED AREAS SHALL BE FINE GRADED TO PROVIDE A SMOOTH EVEN SURFACE, FREE OF STONE, ROCK, CLODS AND OTHER DEBRIS BEFORE GRASSING. ALL NEW GRASSING SHALL

BE MAINTAINED, INCLUDING WATERING AND MOWING, UNTIL FINAL COMPLETION.

11. EXCESS SPOIL FROM THE EXCAVATIONS TO BE DISPOSED OFF-SITE IN ACCORDANCE WITH ALL STATE AND LOCAL REGULATIONS.

12. ALL EXISTING CONCRETE SIDEWALK DISTURBED BY CONTRACTOR SHALL BE REPLACED BY CONTRACTOR WHETHER SPECIFICALLY INDICATED OR NOT; CONTRACTOR TO MAINTAIN CLEAN/UNOBSTRUCTABLE, AND PASSABLE WALKWAYS DURING CONSTRUCTION. EXISTING WALKS REMOVED SHALL BE REPLACED WITH CLEAN STONE UNTIL WALKS ARE REPLACED.

13. THE SITE INCLUDES LIMITED EMPLOYEE PARKING. SITE PARKING ADJACENT TO LIME SILO #1, VFD BUILDING AND THE FRONT PARKING LOT SHALL BE MAINTAINED DURING CONSTRUCTION, EXCEPT AT TIMES NOTED ON SHEET C.05. VEHICLES SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION. SEE SHEET C.05 FOR ADDITIONAL DEMOLITION SEQUENCE NOTES.

14. CONTRACTOR SHALL ADHERE TO THE APPLICABLE PROVISIONS OF ALL PERMITS REQUIRED FOR THIS PROJECT.

15. BORE/TEST HOLE LOCATIONS ARE APPROXIMATE. SEE GEOTECH REPORT FOR ADDITIONAL INFORMATION.

16. THE LOCATION OF FUTURE IMPROVEMENTS AT THE SITE ARE APPROXIMATE.

17. DURING CONSTRUCTION, THE BOOM FOR CRANES OR SIMILAR EQUIPMENT MAY NOT REMAIN EXTENDED DURING PERIODS WHEN CONSTRUCTION WILL NOT BE PERFORMED FOR MORE THAN 24 CONSECUTIVE HOURS.

18. THE WTP INCLUDES TWO LIME SILOS. THE LIME SILO (LIME SILO #2) IN THE FILTER BUILDING IS CURRENTLY THE ONLY SILO IN SERVICE. CONTRACTOR SHALL MAINTAIN ACCESS FOR LIME DELIVERIES THROUGHOUT CONSTRUCTION. REFER TO THE SITE PLAN FOR THE LOCATION OF THE FILL LINE TO THE LIME SILO. LIME DELIVERIES ARE RECEIVED APPROXIMATELY TWICE A MONTH.

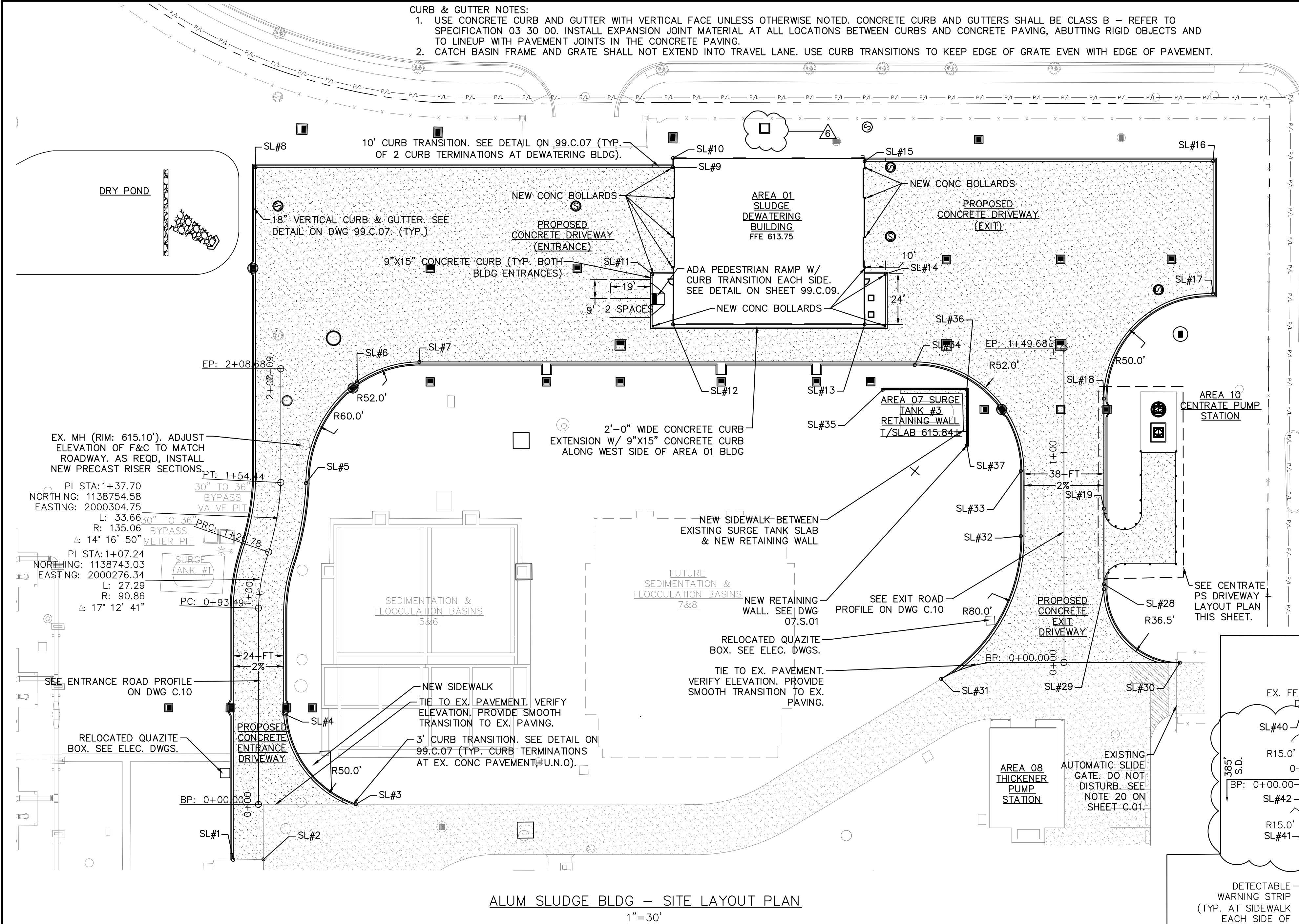
19. ACCESS TO THE SITE REQUIRES A SECURITY GUARD AT THE CONSTRUCTION ENTRANCE WHENEVER THE CONTRACTOR IS ON SITE WORKING. THE GUARD IS REQUIRED FROM INITIAL MOBILIZATION TO FINAL COMPLETION.

20. AT THE START OF THE PROJECT THE CONTRACTOR IS REQUIRED TO INSTALL A TEMPORARY GATE/FENCING, AT THE CONSTRUCTION ENTRANCE, THAT CONNECTS TO THE EXISTING SITE FENCING TO MAINTAIN SECURITY OF THE SITE. IT SHALL REMAIN FOR THE DURATION OF THE PROJECT. THE EX. SLIDING GATE AT THE CONSTRUCTION ENTRANCE WILL BE PLACED INTO MANUAL OPERATION AND ROLLED OPEN BY THE OWNER ONCE THE CONTRACTOR IS READY TO INSTALL THE TEMPORARY GATE. SHOULD THE SLIDING GATE NEED TO BE ROLLED CLOSED FOR ANY CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL CONTACT THE OWNER TO MOVE IT.
- Drawing file: C01 - Overall Site Plan.dwg Jan 15, 2024 9:05am
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Drawing File: C-02 - SITE LAYOUT PLAN.dwg    Jan 18, 2024 - 12:03pm

- CURB & GUTTER NOTES:
1. USE CONCRETE CURB AND GUTTER WITH VERTICAL FACE UNLESS OTHERWISE NOTED. CONCRETE CURB AND GUTTERS SHALL BE CLASS B - REFER TO SPECIFICATION 03 30 00. INSTALL EXPANSION JOINT MATERIAL AT ALL LOCATIONS BETWEEN CURBS AND CONCRETE PAVING, ABUTTING RIGID OBJECTS AND TO LINEUP WITH PAVEMENT JOINTS IN THE CONCRETE PAVING.
  2. CATCH BASIN FRAME AND GRATE SHALL NOT EXTEND INTO TRAVEL LANE. USE CURB TRANSITIONS TO KEEP EDGE OF GRATE EVEN WITH EDGE OF PAVEMENT.



SPOT LOCATION (SL) COORDINATES TABLE											
NAME	NORTHING	EASTING	NAME	NORTHING	EASTING	NAME	NORTHING	EASTING	NAME	NORTHING	EASTING
SL#1	1138666.67	2000165.97	SL#21	1138441.24	2000570.24	SL#41	1139004.32	1999825.83	SL#61	1138905.01	1999819.38
SL#2	1138655.72	2000175.38	SL#22	1138460.07	2000592.71	SL#42	1139002.92	1999846.62	SL#62	1138895.84	1999827.12
SL#3	1138638.95	2000223.79	SL#23	1138459.91	2000599.37	SL#43	1138995.81	1999832.63			
SL#4	1138692.97	2000234.69	SL#24	1138447.82	2000602.99	SL#44	1138978.19	1999851.15			
SL#5	1138755.45	2000325.72	SL#25	1138460.33	2000610.77	SL#45	1138927.11	1999790.69			
SL#6	1138767.92	2000378.54	SL#26	1138413.88	2000562.51	SL#46	1138933.10	1999776.76			
SL#7	1138751.19	2000404.66	SL#27	1138432.25	2000547.10	SL#47	1138935.77	1999766.99			
SL#8	1138870.56	2000425.57	SL#28	1138433.49	2000533.01	SL#48	1138956.67	1999769.08			
SL#9	1138718.29	2000553.34	SL#29	1138431.95	2000531.19	SL#49	1138921.74	1999727.75			
SL#10	1138721.09	2000556.68	SL#30	1138381.73	2000527.68	SL#50	1138919.81	1999749.06			
SL#11	1138693.32	2000508.03	SL#31	1138463.81	2000448.68	SL#51	1138917.26	1999801.13			
SL#12	1138670.17	2000495.99	SL#32	1138478.50	2000525.21	SL#52	1138899.74	1999803.84			
SL#13	1138600.28	2000554.63	SL#33	1138498.38	2000548.90	SL#53	1138907.66	1999813.21			
SL#14	1138608.12	2000579.53	SL#34	1138569.53	2000555.13	SL#54	1138906.94	1999821.67			
SL#15	1138650.23	2000614.16	SL#35	1138573.69	2000536.33	SL#55	1138897.78	1999829.81			
SL#16	1138523.16	2000720.78	SL#36	1138543.07	2000562.07	SL#56	1138842.98	1999761.47			
SL#17	1138482.60	2000672.45	SL#37	1138525.91	2000541.66	SL#57	1138883.64	1999809.59			
SL#18	1138490.30	2000600.72	SL#38	1138599.99	2000590.98	SL#58	1138891.28	1999803.13			
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SL#20	1138442.54	2000559.36	SL#40	1138032.66	1999859.27	SL#60	1138905.72	1999810.92			

PAVEMENT MARKING SYMBOLS

P1	TWO WAY	↑↑
P2	RIGHT TURN ONLY	↘

T1



30" X 30"  
(R5-1)

T2



30" X 30"  
(R1-1)

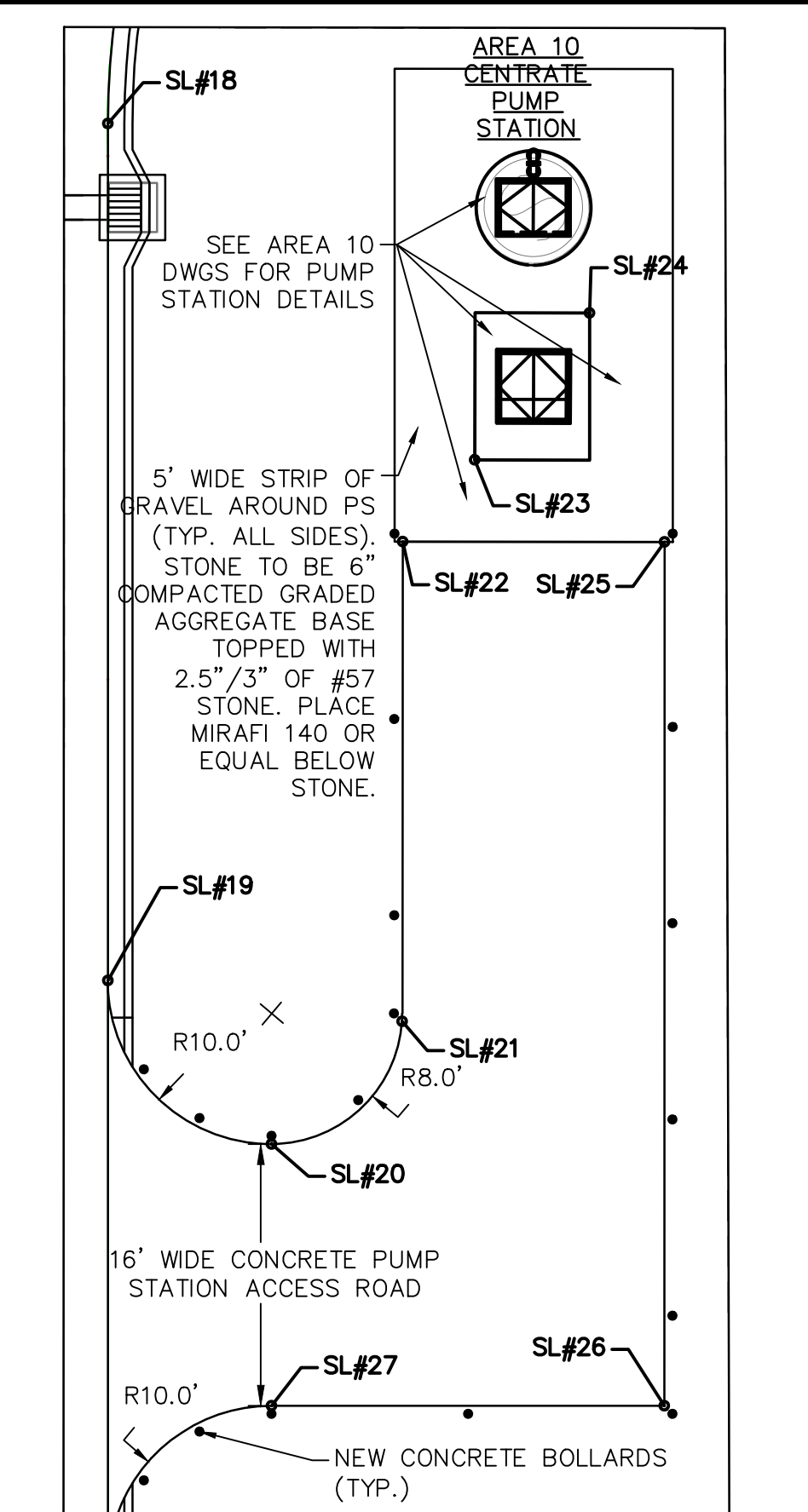
T3



24" X 24"  
(R3-2)

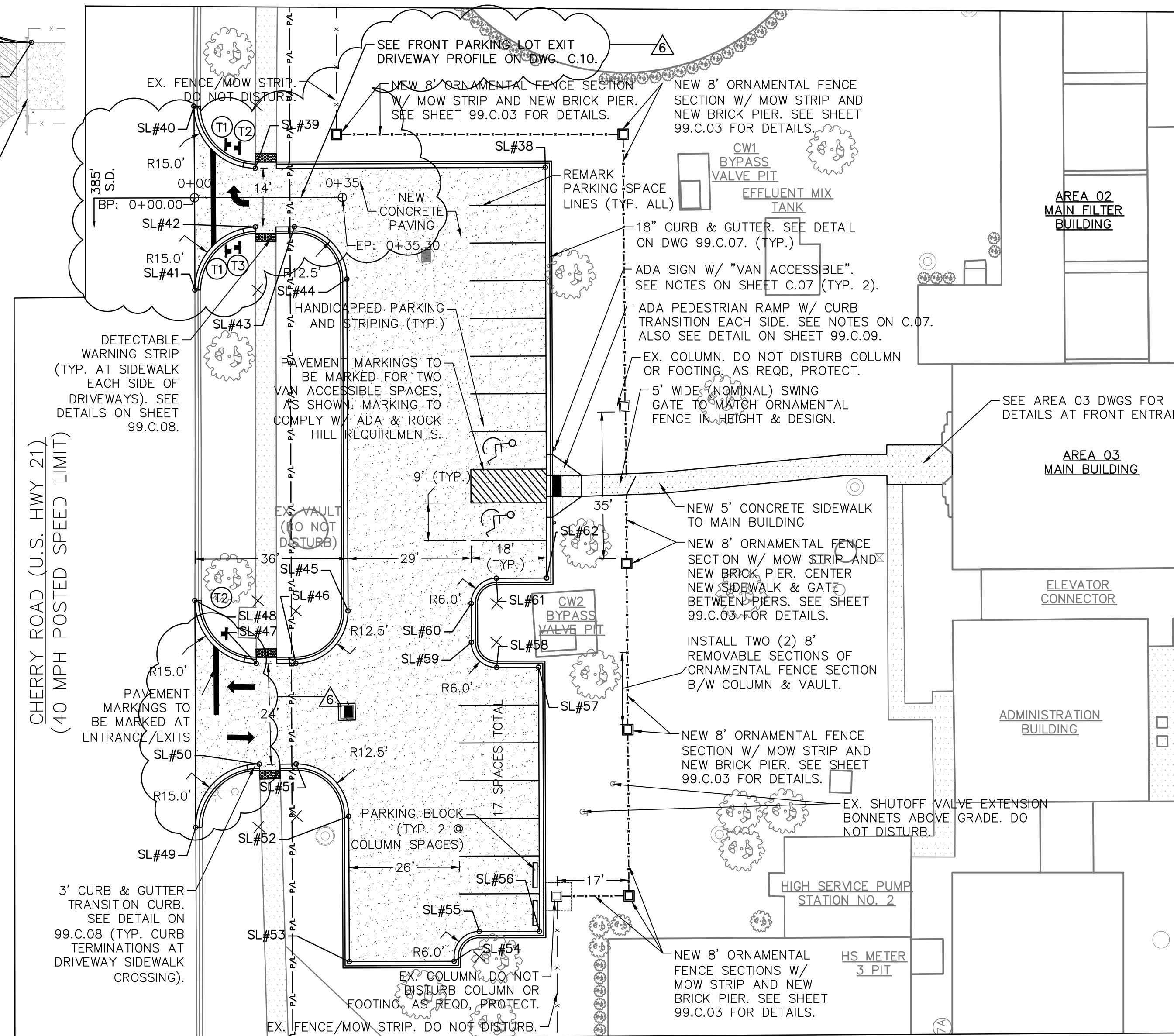
TRAFFIC NOTES:

1. ALL SIGNAGE AND POSTS SHALL CONFORM TO THE REQUIREMENTS OF THE MOST CURRENT EDITIONS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND ROCK HILL ZONING ORDINANCE.



CENTRATE PS DRIVEWAY - LAYOUT PLAN

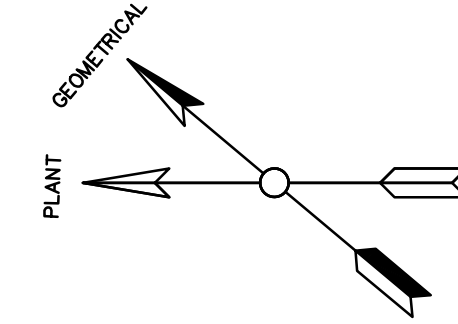
1"=10'



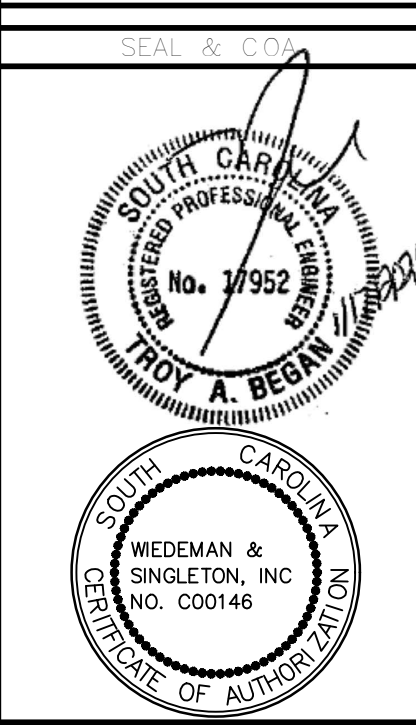
FRONT PARKING LOT - SITE LAYOUT PLAN

1"=20'

CIVIL LEGEND		
DESCRIPTION	EXISTING	PROPOSED
CONTOUR	760	760
EDGE OF PAVEMENT	PA	PA
PROPERTY LINE	PA	PA
FENCE LINE	PA	PA
SOIL BORING	PA	PA
LIGHT POLE	PA	PA
POWER POLE	PA	PA
CONCRETE PAVING		
CONCRETE SIDEWALK		
GRAVEL		



REV	DATE	DESCRIPTION
1	08/29/2022	70% REVIEW
2	10/12/2022	90% REVIEW
3	02/27/2023	PERMITTING REVIEW
4	06/06/2023	PERMITTING REVISIONS
5	12/04/2023	BID READY SET
6	01/22/2024	APPENDIX #2

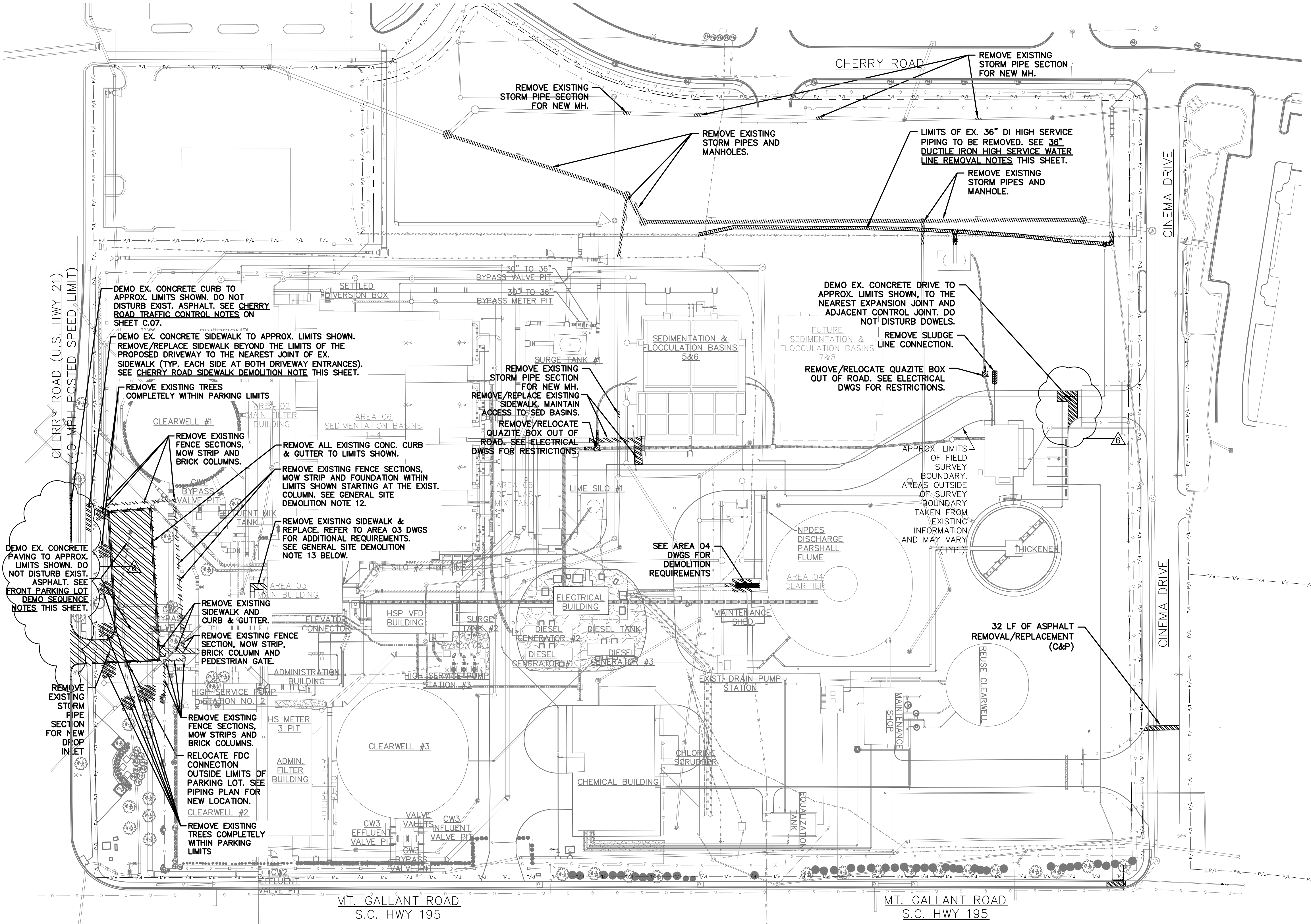


CONSULTANT INFORMATION	
PROJECT MANAGER:	TAB
DESIGNED BY:	TAB
DRAWN BY:	RAR
CHECKED BY:	TAB
FILE NAME:	C-02 - SITE LAYOUT PLAN.dwg
PROJECT NO.:	056-21-120

PROJECT INFORMATION	
CITY OF ROCK HILL	PROJECT
ROCK HILL WATER TREATMENT PLANT	
ALUM SLUDGE DEWATERING FACILITY	
ROCK HILL, SOUTH CAROLINA	
WATER TREATMENT PLANT	
SITE LAYOUT PLAN	

SCALE:	AS SHOWN
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.	
DATE:	JANUARY 2024
DRAWING	SHEET
C.02	11 OF 149





NOTES-PIPE REMOVAL (TYPICAL):

1. THE APPROXIMATE LIMITS OF DEMOLITION ARE SHOWN. COORDINATE LIMITS OF DEMOLITION AND DEMOLITION REQUIREMENTS WITH SITE PIPING AS REQUIRED TO FULLY COMPLETE WORK. PIPE INDICATED FOR REMOVAL SHALL BE REMOVED IN ITS ENTIRETY INCLUDING ANY BEDDING.
2. SLOPE TRENCH SIDE WALLS DURING PIPE REMOVAL TO "BENCH" BACKFILL INTO EXISTING SOILS.
3. AS REQUIRED, PROVIDE SUITABLE EARTH BACKFILL MATERIAL FROM OFF-SITE AT NO ADDITIONAL COST TO OWNER.
4. ALL BACKFILL TO BE COMPACTED & PLACED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY. SEE SPECIFICATIONS FOR COMPACTION & TESTING REQUIREMENTS.

36" DUCTILE IRON HIGH SERVICE WATER LINE REMOVAL NOTE:

1. APPROX. LOCATION OF EXISTING 36" HIGH SERVICE WATER LINE AS DETERMINED BY SEVERAL SOFT DIGS. HOWEVER, THE LOCATION OF THE LINE HAS NOT BEEN ESTABLISHED ALONG THE ENTIRE LENGTH OF THE WATER LINE. AS SUCH, THE CONTRACTOR SHALL ACCURATELY FIELD LOCATE THE WATER LINE TO PROVIDE POSITIVE IDENTIFICATION OF THE WATER LINE LOCATION ALONG THE ENTIRE LENGTH OF THE LINE SHOWN. LOCATE WATER LINE PRIOR TO THE DEWATERING BUILDING FOOTINGS AND NEW STORM PIPING BEING PLACED. AT A MINIMUM, THE CROWN OF THE PIPE SHALL BE LOCATED AND THE LOCATION FIELD SURVEYED (TIED TO STATE PLANE BY PLS) AT THE BEGINNING AND END OF THE RELOCATION AND EVERY 25' ALONG THE CL OF THE PIPE.

GENERAL SITE DEMOLITION NOTES:

1. ITEMS SHALL REMAIN UNLESS DESIGNATED FOR REMOVAL. REMOVE DESIGNATED ITEMS SHOWN ON THE PLAN TO THE FULL DEPTH OF THEIR CONSTRUCTION UNLESS OTHERWISE NOTED. DEMO WORK SHALL BE SCHEDULED IN A LOGICAL MANNER AND IN ACCORDANCE WITH THE CONSTRUCTION SEQUENCING RESTRICTIONS INDICATED ON THE DRAWINGS AND IN THE SPECS.
2. VERIFY THE LOCATION AND DIMENSION OF ITEMS TO BE REMOVED PRIOR TO COMMENCEMENT OF THE WORK.
3. ALL CONCRETE PAVING AND SIDEWALK REMOVAL SHALL BE SAW CUT. EDGES OF MATERIAL TO REMAIN SHALL BE SHORED UP AND PROTECTED DURING CONSTRUCTION TO PRESERVE EDGE INTACT. NEW PAVING/WALKS TO REPLACE DAMAGED EDGES TO BE COMPLETED AT NO COST TO THE OWNER.
4. SALVAGE EXISTING MATERIALS AS INDICATED ON THE PLANS. REMOVE SALVAGED MATERIALS AS INDICATED AND STORE ON SITE; CLEAN ALL DEBRIS AND CONSTRUCTION MATERIAL FROM SALVAGED ITEMS; REUSE AS DIRECTED BY ENGINEER. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER THE TYPE AND QUANTITY OF ALL SALVAGEABLE MATERIALS.
5. REMOVE DEMOLISHED MATERIALS FROM SITE. DISPOSAL BY BURNING AND/OR BURYING IS PROHIBITED.
6. THE LOCATION OF EXISTING UTILITIES SHOWN ON THE PLANS MAY VARY IN RELATION TO ACTUAL EXISTING CONDITIONS. ADDITIONAL UTILITIES NOT SHOWN ON THE DRAWINGS MAY EXIST. VERIFY IN THE FIELD THE DATA SHOWN, AND CALL ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER BEFORE STARTING WORK. CONTACT ALL UTILITY COMPANIES FOR THE EXACT LOCATION OF THEIR UNDERGROUND UTILITIES BEFORE BEGINNING ANY CONSTRUCTION ACTIVITIES. CONTACT PUPS (1-800-922-0983) 3 DAYS MINIMUM BEFORE DIGGING. ANY VERTICAL OR HORIZONTAL ADJUSTMENTS REQUIRED SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION.
7. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS INCLUDING BUT NOT LIMITED TO A CITY OF ROCK HILL DEMOLITION PERMIT PRIOR TO BEGINNING ANY DEMOLITION WORK. THE COST OF THE PERMITS IS THE CONTRACTOR'S RESPONSIBILITY.
8. PRIOR TO BEGINNING DEMOLITION THE CONTRACTOR SHALL INSURE THAT ALL NECESSARY SAFETY MEASURES ARE INSTALLED TO PROTECT THE OWNER'S PROPERTY, PEOPLE, VEHICLES, AND THE PUBLIC IN GENERAL.
9. ALL DEMOLITION WORK SHALL MEET THE MINIMUM REQUIREMENTS OF OSHA, FEDERAL LAWS, STATE LAWS, AND LOCAL LAWS. THE STRICTER SHALL GOVERN.
10. THE CONTRACTOR SHALL SCHEDULE WORK TO MINIMIZE IMPACT ON SITE TRAFFIC. AT ALL TIMES ACCESS SHALL BE MAINTAINED FOR OPERATIONS STAFF, CHEMICAL DELIVERIES AND OTHER SITE TRAFFIC.
11. NOT ALL DEMOLITION IS SHOWN. ADDITIONAL REQUIREMENTS MAY BE SHOWN ON OTHER DRAWINGS AND MINOR DEMO (SUCH AS WALKS, ETC.) MAY NOT BE SHOWN BUT SHALL BE PERFORMED AS REQUIRED TO COMPLETE WORK.
12. THE DEMOLITION OF THE FENCE AND GATE AND NEW FENCE AND GATE INSTALLATION MUST BE COMPLETED WHILE THE FRONT PARKING LOT WORK IS BEING PERFORMED (TYP.). PROVIDE AND MAINTAIN TEMPORARY SAFE WALKWAY FROM NEW GATE TO ADMINISTRATION BUILDING UNTIL FINAL SIDEWALK IS PLACED.
13. THE MAIN ENTRANCE UPFIT MUST BE COMPLETED BEFORE COMPLETING THE PARKING AND FENCING IMPROVEMENTS.
14. THE APPROXIMATE LIMITS OF DEMOLITION ARE SHOWN. COORDINATE LIMITS OF DEMOLITION AND DEMOLITION REQUIREMENTS WITH SITE WORK AS REQUIRED TO COMPLETE WORK.

GENERAL DEMOLITION NOTES:

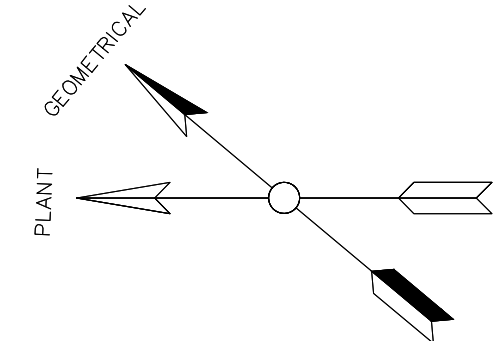
1. THE CONTRACTOR SHALL EXERCISE FULL CARE AND SHALL USE SUCH METHODS AND EQUIPMENT DURING REMOVAL AS WILL MAINTAIN THE USEFULNESS OF THE VARIOUS MATERIALS AND EQUIPMENT REMOVED.
2. ANY DAMAGE DONE TO STRUCTURES OR EQUIPMENT DURING REMOVAL AND ANY PATCHING, PLUGGING OF HOLES, OR REPAIRS NECESSITATED BECAUSE OF REMOVAL OF EQUIPMENT AND PIPING SHALL BE REPAIRED AND THE COST THEREOF SHALL BE INCLUDED IN THE CONTRACT PRICE.
3. EQUIPMENT SPECIFIED TO BE REMOVED SHALL BE REMOVED COMPLETELY, INCLUDING ALL RELATED ACCESSORIES AND CONCRETE BASES. ANY EMBEDDED ITEMS SUCH AS ANCHOR BOLTS, STEEL REINFORCEMENT, CONDUIT, AND PIPING SHALL BE CUT OFF 1 INCH BELOW ADJACENT FINISHED SURFACES. THE SURFACE SHALL THEN BE REPAIRED TO MATCH ADJACENT SURFACES IN FINISH AND APPEARANCE.
4. PRIOR TO REMOVING ANY ELECTRICAL EQUIPMENT, ALL POWER TO THE EQUIPMENT SHALL BE SHUT OFF AND PROPERLY LOCKED OUT. ALL POWER AND CONTROL WIRING FOR THE EQUIPMENT SHALL BE DISCONNECTED AT THE STARTER OR CIRCUIT BREAKER, AS APPLICABLE, AND REMOVED FROM THE CONDUIT. UNUSED CONDUITS SHALL BE REMOVED INCLUDING UNUSED SUPPORTS, CLAMPS, TIES, SCREWS, ETC.
5. BLEMISHED OR UNSIGHTLY AREAS ON WALLS AND FLOORS LEFT AFTER REMOVAL OF EQUIPMENT AND CONDUIT SHALL BE CLEANED AND REFINISHED AS NECESSARY TO MATCH ADJACENT SURFACES.
6. ALL HOLES AND OPENINGS LEFT AFTER REMOVAL OF EQUIPMENT SHALL BE FILLED OR PLUGGED TO PROVIDE A NEAT AND WORKMANLIKE APPEARANCE. CONCRETE OPENINGS SHALL BE FILLED WITH NON-SHRINK GROUT.
7. WHERE PIPING PASSES THROUGH CONCRETE WALLS, THE OPENINGS SHALL BE SUITABLY PLUGGED OR CAPPED. WALL PIPES AND WALL SLEEVES SHALL BE SEALED WITH BLIND FLANGES OR MECHANICAL JOINT PLUGS. STEEL PIPE SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.
8. WHERE EQUIPMENT OR PIPING DESIGNATED FOR REMOVAL SERVES TO SUPPORT OTHER EQUIPMENT OR PIPING DESIGNATED TO REMAIN IN SERVICE, THE CONTRACTOR SHALL PROVIDE PERMANENT SUPPORTS IN PLACE OF THE REMOVED EQUIPMENT AND PIPING. WHERE IT IS NECESSARY TO TEMPORARILY REMOVE OTHER EQUIPMENT, PIPING, OR ELECTRICAL WORK IN ORDER TO GAIN ACCESS TO AN ITEM OF EQUIPMENT OR PIPING DESIGNATED FOR REMOVAL, THE CONTRACTOR SHALL RESTORE ALL SUCH EQUIPMENT, PIPING, OR ELECTRICAL WORK TO ITS ORIGINAL CONDITION.
9. ALL REUSABLE MATERIALS REMOVED WHICH ARE IDENTIFIED BY OWNER, SHALL BE CAREFULLY MOVED AND STORED ON THE WTP SITE (2102 CHERRY ROAD, ROCK HILL) OR E&I SHOP (864 MT. GALLANT ROAD, ROCK HILL). COORDINATE WITH OWNER, THE REUSABLE MATERIALS TO BE RETAINED BY OWNER. MECHANICAL AND ELECTRICAL EQUIPMENT SHALL BE STORED INDOORS. IF THE EQUIPMENT IS TOO LARGE TO STORE INDOORS, IT SHALL BE STORED OUTDOORS ABOVE GROUND AND UNDER COVER.
10. THE CONTRACTOR WILL ASSUME OWNERSHIP OF AND LEGALLY DISPOSE OF OFF SITE ANY REMOVED EQUIPMENT, PIPING AND MATERIALS WHICH CANNOT BE REUSED. THE COST OF DISPOSING OF ANY OR ALL REMOVED EQUIPMENT, PIPING, AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM PRICES BID AND NO SEPARATE PAYMENT WILL BE MADE THEREFOR.
11. SEE NOTES ELSEWHERE FOR SCHEDULING RESTRICTIONS ASSOCIATED WITH MAJOR WORK DETAILED.

CHERRY ROAD SIDEWALK DEMOLITION NOTE:

1. EXISTING SHALLOW COMMUNICATION/POWER DUCTBANKS RUN PARALLEL BENEATH THE SIDEWALK ALONG CHERRY ROAD. THE CONTRACTOR SHALL COORDINATE THE WORK TO REMOVE/REPLACE SIDEWALKS IN THIS AREA WITH THE APPROPRIATE UTILITY PROVIDERS. PLEASE REFER TO PREVIOUS PROJECT DETAILS ON 99.C.09 THAT SHOW THE APPROX. LOCATION OF THE DUCTBANKS.

FRONT PARKING LOT DEMO SEQUENCE NOTES:

1. THE OWNER WILL TEMPORARILY RELOCATE THEIR VEHICLES TO PERFORM THE WORK AT THE FRONT PARKING LOT. PROVIDE A MINIMUM OF 2 WEEKS NOTICE PRIOR TO SCHEDULING MODIFICATIONS TO THE FRONT PARKING LOT. A MAXIMUM OF 3 MONTHS SHALL BE ALLOWED FROM CLOSURE TO OPENING THE FRONT PARKING LOT.
2. DEMOLITION OF THE FRONT PARKING LOT SHALL OCCUR BEFORE ADDITIONAL PAVING IN THE BACK OF THE PLANT, ALONG SED BASIN #5, IS COMPLETED. THIS IS DUE TO THE PARKING ADJACENT TO LIME SILO #1 BEING REMOVED ONCE THE ADDITIONAL PAVING IN THE BACK OF THE PLANT IS COMPLETED.
3. PRIOR TO THIS WORK BEING PERFORMED, CLEAR SIGNAGE SHALL BE PROVIDED BY THE CONTRACTOR AT THE EX. FRONT PARKING LOT ENTRANCE TO DIRECT DELIVERIES, VISITORS, ETC. TO AN ALTERNATE LOCATION/ENTRANCE TO BE DETERMINED BY THE OWNER.



DEMO LEGEND

PAVING/STRUCTURE DEMO	
NEW PIPE ABANDONMENT (IN-PLACE) SEE NOTE BELOW	
PREV PIPE ABANDONMENT (IN-PLACE)	
REMOVE EX. PIPE	

NOTE:  
ALL PIPE 8" AND LARGER ABANDONED IN PLACE SHALL BE FILLED WITH FLOWABLE FILL.

REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	RAR
2	10/12/2022	90% REVIEW	RAR
3	02/27/2023	PERMITTING REVIEW	RAR
4	06/06/2023	PERMITTING REVISIONS	RAR
5	12/04/2023	BID READY SET	RAR
6	01/22/2024	ADDENDA #2	RAR

SEAL & CDS



OWNER



CONSULTANT INFORMATION

PROJECT MANAGER:	TAB
DESIGNED BY:	RAR
DRAWN BY:	RAR
CHECKED BY:	TAB
FILE NAME:	C05 - SITE DEMOLITION PLAN.dwg
PROJECT NO.:	056-21-120



WIEDEMAN & SINGLETON, INC.  
Civil and Environmental Engineers  
131 EAST MAIN STREET  
SUITE 300  
ROCK HILL, SC 29730  
(803) 325-9444  
WWW.WIEDEMAN.COM

PROJECT INFORMATION

PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE:	WATER TREATMENT PLANT SITE DEMOLITION PLAN
SCALE:	1" = 50'
NOTE:	NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.
DATE:	JANUARY 2024
DRAWING	C.05
SHEET	14 OF 149

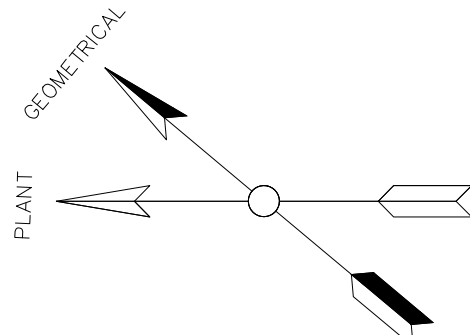


Drawing file: C.08 - OVERALL GRADING & DRAINAGE PLAN.dwg Jan 18, 2024 - 8:16am

DWG. C.08

DWG. C.09

CHERRY ROAD



DWG. C.07

CHERRY ROAD (U.S. HWY 21)  
(40 MPH POSTED SPEED LIMIT)

MT. GALLANT ROAD  
S.C. HWY 195

MT. GALLANT ROAD  
S.C. HWY 195

CINEMA DRIVE

CINEMA DRIVE

- PAVING NOTES :**
- UNDERCUT EXISTING SOILS BELOW PROPOSED AGGREGATE BASE 1' AND REPLACE WITH NEW COMPACTED STRUCTURAL FILL. TYPICAL ALL NEW PAVED AREAS.
  - COMPACT TOP 6-INCHES OF EXISTING SUBGRADE TO 100% STANDARD PROCTOR AND PROOF-ROLL SUBGRADE IN AREA TO BE PAVED IN PRESENCE OF ENGINEER PRIOR TO INSTALLING STRUCTURAL FILL & CRUSHED STONE BASE. UNDERCUT AREAS OF UNSUITABLE SUBGRADE MATERIALS AS DIRECTED BY ENGINEER AND REPLACE WITH GEOTEXTILE FABRIC (MIRAFI 500X OR EQUAL) AND COMPACTED STRUCTURAL FILL. AREAS REQUIRING REMOVAL AND REPLACEMENT OF EXISTING UNSUITABLE MATERIALS WILL BE PAID FOR USING "EXTRA WORK" PRICING IN THE BID FORM.
  - ROADWAYS SHALL BE CROWNED AND SLOPE 1/4" / FT. ON EACH SIDE OF CENTERLINE. SEE TYPICAL ROAD SECTION FOR ADDITIONAL DETAILS.
  - SEE SPECS FOR ADDITIONAL ROADWAY CONST. DETAILS AND REQUIREMENTS.
  - ANY DAMAGE TO EXIST. PAVEMENT SHALL BE REPAIRED BY THE CONTRACTOR.

- GRADING AND PAVING NOTES:**
- EXCESS SPOIL MATERIAL SHALL BE HAULED OFF-SITE AND DISPOSED OF BY THE GENERAL CONTRACTOR.
  - BORE HOLE LOCATIONS SHOWN ARE APPROXIMATE. SEE GEOTECH REPORT FOR ADDITIONAL INFORMATION.
  - CONTRACTOR TO USE PRECAST CONCRETE DRAINAGE STRUCTURES IN ACCORDANCE WITH SCDOT STANDARDS AND DETAILS. PRECAST MANUFACTURERS TO BE ON QUALIFIED PRODUCTS LIST. BUILT IN PLACE STRUCTURES ARE NOT ACCEPTABLE. KNOCKOUT BOXES ARE NOT ACCEPTABLE. ONLY SOLID WALL BOXES MAY BE USED.
  - REFER TO DRAWING 99.C.02 FOR SIDEWALK SECTION DETAILS.
  - REFER TO SCDOT STANDARD DRAWINGS, SECTION 719-001-02 THRU 719-001-05 ON DRAWING 99.C.04 FOR STORM DRAIN CURB INLETS. SEE SITE PLAN CALLOUTS.

- REFER TO SCDOT STANDARD DRAWINGS, SECTION 719-110-01 THRU 719-315-00 ON DRAWING 99.C.05 FOR STORM DRAIN DROP INLETS AND RECTANGULAR DRAINAGE STRUCTURES. SEE SITE PLAN CALLOUTS.
- REFER TO SCDOT STANDARD DRAWINGS, SECTION 719-420-00 THRU 719-505-02 ON DRAWING 99.C.06 FOR STORM DRAIN CIRCULAR AND RECTANGULAR DRAINAGE STRUCTURES. SEE SITE PLAN CALLOUTS.
- REFER TO SCDOT STANDARD DRAWINGS, SECTION 720-105-02 THRU 720-105-02 ON DRAWING 99.C.07 FOR MH STEPS AND CURB & GUTTER DETAILS.. SEE SITE PLAN CALLOUTS.
- REFER TO SCDOT STANDARD DRAWINGS, SECTION 720-901-01 THRU 720-910-01 ON DRAWING 99.C.08 FOR PEDESTRIAN RAMPS & GENERAL NOTES. SEE SITE PLAN CALLOUTS.
- THE DRAWINGS IDENTIFY THE MINIMUM SIZE ACCEPTABLE STORM STRUCTURE PER THE SCDOT STANDARD DRAWINGS. AS REQUIRED, LARGER DIMENSION STRUCTURES SHALL BE PROVIDED AT NO COST TO THE OWNER TO ACCOMMODATE ACTUAL FIELD CONDITIONS AND PIPE SIZES.

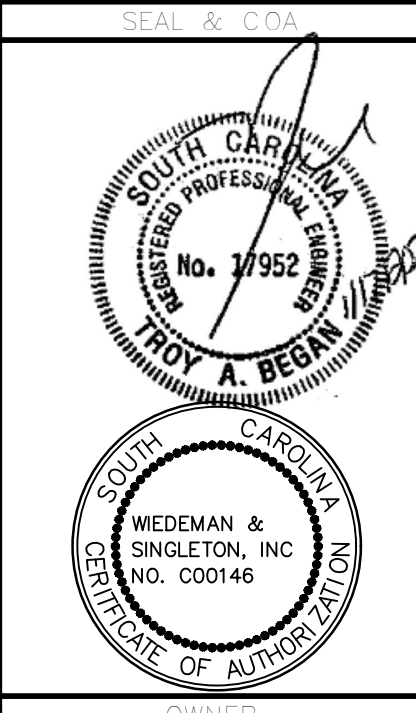
CIVIL LEGEND		
DESCRIPTION	EXISTING	PROPOSED
CONTOUR		760
EDGE OF PAVEMENT		
PROPERTY LINE		
FENCE LINE		
SOIL BORING		
LIGHT POLE		
POWER POLE		
CONCRETE PAVING		
CONCRETE SIDEWALK		
GRAVEL		

**PIPING DEMO LEGEND**

NEW PIPE ABANDONMENT (IN-PLACE)	
PREV PIPE ABANDONMENT (IN-PLACE)	
REMOVE EX. PIPE	

NOTE:  
ALL PIPE 8" AND LARGER ABANDONED IN PLACE SHALL BE FILLED WITH FLOWABLE FILL.

REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	RAR
2	10/12/2022	90% REVIEW	RAR
3	02/27/2023	PERMITTING REVIEW	RAR
4	06/06/2023	PERMITTING REVISIONS	RAR
5	12/04/2023	BID READY SET	RAR
6	01/22/2024	ADDENDA #2	RAR



CONSULTANT INFORMATION  
PROJECT MANAGER: TAB  
DESIGNED BY: TAB  
DRAWN BY: RAR  
CHECKED BY: TAB  
FILE NAME: C:\056-21-120\056-21-120-01.dwg  
PROJECT NO.: 056-21-120



PROJECT INFORMATION

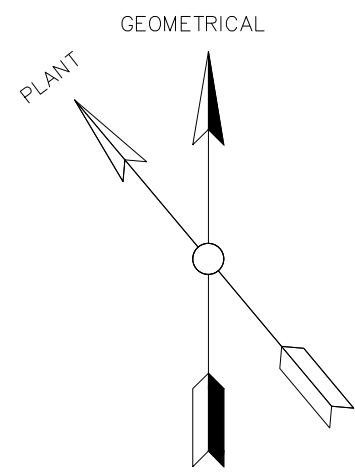
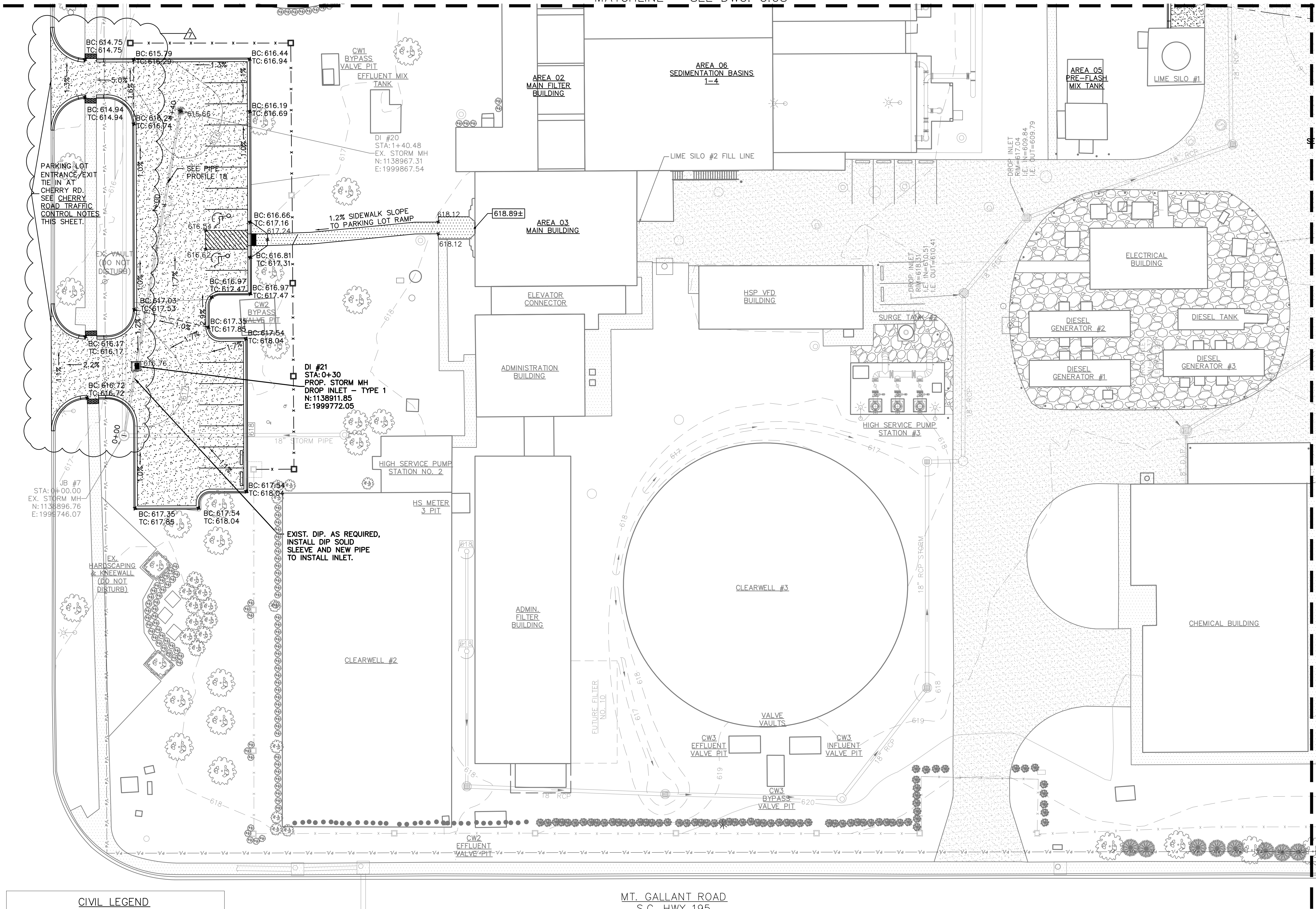
CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA  
SHEET TITLE: WATER TREATMENT PLANT  
OVERALL GRADING & DRAINAGE PLAN

SCALE: 1" = 40'  
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.  
DATE: JANUARY 2024  
DRAWING: C.06  
SHEET: 15 OF 149



Drawing File: C07 - GRADING & DRAINAGE PLAN - 1.dwg GRADING & DRAINAGE PLAN - 1 Jan 18, 2024 - 9:22am

MATCHLINE - SEE DWG. C.08



- CHERRY ROAD TRAFFIC CONTROL NOTES:
- THE PROJECT NOTES ARE NOT INTENDED TO BE USED AS GENERAL NOTES FOR THE PROJECT. THEY ARE TO BE USED AT SPECIFIC LOCATIONS AS REQUIRED BY THE ROAD CLOSURE DETAILS PROVIDED ON SHEET 99.C.09 AND ANY OTHER APPLICABLE SCOTD STANDARD DRAWINGS. ALL TRAFFIC CONTROL DEVICES AND PROCEDURES SHALL CONFORM TO THE REQUIREMENTS OF SCOTD STANDARD DRAWINGS.
  - ROAD CLOSURE TO BE A MAXIMUM OF ONE LANE AND MAY ONLY TAKE PLACE ON WEEKDAYS BETWEEN THE HOURS OF 9:00AM-3:00PM. DURING PERIODS OF INACTIVITY OR AT NIGHT, EQUIPMENT SHALL NOT BE PARKED IN SUCH A MANNER AS TO BLOCK MOTORISTS' VIEW OF TRAFFIC OR TRAFFIC CONTROL DEVICES AND SHALL BE AT LEAST 10 FEET AWAY FROM THE TRAVEL LANE.
  - AT ALL TIMES, THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTY'S AND BUSINESSES.

- GRADING & DRAINAGE PLAN NOTES:
- THIS SITE PLAN ONLY SHOWS STORM SEWER PIPING, WATER & SEWER PIPING ARE DETAILED ON WATER & SEWER PIPING PLANS. SEE DWGS C.11 - C.15.
  - COORDINATES PROVIDED ARE TO THE CENTER OF ALL MANHOLES AND BOXES.

ADA ACCESSIBILITY NOTES:

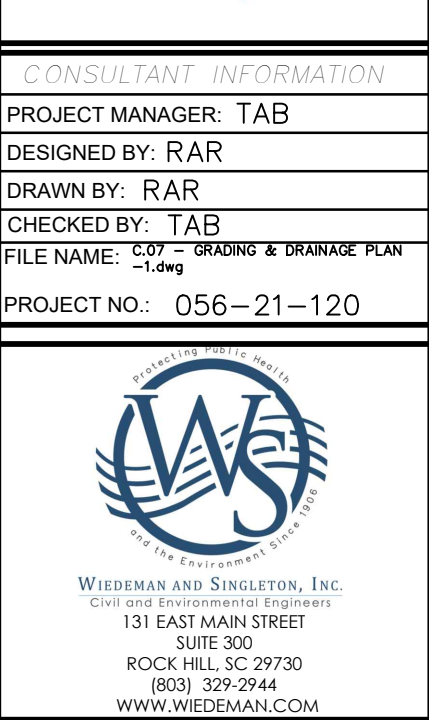
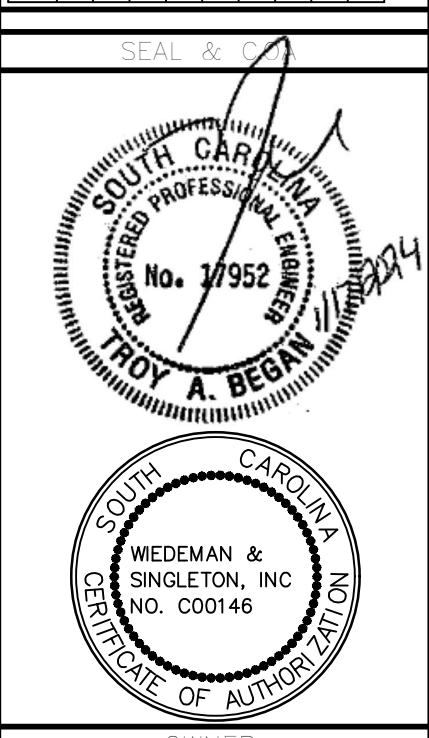
- WHERE NOTED, ADA ACCESSIBLE PARKING SPACES MUST HAVE A SIGN THAT INCLUDES:
  - THE INTERNATIONAL SYMBOL OF ACCESSIBILITY AND STATE "RESERVED PARKING" AND A SEPARATE SIGN THAT STATES "MAXIMUM PENALTY \$1000.00". SPACES DESIGNATED FOR VAN PARKING MUST ALSO HAVE A SIGN STATING VAN ACCESSIBLE.
  - PARKING SIGN SHOULD BE 12"WX18"H WITH GREEN LETTERING AND BORDER ON A WHITE BACKGROUND. THE SYMBOL OF ACCESSIBILITY SHOULD BE 4"H AND BE WHITE ON A BLUE BACKGROUND. THE SYMBOL IS A DEPICTION OF A PERSON IN A WHEEL CHAIR. THE PENALTY SIGN SHOULD BE 12"WX6"H AND HAVE GREEN LETTERS AND BORDER ON A WHITE BACKGROUND.

- WHERE REQUIRED, THE VAN ACCESSIBLE SIGN SHOULD BE 12"WX6"H AND HAVE GREEN LETTERING AND BORDER ON A WHITE BACKGROUND.
- SIGNS SHOULD BE MOUNTED AT LEAST 60 INCHES ABOVE THE PARKING SURFACE SO AS TO NOT BE OBSTRUCTED BY ANY PARKED VEHICLES.
- SIGNS SHOULD BE CONSTRUCTED TO WITHSTAND THE ELEMENTS. AN ALUMINUM SUBSTRATE WITH A REFLECTIVE SURFACE USING STABLE UV INK.
- SIGNS SHALL BE MOUNTED ON FHWA AND AASHTO APPROVED U-CHANNEL BREAK-AWAY SIGN POSTS (3 LB/FT) WITH GREEN BAKED ENAMEL COATING. INSTALL PER MANUFACTURERS RECOMMENDATION.
- SIGNS SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS.

- ALL PEDESTRIAN ACCESS ROUTES THAT ARE CONSIDERED PART OF THE "ACCESSIBLE PATH" SUCH AS SIDEWALKS, CURBS RAMPS, HC PARKING SPACES, ETC., MUST COMPLY WITH THE MOST CURRENT UNITED STATES ACCESS BOARD'S ADAAG (AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES) AND PROWAG (PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC ROW), WHERE APPLICABLE. ANY NEW CONSTRUCTION THAT DOES NOT MEET APPLICABLE ADAAG OR PROWAG SPECIFICATIONS SHALL BE REMOVED AND REPAIRED OR REPLACED AS NECESSARY, AT THE EXPENSE OF THE CONTRACTOR, IN ORDER TO MEET COMPLIANCE. THIS INCLUDES THE CONNECTION TO THE EXISTING SIDEWALK IN THE ROW. IF THE SIDEWALK IS IN NEED OF REPAIR OR RECONSTRUCTION AT THE POINT OF CONNECTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR MAKING THAT MODIFICATIONS.

- ALL "ACCESSIBLE PATHS" MUST BE IDENTIFIED ON AS-BUILT PLANS WITH AS-BUILT ELEVATION AND/OR SLOPE DATA, AND MEET ALL MINIMUM ADAAG AND/OR PROWAG REQUIREMENTS. NOTE, MAX SLOPES CANNOT BE EXCEEDED, WITH THE EXCEPTION FOR RUNNING SIDEWALK GRADES, WHERE ADJACENT TO ROAD GRADES THAT EXCEED MAXIMUM LIMITS.

REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	RAR
2	10/12/2022	90% REVIEW	RAR
3	02/27/2023	PERMITTING REVIEW	RAR
4	06/06/2023	PERMITTING REVISIONS #1	RAR
5	09/11/2023	PERMITTING REVISIONS #2	RAR
6	12/04/2023	BID READY SET	RAR
7	01/22/2024	ADDENDA #2	RAR



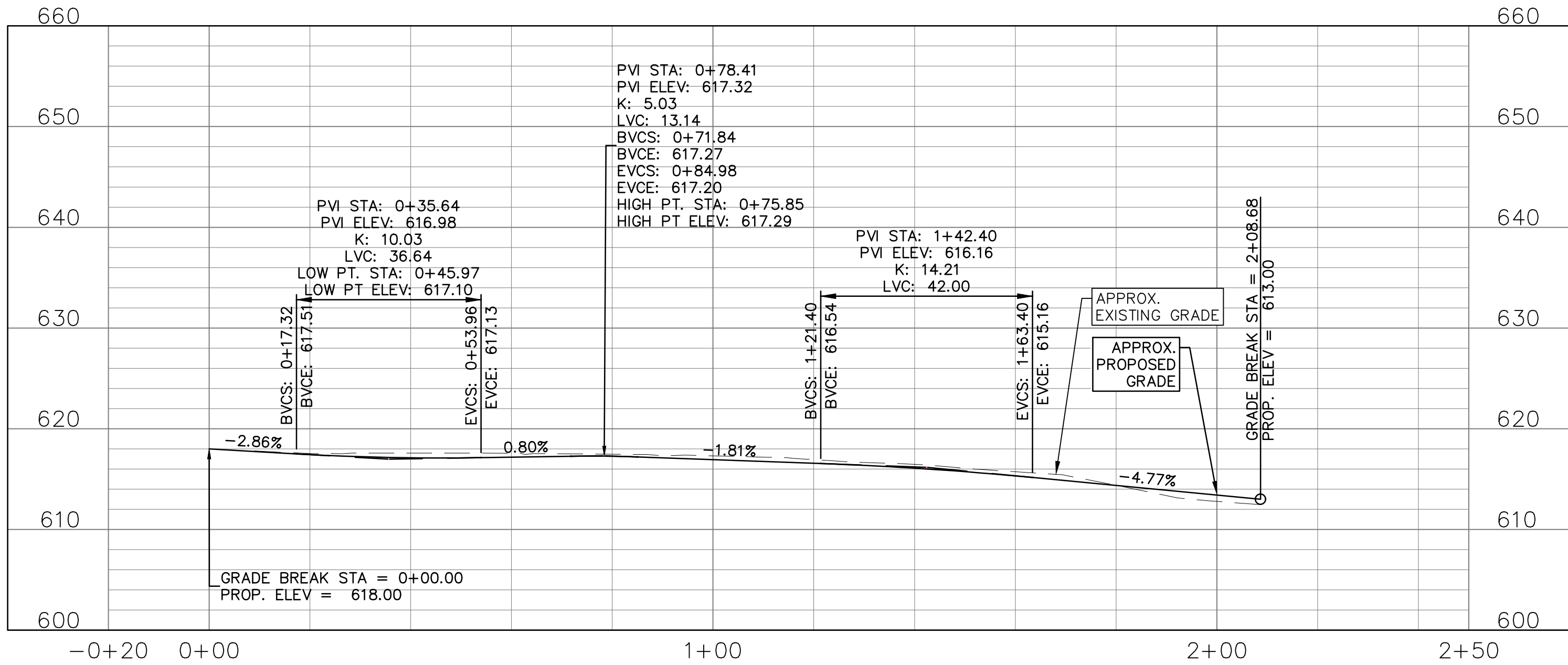
PROJECT:	SHEET TITLE:
CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE Dewatering FACILITY ROCK HILL, SOUTH CAROLINA	WATER TREATMENT PLANT GRADING & DRAINAGE PLAN - 1

SCALE:	1" = 20'
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.	
DATE:	JANUARY 2024
DRAWING	SHEET
C.07	16 OF 149

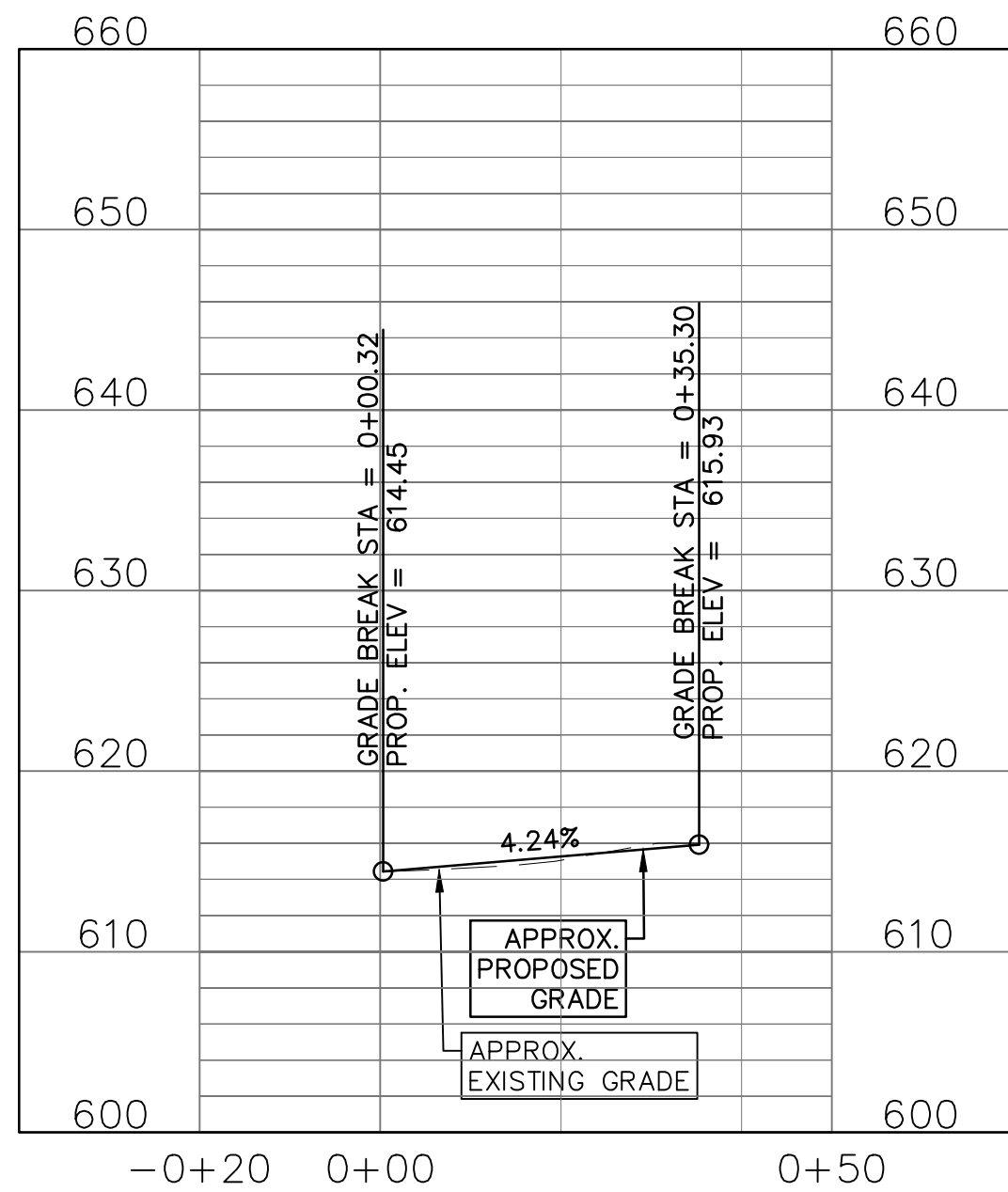




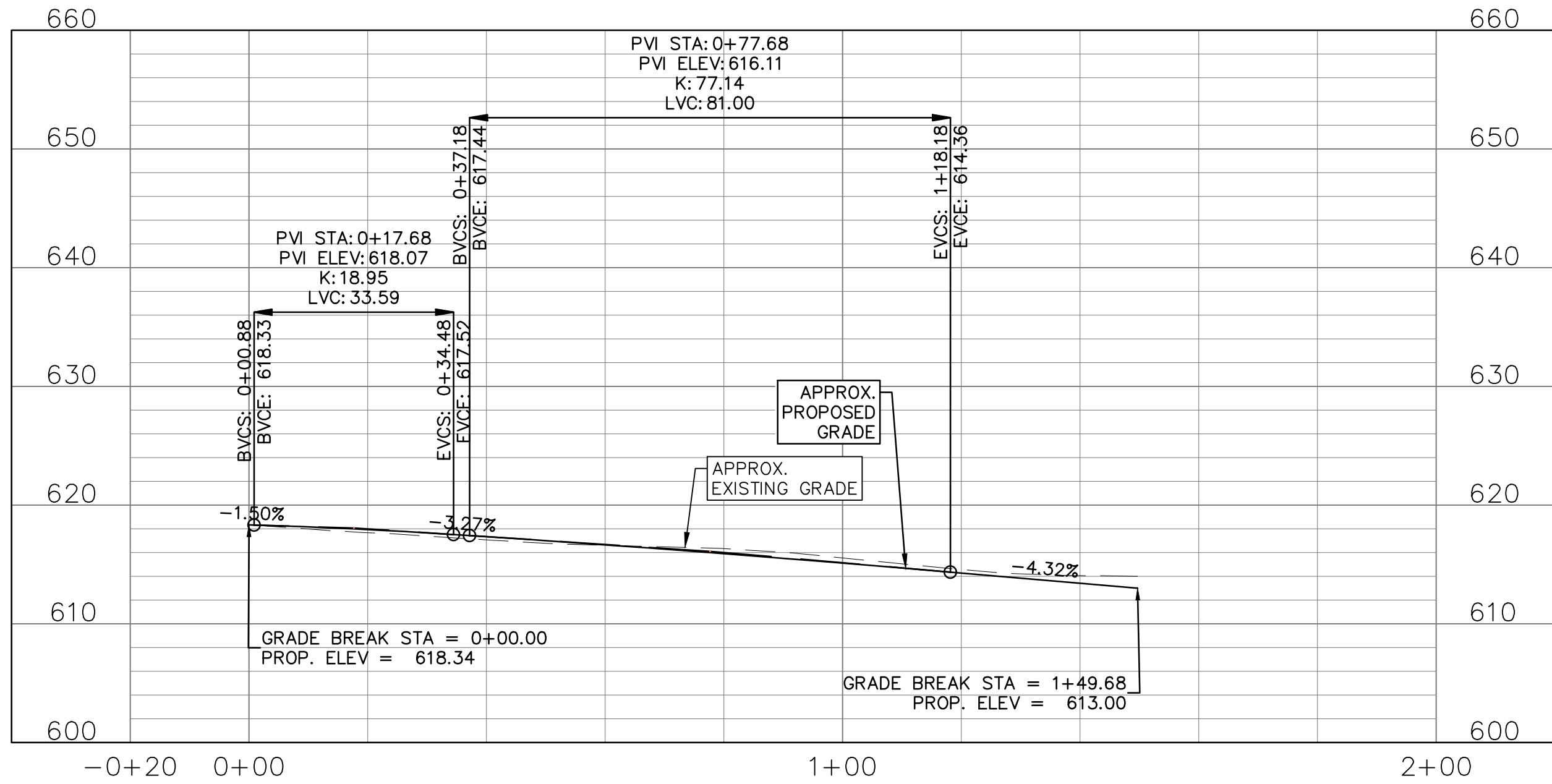




ENTRANCE ROAD PROFILE  
1"=20' HOR.  
1"=10' VERT.



FRONT PARKING LOT EXIT DRIVEWAY PROFILE  
1"=20' HOR.  
1"=10' VERT.



EXIT ROAD PROFILE  
1"=20' HOR.  
1"=10' VERT.

REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	RAR
2	10/12/2022	90% REVIEW	RAR
3	02/27/2023	PERMITTING REVIEW	RAR
4	12/04/2023	BID READY SET	RAR
5	01/22/2024	ADDENDA #2	RAR

SEAL & SIGNATURE

OWNER

CONSULTANT INFORMATION	
PROJECT MANAGER:	TAB
DESIGNED BY:	RAR
DRAWN BY:	RAR
CHECKED BY:	TAB
FILE NAME:	C:\10 - ENTRANCE & EXIT ROAD PROFILES.dwg
PROJECT NO.:	056-21-120

WIEDEMAN AND SINGLETON, INC.  
Civil and Geotechnical Engineers  
131 EAST MAIN STREET  
SUITE 300  
ROCK HILL, SC 29730  
(803) 325-2944  
WWW.WIEDEMAN.COM

PROJECT INFORMATION	
PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE:	WATER TREATMENT PLANT ENTRANCE & EXIT PROFILES

SCALE: AS SHOWN

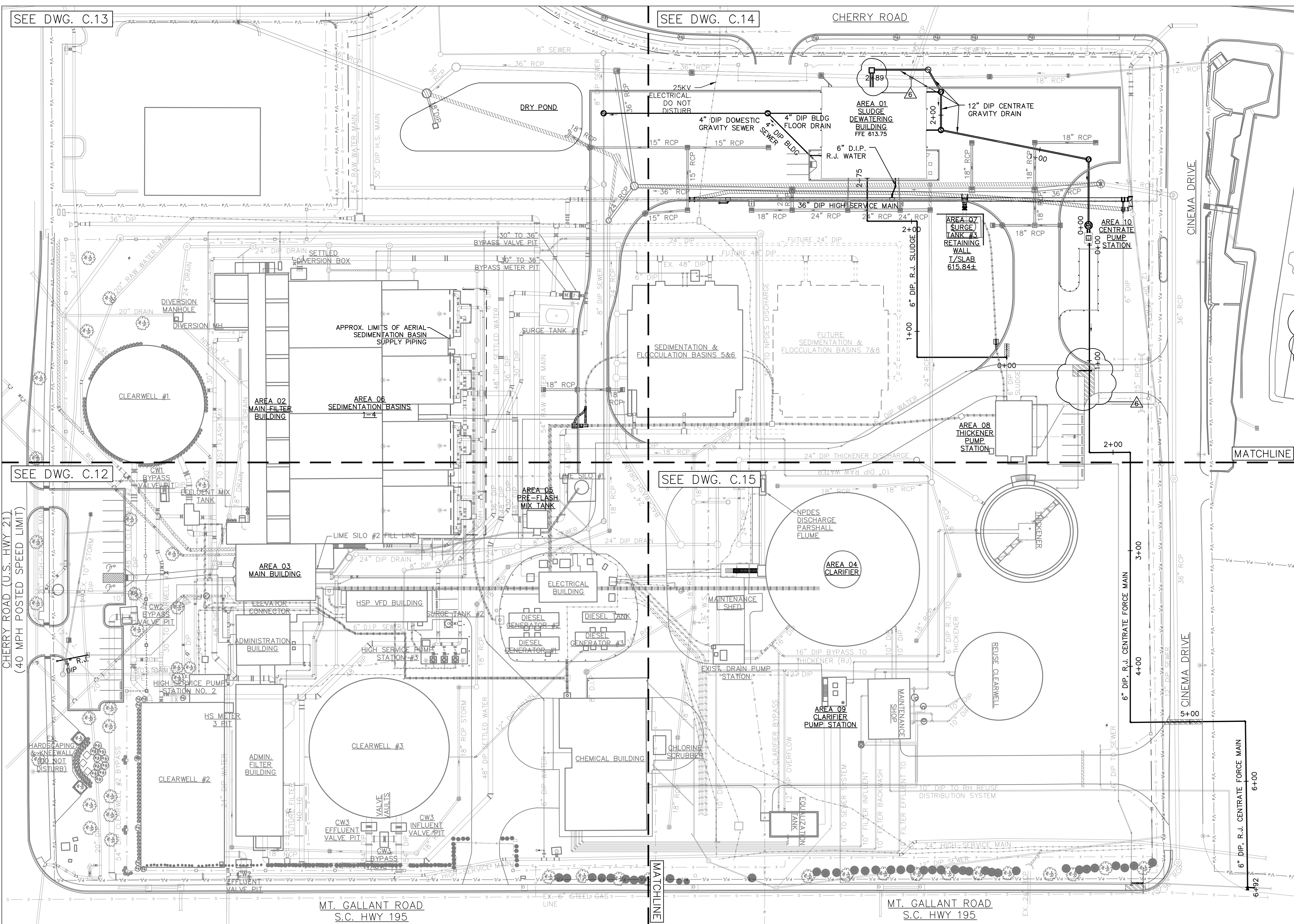
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.

DATE: JANUARY 2024

DRAWING: C.10

SHEET: 19 OF 149

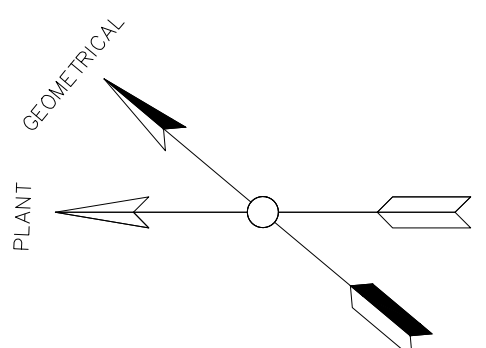




**WATER & SEWER PIPING PLAN NOTES:**

1. THIS SITE PLAN SHOWS ALL PIPING. HOWEVER, STORM SEWER PIPING IS GRAYED OUT. STORM SEWER PIPING IS DETAILED ON GRADING & DRAINAGE PLANS. SEE DWGS C.06 - C.09.
2. COORDINATES PROVIDED ARE TO THE CENTER OF ALL MANHOLES AND BOXES.
3. ALL CENTRATE & SLUDGE LINES TO BE EPOXY LINED PIPING & FITTINGS (TYP.).
4. ALL BELOW GRADE DIP YARD PRESSURE PIPING & FITTINGS SHALL BE RESTRAINED JOINT.
5. PAVEMENT HATCHING NOT SHOWN FOR CLARITY.

**EXISTING 25KV ELECTRICAL NOTE:**  
THE ELEVATION OF THE 25KV ELECTRICAL SERVICE IS UNKNOWN. CONTRACTOR TO FIELD LOCATE ELECTRICAL CONDUIT PRIOR TO PIPE CROSSINGS.



- GENERAL PIPING NOTES:**
1. ALL LINK SEALS SHALL HAVE S.S. HARDWARE.
  2. THE APPROXIMATE LOCATION OF WALKS, DRIVES AND OTHER EXISTING SITE IMPROVEMENTS IS NOTED ON THE DRAWINGS. NOT ALL IMPROVEMENTS MAY BE SHOWN AS REQUIRED, FOR THE WATER LINE AND APPURTENANCES INSTALLATION, ALL SHALL BE REMOVED AND REPLACED TO CURRENT CONDITION OR BETTER.
  3. PROVIDE PIPE SUPPORTS AT ALL LOCATIONS SHOWN ON DRAWINGS AND AS REQUIRED BY THE SPECIFICATIONS. NOT ALL REQUIRED PIPE SUPPORTS ARE DETAILED ON THESE DRAWINGS.
  4. SMALL WATER LINES (LESS THAN 4 INCHES) SHALL BE EITHER SCHEDULE 80 PVC OR COPPER AS DETAILED ON THESE DRAWINGS. LARGER WATER LINES SHALL BE D.I.P. (MIN. CLASS 250).
  5. ALL STORM WATER PIPE SHALL BE RCP.
  6. PROVIDE PIPE PLUGS AS REQUIRED WHEN ABANDONING AND REMOVING EXISTING PIPE SEGMENTS DETAILED. INSTALL CONCRETE BLOCKING AT ALL PLUGS UNDER PRESSURE.
  7. IF NOT DETAILED, WATER VALVES 12" & SMALLER SHALL BE RESILIENT SEATED GATE VALVES AND VALVES 16" & LARGER SHALL BE BUTTERFLY VALVES.
  8. ALL EXPOSED PIPING 12" & SMALLER SHALL BE INSULATED AND HEAT TRACED & PROTECTED W/ ALUM. COVER. SEE SPECS FOR DETAILS. POWER HEAT TRACING FROM NEAREST 120 VOLT SOURCE.
  9. ALL BURIED BUTTERFLY AND GATE VALVES LARGER THAN 4-INCHES SHALL BE

- INSTALLED WITH A VALVE BOX. EXTENSION STEM & VALVE BOX COVER UNLESS DETAILED OTHERWISE.
10. ALL WALL PIPES CAST FLUSH WITH WALLS OR SLABS SHALL BE TAPPED FOR STUDS.
  11. ALL WALL PIPES SHALL HAVE WALL COLLARS. WALL COLLARS SHALL HAVE A MIN. CONCRETE COVER OF 3 INCHES.
  12. PROVIDE A MINIMUM 4'-0" COVER OVER ALL PIPING UNLESS SPECIFICALLY DETAILED OTHERWISE.
  13. ALL COPPER PIPE TO BE INSTALLED IN DIRECT CONTACT WITH CONCRETE SHALL BE WRAPPED IN POLYETHYLENE SLEEVE PRIOR TO INSTALLING CONCRETE.

14. WHEN TYPING TO EXISTING CAST IRON PIPE, THE CONTRACTOR SHALL FIELD MEASURE THE O.D. OF THE PIPE BEFORE ORDERING SLEEVES, VALVES OR FITTINGS.
15. ALL PVC VALVES SHALL BE BALL VALVES (TRU-UNION TYPE), UNLESS NOTED OTHERWISE.

DEMO LEGEND	
PAVING/STRUCTURE DEMO	
PREV PIPE ABANDONMENT (IN-PLACE)	
REMOVE EX. PIPE	

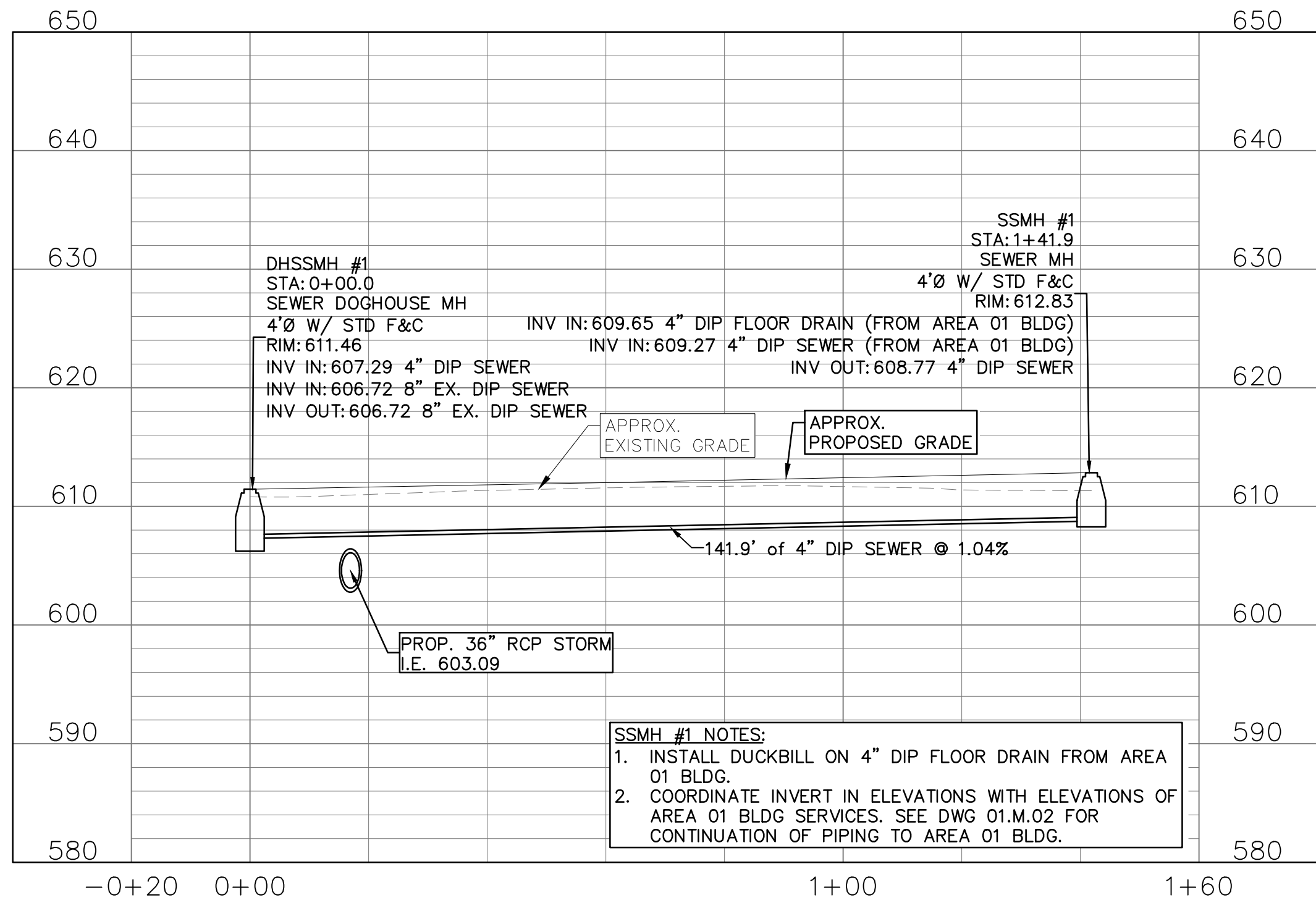
PROJECT: <b>CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA</b>	BY	BAR	
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	REV.	2	10/12/2022 90% REVIEW
		3	02/27/2023 PERMITTING REVIEW
		4	06/06/2023 PERMITTING REVISIONS
		5	12/04/2023 BID READY SET
		6	01/22/2024 ADDENDA #2
CONSULTANT INFORMATION			
PROJECT MANAGER: TAB			
DESIGNED BY: TAB			
DRAWN BY: RAR			
CHECKED BY: TAB			
FILE NAME: C:\PROJECTS\ROCK HILL WATER & SEWER PIPING PLAN.dwg			
PROJECT NO.: 056-21-120			
PROJECT INFORMATION			
SHEET TITLE: <b>WATER TREATMENT PLANT OVERALL WATER &amp; SEWER PIPING PLAN</b>			
SCALE: 1" = 40'		NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.	
DATE: DECEMBER 2023		SHEET 20 OF 149	
DRAWING		<b>C.11</b>	



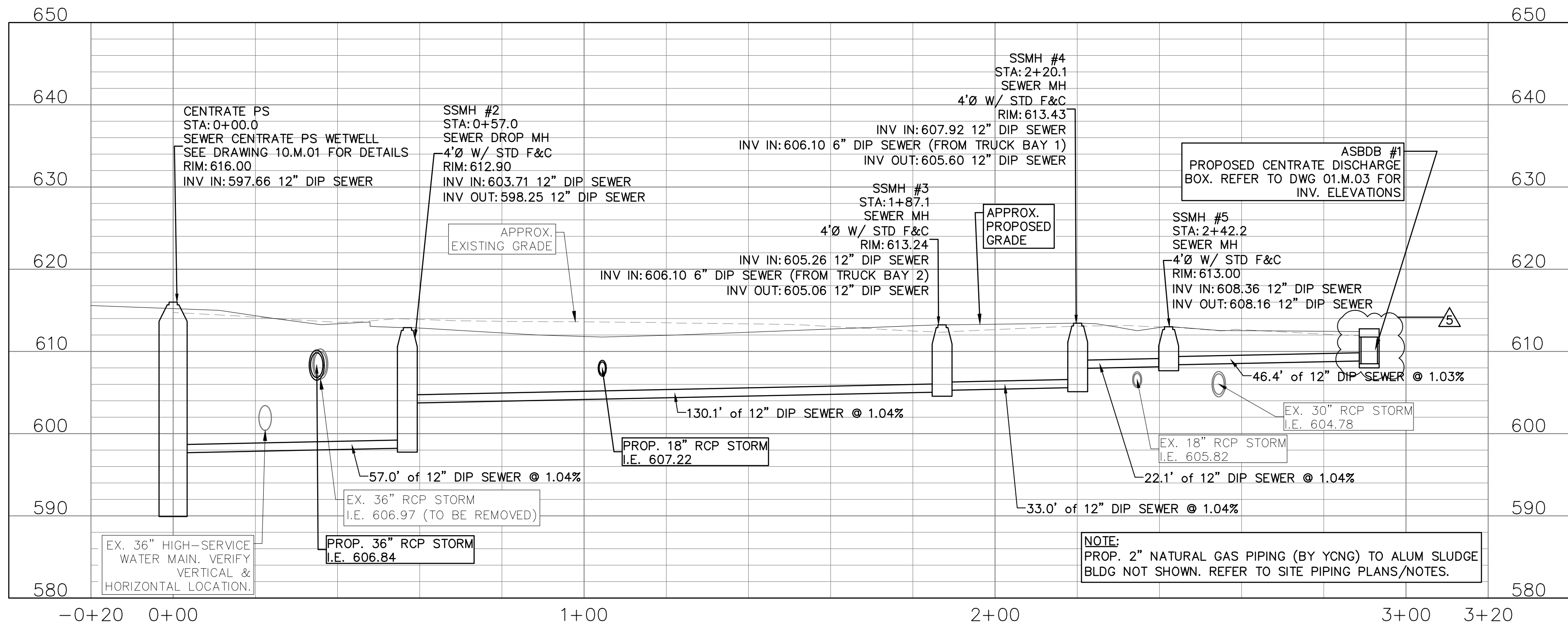




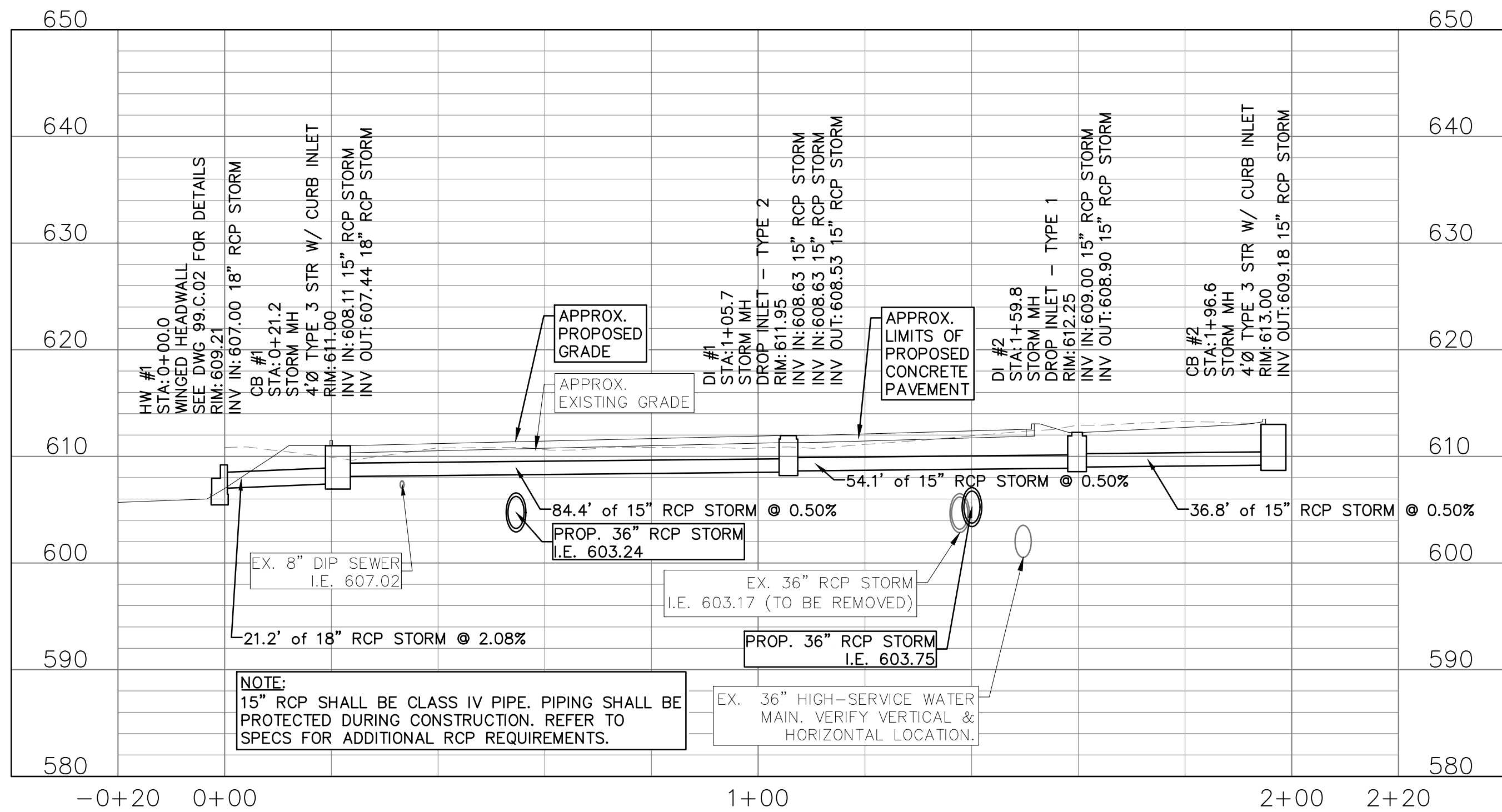
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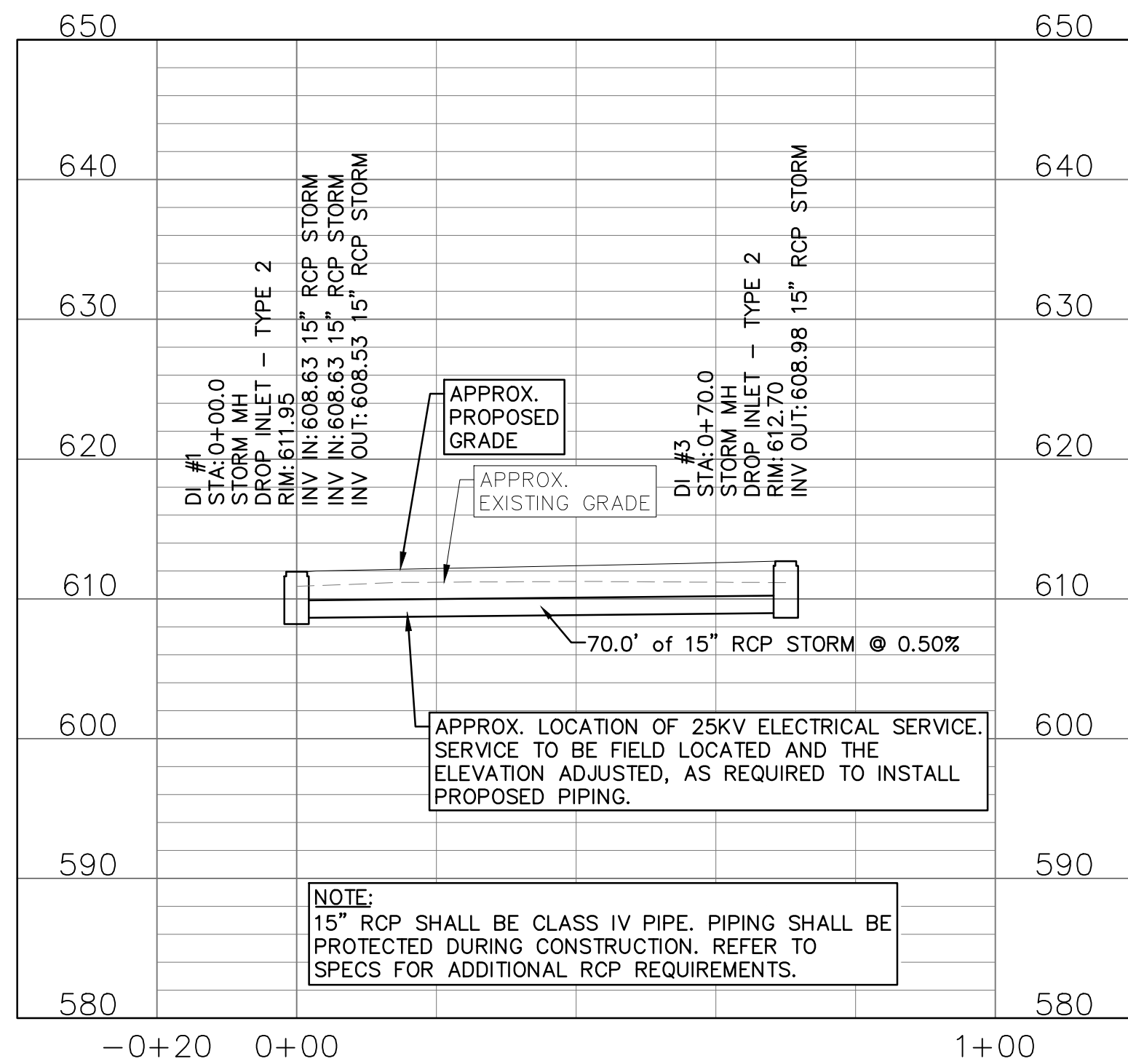
PIPE PROFILE 1  
4" SEWER (DHSSMH#1 TO SSMH #1)  
HORIZ. 1" = 20'  
VERT. 1" = 10'



PIPE PROFILE 2  
CENTRATE PS TO CENTRATE DISCHARGE BOX  
HORIZ. 1" = 20'  
VERT. 1" = 10'

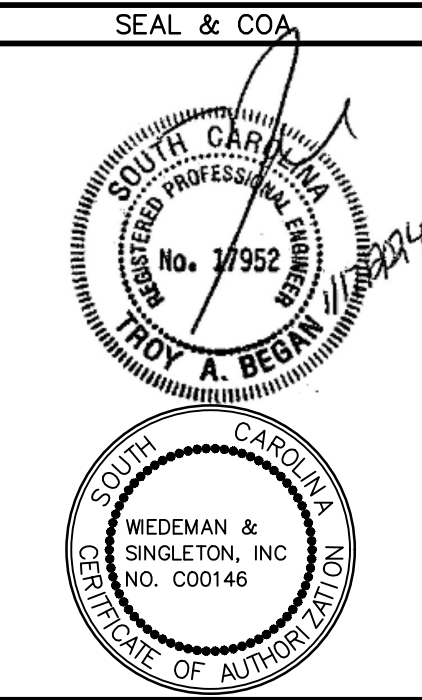


PIPE PROFILE 3  
NORTH PAVEMENT DRAINAGE TO DRY POND (HW #1 TO CB #2)  
HORIZ. 1" = 20'  
VERT. 1" = 10'



PIPE PROFILE 4  
15" STORM (DI #1 TO DI #3)  
HORIZ. 1" = 20'  
VERT. 1" = 10'

REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	RAR
2	10/12/2022	90% REVIEW	RAR
3	02/27/2023	PERMITTING REVIEW	RAR
4	12/04/2023	BID READY SET	RAR
5	01/22/2024	ADDENDA #2	RAR



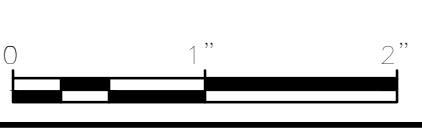
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PROJECT MANAGER:	TAB
DESIGNED BY:	TAB
DRAWN BY:	RAR
CHECKED BY:	TAB
FILE NAME:	C:\16-20 - PIPE PROFILES - 1 - 5.dwg
PROJECT NO.:	056-21-120



PROJECT INFORMATION	
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PROJECT: CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE Dewatering Facility ROCK HILL, SOUTH CAROLINA	SHEET TITLE: WATER TREATMENT PLANT PIPE PROFILES - 1

SCALE: AS SHOWN  
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.



DATE: JANUARY 2024

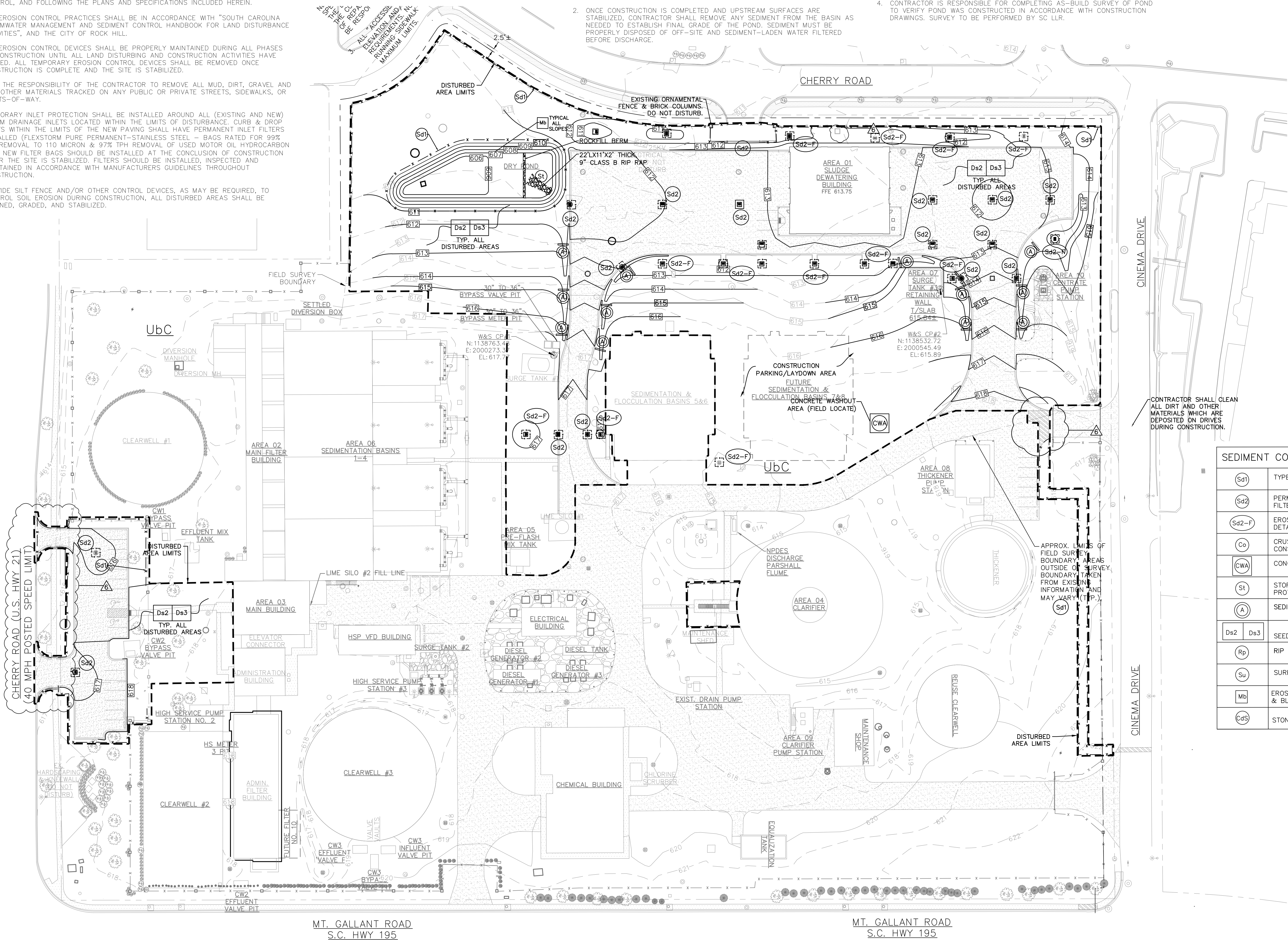
DRAWING	SHEET
C.16	25 OF 149



- EROSION CONTROL NOTES:**
1. THIS EROSION CONTROL PLAN SHALL BE IMPLEMENTED ON ALL DISTURBED AREAS WITHIN THE CONSTRUCTION SITE. ALL MEASURES INVOLVING EROSION CONTROL PRACTICES SHALL BE INSTALLED UNDER THE GUIDANCE OF QUALIFIED PERSONNEL EXPERIENCED IN EROSION CONTROL, AND FOLLOWING THE PLANS AND SPECIFICATIONS INCLUDED HEREIN.
  2. ALL EROSION CONTROL PRACTICES SHALL BE IN ACCORDANCE WITH "SOUTH CAROLINA STORMWATER MANAGEMENT AND SEDIMENT CONTROL HANDBOOK FOR LAND DISTURBANCE ACTIVITIES", AND THE CITY OF ROCK HILL.
  3. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL ALL LAND DISTURBING AND CONSTRUCTION ACTIVITIES HAVE CEASED. ALL TEMPORARY EROSION CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
  4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ALL MUD, DIRT, GRAVEL AND ANY OTHER MATERIALS TRACKED ON ANY PUBLIC OR PRIVATE STREETS, SIDEWALKS, OR RIGHTS-OF-WAY.
  5. TEMPORARY INLET PROTECTION SHALL BE INSTALLED AROUND ALL (EXISTING AND NEW) STORM DRAINAGE INLETS LOCATED WITHIN THE LIMITS OF DISTURBANCE. CURB & DROP INLETS WITHIN THE LIMITS OF THE NEW PAVING SHALL HAVE PERMANENT INLET FILTERS INSTALLED (FLEXSTORM PURE PERMANENT-STAINLESS STEEL - BAGS RATED FOR 99% TSS REMOVAL TO 110 MICRON & 97% TPH REMOVAL OF USED MOTOR OIL HYDROCARBON MIX). NEW FILTER BAGS SHOULD BE INSTALLED AT THE CONCLUSION OF CONSTRUCTION AFTER THE SITE IS STABILIZED. FILTERS SHOULD BE INSTALLED, INSPECTED AND MAINTAINED IN ACCORDANCE WITH MANUFACTURERS GUIDELINES THROUGHOUT CONSTRUCTION.
  6. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING CONSTRUCTION, ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED.

**DETENTION POND NOTES:**

1. DETENTION POND IS NOT INTENDED AS A TEMPORARY EROSION CONTROL DEVICE, BUT TO LIMIT POST-CONSTRUCTION RUN-OFF FROM THE SITE. UPSTREAM TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL FINAL STABILIZATION.
2. ONCE CONSTRUCTION IS COMPLETED AND UPSTREAM SURFACES ARE STABILIZED, CONTRACTOR SHALL REMOVE ANY SEDIMENT FROM THE BASIN AS NEEDED TO ESTABLISH FINAL GRADE OF THE POND. SEDIMENT MUST BE PROPERLY DISPOSED OF OFF-SITE AND SEDIMENT-LADEN WATER FILTERED BEFORE DISCHARGE.
3. THE STORMWATER DETENTION POND BOTTOM AND SLOPES SHOULD BE STABILIZED WITH PERMANENT VEGETATION IMMEDIATELY AFTER THE DETENTION POND CONSTRUCTION IS COMPLETE TO PREVENT EROSION AND SEDIMENT RESUSPENSION.
4. CONTRACTOR IS RESPONSIBLE FOR COMPLETING AS-BUILD SURVEY OF POND TO VERIFY POND WAS CONSTRUCTED IN ACCORDANCE WITH CONSTRUCTION DRAWINGS. SURVEY TO BE PERFORMED BY SC LLR.



**SEDIMENT CONTROL LEGEND**

(Sd1)	TYPE "C" SILT FENCE
(Sd2)	PERMANENT SILT FILTER. SEE NOTES
(Sd2-F)	EROSION CONTROL DETAIL AT STRUCTURE
(Co)	CRUSHED STONE CONSTRUCTION EXIT
(CWA)	CONCRETE WASHOUT AREA
(St)	STORM DRAIN OUTLET PROTECTION
(A)	SEDIMENT TUBE
(Ds2 Ds3)	SEEDING AND FERTILIZING
(Rp)	RIP RAP
(Su)	SURFACE ROUGHNESS
(Mb)	EROSION CONTROL MATTING & BLANKETS
(Cds)	STONE CHECK DAM

REV.	DATE	DESCRIPTION
1	08/29/2022	70% REVIEW
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3	02/27/2023	PERMITTING REVIEW
4	06/06/2023	PERMITTING REVISIONS
5	12/04/2023	BID READY SET
6	01/22/2024	ADDENDA #2

SEAL & CO.

**SOUTH CAROLINA**  
REGISTERED PROFESSIONAL ENGINEER  
No. 17952  
**ROY A. BEEM**

**SOUTH CAROLINA**  
REGISTERED PROFESSIONAL ENGINEER  
No. 000146  
**WIEDEMAN & SINGLETON, INC.**  
STATE OF AUTHORIZATION

OWNER



CONSULTANT INFORMATION	
PROJECT MANAGER:	TAB
DESIGNED BY:	RAR
DRAWN BY:	RAR
CHECKED BY:	TAB
FILE NAME:	ESC-01 - EROSION CONTROL PLAN.dwg
PROJECT NO.:	056-21-120

**W&S**  
WIEDEMAN AND SINGLETON, INC.  
Civil and Geotechnical Engineers  
131 EAST MAIN STREET  
SUITE 300  
ROCK HILL, SC 29730  
(803) 329-9444  
WWW.WIEDEMAN.COM

**PROJECT INFORMATION**

CITY OF ROCK HILL  
**ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY**  
ROCK HILL, SOUTH CAROLINA

SHEET TITLE:  
**WATER TREATMENT PLANT  
EROSION CONTROL PLAN**

SCALE: 1" = 40'

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.

DATE: JANUARY 2024

DRAWING: **ESC.01**

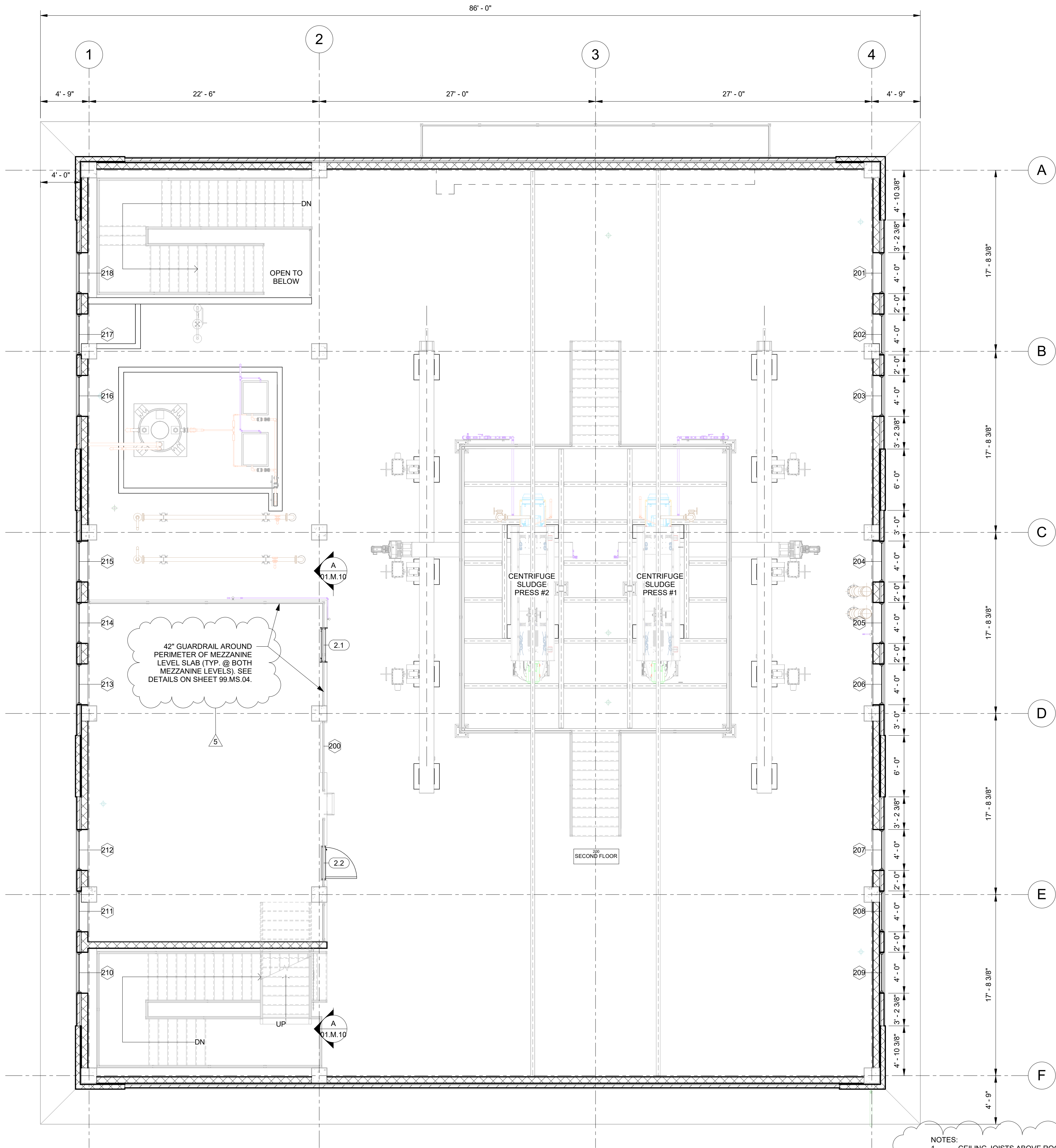
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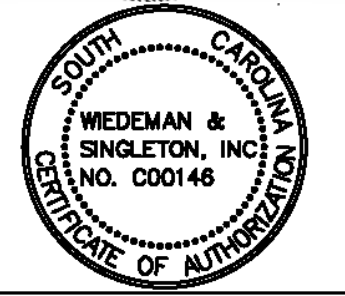


1 SECOND FLOOR PLAN LAYOUT  
3/16" = 1'-0"

- NOTES:
1. CEILING JOISTS ABOVE ROOMS NOT SHOWN FOR CLARITY. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
  2. HVAC DUCT NOT SHOWN FOR CLARITY. REFER TO HVAC DRAWINGS FOR DETAILS.
  3. REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING SECTIONS.
  4. TRANSOM CUT PLANE @ 13'-8" ABOVE T/SLAB 2ND FLOOR.
  5. SEE WINDOW & DOOR SCHEDULE ON DWG 01.M.12.

REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	RAR
2	10/12/2022	90% REVIEW	RAR
3	02/27/2023	PERMITTING REVIEW	RAR
4	12/04/2023	BID READY SET	RAR
5	01/22/2024	ADDENDUM #2	RAR

SEAL & COA



OWNER



CONSULTANT INFORMATION

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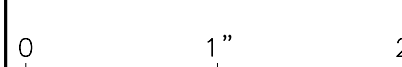
WIEDEMAN AND SINGLETON, INC.  
Civil and Environmental Engineers  
131 EAST MAIN STREET  
SUITE 300  
ROCK HILL, SC 29730  
(803) 397-2444  
WWW.WIEDEMAN.COM

PROJECT INFORMATION

PROJECT:  
CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA  
SHEET TITLE:  
ALUM SLUDGE DEWATERING BUILDING  
SECOND FLOOR TRANSOM PLAN

SCALE: 3/16" = 1'-0"

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.



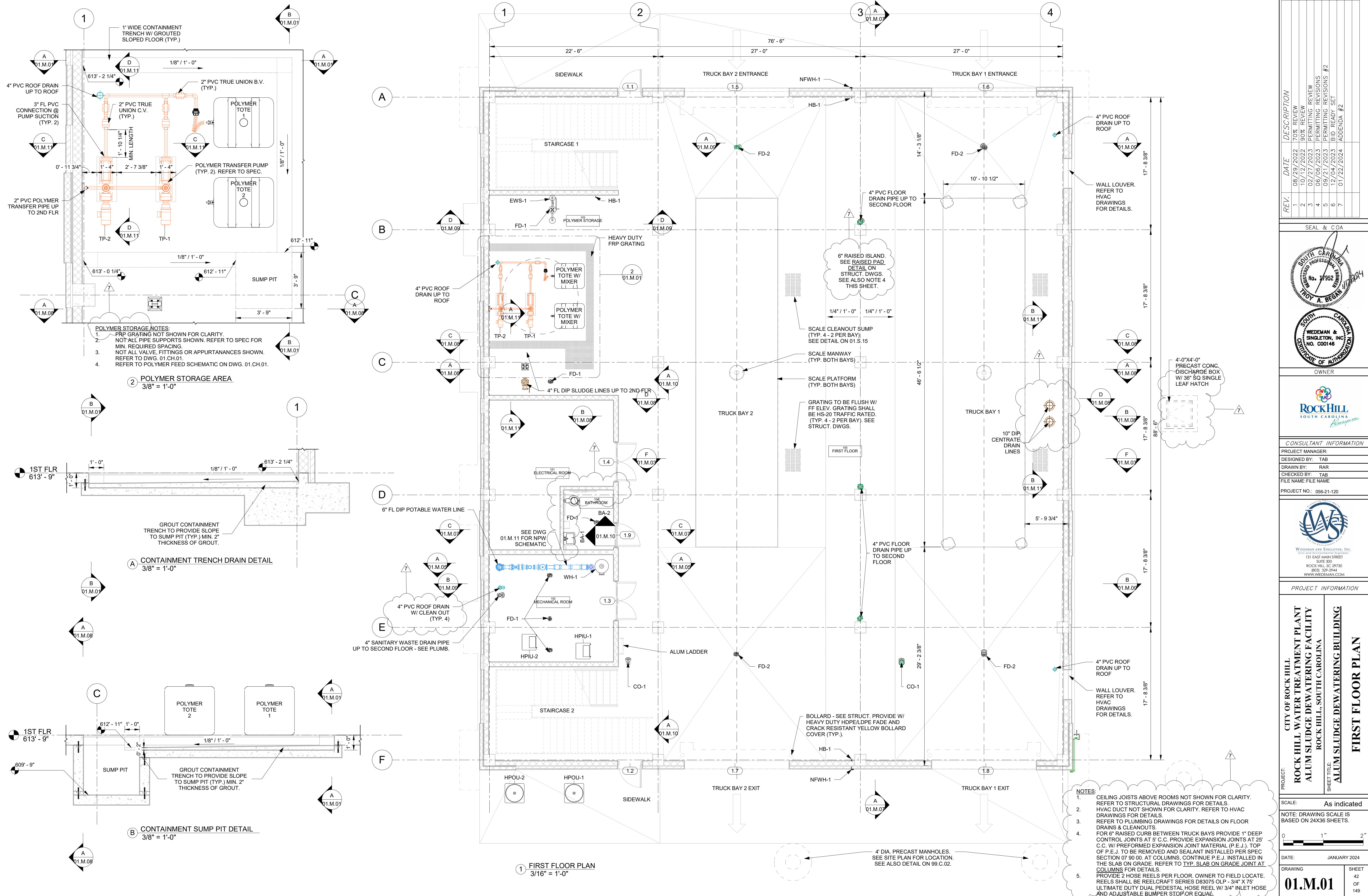
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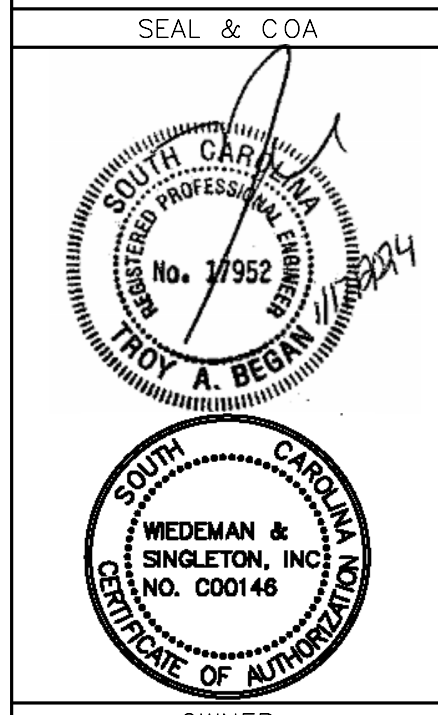
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1/18/2024 3:38:05 PM Autodesk Docs: \\056-21-120 R4 WTP Alum Sludge Dewatering Facility\\Area 01 - Alum Sludge Dewatering Building.rvt



REV.	DATE	DESCRIPTION
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2	10/12/2022	90% REVIEW
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4	06/05/2023	PERMITTING REVISIONS #1
5	09/21/2023	PERMITTING REVISIONS #2
6	12/04/2023	BID READY SET
7	01/22/2024	ADDENDUM #2



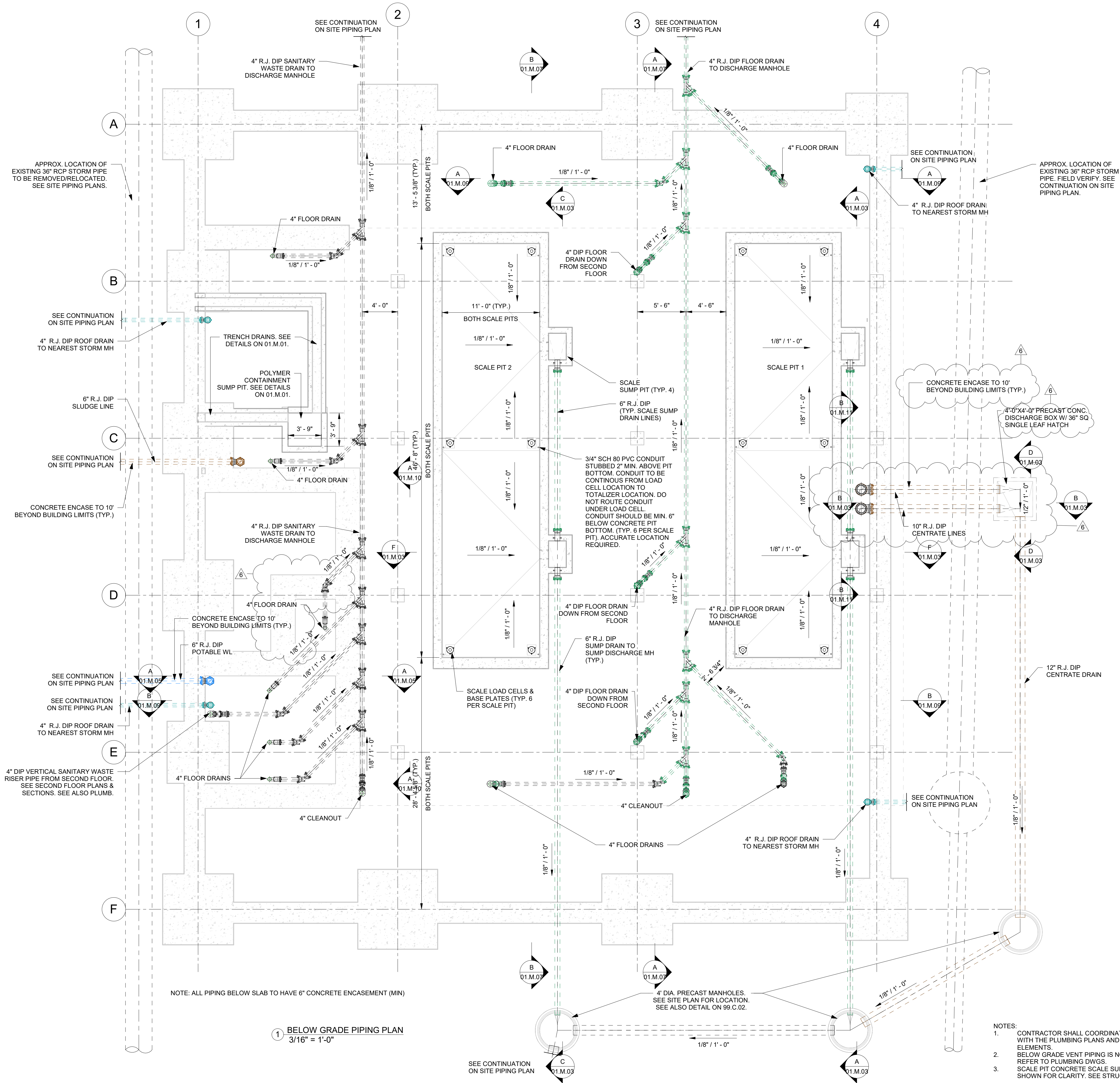
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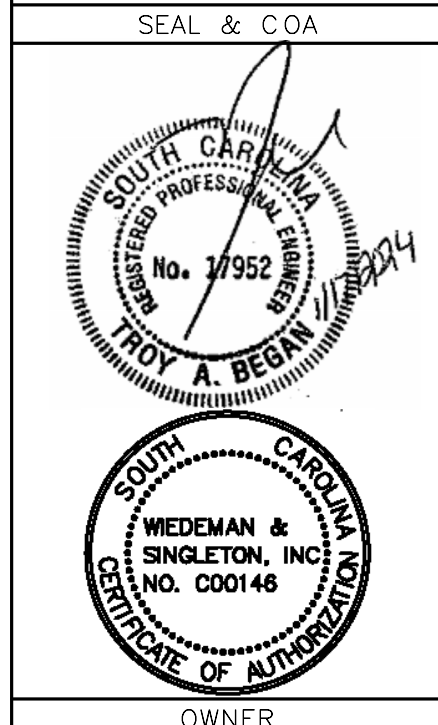
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PROJECT:	CITY OF ROCK HILL
	ROCK HILL WATER TREATMENT PLANT
SHEET TITLE:	ALUM SLUDGE DEWATERING FACILITY
	ROCK HILL, SOUTH CAROLINA
FIRST FLOOR PLAN	





REV.	DATE	DESCRIPTION	BY
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2	10/12/2022	90% REVIEW	RAR
3	02/27/2023	PERMITTING REVIEW	RAR
4	05/05/2023	PERMITTING REVISIONS	RAR
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6	01/22/2024	ADDENDUM #2	RAR



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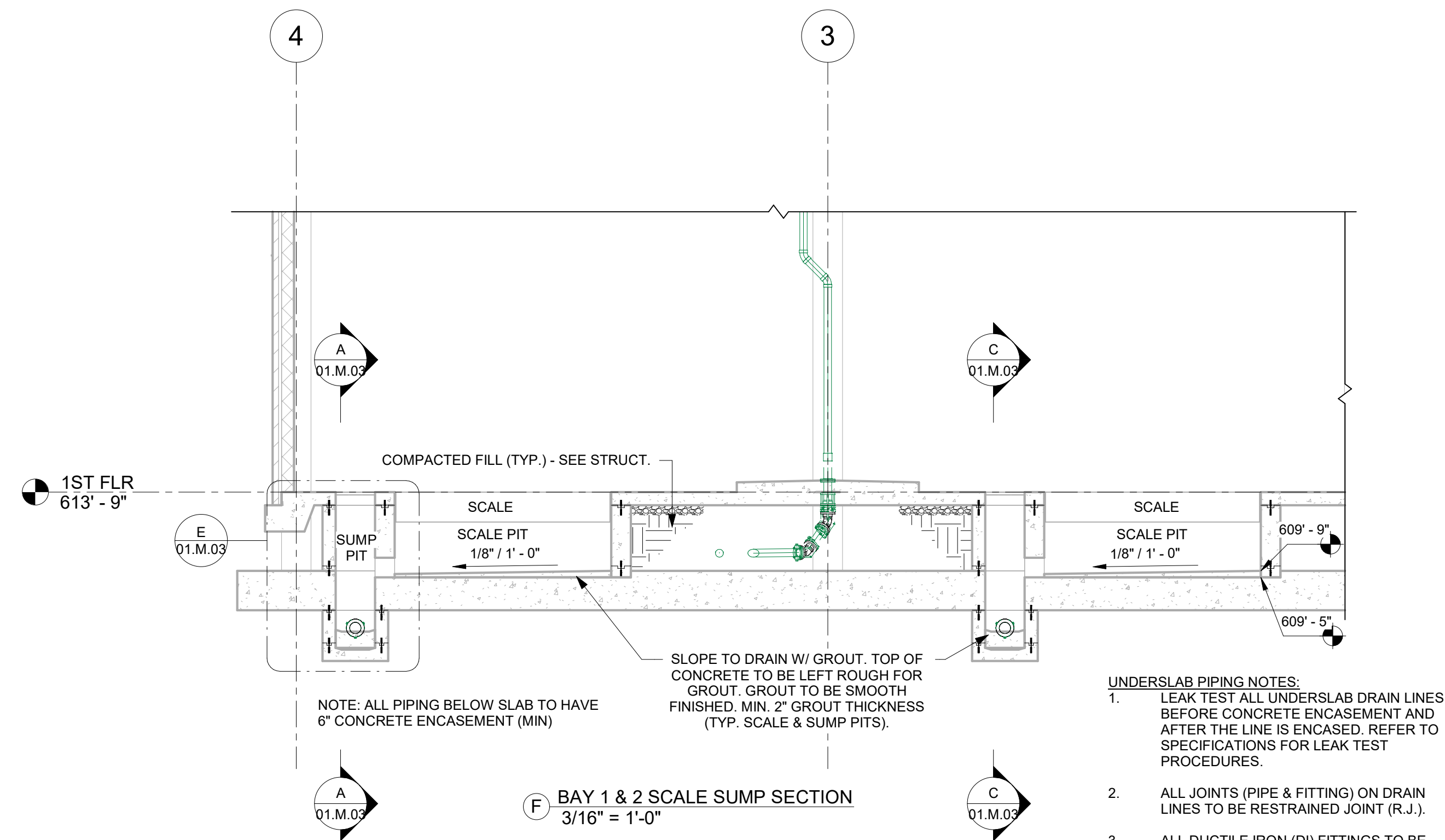
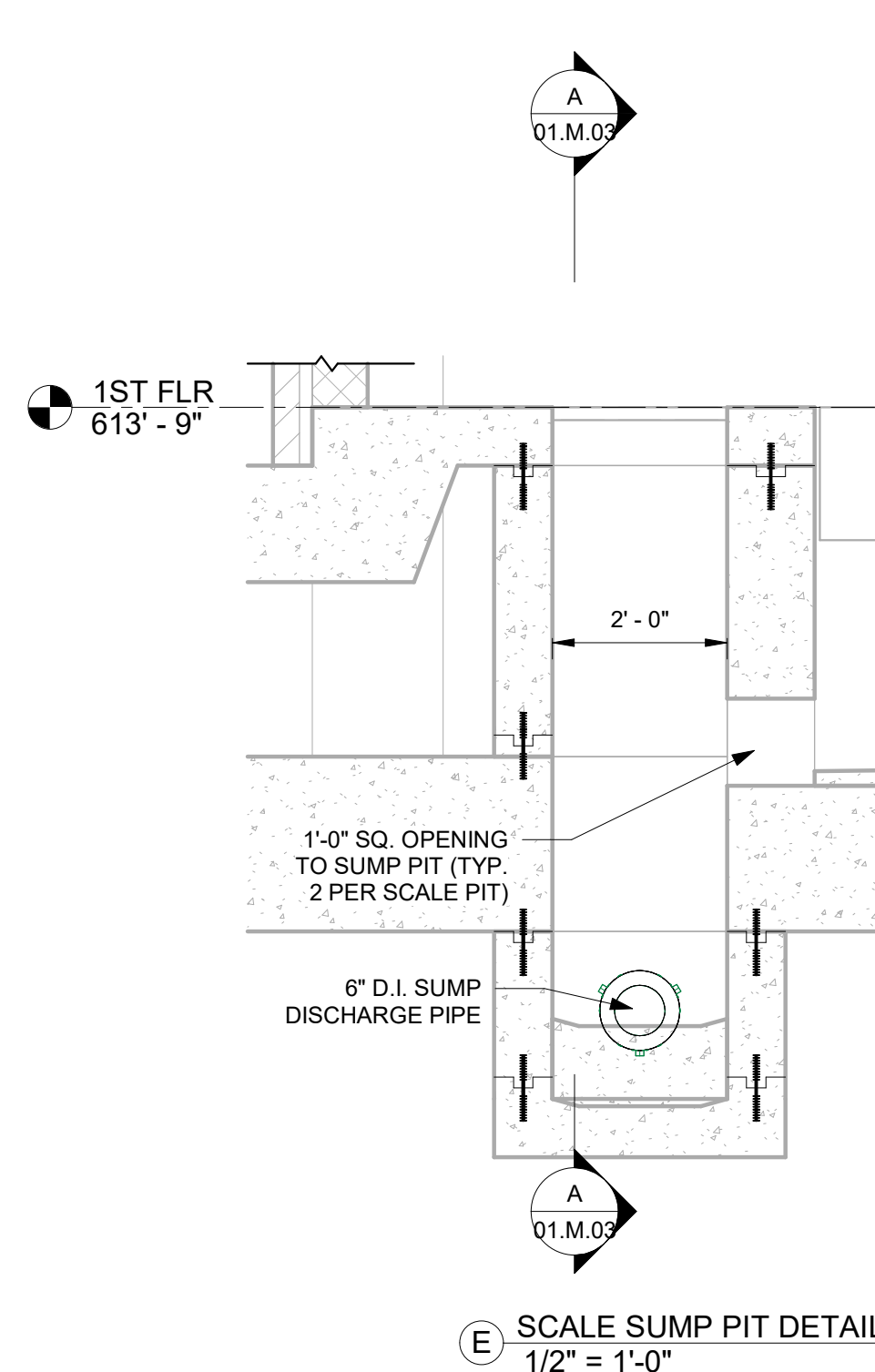
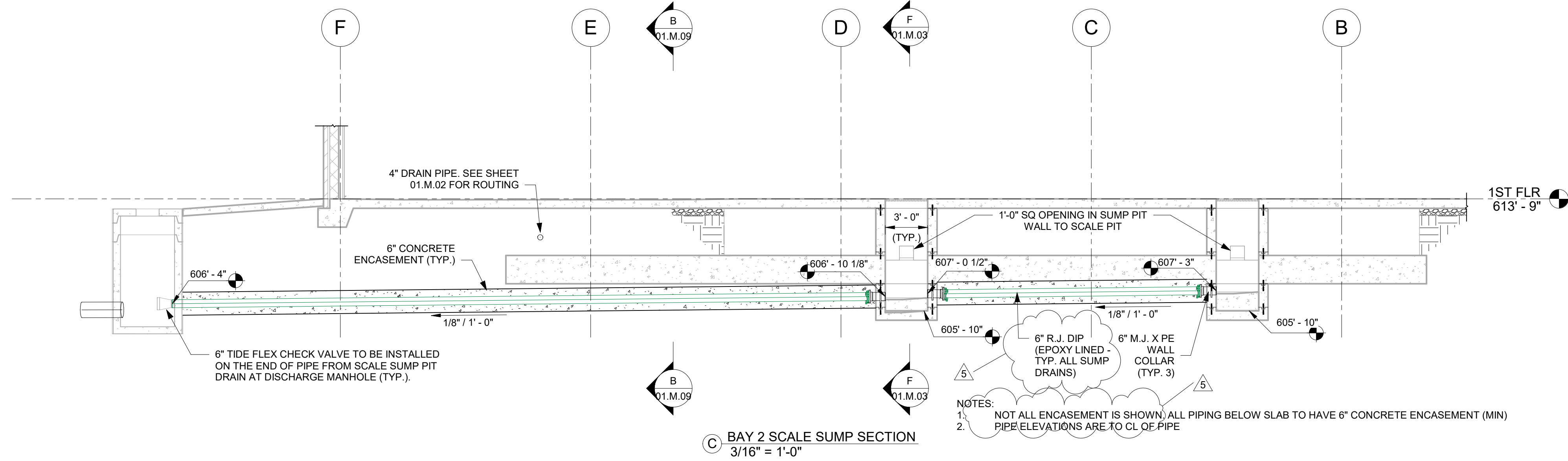
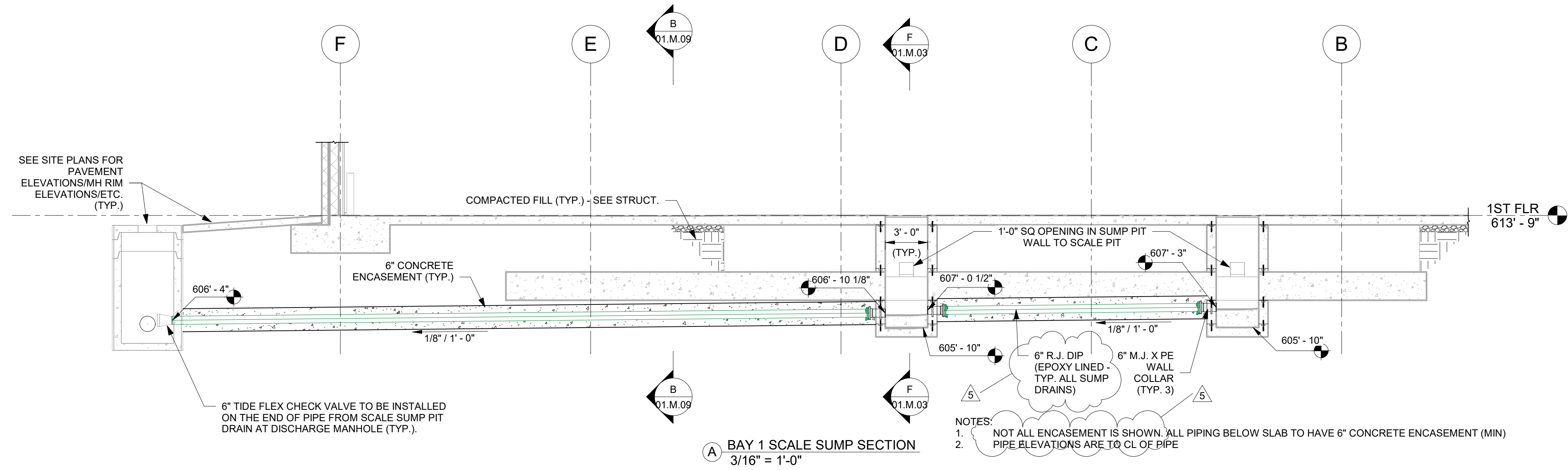
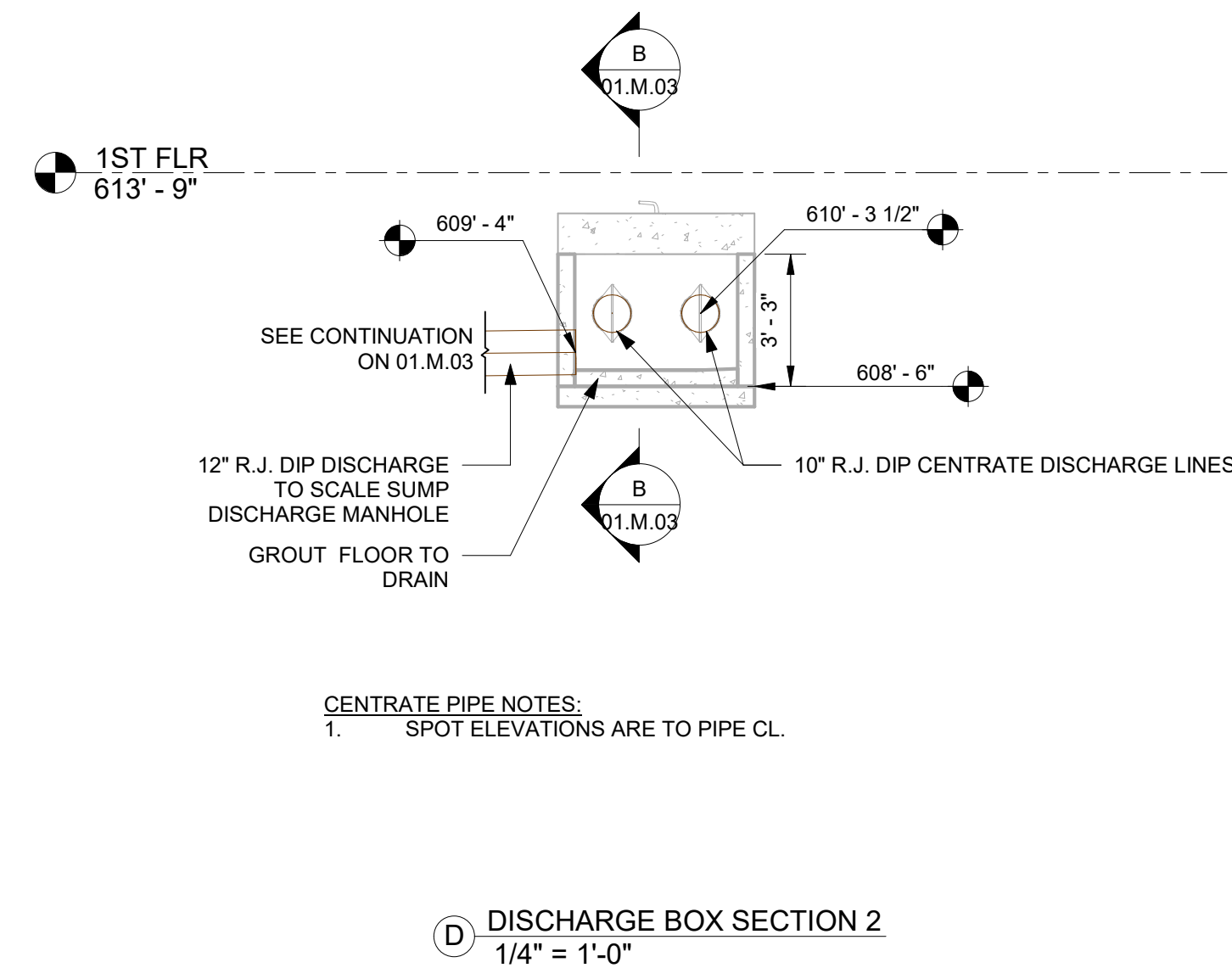
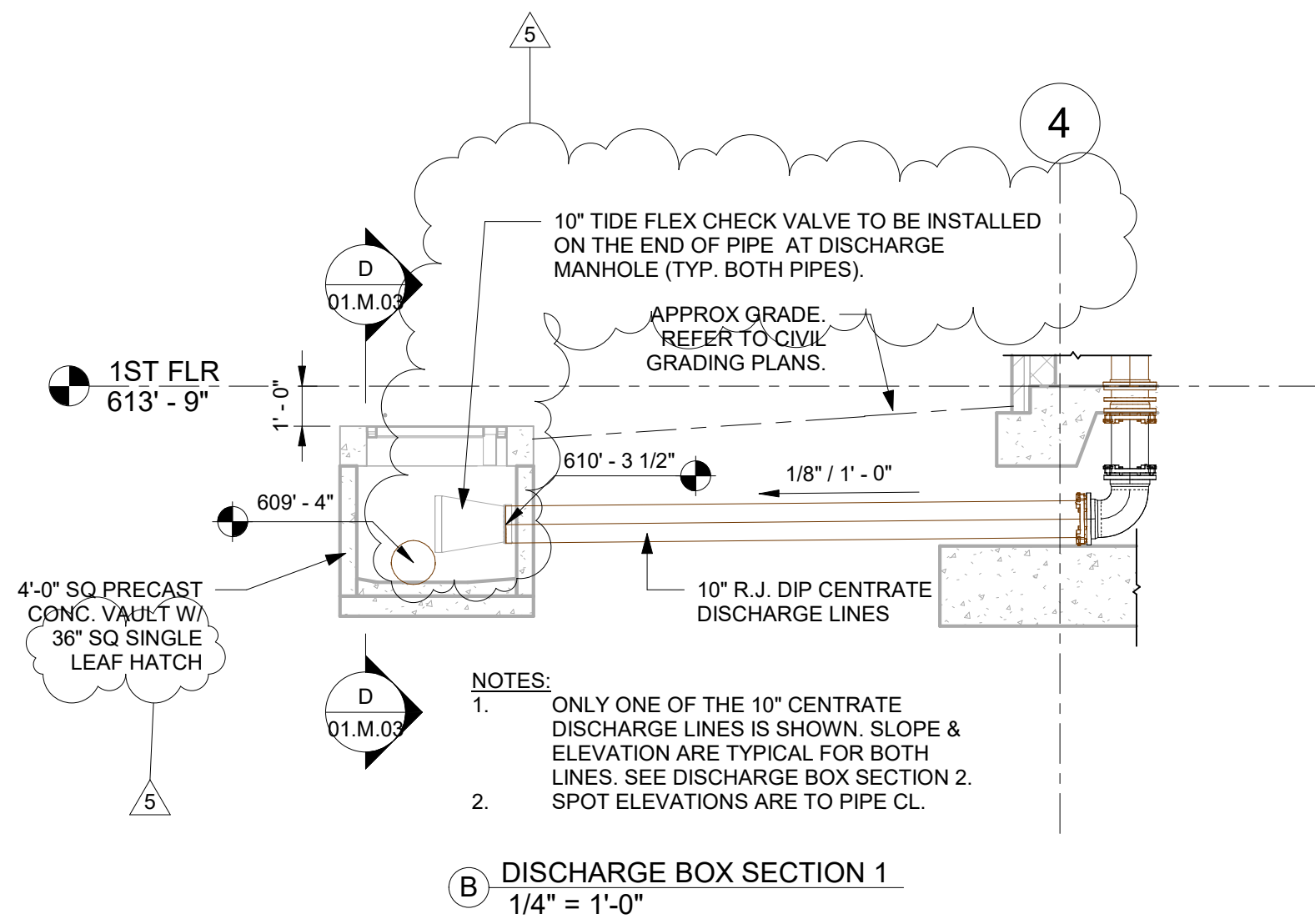
PROJECT INFORMATION

PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY
SHEET TITLE:	ALUM SLUDGE DEWATERING BUILDING BELOW GRADE PLAN

SCALE:	3/16" = 1'-0"
NOTE:	DRAWING SCALE IS BASED ON 24X36 SHEETS.
DATE:	JANUARY 2024
DRAWING	SHEET
01.M.02	43 OF 149

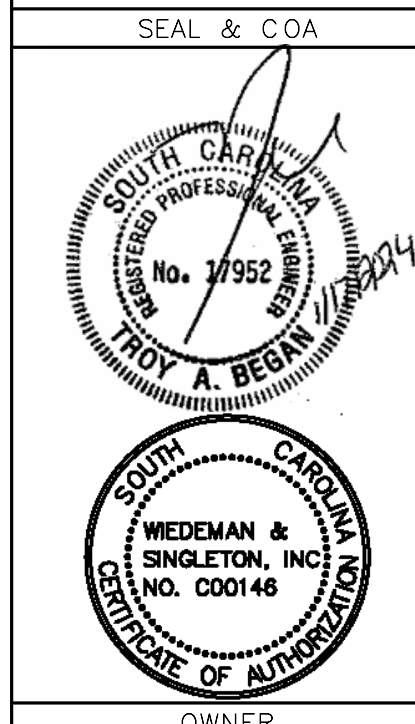


Autodesk Docs/056-21-120 RW-WTP Alum Sludge Dewatering Facility/Sheet 01 - Alum Sludge Dewatering Building.rvt  
1/18/2024 1:37:54 AM



- UNDERSLAB PIPING NOTES:**
1. LEAK TEST ALL UNDERSLAB DRAIN LINES BEFORE CONCRETE ENCASEMENT AND AFTER THE LINE IS ENCASED. REFER TO SPECIFICATIONS FOR LEAK TEST PROCEDURES.
  2. ALL JOINTS (PIPE & FITTING) ON DRAIN LINES TO BE RESTRAINED JOINT (R.J.).
  3. ALL DUCTILE IRON (DI) FITTINGS TO BE POLY-WRAPPED.
  4. A CONTINUOUS 10 MIL MEMBRANE VAPOR BARRIER IS REQUIRED UNDER ALL SLABS ON GRADE. REFER TO SPECIFICATIONS.

REV.	DATE	DESCRIPTION
1	08/29/2022	70% REVIEW
2	10/12/2022	90% REVIEW
3	02/27/2023	PERMITTING REVIEW
4	12/04/2023	BID READY SET
5	01/22/2024	ADDENDUM #2



CONSULTANT INFORMATION	
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DESIGNED BY:	TAB
DRAWN BY:	RAR
CHECKED BY:	TAB
FILE NAME: FILE NAME	
PROJECT NO.:	056-21-120



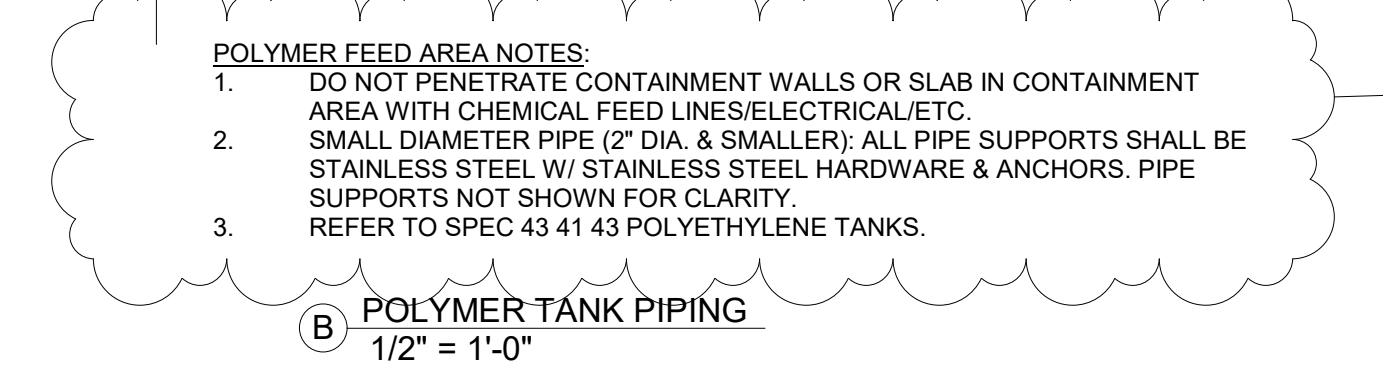
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PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE:	ALUM SLUDGE DEWATERING BUILDING BELOW GRADE SECTIONS

SCALE:	As indicated
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.	
DATE:	JANUARY 2024
DRAWING	SHEET 01.M.03 44 OF 149









① BELOW SECOND FLOOR SLAB PIPING  
3/16" = 1'-0"

REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	RAR
2	10/12/2022	90% REVIEW	RAR
3	02/27/2023	PERMITTING REVIEW	RAR
4	12/04/2023	BID READY SET	RAR
5	01/22/2024	ADDENDA #2	



**WIEDEMAN AND SINGLETON, INC.**  
Civil and Environmental Engineers

131 EAST MAIN STREET  
SUITE 300  
ROCK HILL, SC 29730  
(803) 329-2944  
[WWW.WIEDEMAN.COM](http://WWW.WIEDEMAN.COM)

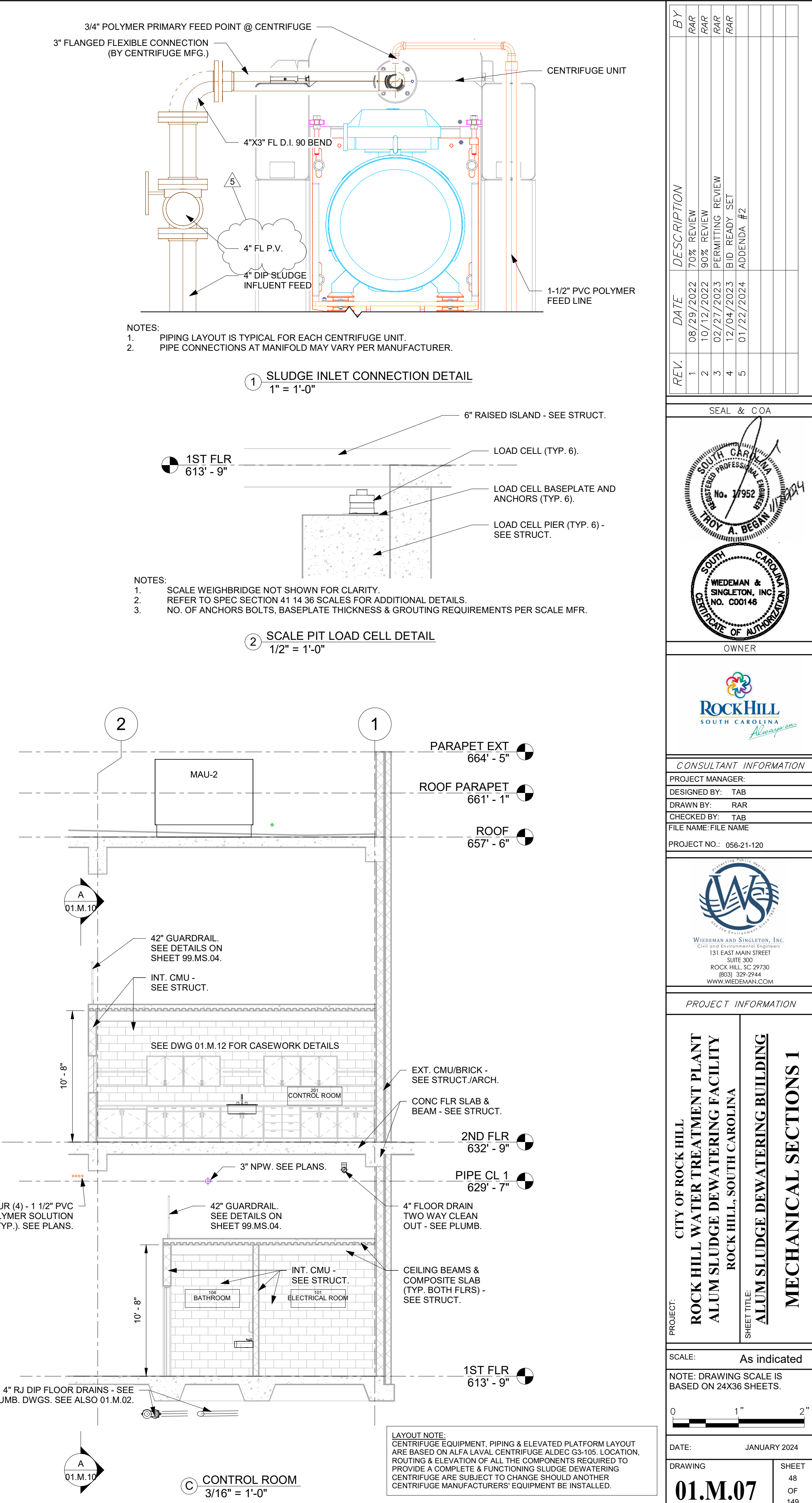
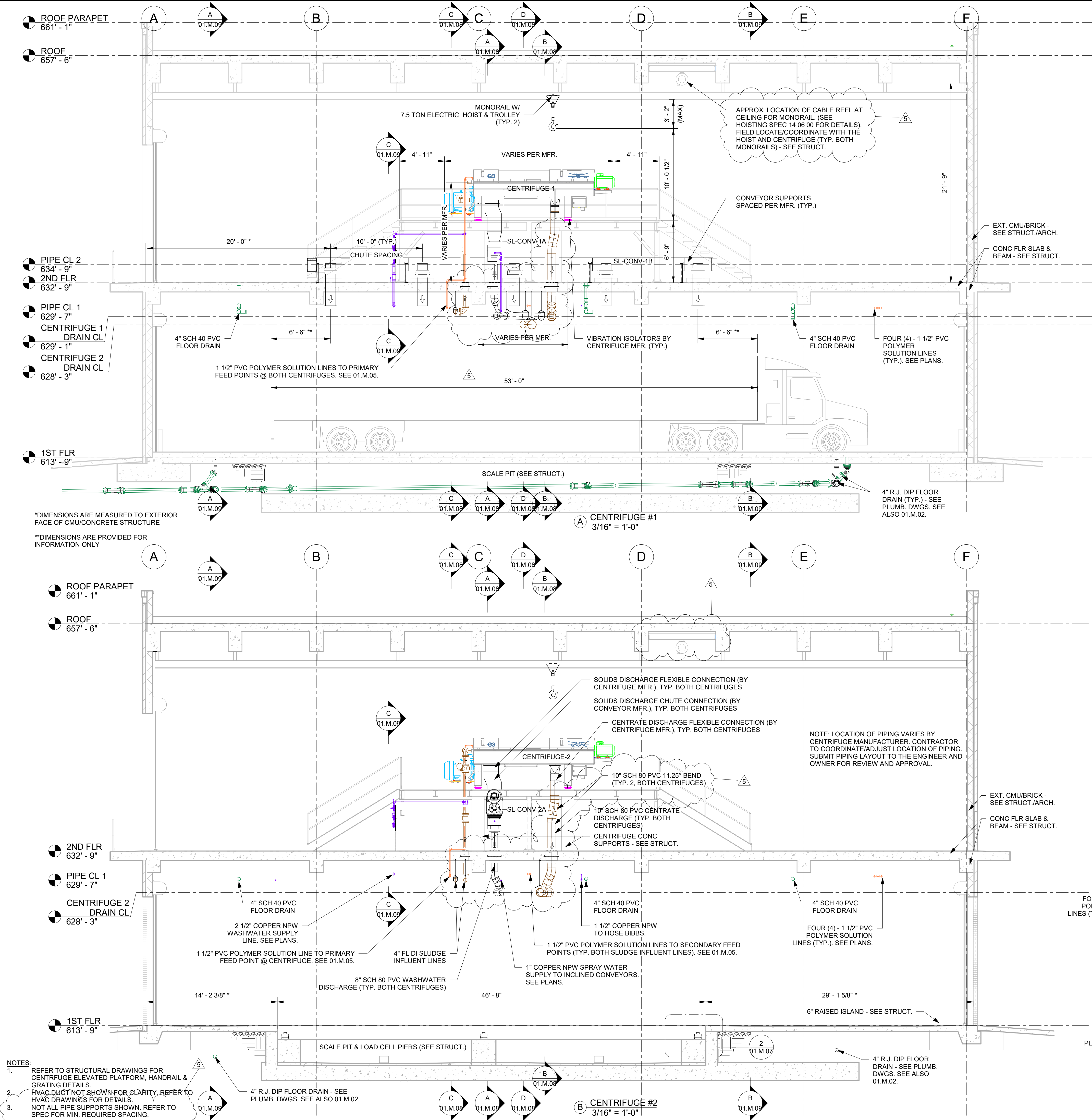
CITY OF ROCK HILL  
ROCK HILL, WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA

SHEET TITLE:  
ALUM SLUDGE DEWATERING BUILDING  
BELOW SECOND FLOOR SLAB  
PIPING PLAN & SECTIONS

SCALE:		As indicated	
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.			
DATE:		JANUARY 2024	
DRAWING		SHEET	
<b>01.M.05</b>		46	
		OF	
		149	


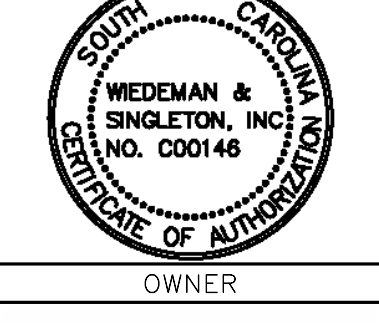




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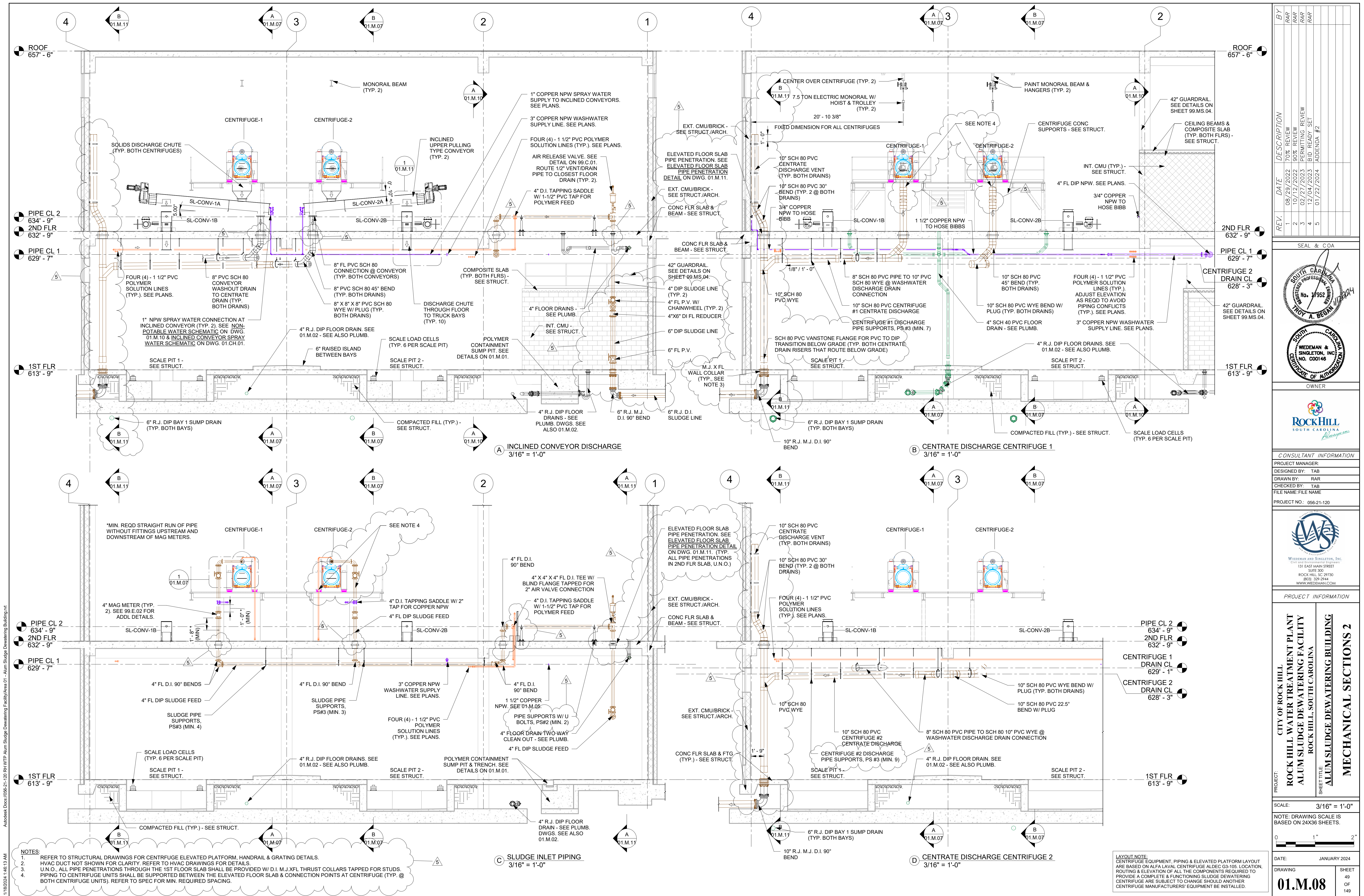


REV.	DATE	DESCRIPTION
1	08/29/2022	70% REVIEW
2	10/12/2022	90% REVIEW
3	02/27/2023	PERMITTING REVIEW
4	12/04/2023	BID READY SET
5	01/22/2024	ADDENDUM #2

BY	PAR	PAR	PAR	PAR	PAR
REV.	1	2	3	4	5

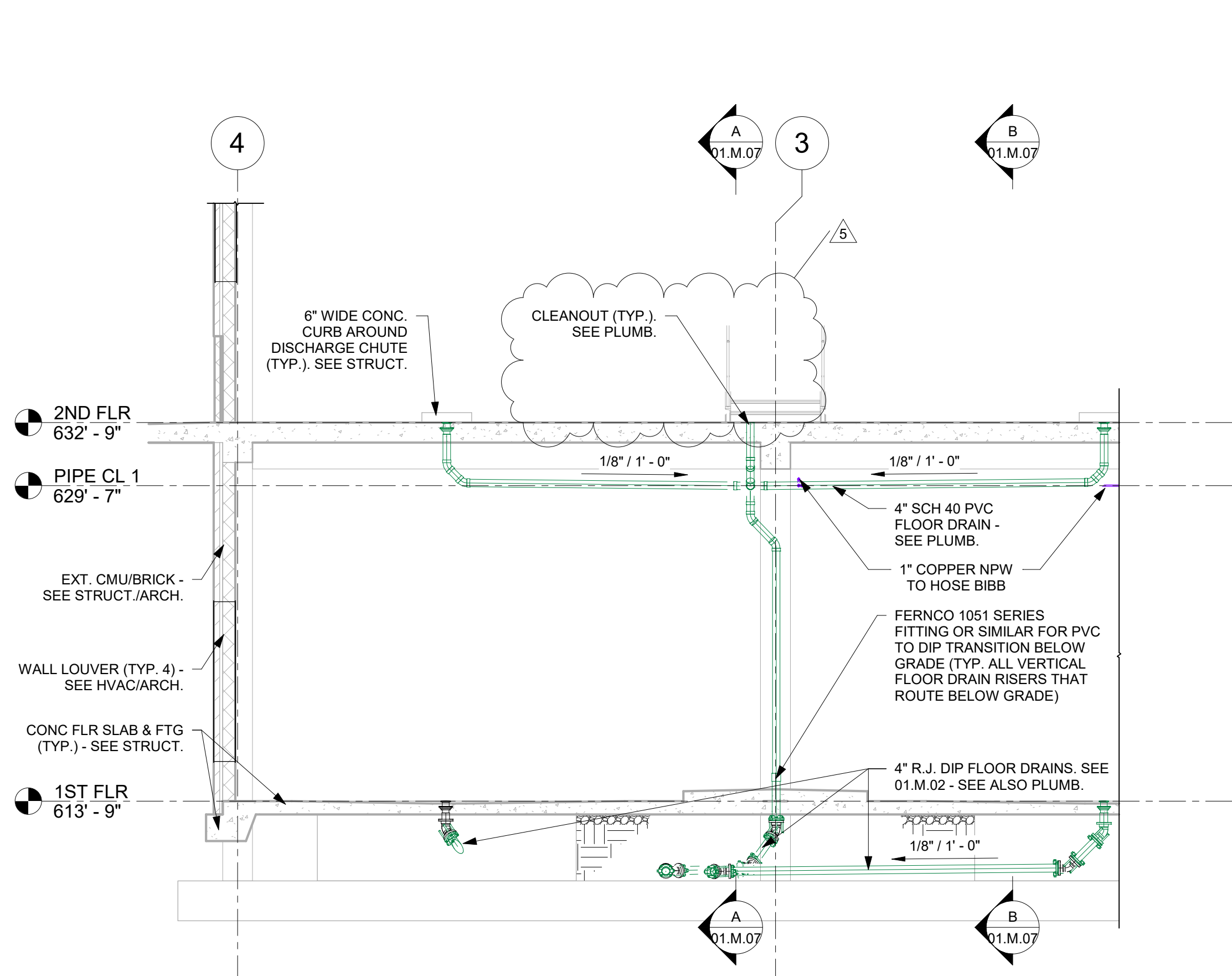
SEAL & COA	
	
	
OWNER	
	
CONSULTANT INFORMATION	
PROJECT MANAGER:	
DESIGNED BY:	TAB
DRAWN BY:	RAR
CHECKED BY:	TAB
FILE NAME: FILE NAME	
PROJECT NO.:	056-21-120
	
WIEDEMAN AND SINGLETON, INC. Civil and Environmental Engineers 131 EAST MAIN STREET SUITE 300 ROCK HILL, SC 29730 (803) 397-2444 WWW.WIEDEMAN.COM	
PROJECT INFORMATION	
PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE:	ALUM SLUDGE DEWATERING BUILDING
MECHANICAL SECTIONS 1	
SCALE:	As indicated
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.	
DATE:	JANUARY 2024
DRAWING	01.M.07
SHEET	48
OF	149



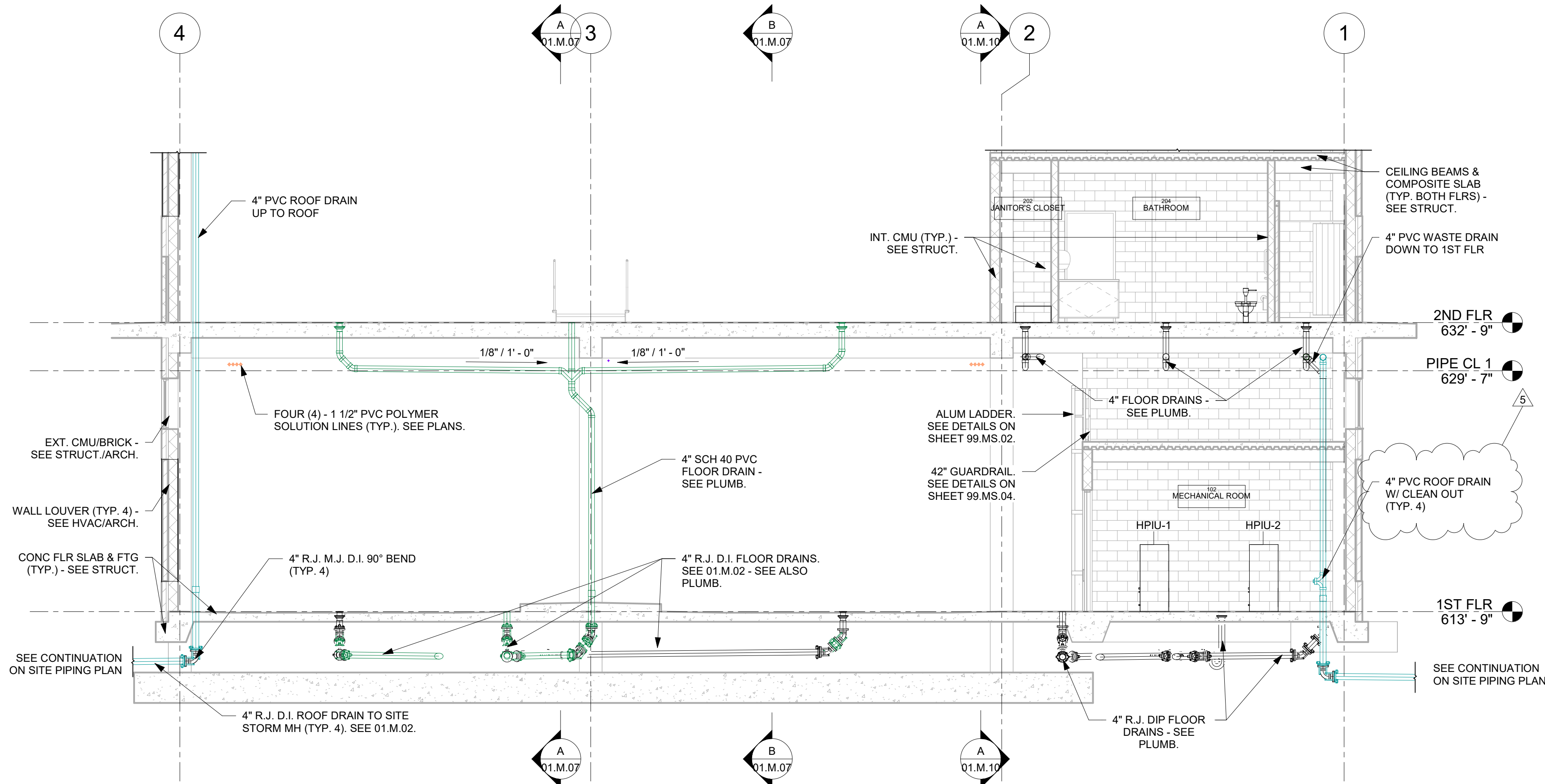




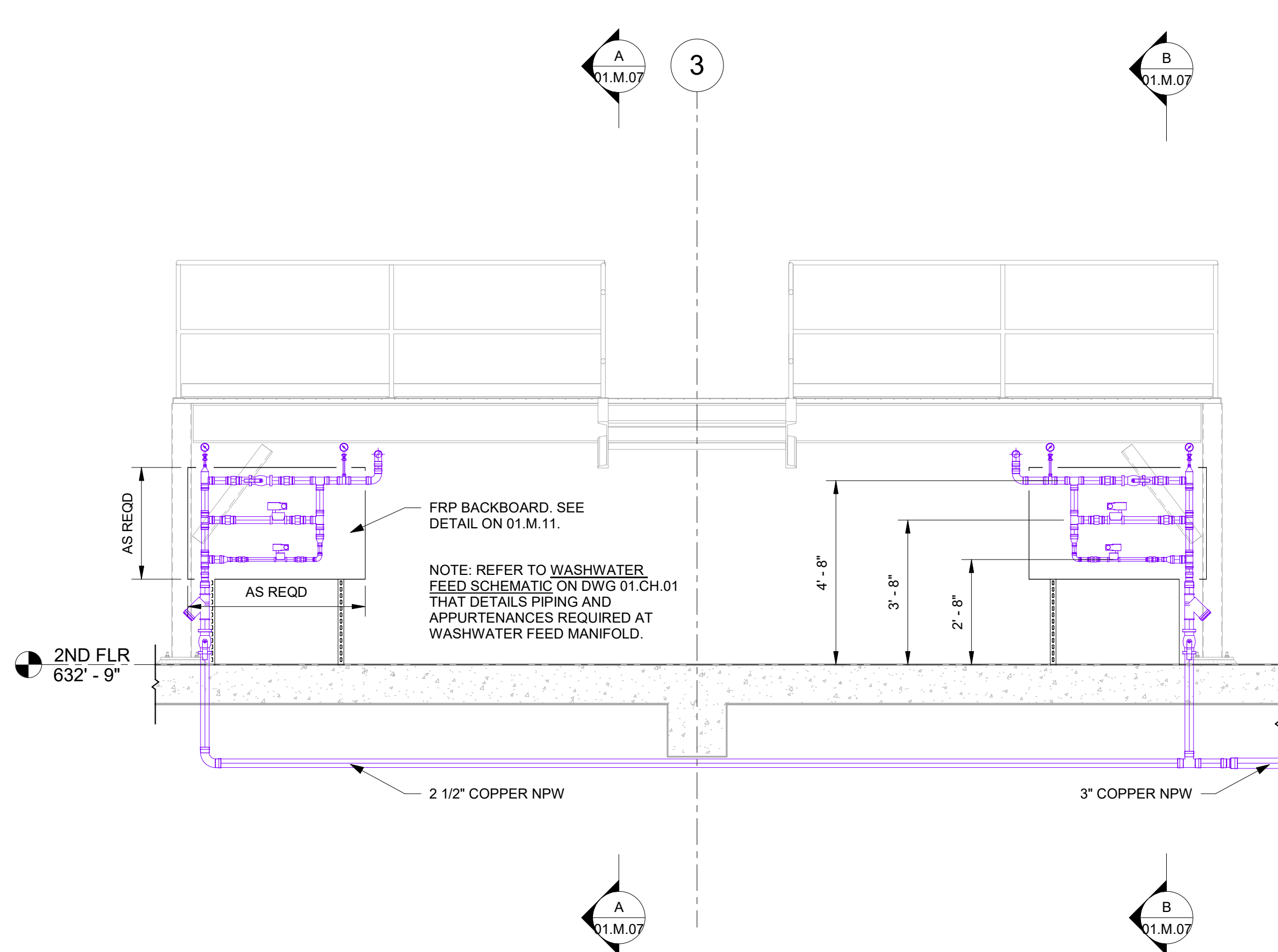
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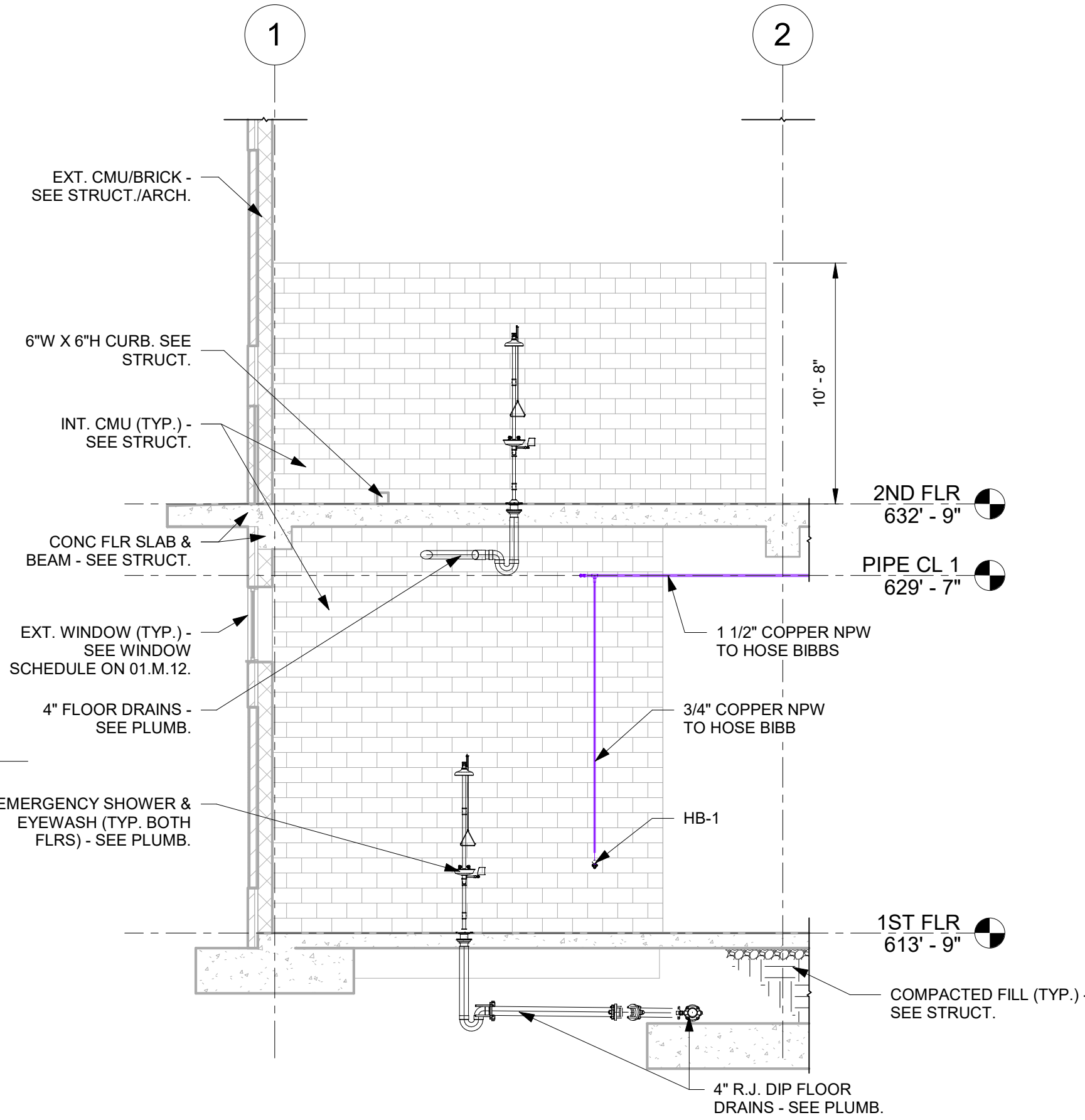
**A** SLUDGE FLOOR DRAINS (NORTH)  
3/16" = 1'-0"



**B** SLUDGE FLOOR DRAINS (SOUTH)  
3/16" = 1'-0"



**C** CENTRIFUGE WASHWATER MANIFOLDS  
3/8" = 1'-0"

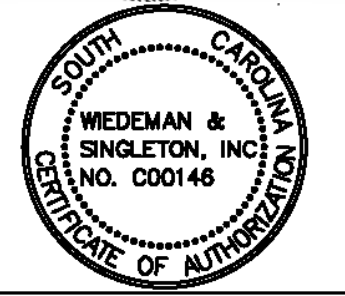


**D** EYEWASH STATIONS  
3/16" = 1'-0"

- NOTES:
- REFER TO STRUCTURAL DRAWINGS FOR CENTRIFUGE ELEVATED PLATFORM, HANDRAIL & GRATING DETAILS.
  - HVAC DUCT NOT SHOWN FOR CLARITY. REFER TO HVAC DRAWINGS FOR DETAILS.

REV.	DATE	DESCRIPTION
1	08/29/2022	70% REVIEW
2	10/12/2022	90% REVIEW
3	02/27/2023	PERMITTING REVIEW
4	12/04/2023	BID READY SET
5	01/22/2024	ADDENDUM #2

SEAL & COA



OWNER



CONSULTANT INFORMATION

PROJECT MANAGER:  
DESIGNED BY: TAB  
DRAWN BY: RAR  
CHECKED BY: TAB  
FILE NAME: FILE NAME  
PROJECT NO.: 056-21-120



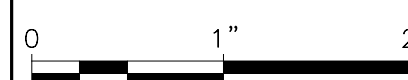
WIEDEMAN AND SINGLETON, INC.  
Civil and Environmental Engineers  
131 EAST MAIN STREET  
SUITE 300  
ROCK HILL, SC 29730  
(803) 397-2444  
WWW.WIEDEMAN.COM

PROJECT INFORMATION

PROJECT:  
CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA  
SHEET TITLE:  
ALUM SLUDGE DEWATERING BUILDING  
MECHANICAL SECTIONS 3

SCALE: As indicated

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.



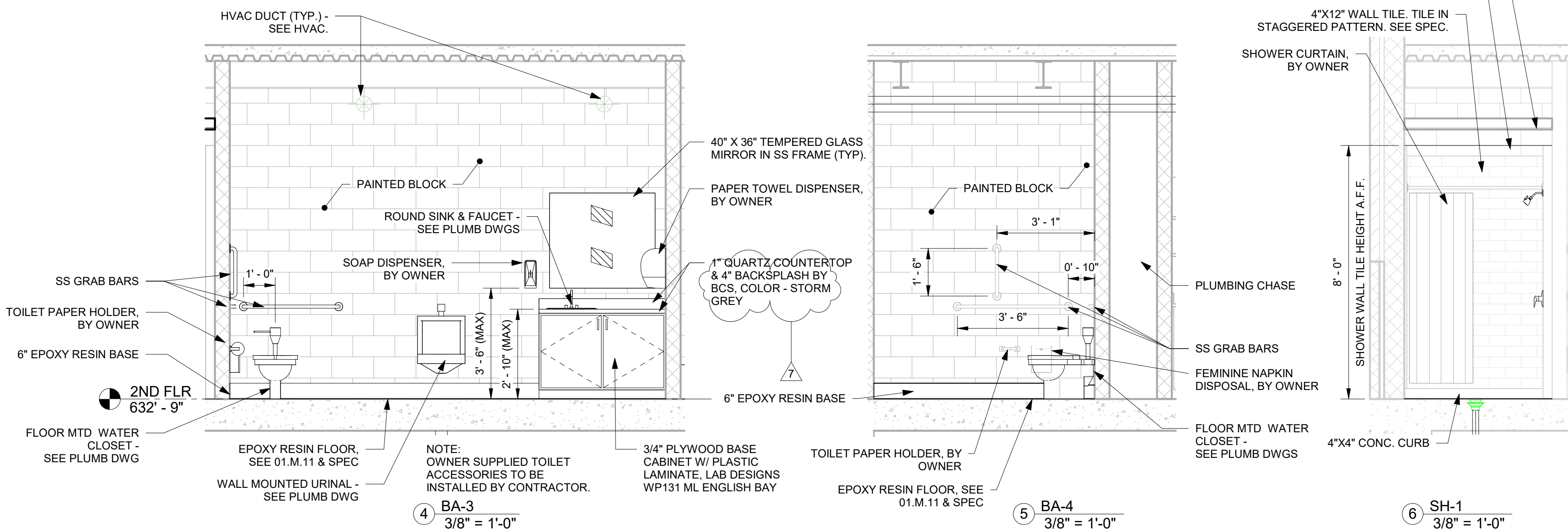
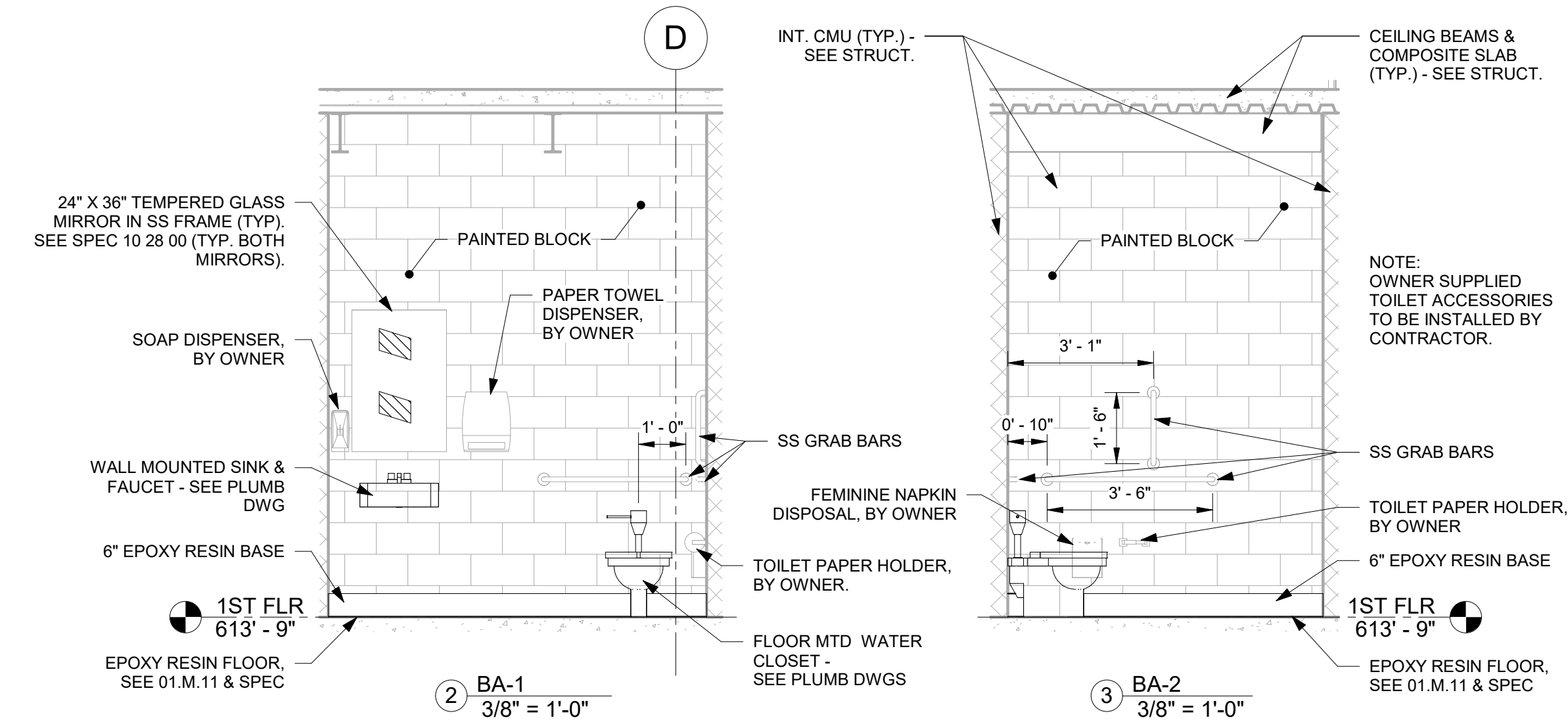
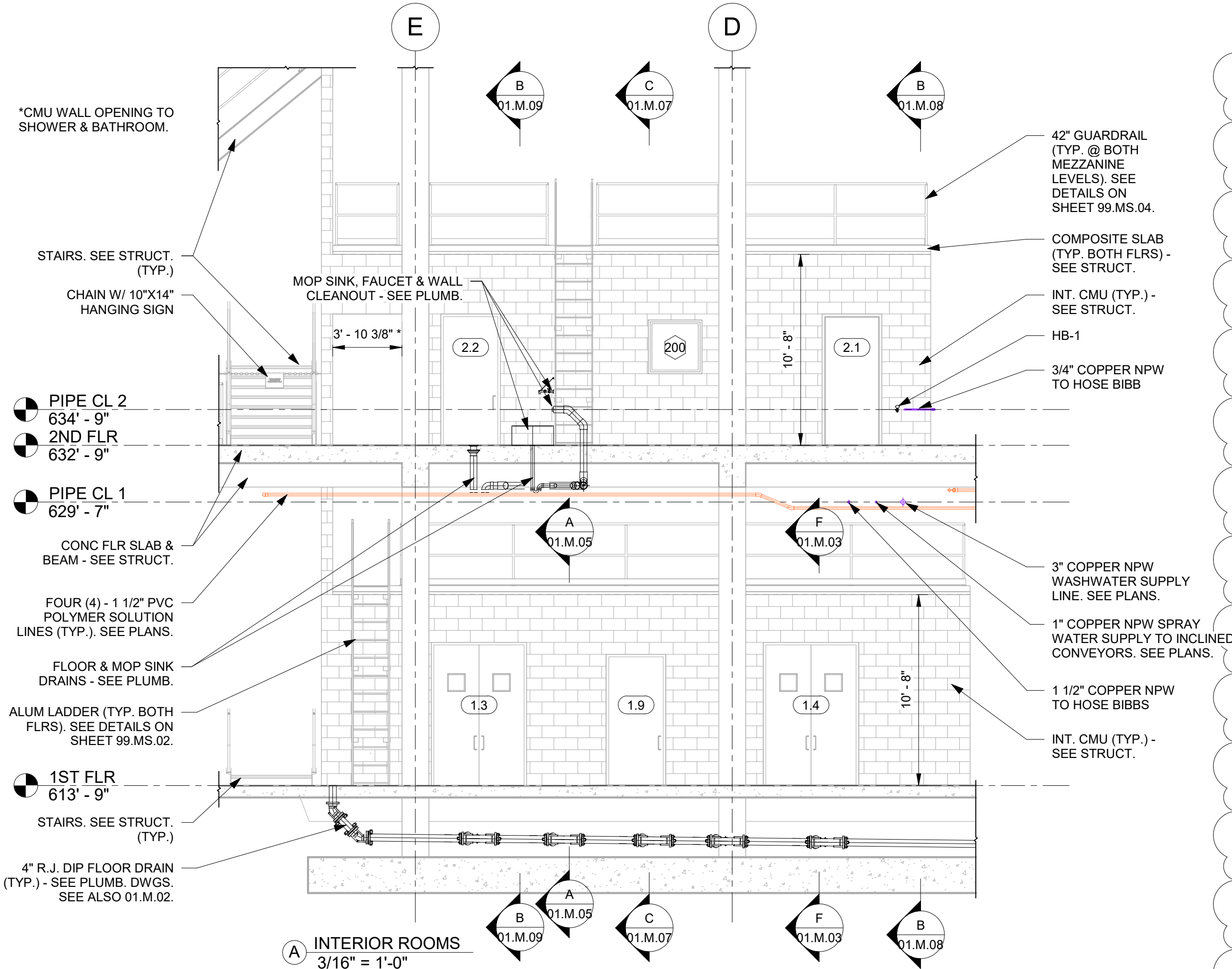
DATE: JANUARY 2024

DRAWING SHEET

01.M.09  
50  
OF  
149

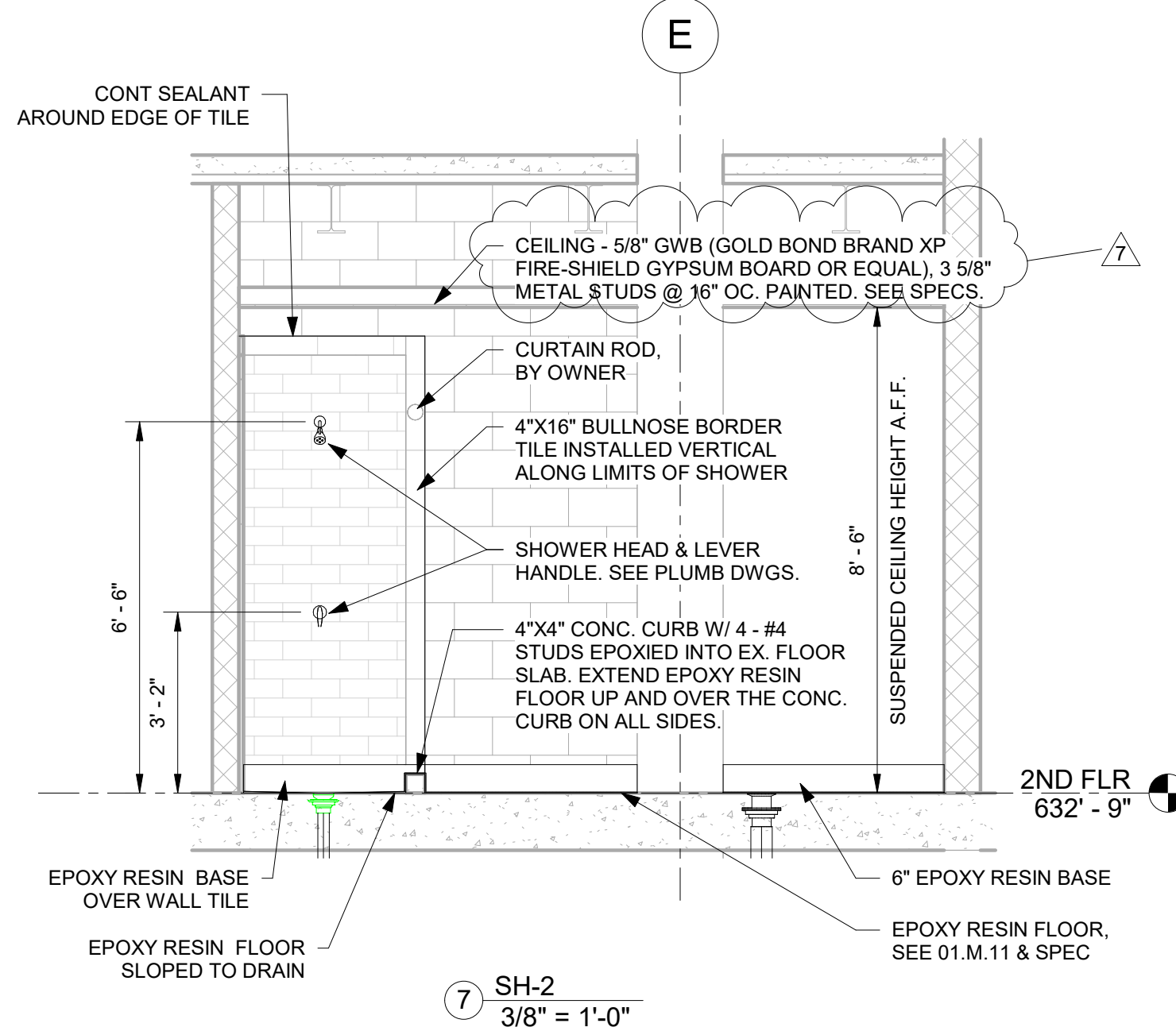
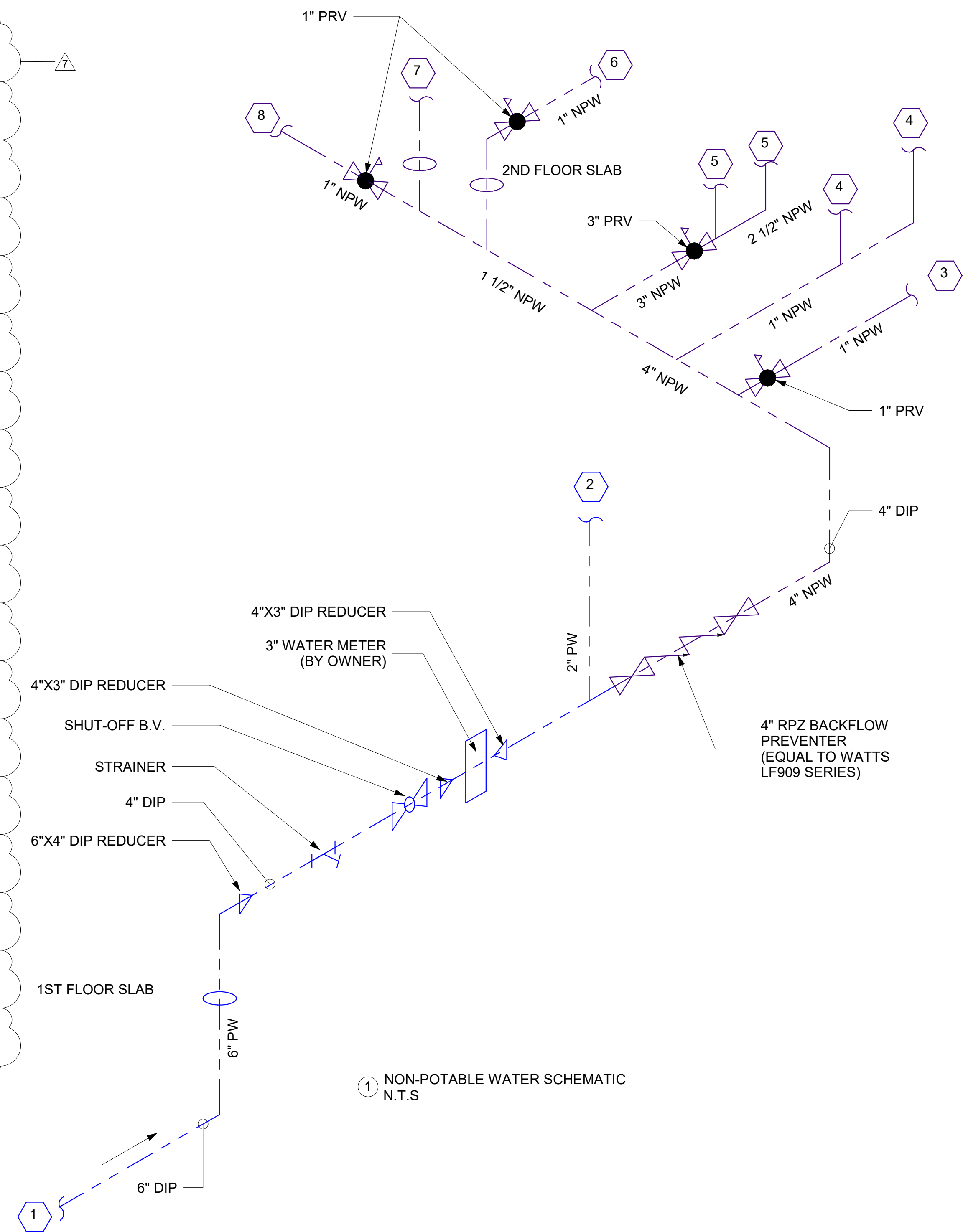


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#### KEY NOTES:

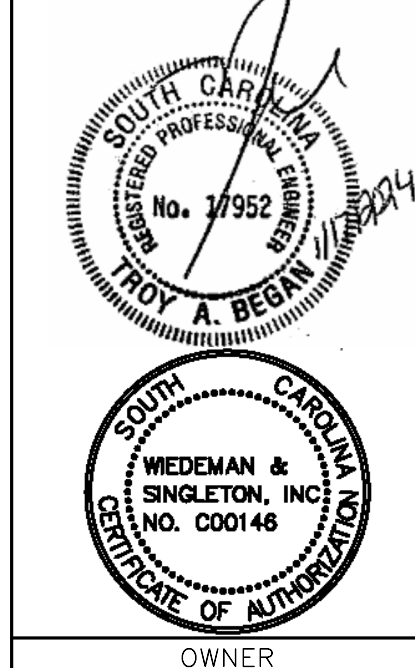
- SEE CIVIL SITE PIPING PLAN FOR CONTINUATION.
  - SEE PLUMBING DRAWINGS FOR CONTINUATION OF DOMESTIC PW PIPING.
  - 1" NPW - ROUTE BELOW SECOND FLOOR SLAB TO ONE (1) HOSE BIB ON FIRST FLOOR, ONE (1) HOSE BIB ON THE SECOND FLOOR AND ONE (1) NON-FREEZE WALL HYDRANTS OUTSIDE BUILDING (HYDRANT ON SOUTH FACE). REFER TO SHEET 01.M.01 FOR APPROX. LOCATION OF HOSE BIBS AND NON-FREEZE HYDRANTS. REFER TO 01.M.05 FOR APPROX. ROUTING OF PIPING TO EACH HOSE BIB. AS REQD. LOCATE PIPING TO AVOID OTHER PIPING. EACH HOSE BIB/NON FREEZE WALL HYDRANT SHALL HAVE A NON-POTABLE WATER PIPING CONNECTION SIZE OF 3/4".
  - 1" NPW - ROUTE TO INCLINED CONVEYORS ON SECOND FLOOR BELOW THE SECOND FLOOR SLAB AND THEN PENETRATE 2ND FLOOR SLAB AT CONVEYORS. REFER TO SHEET 01.M.04 FOR APPROX. LOCATION OF INCLINED CONVEYORS. SEE CONTINUATION OF PIPING ON DWG. 01.CH.01, DETAIL 3.
  - 3" NPW - ROUTE TO CENTRIFUGE UNITS ON SECOND FLOOR BELOW THE SECOND FLOOR SLAB. TEE TO EACH UNIT W/ 2 1/2" LINE THEN PENETRATE 2ND FLOOR SLAB AT SLUDGE INFLUENT FEED POINT. REFER TO SHEET 01.M.04 FOR APPROX. LOCATION OF CENTRIFUGE UNITS. SEE CONTINUATION OF PIPING ON DWG. 01.CH.01, DETAIL 2.
  - 1" NPW - ROUTE UP THROUGH SECOND FLOOR SLAB TO TWO (2) HOSE BIBS ON SECOND FLOOR. REFER TO SHEET 01.M.04 FOR APPROX. LOCATION OF HOSE BIBS. EACH HOSE BIB SHALL HAVE A NON-POTABLE WATER PIPING CONNECTION SIZE OF 3/4".
  - 1 1/2" NPW - ROUTE UP THROUGH SECOND FLOOR SLAB TO MAKE-UP POYLMER SKIDS ON SECOND FLOOR. EACH MAKE-UP POLYMER UNIT SHALL HAVE A CONNECTION SIZE OF 1". REFER TO 01.CH.01, DETAIL 1.
  - 1" NPW - ROUTE BELOW SECOND FLOOR SLAB TO TWO (2) HOSE BIBS ON FIRST FLOOR AND ONE (1) NON-FREEZE WALL HYDRANTS OUTSIDE BUILDING (HYDRANT ON NORTH FACE). REFER TO SHEET 01.M.01 FOR APPROX. LOCATION OF HOSE BIBS AND NON-FREEZE HYDRANTS. REFER TO 01.M.05 FOR APPROX. ROUTING OF PIPING TO EACH HOSE BIB. AS REQD. LOCATE PIPING TO AVOID OTHER PIPING. EACH HOSE BIB/NON FREEZE WALL HYDRANT SHALL HAVE A NON-POTABLE WATER PIPING CONNECTION SIZE OF 3/4".
- ALL NPW AND DOMESTIC POTABLE WATER PIPING/FITTINGS 3 INCH DIAMETER AND SMALLER TO BE COPPER PIPE W/ PRESSURE SEAL FITTINGS, PER SPEC 22.11.00. VALVES AND OTHER APPURTENANCES 3 INCH DIAMETER AND SMALLER SHALL BE BRONZE. ALL OTHER PIPING/FITTINGS/VALVES/APPURTENANCES SHALL BE AS DESIGNATED ON DRAWINGS OR SPECIFICATIONS.



LAYOUT NOTE:  
CENTRIFUGE EQUIPMENT, PIPING & ELEVATED PLATFORM LAYOUT ARE BASED ON ALFA LAVAL CENTRIFUGE ALDEC G3-105. LOCATION, ROUTING & ELEVATION OF ALL THE COMPONENTS REQUIRED TO PROVIDE A COMPLETE & FUNCTIONING SLUDGE DEWATERING CENTRIFUGE ARE SUBJECT TO CHANGE SHOULD ANOTHER CENTRIFUGE MANUFACTURERS' EQUIPMENT BE INSTALLED.

REV.	DATE	DESCRIPTION
1	08/29/2022	70% REVIEW
2	10/12/2022	90% REVIEW
3	02/27/2023	PERMITTING REVIEW
4	06/05/2023	PERMITTING REVISIONS #1
5	09/21/2023	PERMITTING REVISIONS #2
6	12/04/2023	BID READY SET
7	01/22/2024	ADDENDUM #2

SEAL & COA



#### CONSULTANT INFORMATION

PROJECT MANAGER:  
DESIGNED BY: TAB  
DRAWN BY: RAR  
CHECKED BY: TAB  
FILE NAME: FILE NAME  
PROJECT NO.: 056-21-120



#### PROJECT INFORMATION

PROJECT:  
CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA  
SHEET TITLE:  
ALUM SLUDGE DEWATERING BUILDING  
MECHANICAL SECTIONS 4

SCALE: As indicated  
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.

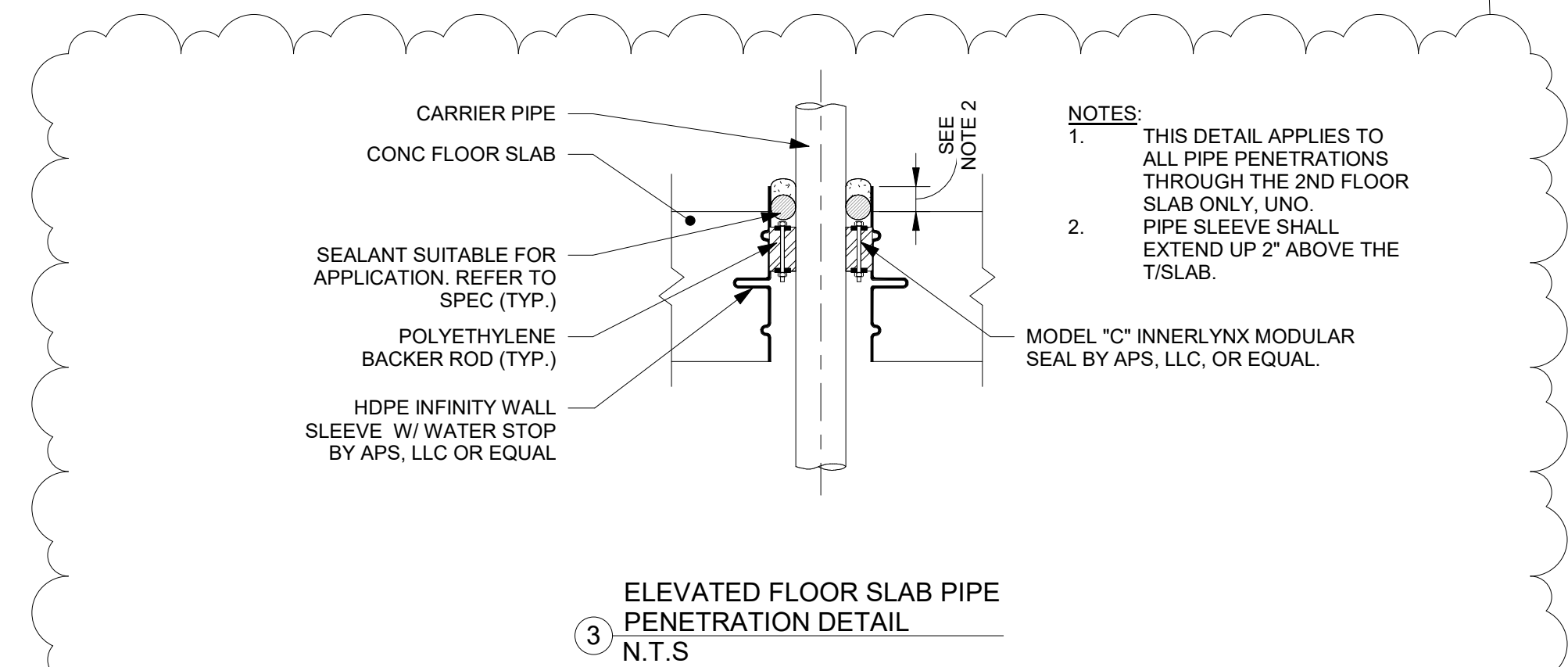
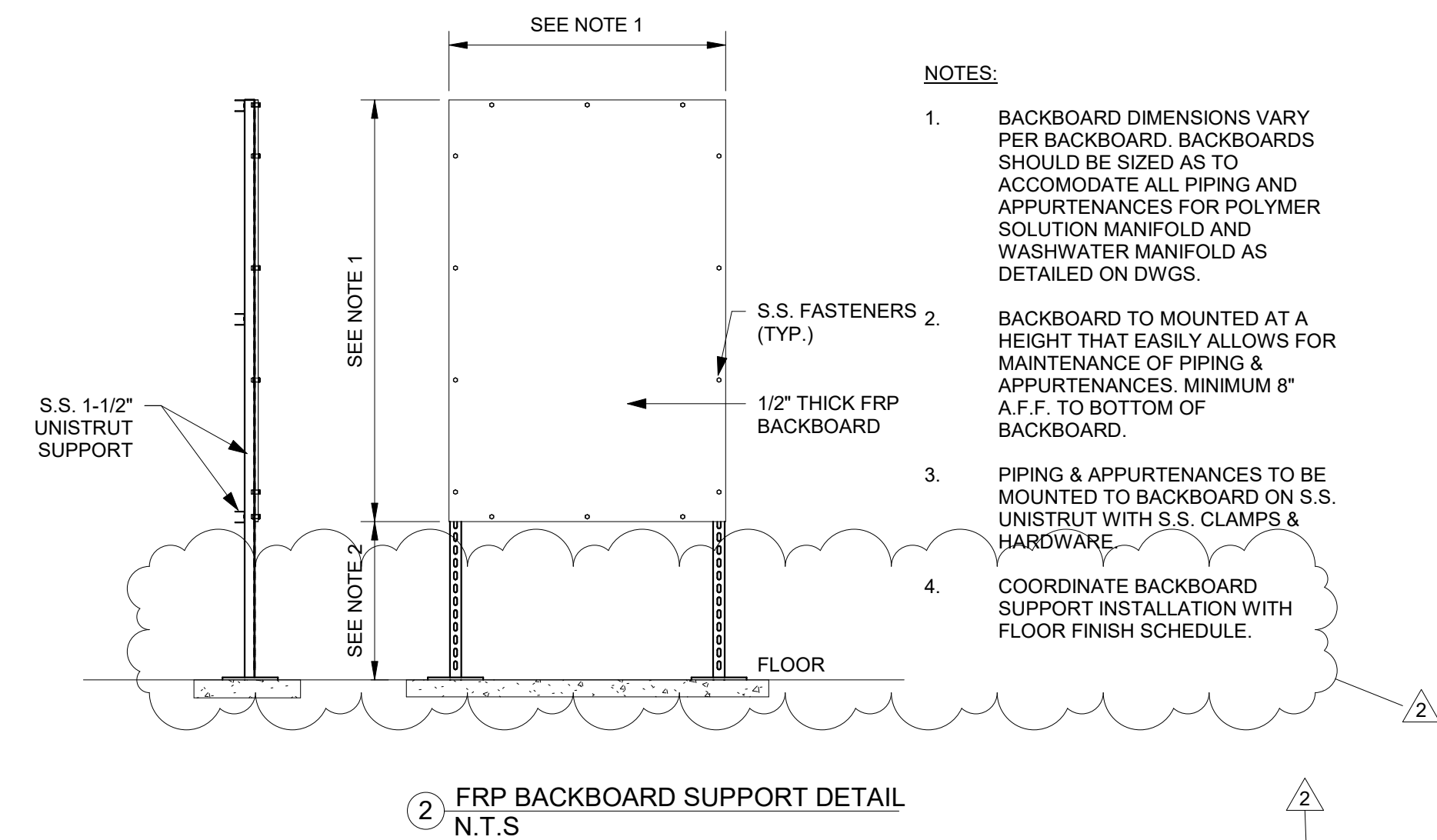
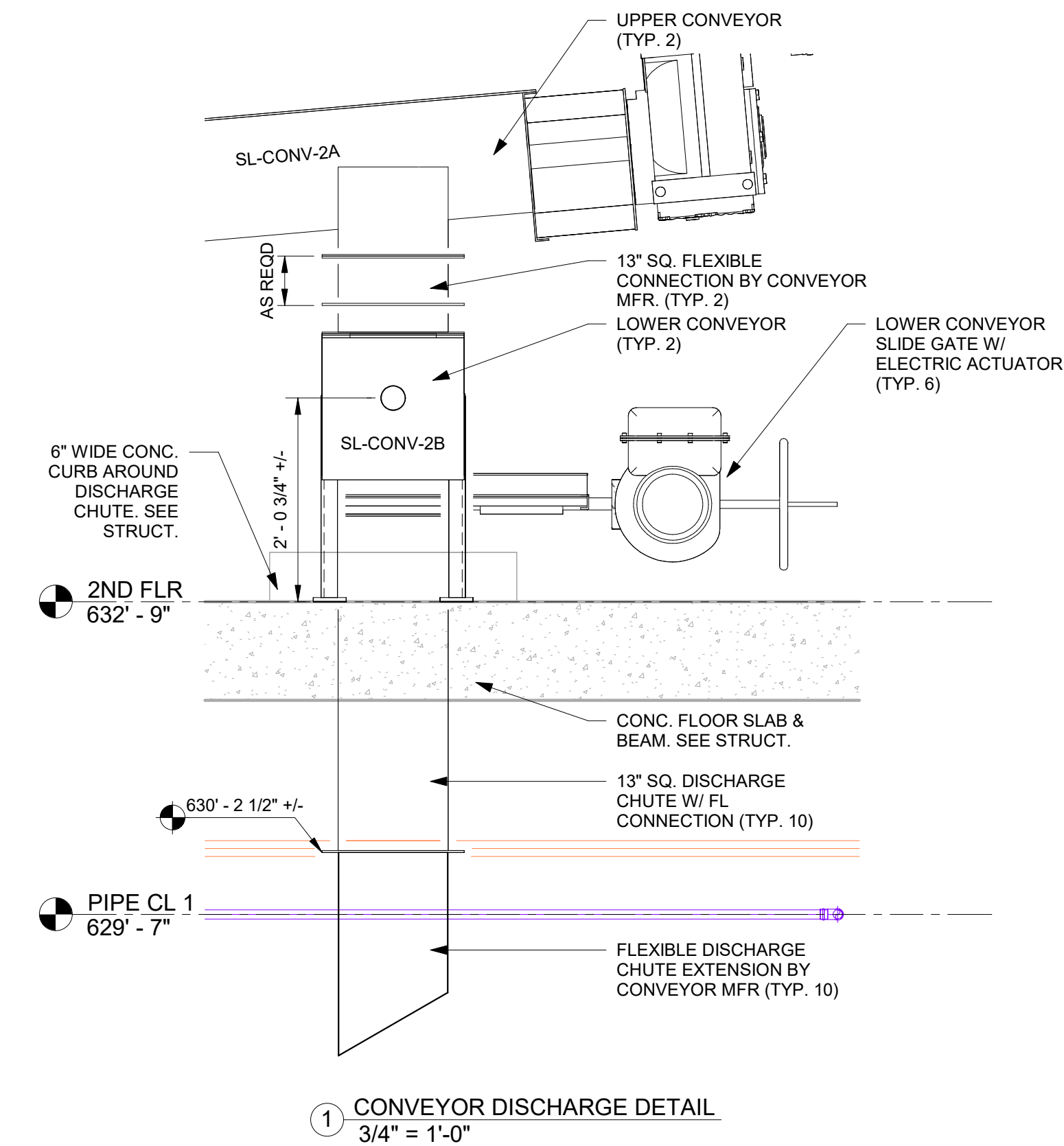
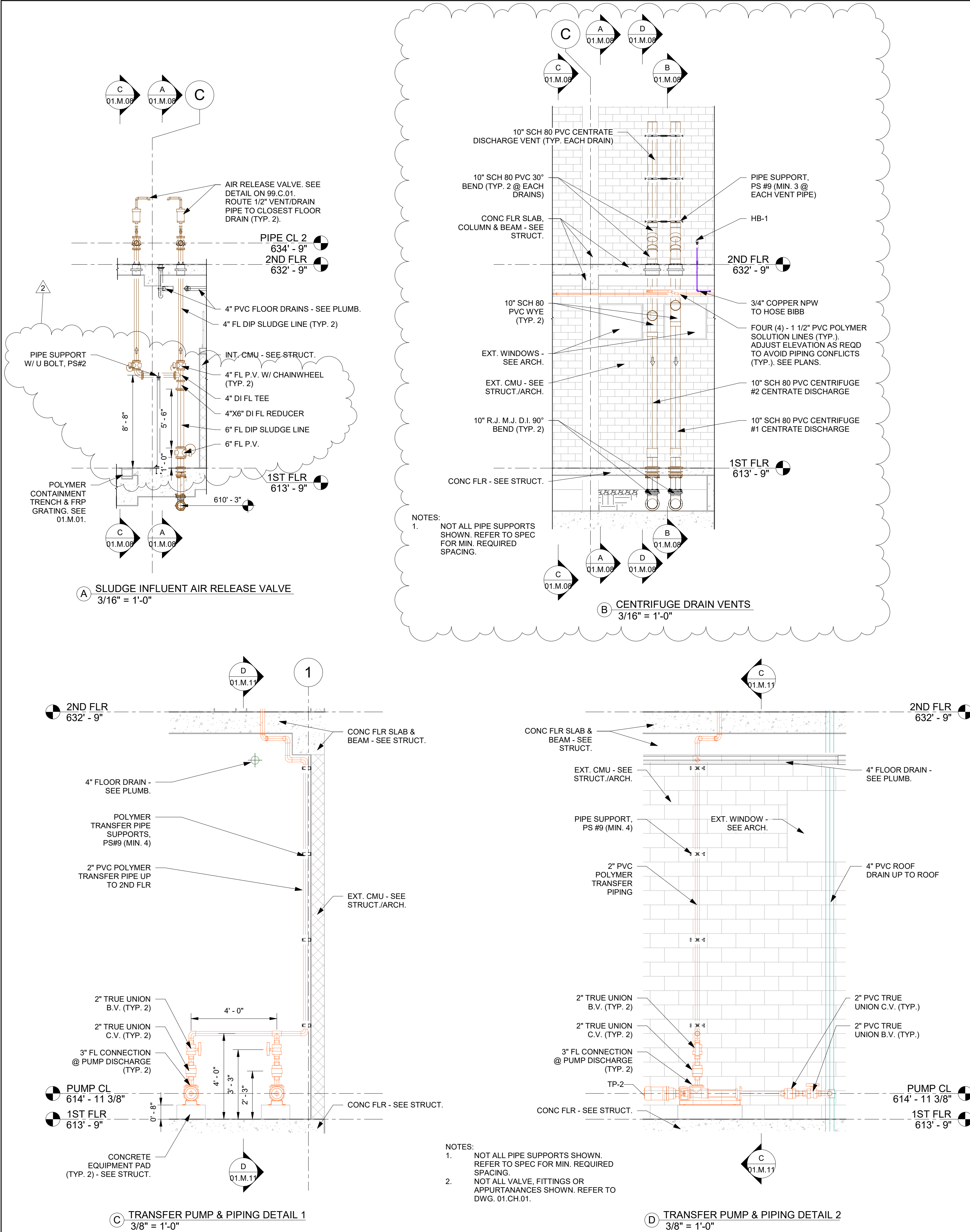
DATE: JANUARY 2024  
DRAWING

SHEET  
51  
OF  
149  
01.M.10



Autodesk Docs: 056-21-120 R4 WTP Alum Sludge Dewatering Facility/Area 01 - Alum Sludge Dewatering Building.rvt

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2	01/22/2024	ADDENDUM #2	

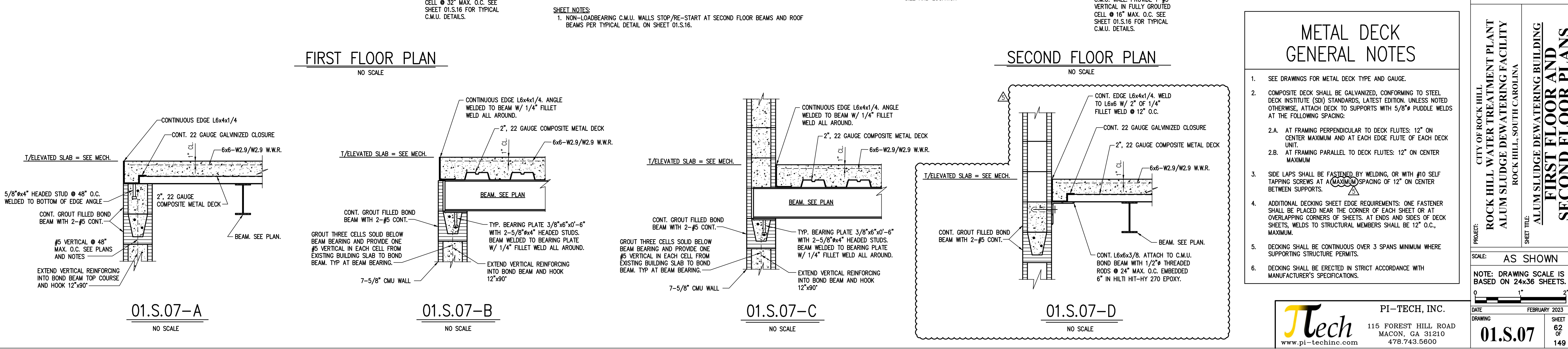
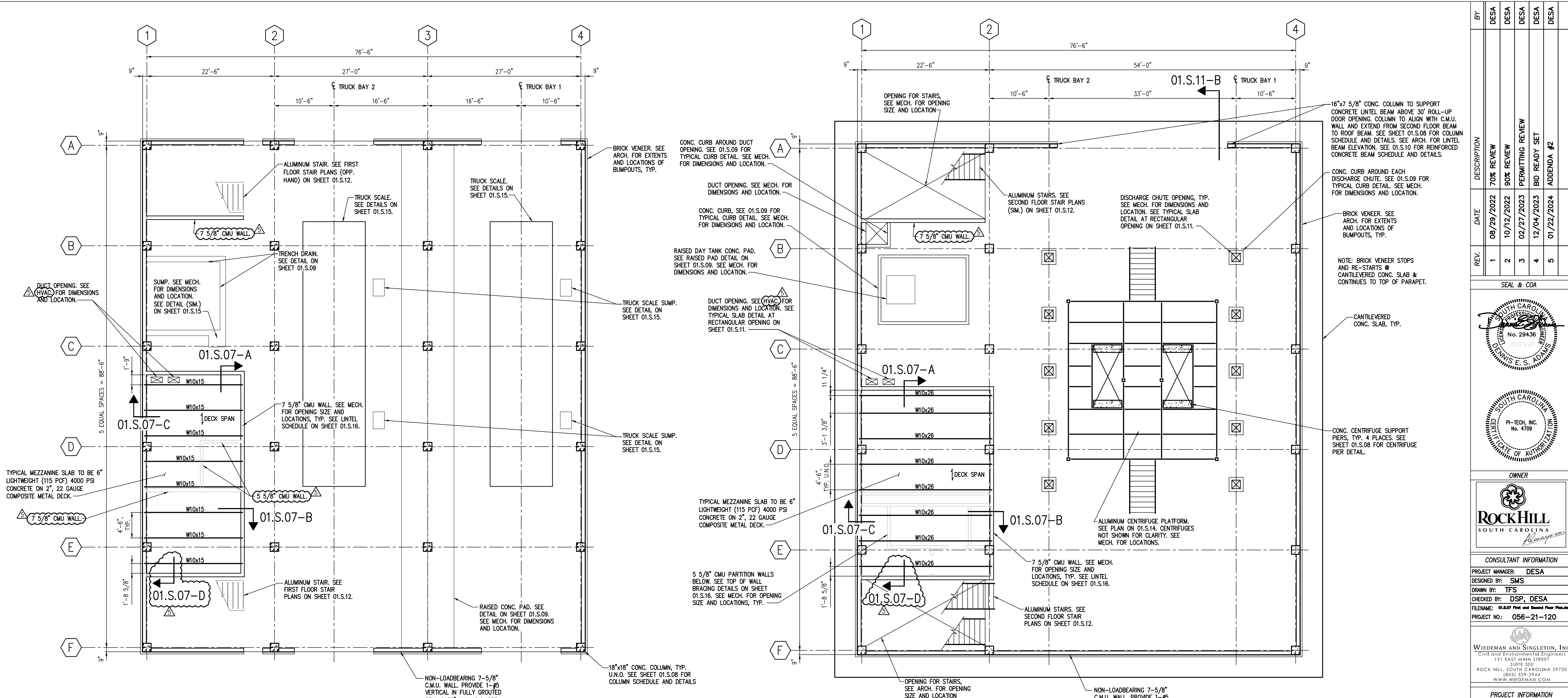
SEAL & COA
OWNER
CONSULTANT INFORMATION
PROJECT MANAGER:
DESIGNED BY: TAB
DRAWN BY: RAR
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FILE NAME: FILE NAME
PROJECT NO.: 056-21-120
WIEDEMAN & SINGLETON, INC. Civil and Environmental Engineers 131 EAST MAIN STREET SUITE 300 ROCK HILL, SC 29730 (803) 397-2944 WWW.WIEDEMAN.COM
PROJECT INFORMATION
CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE: ALUM SLUDGE DEWATERING BUILDING MECHANICAL SECTIONS 5 & MISC DETAILS
SCALE: As indicated
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.
DATE: JANUARY 2024
DRAWING
SHEET OF 149
01.M.11









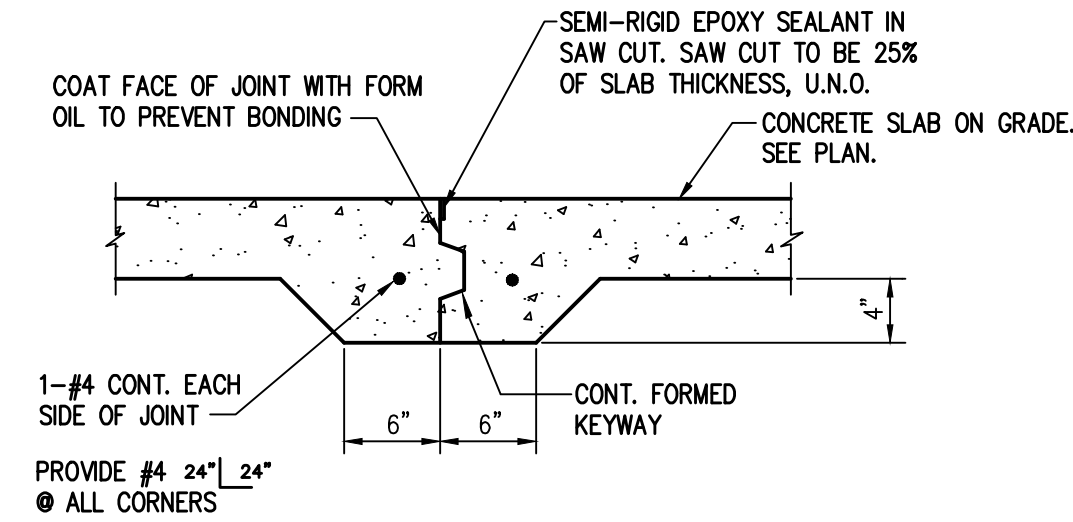


BY	REVISION	DATE	DESCRIPTION
DESA	1	08/29/2022	70% REVIEW
DESA	2	10/12/2022	90% REVIEW
DESA	3	02/27/2023	PERMITTING REVIEW
DESA	4	12/04/2023	BID READY SET
DESA	5	01/22/2024	APPENDIX #2

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OWNER
CONSULTANT INFORMATION
PROJECT MANAGER: DESA
DESIGNED BY: SMS
DRAWN BY: TFS
CHECKED BY: DSP, DESA
FILENAME: 01.S.07 First and Second Floor Plans
PROJECT NO.: 056-21-120
WIEDEMAN AND SINGLETON, INC.
Civil and Environmental Engineers
131 EAST MAIN STREET
SUITE 300
ROCK HILL, SOUTH CAROLINA 29730
(803) 329-2944
WWW.WIEDEMAN.COM
PROJECT INFORMATION
CITY OF ROCK HILL
ROCK HILL WATER TREATMENT PLANT
ALUM SLAGGE DEWATERING FACILITY
ROCK HILL, SOUTH CAROLINA
PROJECT:
SHEET TITLE:
SCALE: AS SHOWN
NOTE: DRAWING SCALE IS BASED ON 24x36 SHEETS.
DATE: FEBRUARY 2023
DRAWING: 01.S.07
SHEET: 62 OF 149



CONCRETE SLAB ON GRADE  
JOINTING GENERAL NOTES & DETAILS

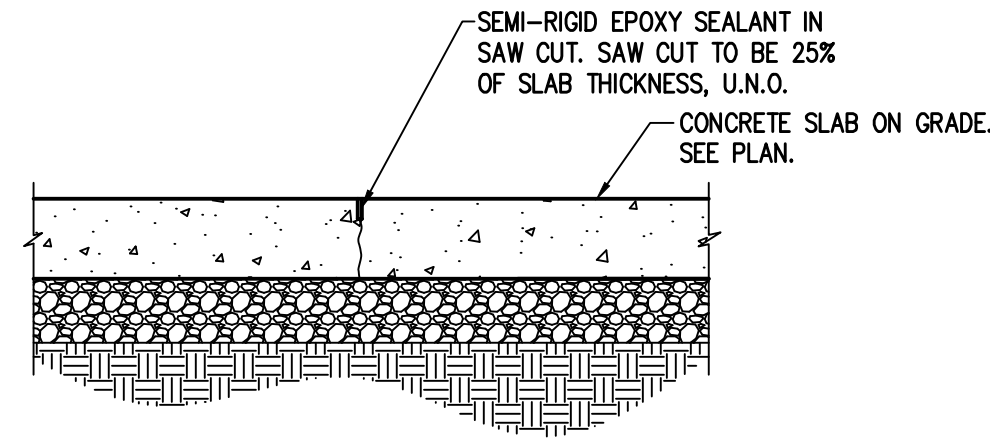


TYPICAL CONSTRUCTION JOINT (CJ) DETAIL

SCALE: 1"=1'-0"

THIS DETAIL MAY BE USED AT THE CONTRACTOR'S DISCRETION WHERE A CONSTRUCTION JOINT IN THE SLAB IS REQUIRED.

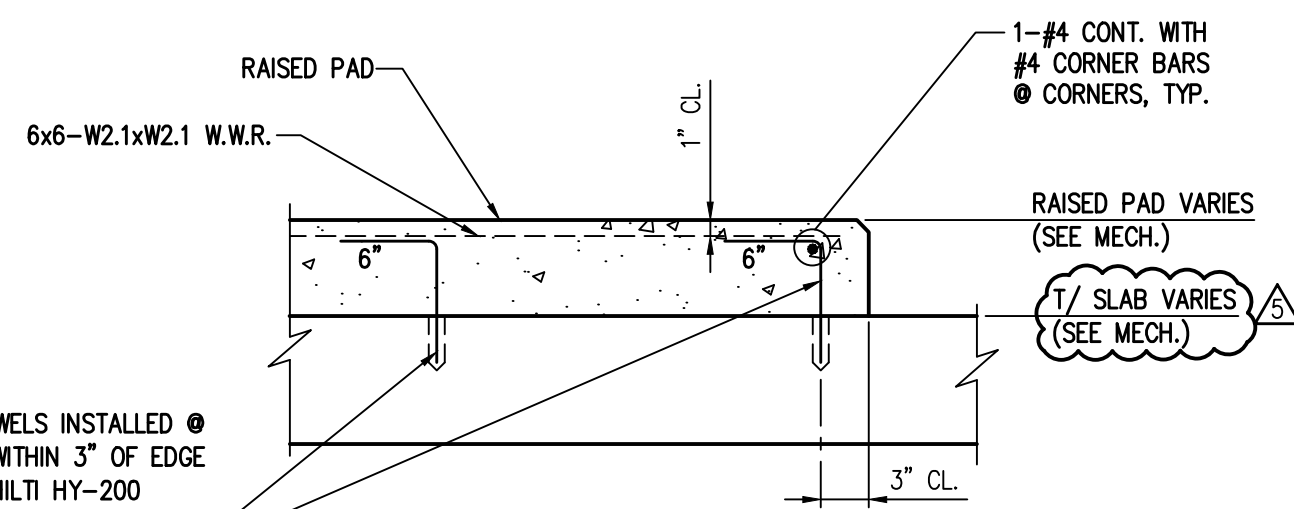
ISOLATION JOINTS ARE REQUIRED BETWEEN THE SLAB AND ADJOINING BUILDING ELEMENTS SUCH AS WALLS & COLUMNS. ISOLATION JOINTS SHALL BE FORMED BY INSERTING PREFORMED EXPANSION JOINT MATERIAL (P.E.J.) BETWEEN THE SLAB AND THE ADJOINING ELEMENT. THE TOP OF THE P.E.J. SHALL BE REMOVED AND CAULKED WITH AN ELASTOMERIC SEALANT. COORDINATE REQUIREMENTS FOR JOINTS WITH EPOXY RESIN FLOORING.



SAWCUT SLAB JOINT (SJ) DETAIL

SCALE: 1"=1'-0"

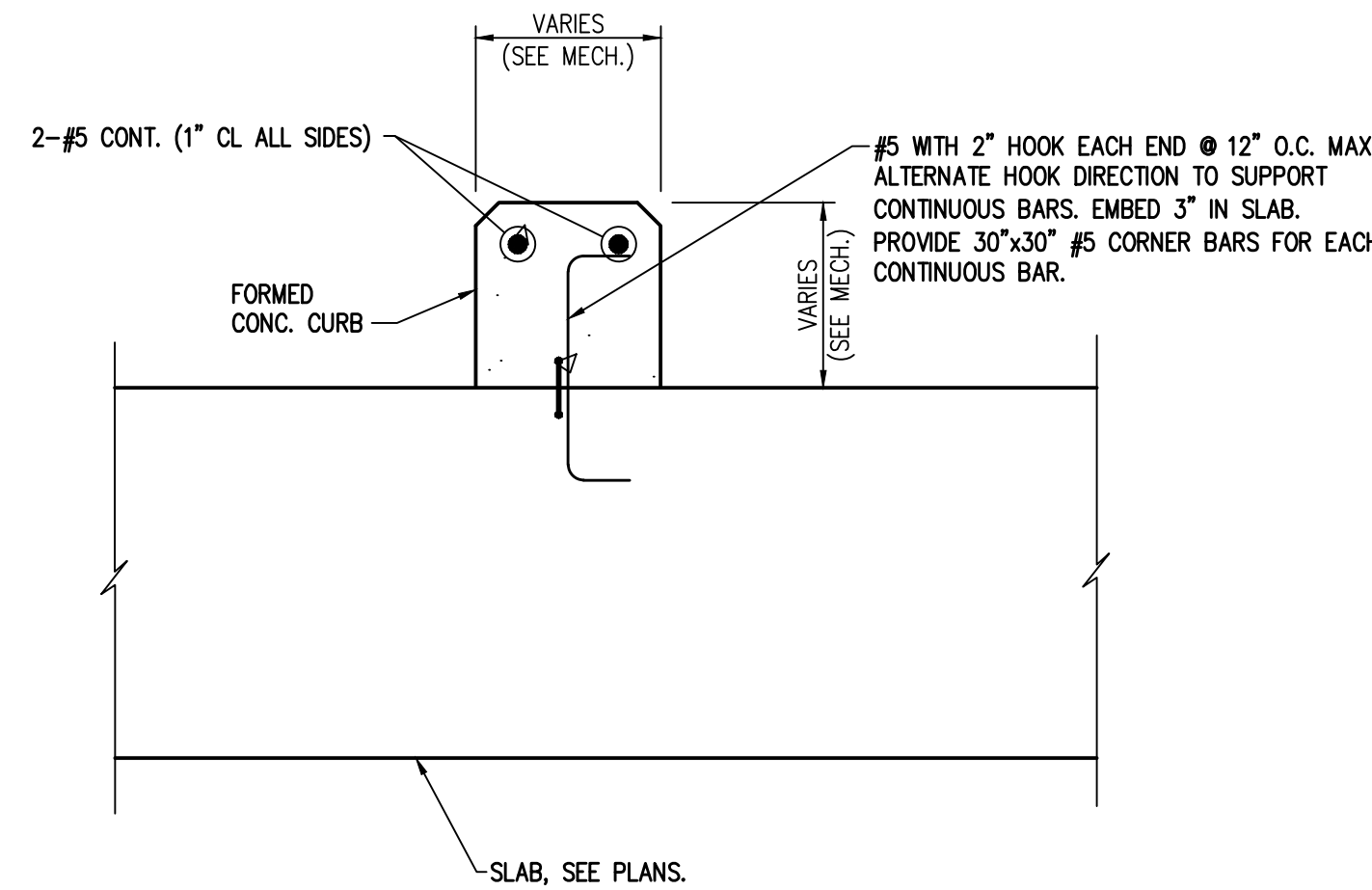
THE CONTRACTOR SHALL SUBMIT A FLOOR JOINT LAYOUT & PLACING SEQUENCE FOR REVIEW A MINIMUM OF 3 WEEKS PRIOR TO SLAB POUR. JOINTING LAYOUT AND SEQUENCE SHALL CONFORM TO ACI 302. THE SLAB MAY BE POURED MONOLITHICALLY (IN LIEU OF KEYED JOINTS) PROVIDED THAT THE JOINTS ARE CUT AS SOON AS THE SLAB CAN SUPPORT AN OPERATOR AND EQUIPMENT (BUT NO MORE THAN 4 HOURS AFTER THE POUR). SAWCUT JOINTS SHOULD BE A MIN. OF 25% OF SLAB THICKNESS AND SHALL BE LOCATED AT 15'-0" MAX. ON CENTER. JOINTS SHOULD BE LOCATED SUCH THAT THE SIDE RATIO OF EACH AREA DOES NOT EXCEED 3:2. HOWEVER A RATIO OF 1:1 IS PREFERRED. PROVIDE EITHER A SAWCUT JOINT OR 2-#4'S x 6'-0" AT ALL RE-ENTRANT CORNERS. SAW CUT SHOULD BE CENTERED ON COLUMNS. SEE TYPICAL SLAB ON GRADE JOINT DETAIL AT COLUMNS FOR REINFORCEMENT AND SAWCUT AT COLUMNS.



NOTE:  
CHAMFER ALL EXPOSED EDGES OF NEW PAD 3/4"x3/4"

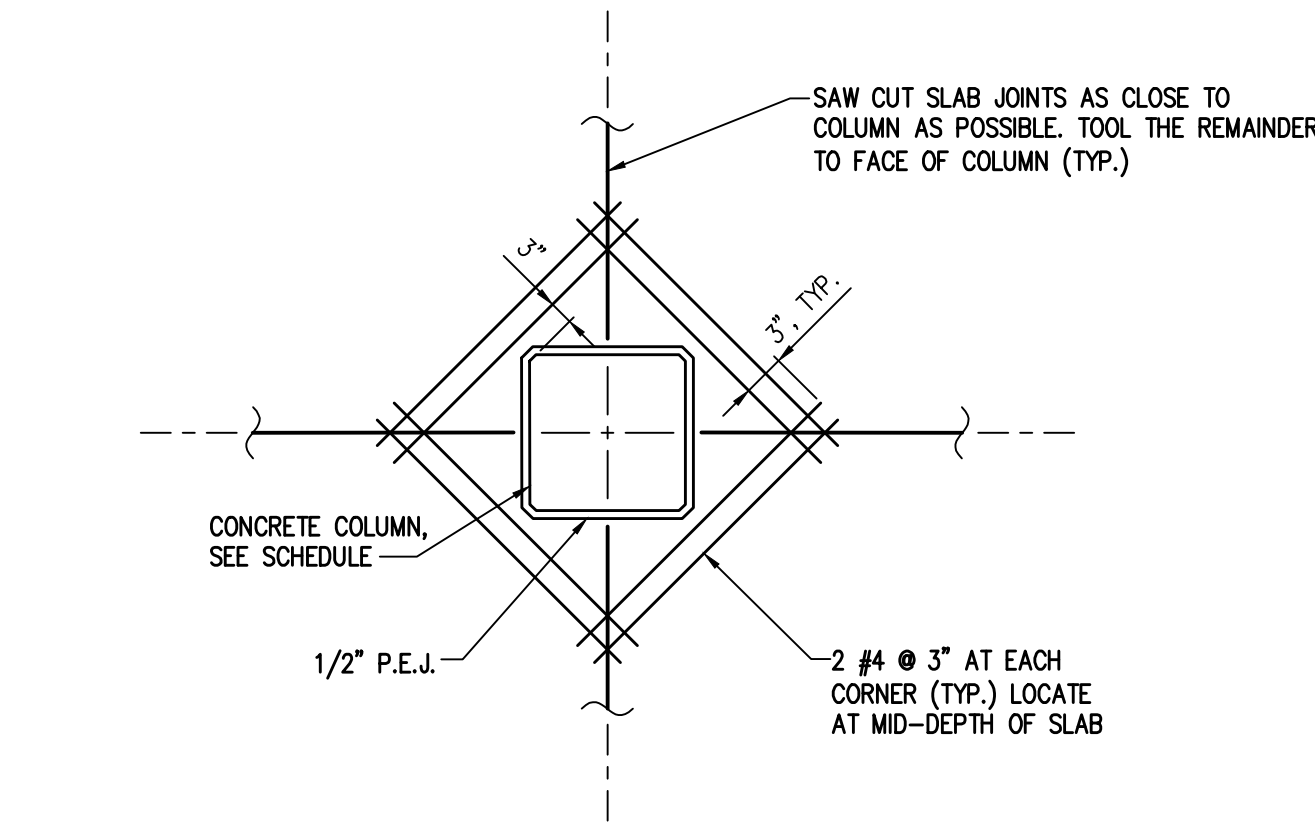
RAISED PAD DETAIL

NO SCALE



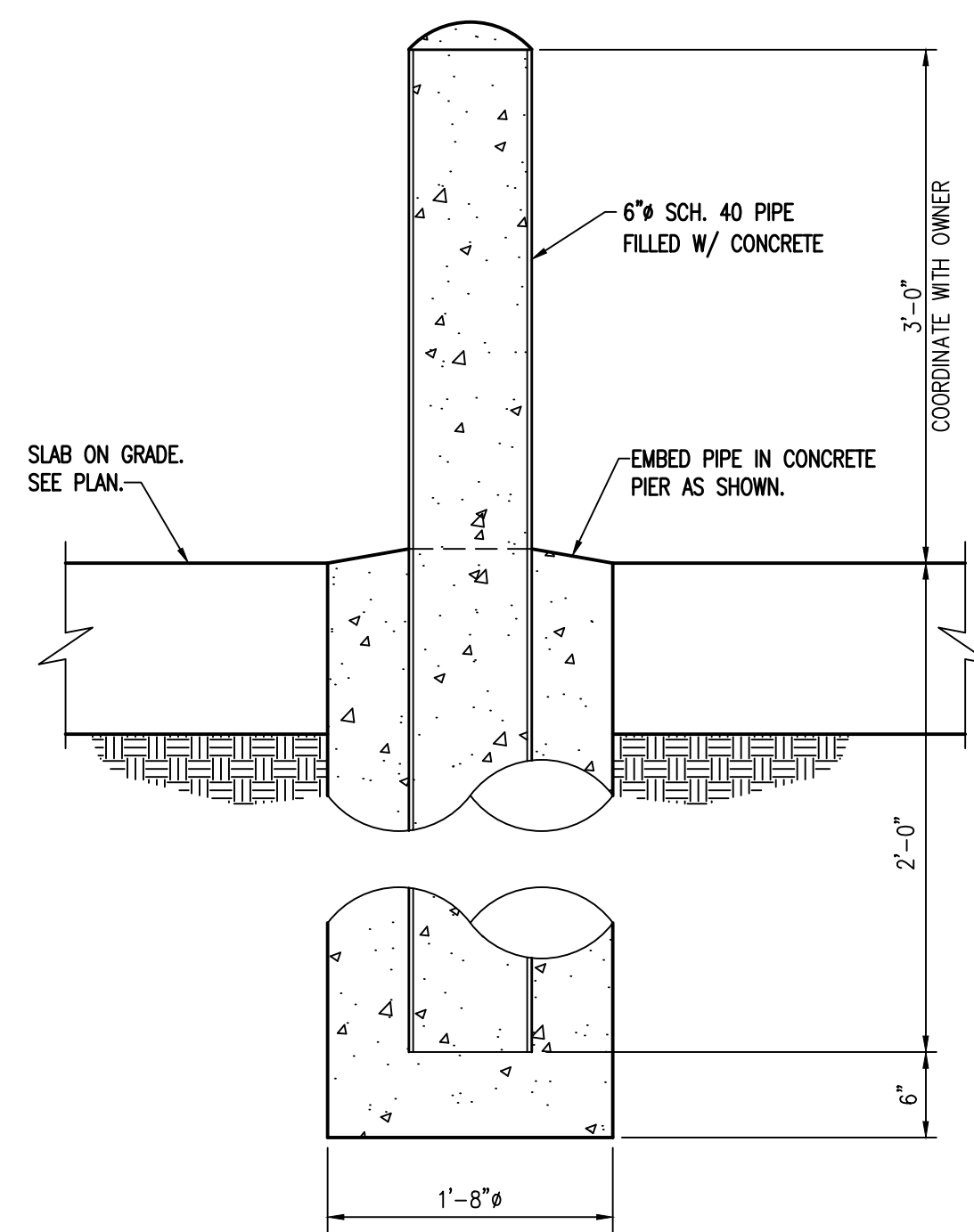
TYPICAL CURB DETAIL

NO SCALE



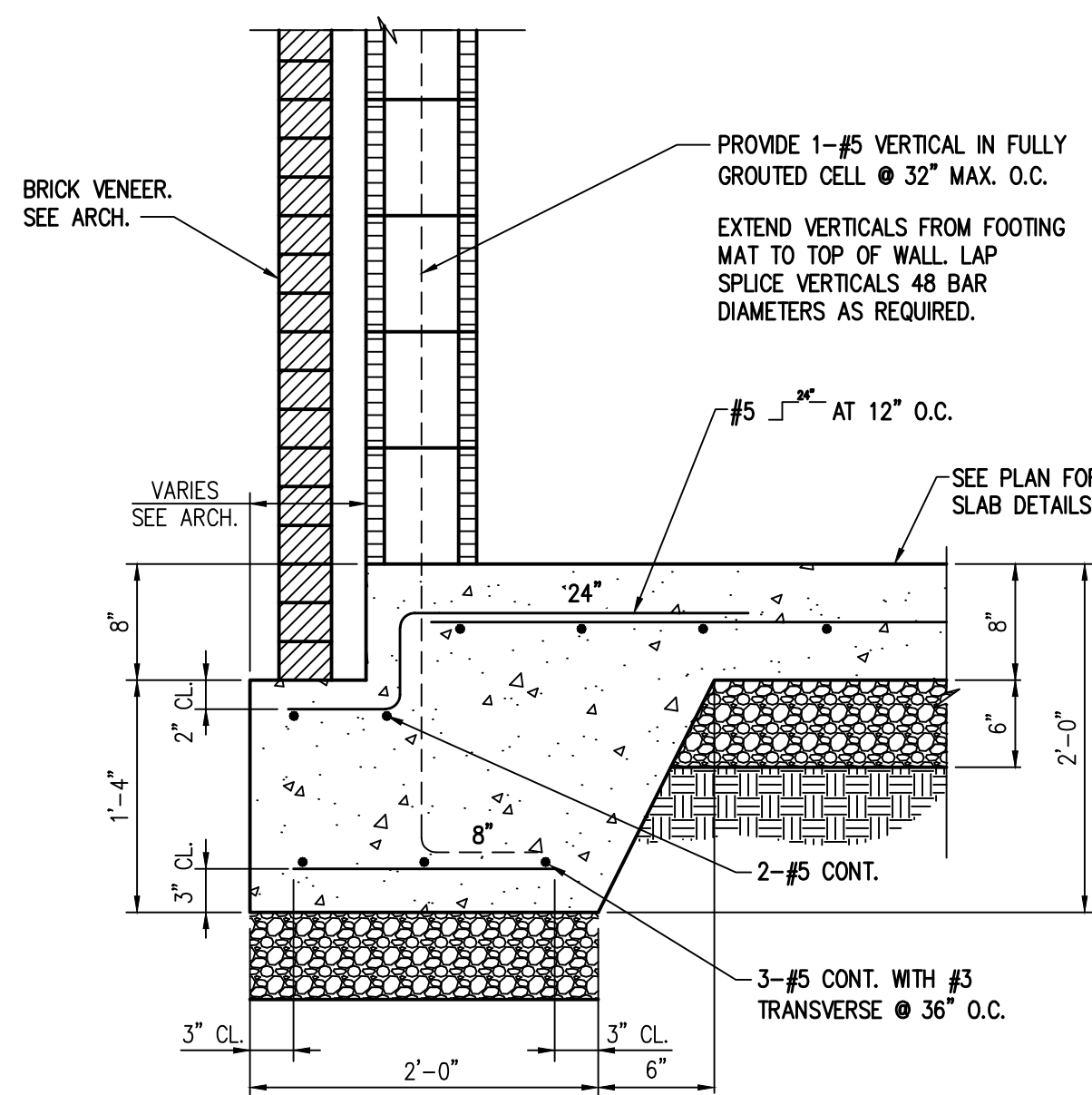
TYP. SLAB ON GRADE JOINT  
AT COLUMNS

NO SCALE



TYPICAL BOLLARD DETAIL (FOR TRUCK BAYS ONLY)

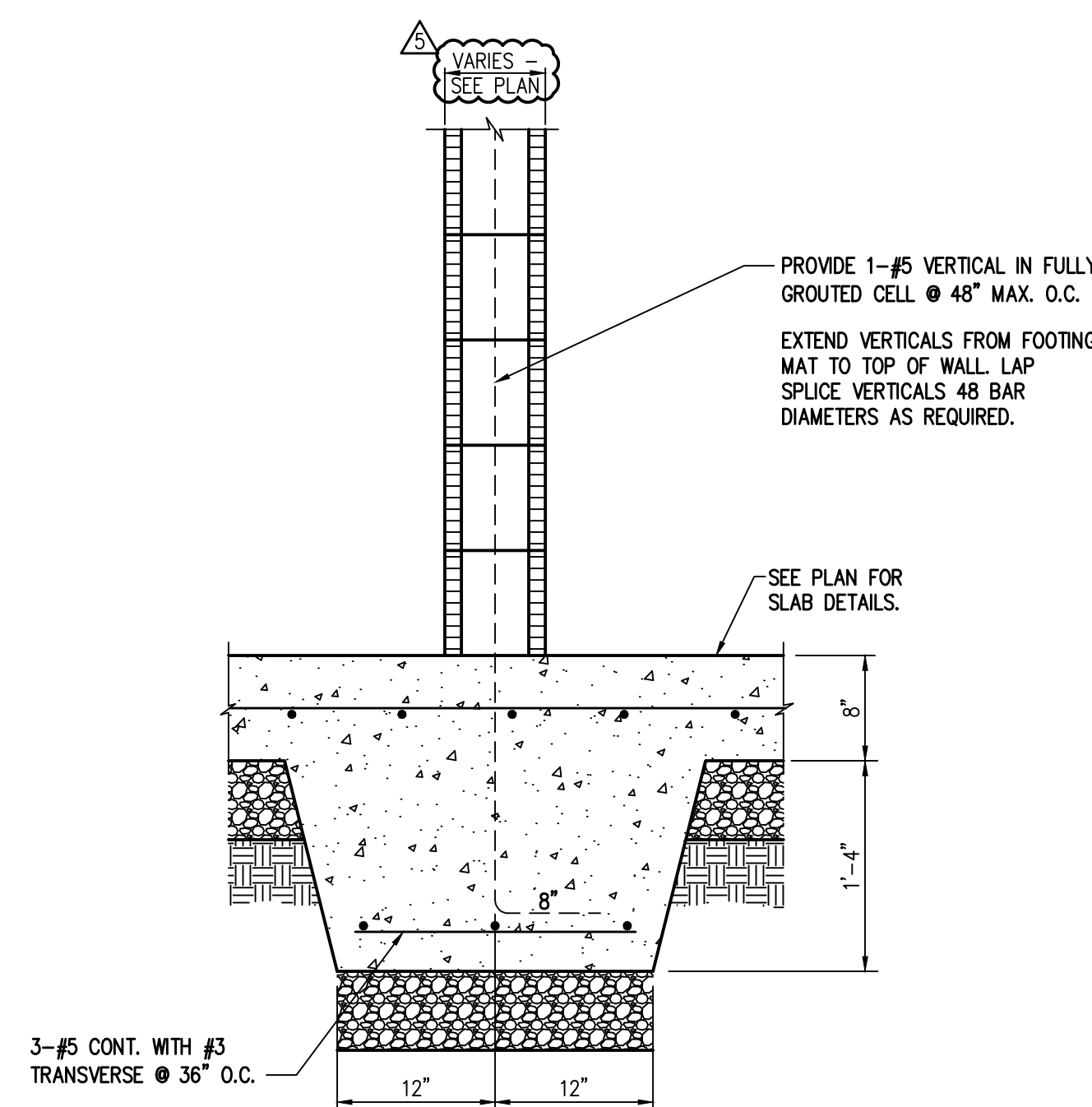
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NOTE:  
CONTINUE TURNDOWN REINFORCING THROUGH COLUMN FOOTINGS, U.N.O.

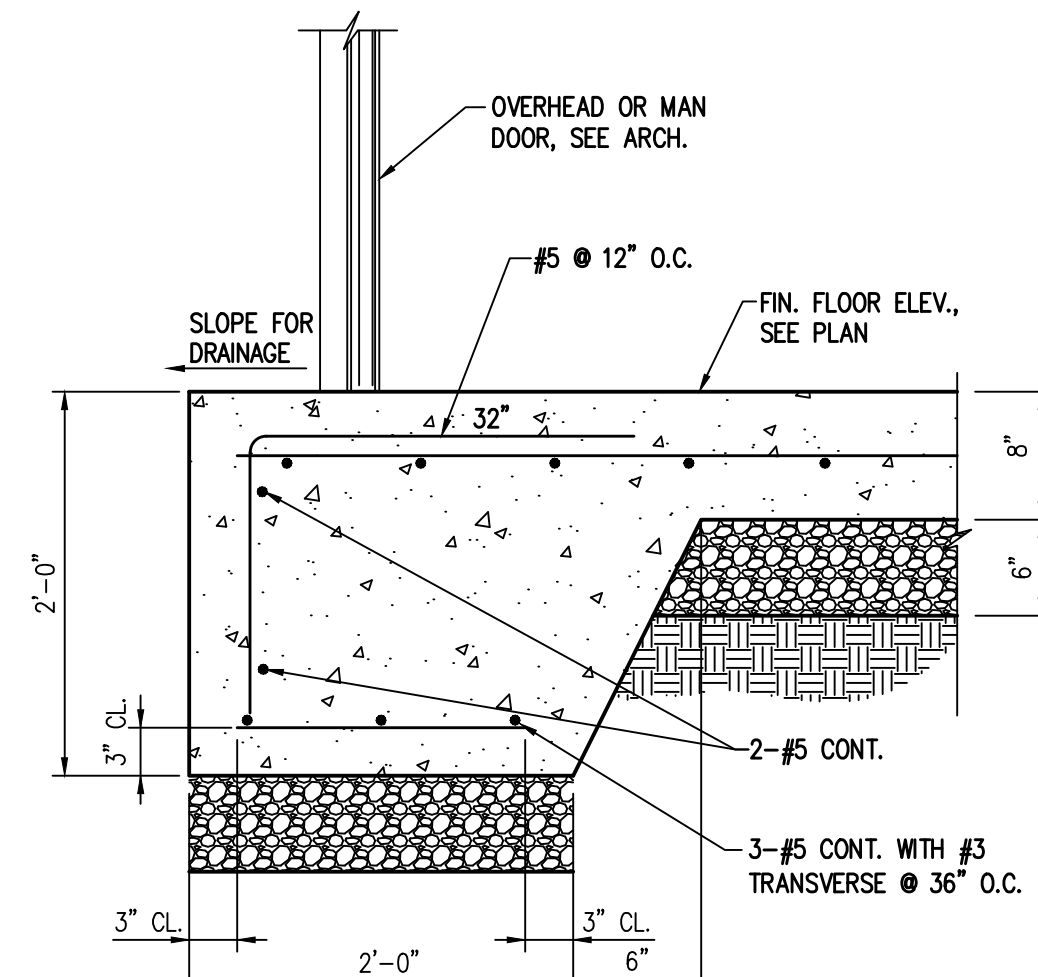
01.S.09-A

NO SCALE



01.S.09-B

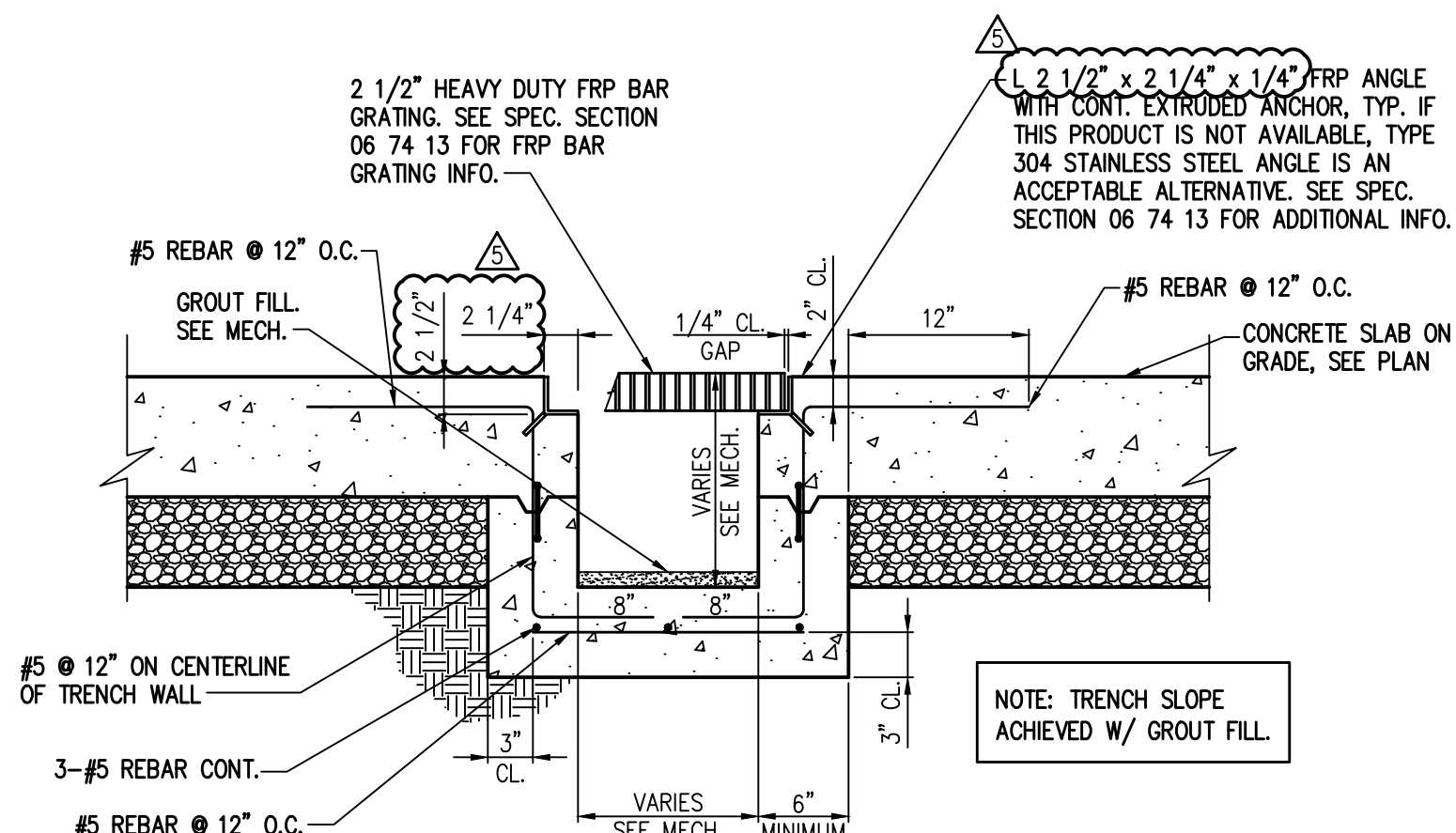
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NOTE:  
USE 0\"/>

01.S.09-C: EXTERIOR SLAB TURNDOWN @ WALL OPENINGS

NO SCALE

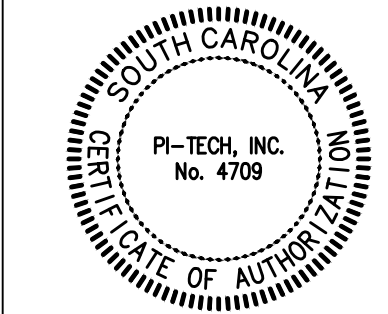
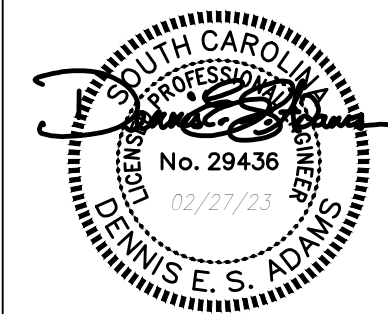


TYPICAL TRENCH DRAIN

NO SCALE

REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	DESA
2	10/12/2022	90% REVIEW	DESA
3	02/27/2023	PERMITTING REVIEW	DESA
4	12/04/2023	BID READY SET	DESA
5	01/22/2024	APPENDIX #2	DESA

SEAL & COA



OWNER



CONSULTANT INFORMATION

PROJECT MANAGER:	DESA
DESIGNED BY:	SMS
DRAWN BY:	TFS
CHECKED BY:	DSP, DESA
FILENAME:	01.S.09 Foundation and Slab Detailing
PROJECT NO.:	056-21-120

WIEDEMAN AND SINGLETON, INC.

Civil and Environmental Engineers  
131 EAST MAIN STREET  
SUITE 300  
ROCK HILL, SOUTH CAROLINA 29730  
(803) 329-2944  
WWW.WIEDEMAN.COM

PROJECT INFORMATION

PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE:	ALUM SLUDGE DEWATERING BUILDING FOUNDATION AND SLAB DETAILS
SCALE:	AS SHOWN
NOTE:	DRAWING SCALE IS BASED ON 24x36 SHEETS.
DATE:	FEBRUARY 2023
DRAWING SHEET	01.S.09 64 OF 149



PI-TECH, INC.  
115 FOREST HILL ROAD  
MACON, GA 31210  
478.743.5600



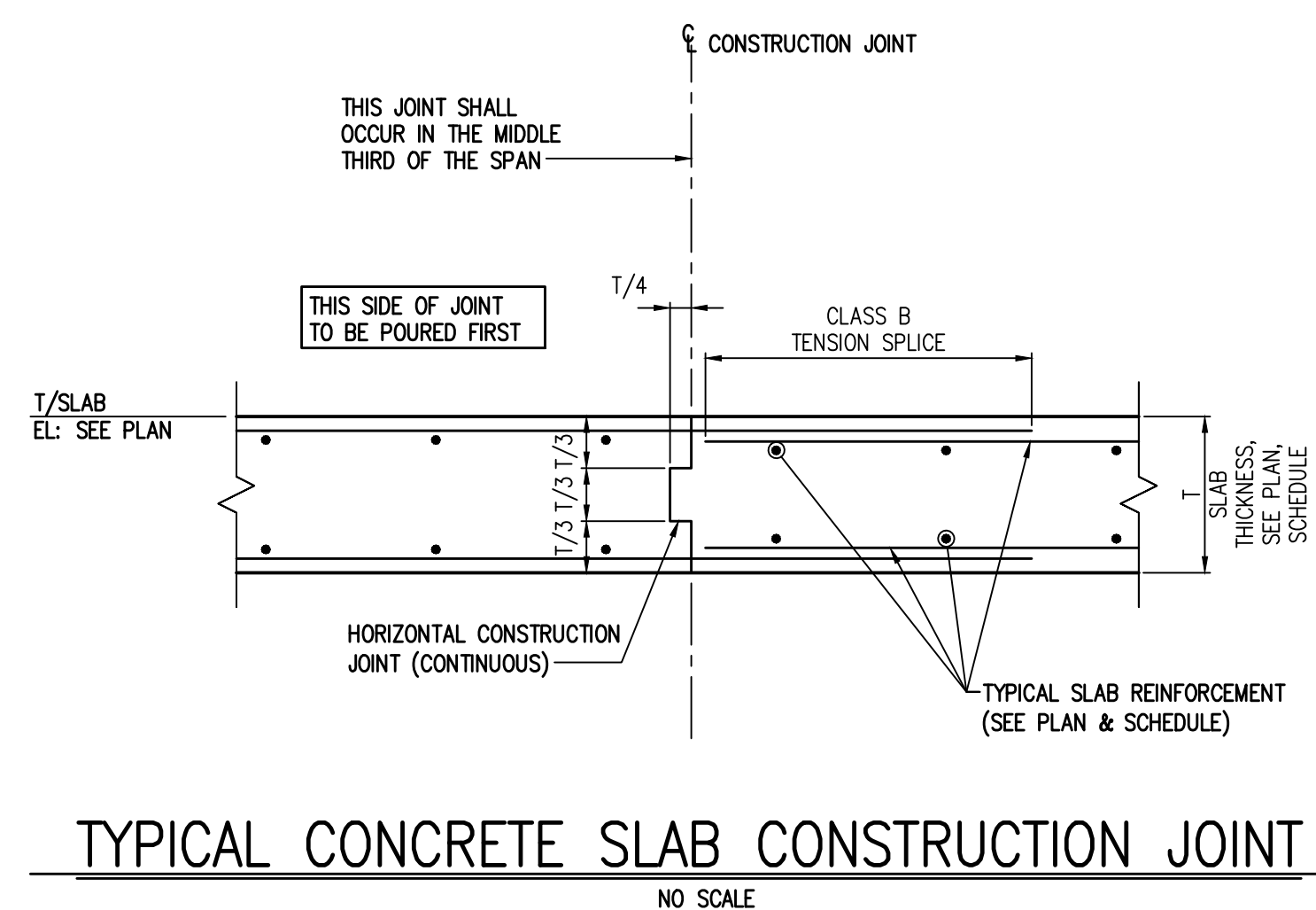
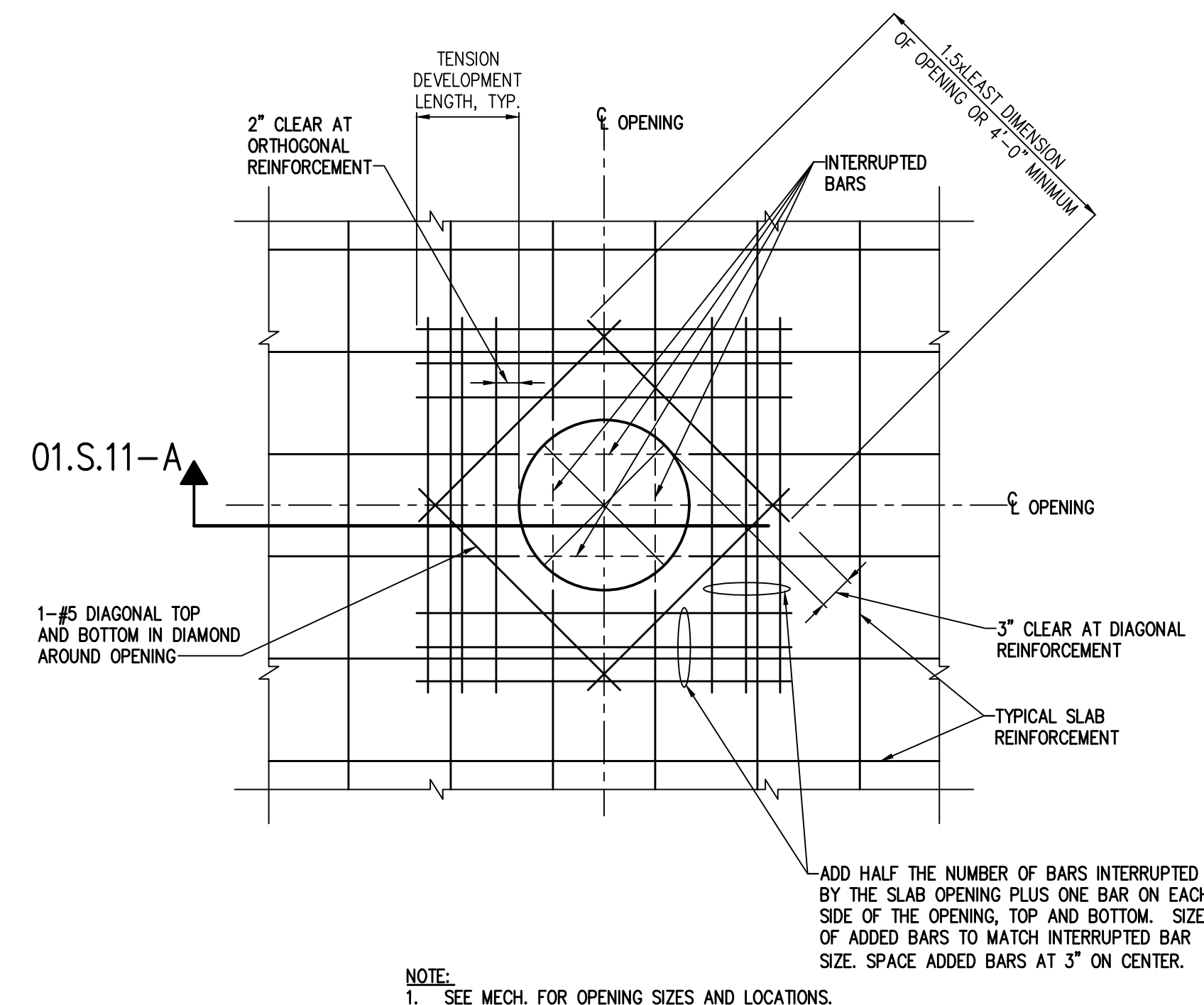


Diagram illustrating the typical slab reinforcement details for a slab with an opening.

Labels and Callouts:

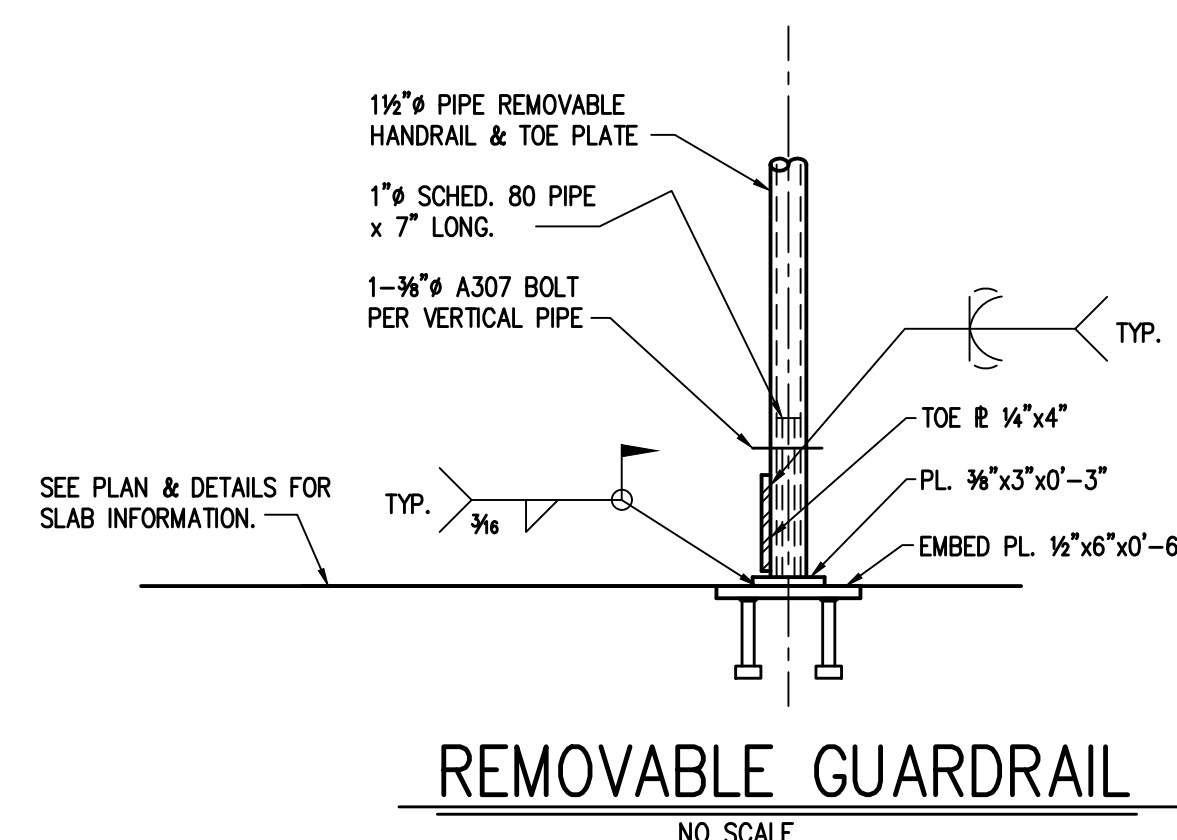
- ACI STANDARD 90° HOOK AT TERMINATION OF INTERRUPTED TOP AND BOTTOM BARS
- ADDED BARS AT SIDE OF OPENING, TYPICAL (SEE TYP. SLAB AT RECTANGULAR AND CIRCULAR OPENING DETAILS.)
- OPENING
- 2" CL. TYP.
- T/SLAB EL.: SEE PLAN
- 3" TYP.
- 3" TYP.
- TYPICAL SLAB REINFORCEMENT
- #5 DIAGONAL BARS, TYPICAL
- ACI STANDARD HOOK, TYPICAL
- SLAB THICKNESS
- SEE PLAN SCHEDULE

01.S.11-A: TYPICAL SECTION AT SLAB OPENING

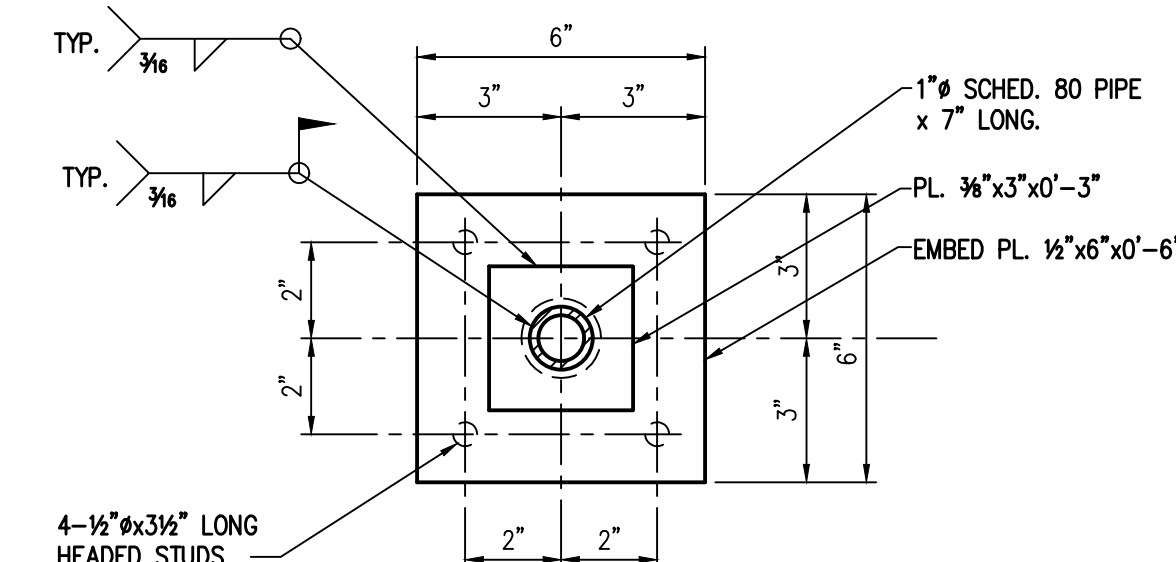


TYPICAL SLAB DETAIL AT RECTANGULAR OPENING

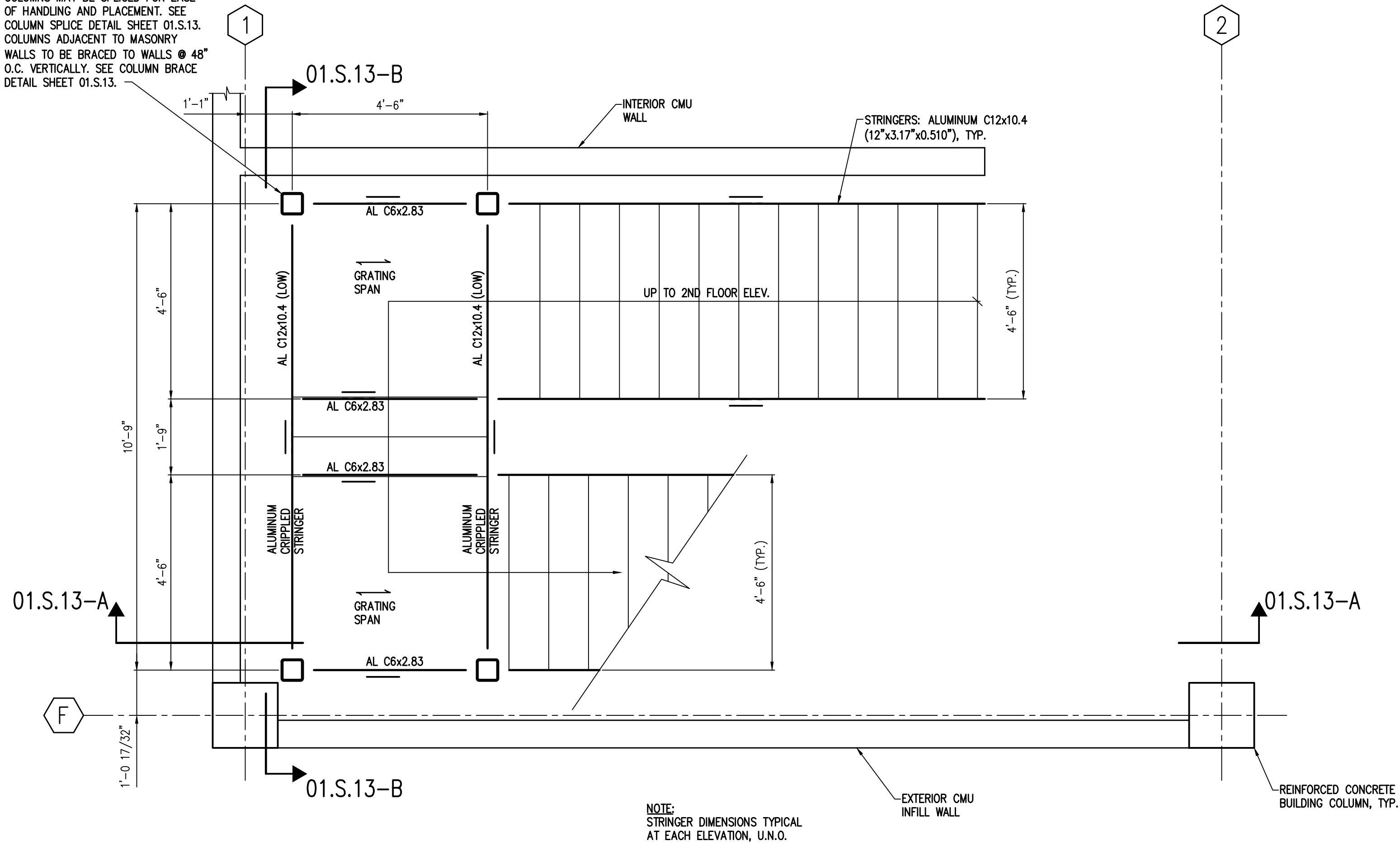
TYPICAL SLAB DETAIL AT CIRCULAR OPENING



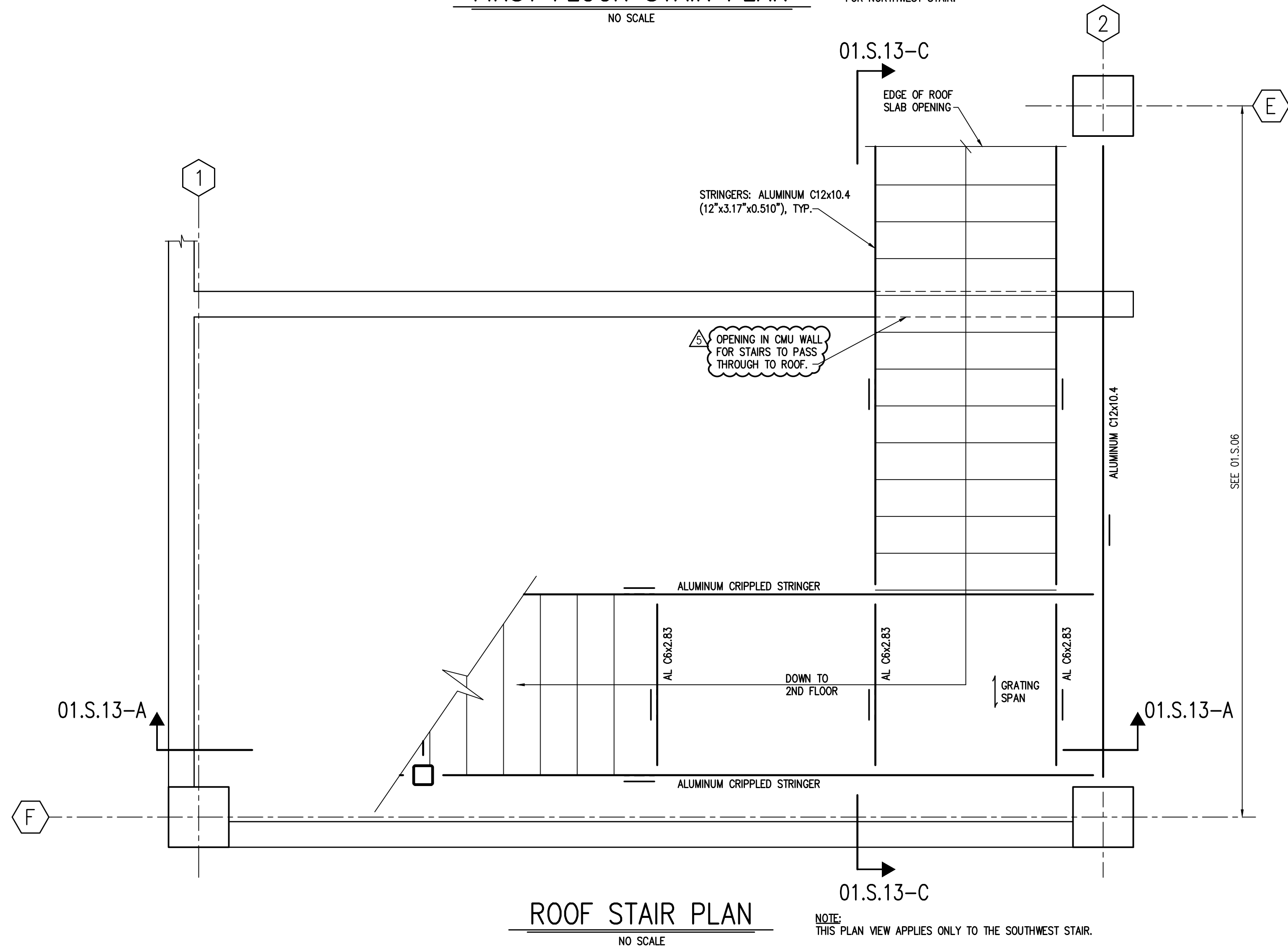
REMOVABLE GUARDRAIL POST BASE



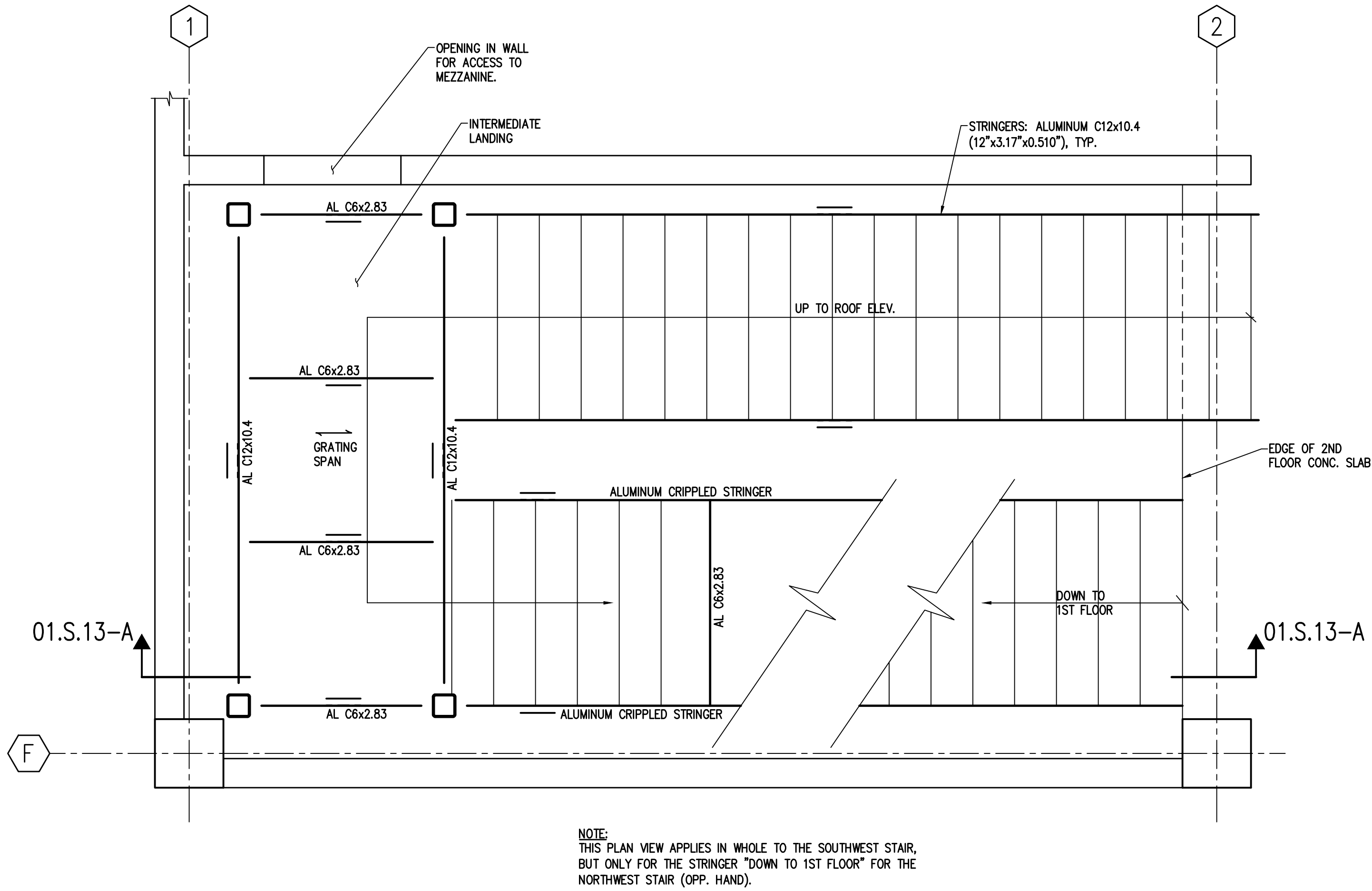
ALUMINUM TUBE 6x6x1/4 COLUMN, TYP.  
COLUMNS MAY BE SPLICED FOR EASE  
OF HANDLING AND PLACEMENT. SEE  
COLUMN SPLICE DETAIL SHEET 01.S.13.  
COLUMNS ADJACENT TO MASONRY  
WALLS TO BE BRACED TO WALLS @ 48"  
O.C. VERTICALLY. SEE COLUMN BRACE  
DETAIL SHEET 01.S.13.



FIRST FLOOR STAIR PLAN  
NO SCALE



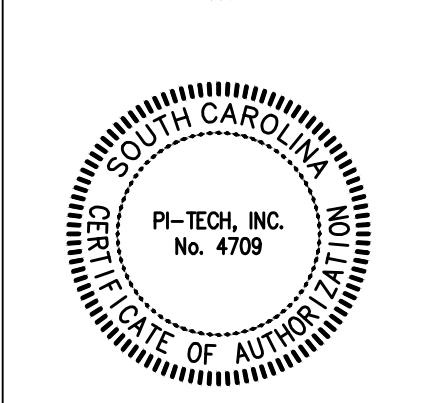
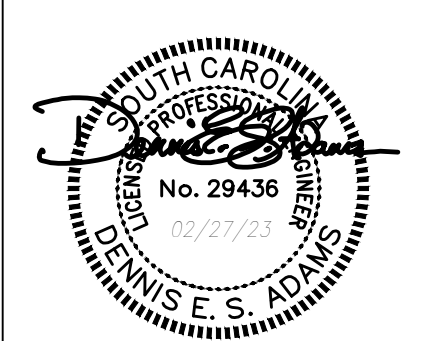
ROOF STAIR PLAN  
NO SCALE



SECOND FLOOR STAIR PLAN  
NO SCALE

REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	DESA
2	10/12/2022	90% REVIEW	DESA
3	02/27/2023	PERMITTING REVIEW	DESA
4	12/04/2023	BID READY SET	DESA
5	01/22/2024	ADDENDA #2	DESA

SEAL & COA



CONSULTANT INFORMATION	
PROJECT MANAGER:	DESA
DESIGNED BY:	SMS
DRAWN BY:	TFS
CHECKED BY:	DSP, DESA
FILENAME:	01.S.12 Aluminum Stair Plans.dwg
PROJECT NO.:	056-21-120

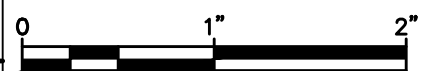
WIEDEMAN AND SINGLETON, INC.  
Civil and Environmental Engineers  
131 EAST MAIN STREET  
SUITE 300  
ROCK HILL, SOUTH CAROLINA 29730  
(803) 329-2944  
WWW.WIEDEMAN.COM

PROJECT INFORMATION

PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE:	ALUM SLUDGE DEWATERING BUILDING ALUMINUM STAIR PLANS

SCALE: AS SHOWN

NOTE: DRAWING SCALE IS  
BASED ON 24x36 SHEETS.

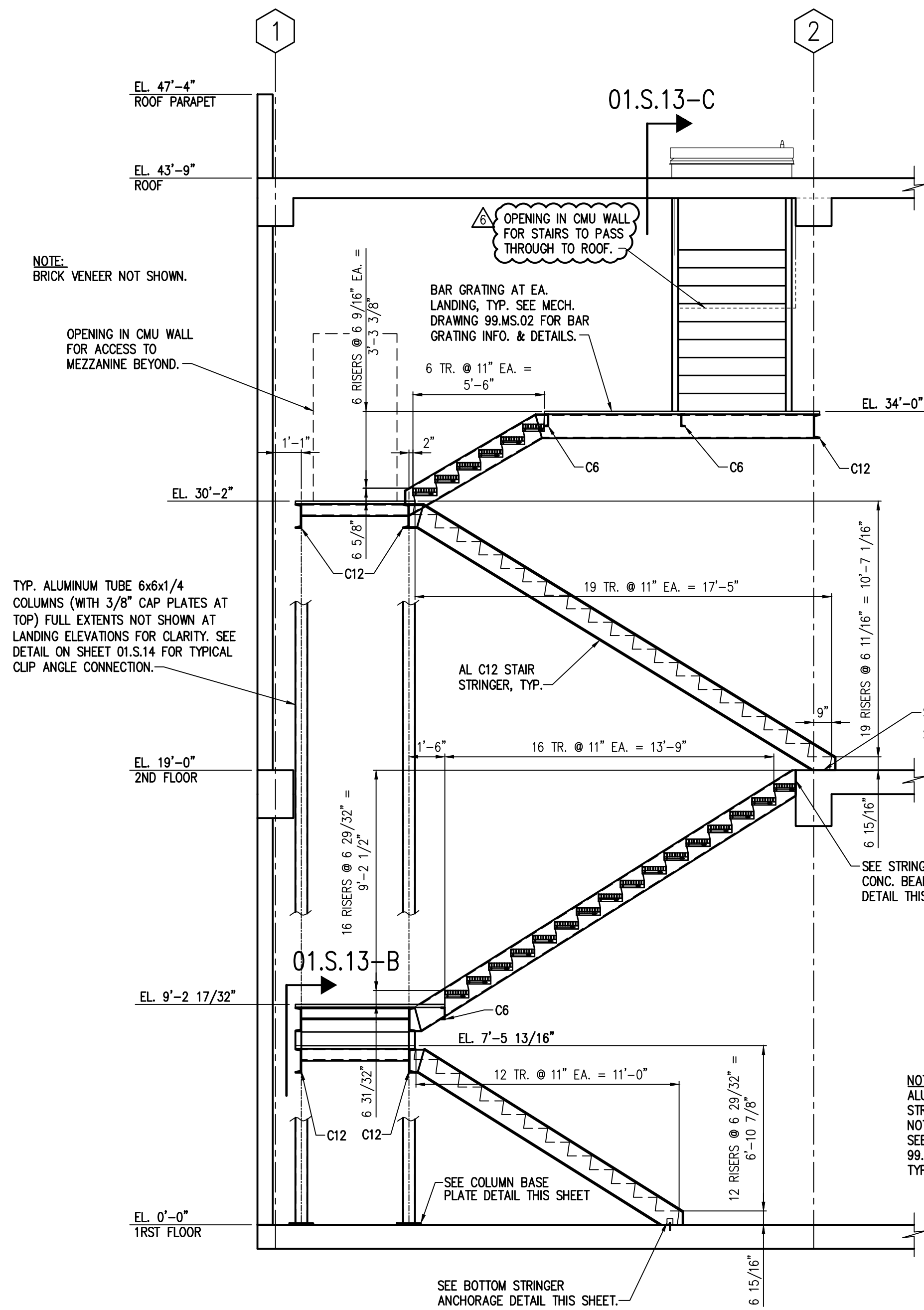


DATE	FEBRUARY 2023
DRAWING	01.S.12
SHEET	67 OF 149



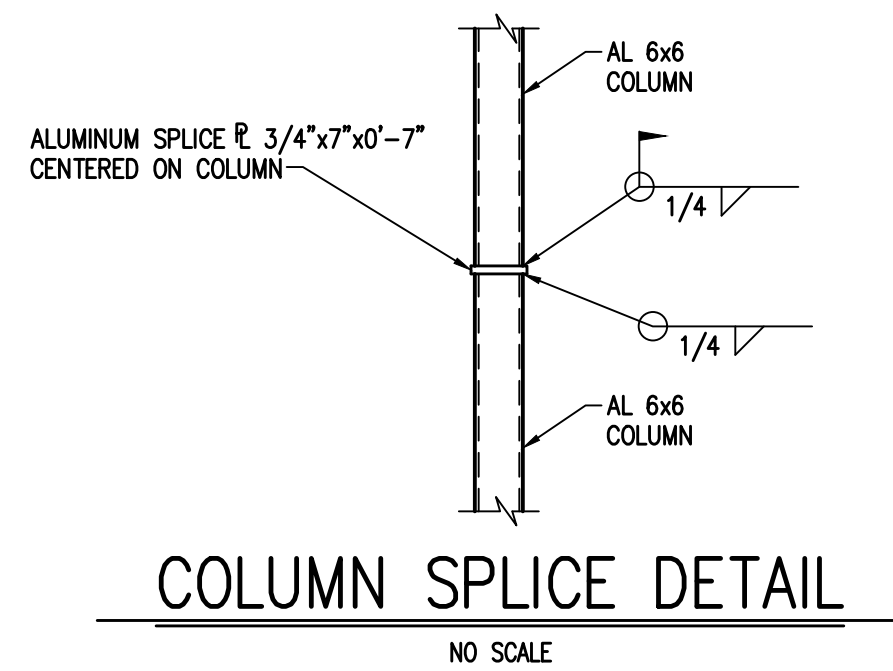
PI-TECH, INC.  
115 FOREST HILL ROAD  
MACON, GA 31210  
478.743.5600



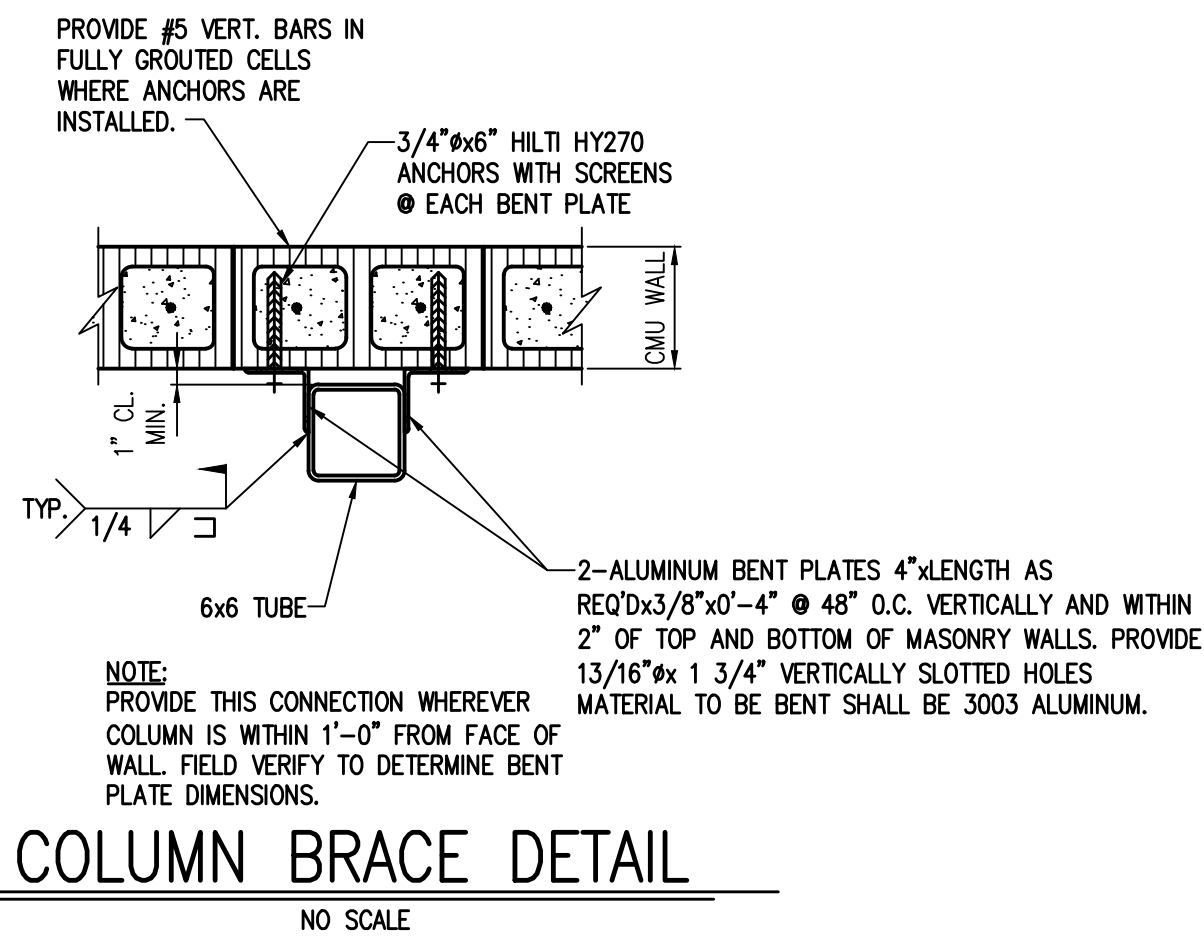


NOTE: SEE STRUCTURAL ALUMINUM GENERAL NOTES ON SHEET 01.S.01.

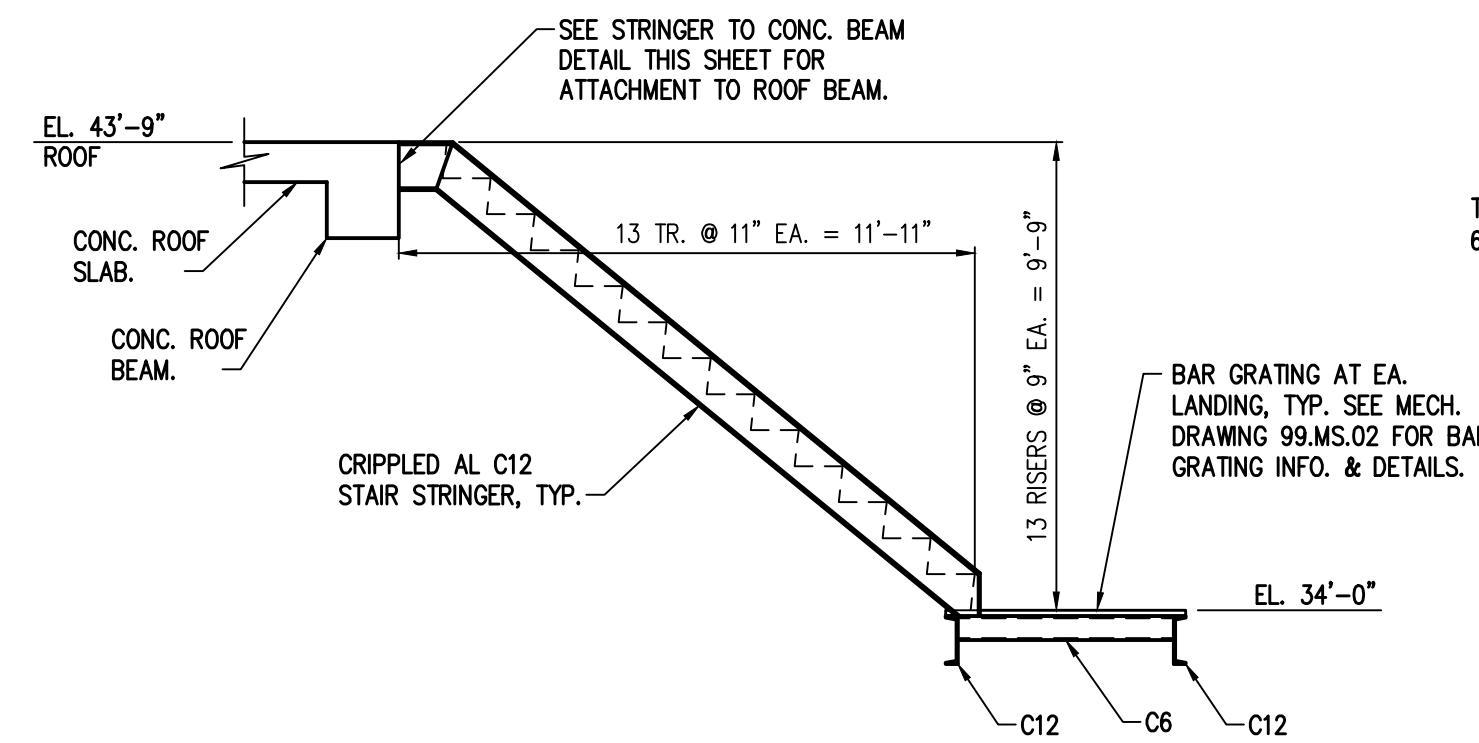
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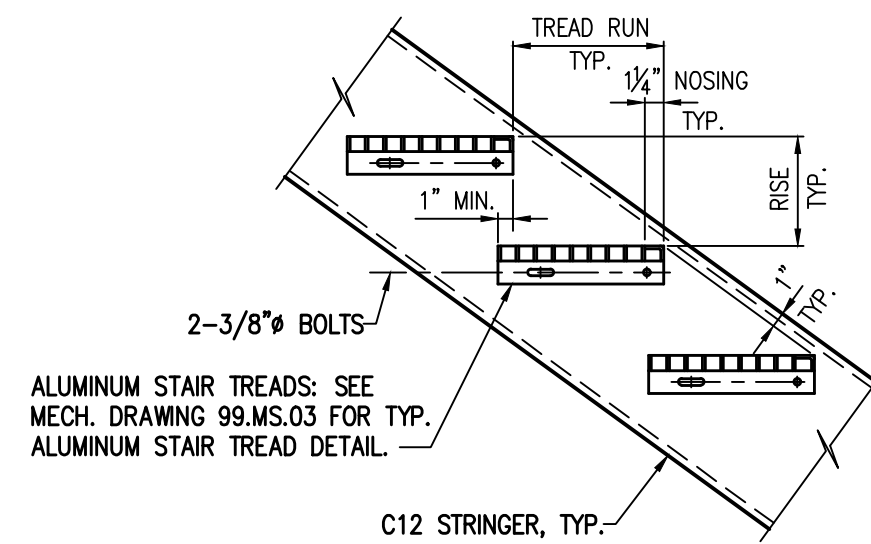
**COLUMN SPLICE DETAIL**  
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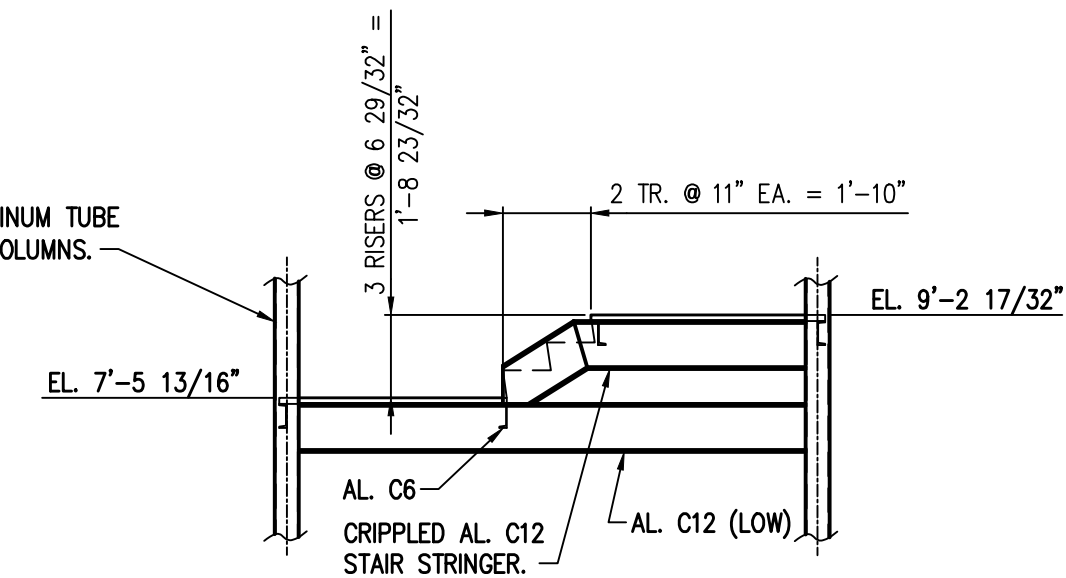
**COLUMN BRACE DETAIL**  
NO SCALE



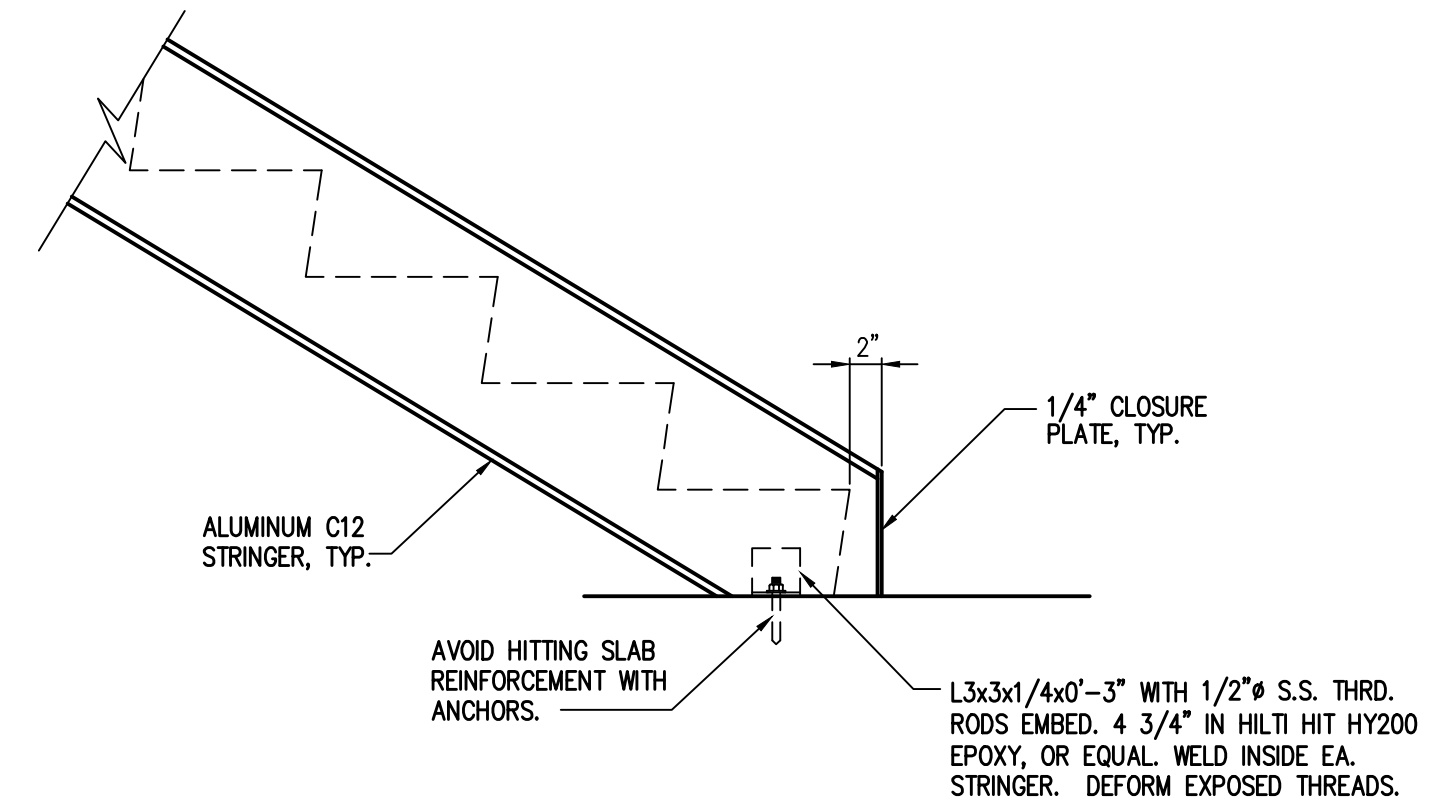
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NO SCALE



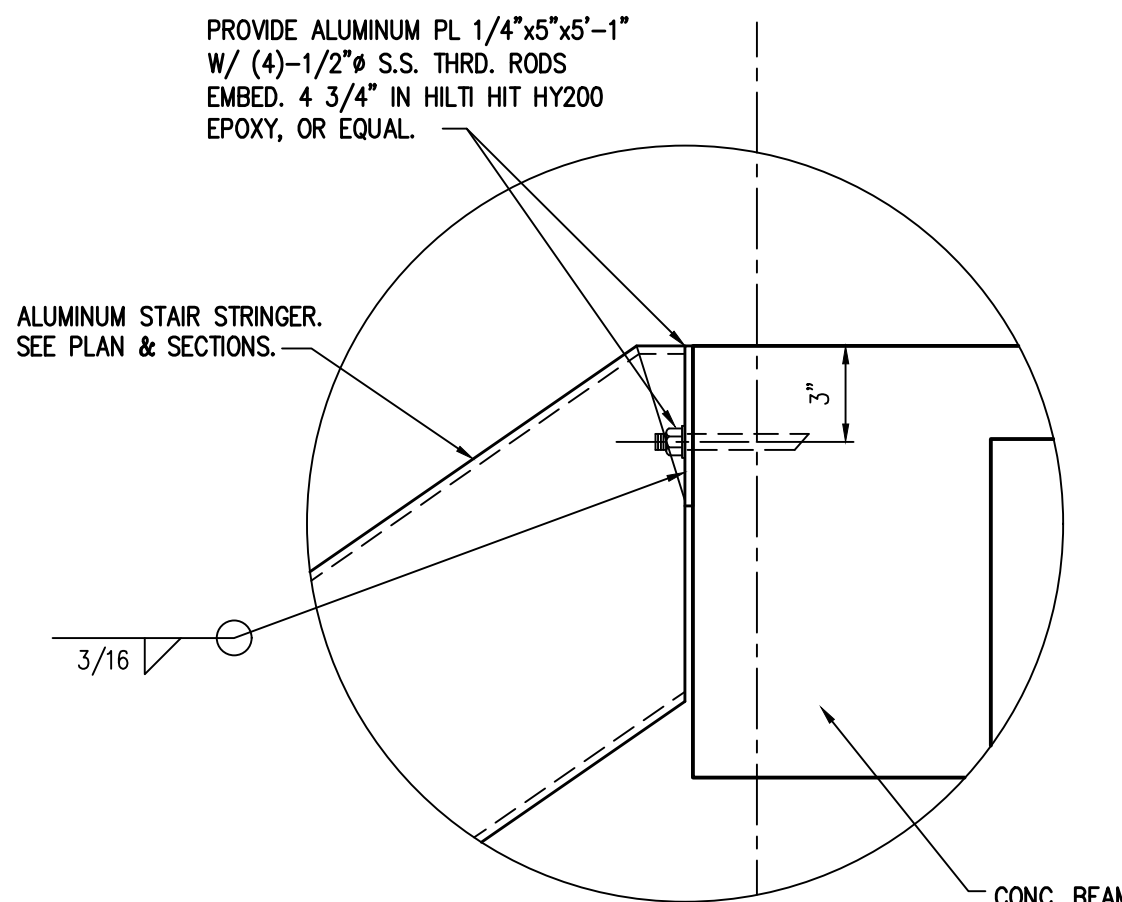
**TYPICAL STAIR DETAIL**  
NO SCALE



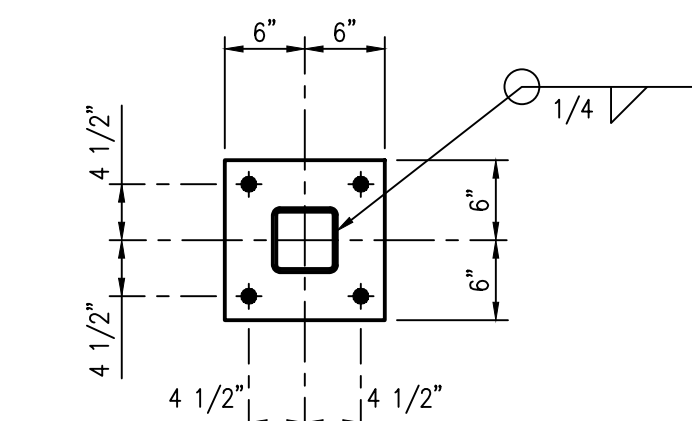
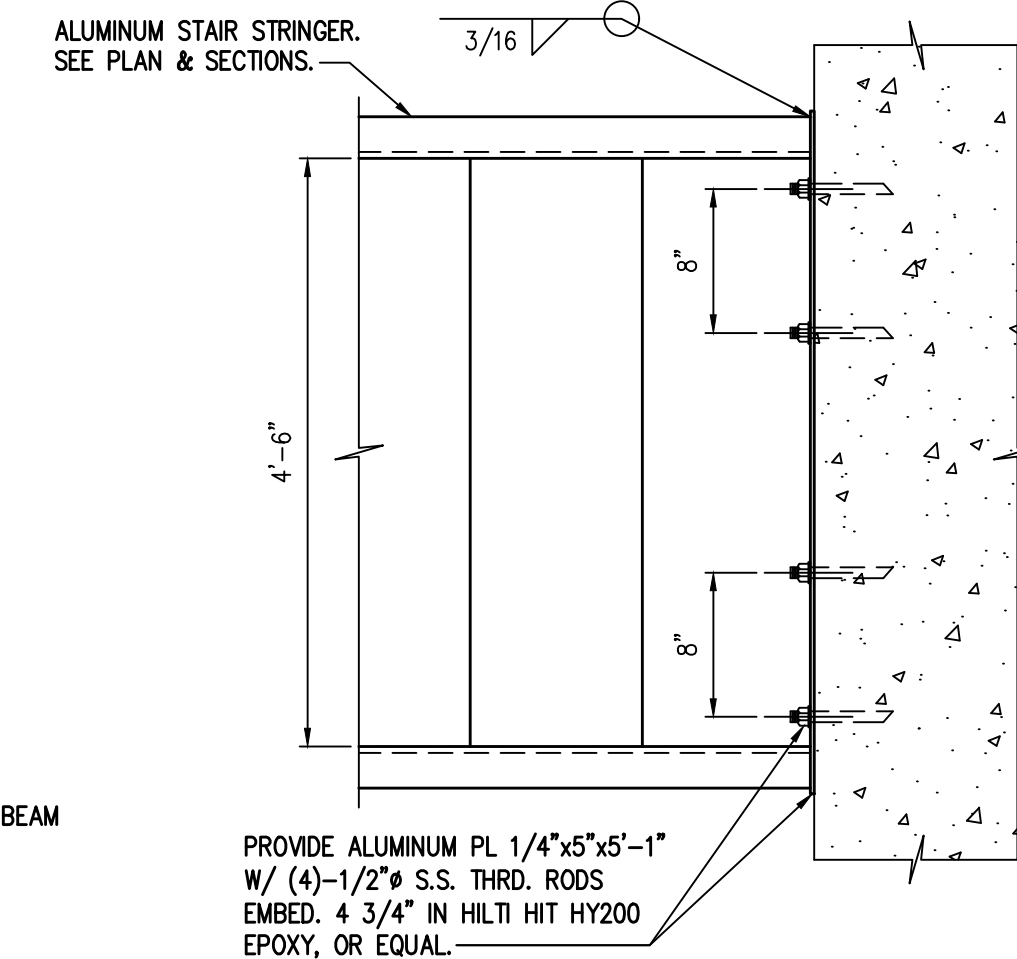
**01.S.13-B**  
NO SCALE



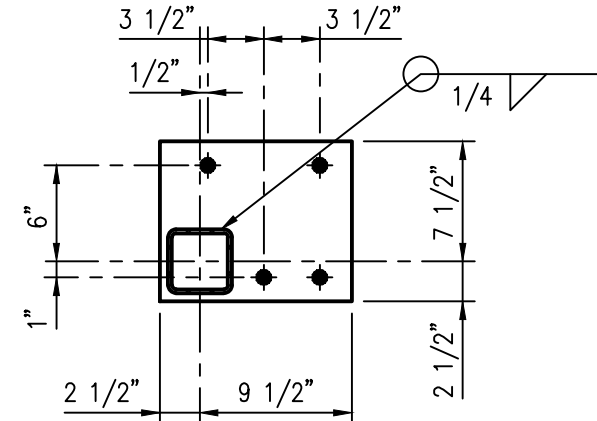
**BOTTOM STRINGER ANCHORAGE DETAIL**  
NO SCALE



**STRINGER TO CONCRETE BEAM DETAILS**  
NO SCALE



**COLUMN BASE PLATE DETAIL**  
NO SCALE



**ECCENTRIC COLUMN BASE PLATE DETAIL**  
NO SCALE

REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	DESA
2	10/12/2022	90% REVIEW	DESA
3	02/27/2023	PERMITTING REVIEW	DESA
4	09/21/2023	PERMITTING REVISIONS #2	DESA
5	12/04/2023	BID READY SET	DESA
6	01/22/2024	APPENDIX #2	DESA

SEAL & COA
OWNER
CONSULTANT INFORMATION
PROJECT MANAGER: DESA
DESIGNED BY: SMS
DRAWN BY: TFS
CHECKED BY: DSP, DESA
FILENAME: 01.S.13 Aluminum Stair Details.dwg
PROJECT NO.: 056-21-120
WIEDEMAN AND SINGLETON, INC. Civil and Environmental Engineers 131 EAST MAIN STREET SUITE 300 ROCK HILL, SOUTH CAROLINA 29730 (803) 329-2944 WWW.WIEDEMAN.COM
PROJECT INFORMATION
CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
PROJECT: ALUM SLUDGE DEWATERING BUILDING
SHEET TITLE: ALUMINUM STAIR DETAILS
SCALE: AS SHOWN
NOTE: DRAWING SCALE IS BASED ON 24x36 SHEETS.
DATE: FEBRUARY 2023
DRAWING: 01.S.13
SHEET: 68 OF 149



## LINTEL SCHEDULE

FOR EACH 4" OF BRICKWORK  
SPAN LINTEL

0' TO 1'-0"	FB 3 1/2 x 1/4
OVER 1'-0" TO 4'-0"	L 3 1/2 x 3 1/2 x 1/4
OVER 4'-0" TO 6'-0"	L 4 x 3 1/2 x 5/16, L.L.V.
OVER 6'-0" TO 8'-0"	L 5 x 3 1/2 x 3/8, L.L.V.
OVER 8'-0" TO 10'-0"	L 6 x 3 1/2 x 3/8, L.L.V.
OVER 10'-0" TO 11'-0"	L 8 x 4 x 5/8, L.L.V.

FOR CONCRETE BLOCK (C.M.U.)  
SPAN LINTEL

FOR EACH 8" WYTHE OR FRACTION THEREOF  
SPAN LINTEL

0' TO 3'-0"	1-#4 T; 1-#5 B
OVER 3'-0" TO 5'-0"	1-#5 T; 1-#6 B

LINTEL ONE COURSE DEEP

0' TO 3'-0"	1-#4 T; 1-#5 B
OVER 3'-0" TO 5'-0"	1-#5 T; 1-#6 B

LINTEL TWO COURSES DEEP

OVER 5'-0" TO 7'-0"	2-#6 T; 2-#7 B
OVER 7'-0" TO 11'-0"	2-#7 T; 2-#8 B
OVER 11'-0" TO 14'-0"	2-#8 T; 2-#9 B

KNOCK-OUT BLOCK  
TOP COURSE, TYP.

#3 TIES @ 8" O.C.

### ALTERNATE BRICK SUPPORTS:

- FOR FIRST FLOOR 14" ROLL-UP DOOR OPENINGS, SINCE BRICK SPAN EXCEEDS STEEL LOOSE ANGLE LINTEL SCHEDULE AT LEFT, SUPPORT BRICK WITH CONT. (5/8" x 3/8") ANCHORED TO C.M.U. LINTEL LOCATED ABOVE 14" OPENING WITH 1/2" x 16" MAX. O.C. EMBEDDED 6" IN HILTI HIT-HY 270 EPOXY.
- FOR SECOND FLOOR 30" ROLL-UP DOOR OPENING, SINCE BRICK SPAN EXCEEDS STEEL LOOSE ANGLE LINTEL SCHEDULE AT LEFT, SUPPORT BRICK WITH CONT. (5/8" x 3/8") ANCHORED TO REINFORCED CONCRETE LINTEL BEAM WITH 1/2" x 16" THREADED RODS @ 24" MAX. O.C. EMBEDDED 6" IN HILTI HIT-HY 200 EPOXY.

MIN. VERTICAL WALL REINFORCING:  
#4 VERTICALS @ 48" MAX. O.C. DOWEL  
4" MIN. IN HILTI HY200 EPOXY  
ANCHORING SYSTEM IN SLAB BELOW. SEE  
SHEET 01.S.02 FOR LAP SPLICE LENGTHS.

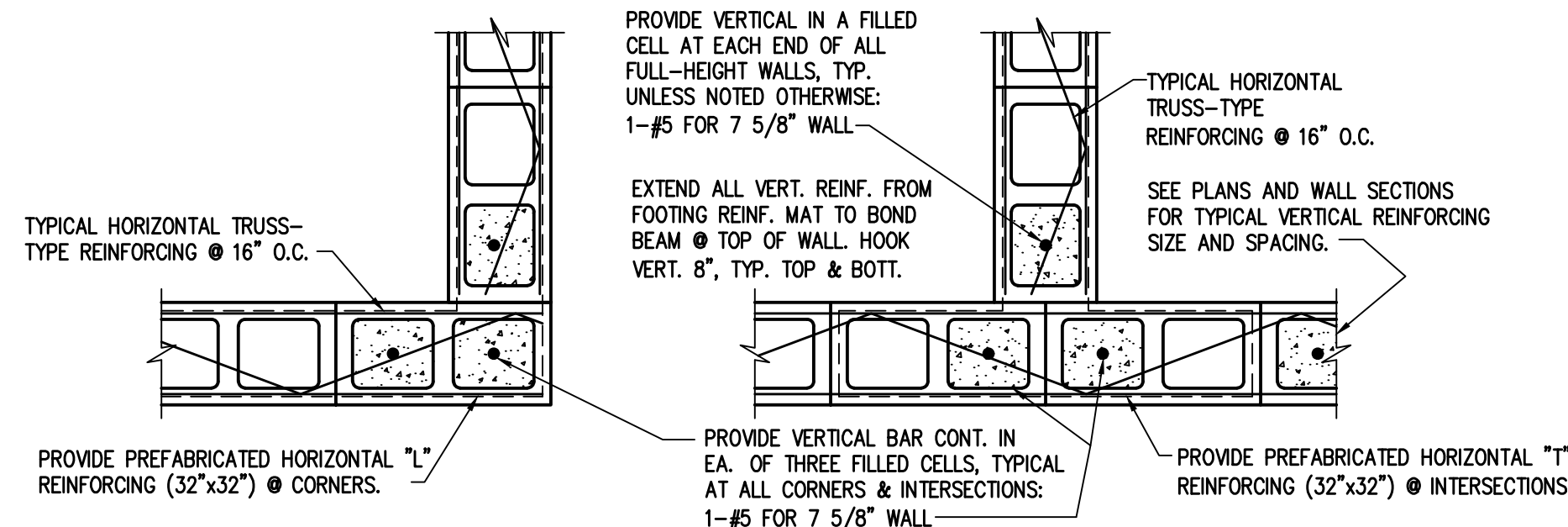
EXTEND MASONRY TO WITHIN 1" OF ROOF  
DECK AFTER ROOF DEAD LOADS ARE IN  
PLACE. SANDWICH WALL BY ATTACHING  
2-L'S 4x3x1/4 TO ADJACENT HEADER  
L'S. SANDWICH L'S NEED NOT BE  
PROVIDED @ EVERY BEAM SPACING, BUT  
SHALL BE PROVIDED @ EA. WALL BRACE  
POINT (10'-0" MAX O.C.).

MIN. VERTICAL WALL REINFORCING:  
#4 VERTICALS @ 48" MAX. O.C. DOWEL  
4" MIN. IN HILTI HY200 EPOXY  
ANCHORING SYSTEM IN SLAB BELOW. SEE  
SHEET 01.S.02 FOR LAP SPLICE LENGTHS.

EXTEND MASONRY TO WITHIN 1" OF ROOF  
DECK AFTER ROOF DEAD LOADS ARE IN  
PLACE. SANDWICH WALL BY ATTACHING  
2-L'S 4x3x1/4 TO ADJACENT BEAMS.  
SANDWICH L'S NEED NOT BE PROVIDED @  
EVERY BEAM SPACING, BUT SHALL BE  
PROVIDED @ 10'-0" MAX O.C.

### NOTES:

- LINTELS SCHEDULED ABOVE SHALL BE USED UNLESS SHOWN OR NOTED OTHERWISE. SIZES SHOWN ARE MINIMUMS. IF FLASHING DETAILS REQUIRE OFFSET/ADDITIONAL SPACE BETWEEN LINTEL AND BACK OF BRICK, CONTACT PROJECT ENGINEER.
- STEEL LINTELS SUPPORTING BRICK SHALL HAVE 1" BEARING, EACH END, FOR EACH 1'-0" OF SPAN, BUT NOT LESS THAN 6" BEARING, EACH END.
- C.M.U. LINTELS AND REINFORCING SHALL EXTEND PAST EACH SIDE OF OPENING 48 BAR DIAMETERS (BASED ON LARGEST BAR) WHERE SPACE PERMITS. WHERE SPACE DOES NOT PERMIT EXTENSION, BEND BARS 90° INTO FULLY GROUTED CELL EACH SIDE OF OPENING.
- CONCRETE BLOCK (C.M.U.) LINTELS SHALL BE MADE WITH FILLED "U" BLOCKS, EXCEPT AS NOTED. FILL SHALL BE COARSE GROUT CONFORMING TO ASTM C476, 3/8" MAXIMUM STONE SIZE. SHORE POURED LINTELS 7 DAYS, MINIMUM.
- WHERE C.M.U. LINTEL SPAN EXCEEDS 6'-0", FILL CELLS OF CONCRETE BLOCK UNDER BEARING FOR 16" LENGTH FROM FOOTING TO TOP OF WALL & PROVIDE 1-#5 VERTICAL BAR IN EACH OF 2 FILLED CELLS, EACH SIDE OF OPENING. AT OTHER LINTELS, PROVIDE 1-#5 VERTICAL BAR, EACH SIDE OF OPENING, IN FILLED CELL. EXTEND ALL VERTICALS FROM FOOTING MAT TO BOND BEAM AT TOP OF WALL.

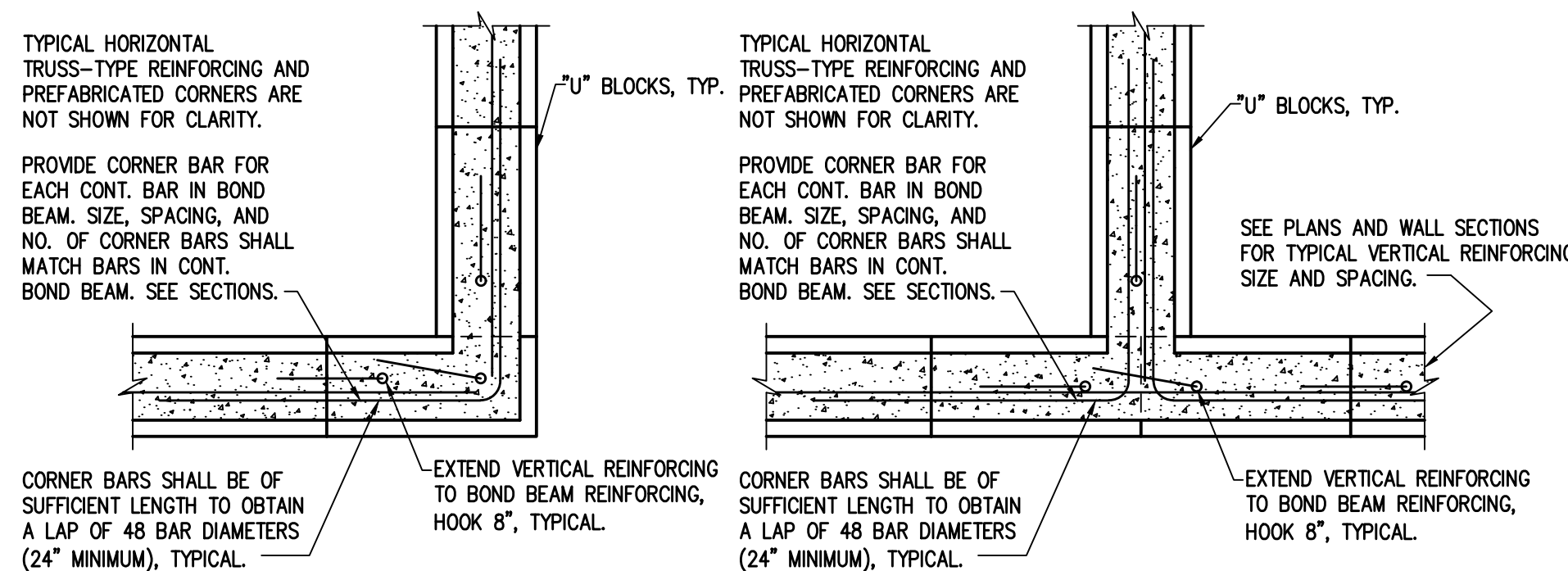


TYP. CORNER

TYP. INTERSECTION

WALL THICKNESS VARIES, SEE PLANS AND ARCH DWGS.

PLAN DETAILS @ WALL INTERSECTIONS

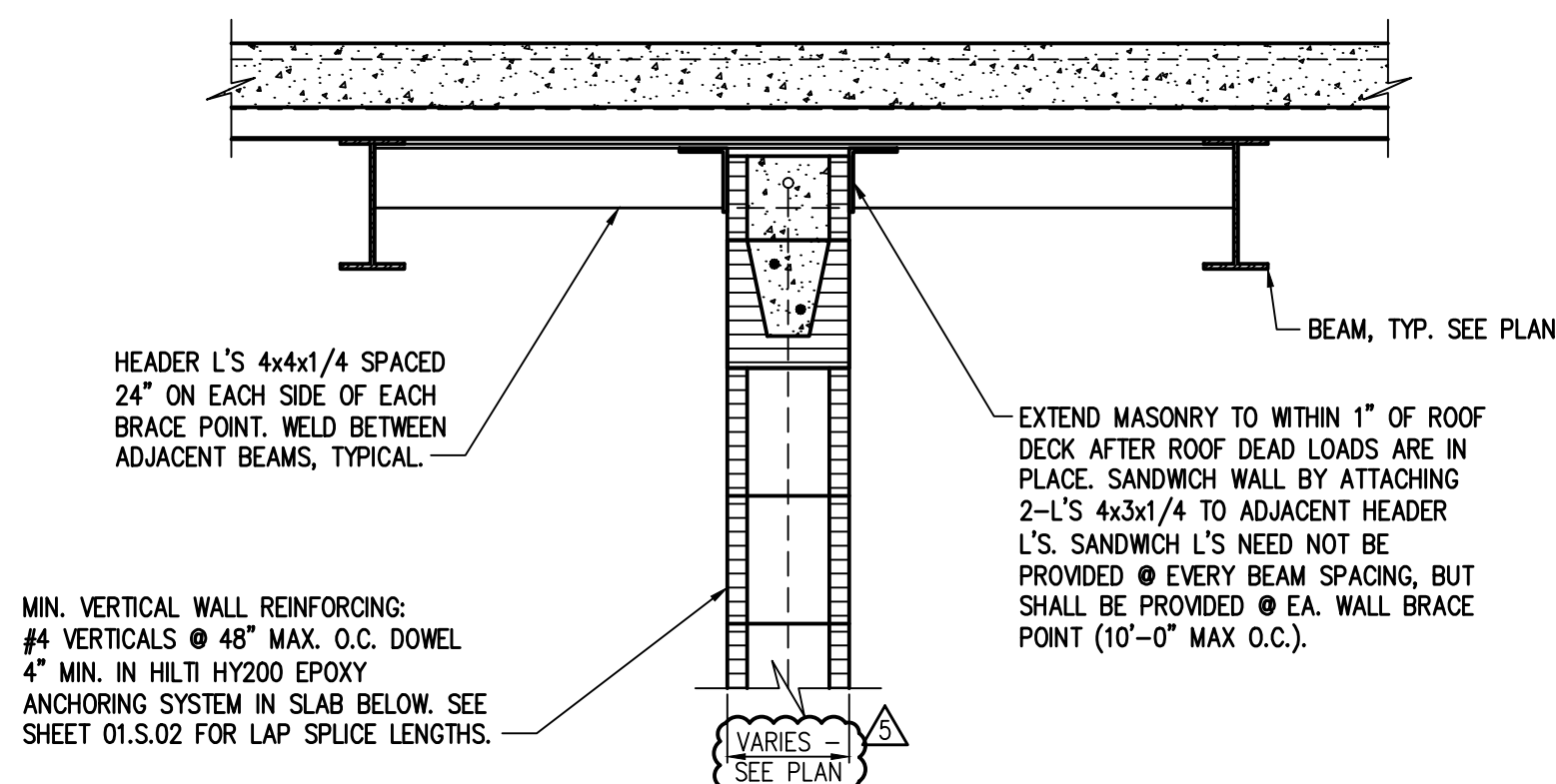


TYP. CORNER

TYP. INTERSECTION

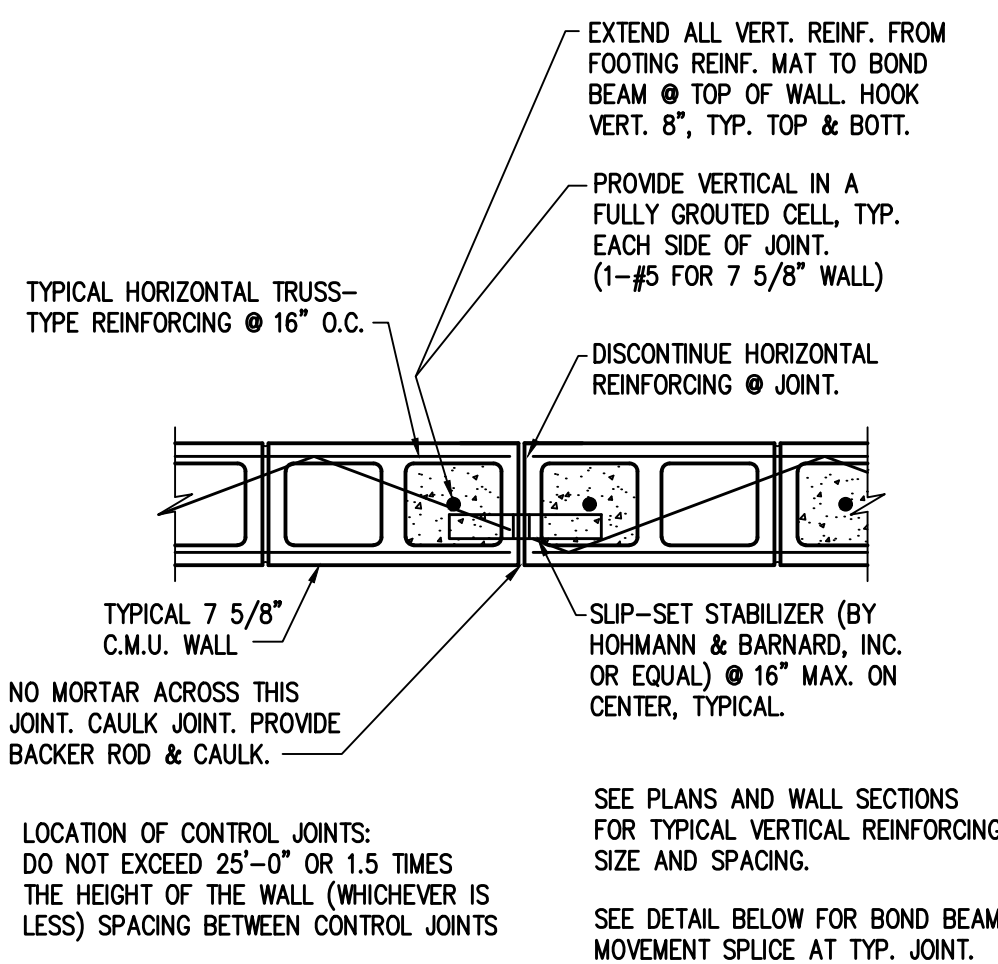
WALL THICKNESS VARIES, SEE PLANS AND ARCH DWGS.

PLAN DETAILS @ BOND BEAM INTERSECTIONS

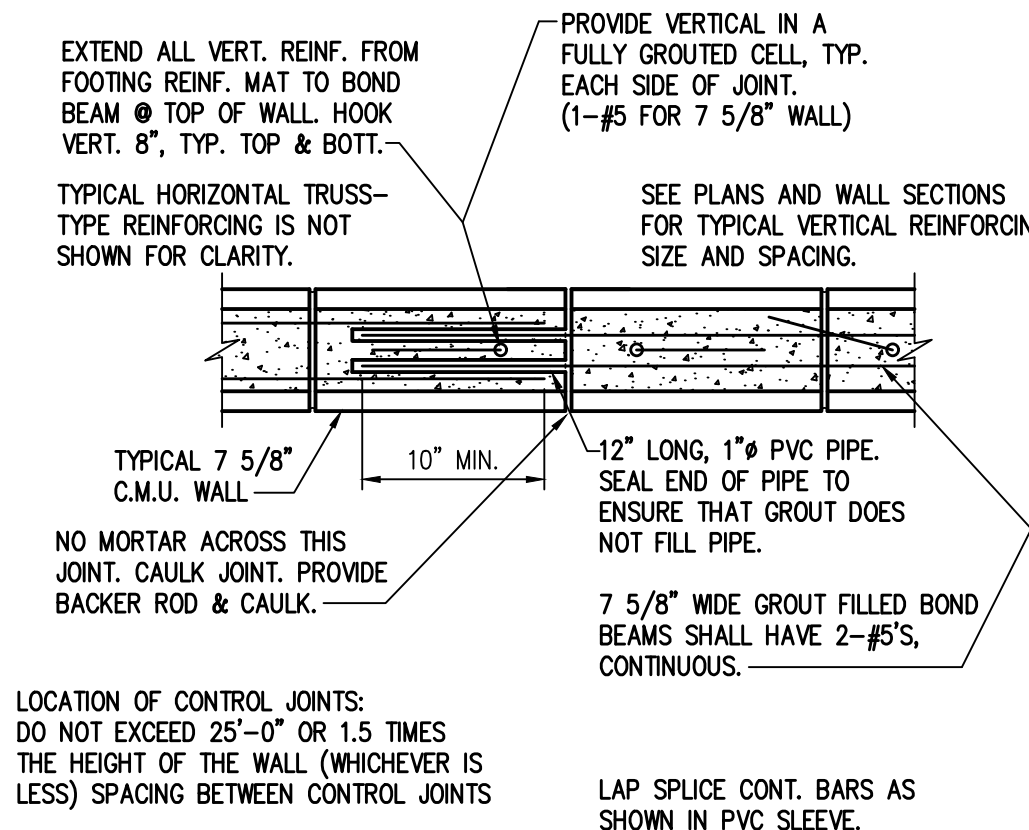


TYPICAL LATERAL BRACING AT TOP OF INTERIOR C.M.U. PARTITION WALLS  
EXTENDING TO DECK WITH PARALLEL OR PERPENDICULAR ROOF STRUCTURE

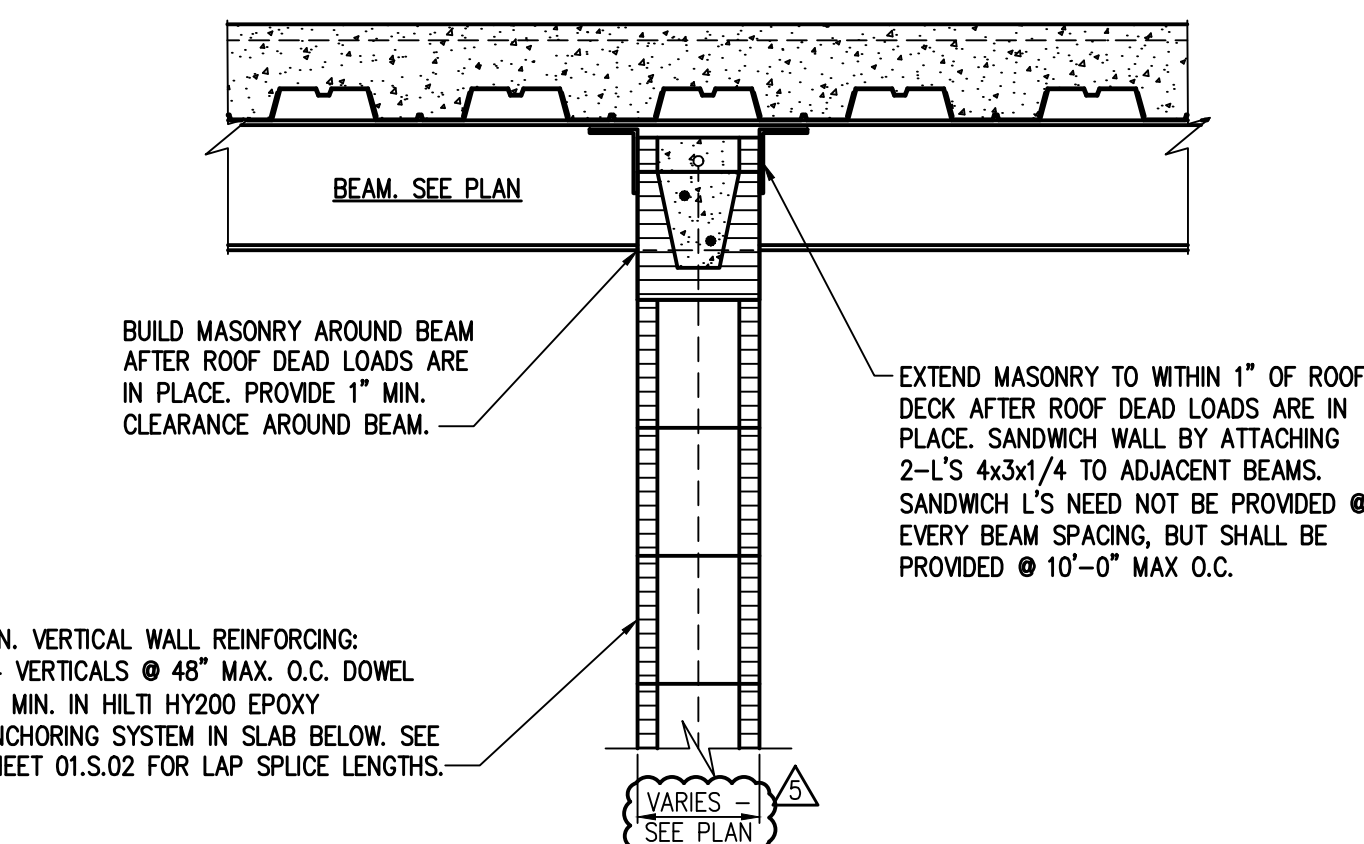
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TYP. EXPANSION/CONTROL JOINT  
AT C.M.U. WALL

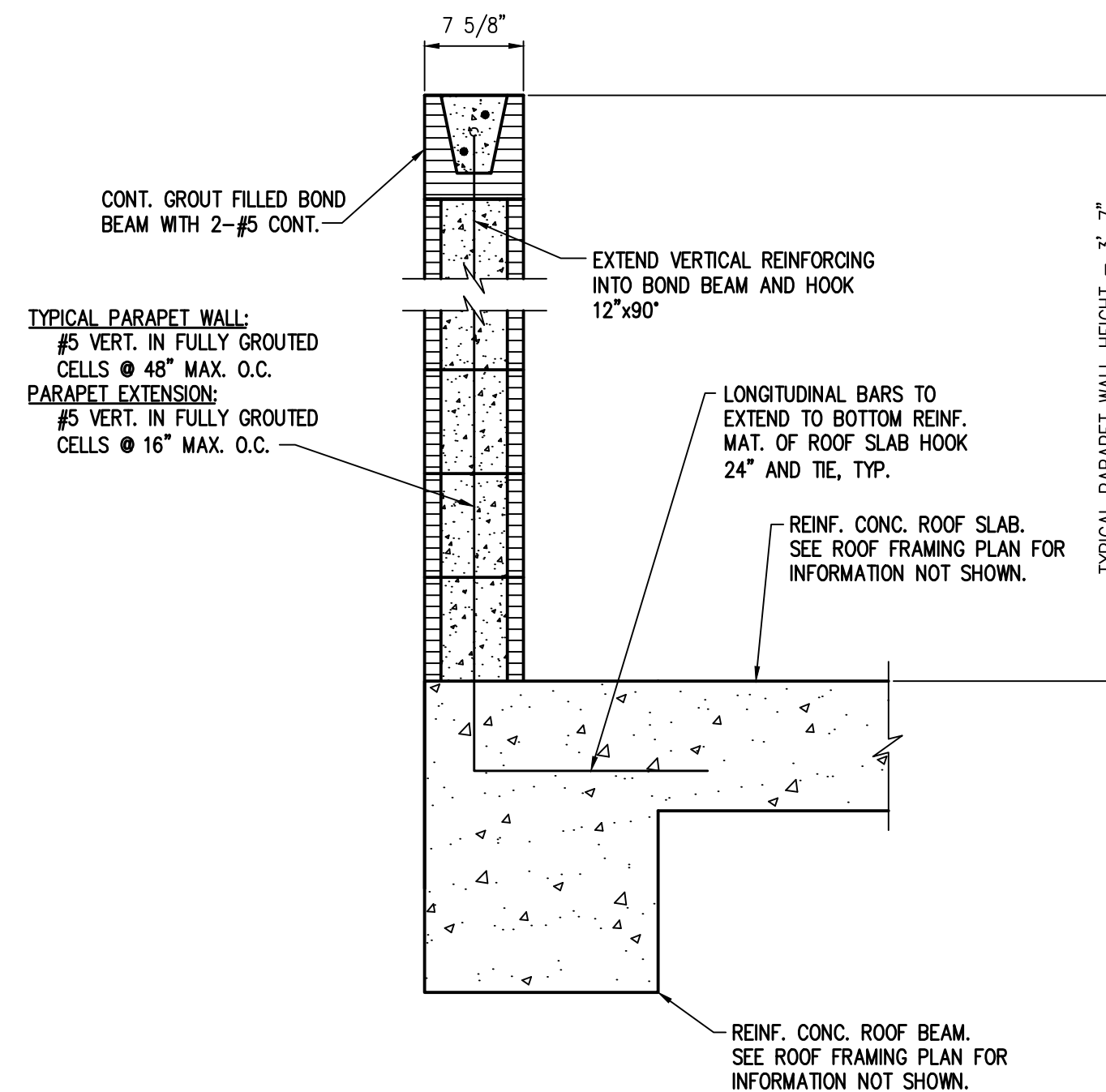


TYP. EXPANSION/CONTROL JOINT  
AT CONTINUOUS BOND BEAM



TYPICAL NON-LOAD BEARING CMU  
WALL TO SLAB DETAIL

NO SCALE

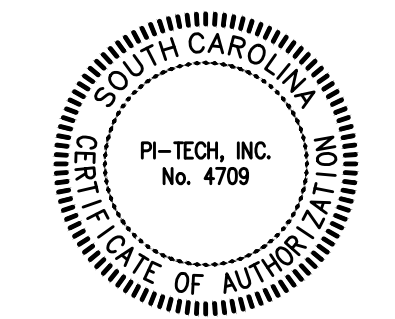


TYPICAL PARAPET WALL DETAIL

NO SCALE

REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	DESA
2	10/12/2022	90% REVIEW	DESA
3	02/27/2023	PERMITTING REVIEW	DESA
4	12/04/2023	BID READY SET	DESA
5	01/22/2024	APPENDIX #2	DESA

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CONSULTANT INFORMATION

PROJECT MANAGER:	DESA
DESIGNED BY:	SMS
DRAWN BY:	TFS
CHECKED BY:	DSP, DESA
FILENAME:	01.S.16 CMU Details.dwg
PROJECT NO.:	056-21-120

PROJECT INFORMATION

WIEDEMAN AND SINGLETON, INC. Civil and Environmental Engineers 131 EAST MAIN STREET SUITE 300 ROCK HILL, SOUTH CAROLINA 29730 (803) 329-2944 WWW.WIEDEMAN.COM
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PROJECT INFORMATION

PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE:	ALUM SLUDGE DEWATERING BUILDING CMU DETAILS

SCALE: AS SHOWN

NOTE: DRAWING SCALE IS  
BASED ON 24x36 SHEETS.

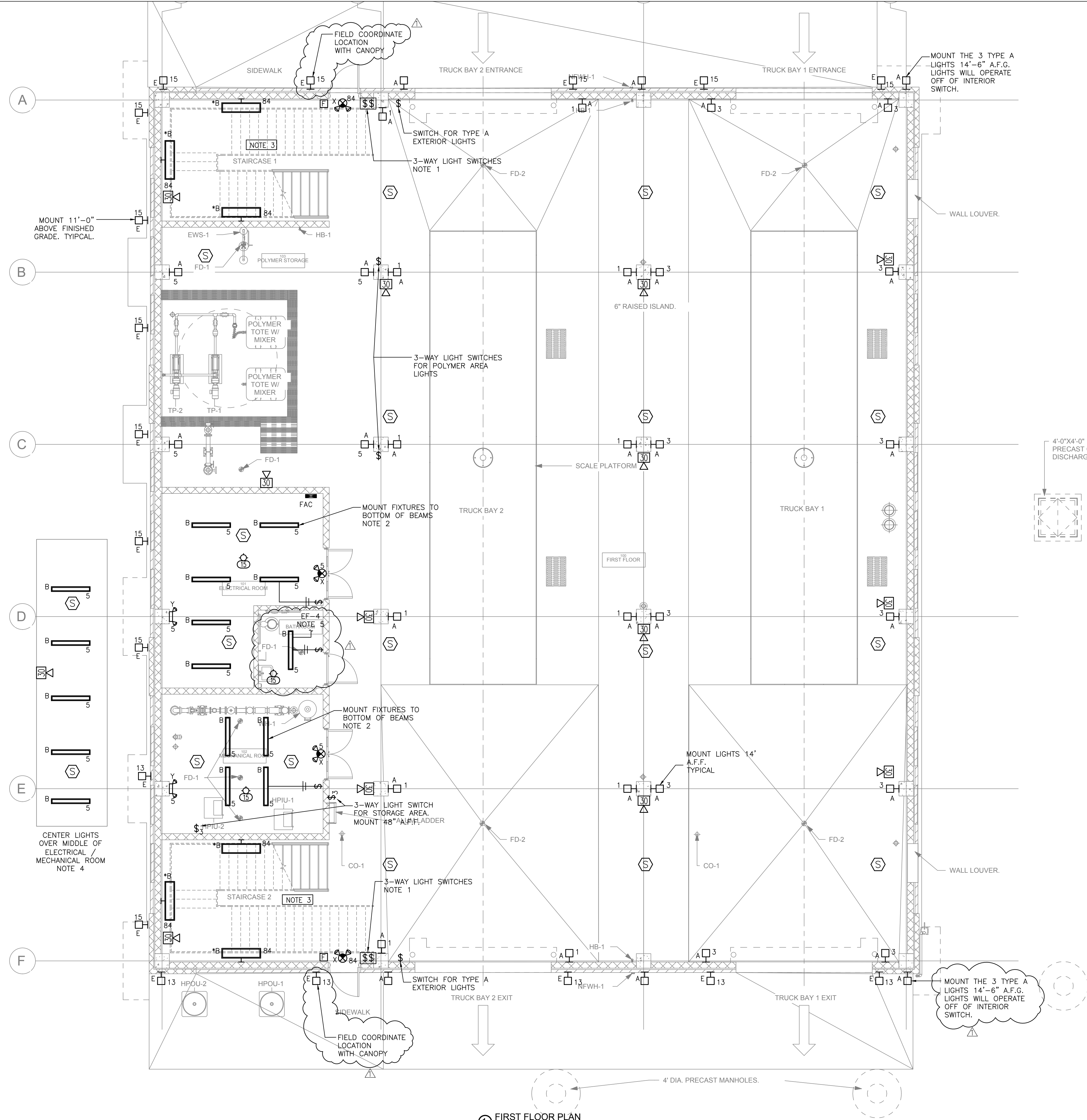
DATE	FEBRUARY 2023
DRAWING	71 OF 149



PI-TECH, INC.

115 FOREST HILL ROAD  
MACON, GA 31210  
478.743.5600





- NOTES:
1. INSTALL TWO 3-WAY LIGHTS SWITCHES IN SINGLE GANG BOX. ONE SWITCH SHALL BE FOR TRUCK BAY 1 LIGHTS AND THE OTHER FOR TRUCK BAY 2 LIGHTS.
  2. COORDINATE FIXTURE HEIGHT WITH HVAC DUCTWORK. FIXTURES SHALL BE HUNG SUCH THAT TOP OF FIXTURE IS 1" BELOW BOTTOM OF DUCTWORK. TYPICAL FOR ALL FIXTURES.
  3. ALL LIGHTS IN STAIRWELL SHALL BE FURNISHED WITH INTEGRAL BATTERY PACKS. LIGHTS SHALL REMAIN ON AT ALL TIMES. WALL MOUNT 8'-0" A.F.F. SUCH THAT FIXTURES ARE EASILY ACCESSIBLE.
  4. INSTALL 5 TYPE B LIGHTS TO ILLUMINATE STORAGE AREA ABOVE CONTROL ROOM / RESTROOM. LOCATE LIGHT SWITCH AT BASE OF LADDER 48" A.F.F. FIELD LOCATE LIGHTS WITH BEAMS (5'-10"). MOUNT LIGHTS SUCH THAT TOP OF FIXTURE IS 1" BELOW BOTTOM OF BEAM.
  5. INTERLOCK EXHAUST FAN, EF-4 WITH LIGHT SWITCH WITH 3 #12 IN 3/4" C.

FIRE ALARM SYMBOLS	
	FIRE ALARM CONTROL PANEL
	FIRE ALARM MANUAL PULL STATION 48" AFF
	FIRE ALARM WALL MOUNTED HORN WITH STROBE LIGHT, CANDELA RATING AS NOTED MOUNT BETWEEN 80" AND 96" AFF PER NFPA 72 AND ADA REQUIREMENTS
	FIRE ALARM WALL MOUNTED HORN MOUNT BETWEEN 80" AND 96" AFF PER NFPA 72 AND ADA REQUIREMENTS
	CEILING MOUNTED FIRE ALARM HORN WITH STROBE LIGHT.
	CEILING MOUNTED FIRE ALARM HORN.
	FIRE ALARM WALL MOUNTED STROBE LIGHT, CANDELA RATING AS NOTED MOUNT BETWEEN 80 AND 96" AFF PER NFPA 72 AND ADA REQUIREMENTS
	CEILING MOUNTED FIRE ALARM STROBE LIGHT, CANDELA RATING AS NOTED
	MULTI SENSOR (PHOTOELECTRIC, THERMAL) DETECTOR CEILING MOUNTED, UNLESS NOTED
	HEAT DETECTOR CEILING MOUNTED, UNLESS NOTED OTHERWISE
	DUCT MOUNTED SMOKE DETECTOR, FURNISHED & INSTALLED UNDER DIVISION 28 SEE ELECTRICAL SPECIFICATIONS AND DETAIL ON DRAWINGS FOR WIRING
	DUCT SMOKE DETECTOR REMOTE ALARM INDICATOR WITH INTEGRATED KEYED TEST SWITCH
	WALL MOUNTED MAGNETIC DOOR HOLDER, 120V 76" AFF, UNLESS NOTED - FIELD VERIFY WITH ARCHITECT. WIRE TO NEAREST AVAILABLE 120V CIRCUIT
FIRE ALARM SYMBOL SCHEDULE NOTES:	
1. WALL MOUNTED NOTIFICATION DEVICES SHALL BE LOCATED AT UNIFORM HEIGHT ABOVE FINISHED FLOOR WHERE CEILING HEIGHTS ALLOW.	
2. SMOKE DETECTORS LOCATED IN PRIVATE ROOMS SHALL BE PROVIDED WITH A REMOTE NOTIFICATION OUTPUT	

REV.	DATE	DESCRIPTION	BY
1	06/29/2022	70% REVIEW	DMZ
2	10/12/2022	80% REVIEW	DMZ
3	02/27/2023	PERMITTING REVIEW	DMZ
4	10/16/2023	PERMITTING REVISIONS	DMZ
5	12/04/2023	BID READY SET	DMZ
6	01/22/2024	ADDENDUM #2	DMZ

SEAL & COA

OWNER

CONSULTANT INFORMATION

PROJECT MANAGER: TAB

DESIGNED BY: DMZ

DRAWN BY: AP

CHECKED BY: DMZ

FILE NAME: FILE NAME

PROJECT NO.: 056-21-120

WIEDEMAN AND SINGLETON, INC.  
131 EAST MAIN  
SUITE 200  
ROCK HILL, SC  
29103  
WWW.WIEDEMAN.COM

PROJECT:

CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA

SHEET TITLE

ALUM SLUDGE DEWATERING BUILDING  
FIRST FLOOR  
LIGHTING & SYSTEMS PLAN

SCALE: As indicated

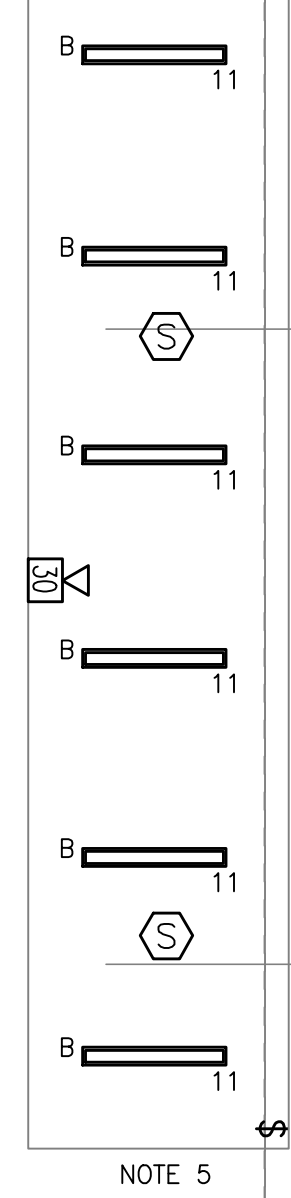
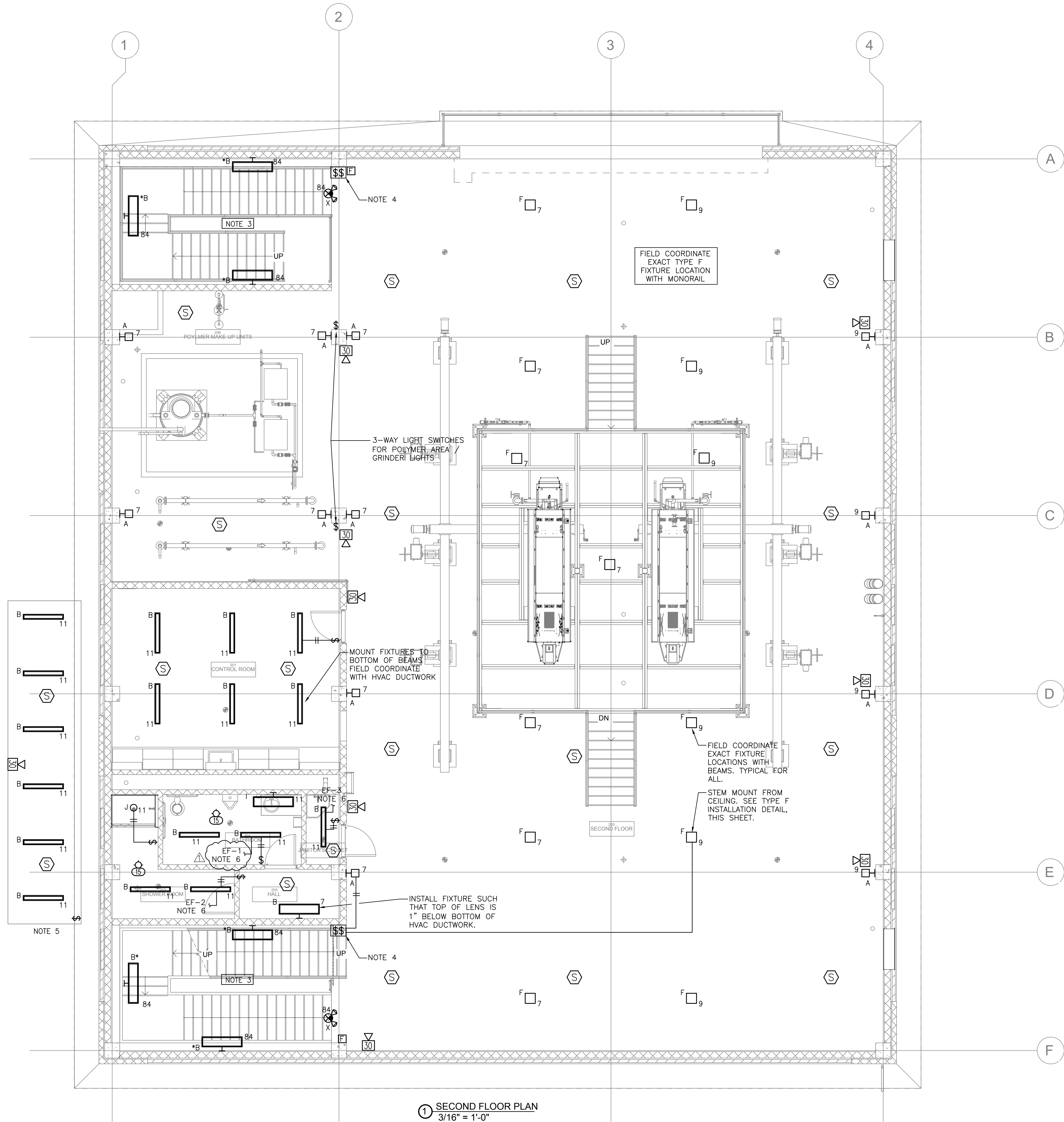
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.

DATE: OCTOBER 2023

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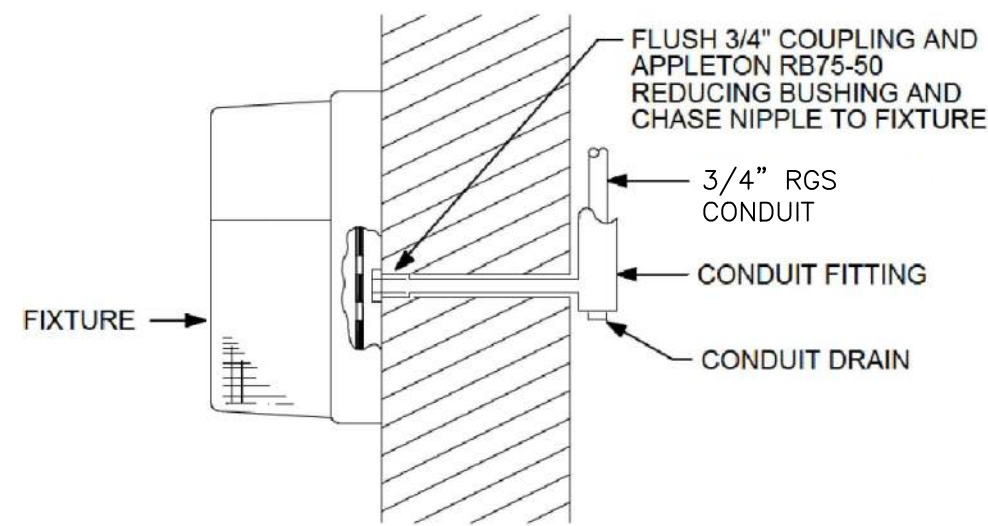
SHEET: 72 OF 149



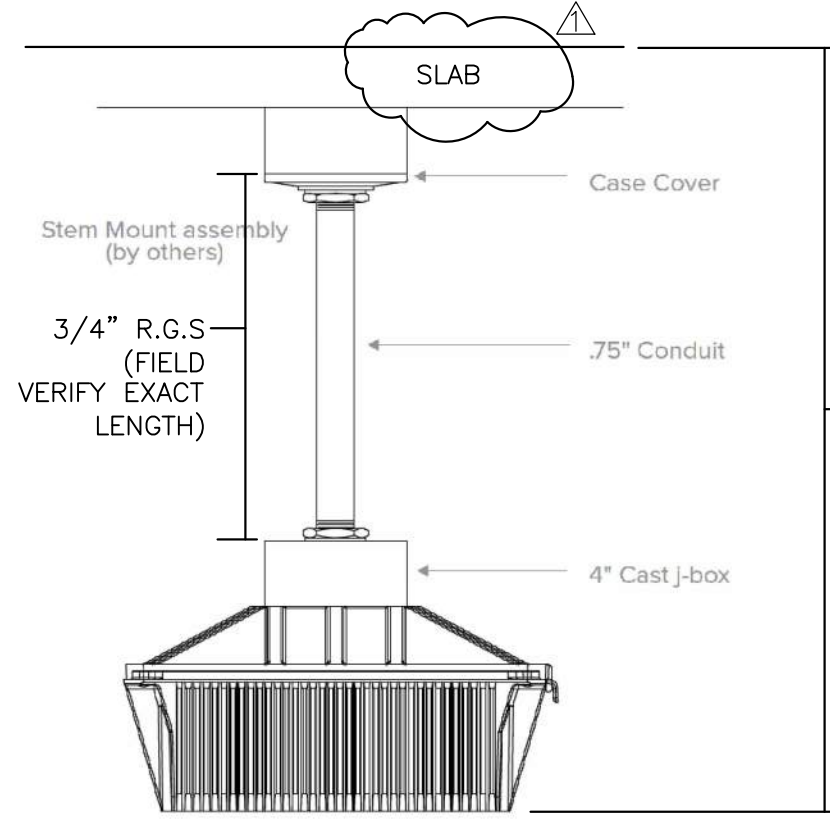


NOTE 5

1 SECOND FLOOR PLAN  
3/16" = 1'-0"



EXTERIOR FIXTURE - INSTALLATION DETAIL  
N.T.S.



TYPE F - INSTALLATION DETAIL  
N.T.S.

- NOTES:
- COORDINATE FIXTURE HEIGHT WITH HVAC DUCTWORK. FIXTURES SHALL BE HUNG SUCH THAT TOP OF FIXTURE IS 1" BELOW BOTTOM OF DUCTWORK. TYPICAL FOR ALL FIXTURES.
  - FIELD COORDINATE TYPE F MOUNTING WITH MONORAILS AND MONORAIL OPERATION / CENTRIFUGE REMOVAL.
  - ALL LIGHTS IN STAIRWELL SHALL BE FURNISHED WITH INTEGRAL BATTERY PACKS AND REMAIN ON AT ALL TIMES.
  - INSTALL TWO 3-WAY LIGHTS SWITCHES IN SINGLE GANG BOX. ONE SWITCH SHALL BE FOR CIRCUIT #7 AND THE OTHER FOR CIRCUIT #9 LIGHTS.
  - INSTALL 6 TYPE B LIGHTS TO ILLUMINATE STORAGE AREA ABOVE CONTROL ROOM / RESTROOM. LOCATE LIGHT SWITCH AT BASE OF LADDER 48" A.F.F. AND AT OPENING TO MEZZANINE FROM STAIRS. CENTER LIGHTS OVER CENTER OF CONTROL AND BATHROOM. FIELD LOCATE LIGHTS WITH HEIGHT OF BEAMS (11'-7"). MOUNT LIGHTS SUCH THAT TOP OF FIXTURE IS 1" BELOW BOTTOM OF BEAM.
  - INTERLOCK EXHAUST FAN WITH LIGHT SWITCH WITH 3 #12 IN 3/4" C.

FIRE ALARM SYSTEM NOTES

- ALL FIRE ALARM SYSTEM WIRING SHALL BE RUN ABOVE GRADE AND ABOVE CEILING IN METAL RACEWAYS. RACEWAYS SHALL BE RUN EXPOSED ON WALLS. FIRE ALARM WIRING MAY NOT BE RUN UNDERGROUND OR IN SLAB UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. RACEWAYS SHALL BE RIGID GALVANIZED STEEL, PAINTED RED.
  - VERIFY WIRING REQUIREMENTS WITH EQUIPMENT MFR PRIOR TO ROUGH-IN AND INSTALL ACCORDINGLY. NOTIFICATION APPLIANCE CIRCUITS SHALL BE RUN AS REQUIRED TO PROVIDE A 3-PULSE TEMPORAL AUDIBLE SIGNAL WITHOUT COMPROMISING THE OPERATION OF THE STROBES.
  - PROVIDE SYNCHRONIZATION OF ALL STROBE LIGHTS.
  - FIRE ALARM SYSTEM TO BE CLASS B SUPERVISED SYSTEM (STYLE B INITIATING DEVICE CIRCUITS, STYLE 4 SIGNALING LINE CIRCUITS, CLASS B NOTIFICATION APPLIANCE CIRCUITS). FURNISH & INSTALL END-OF-LINE RESISTORS WHERE REQ'D.
  - EQUIPMENT SUPPLIER SHALL SUBMIT SHOP DRAWINGS INDICATING EXACT ROUTING OF RACEWAYS AND NUMBER AND SIZE OF CONDUCTORS IN RACEWAYS FOR THE FIRE ALARM SYSTEM. THE ELECTRICAL CONTRACTOR SHALL USE THE REVIEWED DRAWING FOR ROUGH-IN OF FIRE ALARM SYSTEM RACEWAYS AND OUTLET BOXES.
  - SMOKE DETECTORS SHALL BE LOCATED AS NEAR THE CENTER OF THE ROOM AS PRACTICAL. DO NOT LOCATE ANY DETECTOR WITHIN 3'-FT. OF AN HVAC SUPPLY OR RETURN GRILLE. PROVIDE AUXILIARY CONTACT ON SMOKE DETECTORS LOCATED IN CORRIDORS AT SMOKE DOORS. WIRE MAGNETIC DOOR HOLDERS THRU AUXILIARY CONTACT TO RELEASE DOOR WHEN THOSE DETECTORS ARE ACTUATED.
  - LOCATE MANUAL PULL STATIONS WITHIN 5'-0" OF THE EXIT DOOR PER NFPA AND IBC REQUIREMENTS. PROVIDE ANY SPECIAL ADAPTER PLATES OR COVER PLATES REQ'D TO MOUNT PULL STATIONS IN DOOR MULLIONS WHERE APPLICABLE AND PAINT EXPOSED MOUNTING PLATE SURFACES TO MATCH MULLION.
  - EACH HORN/STROBE LOCATED AT THE END OF A CORRIDOR MUST BE WITHIN 15'-0" OF THE END WALL PER NFPA 72. HORN/STROBES IN CLASSROOMS AND OFFICES MUST BE LOCATED TO COMPLY WITH TABLE 7.5.4.3.1(a) & TABLE 7.5.4.3.1(b) OF NFPA 72. DO NOT ADJUST LOCATIONS OF HORN/STROBES WITHOUT CONSULTING WITH THE ENGINEER AND OBTAINING WRITTEN PERMISSION. ALL HORNS IN CORRIDORS AND IN SPACES LARGER THAN 2,000SF SHALL BE SET TO "HIGH". ALL OTHER HORNS SHALL BE SET TO "LOW".
  - FIELD VERIFY LOCATION OF FIRE ALARM PANEL "FAC" AND/OR REMOTE FIRE ALARM ANNUNCIATOR "FAA" WITH OWNER AND AUTHORITY HAVING JURISDICTION PRIOR TO ROUGH-IN.
  - IN ADDITION TO SMOKE DETECTORS SHOWN, CONTRACTOR WILL BE REQUIRED TO FURNISH & INSTALL SMOKE DETECTORS IN ALL ROOMS WITH FIRE ALARM POWER SUPPLIES AND POWER BOOSTERS. IN ADDITION TO 120V CIRCUITS SHOWN, CONTRACTOR SHALL BE REQUIRED TO FURNISH & INSTALL ANY 120V CIRCUITS NECESSARY TO PROVIDE A COMPLETE AND OPERABLE FIRE ALARM SYSTEM.
  - ADDITIONAL FIRE ALARM DEVICES: THE ELECTRICAL CONTRACTOR AND FIRE ALARM SYSTEM INSTALLER SHALL FURNISH AND INSTALL ADDITIONAL FIRE ALARM DEVICES AT THE DISCRETION OF THE ARCHITECT/ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION IN THE FOLLOWING QUANTITIES:
    - (2) HORN/STROBE LIGHTS
    - (1) STROBE LIGHTS
    - (2) MANUAL PULL STATIONS
    - (2) CEILING MOUNTED SMOKE OR HEAT DETECTORS
- INCLUDE COMPLETE COSTS TO FURNISH AND INSTALL THE ABOVE ADDITIONAL DEVICES IN BASE BID, INCLUDING ALL CONDUIT, OUTLET BOXES, 120V POWER, WIRING, AND SYSTEM PROGRAMMING. ANY DEVICES NOT USED SHALL BE TURNED OVER TO THE OWNER AS SPARE DEVICES AT THE END OF THE PROJECT.
- USE OWNER'S ACTUAL PLACARDED ROOM NAMES FOR FINAL PROGRAMMING OF THE FIRE ALARM SYSTEM. INDICATE ANY DISCREPANCIES WITH DRAWING ROOM NAMES OR NUMBERS ON RECORD DRAWING MARK-UPS.
  - THE CONTRACTOR SHALL PROVIDE THE REQUIRED NUMBER OF POWER EXTENDER PANELS TO SUPPORT NOTIFICATION DEVICES. EXTENDER PANELS MAY BE STACKED A MAXIMUM OF TWO PANELS VERTICALLY.
  - BACKBOXES FOR ALL CEILING FIRE ALARM DEVICES SHALL BE FLUSH MOUNTED WHERE CONDUIT IS ROUTED ABOVE FINISHED CEILING. WHERE SURFACE MOUNTING OF DEVICES IN RENOVATED AREAS IS NECESSARY, PROVIDE THE SHALLOWEST SURFACE STYLE BOXES ALLOWED BY MANUFACTURER.
  - FIRE ALARM CONTROL PANEL SHALL BE FURNISHED WITH AN INTEGRATED, CELLULAR PHONE SYSTEM THAT SHALL DIAL OUT ALL ALARMS. FIELD COORDINATE PHONE NUMBERS WITH OWNER. CONTRACTOR IS RESPONSIBLE FOR PROGRAMMING ALL PHONE NUMBERS.
  - BACKBOXES FOR SURFACE DEVICES SHALL BE PER FIRE ALARM EQUIPMENT MANUFACTURER AND INSTALLED SUCH THAT DEVICE APRON IS FLUSH TO WALL OR CEILING SURFACE SURFACE.

REV.	DATE	DESCRIPTION
1	06/29/2022	70% REVIEW
2	10/12/2022	90% REVIEW
3	02/27/2023	PERMITTING REVIEW
4	10/16/2023	PERMITTING REVISIONS
5	12/04/2023	BID READY SET
6	01/22/2024	ADDENDA #2

SEAL & COA

**David M. Wiedeman**  
No. 31672  
12/4/23

**SOUTH CAROLINA**  
ELECTRICAL  
SAFETY AND  
DESIGN, LLC  
NO. 4987

CERTIFICATE OF AUTHORIZATION

OWNER

**Rock Hill**  
SOUTH CAROLINA  
Always on

CONSULTANT INFORMATION

PROJECT MANAGER: TAB

DESIGNED BY: DMZ

DRAWN BY: AP

CHECKED BY: DMZ

FILE NAME: FILE NAME

PROJECT NO.: 056-21-120

**Wiedeman and Singleton, Inc.**  
131 EAST MAIN  
SUITE 200  
ROCK HILL, SC  
29103  
WWW.WIEDEMAN.COM

PROJECT INFORMATION

CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA

SHEET TITLE  
ALUM SLUDGE DEWATERING BUILDING  
SECOND FLOOR  
LIGHTING AND SYSTEMS PLAN

SCALE: As indicated

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.

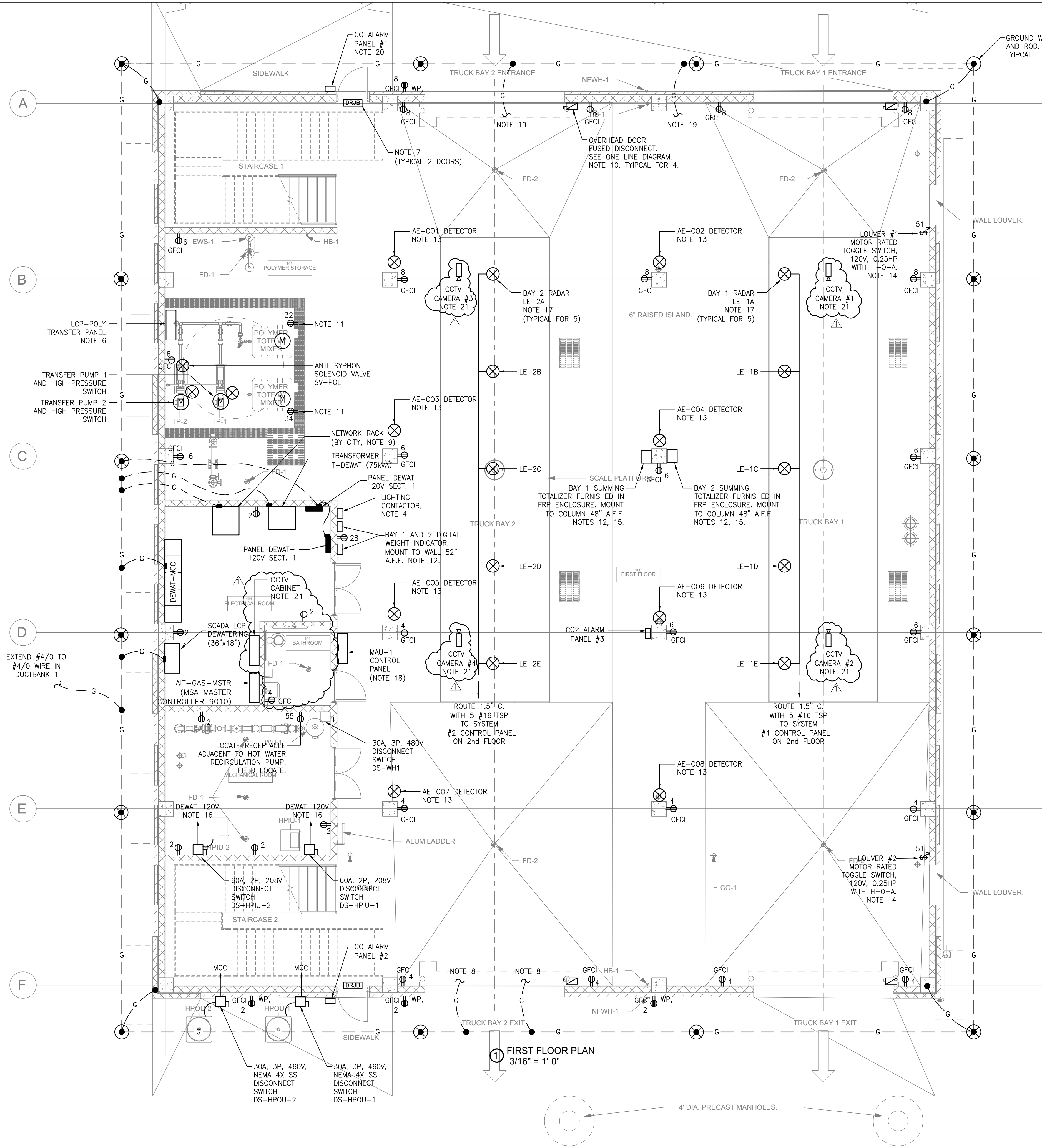
DATE: OCTOBER 2023

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OF  
149

**01.E.02**





- NOTES:
- ALL CONDUIT SHALL BE RIGID GALVANIZED STEEL, MINIMUM OF 3/4". ALL FLEX SHALL BE METALLIC AND SHALL NOT EXCEED 3 FEET.
  - ROUTE 3 #12 IN 3/4" CONDUIT BETWEEN EACH WALL LOUVER AND MAKEUP AIR UNIT FOR INTERLOCK. COORDINATE WITH HVAC.
  - RUN #4/0 BARE CU, GROUND RING AROUND THE BUILDING, 3' FROM THE BUILDING & 30" BELOW GRADE.
  - PROVIDE EATON ECL03CBA44-E4P23S3, LIGHTING CONTACTOR WITH 4 - 20A, 1 POLES FOR EXTERIOR LIGHTS, PHOTOCALL, 365 DAY DIGITAL DISPLAY TIME CLOCK, NEMA 12 ENCLOSURE WITH H-O-A SWITCH. ROUTE EXTERIOR LIGHTING CIRCUITS THROUGH CONTACTORS.
  - PROVIDE 4" HOUSE KEEPING PAD FOR ALL FREE STANDING ENCLOSURES, INCLUDING, BUT NOT LIMITED, TO CENTRIFUGE 1/2 CONTROL PANELS, MCC, NETWORK RACK (IF REQUESTED BY CITY), SCADA-LCP-DEWATERING, AND THE 75kVA TRANSFORMER.
  - INSTALL LCP-POLY TRANSFER PANEL. INSTALL ON STAINLESS STEEL SINGLE SUPPORT STAND SUCH THAT TOP OF PANEL IS 5'-6" A.F.F. ROUTE CONDUITS BETWEEN PANEL AND FIELD DEVICES AND MOTORS IN SLAB.
  - CONTRACTOR SHALL INSTALL ALL DOOR HARDWARE FOR CONTROL BY OWNER'S DOOR ACCESS SYSTEM. SEE DETAIL F/99.E.02.
  - ROUTE #4 GROUND TO EACH CENTRIFUGE CONTROL PANEL ON SECOND FLOOR.
  - CONTRACTOR SHALL INSTALL OWNER FURNISHED NETWORK RACK ON CONCRETE HOUSEKEEPING PAD. INSTALL RACK SUCH THAT 36" FRONT AND BACK CLEARANCE IS MAINTAINED. COORDINATE WITH OWNER. ROUTE NEW FIBER CABLE UNDER RACK.
  - CONTRACTOR IS RESPONSIBLE FOR A FULLY FUNCTIONAL DOOR. INSTALL ALL INTERCONNECTING CONDUIT/CABLES PER MANUFACTURERS SHOP DRAWING. CONTRACTOR SHALL ROUTE 2 #14 IN 3/4" CONDUIT FROM EACH DOOR CONTROLLER TO SCADA-LCP-DEWATERING SUCH THAT DOOR CAN BE AUTOMATICALLY OPENED FROM SCADA.
  - INSTALL DEDICATED 120V, 1P, WP (WITH COVER) RECEPTACLE FOR TOTE MIXER. INSTALL ON SINGLE SUPPORT STAND SUCH THAT RECEPTACLE IS 52" A.F.F. TOTE MIXER WILL BE FURNISHED WITH A 10 FOOT CORD. ROUTE 3 #12 IN 3/4" C. FROM SWITCH TO PANEL DEWAT-120 SECT.1. FIELD COORDINATE EXACT LOCATION WITH MIXER POSITION.
  - ROUTE A SINGLE SHIELDED CABLE W/ 6 #16 IN 3/4" CONDUIT BETWEEN THE DIGITAL WEIGHT INDICATOR AND THE SUMMING TOTALIZER. THE SUMMING TOTALIZER WILL BE FURNISHED IN A NEMA 4X SS ENCLOSURE. THE DIGITAL WEIGHT INDICATOR WILL BE FURNISHED WITH A CORD AND PLUG. PROVIDE "TRUCK BAY 1 SCALE" AND "TRUCK BAY 2 SCALE" LABELS ON EACH TOTALIZER AND INDICATOR. FIELD COORDINATE FINAL LOCATION OF SUMMING TOTALIZER WITH HYDROSTATIC LINES SUCH THAT TOTALIZER IS LOCATED WITHIN 25 FEET OF EACH LOAD CELL. TYPICAL FOR 2.
  - MOUNT CARBON MONOXIDE DETECTORS 4-6 FEET ABOVE FINISHED FLOOR.
  - ROUTE 3 #12 IN 3/4" C. FROM SWITCH TO PANEL DEWAT-120 AND FROM SWITCH TO LOUVER. ROUTE 3 #14 IN 3/4" C. TO MAKE-UP AIR UNIT #1 FOR CONTROL.
  - CONTRACTOR SHALL FURNISH AN ASCO MODEL 265 (EDCO SLAC) SURGE PROTECTION DEVICE IN NEMA FRP ENCLOSURE AND INSTALL JUST BELOW TOTALIZER. ROUTE 120V POWER TO EDCO SLAC AND THEN TO TOTALIZER.
  - ROUTE 3 #4 & 1 #10 GND IN 1" C. BETWEEN DEWAT-120V PANELBOARD AND DISCONNECT AND THEN TO UNIT.
  - INSTALL VENDOR PROVIDED RADARS ON CEILING FACING DOWN TOWARDS TRAILER. REFER TO MANUFACTURER'S SHOP DRAWINGS FOR EXACT MOUNTING LOCATION AND TYPE. TYPICAL FOR 10.
  - INSTALL HVAC PROVIDED MAKE UP AIR UNIT 1 CONTROL PANEL. ROUTE 3 #12 IN 3/4" C. TO 120V PANEL DEWAT-120 AND 3 #14 IN 3/4" C. TO LOUVER #3 AND #4 FOR INTERLOCKING. ROUTE 1" C. TO MAKE UP AIR UNIT 2 ON ROOF. REFER TO HVAC CONTRACTOR FOR WIRING REQUIREMENTS.
  - ROUTE #4/0 BARE COPPER CONDUCTOR GROUND TO SECOND FLOOR AND BOND TO EACH CENTRIFUGE FRAME.
  - CONTRACTOR SHALL FURNISH AND INSTALL THREE (3) FEDERAL SIGNAL HORN STROBE, WHITE/RED, ABS, 18 TO 30VDC UNITS FOR ALARM AND NOTIFICATION OF CARBON MONOXIDE BUILDUP. UNITS SHALL BE RATED NEMA 4X. TWO SHALL BE LOCATED ON THE FIRST FLOOR AND THE THIRD SHALL BE LOCATED ON THE SECOND FLOOR. INSTALL 90" A.F.F.
  - CONTRACTOR SHALL INSTALL AN PoE ETHERNET CABLE IN 3/4" C. FROM OWNER PROVIDED/INSTALLED CCTV CABINET TO EACH OF THE FOUR OWNER PROVIDED/INSTALLED CCTV CAMERAS. ROUTE A CAT 5 ETHERNET CABLE IN 3/4" C. FROM CCTV CABINET TO NETWORK RACK.

REV.	DATE	DESCRIPTION
1	06/29/2022	002 REVIEW
2	10/12/2022	002 REVIEW
3	02/27/2023	PERMITTING REVIEW
4	10/16/2023	PERMITTING REVISIONS
5	12/04/2023	BID READY SET
6	01/22/2024	ADDENDA #2

SEAL & COA

DAVID M. WIEDEMAN  
No. 31672  
No. 12/4/23

SOUTH CAROLINA  
ELECTRICAL  
DESIGN, LLC  
NO. 4987

CERTIFICATE OF AUTHORIZATION

OWNER

Rock Hill  
SOUTH CAROLINA  
Always on

CONSULTANT INFORMATION

PROJECT MANAGER: TAB

DESIGNED BY: DMZ

DRAWN BY: AP

CHECKED BY: DMZ

FILE NAME: FILE NAME

PROJECT NO.: 056-21-120

WIEDEMAN AND SINGLETON, INC.  
131 EAST MAIN  
SUITE 200  
ROCK HILL, SC  
29163  
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PROJECT INFORMATION

CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA

SHEET TITLE  
ALUM SLUDGE DEWATERING BUILDING  
FIRST FLOOR  
POWER PLAN

SCALE: As indicated

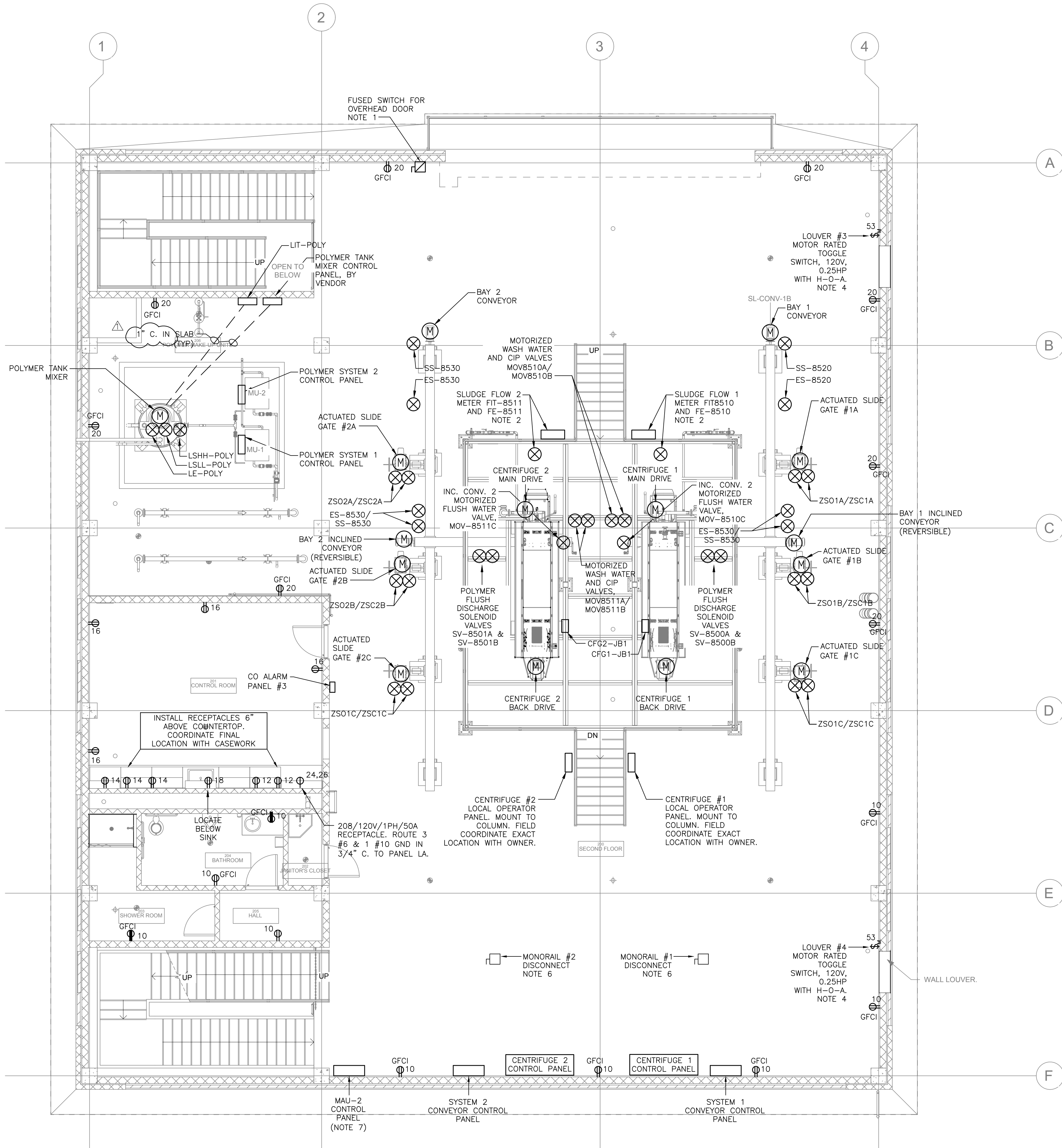
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SHEET: 74 OF 149





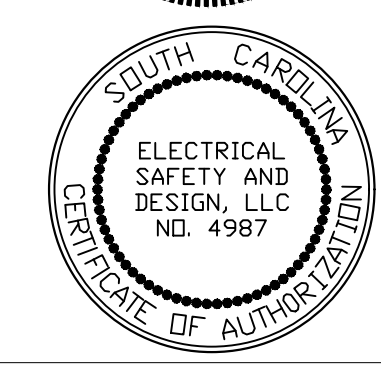
① SECOND FLOOR PLAN  
3/16" = 1'-0"

NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR A FULLY FUNCTIONAL DOOR. INSTALL ALL INTERCONNECTING CONDUIT/CABLES PER MANUFACTURERS SHOP DRAWING.
2. INSTALL FLOW TRANSMITTER ON STRUCTURE FACING WALL.
3. INSTALL CENTRIFUGE CONTROL PANELS ON A 4" CONCRETE HOUSEKEEPING PAD.
4. ROUTE 3 #12 IN 3/4" C. FROM SWITCH TO PANEL DEWAT-120 AND FROM SWITCH TO LOUVER. ROUTE 3 #14 IN 3/4" C. TO MAKE-UP AIR UNIT #2 FOR CONTROL.
5. CONTRACTOR SHALL INSTALL ALL INTERCONNECTING WIRING AND CONDUIT BETWEEN THE CONTROL PANEL AND VENDOR EQUIPMENT BASED ON MANUFACTURER'S SHOP DRAWINGS. ALL WIRES SHALL BE LABELED (AT EACH END) PER PANEL WIRING DIAGRAMS.
6. CONTRACTOR SHALL FIELD COORDINATE EXACT DISCONNECT LOCATION WITH MONORAIL MANUFACTURER. CONTRACTOR IS RESPONSIBLE FOR A FULLY FUNCTIONAL MONORAIL SYSTEM.
7. INSTALL HVAC PROVIDED MAKE UP AIR UNIT 2 CONTROL PANEL. ROUTE 3 #12 IN 3/4" C. TO 120V PANEL DEWAT-120 AND 3 #14 IN 3/4" C. TO LOUVER #3 AND #4 FOR INTERLOCKING. ROUTE 1" C. TO MAKE UP AIR UNIT 2 ON ROOF. REFER TO HVAC CONTRACTOR FOR WIRING REQUIREMENTS.

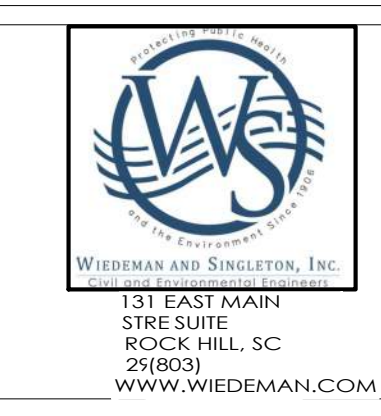
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2	10/12/2022	30% REVIEW
3	02/27/2023	PERMITTING REVIEW
4	10/16/2023	PERMITTING REVISIONS
5	12/04/2023	BID READY SET
6	01/17/2024	ADDENDA #2

SEAL & COA



CONSULTANT INFORMATION

PROJECT MANAGER: TAB  
DESIGNED BY: DMZ  
DRAWN BY: AP  
CHECKED BY: DMZ  
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PROJECT NO.: 056-21-120

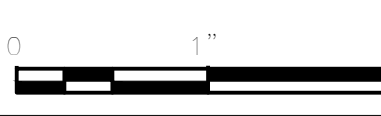


PROJECT INFORMATION

PROJECT: CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA  
SHEET TITLE: ALUM SLUDGE DEWATERING BUILDING  
SECOND FLOOR  
POWER PLAN

SCALE: As indicated

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.



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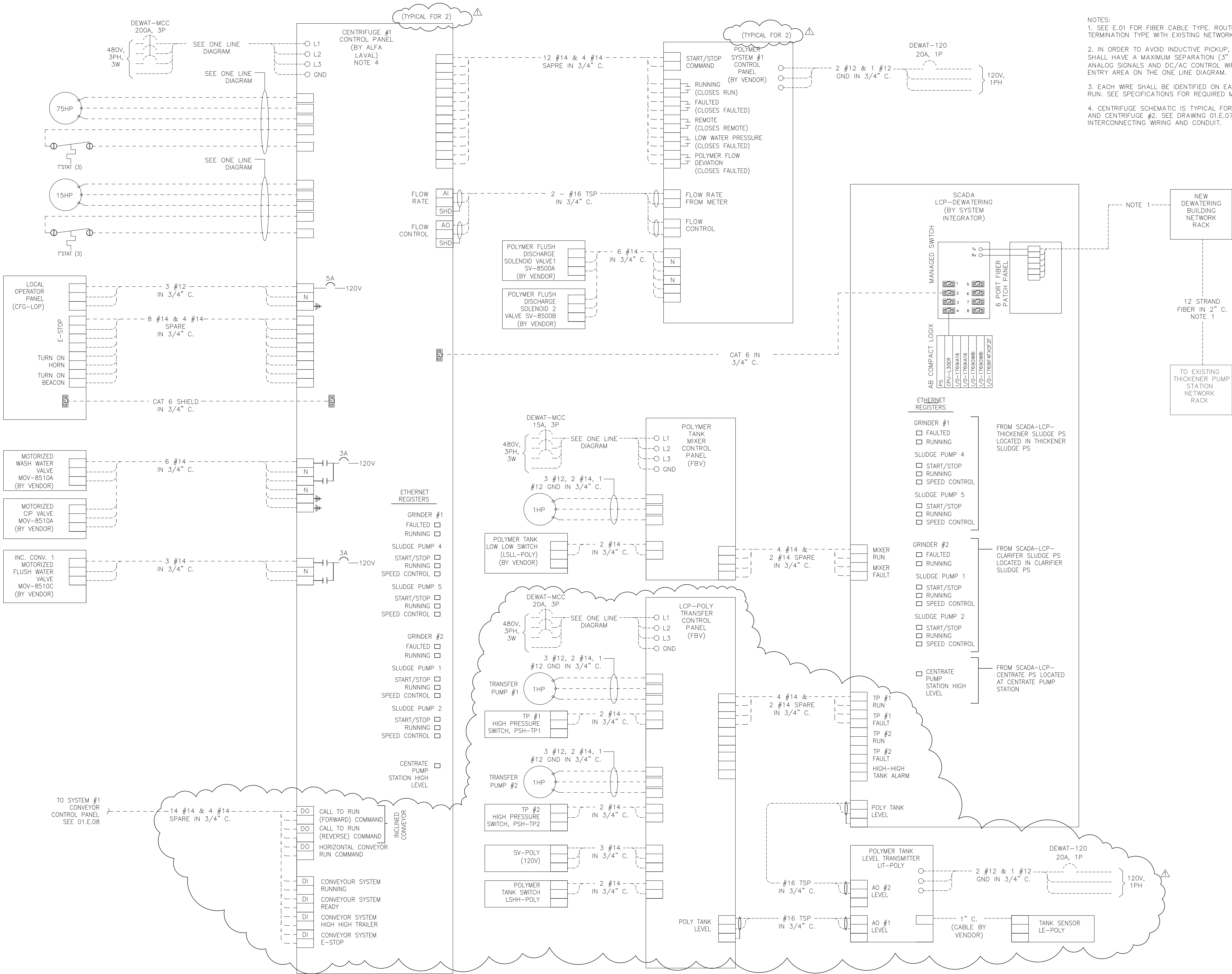
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NOTES:

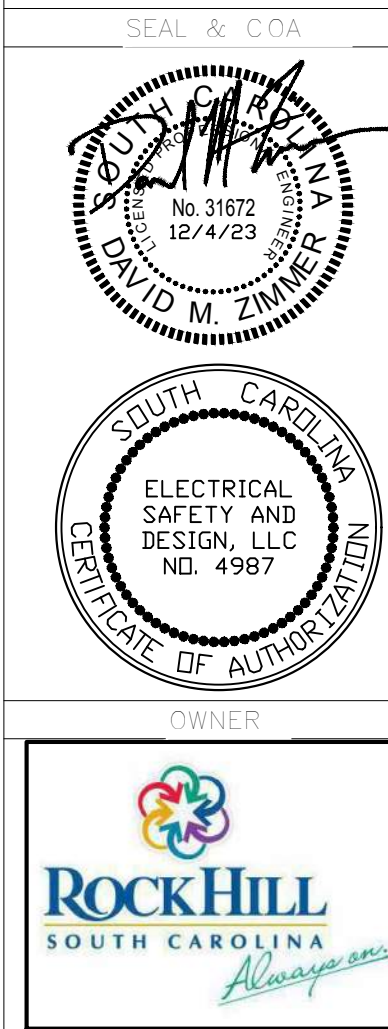
1. SEE E.01 FOR FIBER CABLE TYPE. ROUTE IN 2" C. COORDINATE TERMINATION TYPE WITH EXISTING NETWORK RACK.

2. IN ORDER TO AVOID INDUCTIVE PICKUP, ALL 480V AC WIRING SHALL HAVE A MAXIMUM SEPARATION (3" MINIMUM) FROM DC ANALOG SIGNALS AND DC/AC CONTROL WIRING. SEE CONDUIT ENTRY AREA ON THE ONE LINE DIAGRAM.

3. EACH WIRE SHALL BE IDENTIFIED ON EACH END OF CONDUIT RUN. SEE SPECIFICATIONS FOR REQUIRED MARKERS.

4. CENTRIFUGE SCHEMATIC IS TYPICAL FOR TWO - CENTRIFUGE #1 AND CENTRIFUGE #2. SEE DRAWING 01.E.07 FOR ADDITIONAL INTERCONNECTING WIRING AND CONDUIT.

REV.	DATE	DESCRIPTION
1	06/29/2022	70% REVIEW
2	10/12/2022	80% REVIEW
3	02/27/2023	PERMITTING REVIEW
4	10/16/2023	PERMITTING REVISIONS
5	12/04/2023	BID READY - SET
6	01/22/2024	ADDENDA #2



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Wiedeman and Singleton, Inc.  
131 EAST MAIN  
SUITE 200  
ROCK HILL, SC  
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WWW.WIEDEMAN.COM

PROJECT INFORMATION

CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA

SHEET TITLE:  
ALUM SLUDGE DEWATERING BUILDING  
SCHEMATIC 1

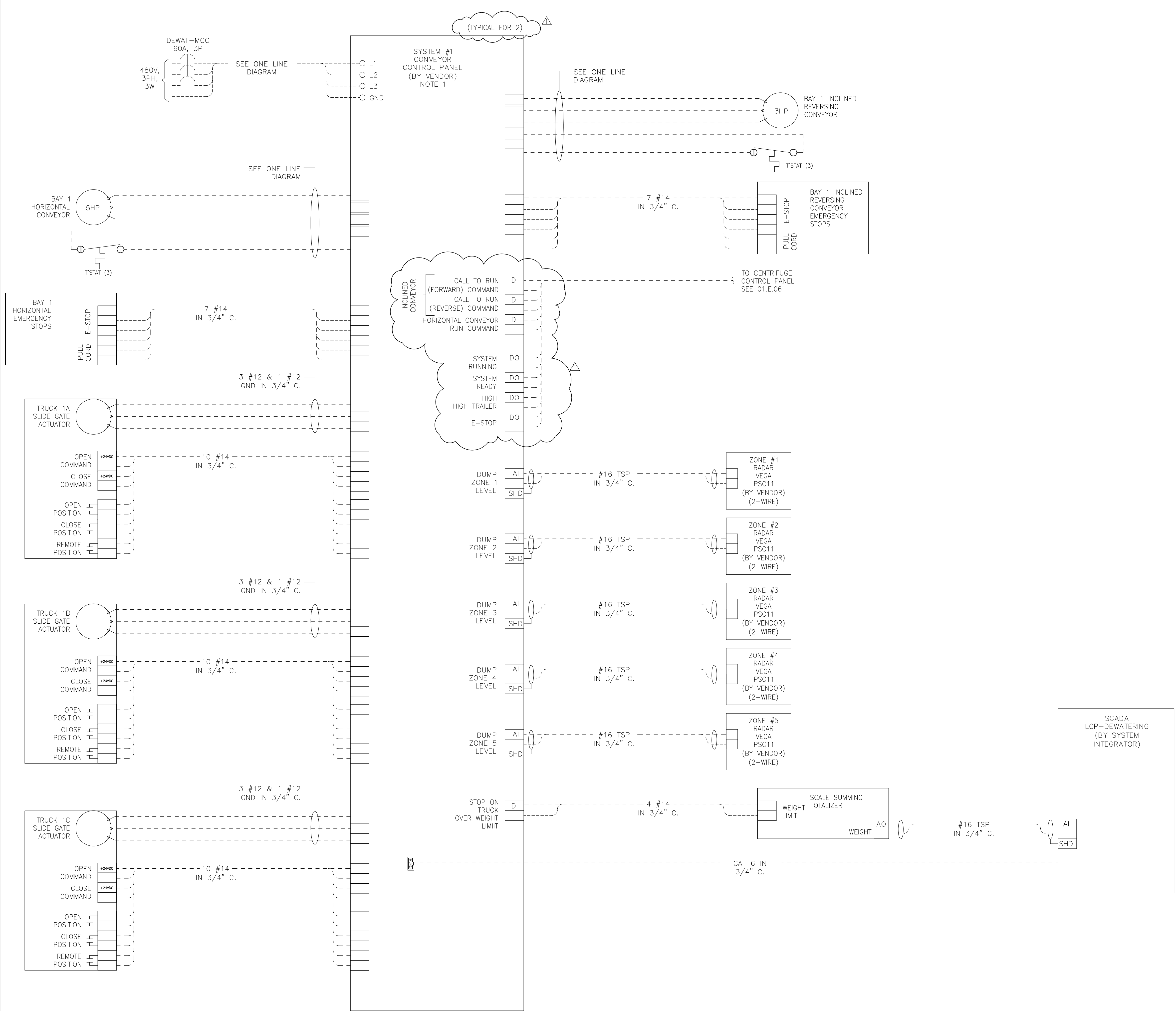
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DRAWING: 01.E.06

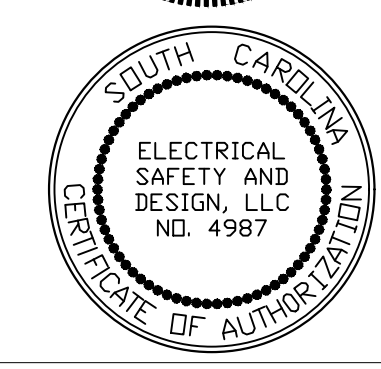
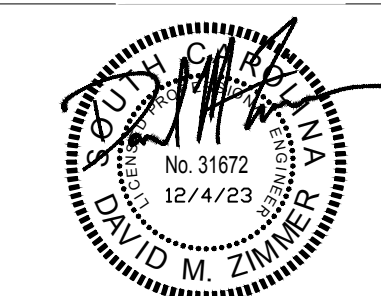
SHEET: 77 OF 149



NOTES:  
1. CONVEYOR SCHEMATIC IS TYPICAL FOR TWO – SYSTEM #1 AND SYSTEM #2.

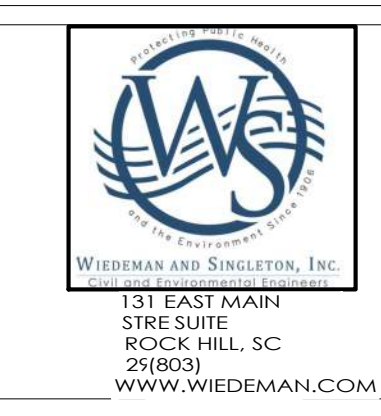
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1	06/29/2022	70% REVIEW	DMZ
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3	02/27/2023	PERMITTING REVIEW	DMZ
4	10/16/2023	PERMITTING REVISIONS	DMZ
5	12/04/2023	BID READY, SET	DMZ
6	01/22/2024	ADDENDA #2	DMZ

SEAL & C.O.A.



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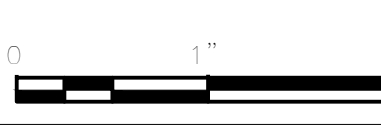


PROJECT INFORMATION

PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE:	ALUM SLUDGE DEWATERING BUILDING SCHEMATIC 3

SCALE: As indicated

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.



DATE: OCTOBER 2023

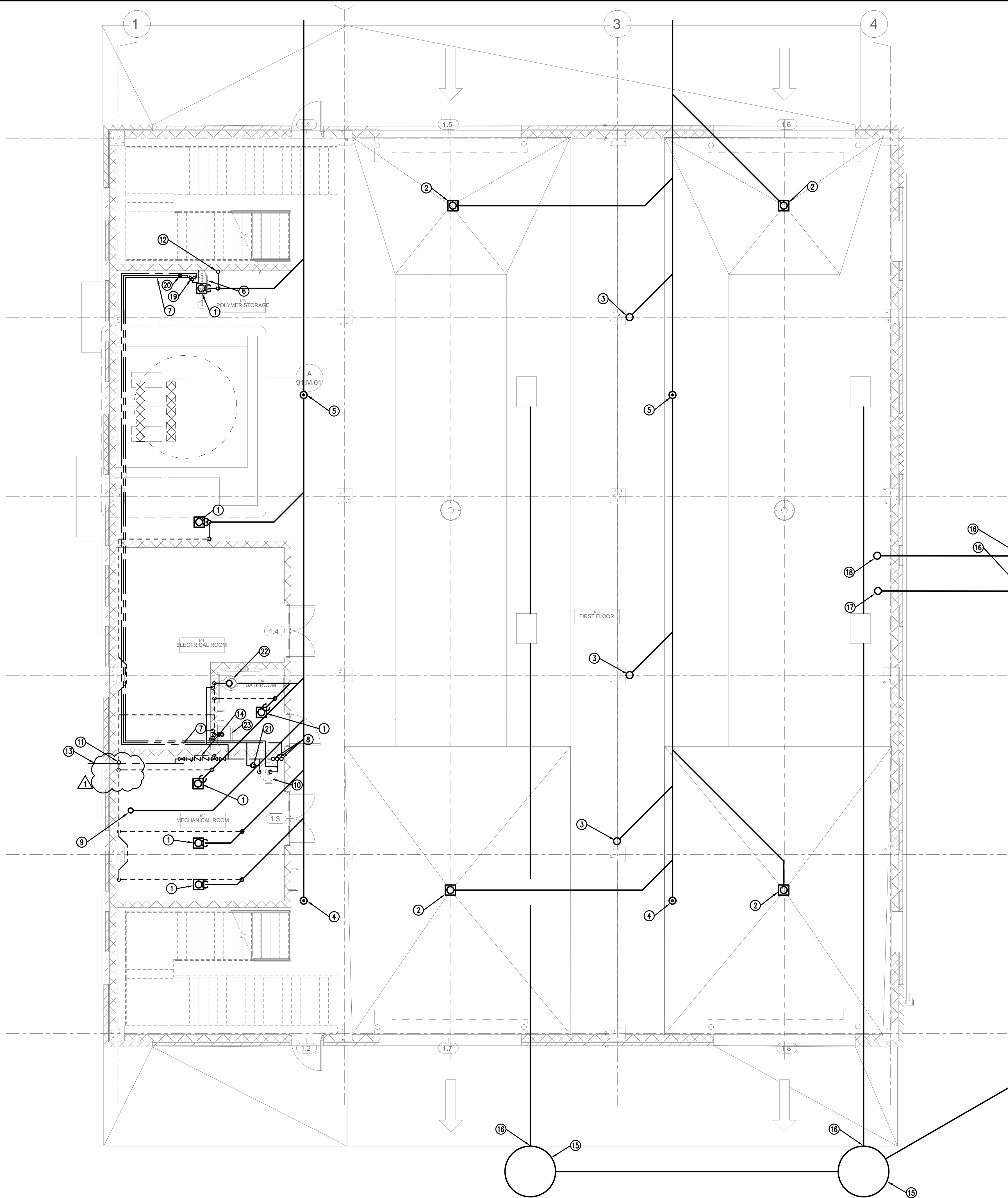
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1 FIRST FLOOR PLUMBING PLAN  
3/16" = 1'-0"

KEYED NOTES (APPLIED TO THIS SHEET ONLY)

- 1 FLOOR DRAIN WITH P-TRAP. ZURN Z508. PROVIDE PROSET TRAP GUARD FOR THIS FLOOR DRAIN.
- 2 FLOOR DRAIN WITHOUT P-TRAP. ZURN Z508.
- 3 4" WASTE UP TO SECOND FLOOR
- 4 4" CLEAN-OUT, ZURN Z1400.
- 5 4" BI-DIRECTIONAL CLEAN-OUT, ZURN Z1400.
- 6 EMERGENCY SHOWER AND EYE-WASH.
- 7 3/4" COLD WATER, 3/4" HOT WATER TO EMERGENCY SHOWER AND EYE-WASH. PROVIDE THERMOSTATIC MIXING VALVE AND 1/2" HOT WATER RETURN PIPING WITH BALANCING VALVE.
- 8 2" COLD WATER AND 3/4" HOT WATER AND 3/4" HOT WATER RETURN UP TO SECOND FLOOR.
- 9 4" SANITARY UP TO SECOND FLOOR.
- 10 WATER HEATER, 52 GALLON, 9 KW., STATE MODEL PCE-52-20RT-A, 480 VOLT, OR EQUAL.
- 11 4" VENT UP TO SECOND FLOOR
- 12 2" VENT UP TO SECOND FLOOR
- 13 SEE MECHANICAL DRAWINGS FOR CONTINUATION OF POTABLE WATER INTO BUILDING.
- 14 2" BACKFLOW PREVENTER FOR DOMESTIC WATER, SEE DETAIL 2 ON SHEET 01.P.04
- 15 MANHOLE, SEE CIVIL DRAWINGS
- 16 PROVIDE DUCK-BILL CHECK VALVE AT THIS PIPE ENTRANCE TO MANHOLE
- 17 CENTRATE LINE, SEE MECHANICAL DRAWINGS.
- 18 CENTRATE LINE, SEE MECHANICAL DRAWINGS.
- 19 THERMOSTATIC MIXING VALVE, LEONARD MODEL TM-800-LF OR EQUAL.
- 20 BALANCING VALVE, BELL AND GOSSETT CB SERIES OR EQUAL.
- 21 HOT WATER RECIRCULATING PUMP, ARMSTRONG 22SBS OR EQUAL.
- 22 WATER CLOSET, PROVIDE 1" COLD WATER TO WATER CLOSET.
- 23 WALL HUNG LAVATORY, PROVIDE 1/2" HOT AND COLD WATER TO LAVATORY.

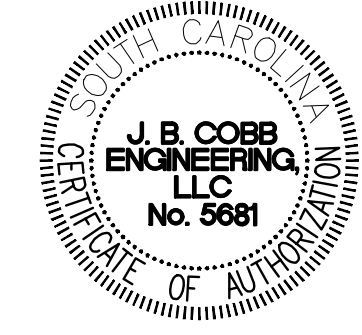
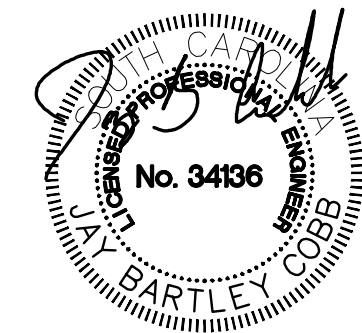
LEGEND

- EXISTING WASTE LINE.
- EXISTING SANITARY LINE.
- NEW VENT LINE.
- NEW WASTE LINE.
- EXISTING HUB DRAIN.
- NEW HUB DRAIN.
- EXISTING FLOOR DRAIN.
- NEW FLOOR DRAIN.
- EXISTING COOLER DRAIN.
- NEW COOLER DRAIN.
- EQUIPMENT TO BE REMOVED
- EXISTING LINE CAPPED
- EXISTING CLEAN OUT.
- NEW CLEAN OUT.
- EXISTING DOMESTIC COLD WATER (DCW).
- NEW DOMESTIC COLD WATER (DCW).
- EXISTING DOMESTIC HOT WATER (DHW).
- NEW DOMESTIC HOT WATER (DHW).
- EXISTING VALVE.
- NEW VALVE.
- GAS
- EXISTING GAS LINE
- NEW GAS LINE

2 PROCESS WASTE RISER  
NO SCALE

REV	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	
2	10/12/2022	90% REVIEW	
3	02/21/2023	PERMIT REVIEW	
4	06/06/2023	PERMIT REVISIONS	
5	12/04/2023	BID READY SET	
6	01/22/2024	ADDENDUM #2	

SEAL & C.O.A.



CONSULTANT INFORMATION

PROJECT MANAGER: TAB  
DESIGNED BY: AB  
DRAWN BY: RAR  
CHECKED BY: Checker

PROJECT NO.: 56-21-120



PROJECT INFORMATION

PROJECT: CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA

SHEET TITLE: ALUM SLUDGE DEWATERING BUILDING  
FIRST FLOOR PLUMBING PLAN,  
LEGEND, AND RISER

SCALE: 3/16" = 1'-0"

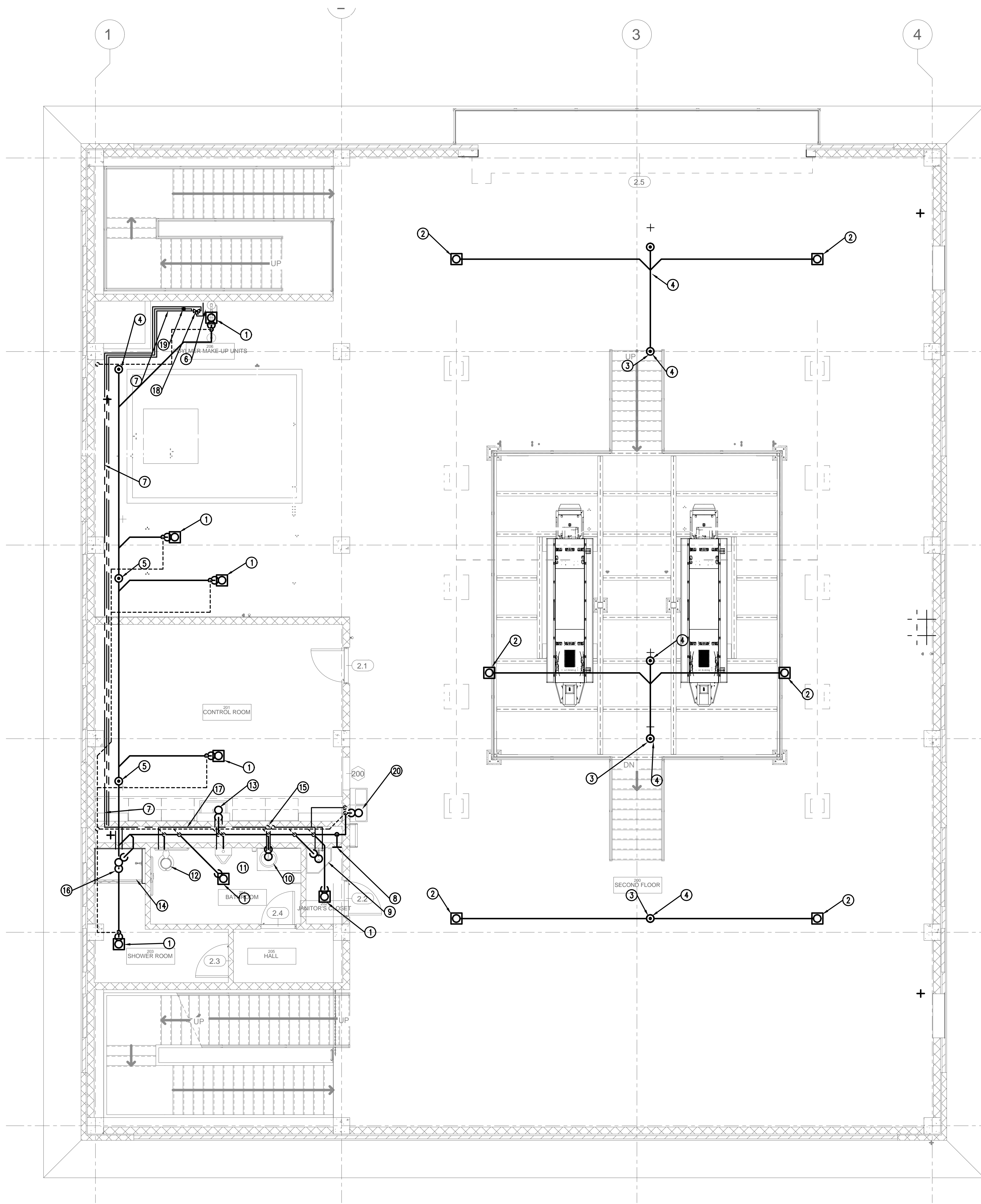
NOTE: DRAWING SCALE  
IS BASED ON 24X36  
SHEETS.

DATE: OCTOBER 2022 Issue Date

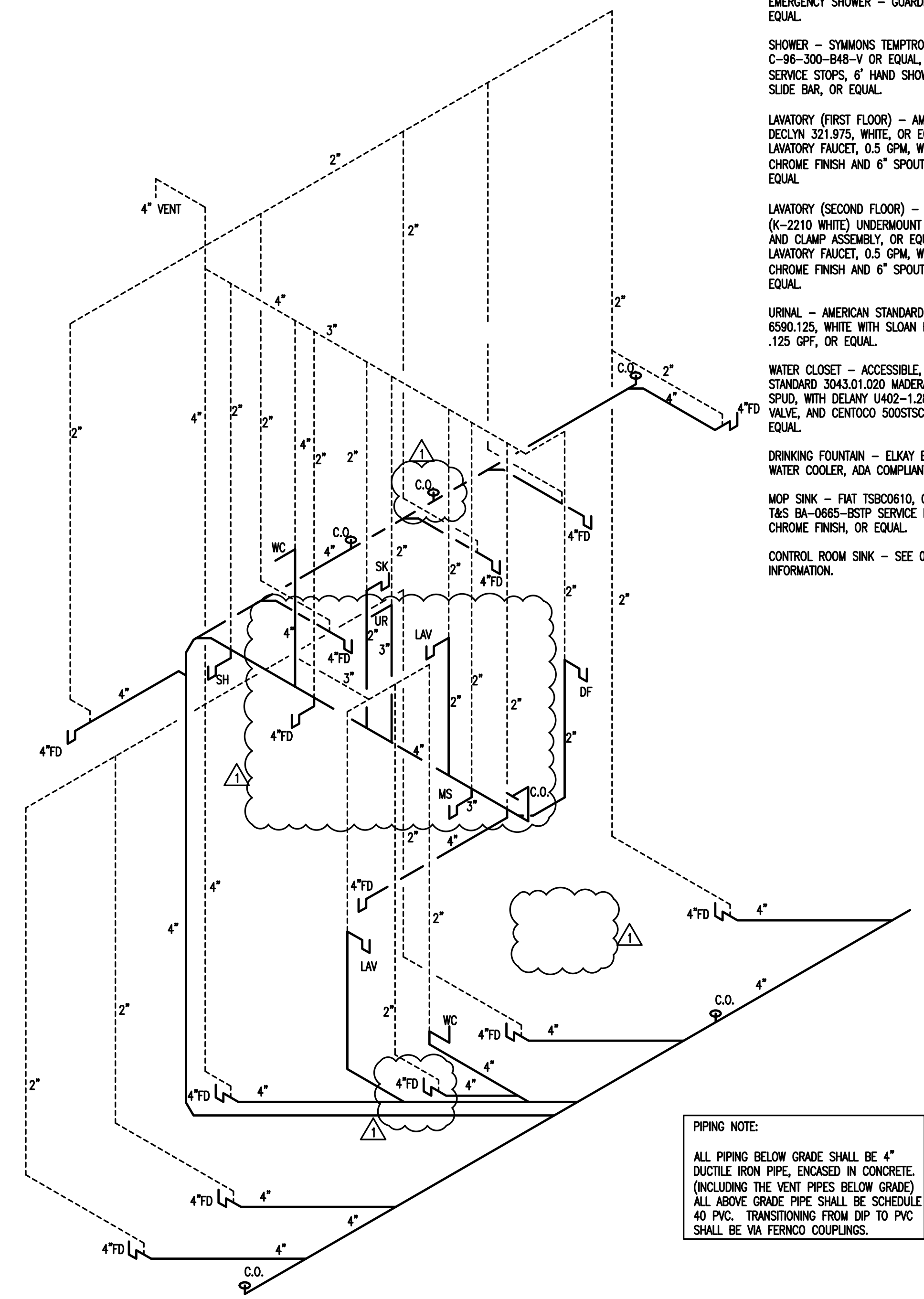
DRAWING SHEET

01.P.01

81  
OF  
149



1 SECOND FLOOR PLUMBING PLAN  
3/16" = 1'-0"



2 SANITARY, WASTE AND VENT RISER  
NO SCALE

- KEYED NOTES (APPLIED TO THIS SHEET ONLY)
- 1 FLOOR DRAIN WITH P-TRAP, ZURN Z508. PROVIDE PROSET TRAP GUARD FOR THIS FLOOR DRAIN.
  - 2 FLOOR DRAIN WITHOUT P-TRAP, ZURN Z508.
  - 3 4" WASTE DOWN TO FLOOR BELOW
  - 4 4" CLEAN-OUT
  - 5 4" BI-DIRECTIONAL CLEAN-OUT
  - 6 EMERGENCY SHOWER.
  - 7 1" COLD WATER, 3/4" HOT WATER, AND 1/2" HOT WATER RETURN TO EMERGENCY SHOWER.
  - 8 WALL CLEAN-OUT
  - 9 MOP SINK. PROVIDE 3/4" HOT AND COLD WATER TO MOP SINK
  - 10 LAVATORY. PROVIDE 1/2" HOT AND COLD WATER TO LAVATORY
  - 11 URINAL. PROVIDE 3/4" COLD WATER TO URINAL
  - 12 WATER CLOSET. PROVIDE 1" COLD WATER TO WATER CLOSET
  - 13 CONTROL ROOM SINK. PROVIDE 1/2" HOT AND COLD WATER TO SINK.
  - 14 SHOWER. PROVIDE 1/2" HOT AND COLD WATER TO SHOWER.
  - 15 1-1/2" COLD WATER, 3/4" HOT WATER AND 1/2" HOT WATER RETURN UP FROM FIRST FLOOR.
  - 16 4" SANITARY DOWN TO FIRST FLOOR.
  - 17 1-1/2" COLD WATER AND 3/4" HOT WATER INSIDE CHASE.
  - 18 THERMOSTATIC MIXING VALVE, LEONARD MODEL TM-800-LF OR EQUAL
  - 19 BALANCING VALVE, BELL AND GOSSETT CB SERIES OR EQUAL
  - 20 DRINKING FOUNTAIN. PROVIDE 1/2" COLD WATER TO DRINKING FOUNTAIN.

**LEGEND**

---	EXISTING WASTE LINE.
---	EXISTING SANITARY LINE.
---	NEW VENT LINE.
---	NEW WASTE LINE.
○	EXISTING HUB DRAIN.
○	NEW HUB DRAIN.
○	EXISTING FLOOR DRAIN.
○	NEW FLOOR DRAIN.
○	EXISTING COOLER DRAIN.
○	NEW COOLER DRAIN.
○	EQUIPMENT TO BE REMOVED
○	EXISTING LINE CAPPED
○	EXISTING CLEAN OUT.
○	NEW CLEAN OUT.
---	EXISTING DOMESTIC COLD WATER (DCW).
---	NEW DOMESTIC COLD WATER (DCW).
---	EXISTING DOMESTIC HOT WATER (DHW).
---	NEW DOMESTIC HOT WATER (DHW).
---	EXISTING VALVE.
---	NEW VALVE.
---	EXISTING GAS LINE
---	NEW GAS LINE

PLUMBING FIXTURES:

EMERGENCY SHOWER – GUARDIAN G1993 PVC OR EQUAL.

SHOWER – SYMMONS TEMPTROL C-96-300-B48-V OR EQUAL, WITH INTEGRAL SERVICE STOPS, 6' HAND SHOWER HOSE, AND 48" SLIDE BAR, OR EQUAL.

LAVATORY (FIRST FLOOR) – AMERICAN STANDARD DECLYN 321.975, WHITE, OR EQUAL, WITH T&S LAVATORY FAUCET, 0.5 GPM, WITH STRAINER, CHROME FINISH AND 6" SPOUT REACH (+/-), OR EQUAL.

LAVATORY (SECOND FLOOR) – KOHLER 17"x14" (K-2210 WHITE) UNDERMOUNT WITH OVERFLOW AND CLAMP ASSEMBLY, OR EQUAL, WITH T&S LAVATORY FAUCET, 0.5 GPM, WITH STRAINER, CHROME FINISH AND 6" SPOUT REACH (+/-), OR EQUAL.

URINAL – AMERICAN STANDARD WASHBROOK 6550.125, WHITE WITH SLOAN ROYAL FLUSH VALVE, .125 GPF, OR EQUAL.

WATER CLOSET – ACCESSIBLE, AMERICAN STANDARD 3043.01.020 MADERA, WHITE, TOP SPUD, WITH DELANY U402-1.28-14-2 FLUSH VALVE, AND CENTOCO 500STSCSS SEAT, OR EQUAL.

DRINKING FOUNTAIN – ELKAY EZSL8C, BI-LEVEL WATER COOLER, ADA COMPLIANT, OR EQUAL.

MOP SINK – FMT TSB0610, OR EQUAL, WITH T&S BA-D665-BSTP SERVICE FAUCET, POLISHED CHROME FINISH, OR EQUAL.

CONTROL ROOM SINK – SEE 01.M.12 FOR MORE INFORMATION.

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4	06/04/2023	PERMITTING REVISIONS
5	12/04/2023	BUD. READY SET
6	07/22/2024	ADDENDUM #2

SEAL & C.O.A.

**Rock Hill**  
SOUTH CAROLINA  
Always on

**CONSULTANT INFORMATION**

PROJECT MANAGER: TAB  
DESIGNED BY: Designer  
DRAWN BY: Author  
CHECKED BY: Checker

PROJECT NO.: 056-21-120

**Wiedeman and Singleton**  
Civil and Environmental Engineers  
131 EAST MAIN STREET, SUITE 300  
ROCK HILL, SOUTH CAROLINA 29730  
(803) 329-2944  
WWW.WIEDEMAN.COM

**PROJECT INFORMATION**

CITY OF ROCK HILL  
PROJECT: ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA

SHEET TITLE: ALUM SLUDGE DEWATERING BUILDING  
SECOND FLOOR PLUMBING PLAN,  
LEGEND, AND RISER

SCALE: 3/16" = 1'-0"

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.

DATE: OCTOBER 2022 Issue Date

DRAWING SHEET  
01.P.02  
82  
OF  
149





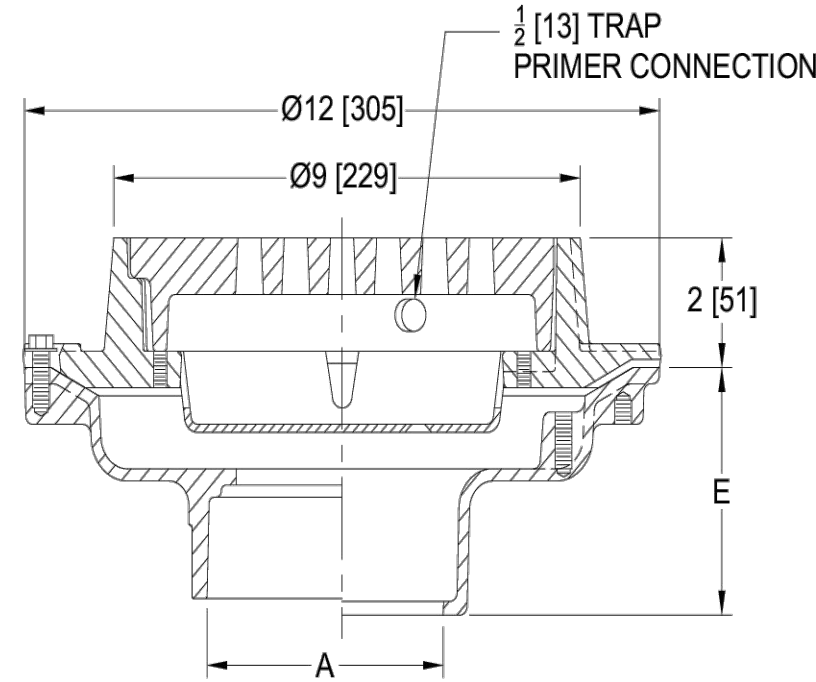
## Z508

9 [229] DIAMETER TOP EXTRA-HEAVY-DUTY DRAIN WITH SEDIMENT BUCKET

SPECIFICATION SHEET

TAG \_\_\_\_\_

Design and Dimensional Data (inches and [ mm ]) are Subject to Manufacturing Tolerances and Change Without Notice



A- Pipe Size In. [mm]	Approx. Wt.Lbs. [kg]	Grate Open Area Sq. In. [cm <sup>2</sup> ]
2, 3, 4 [51, 76, 102]	22 [10]	18 [116]
6 [152]	26 [12]	

**ENGINEERING SPECIFICATION:** ZURN Z508  
9" [229mm] Diameter top drain, Dura-Coated cast iron body with bottom outlet, seepage pan and combination membrane flashing clamp and frame with integrated trap primer and plug for extra-heavy-duty cast iron deep flange slotted duresist grate with sediment bucket.

**OPTIONS** (Check/specify appropriate options)

PIPE SIZE (ØA)	OUTLET (specify size)	'E' BODY HT. DIM.
4 [102]	IC Inside Caulk	3-3/4 [95]
4 [102]	IS Inside Gasket	3-3/4 [95]
4 [102]	IP Threaded	2-3/4 [70]
2, 3, 4 [51, 76, 102]	NH No-Hub	4-3/4 [121]
6 [152]	NH No-Hub	5-1/4 [133]
2, 3, 4 [51, 76, 102]	NL Neo-Loc	3-9/16 [90]

**PREFIXES**

☐ Z D.C.C.I. Body and Top\*  
☒ ZN D.C.C.I. Body with Polished Nickel Bronze Top (Add 3/16 [5] to 2 [51] Dim. and 3/4 [20] to 9 [229] Dim.)

**SUFFIXES**

☐ -AR Acid Resisting Epoxy Coated Cast Iron  
☐ -G Galvanized Cast Iron  
☐ -S Secondary Strainer  
☐ -SA Stabilizer Assy (See Z1036)  
☐ -SC Solid Cover with Lift Handle  
☐ -TC Neo-Loc Test Cap Gasket (2, 3, 4 [51, 76, 102] NL Bottom Outlet Only)  
☐ -TS Top Secured with Slotted Screws  
☐ -VP Vandal-Proof Secured Top  
☐ -90 90° Threaded Side Outlet Body (4 [102] Size Only)

\* Regularly furnished unless otherwise specified

**WARNING:** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**ADVERTENCIA:** Cáncer y daño reproductivo - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**AVERTISSEMENT:** Cancer et effets néfastes sur la reproduction - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

Zurn Industries, LLC | Specification Drainage Operation  
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In Canada | Zurn Industries Limited  
7900 Goreway Drive, Unit 10, Brampton, Ontario L6T 5W6, Ph. 877.892.5216

[www.zurn.com](http://www.zurn.com)



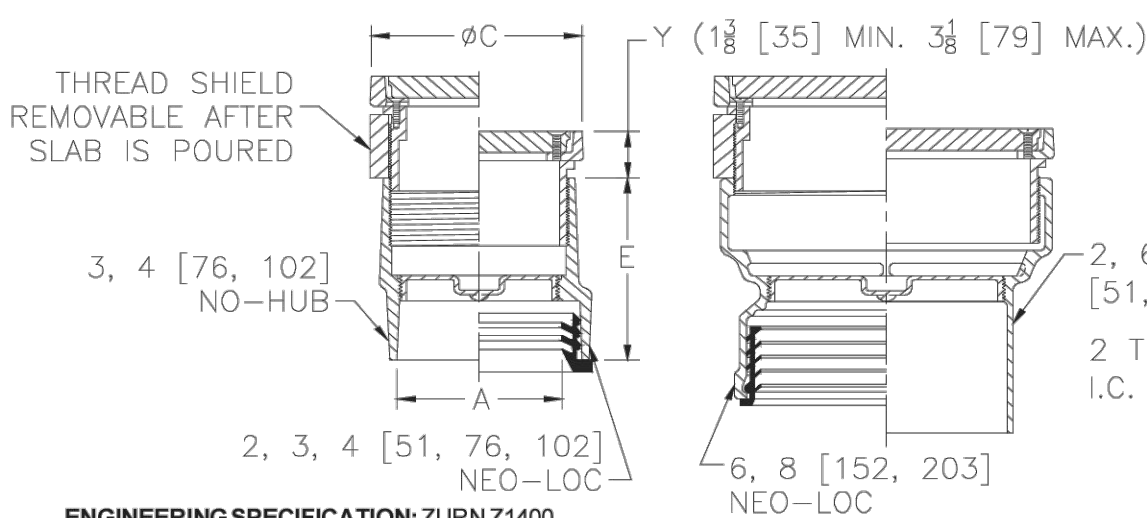
## Z1400

EXTRA-HEAVY-DUTY "LEVEL-TROL"  
ADJUSTABLE FLOOR CLEANOUT

SPECIFICATION SHEET

TAG \_\_\_\_\_

Dimensional Data (inches and [ mm ]) are Subject to Manufacturing Tolerances and Change Without Notice



**ENGINEERING SPECIFICATION:** ZURN Z1400

"Level-Trol" Adjustable floor cleanout, Dura-Coated cast iron body with gas and watertight ABS tapered thread plug and round scored cast iron extra-heavy-duty secured top (Specify finish Z, ZB, ZN, ZS) adjustable to finished floor.

Dimension In Inches[mm]			Approx. Wt. Lbs. [kg.]
A-Pipe Size	C	E	
Inside Caulk			
2 [51]	6-1/8 [156]	6-7/8 [175]	13.8 [6.3]
3 [76]	6-1/8 [156]	6-7/8 [175]	14 [6.4]
4 [102]	7-1/4 [184]	6-7/8 [175]	18.3 [8.3]
6 [152]	9-1/4 [235]	6-7/8 [175]	32.2 [14.6]
No-Hub			
2 [51]	4-1/8 [105]	4-5/8 [117]	7 [3]
3 [76]	4-1/8 [105]	4-3/4 [121]	7.7 [3.5]
4 [102]	5-1/8 [130]	4-3/4 [121]	10.3 [4.7]
6 [152]	8-1/4 [210]	4-3/4 [121]	22.2 [10.1]
8 [203]	9-1/4 [235]	7-1/2 [191]	29.9 [13.6]
Neo-Loc			
2 [51]	4-1/8 [105]	4-3/4 [121]	7.9 [3.6]
3 [76]	5-1/8 [130]	4-3/4 [121]	10.6 [4.8]
4 [102]	5-1/8 [130]	4-3/4 [121]	11.9 [5.4]
6 [152]	8-1/4 [210]	5-7/8 [149]	21.9 [9.9]
8 [203]	9-1/4 [235]	6-1/2 [165]	23.5 [10.7]

**PIPE SIZE**

2, 3, 4, 6 [51, 76, 102, 152]  
2, 3, 4, 6, 8 [51, 76, 102, 152, 203]  
2, 3, 4, 6, 8 [51, 76, 102, 152, 203]

**OUTLET** (Specify size/type)

☐ IC Inside Caulk  
☐ NH No-Hub  
☐ NL Neo-Loc

**'E' BODY HT. DIM.**

See Chart  
See Chart  
See Chart

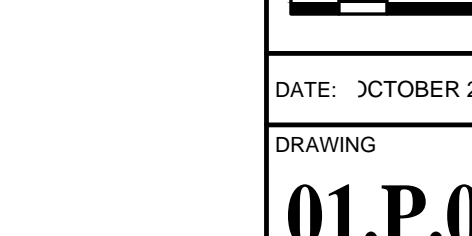
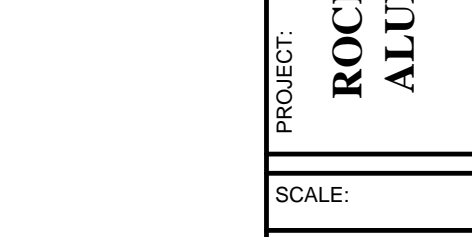
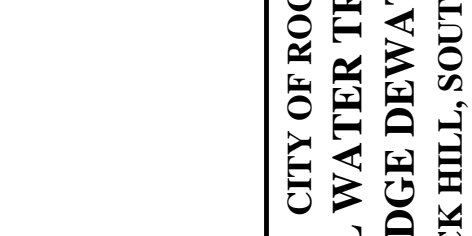
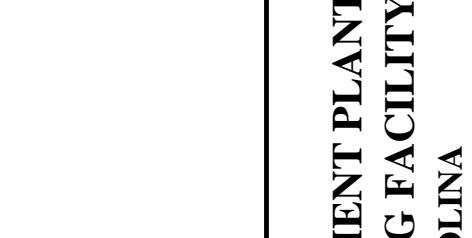
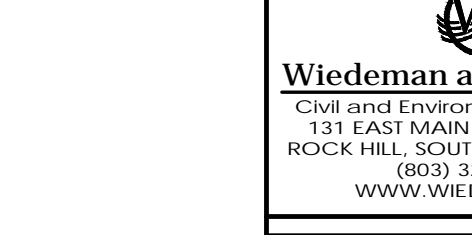
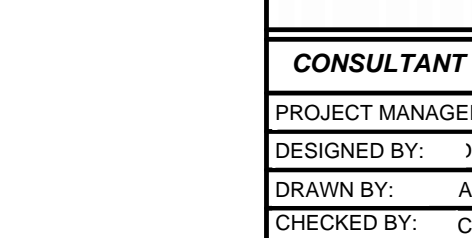
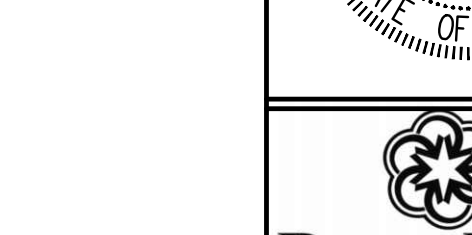
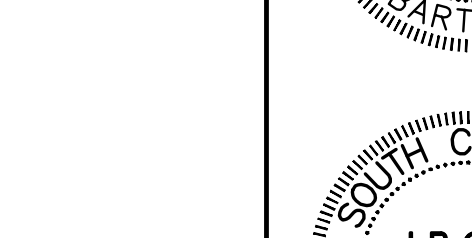
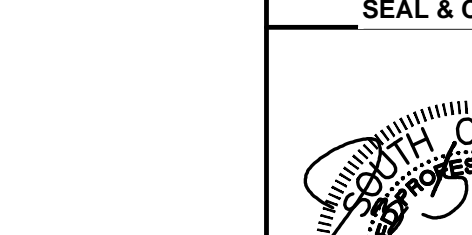
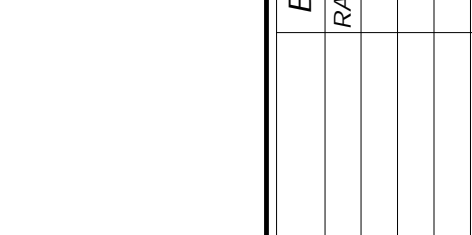
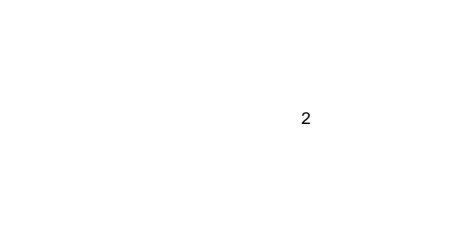
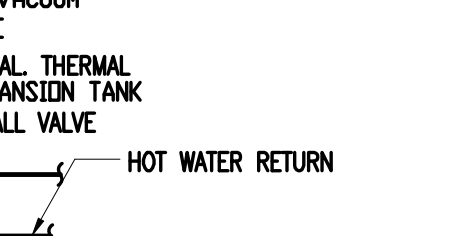
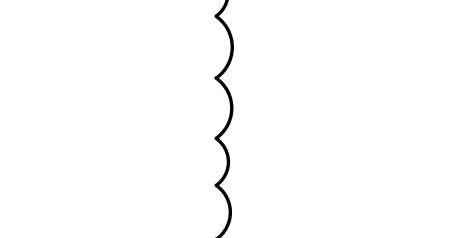
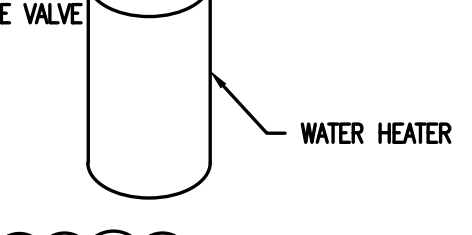
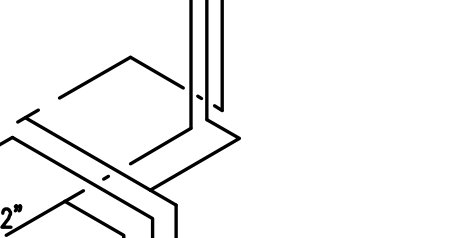
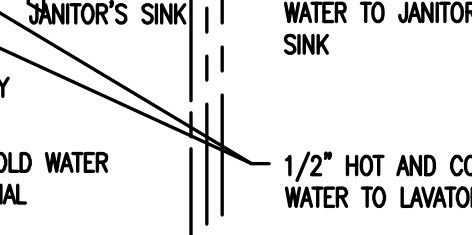
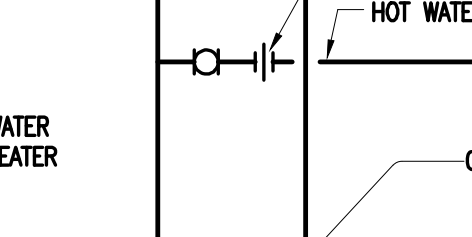
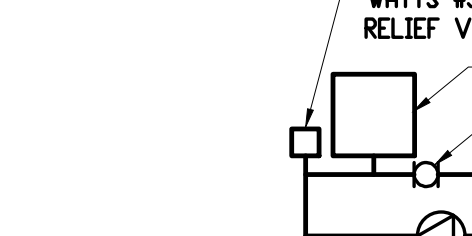
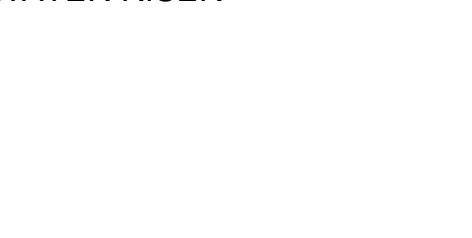
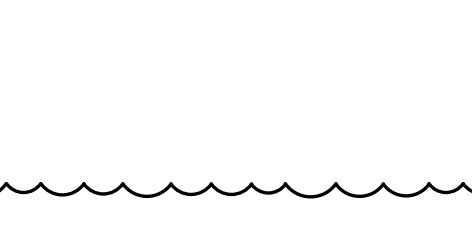
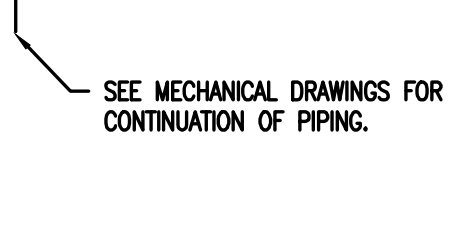
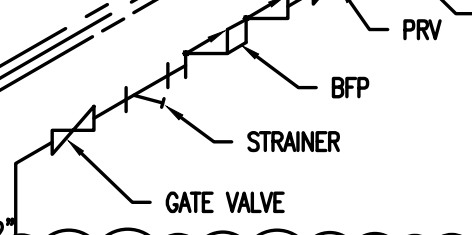
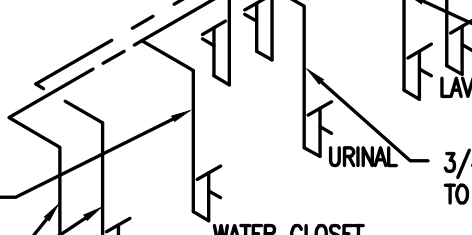
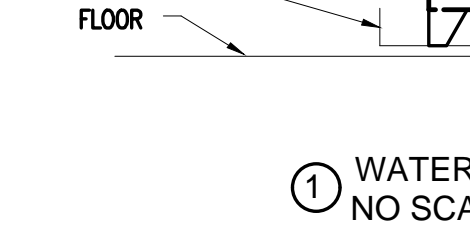
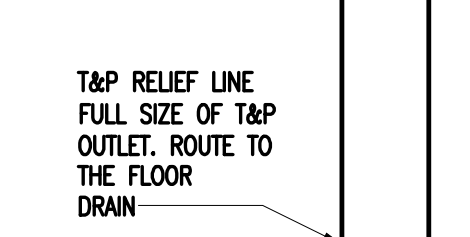
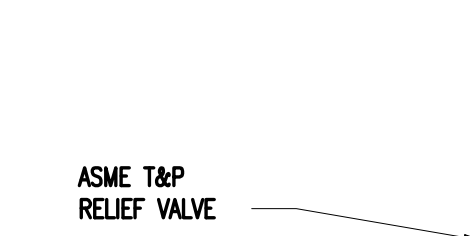
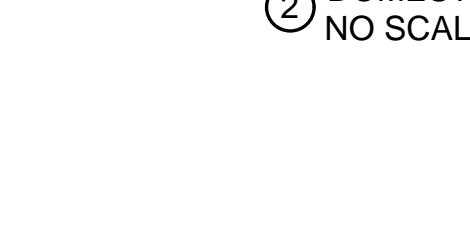
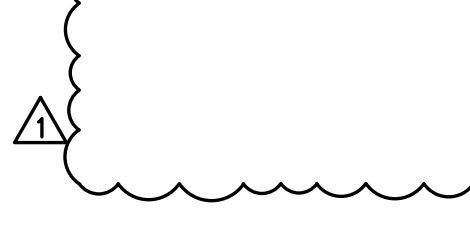
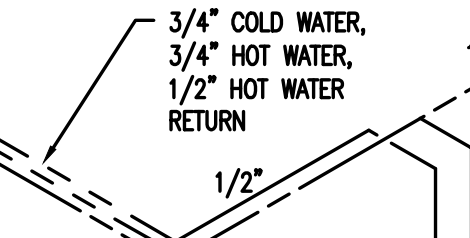
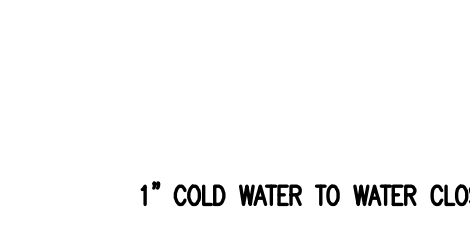
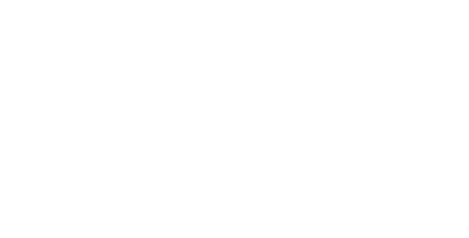
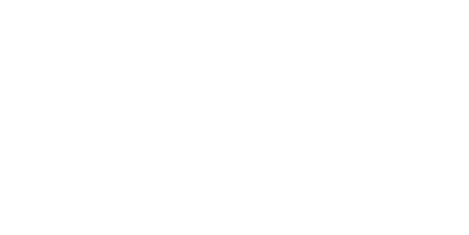
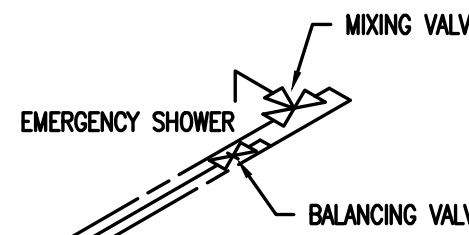
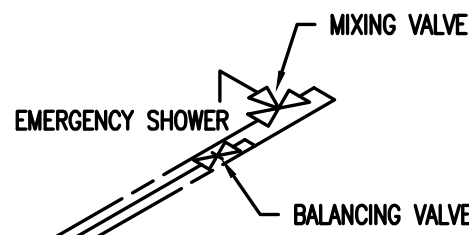
\* Regularly furnished unless otherwise specified.

Zurn Industries, LLC | Specification Drainage Operation  
1801 Pittsburgh Avenue, Erie, PA U.S.A. 16502 Ph. 855-953-9876, Fax 814-454-7929

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3544 Nashua Drive, Mississauga, Ontario L4V 1L2 Ph. 905-405-8272, Fax 905-405-1282

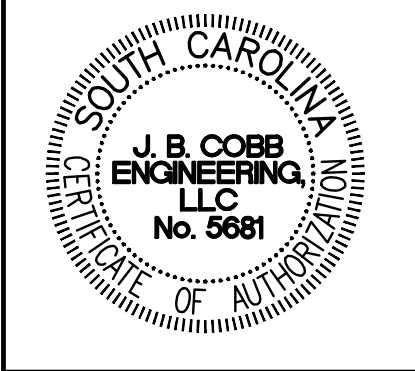
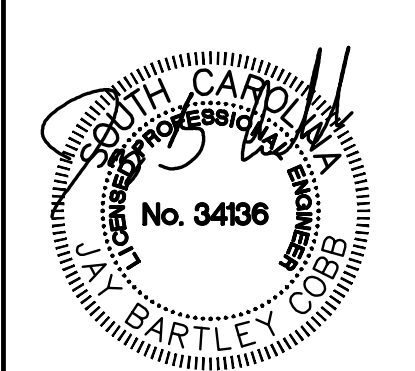
[www.zurn.com](http://www.zurn.com)

Rev. T  
Date: 09/28/2017  
C.N. No. 138018  
Prod. | Dwg. No. Z1400



REV	DATE	DESCRIPTION
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SEAL & C.O.A.



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**PROJECT INFORMATION**

CITY OF ROCK HILL  
**ROCK HILL WATER TREATMENT PLANT**  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA  
SHEET TITLE:  
**ALUM SLUDGE DEWATERING BUILDING PLUMBING DETAILS AND RISER**

SCALE: 3/16" = 1'-0"

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.



DATE: OCTOBER 2022 Issue Date

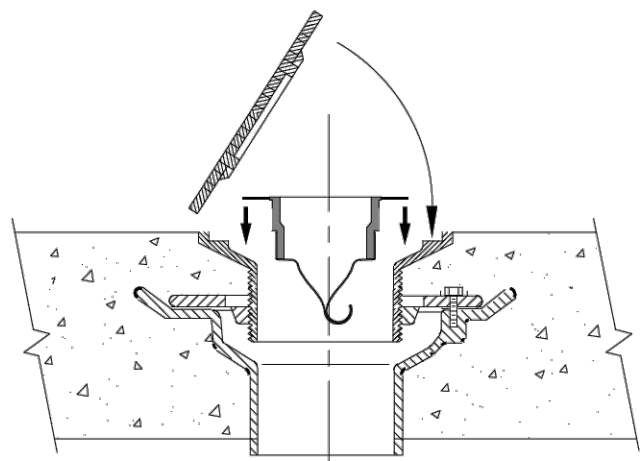
DRAWING SHEET

**01.P.04**

84 OF 149

## TRAP GUARD INSERT FOR EXISTING DRAINS

CAN BE USED ABOVE OR BELOW GROUND FLOOR  
TRAP GUARD INSERT FITTING FITS



PART NO. TG33-ZURN 3" INSERT FITS INSIDE Z-415 DRAINS  
FOR TRAP GUARDS FITTING INTO GASKET CONNECTED DRAINS, SEE DRAWING TG-23-G

### IMPORTANT INSTALLATION NOTES:

- This Trap Guard insert can be installed into any Zurn drain top to prevent sewer gas emission.
- The extra wide flexible flange should be installed with adhesive caulk around the bottom side.
- Most Z415 tailpieces have 4 protrusions inside the 3-1/2" opening so the caulk seal must be made under the bottom of the flange.

If the trap guard should get damaged or impaired in any way, the device can be easily removed by using a sharp screw driver under the flexible flange.

Note: Care should be taken not to touch the flexible material with the primer or solvent cement.

### MAINTENANCE INSTRUCTIONS:

The Trap Guard device should be inspected periodically for build up of any type debris. The device should then be flushed out thoroughly with clear warm water. Not to be used on waxed or grease-laden floors



NO FIRE RATINGS ARE  
REQUIRED FOR UNDERGROUND  
PIPING OR OPENINGS

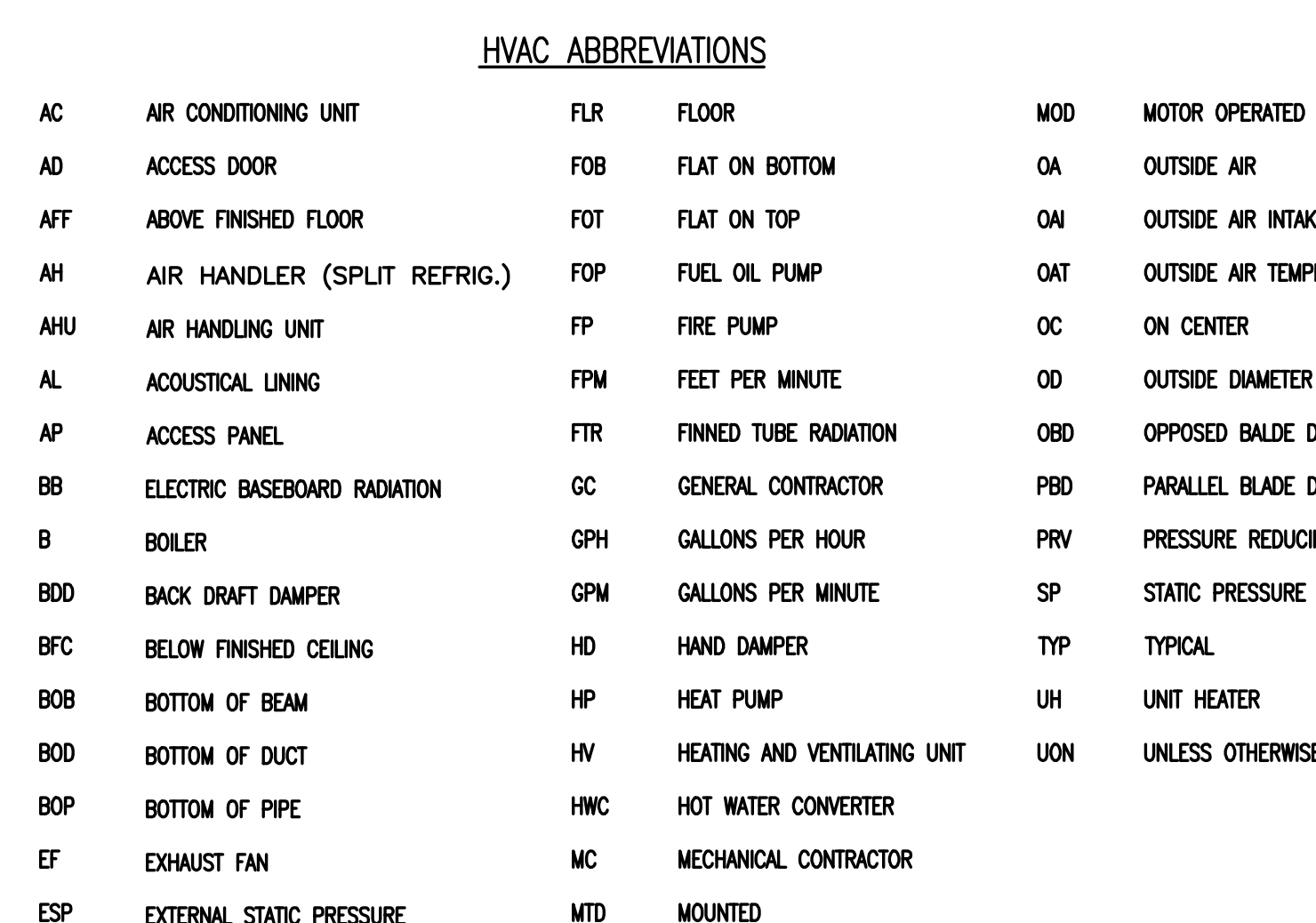


**PROSET**  
SYSTEMS  
FIRESTOP PENETRATOR

DATE : 8-01-11  
DRG. NO. : TG-33-Z

## LEGEND

---	EXISTING WASTE LINE.
---	EXISTING SANITARY LINE.
---	NEW VENT LINE.
---	NEW WASTE LINE.
---	EXISTING HUB DRAIN.
---	NEW HUB DRAIN.
---	EXISTING FLOOR DRAIN.
---	NEW FLOOR DRAIN.
---	EXISTING COOLER DRAIN.
---	NEW COOLER DRAIN.
---	EQUIPMENT TO BE REMOVED
---	EXISTING LINE CAPPED
---	EXISTING CLEAN OUT.
---	NEW CLEAN OUT.
---	EXISTING DOMESTIC COLD WATER (DCW).
---	NEW DOMESTIC COLD WATER (DCW).
---	EXISTING DOMESTIC HOT WATER (DHW).
---	NEW DOMESTIC HOT WATER (DHW).
---	EXISTING VALVE.
---	NEW VALVE.
---	EXISTING GAS LINE
---	NEW GAS LINE



1. DESIGN BASIS SHALL BE EQUAL TO CARRIER
2. PROVIDE LOW AMBIENT KIT FOR OPERATIONS DOWN TO 0°F.
3. SYSTEM SHALL BE PROVIDED WITH A FULL CHARGE OF R410A REFRIGERANT.

1. DESIGN BASIS SHALL BE EQUAL TO CARRIER
2. BLOWER SHALL BE DIRECT DRIVE
3. PROVIDE LOW AMBIENT KIT FOR OPERATIONS DOWN TO 0°F.
4. SYSTEM SHALL BE PROVIDED WITH A FULL CHARGE OF R410A REFRIGERANT.

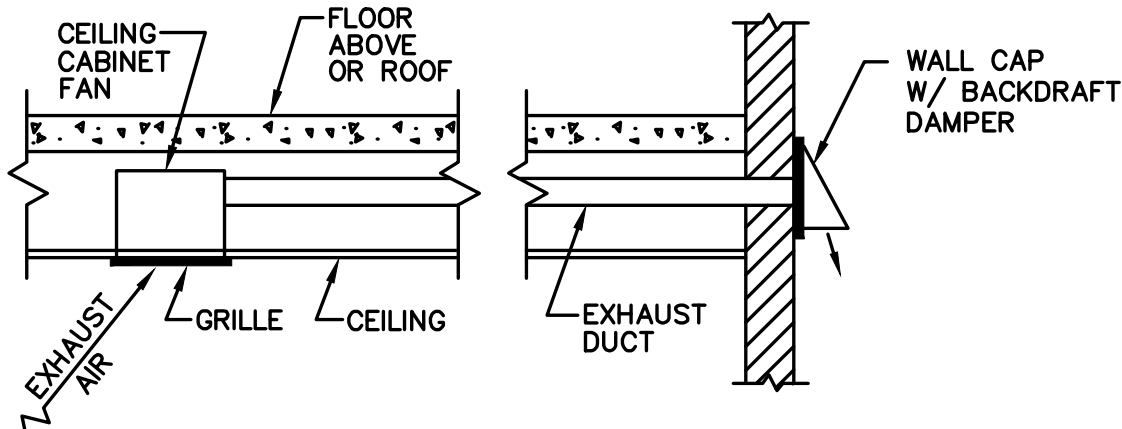


DRAWING	SHEET
<b>01.H.01</b>	85
	OF
	140

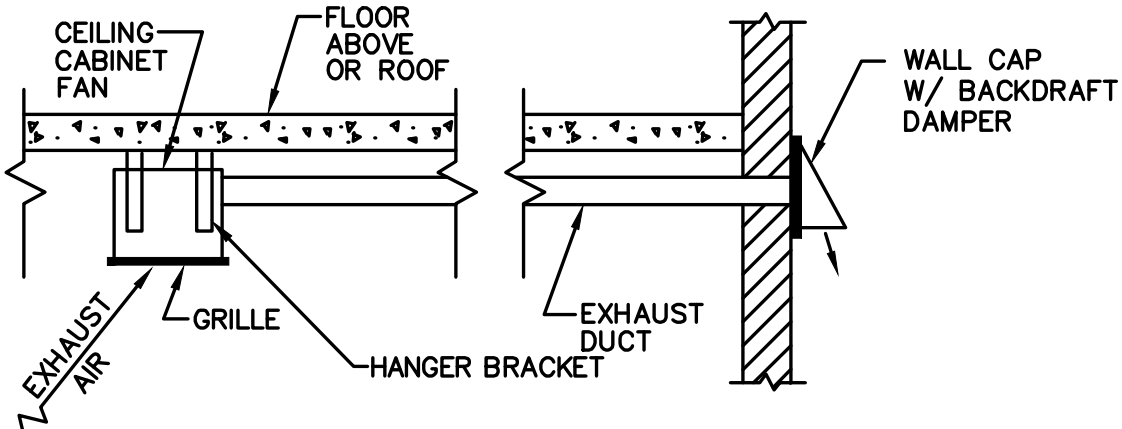


GENERAL NOTES – HVAC

- ALL WORK AND EQUIPMENT SHALL CONFORM WITH THE REQUIREMENTS OF THE INTERNATIONAL MECHANICAL CODE WITH SOUTH CAROLINA AMENDMENTS, NFPA 90A, AND ALL APPLICABLE LOCAL CODES AND ORDINANCES.
- IT SHALL BE UNDERSTOOD THAT THE DRAWINGS SHOW THE APPROXIMATE LOCATION OF APPARATUS. CONTRACTOR TO FIELD VERIFY ALL FIELD DIMENSIONS AND INVESTIGATE EXISTING CONDITIONS PRIOR TO FABRICATING AND LOCATING EQUIPMENT. PENETRATIONS THROUGH WALLS SHALL BE COORDINATED WITH EXIST. UTILITIES AND OBSTRUCTIONS. COORDINATE ALL DUCT ROUTING WITH LIGHTING, EQUIPMENT, PIPING AND STRUCTURE. NOTE THAT THE DRAWINGS REPRESENT WORK TO BE INSTALLED BY A KNOWLEDGABLE, LICENSED MECHANICAL CONTRACTOR FAMILIAR WITH THE TYPES OF SYSTEMS INDICATED AND DO NOT NECESSARILY SHOW ALL DETAILS FOR SYSTEM INSTALLATION.
- CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL PLANS AND SHALL FURNISH EQUIPMENT WIRED FOR VOLTAGES AS REQUIRED. CONTRACTOR TO COORDINATE VOLTAGE AND PHASE OF EACH PIECE OF EQUIPMENT WITH ELECTRICAL CONTRACTOR BEFORE ORDERING EQUIPMENT.
- MOUNT THERMOSTATS AT 5'-0" UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL MECHANICAL EQUIPMENT, DUCTWORK, ETC. TO FIT WITHIN THE SPACE ALLOWED BY ARCHITECTURAL AND STRUCTURAL CONDITIONS. CUTTING OR OTHERWISE ALTERING ANY STRUCTURAL MEMBER SHALL NOT BE PERMITTED.
- ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL PROVIDE PERMANENT EQUIPMENT NAME TAGS ATTACHED TO ALL EQUIPMENT LISTED IN THE EQUIPMENT SCHEDULES. TAGS SHALL BE TWO LAYER LAMINATED HARD PLASTIC WITH CONTRASTING LETTERS AND BACKGROUND (WHITE LETTERS ON BLACK BACKGROUND)



2 CEILING FAN INSTALLATION DETAIL  
NO SCALE



3 SUSPENDED FAN INSTALLATION DETAIL  
NO SCALE

FAN SCHEDULE

MARK MARK	BASIS OF DESIGN		CAPACITY		ELECTRICAL		TYPE	DRIVE	REMARKS
	MANUFACTURER	MODEL	HIGH FLOW (CFM)	LOW FLOW (CFM)	E.S.P. IN. W.C.	HP VOLTS/PH/Hz			
EF-1	GREENHECK	SP-A90-130-VG	130	---	0.50	23.5 WATT 120/1/60	CEILING	DIRECT	1, 3 SUPPORT RODS AND HANGERS TO BE STAINLESS STEEL
EF-2	GREENHECK	SP-A50-90-VG	70	---	0.50	17.8 WATT 120/1/60	CEILING	DIRECT	2, 3 SUPPORT RODS AND HANGERS TO BE STAINLESS STEEL
EF-3	GREENHECK	SP-A50-90-VG	70	---	0.50	17.8 WATT 120/1/60	CEILING	DIRECT	1, 3 SUPPORT RODS AND HANGERS TO BE STAINLESS STEEL
EF-4	GREENHECK	SP-A50-90-VG	70	---	0.50	17.8 WATT 120/1/60	CEILING	DIRECT	1, 3 SUPPORT RODS AND HANGERS TO BE STAINLESS STEEL

- SUSPENDED INSTALLATION. HANGERS AND BOLTS TO BE STAINLESS STEEL.
- CEILING MOUNTED INSTALLATION.
- DUCT TO BUILDING EXTERIOR. PROVIDE WALL CAP WITH BACKDRAFT DAMPER AND BIRD SCREEN. COLOR SELECTED BY THE OWNER.

WALL LOUVER SCHEDULE

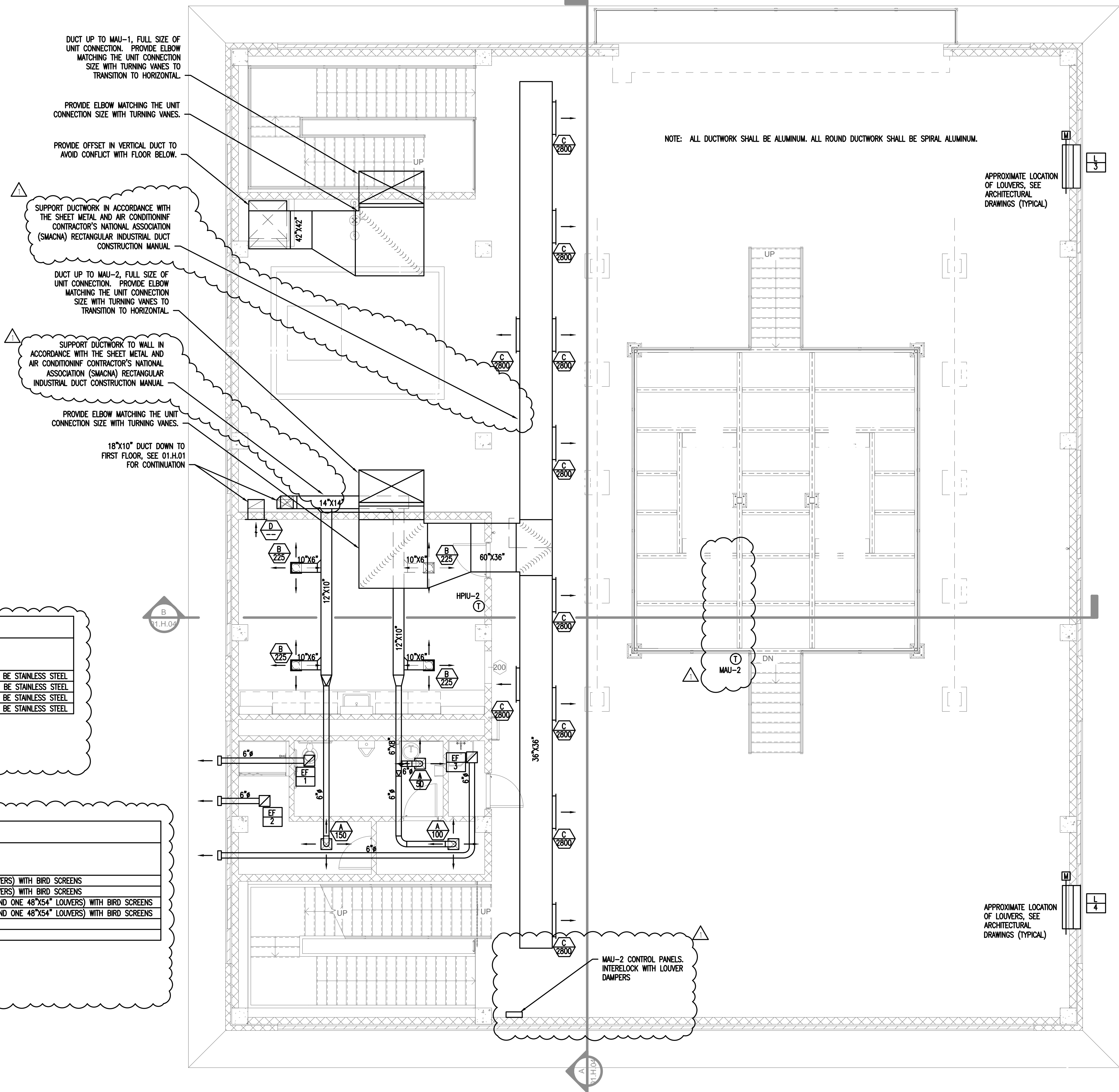
MARK L	AIR FLOW		LOUVER SIZE				REMARKS
	AIR FLOW (CFM)	MAX PRESS. DROP IN. W.C.	UNIT WIDTH (IN.)	UNIT HEIGHT (IN.)	UNIT DEPTH (IN.)	MIN. FREE AREA (SQ. FT.)	
1	13,700	0.15	48	96	6	24.36	1, 2, 3, 4 (TWO 48"x48" LOUVERS) WITH BIRD SCREENS
2	13,700	0.15	48	96	6	24.36	1, 2, 3, 4 (TWO 48"x48" LOUVERS) WITH BIRD SCREENS
3	13,700	0.15	48	104	6	28.96	1, 2, 3, 4, 5 (ONE 48"x48" AND ONE 48"x54" LOUVERS) WITH BIRD SCREENS
4	13,700	0.15	48	104	6	28.96	1, 2, 3, 4, 5 (ONE 48"x48" AND ONE 48"x54" LOUVERS) WITH BIRD SCREENS

- INSTALL LOUVERS PER THE MANUFACTURERS INSTRUCTIONS CORRESPONDING TO THE WALL CONSTRUCTION TYPE.
- PROVIDE WITH HEAVY DUTY MOTORIZED DAMPER WITH 120V MOTOR OPERATOR INTERLOCKED TO OPEN WHEN THE MAKE-UP AIR UNITS ARE ENERGIZED. PROVIDE SLEEVES AS NECESSARY TO ACCOMMODATE WALL THICKNESS FOR PROPER DAMPER AND LOUVER CONNECTION.
- SELECTION BASED ON GREENHECK EAC SERIES.
- LOUVER SHALL HAVE A KYNAR FINISH, COLOR TO BE SELECTED BY THE ARCHITECT.
- LOUVER TO BE INSTALLED IN MASONRY OPENING SIZE. PROVIDE SPACERS AS REQUIRED TO INSTALL THE LOUVER.

AIR DEVICE SCHEDULE

MARK TAG CFM	MODEL	SERVICE	FACE SIZE (IN.)	DUCT SIZE (IN.)	MAX S.P. DROP (IN. W.C.)	MAX NC	DAMPER	MATERIAL	REMARKS
A	TMS	DIFFUSERS	12"x12"	6"	0.07	17	YES	ALUMINUM	1
B	TMS	DIFFUSERS	12"x12"	6"	0.07	17	YES	ALUMINUM	1
C	300 RL-SS	MAU'S	38"x22"	36"x20"	0.09	27	YES	STAINLESS	1, 2
D	50F	CONTROL RM	18"x10"	18"x10"	0.07	17	NO	ALUMINUM	1
E	300 RL-SS	CONTROL RM	14"x8"	12"x6"	0.07	17	YES	STAINLESS	1, 2

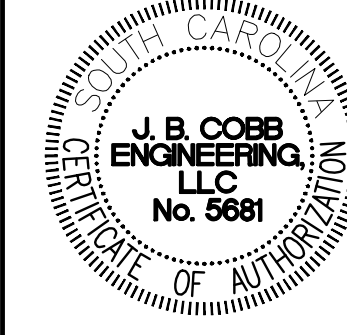
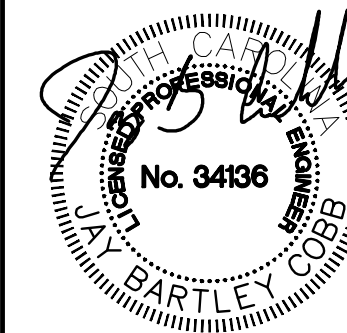
- BASIS OF DESIGN – TITUS
- CONSTRUCTION SHALL BE TYPE 316 STAINLESS STEEL, INCLUDING THE DAMPER.



1 SECOND FLOOR HVAC PLAN  
3/16" = 1'-0"

REV	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	
2	10/12/2022	90% REVIEW	
3	02/27/2023	PERMIT REVIEW	
4	06/06/2023	PERMITTING REVISIONS	
5	12/04/2023	BID READY SET	
6	01/22/2024	ADDENDA #2	

SEAL & C.O.A.



CONSULTANT INFORMATION

PROJECT MANAGER: TAB  
DESIGNED BY: Designer  
DRAWN BY: Author  
CHECKED BY: Checker

PROJECT NO.: 056-21-120

**Wiedeman and Singleton**  
Civil and Environmental Engineers  
131 EAST MAIN STREET, SUITE 300  
ROCK HILL, SOUTH CAROLINA 29730  
(803) 329-2944  
WWW.WIEDEMAN.COM

PROJECT INFORMATION

PROJECT: CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA  
SHEET TITLE: ALUM SLUDGE DEWATERING BUILDING  
SECOND FLOOR HVAC PLAN,  
NOTES, DETAILS AND SCHEDULES

SCALE: 3/16" = 1'-0"

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.

DATE: OCTOBER 2022 Issue Date

DRAWING SHEET

01.H.02 86 OF 149





# Centrifugal Ceiling Exhaust and Inline Cabinet Fans Models SP and CSP

BUILDING VALUE IN AIR.

**GREENHECK**

*Building Value in Air.*

January  
2022

# Centrifugal Ceiling Exhaust and Inline Cabinet Fans Models SP and CSP

BUILDING VALUE IN AIR.

EF 2	EF 3	EF 4
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**GREENHECK**

*Building Value in Air.*

January  
2022

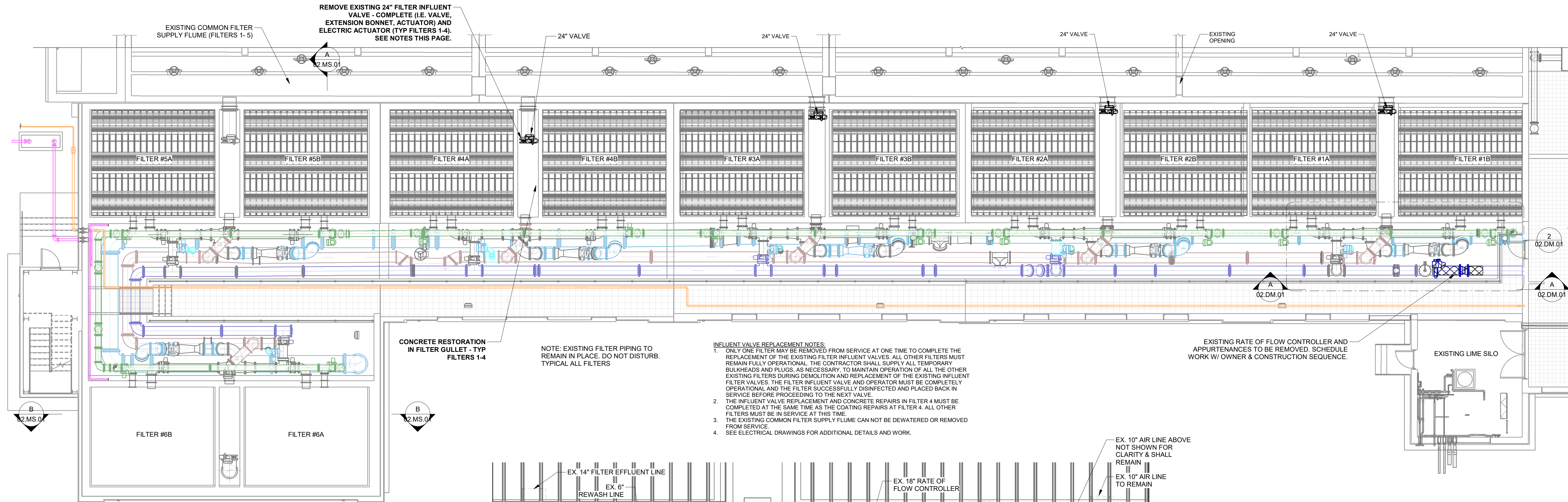
## 12

## S

<small>WWW.WILDERMAN.COM</small>	
<b>PROJECT INFORMATION</b>	
<p><b>PROJECT:</b></p> <p style="text-align: center;">CITY OF ROCK HILL  <b>ROCK HILL WATER TREATMENT PLANT</b>  <b>ALUM SLUDGE DEWATERING FACILITY</b>          ROCK HILL, SOUTH CAROLINA</p>	<p><b>SHEET TITLE:</b></p> <p style="text-align: center;"><u><b>ALUM SLUDGE DEWATERING BUILDING</b></u>  <u><b>EXHAUST FAN DATA</b></u></p>
<p><b>SCALE:</b> <span style="float: right;"><b>NONE</b></span></p>	
<p><b>NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.</b></p> <div style="text-align: center;">  <p>1" = 2'</p> </div>	
<p><b>DATE:</b> OCTOBER 2022 <span style="float: right;"><b>Issue Date</b></span></p>	
<p><b>DRAWING</b></p> <p style="font-size: 2em; font-weight: bold;">01.H.10</p>	<p style="text-align: center;">SHEET 94 OF 149</p>



1/19/2024 3:28:03 PM Autodesk Docs:056-21-120 R4 WTP Alum Sludge Dewatering Facility/area 02 - Main Filter Building.rvt

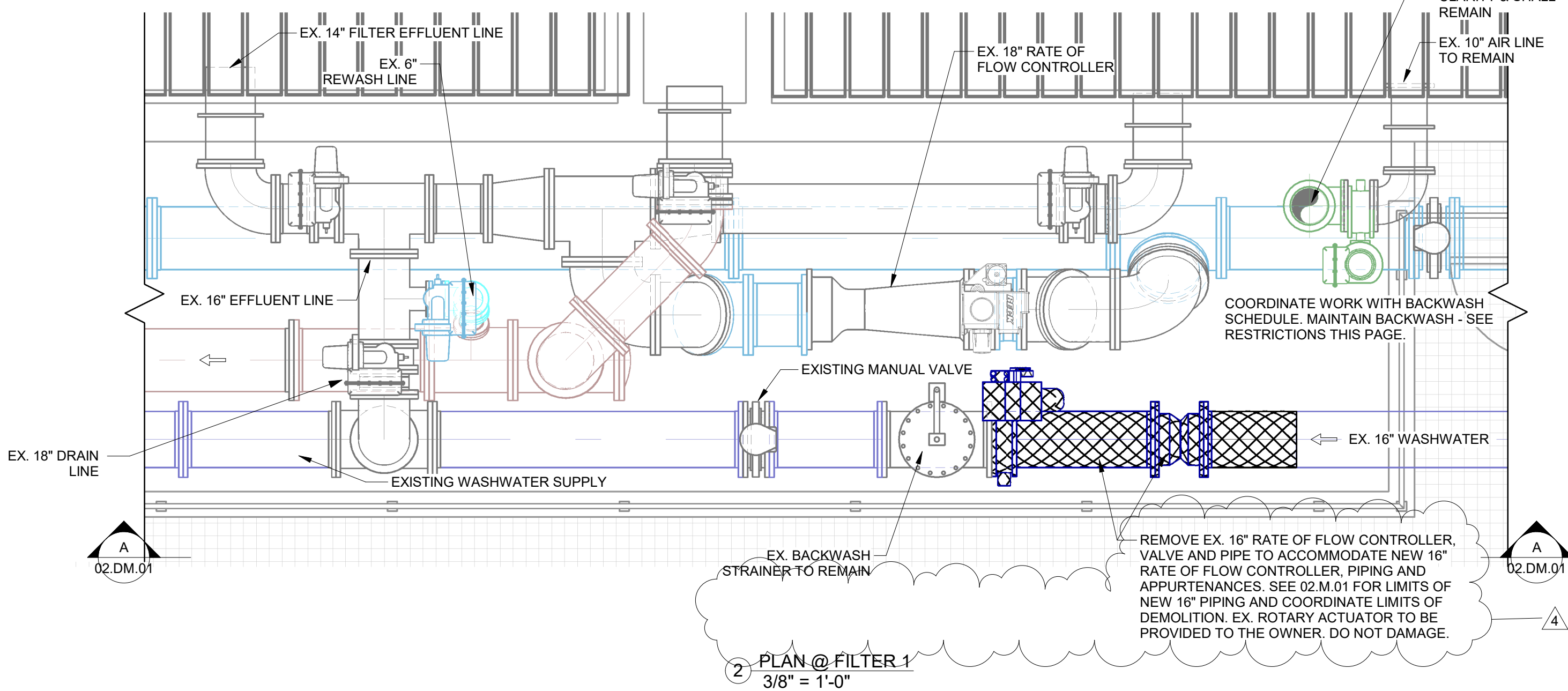


1 PIPE GALLERY PLAN  
1/8" = 1'-0"

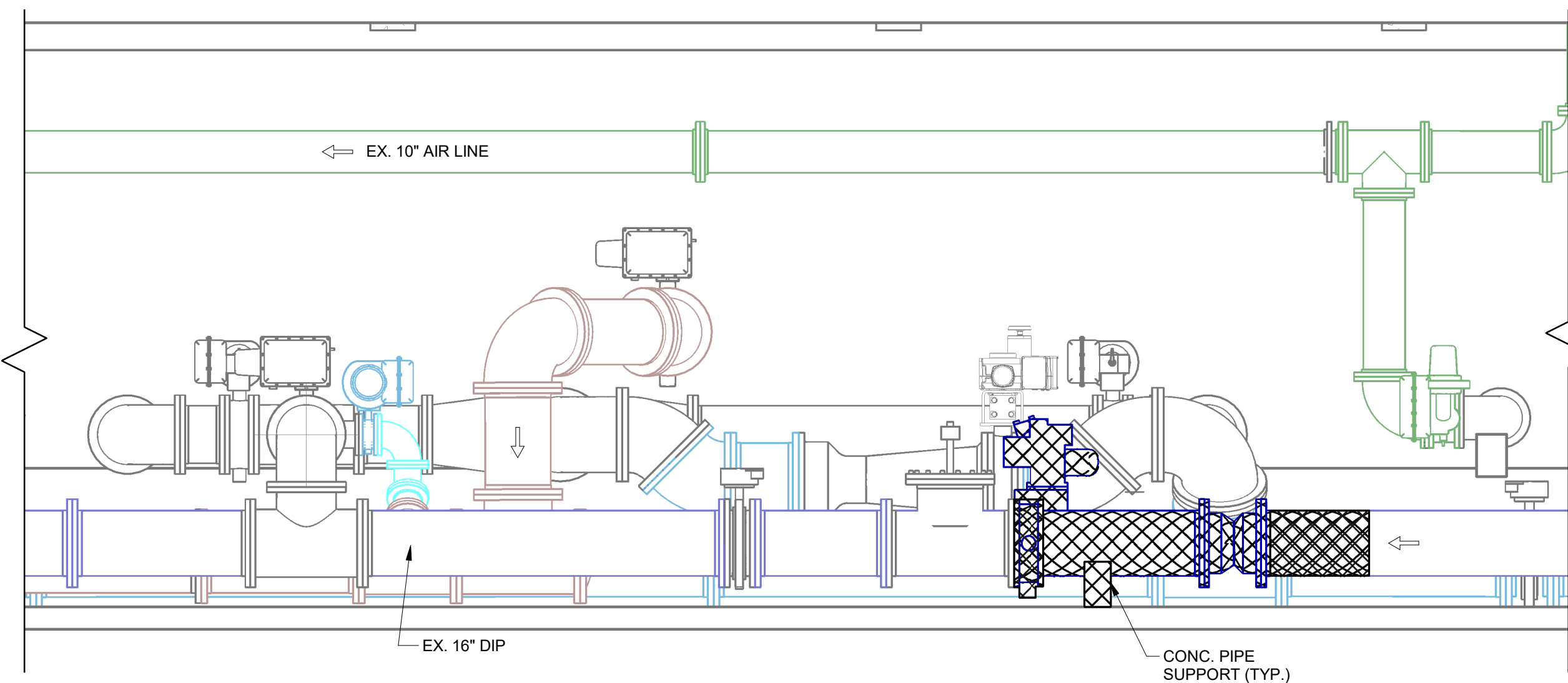
- BACKWASH RATE OF FLOW CONTROLLER REPLACEMENT NOTES:**
1. THE INSTALLATION OF THE NEW BACKWASH RATE OF FLOW CONTROLLER MUST BE COORDINATED WITH THE OWNER AND THE WORK COMPLETED BETWEEN NOVEMBER 1 AND MARCH 1 WHEN WATER DEMANDS ARE LOWER.
  2. THE BACKWASH WATER LINE MAY TEMPORARILY BE REMOVED FROM SERVICE FOR A MAXIMUM OF 36 HOURS FOR THE INSTALLATION OF THE RATE OF FLOW CONTROLLER. OTHERWISE, THE WASHWATER LINE AND RATE OF FLOW CONTROLLER MUST BE FULLY OPERATIONAL AND AVAILABLE TO BACKWASH FILTERS 1-6. AS REQD, INSTALL TEMPORARY PIPE CLOSURE OR BYPASS LINE TO MAINTAIN SERVICE FOR BACKWASH.
  3. SEE DRAWING C.02 FOR GENERAL DEMOLITION NOTES.
  4. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL DETAILS & WORK.
  5. THIS DRAWING IS ONLY TO ASSIST IN SHOWING THE GENERAL SCOPE OF DEMOLITION WORK AND DOES NOT INDICATE ALL REQUIRED DEMOLITION. CONTRACTOR SHALL REMOVE ALL EXISTING ITEMS AS REQUIRED TO COMPLETE THE WORK.
  6. VERIFY EXISTING CONDITIONS AND LOCATIONS IN FIELD PRIOR TO SUBMITTING BID. FAILURE TO DO SO SHALL NOT RELIEVE CONTRACTOR FROM PERFORMING THE WORK REQUIRED UNDER THIS CONTRACT.
  7. MAKE NECESSARY MODIFICATIONS AND ADJUSTMENTS TO ALL ELECTRICAL ITEMS AND EQUIPMENT, BOTH NEW AND EXISTING, AS MAY BE REQUIRED BY THESE ALTERATIONS AND ADDITIONS.
  8. COORDINATE WORK WITH OTHER TRADES TO AVOID CONFLICTS AND DELAYS.

- SEQUENCING NOTE:**
1. A WORK PLAN SHALL BE SUBMITTED FOR ALL WORK IN THE FILTER BUILDING THAT REQUIRES A SHUTDOWN. THIS INCLUDES THE PAINTING, INFLUENT VALVE REPLACEMENT AND THE MODIFICATIONS TO THE BACKWASH SUPPLY LINE. THE PLAN SHALL INCLUDE A DETAILED DESCRIPTION OF SHUTDOWN, SHUTDOWN TIMELINE, DETAILED BREAKDOWN OF WORK TO BE COMPLETED PRIOR TO AND DURING SHUTDOWN, MATERIALS REQUIRED AND AVAILABILITY, PROPOSED MANPOWER, INTERRELATED WORK (EXHAUST FANS, CONCRETE RESTORATION, ETC), PROPOSED METHOD OF PROTECTING EXISTING EQUIPMENT, REQUIRED TEMPORARY FACILITIES TO MAINTAIN PLANT OPERATIONS, AND ANY OTHER DETAILS TO ADEQUATELY DESCRIBE THE PROPOSED SHUTDOWN. THE SUBMITTAL MUST BE APPROVED BY THE OWNER BEFORE SHUTDOWN CAN BEGIN. CONTRACTOR TO SUBMIT AT LEAST 30 DAYS PRIOR TO START OF PROPOSED SHUTDOWN. TWO PRE-SHUTDOWN MEETINGS SHALL BE HELD PRIOR TO ANY SHUTDOWN. THE FIRST MEETING SHALL BE CONDUCTED AT LEAST 14 DAYS PRIOR TO THE SCHEDULED SHUTDOWN AND THE SECOND MEETING CONDUCTED THE DAY BEFORE THE SHUTDOWN. OWNER AND CONTRACTOR SHALL ATTEND WITH KEY STAFF OF EACH PRESENT.

- INFLUENT VALVE REPLACEMENT NOTES:**
1. ONLY ONE FILTER MAY BE REMOVED FROM SERVICE AT ONE TIME TO COMPLETE THE REPLACEMENT OF THE EXISTING FILTER INFLUENT VALVES. ALL OTHER FILTERS MUST REMAIN FULLY OPERATIONAL. THE CONTRACTOR SHALL SUPPLY ALL TEMPORARY BULKHEADS AND PLUGS, AS NECESSARY, TO MAINTAIN OPERATION OF ALL THE OTHER EXISTING FILTERS DURING DEMOLITION AND REPLACEMENT OF THE EXISTING INFLUENT FILTER VALVES. THE FILTER INFLUENT VALVE AND OPERATOR MUST BE COMPLETELY OPERATIONAL AND THE FILTER SUCCESSFULLY DISINFECTED AND PLACED BACK IN SERVICE BEFORE PROCEEDING TO THE NEXT VALVE.
  2. THE INFLUENT VALVE REPLACEMENT AND CONCRETE REPAIRS IN FILTER 4 MUST BE COMPLETED AT THE SAME TIME AS THE COATING REPAIRS AT FILTER 4. ALL OTHER FILTERS MUST BE IN SERVICE AT THIS TIME.
  3. THE EXISTING COMMON FILTER SUPPLY FLUME CAN NOT BE DEWATERED OR REMOVED FROM SERVICE.
  4. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL DETAILS AND WORK.



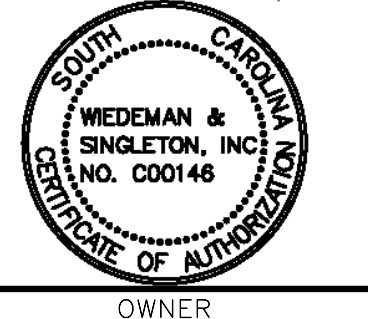
2 PLAN @ FILTER 1  
3/8" = 1'-0"



A SECTION @ FILTER 1  
3/8" = 1'-0"

REV.	DATE	DESCRIPTION
0	08/29/2022	70% REVIEW
1	10/12/2022	90% REVIEW
2	02/27/2023	PERMITTING REVIEW
3	12/04/2023	BID READY SET
4	01/18/2024	ADDENDUM #2

SEAL & COA



OWNER



CONSULTANT INFORMATION	
PROJECT MANAGER:	TAB
DESIGNED BY:	TAB
DRAWN BY:	NRB
CHECKED BY:	TAB
FILE NAME:	FILE NAME
PROJECT NO.:	056-21-120



WIEDEMAN AND SINGLETON, INC.  
201 ROSS ENGINEERING BUILDING  
131 EAST MAIN STREET  
SUITE 300  
ROCK HILL, SC 29730  
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PROJECT INFORMATION

PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE:	MAIN FILTER BUILDING DEMOLITION PLANS I

SCALE: As indicated

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.

DATE: JANUARY 2024

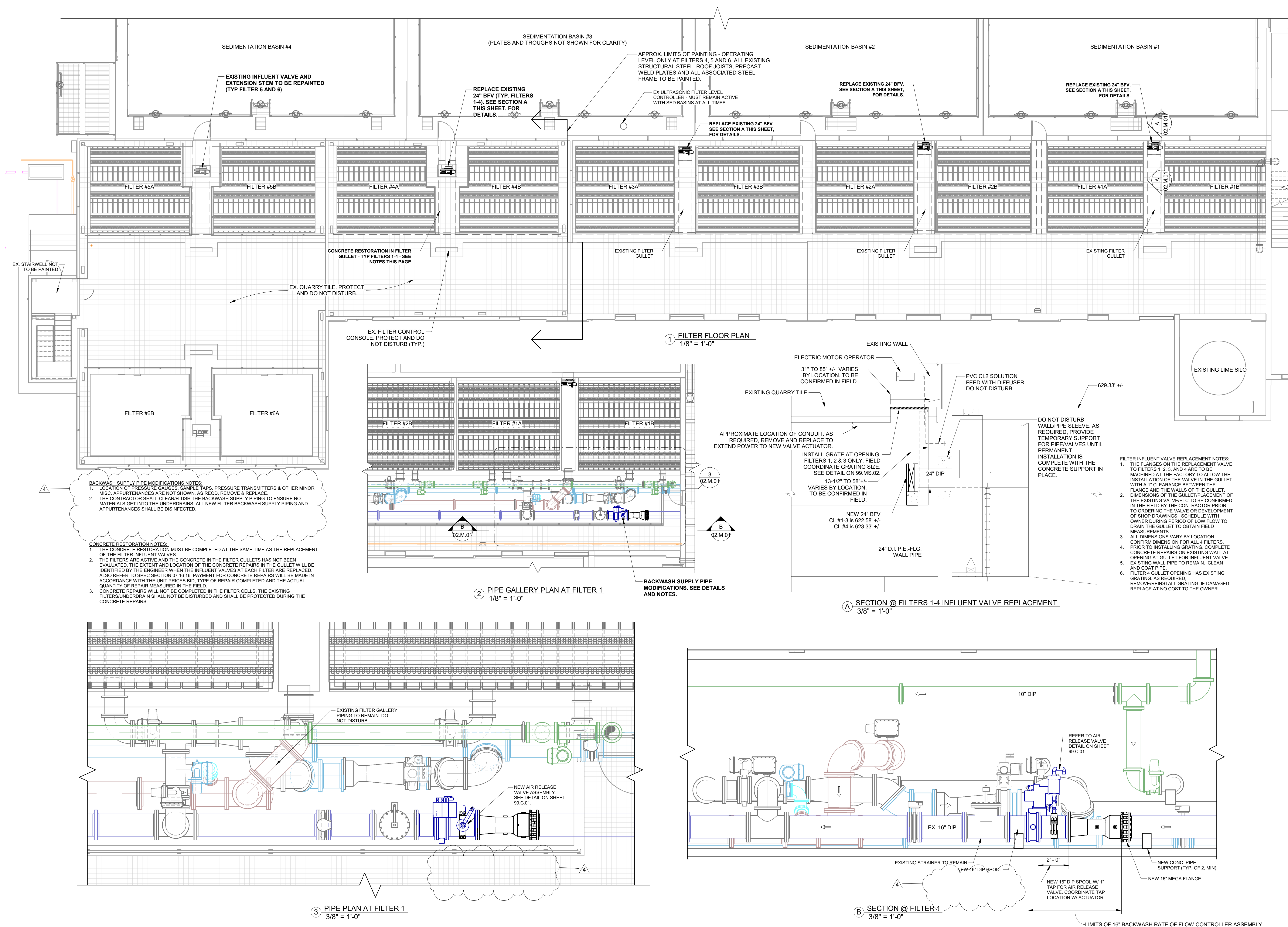
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02.DM.01 96

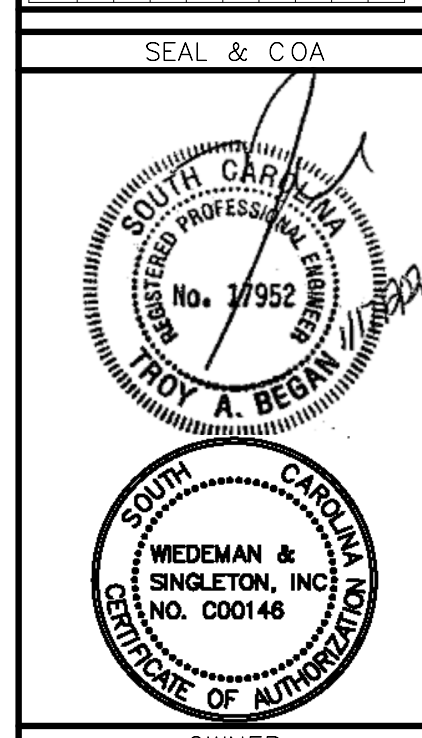
OF 149



1/18/2024 3:27:08 PM Autodesk Docs: 056-21-120 R4 WTP Alum Sludge Dewatering Facility/area 02 - Main Filter Building.rvt



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1	10/12/2022	90% REVIEW
2	02/17/2023	PERMITTING REVIEW
3	12/04/2023	BID READY SET
4	01/18/2024	ADDENDUM #2



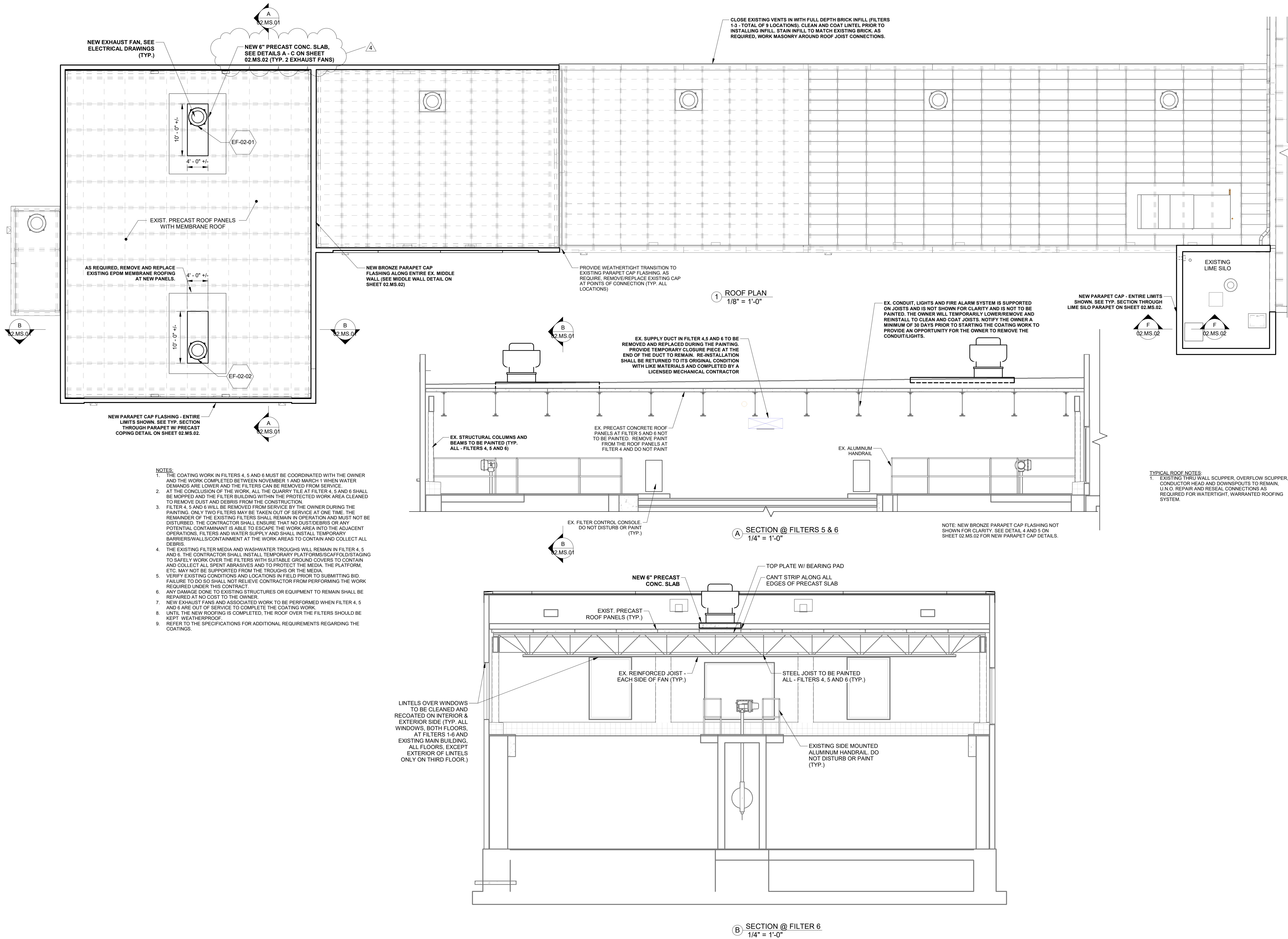
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PROJECT MANAGER:	TAB
DESIGNED BY:	TAB
DRAWN BY:	NRB
CHECKED BY:	TAB
FILE NAME:	FILE NAME
PROJECT NO.:	056-21-120

WIEDEMAN & SINGLETON, INC.  
Civil and Environmental Engineers  
131 EAST MAIN STREET  
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ROCK HILL, SC 29730  
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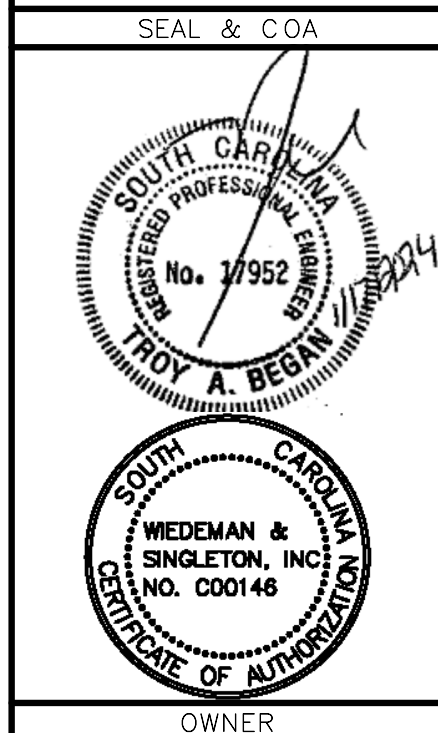
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PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE:	MAIN FILTER BUILDING PLANS AND SECTIONS
SCALE:	As indicated
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.	
DATE:	JANUARY 2024
DRAWING	SHEET
02.M.01	98 OF 149



1/18/2024 3:27:16 PM Autodesk Docs /056-21-120 R4 WTP Alum Sludge Dewatering Facility/area 02 - Main Filter Building.rvt



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1	10/12/2022	90% REVIEW	NRB
2	02/27/2023	PERMITTING REVIEW	NRB
3	12/04/2023	BID READY SET	NRB
4	01/18/2024	ADDENDUM #2	NRB



CONSULTANT INFORMATION	
PROJECT MANAGER:	TAB
DESIGNED BY:	TAB
DRAWN BY:	NRB
CHECKED BY:	TAB
FILE NAME:	FILE NAME



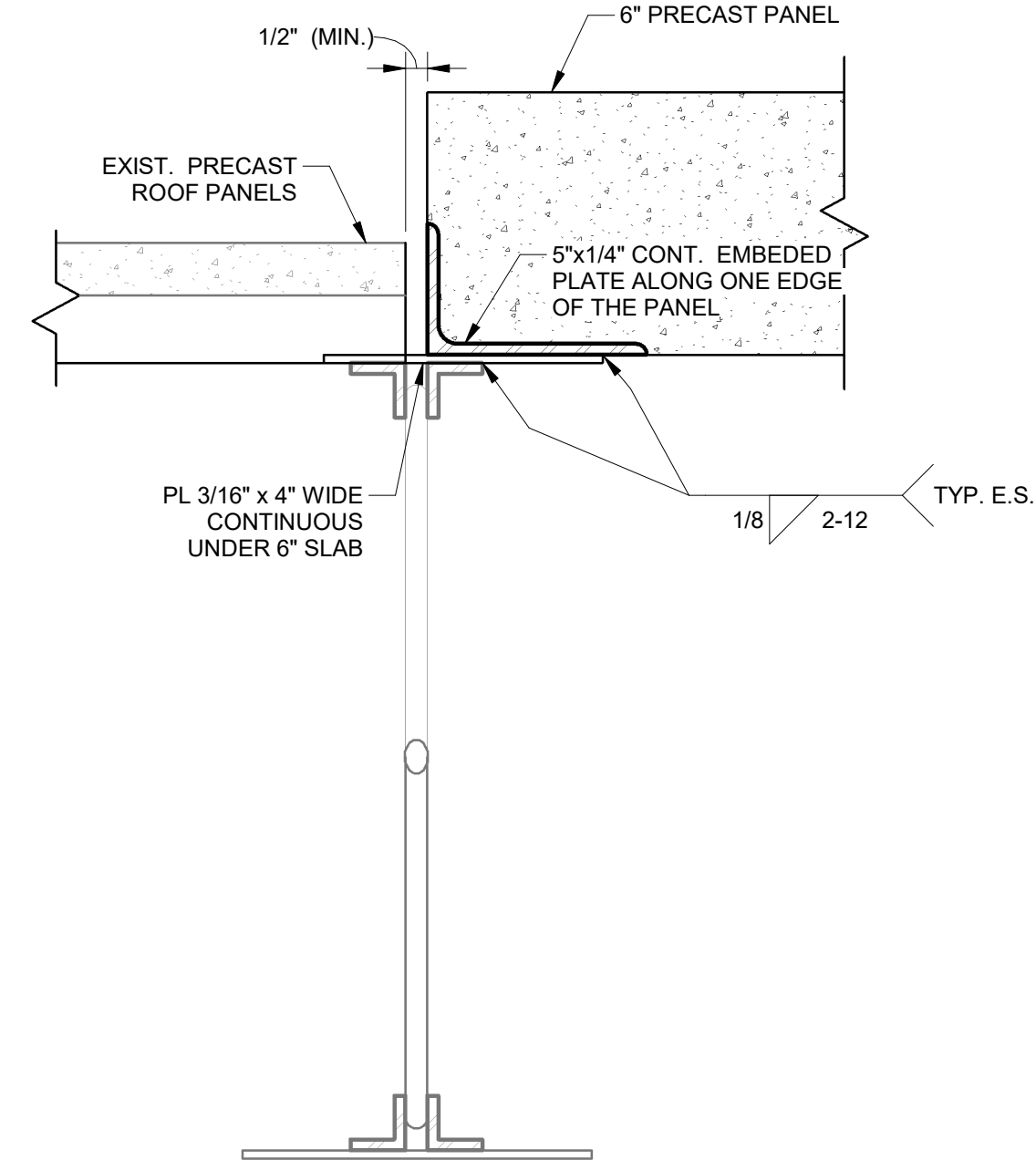
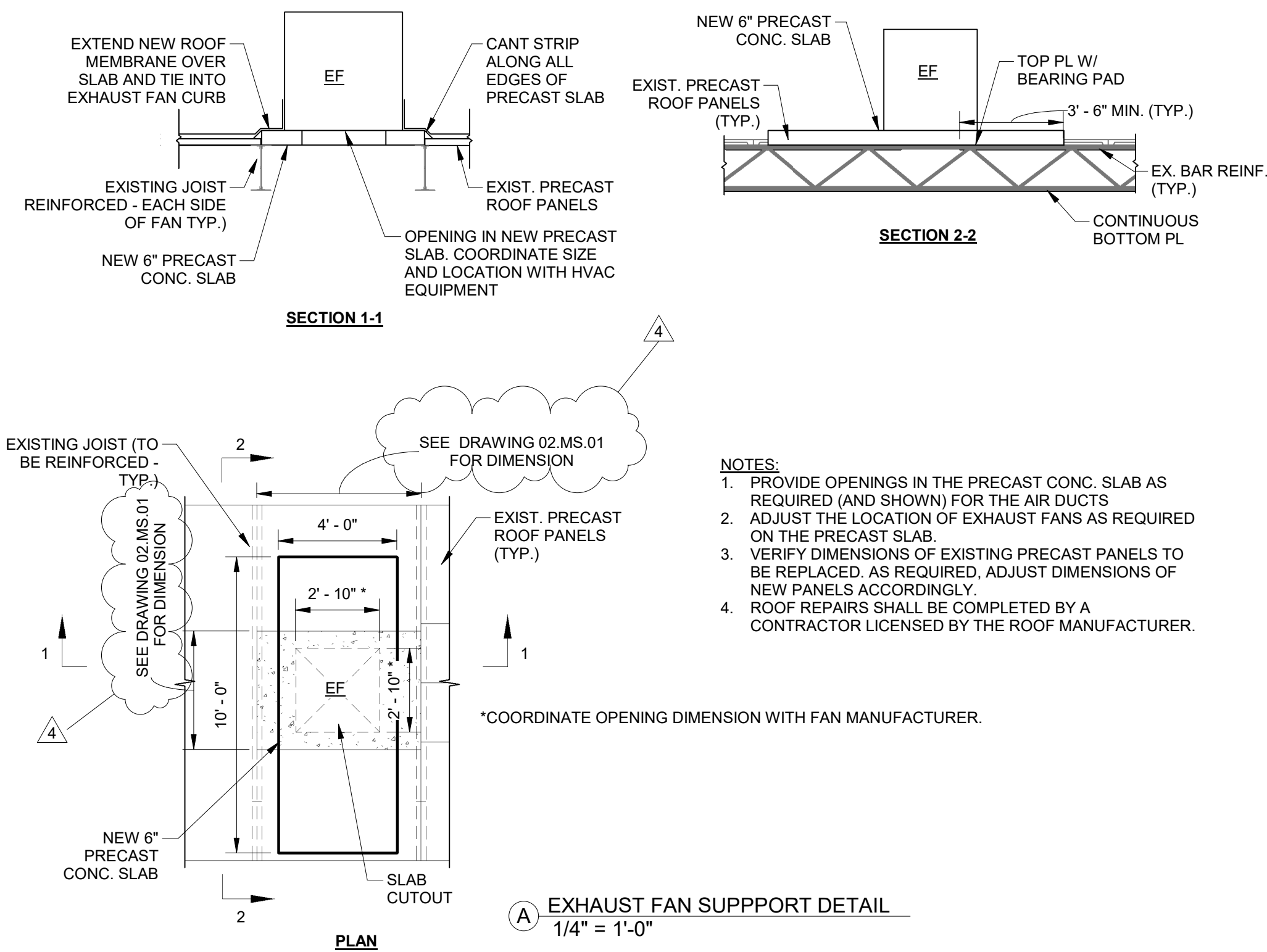
PROJECT INFORMATION
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PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY
SHEET TITLE:	MAIN FILTER BUILDING PLANS AND SECTIONS

SCALE:	As indicated
NOTE:	DRAWING SCALE IS BASED ON 24X36 SHEETS.
DATE:	JANUARY 2024
DRAWING	SHEET
02.MS.01	99
	OF
	149



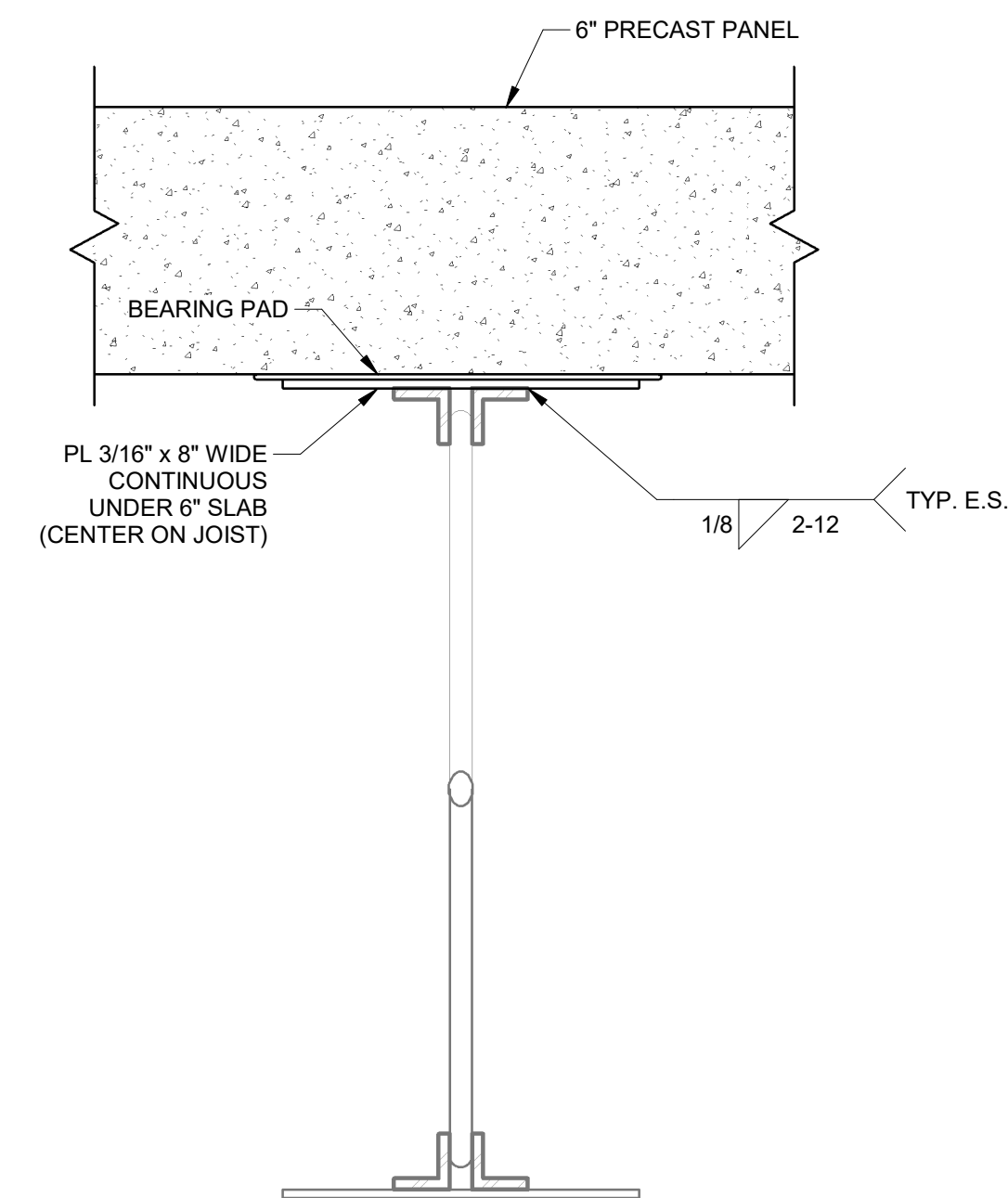
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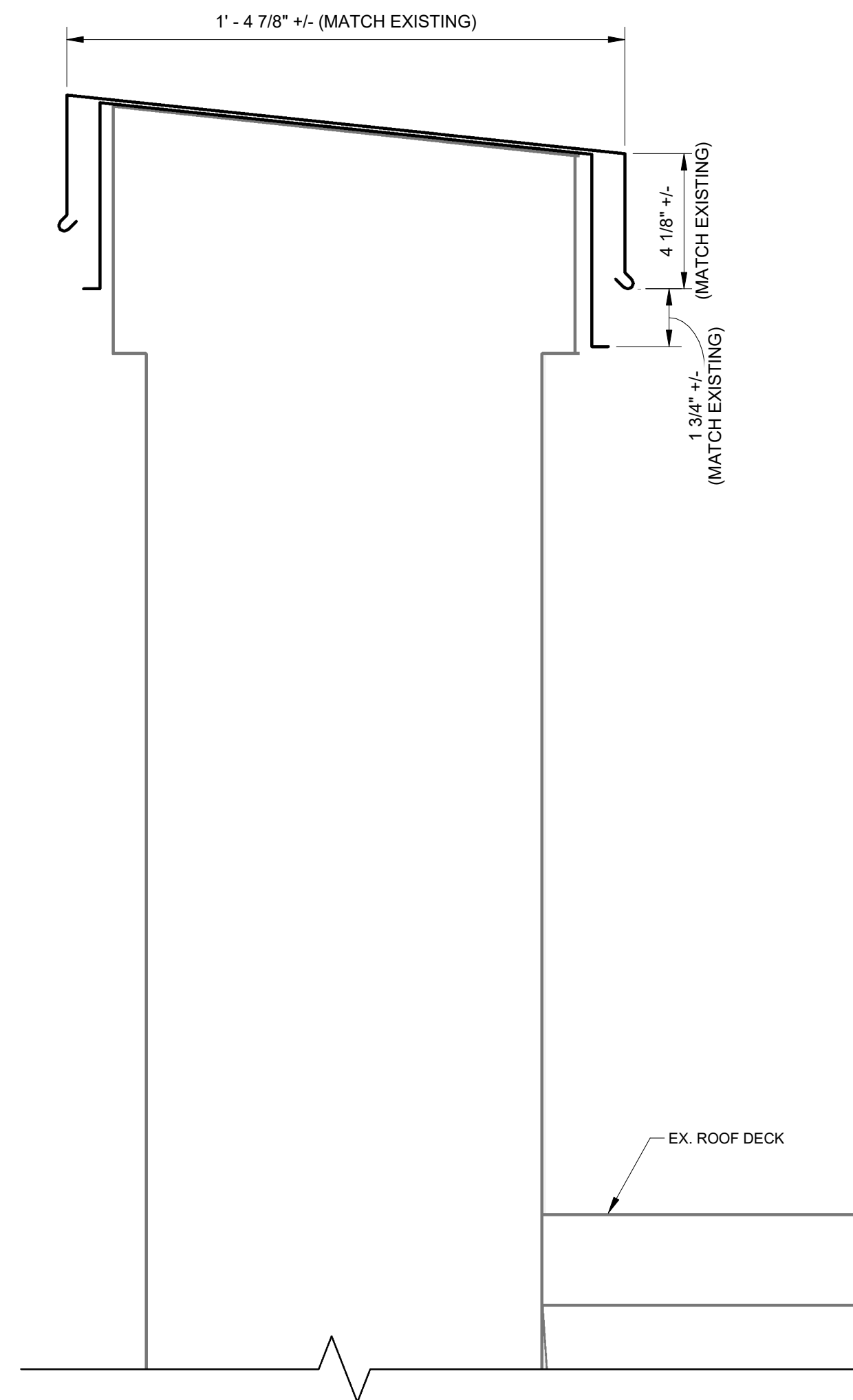
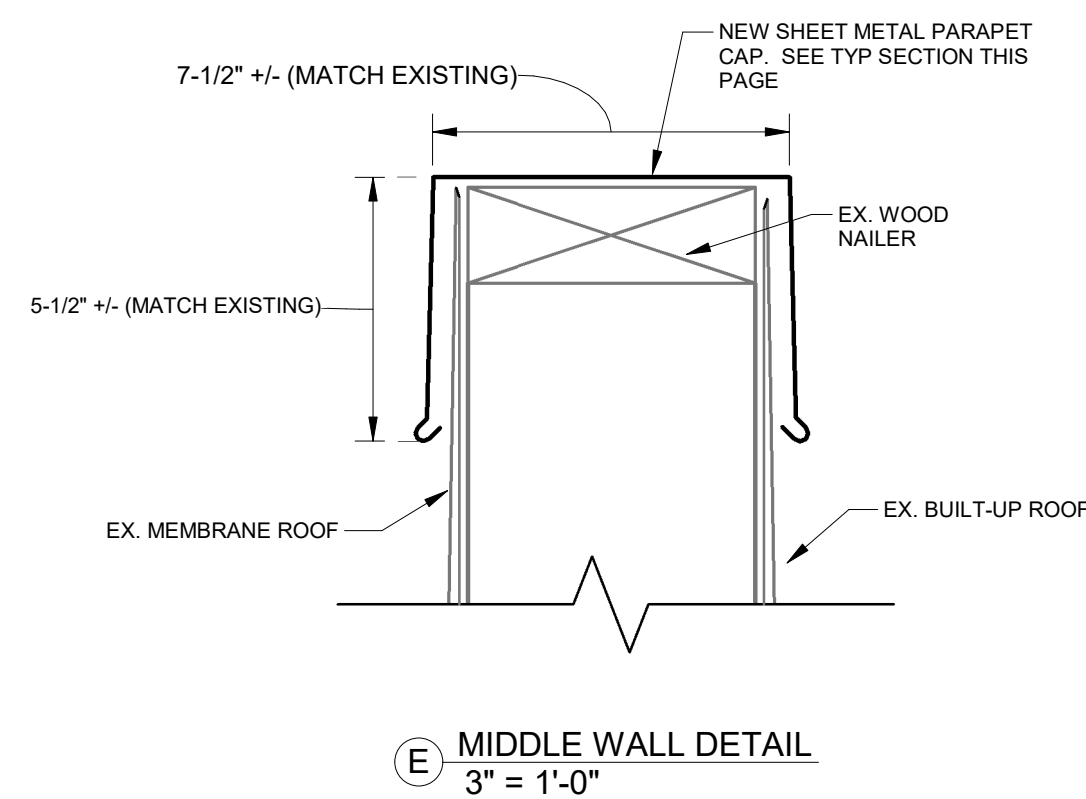
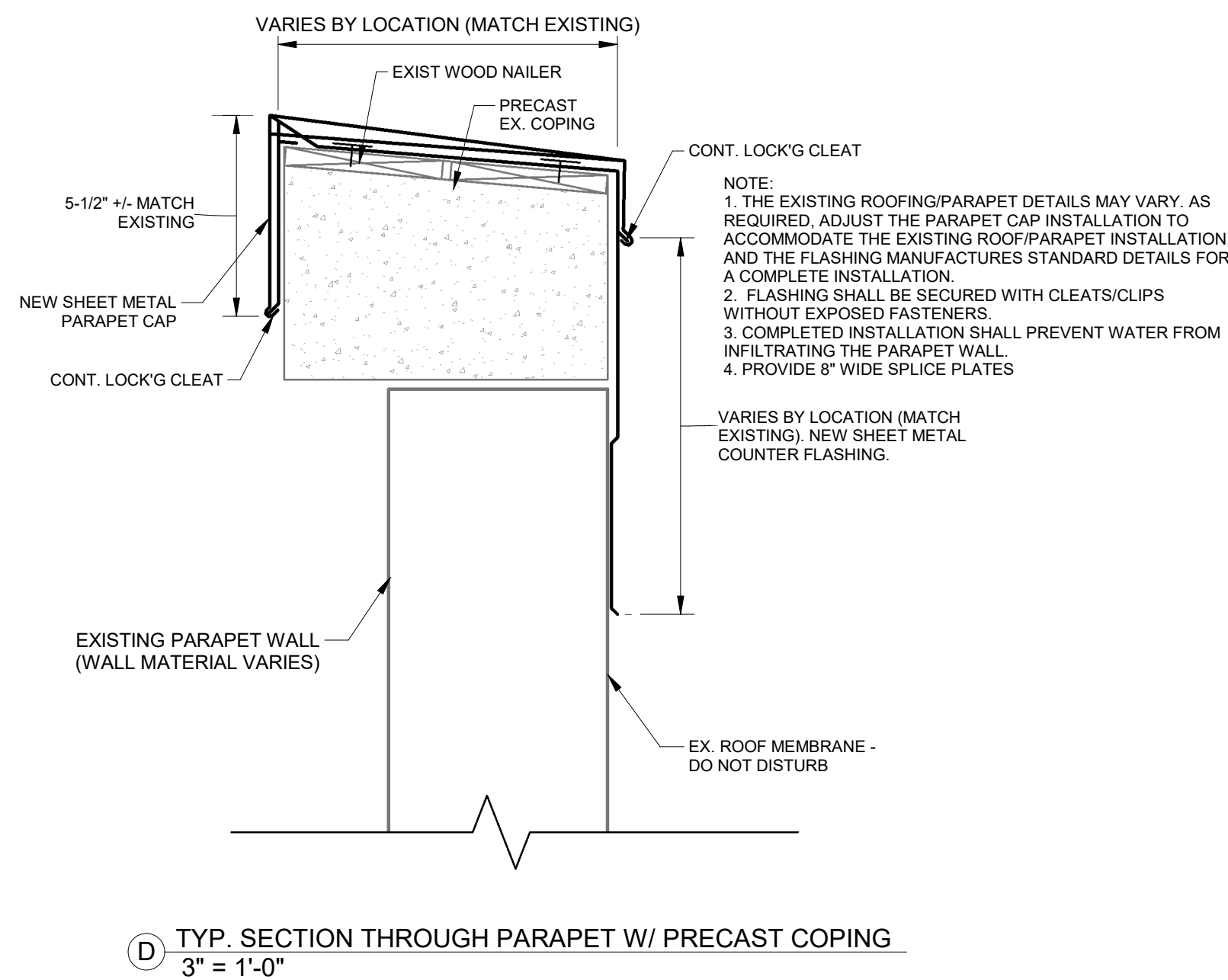
**NOTES:**

1. PRECAST PANEL SHALL BE WELDED TO END PLATES ONLY ON ONE SIDE.
2. INCLUDE A BEARING PAD ON SIDE NOT WELDED.

**B** ROOF PLAN - EDGE JOIST REINF. UNDER 6" SLAB  
3" = 1'-0"

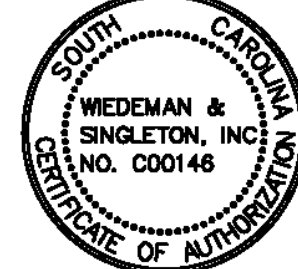


**C** INTERIOR JOIST REINF. UNDER 6" SLAB  
3" = 1'-0"



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0	08/29/2022	70% REVIEW
1	10/12/2022	90% REVIEW
2	02/27/2023	PERMITTING REVIEW
3	12/04/2023	BID READY SET
4	01/18/2024	ADDENDUM #2

SEAL & COA



OWNER



**CONSULTANT INFORMATION**

PROJECT MANAGER: TAB

DESIGNED BY: TAB

DRAWN BY: NRB

CHECKED BY: TAB

FILE NAME: FILE NAME

PROJECT NO.: 056-21-120



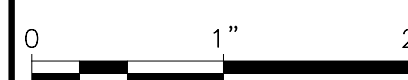
WIEDEMAN AND SINGLETON, INC.  
Civil and Environmental Engineers  
131 EAST MAIN STREET  
SUITE 300  
ROCK HILL, SC 29730  
(803) 397-2944  
WWW.WIEDEMAN.COM

**PROJECT INFORMATION**

PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE:	MAIN FILTER BUILDING STRUCTURAL DETAILS

SCALE: As indicated

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.



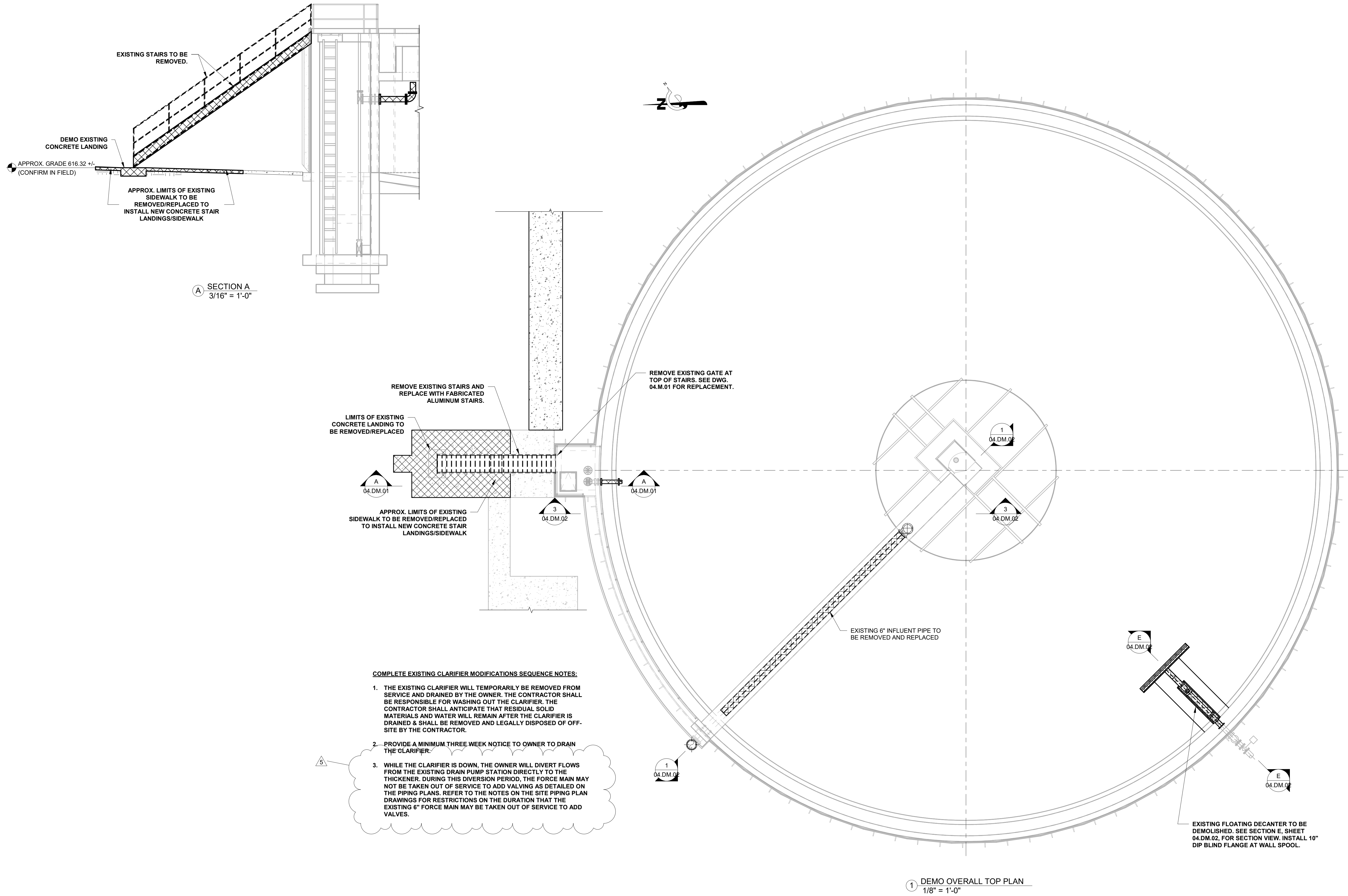
DATE: JANUARY 2024

DRAWING SHEET

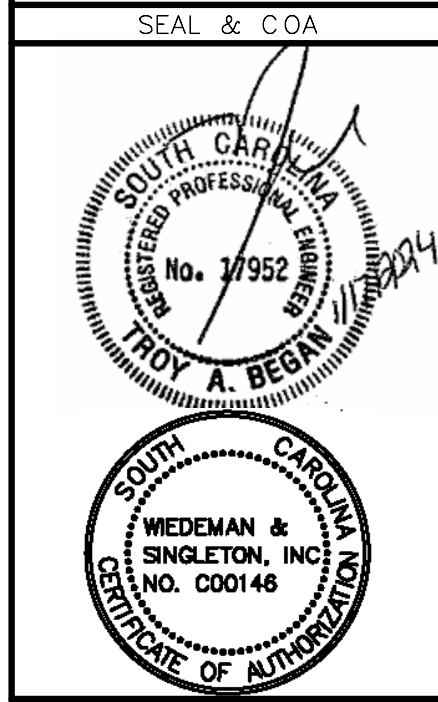
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100  
OF  
149



1/17/2024 5:28:17 PM Autodesk Docs: /056-21-120-R4-WTP Alum Sludge Dewatering Facility/area 04 - Clarifier.rvt



REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% REVIEW	NRB
2	10/12/2022	90% REVIEW	NRB
3	02/27/2023	PERMITTING REVIEW	NRB
4	12/04/2023	BID READY SET	NRB
5	01/22/2024	ADDENDUM #2	NRB



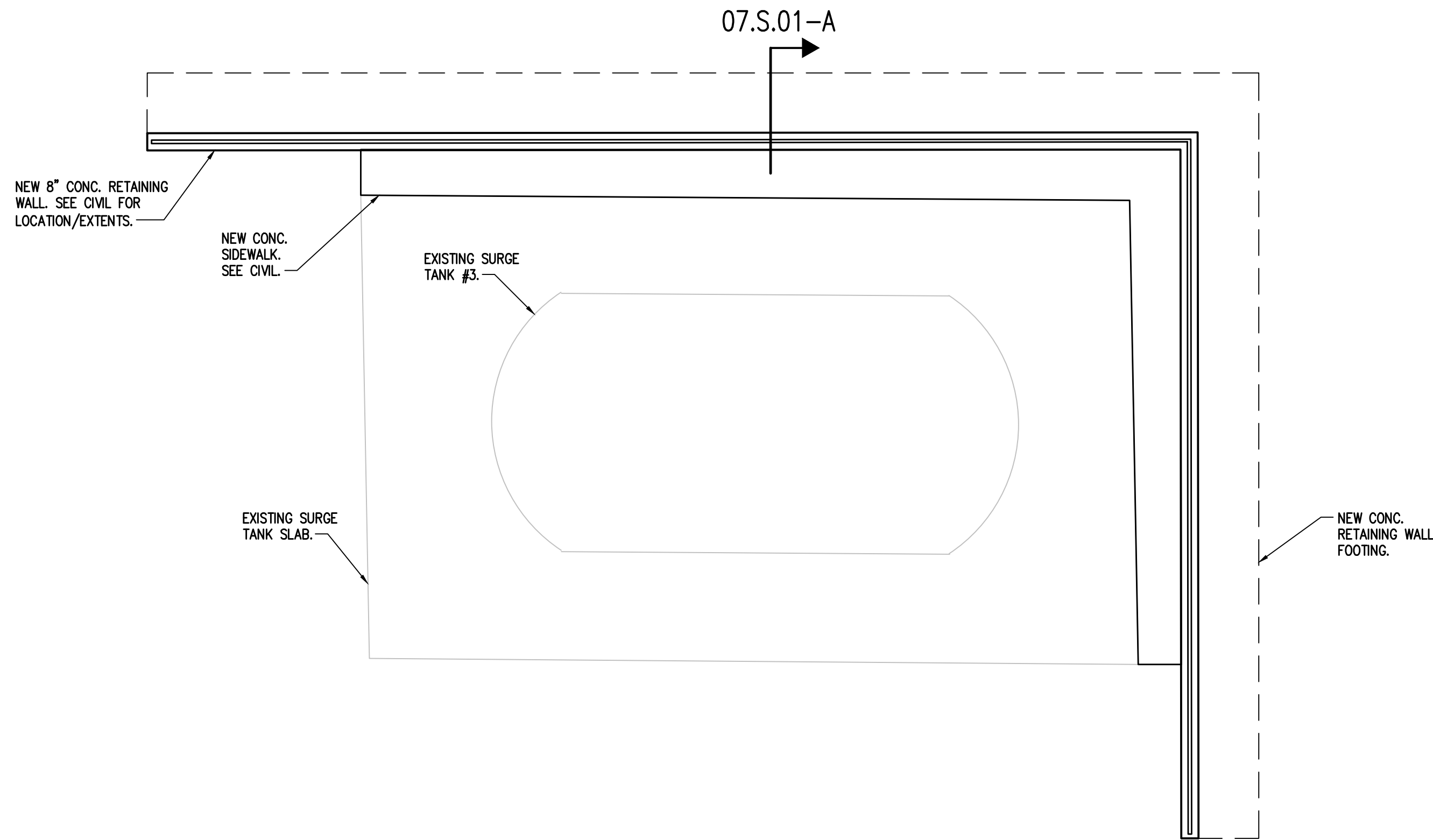
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PROJECT MANAGER:	TAB
DESIGNED BY:	TAB
DRAWN BY:	NRB
CHECKED BY:	TAB
FILE NAME:	FILE NAME
PROJECT NO.:	056-21-120



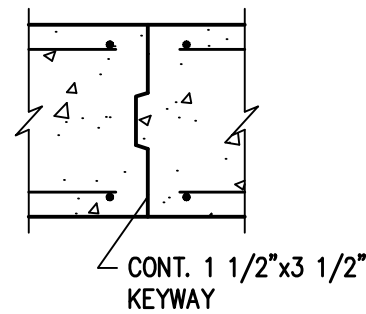
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PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLAGGE DEWATERING FACILITY ROCK HILL, SOUTH CAROLINA
SHEET TITLE:	CLARIFIER DEMOLITION PLANS

SCALE:	As indicated
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.	
DATE:	JUNE 2023
DRAWING	SHEET
04.DM.01	105
	OF
	149

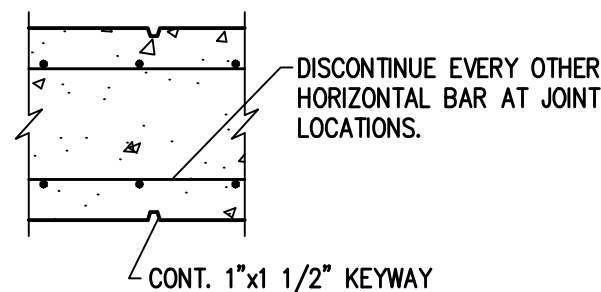




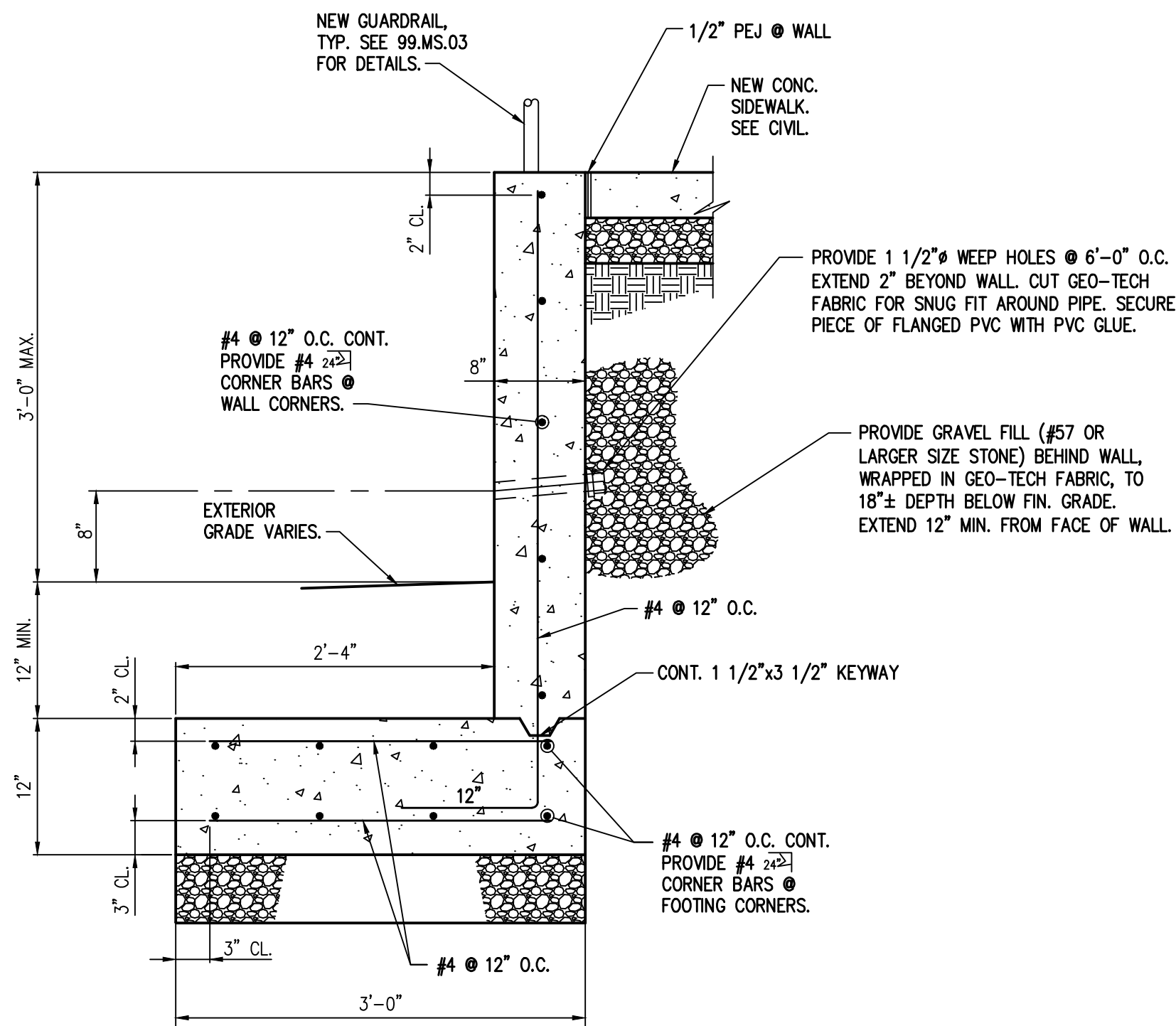
RETAINING WALL PLAN  
NO SCALE



TYPICAL CONSTRUCTION JOINT/  
EXPANSION JOINT  
NO SCALE



TYPICAL WEAKENED PLANE  
CONTRACTION JOINT  
NO SCALE



07.S.01-A  
NO SCALE

- GENERAL NOTES:
- A- CONCRETE:
- 1- COMPLY WITH APPLICABLE STANDARDS OF THE AMERICAN CONCRETE INSTITUTE, STANDARD NO. 318 - LATEST ED.
  - 2- CONCRETE SHALL BE OF NORMAL WEIGHT (150 PCF) AND SHALL DEVELOP A MIN. COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS.
  - 3- REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, HAVING A MIN. YIELD POINT STRENGTH OF 60 KSI. ALL SPLICES TO BE A MINIMUM OF 40 BAR DIAMETERS.
  - 4- PROVIDE WEAKENED PLANE CONTRACTION JOINTS @ 5' MAX O.C. AND KEYED CONSTRUCTION/EXPANSION JOINTS (DISCONTINUE REINF.) EVERY OTHER CONTRACTION JOINT (10' MAX. O.C.) DUE TO GEOTECH RECOMMENDATION OF NOT EXCAVATING MORE THAN A 10' SEGMENT ADJACENT TO THE SURGE TANK FOUNDATION AT A TIME. POUR WALL IN 10' MAX. SECTIONS. ALLOW SECTIONS TO CURE A MIN. OF 7 DAYS BEFORE POURING SUBSEQUENT SECTIONS.
  - 5- MAINTAIN CLEARANCES SHOWN ON SECTION FOR ALL VERTICAL AND HORIZONTAL BARS & PROVIDE CORNER BARS 13x, SAME SIZE & SPACING AS CONT. BARS.
  - 6- ALL EXPOSED CORNERS AND EDGES SHALL BE FILLETED WITH TRIANGULAR CHAMFER STRIPS MEASURING 3/4" ON EACH SIDE. EXPOSED HORIZONTAL SURFACES SHALL BE LEVEL AND FLAT, AND EXPOSED VERTICAL SURFACES SHALL BE PLUMB AND FLAT.
  - 7- PROVIDE 1/4" P.E.J. BETWEEN INTERFACE OF NEW SIDEWALK AND EXISTING SURGE TANK SLAB. SEE CIVIL PLANS.
- B- GRAVEL FILL:
- 1- A MINIMUM OF 12" OF FREE-DRAINING GRAVEL FILL SHOULD BE PLACED DIRECTLY BEHIND WALLS TO PROVIDE DRAINAGE AND PREVENT BUILDUP OF HYDROSTATIC FORCES.
  - 2- ALL GRAVEL FILL TO BE NO. 57 STONE, INSTALLED IN 8" MAX LIFTS. CONTRACTOR TO ENSURE FILL IS CONSOLIDATED BEFORE ADDING ADDITIONAL LIFTS.
- C- SURCHARGE:
- 1- SURCHARGE DESIGN LOAD ON HIGH SIDE OF WALL FROM POTENTIAL ADJACENT TRAFFIC IS 250 PSF.
- D- SPECIAL INSPECTIONS:
- 1- INDEPENDENT STRUCTURAL TESTS AND INSPECTIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE 2021 INTERNATIONAL BUILDING CODE WITH SOUTH CAROLINA STATE AMENDMENTS. THE INSPECTOR SHALL BE RESPONSIBLE FOR INDICATING COMPLIANCE WITH THE APPROVED STRUCTURAL PLANS AND SHALL SUBMIT PROGRESS REPORTS AND INSPECTION REPORTS TO THE ENGINEER OF RECORD.
  - 2- SATISFY MINIMUM INSPECTION AND QUALITY CONTROL REQUIREMENTS OF THE 2021 INTERNATIONAL BUILDING CODE WITH SOUTH CAROLINA STATE AMENDMENTS.

DESIGN SOIL PROPERTIES: (FROM SAME PROJECT NO. 215071)

INTERNAL ANGLE.....28°  
DENSITY OF SOIL.....115 PCF  
MIN. ALLOWABLE SOIL BEARING CAPACITY.....3000 PSF  
ACTIVE PRESSURE COEFFICIENT (K<sub>a</sub>).....0.36  
PASSIVE PRESSURE COEFFICIENT (K<sub>p</sub>).....2.77  
COEFFICIENT OF SLIDING FRICTION.....0.3

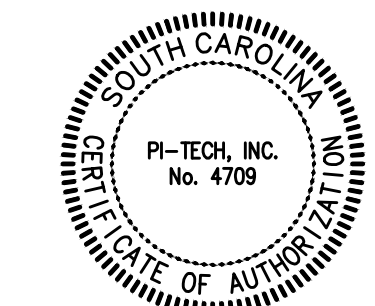
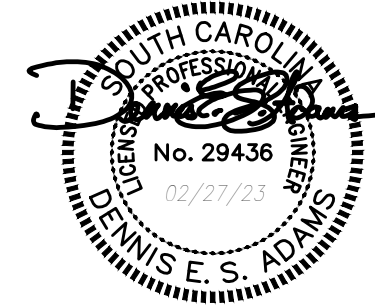
SITE PREPARATION GUIDELINES - FROM SAME, INC.

RETAINING WALL - FOUNDATION REQUIREMENTS:

1. WHEN CONSTRUCTING THE GRAVITY WALL, CARE SHOULD BE TAKEN NOT TO UNDERMINE THE SURGE TANK SLAB. EXCAVATIONS FOR THE RETAINING WALL SHALL BE NO LONGER THAN 10 FEET WIDE ADJACENT TO THE SURGE TANK SLAB AT ANY TIME TO AVOID SUPPORT REDUCTION OF THE SURGE TANK SLAB. RETAINING WALL EXCAVATIONS SHOULD NOT BE LEFT OPEN OVERNIGHT OR DURING INCLEMENT WEATHER.
2. A MINIMUM OF 6-INCH THICK LAYER OF GRADED STONE (SCDOT NO. 57) IS REQUIRED BENEATH CONTINUOUS FOOTING.
3. THE CONTRACTOR SHALL UNDERCUT THE EXISTING SOILS 2'-0" BENEATH THE BOTTOM OF THE RETAINING WALL CONTINUOUS FOOTING. THE UNSUITABLE SOILS SHALL BE REPLACED WITH COMPACTED, LOW PLASTICITY STRUCTURAL FILL.
4. PRIOR TO PLACING THE COMPACTED STRUCTURAL FILL, THE SUBGRADE SHALL BE EVALUATED BY THE GEOTECHNICAL ENGINEER UTILIZING HAND AUGERS WITH DYNAMIC CONE PENETROMETER TESTING (DCP) AND A PROBE ROD. DCP TESTING SHOULD BE PERFORMED IN GENERAL ACCORDANCE WITH ASTM SPECIALTY PUBLICATION STP 399.
5. ADDITIONAL UNDERCUTTING (MORE THAN 2'-0" BELOW BOTTOM OF CONTINUOUS FOOTING), IF REQUIRED BY ENGINEER, SHALL BE REIMBURSED VIA EXTRA WORK FOR REMOVING AND REPLACING UNSUITABLE MATERIALS. THE COST FOR UNDERCUTTING TO 2'-0" BELOW THE BOTTOM OF THE CONTINUOUS FOOTING SHALL BE INCLUDED IN THE COST FOR THE WORK TO WHICH IT PERTAINS.
6. SEE SAME GEOTECHNICAL ENGINEERING REPORT DATED JUNE 13, 2023 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

BY	DESCRIPTION	DATE	REV.
DESA	PERMITTING REVIEW	02/27/2023	1
DESA	BID READY SET	12/04/2023	2
DESA	APPENDIX #2	01/22/2024	3

SEAL & COA



OWNER



CONSULTANT INFORMATION

PROJECT MANAGER: DESA  
DESIGNED BY: SMS  
DRAWN BY: SMS  
CHECKED BY: DSP, DESA  
FILENAME: 07.S.01 Retaining Wall at Surge Tank  
PROJECT NO.: 056-21-120

WIEDEMAN AND SINGLETON, INC.  
Civil and Environmental Engineers  
131 EAST MAIN STREET  
SUITE 300  
ROCK HILL, SOUTH CAROLINA 29730  
(803) 329-2844  
WWW.WIEDEMAN.COM

PROJECT INFORMATION

PROJECT: CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA  
SHEET TITLE: AREA 7 - SURGE TANK #3 RETAINING WALL  
RETAINING WALL DETAILS

SCALE: AS SHOWN

NOTE: DRAWING SCALE IS  
BASED ON 24x36 SHEETS.

0 1' 2'

DATE: FEBRUARY 2023

DRAWING SHEET

07.S.01

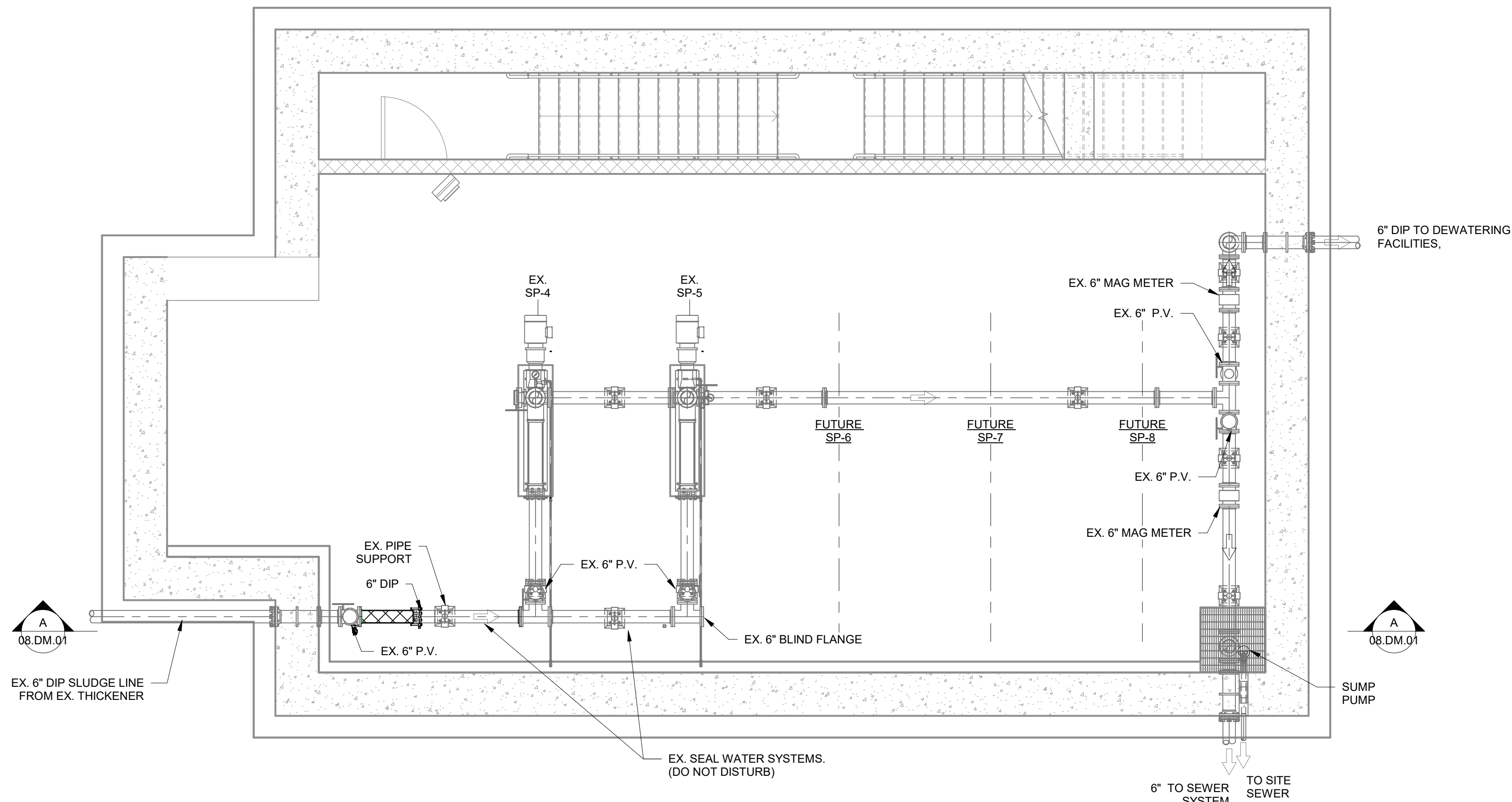
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OF  
149

**PI-Tech**  
www.pi-techinc.com

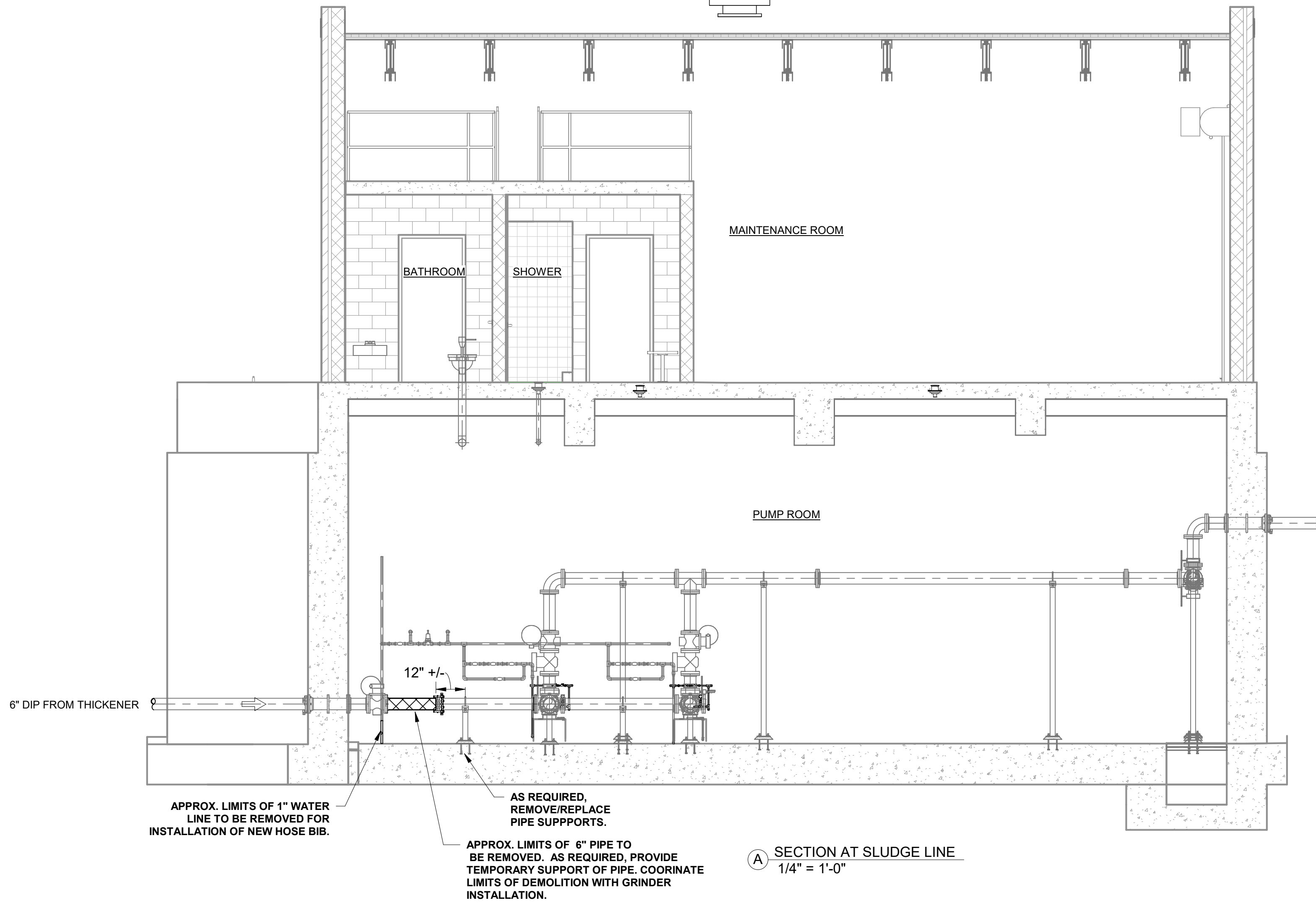
PI-TECH, INC.

115 FOREST HILL ROAD  
MACON, GA 31210  
478.743.5600





1 PUMP FLOOR PLAN  
1/4" = 1'-0"



A SECTION AT SLUDGE LINE  
1/4" = 1'-0"

- NOTES:
1. THE GRINDER MUST BE FULLY OPERATIONAL BEFORE THE CENTRIFUGE MAY BE PLACED IN SERVICE. THE PUMP STATION AND THICKENER WILL BE REMOVED FROM SERVICE ONE TIME FOR TWO DAYS TO INSTALL THE GRINDER. THE PUMP STATION AND GRINDER MUST BE OPERATIONAL AT THE END OF THE SHUTDOWN. MIN. OF 14 DAYS NOTICE TO OWNER REQUIRED BEFORE SCHEDULING THE SHUTDOWN OF THE PUMP STATION.
  2. THE EXISTING SLUDGE PS AT THE THICKENER AND THE SLUDGE PS AT THE CLARIFIER MAY NOT BE OUT OF SERVICE AT THE SAME TIME.

REV.	DATE	DESCRIPTION	BY
1	08/29/2022	70% DESIGN	RAA
2	10/12/2022	90% DESIGN	RAA
3	02/27/2023	PERMITTING REVIEW	RAA
4	12/04/2023	BID READY SET	RAA
5	01/22/2024	ADDENDUM #2	RAA

SEAL & COA

OWNER

Rock Hill  
SOUTH CAROLINA  
*Always here*

CONSULTANT INFORMATION	
PROJECT MANAGER:	
DESIGNED BY:	TAB
DRAWN BY:	LBJ
CHECKED BY:	TAB
FILE NAME:	FILE NAME
PROJECT NO.:	056-21-120

WIEDEMAN AND SINGLETON, INC.  
Civil and Environmental Engineers  
131 EAST MAIN STREET  
SUITE 300  
ROCK HILL, SC 29730  
(803) 397-2944  
WWW.WIEDEMAN.COM

PROJECT INFORMATION

PROJECT:	CITY OF ROCK HILL ROCK HILL WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY
SHEET TITLE:	ROCK HILL, SOUTH CAROLINA THICKENER PUMP STATION DEMOLITION PLAN & SECTION

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

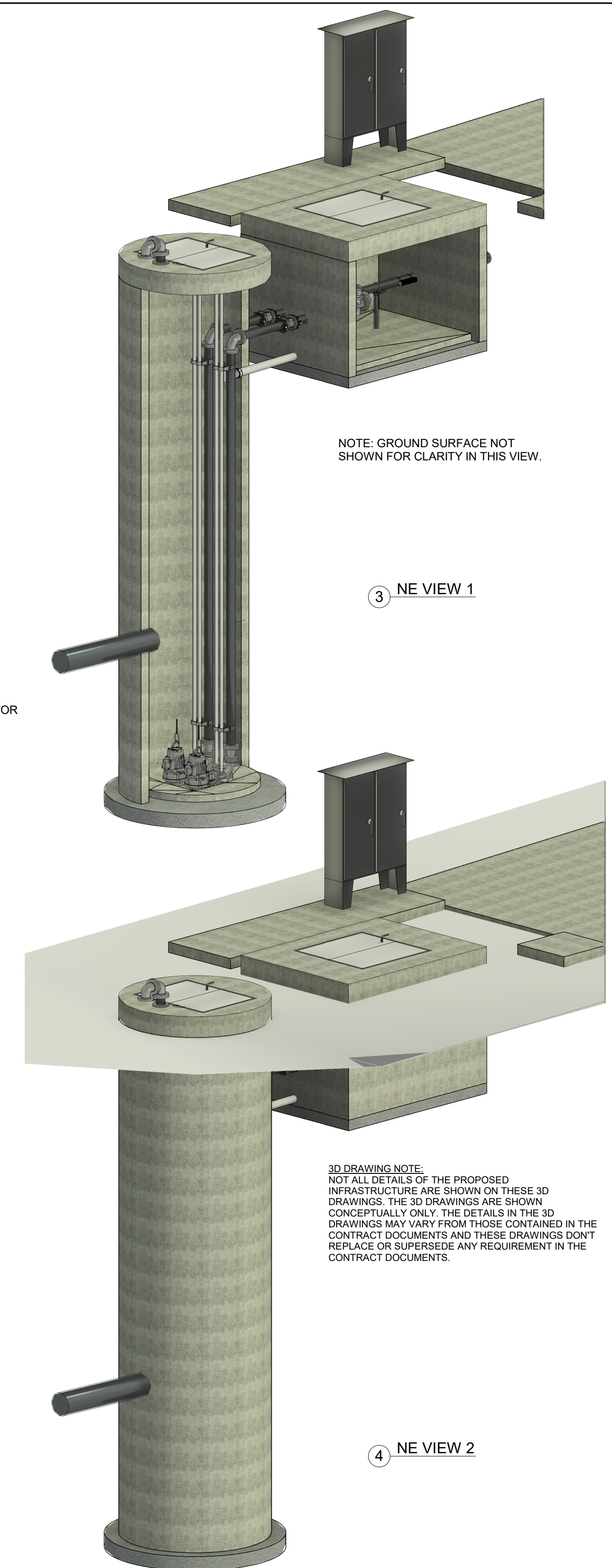
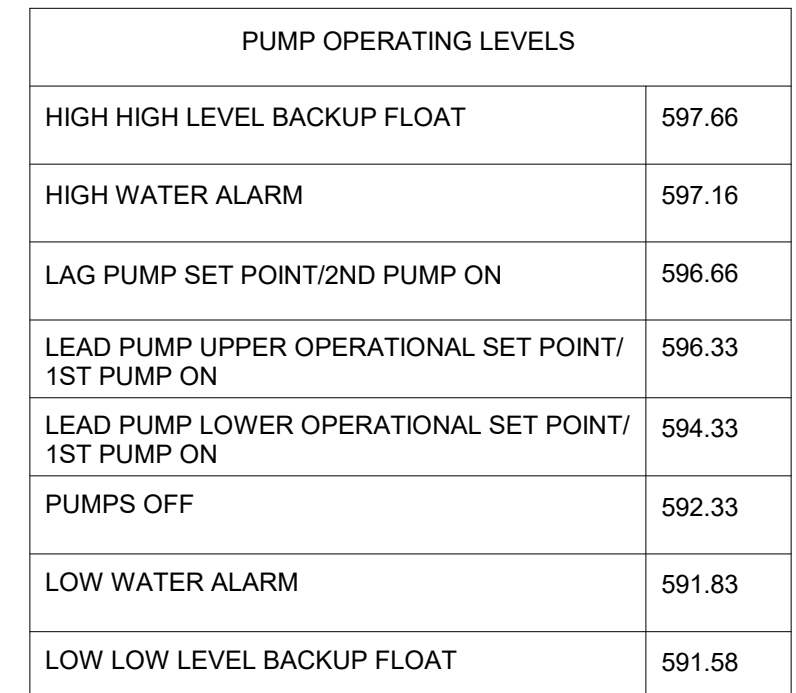
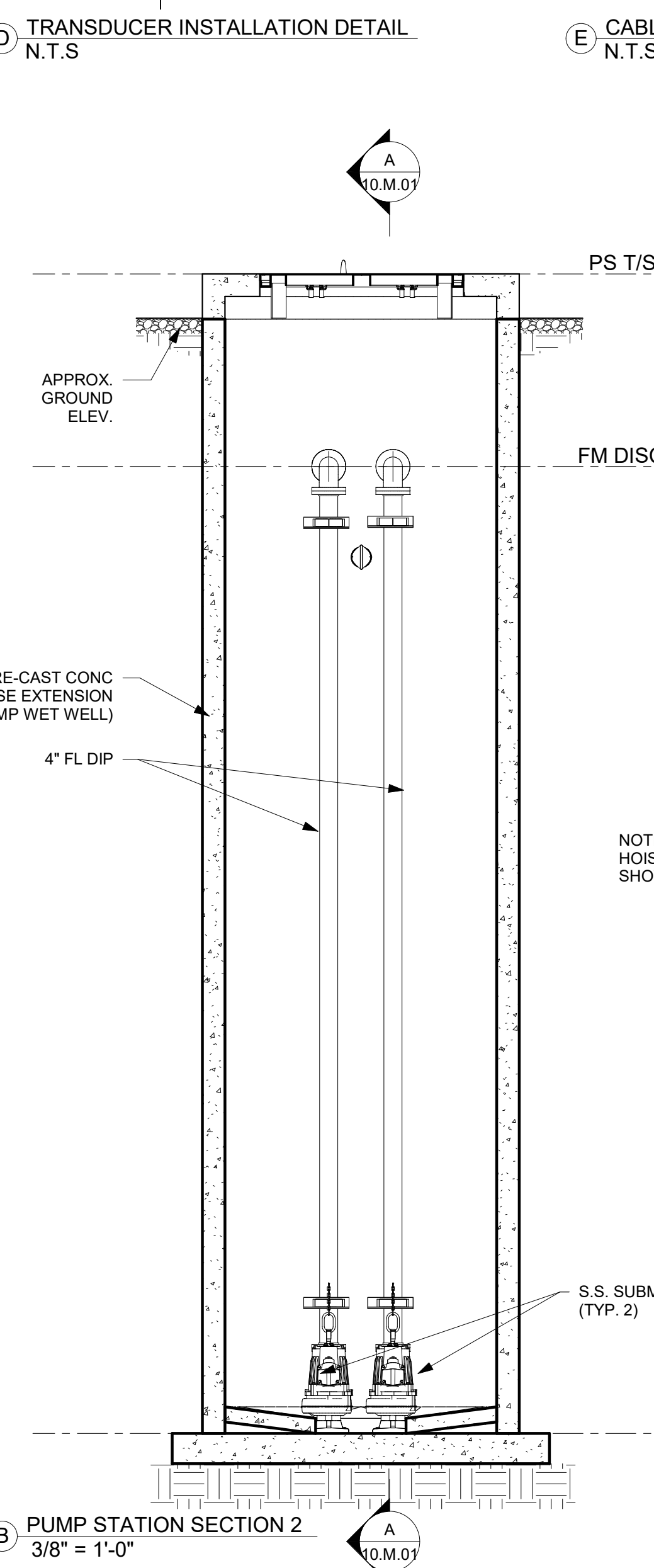
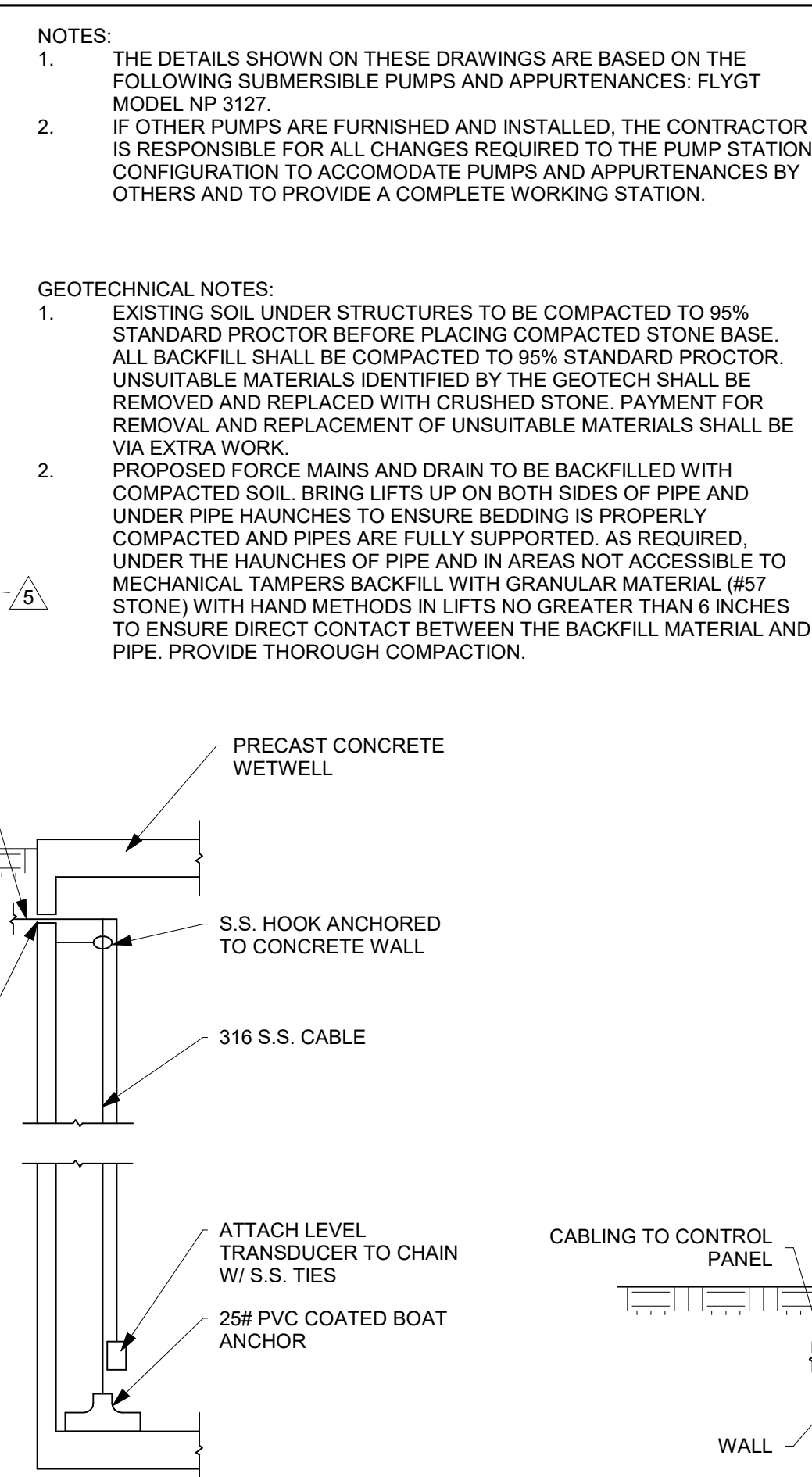
NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.

0 1" 2"

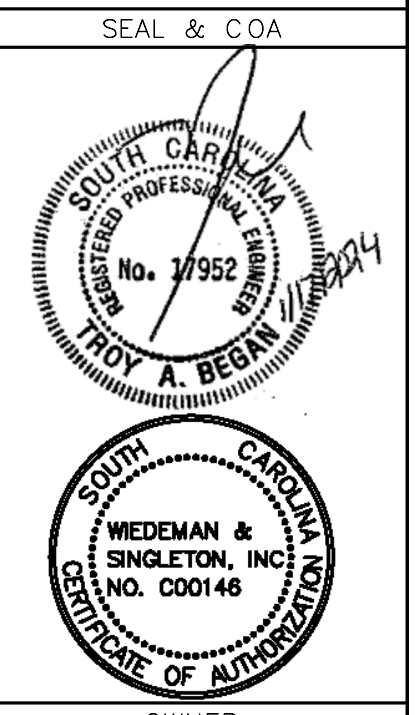
DATE: JUNE 2023



DRAWING	SHEET
08.DM.01	114 OF 149





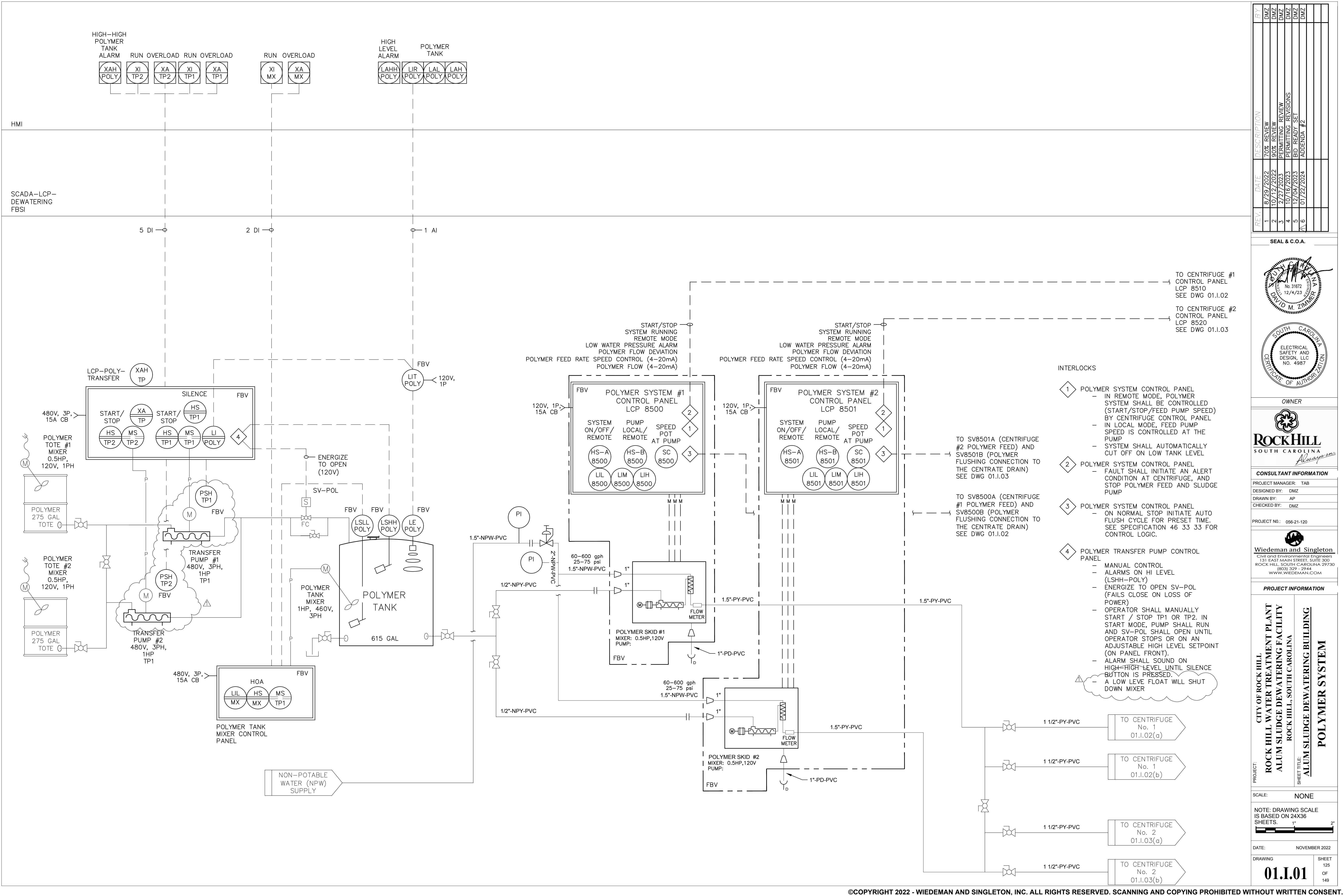
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2	10/12/2022	90% REVIEW	RAH
3	02/27/2023	PERMITTING REVIEW	RAH
4	12/04/2023	BID READY SET	RAH
5	01/22/2024	ADDENDUM #2	RAH



 <b>Rock Hill</b> SOUTH CAROLINA <i>Always on</i>	
<b>CONSULTANT INFORMATION</b>	
PROJECT MANAGER: TAB	
DESIGNED BY: TAB	
DRAWN BY: RAR	
CHECKED BY: TAB	
FILE NAME: FILE NAME	
PROJECT NO.: 056-21-120	
 WIEDEMAN AND SINGLETON, INC. CIVIL ENGINEERS AND ARCHITECTS 131 EAST MAIN STREET SUITE 300 ROCK HILL, SC 29730 (803) 329-2944 <a href="http://WWW.WIEDEMAN.COM">WWW.WIEDEMAN.COM</a>	

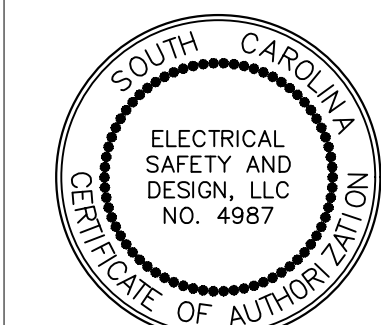
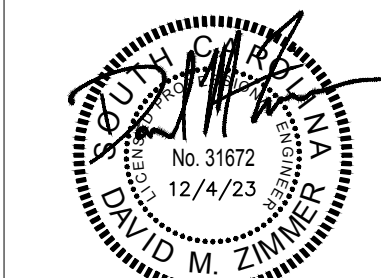
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<div>SCALE:</div> <div>As indicated</div>	
<div>NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.</div> <div> <div>0</div> <div>1"</div> <div>2"</div> </div>	
<div>DATE:</div> <div>JANUARY 2024</div>	
<div>DRAWING</div> <div>10.M.01</div>	<div>SHEET</div> <div>120</div> <div>OF</div> <div>149</div>





REV.	DATE	DESCRIPTION
1	8/29/2022	70% REVIEW
2	10/12/2022	80% REVIEW
3	2/27/2023	DESIGN REVIEW
4	10/16/2023	PERMITTING REVISIONS
5	12/04/2023	BID READY SET
6	01/22/2024	ADDENDUM #2

SEAL & C.O.A.



OWNER



CONSULTANT INFORMATION

PROJECT MANAGER: TAB  
DESIGNED BY: DMZ  
DRAWN BY: AP  
CHECKED BY: DMZ  
PROJECT NO.: 056-21-120

**Wiedeman and Singleton**  
Civil and Environmental Engineers  
131 EAST MAIN STREET, SUITE 300  
ROCK HILL, SOUTH CAROLINA 29730  
(803) 329 - 2944  
WWW.WIEDEMAN.COM

PROJECT INFORMATION

CITY OF ROCK HILL  
ROCK HILL WATER TREATING PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA  
SHEET TITLE:  
ALUM SLUDGE DEWATERING BUILDING  
POLYMER SYSTEM

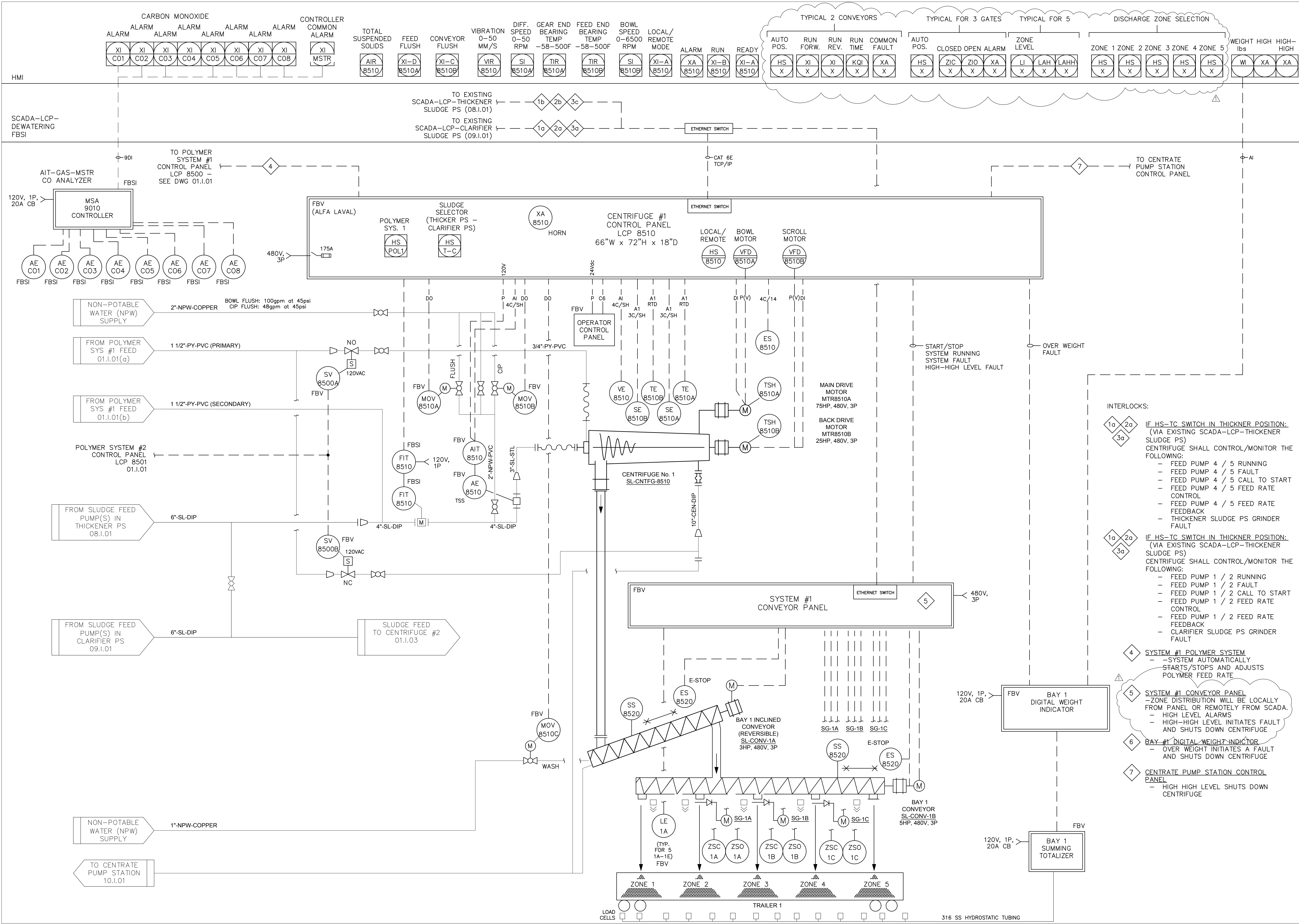
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NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.  
1" = 2'

DATE: NOVEMBER 2022

DRAWING SHEET  
01.1.01 125  
OF 149





REV.	DATE	DESCRIPTION
1	8/28/2023	70% REVIEW
2	10/17/2023	90% REVIEW
3	12/16/2023	DESIGNING REVISIONS
4	12/16/2023	DESIGNING REVISIONS
5	12/16/2023	BID READY SET
6	01/22/2024	ADDENDUM #2

SEAL & C.O.A.

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CONSULTANT INFORMATION

PROJECT MANAGER: TAB

DESIGNED BY: DMZ

DRAWN BY: AP

CHECKED BY: DMZ

PROJECT NO.: 056-21-120

Wiedeman and Singleton

Civil and Environmental Engineers

131 EAST MAIN STREET, SUITE 300

ROCK HILL, SOUTH CAROLINA 29730

(803) 329-2944

WWW.WIEDEMAN.COM

PROJECT:

CITY OF ROCK HILL

ROCK HILL WATER TREATMENT PLANT

ALUM SLUDGE DEWATERING FACILITY

ROCK HILL, SOUTH CAROLINA

SHEET TITLE:

ALUM SLUDGE DEWATERING BUILDING

P&ID - CENTRIFUGE #1

SCALE:

NONE

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.

DATE:

NOVEMBER 2022

DRAWING

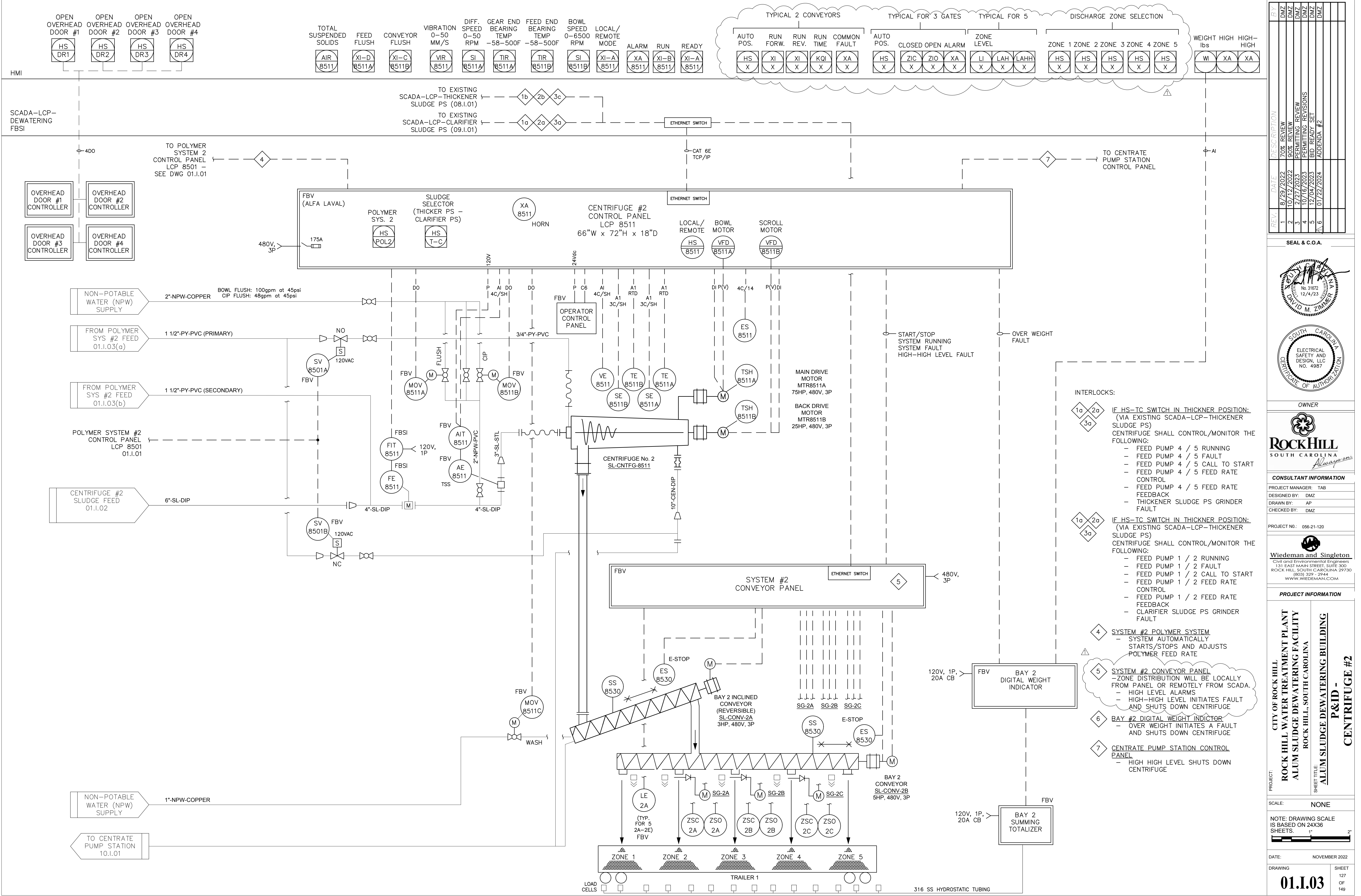
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SHEET

126

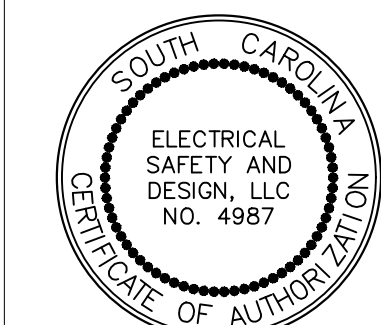
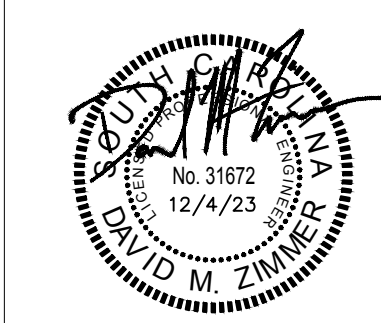
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149



REV.	DATE	DESCRIPTION
1	8/28/2023	70% REVIEW
2	10/17/2023	80% REVIEW
3	11/27/2023	90% REVIEW
4	12/16/2023	DESIGNING REVISIONS
5	12/04/2023	BID READY SET
6	01/22/2024	ADDENDUM #2

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CONSULTANT INFORMATION

PROJECT MANAGER: TAB  
DESIGNED BY: DMZ  
DRAWN BY: AP  
CHECKED BY: DMZ

PROJECT NO.: 056-21-120

**Wiedeman and Singleton**  
Civil and Environmental Engineers  
131 EAST MAIN STREET, SUITE 300  
ROCK HILL, SOUTH CAROLINA 29730  
(803) 329-2944  
WWW.WIEDEMAN.COM

PROJECT INFORMATION

CITY OF ROCK HILL  
ROCK HILL WATER TREATMENT PLANT  
ALUM SLUDGE DEWATERING FACILITY  
ROCK HILL, SOUTH CAROLINA  
SHEET TITLE: ALUM SLUDGE DEWATERING BUILDING  
P&ID - CENTRIFUGE #2

SCALE: NONE

NOTE: DRAWING SCALE IS BASED ON 24X36 SHEETS.  
1" = 2'

DATE: NOVEMBER 2022

DRAWING SHEET

01.1.03  
127 OF 149



**QUESTIONS FROM BIDDERS**  
**WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY**  
**FOR**  
**CITY OF ROCK HILL, SC**

**W&S Project No. 056-21-120**

**Bid Date: THURSDAY JANUARY 25, 2024 @ 10:00 AM**

**Update:**

**1/19/2024 15:07**

<b>Question #</b>	<b>Question</b>	<b>Answer</b>
1	There is no bid date shown on the ITB. What is the bid date and is there an Engineers Estimate/Budget?	All necessary project information should be available through the Duncan Parnell online planroom: <a href="https://www.dpibidroom.com/View/ViewJob.aspx?job_id=17728">https://www.dpibidroom.com/View/ViewJob.aspx?job_id=17728</a> .  The project bid date is January 25, 2024. The Engineer's estimate is \$19,000,000.
2	Is there a pre-bid meeting for Rock Hill, SC - Water Treatment Plant Alum Sludge Dewatering Facility?	Yes, the pre-bid meeting will be held on January 9, 2024 at 2:00pm.
3	We provide services of Geotech, Environmental work, phase 1 and 2, CMT, and Special Inspections chapter 1 and 17. I was seeing if we could provide a proposal for our services for this project or any upcoming that you might have been awarded or bidding on.	Testing laboratory services shall be retained by the Contractor on this project to perform tests, inspections and other services specified and detailed on the construction drawings. Please refer to specification section 01 45 23 Testing Laboratory Services.  For Special Inspections the owner has retained Wiedeman and Singleton (W&S) to perform Special Inspection services. As required, W&S will use other firms (S&ME, etc.) to perform Special Inspections. Please also refer to specification section 01 45 33 Special Inspections.
4	Are you able to provide any Free Bid documents such as the plans and specs for project?  Is there a start date for the project to begin? Is there an end date as well?	Bid documents may be purchased through the Duncan Parnell online planroom: <a href="https://www.dpibidroom.com">dpibidroom.com</a>  The City intends to award the contract for the Work on February 12, 2024. We anticipate a notice to proceed being issued in April/May 2024 following SRF and EPA approval. The time allowed for completion of the project is 2 years.
5	Can we get the general contractor's company, so I can reach out to them?	The project is still advertising. A list of plan holders for this project can be found on the Duncan Parnell online planroom ( <a href="https://www.dpibidroom.com">dpibidroom.com</a> ).
6	We were interested in being considered to bid on the subject project as an approved equal to Seepex. I have attached sample engineer's specifications on the pump and grinder offer. Could you please let us know what is required for your evaluation of the line? Please let us know if we can bid this project and how we could be considered for future projects.	Refer to Section II - Major Equipment of the bid form. Write-in manufacturers may be proposed by the bidders with the price for the write-in manufacturer identified on the bid form. The Engineer and/or City shall determine the acceptability of such write-in manufacturer(s) following the bid opening. However, the base bid is determined by using the price of the named equipment manufacturer. Please see Project Manual, Section 00100 INSTRUCTIONS TO BIDDERS, paragraph 15. (c) for additional information.
7	Will we be approved if a contractor submits our products for this project?	Substitution requests are not typically evaluated prior to bid but the specification allows substitutions, which are submitted by the GC during construction per Section 01 60 00.
8	We specialize in producing a reliable weep hole component filter, which is commonly used in Steel, Vinyl, Composite, and Aluminum sheet pile.  Traditional drainage and soil filtration systems are typically buried behind the wall structure and are prone to failure over time, resulting in costly repairs and potential damage to the wall and surrounding structures.  By contrast, our filter is designed to prevent such failures by providing superior drainage and filtration capabilities, making it a more cost-effective and reliable solution in the long run.	There are currently no weep hole filters specified on this project to be installed or replaced. We will keep your products in mind for future projects where they may be applicable.
9	The project overview in the eProcurement Portal by OpenGov included downloads of a Sample Agreement and General Conditions. How do these apply to the Project?	The Sample Agreement and General Conditions were removed from the eProcurement Portal and do not apply to the Project. The Agreement and General Conditions in the contract bid documents apply to the Project.

**QUESTIONS FROM BIDDERS**  
**WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY**  
**FOR**  
**CITY OF ROCK HILL, SC**

**W&S Project No. 056-21-120**

**Bid Date: THURSDAY JANUARY 25, 2024 @ 10:00 AM**

**Update:**

**1/19/2024 15:07**

<b>Question #</b>	<b>Question</b>	<b>Answer</b>
10	How can we schedule a site tour of the water treatment plant?	The Rock Hill Water Treatment Plant is a controlled Site with restricted access. Site visits may be scheduled a minimum of 72 hours in advance with the Water Treatment Plant Superintendent. All visits must be scheduled from 9:00 A.M. to 3:00 P.M., Tuesday to Thursday. All personnel requesting a site visit must present valid picture identification, proof of affiliation with the organization they represent at the time of the visit and must be a current plan holder or must be accompanied by a current plan holder. The Plant Superintendent (Mr. Anthony Rivers) may be reached at 803-329-5502 or via email at anthony.rivers@cityofrockhill.com. An email is preferred.
11	Regarding specification 43 23 57 paragraph 2.2.B.1.2, the specification calls for packing. The manufacturer recommends a single component seal that will be better suited to the application.	This will be addressed by addenda.
12	Regarding specification 43 23 57 paragraph 2.4.A.1, the service factor requires a minimum of 8.83? This looks to be a typo, as the general standard is 1.5 service factor. Requesting acceptance to use 1.5 service factor minimum.	The service factor will be adjusted to 1.5. This will be updated by addenda.
13	Regarding specification 43 23 57 paragraph 2.6.B.2.5, the manufacturer recommends Viton material for this application. Requesting acceptance to use standard Viton.	Viton is acceptable in this application. This will be updated by addenda.
14	Thoughts on moving polymer systems to the first floor to eliminate transfer pumps and potential problems.	We are not planning any changes to the polymer transfer and storage.
15	Is it your intent for the neat polymer storage tank, tank and tote mixers, and neat polymer transfer pumps to be provided by the polymer system manufacturer or can those be provided by others?	These can be supplied by others.
16	Regarding specification 43 23 57 paragraph 2.1 A., could it be modified so that all components are provided by one supplier?	This will be addressed by addenda.
17	The contract specifications call for the aerial sedimentation basin supply piping in basin 1-4 to be blasted and repainted. We could not locate this piping on the contract drawings. Please provide as-built drawings for the pipe.	The approx. limits of the piping is shown on site plan drawing C.01 and also is identified in Area 06 drawing 06.MS.01.
18	I do not see a spec for submerged wetwell coating and 099000 does not show it getting coated. Just to confirm that coating of the new centrate discharge pump station wetwell does not require concrete submerged coatings.	That is correct, the Centrate Discharge Pump Station wetwell does not require a coating.
19	Please confirm that only the Bid Form (00300) is required to be submitted on a Thumb Drive, and not the complete bid package, as listed in item 2 of the Bid Submittal Checklist	That is correct. See also clarifications made within Addenda #1 issued on 1/12/24.
20	Drawing sheet E.01, note 16, indicates all fiber will be installed by Owner. Please confirm.	That is correct.
21	Item 6 of ITB calls to identify major subcontractors that will provide construction services for this project, including their experience with similar projects. Will the owner consider submitting subcontractor's qualifications and experience post award by successful bidder and considering listing proposed subcontractors in Section 00100 as sufficient?	The owner is willing to consider this approach to subcontractor qualifications. This item will be addressed by addenda.
22	Please clarify/confirm that Bid Form section 00300 is the only portion of the package to be submitted as a hard copy, and all other forms, including subcontractor lists, Bid Bond, affidavit, license, etc. are to be submitted via the eProcurement Portal only.	The hard copy shall include the whole bid package as defined within the project manual. This same whole bid package shall be submitted via the eProcurement Portal. See also clarifications made within Addenda #1 issued on 1/12/24.
23	Specification 43 23 57 calls for minimum 3HP & 460V Polymer Transfer Pumps. 01.I.01 calls for 1HP & 480V pumps. Can you please confirm the pump motor requirements?	Specification 43 23 57 call out of 3 HP & 460V Polymer Transfer Pump is correct. Drawing will be updated by addenda.
24	Specification 46 76 33 calls for a minimum 15 HP & 460V Back Drive motors, and 01.I.02 & 03 call for 25HP & 480V motors. Can you please confirm the Back Drive Motor requirements?	Specification 46 76 33 call out of 15 HP & 460V Back Drive motors is correct. Drawings will be updated by addenda.
25	10.E.01 & 10.I.01 call for a Centrate Automatic Sampler (SAMP-CENT). Can you please provide a Specification for this Sampler?	Centrate Automatic Sampler will be provided by the Owner. However, concrete equipment pad for the sampler shall be provided by the Contractor. This will be addressed by addenda.



**QUESTIONS FROM BIDDERS**  
**WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY**  
**FOR**  
**CITY OF ROCK HILL, SC**

**W&S Project No. 056-21-120**

**Bid Date: THURSDAY JANUARY 25, 2024 @ 10:00 AM**

**Update:**

**1/19/2024 15:07**

<b>Question #</b>	<b>Question</b>	<b>Answer</b>
26	For rate of flow controller system: Can the 24" long pipe spool between the Venturi and the butterfly valve be fabricated from carbon steel or stainless steel instead of ductile iron pipe?	Ductile iron pipe shall be used, as all the existing pipe installed throughout the pipe gallery is ductile iron.
27	For rate of flow controller system: Does the electric valve actuator need to be part of the assembly for the factory calibration of the flow controller assembly? We are considering PFS providing a new valve actuator for the rate of flow control assembly so that their Field Performance Guarantee (40 91 00, 2.1.L) can include the actuator.	The electric valve actuator does not need to be part of the assembly for the factory calibration of the flow controller assembly. However, the owner would like to install a new electric valve actuator in this project. This item will be addressed by addenda.
28	For rate of flow controller system: How much time will be allowed for installation and startup of the new rate of flow assembly?	Per <u>Backwash Rate of Flow Controller Replacement Notes</u> , Note 2 on drawing 02.DM.01, the installation shall be limited to 36 hours. See the remainder of notes in this section for all installation requirements/restrictions.
29	Regarding the PLC panel enclosures, the Owner expressed interest in using stainless steel enclosures instead of carbon steel enclosures in areas where NEMA12 rating is required. Please confirm if type 304 stainless steel enclosures for the PLC panels in these areas will be acceptable.	The owner would like stainless steel for the PLC panel enclosures. This item will be addressed by Addenda.
30	If carbon steel enclosures are used in areas where NEMA12 rating is required, please confirm if the standard gray paint/finish that comes from suppliers such as Hoffman and Saginaw, is acceptable.	The owner would like stainless steel for the PLC panel enclosures. This item will be addressed by Addenda.
31	During the pre-bid meeting a question about if a specification for the fiber optic cable would be provided?	Per the drawing E.05, it is noted that the owner will be providing the fiber optic cable. As such, a specification for the fiber is not required. This is also noted on drawing E.01.
32	From Pre-bid meeting: Will the bid date change?	Currently there is no plan to change the bid date.
33	From Pre-bid meeting: There was a question on drawing 01.A.32, Detail 2A, regarding the termination limits for where the standing seam paneling stops near the second floor roll-up door. There was also a question about where the standing seam paneling was specified.	The termination limits for the standing seam panels and the standing seam panel specification will be added by addenda.
34	From Pre-bid meeting: Will any items be sole sourced and/or purchased by the Owner?	No items will be purchased by the Owner for this project. However, the two (2) EF's being installed in Area 02 scope of work will be provided by the Owner.
35	From Pre-bid meeting: If you reference the Project Manual General Warranty (Section 00690), the warranty states a duration of 24 months. However, this seems to be a different duration than the equipment warranties. Are all the warranties to be 24 months in duration?	The warranty in Section 00690 is a general contractor warranty. Refer to Section 00 94 00 – Article 4.5.4 which addresses the possible difference in manufacturers equipment warranty duration.
36	From Pre-bid meeting: Can you clarify how the EF's at Filters 5 & 6 are installed?	These EF's are being installed on an existing roof. This roof is built of precast concrete panels. In order to create a hole in the roof, existing precast panels must be removed and new precast panels must be cast with openings in them. There the opening size must match existing precast panels which is larger than the opening required for the EF's. Please refer to Area 02 drawings for additional details.
37	Please confirm that the warranty period does not start until Final Completion of the project – 720 days after Start Date (540 days to Substantial Completion + 180 days to Final Completions).	The warranty period shall begin at Final Completion when all work is satisfactorily completed as a whole.
38	From Pre-bid meeting: For the existing parapet caps being replaced at the existing roof over Filters 4, 5 & 6 there is a note to repair any damage to the existing roof material and maintain existing roof warranties. Can you provide the name of the roofing membrane/material manufacturer as well as copies of the roof warranties?	The existing roof over Filters 5&6 is an EPDM membrane roof as manufactured by Firestone. It was install approx. around 2005 and had a 10 year warranty.  We were not able to locate submittal information on the existing roof over Filter 4 as this roof installation predates the roofing membrane over Filters 5&6.
39	Are you aware if the Owner has a preferred electrician, or a go to electrician at the plant? OR perhaps, have any electricians submitted questions that you can point me in their direction?	We are not aware of a preferred electrician. Also, no electricians have submitted questions that we are aware of.
40	Water Treatment Plant Alum Sludge Dewatering Facility - I know they have some trench drains specified - think we might be able to help.	We do not have trench drains on this project.

**QUESTIONS FROM BIDDERS**  
**WATER TREATMENT PLANT ALUM SLUDGE DEWATERING FACILITY**  
**FOR**  
**CITY OF ROCK HILL, SC**

**W&S Project No. 056-21-120**

**Bid Date: THURSDAY JANUARY 25, 2024 @ 10:00 AM**

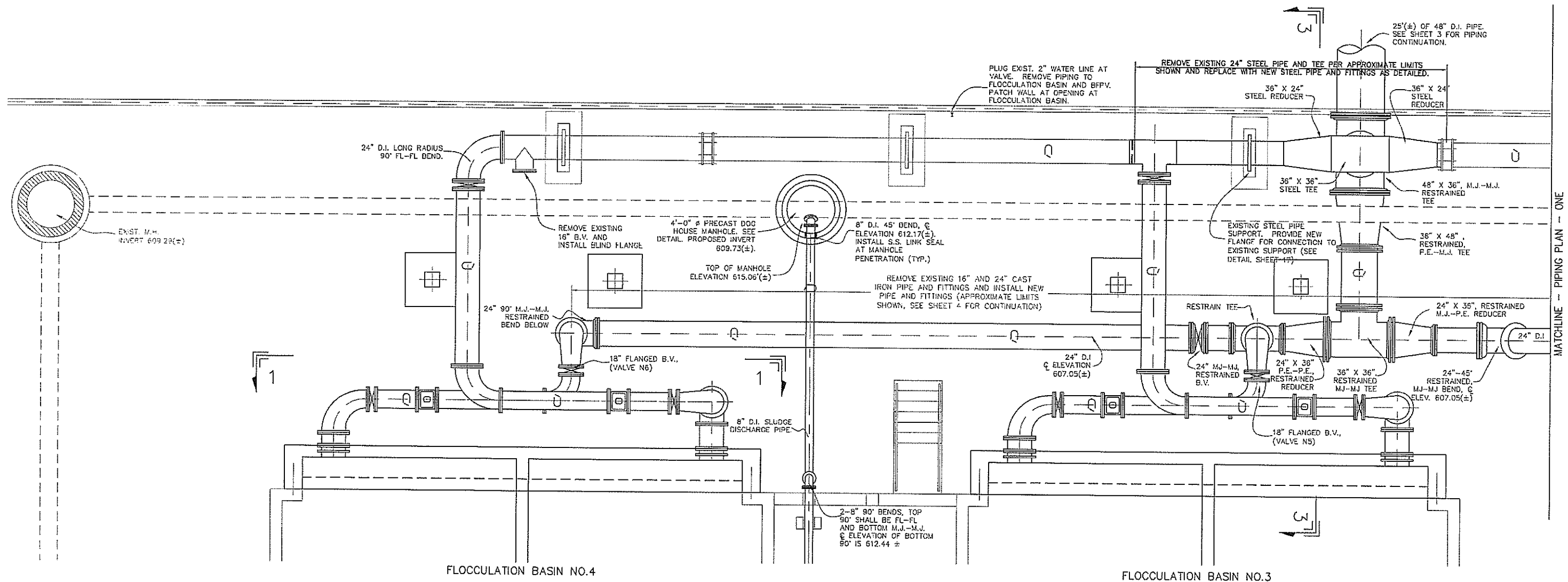
**Update:**

**1/19/2024 15:07**

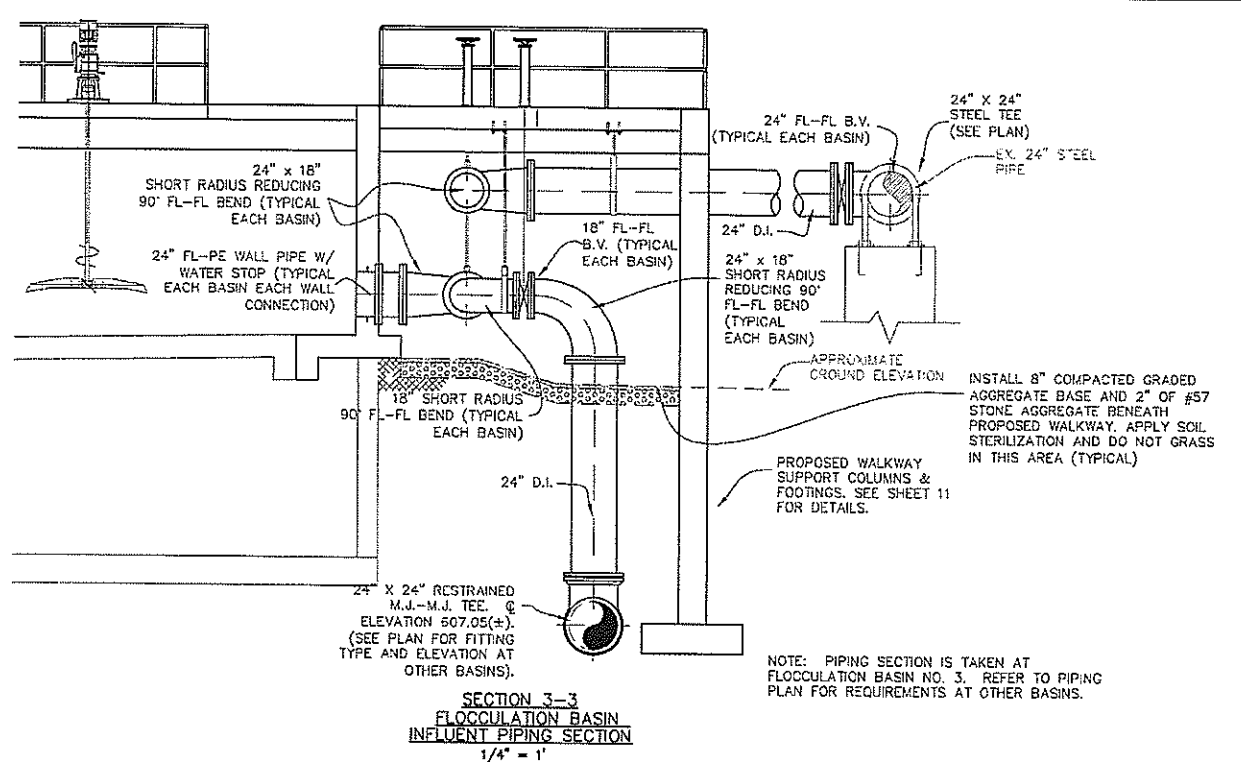
<b>Question #</b>	<b>Question</b>	<b>Answer</b>
48	After a thorough review the of the contract documents and considering current lead times on electrical equipment we request the duration of the contract be extended an additional 6 months.	We will discuss your request to extend the project duration w/ the Owner
49	Please clarify how long the 36" High Service Main can be removed from service while it is being relocated. Please confirm no bypass pumping or temporary piping will be required to keep the plant in service during this time.	No bypass pumping or temporary piping will be required. To maintain water service to the existing sludge pump station, an additional isolation valve will be added by addenda to the existing 6" water supply that feeds the sludge pump station. The duration that the 36" piping can be out of service has not been defined, but the duration should be minimized as the piping provides redundancy and is connected to a surge tank at the site.
50	Please confirm a dovetail slot connection is not required between columns and the masonry. The structural details only show it at the top beam connection.	No dovetail slot is required between columns and the end of wall.
51	Please provide the as-builts for the Sedimentation Basin Supply piping. C.01 appears to show multiple pipes stacked on top of each other and 6.MS.01 the piping is obscured by the concrete deck. We cannot see the changes in elevation to quantify.	The piping is available for inspection and confirmation of the dimension/area of pipe to be painted for the bid, but attached for information purposes only are drawings of only the aerial piping to the basins that is concealed by the slab. These drawings haven't been confirmed in the field.
52	Please provide the flow rates that will need to be bypassed per note the callout on C.13 at the doghouse manhole.	A doghouse manhole is proposed, which its installation may not require bypass pumping. Sewer service must, however, be maintained. The existing 8" sewer provides domestic service to the Water Plant and services a few building drains at the plant site. The section of existing sewer where the doghouse will be installed is an 8-inch sewer at 0.55% grade and flowing full, this sewer would handle 0.60 mgd and this flow could be used for planning purposes.
<b>NOTES:</b>	1. Company Names and Trade Names have been removed from the questions. The answers contain trade names only to refer to existing installations. These inclusions do not represent an endorsement of the product or the company.	
	2. Questions from sales representatives have been edited where appropriate for brevity.	
	3. Questions from General Contractors have been left untouched.	
	4. Significant Changes in answers previously posted are marked in red.	



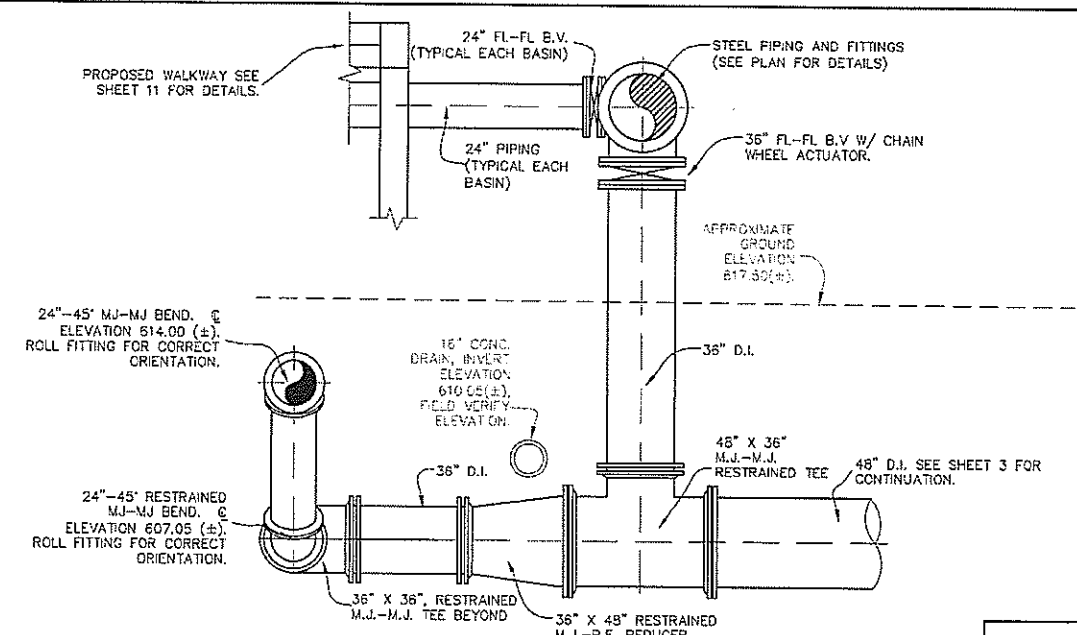




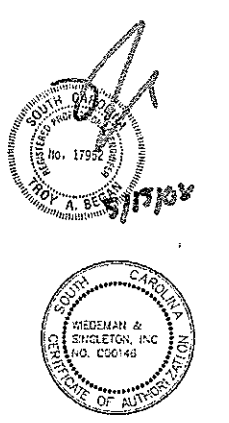
PIPING PLAN  
1/4" = 1'



SECTION 3-3  
FLOCCULATION BASIN  
INFLUENT PIPING SECTION  
1/4" = 1'



SECTION 2-2  
EXISTING PIPING  
INTERCONNECTION DETAIL  
1/4" = 1'



CITY OF ROCK HILL ROCK HILL, SOUTH CAROLINA WATER TREATMENT PLANT 2003 IMPROVEMENTS		
PIPING PLAN - TWO		
SCALE AS SHOWN	WIEDEMAN AND SINGLETON ENGINEERS	DRAWING C-3
DATE JUNE 2003	ROCK HILL SC	SHEET 5 OF 26

RECORD DRAWINGS MARCH 2008	
8/8/03	ADDENDA NO. 1
7/2003	BID READY
6/2003	SCDHEC SUBMITTAL
REV.	DATE
1	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY