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**TRANSMITTAL COVER SHEET**

**DATE:** August 15, 2024  
**PAGE:** 1 of 47(INCLUDING THIS PAGE)  
**TO:** ALL CONTRACTORS  
**FROM:** DENISE KING  
**PROJECT:** NEW LOXLEY WATER TREATMENT PLANT  
FOR THE CITY OF LOXLEY  
GMC PROJECT NO. CMOB220078(2)  
**RE:** ADDENDUM #5

**PLEASE COMPLETE BELOW AND RETURN IMMEDIATELY.**

Ashley Morris  
Email: [Ashley.Morris@gmcnetwork.com](mailto:Ashley.Morris@gmcnetwork.com)

I, the undersigned, hereby acknowledge receipt of this Addendum.

\_\_\_\_\_  
Authorized Representative of Contractor

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Contractor's License Number (if applicable)



# ADDENDUM NUMBER 5

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NEW LOXLEY WATER TREATMENT PLANT

FOR CITY OF LOXLEY

GMC PROJECT NO. CMOB220078(2)

## 1. General

- 1.1 The following revisions are hereby added as Addendum No. 5 to the referenced Project Manual and Plans and shall be considered when preparing bids.
- 1.2 The submission date for sealed bid proposal from general contractor bidders has been moved until 10:00 am local time, on **Thursday, August 22, 2024**. The location remains the same.

## 2. Revisions to Project Manual

- 2.1 A \$125,000 allowance has been added to the project to upgrade the City's SCADA system outside of the work in this project scope. The bid form and Specification 01 21 00 – Allowances have been revised and are included as an attachment to this addendum.
- 2.2 The size of the well pump has increased. Revised specification 33 11 13 – Water Supply Wells is included as an attachment to this addendum.
- 2.3 Due to the size increase of the well pump, several modifications have been made to the drawings and specifications. The revised drawings and specifications will be released in the next addendum. These modifications include, but are not limited to, the following:
  1. Variable Frequency Drives
    - a. The proposed and future well pump VFDs (VFD-P1100 & VFD-P1200) have increased in size from 50HP Heavy Duty to 150HP Heavy Duty.
    - b. Physical dimensions have increased.
    - c. Clarification: Specification 26 29 23 subsection 2.4.C does not apply to this project. The basis of design is a 6-pulse VFD (Square D Altivar 660). While Yaskawa is still an approved equivalent VFD manufacturer, the matrix conversion technology referenced in this subsection is specific to the Yaskawa U1000 VFD, which is not required in this project.
  2. Power Conditioning Unit (Accusine PCS+) 'PCU-A'
    - a. PCU-A has decreased from 300A (250kVAR) to 200A (167kVAR).
  3. Switchboard MSB-A
    - a. The circuit breakers feeding each well pump VFD have increased from 100A to 250A.
    - b. The circuit breakers for the following loads are intended to be 80% Rated in lieu of 100% Rated
      - i. Water Heater 'WH-1'
      - ii. Combination Motor Starter 'COMB-BLR3020'
      - iii. Transformer 'XFMR-TA'
    - c. The circuit breaker feeding the power conditioning 'PCU-A' has been reduced from 400A to 300A.
    - d. Clarification: 1200A CTs, furnished by the power conditioning unit equipment supplier shall be installed on the line side of the Main Circuit Breaker in 'MSB-A' by the electrical contractor. CT cables shall be installed between 'MSB-A' and 'PCU-A' in a 1" conduit by the electrical contractor.
  4. Disconnect Switches



- a. The rated ampacity for the local disconnect switches associated with each proposed and future well pump (DISC-P1100 & FUTURE DISC-P1200) have increased in size from 100A to 400A
- b. Two additional 240V, 30A, 2P, NEMA 3R, Fused Disconnects are required for additional mechanical equipment.
- 5. Panelboard 'LVA'
  - a. Two additional circuit breakers shall be installed for two additional mini-split HVAC units. 30A, 2P or per manufacturer requirements.
- 6. Lightning Protection
  - a. Lightning Protection layout has been modified to accommodate the increase overall building size.
- 7. Natural Gas Standby Generator 'GEN-1'
  - a. The standby generator has increased in size from 350kW to 550kW.
  - b. The output circuit breaker has increased from 600A to 1000A.
  - c. A 150kW radiator mounted load bank has been added to the genset package and shall be capable of automatically optimizing the total load seen by the generator via the integrated genset controller. It shall be fed by secondary output circuit breaker within the genset as required.
  - d. Fuel consumption @ 100% load has increased from 131m<sup>3</sup>/hour to 223m<sup>3</sup>/hour
  - e. Physical dimensions have increased.
  - f. The Generator & ATS concrete pad detail (7/E-901) no longer applies. It will remain in the planset, but shall only be considered as a "conceptual detail" A new structural detail will be provided in the next addendum.
- 8. Conductors & Conduit (NOTE: The tag number listed for each circuit below is intended to replace the tag number shown on the Electrical Drawings in the original bid set, see schedules for details)

FROM	TO	REVISED CIRCUIT REQUIREMENTS	ASSOCIATED CABLE SCHEDULE
GEN-1	ATS-1	SE-1000	Service Entrance Feeder Schedule
MSB-A	PCU-A	300-3WG	Wiring Schedule – Copper
MSB-A	VFD-P1100	250-3WG	Wiring Schedule – Copper
MSB-A	FUTURE VFD-P1200	2-1/2" SPARE CONDUIT	N/A
VFD-P1100	DISC-P1100	(1) VC-7	Shielded Cables for VFD Driven Motors
DISC-P1100	P1100	(1) VC-7	Shielded Cables for VFD Driven Motors
LVA	DISC-OMS-2	30-2WG	Wiring Schedule – Copper
DISC-OMS-2	OMS-2	30-2WG	Wiring Schedule – Copper
LVA	DISC-OMS-3	30-3WG	Wiring Schedule – Copper
DISC-OMS-3	OMS-3	30-3WG	Wiring Schedule – Copper

- 9. Electrical Room
  - a. The size of the electrical room has increased and the equipment layout has been modified.
  - b. Additional light fixtures have been included in the electrical room.
- 10. Mechanical
  - a. Two new mini-split HVAC units have been added (revised mechanical drawings in next addendum will reflect this).

**3. Attachments**

- 3.1 00410 Bid Form Proposal
- 3.2 01 21 00 Allowance
- 3.3 33 11 13 Water Supply Wells
- 3.4 S-602 Clearwell-Upper Plan



- 3.5 Architectural Drawings
- 3.6 Process Drawings

#### **4. Acknowledgement of Receipt**

4.1 Receipt of Addendum No. 5 shall be acknowledged in two ways:

4.1.1 Note on (EJCDC C-410) the Bid Form of the Project Manual – Bidder acknowledges receipt of “Addendum No. 5” and date of “August 15, 2024”.

4.1.2 EMAIL GMC immediately at [ashley.morris@gmcnetwork.com](mailto:ashley.morris@gmcnetwork.com) and confirm that addendum has been received and is legible.

#### **5. Conclusion**

5.1 This is the end of Addendum Number 5, dated Thursday, August 15, 2024.

**BASIS OF AWARD**

**LUMP SUM BASE BID**

The Bidder hereby proposes to accept as full payment for completion of the Project the amounts computed under the provisions of the Contract Documents and based on the following lump sum amount. The Bidder agrees that the lump sum price represents a true measure of the labor and material required to perform the work, including all allowances, overhead and profit for work called for. The Lump Sum (LS), including cash allowances, shall be shown in both figures and words. If a discrepancy exists between the amount stated in words and the amount stated in figures, the amount stated in words shall govern.

The Bidder acknowledges that the **Lump Sum amount includes the amounts for Allowances as listed below.**

**The Bidder agrees to perform all the work described in the Base Bid of the Contact Documents for the following lump sum price of**

\_\_\_\_\_ **DOLLARS**

**AND** \_\_\_\_\_ **CENTS**

**\$** \_\_\_\_\_

**subject to the reductions or additions resulting from price items, all in accordance with the following Schedule of Payment Items.**

**ALLOWANCES**

Allowances (Specification Section 01 21 00) may be used, as authorized and directed by the Engineer, to pay for costs of additional work resulting from the need for allowance items identified below. This work is not shown or specified in the drawings and not covered by another line item in the Bid. This work may be required in the event the Engineer or Owner establish the need for additional work deemed to be necessary for the completion of this contract. This cash allowance amount is to be included in the Lump Sum Base Bid, but is to be paid to the Contractor only if authorized as provided in this paragraph.

	<b><u>DESCRIPTION</u></b>	<b><u>UNIT PRICE</u></b>	<b><u>TOTAL PRICE</u></b>
1	Construction Staking	LS \$	5,000
2	Materials Testing	LS \$	75,000
3	Engineering Startup	LS \$	25,000
4	Unforeseen Conditions	LS \$	100,000
5	SCADA Upgrades	LS \$	125,000
		\$	330,000

The Bidder understands that the Owner reserves the right to reject any or all Bids and to waive any informalities in the Bidding.

## OWNER SELECTED EQUIPMENT/SUPPLIER

All Owner-Selected Equipment/Supplier items shall be bid according to the following:

The product(s) noted as "A" selection for each item of equipment listed in the following Owner-Selected Equipment/Supplier Schedule has been designated by the Owner for use in the Project. Contractor must bid base bid items. Where more than one product is noted as "A", Bidder must circle the item on which the bid is based. The Bidder may indicate substitute equipment/supplier by writing in a substitute for "B", and writing in the amount of deduction for the substitute equipment supplier.

The prior naming of substitute equipment/suppliers is based on a belief that the substitute should be able to furnish "equal" equipment/service as that specified, although it may not be the supplier's standard. Should the write-in substitute be disallowed by the Owner as "not equal" or "not desired", then the Bidders shall supply the circled "A" item. If no substitute is indicated, the Bidder must supply the circled "A" item. Should Bidder fail to circle one, or circle more than one, the Bid will be deemed by Owner to be based upon the first-listed equipment/supplier, and Bidder, if awarded the Contract, shall provide same.

The Bidder must supply a base bid for the Owner-Selected Equipment/Supplier items. The contract will be awarded based on the base bid. The Bidder may supply a deductive cost from the base bid for one of the products in the schedule below by writing in a substitute. This amount will be deducted from the base bid (after award) if the Owner in its sole discretion determines that the acceptance of the substitute product is in its own best interest. The Owner in its sole discretion may determine any substitute "not desired" and reject said substitute.

For comparable alternate named equipment "B", the furnished items shall fulfill the function and performance of the item specified and shall be of equal quality to base bid equipment "A"; any modifications required by the furnished alternate equipment to the structure, process, associated equipment, electrical or piping shall be include in the Alternate Bid price, and the completed installation of the item by the Contractor shall incur no additional cost to the Owner, including engineering cost to accommodate alternate supplier.

Additional substitutes will not be considered after receipt of the Bidder's Proposal.

Design of this project is based upon the manufacturer's equipment or product noted as "A" item in the schedule. Should a Bidder propose furnishing substitute equipment, the Bidder shall comply with the provisions in Specification Section 01 25 00 – Substitution of Major Equipment Items.

**Indicate the Base Bid manufacturer under "Manufacturer" below by circling the manufacturer used for the Lump Sum Base Bid Total.**

Item	Specification Section	Description	Manufacturer/Supplier		Amount of Alternate (\$+/-)
1	33 11 13	Water Supply Wells	A	Goulds	
			A	Peerless	
			A	American Marsh	
			B		\$
2	43 23 13	Vertical Turbine Pumps	A	Goulds	
			A	Peerless	
			A	American Marsh	
			B		\$
3	46 31 11	Gaseous Chlorination System	A	Regal	
			B		\$
4	46 33 44	Peristaltic Metering Pumps	A	Blue-White	
			A	Watson Marlow	
			B		\$
5	46 36 33	Volumetric Feed Equipment	A	Acrison	
			B		\$
6	46 71 00	Aluminum Induced Draft Aerators	A	Tonka	
			A	Deloach	
			B		\$

SECTION 01 21 00 - ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
  - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
  - 1. Lump-sum allowances.
  - 2. Testing and inspecting allowances.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
  - 1. Divisions 2 through 50

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Engineer of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Engineer's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Engineer from the designated supplier.

1.4 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified by Engineer.
- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.



- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 ALLOWANCES

A. Lump Sum

1. Allowance shall include cost to Contractor of specific products and materials ordered by Owner under allowance and shall include taxes, freight, and delivery to Project site.
2. Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner under allowance shall be included as part of the Contract Sum and not part of the allowance.
3. At Project closeout, credit unused amounts remaining in these allowances to Owner by Change Order.

B. Testing and Inspection

1. Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.
2. The allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspections result in failure. The cost for incidental labor to assist the testing agency shall be included in the Contract Sum.
3. Costs of services not required by the Contract Documents are not included in the allowance.
4. At Project closeout, credit unused amounts remaining in the testing and inspecting allowance to Owner by Change Order.

1.7 UNUSED MATERIALS

- A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Engineer, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Engineer, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

### 3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

### 3.3 SCHEDULE OF ALLOWANCES

- A. The following allowances shall be included in Contract Sum in accordance with the allowance type described above. Should the below allowances not be shown on the project proposal, the Contractor shall include them in the total bid cost.

1. Allowance No. 1: Lump Sum Allowance: Include the sum of \$5,000 for Construction Staking
  - a. Initial Construction Staking shall include the setting of benchmarks and the initial coordinate system for the Contractor's use which has already been performed and can be found on the plans.
  - b. The allowance set forth herein shall include all other construction staking which shall be the responsibility of the Contractor.
  
2. Allowance No. 2: Lump Sum Allowance: Include the sum of \$75,000 for Materials Testing
  - a. The allowance set forth herein shall include all materials testing which shall be the responsibility of the Contractor.
  - b. All materials testing (geotechnical, concrete, etc.) shall be paid for by the Contractor and included in the base bid (including the allowance).
  - c. The following information regarding Employment of and Payment for Testing Services under the work of Specifications shall take precedence over any conflicting statement otherwise, which may have remained in the Project Manual after editing:
    - 1) Initial testing required by the Contract Documents for Divisions 2, 3, 4 and 5 shall be provided by a testing agency pre-approved by the Owner & Contractor, and employed, and paid by the Contractor, from the Materials Testing Allowance for testing.
    - 2) Any retesting required (due to questionable materials or construction methods, for verification purposes, and etc.) shall be at the Contractor's expense when the results of such retesting indicate any work or materials do not comply with requirements of the Contract Documents.
    - 3) Any retesting under the above provisions shall be performed by the same Owner accepted testing agency.
  - d. The Contractor shall be responsible for contacting and directions to the accepted testing agency and for any follow-up communications required, for all testing required by the Contract Documents. Contractor shall copy Engineer on all materials testing correspondence and testing results.

- e. No unsuitable or unsatisfactory existing soils or building materials (other than work in Contract) shall be removed without either the presence of or concurrence of and prior approval of the Engineer and the accepted testing agency, so as to assure quality of the Work is maintained.
  - f. Contractor shall be required to have geotechnical analysis performed on any fill material to ensure it meets the earthwork/backfill specifications.
  - g. The Contractor may contact Kevin Wales at Goodwyn, Mills, & Cawood (205-879-4462) in Birmingham, Alabama for assistance with materials testing.
3. Allowance No. 3: Lump Sum Allowance: Include the sum of \$25,000 for Engineering Startup
- a. Startup/commissioning is a systematic process of ensuring that all systems perform interactively according to the design intent and the Owner's operational needs. The startup and commissioning process shall verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing contractors. The objective of functional performance testing is to demonstrate that each system is operating according to the Contract Documents. Functional testing facilitates bringing the systems from a state of substantial completion to full operation. The testing process shall identify areas of deficient performance and these areas shall be corrected, improving the operation and functioning of the systems. The allowance set forth herein shall include assistance with engineering startup and commissioning activities to ensure areas of deficient performed are operation and functioning as designed and intended.
4. Allowance No. 4: Lump Sum Allowance: Include the sum of \$100,000 for Unforeseen Conditions
- a. This allowance may be used, as authorized and directed by the Engineer, to pay for costs of additional work resulting from the need to address minor items at any of the facilities in which work is being performed and throughout the plant. Cost amounts shall be determined as specified in the General Conditions for Lump Sum changes or Time and Expense changes. This work is not shown or specified in the drawings and specifications bid by the Contractor and not covered by another line item in the bid. This work may be required in the event the Engineer or Owner established the need for additional work deemed to be necessary for the successful completion of the contract. This cash allowance is to be included in the Lump Sum Base Bid, but is to be paid to the Contractor only if authorized as provided in this paragraph.
5. Allowance No. 5: Lump Sum Allowance: Include the sum of \$125,000 for SCADA Upgrades.
- a. This allowance shall be used for the upgrades to the City's SCADA system outside of the work at the new WTP shown in the contract drawings and specifications. All of this work shall be done by the Systems Integrator. The scope generally includes the following:
    - 1) Field discovery work as required.
    - 2) Meetings with owner for design and control strategy and phased cutover plan.

- 3) Purchase successor components for each site (8 sites+1 spare)
  - a) Radio
  - b) Power Supply & UPS
  - c) PLC
  - d) Antenna/Surge Protection/Cabling as problematic sites are identified
- 4) Program/configure radio and PLC for each site.
- 5) Create updated drawing package and Network Diagram for IP based network.
- 6) Factory Test System Radio Communication.
- 7) Field Installation in parallel with existing system replacing one at a time and removing master RTU last to not disrupt entire system.
- 8) VTScada Updates including reports, trends, alarm notification.
- 9) Training on new system.
- 10) Guidance on correct FCC licensure and update licensure as required.

END OF SECTION 01 21 00

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SECTION 33 11 13 – WATER SUPPLY WELLS (REVISED ADDENDUM 5)

PART 1 - GENERAL

1.1 GENERAL:

- A. The production well is currently being drilled by Johnson Well Drilling. The well outer and inner casing, screens, and gravel pack will be installed and capped above ground as part of the well drilling project.
- B. The work covered under this Contract consists generally of the installation of the well pump and motor and related appurtenances inside the well and the construction of the pump foundation, discharge head and concrete apron around the well. Also covered under this Contract is the installation of above-ground piping, valves, meters, etc. for the well, which are covered in other Specifications in this manual.
- C. All work and materials shall be in accordance with applicable sections of AWWA A100.
- D. The well pumping equipment shall be provided and installed by the pump manufacturer's representative that is a licensed and certified well driller and has experience in constructing public water supply wells and related work. The well driller may be required to submit a satisfactory experience and qualification record to the Owner/Engineer.
- E. All requirements concerning licensed well contractors, well construction, water samples, water quality and well testing and other related matters contained in the latest release of Regulations Governing Public Water Supplies issued by the Alabama Department of Environmental Management Water Supply Division are hereby incorporated into these Specifications.
- F. There is a required one (1) year warranty on the well pumping equipment manufacture and installation as specified elsewhere in these Specifications.
- G. The pump supplier shall have a service center located within fifty (50) miles of the site.

1.2 PROCEDURES AND METHODS:

- A. Notwithstanding any general clauses, wording, paragraphs, or other references contained in the plans, specifications, general conditions or elsewhere in the Special Provisions the Engineer is not charged with the responsibility of directing the actual procedures and detail methods of construction to be used by the Contractor in accomplishing the work contained in the contract between the Owner and the Contractor, nor is the Engineer responsible to act as superintendent, foreman, or safety engineer for the Contractor, nor for the safety of the Contractor's personnel.

1.3 REGULATIONS:

- A. All work, test procedures, etc., shall be in accordance with the latest Administrative Code, Division 7, Alabama Department of Environmental Management, herein referred to as the Regulations.

1.4 SUBMITTALS:

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information for materials of construction and fabrication.
- C. Shop Drawings:
  - 1. Submit detailed dimensions for materials and equipment, including wiring and control diagrams, performance charts and curves, installation and anchoring requirements, fasteners, and other details.
  - 2. Include manufacturer's specified displacement tolerances for vibration at operational speed specified for pumps.
- D. Critical Speed Analysis: Identify speeds at which pumps will be prone to damaging vibrations.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements. Include separate Paragraphs for additional certifications.
- F. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures, anchoring, and layout.
- G. Source Quality-Control Submittals: Indicate results of shop/factory tests and inspections.
- H. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- I. Manufacturer Reports: Certify that equipment has been installed according to manufacturer instructions

PART 2 – PRODUCTS

2.1 WELL PUMP:

- A. Description:
  - 1. The pump to be installed shall be a water-lubricated, vertical turbine line-shaft well pump of heavy construction throughout and suitable for continuous operation at the conditions specified.
- B. Manufacturer:
  - 1. Xylem Goulds Water Technology
  - 2. Peerless
  - 3. Or Approved Equal
- C. Performance and Design Criteria:
  - 1. Design Flow Rate: 1,000 GPM
  - 2. Design Total Dynamic Head: 450 FT
  - 3. Minimum Efficiency at Design Flow: 80%
  - 4. Minimum Column Diameter: 8-inch
  - 5. Pump Discharge Size: 10-inch

6. The exact design flow rate and design TDH are not currently known. The design criteria listed above are expected maximum numbers to be used as a basis of bid. Results from the production well drilling will be provided to the Contractor when available.

**D. Pump Base:**

1. The pump base shall be of extra heavy construction throughout and of sufficient size to properly support the column, bowl and driver. It shall be of cast iron or carbon steel construction, fitted with a flanged outlet connection, a machine steel sole plate. The sole plate shall have an extra heavy separate steel baseplate machined to provide water tight seal against the sole plate. The baseplate shall be perfectly leveled and permanently grouted into the concrete foundation. The grouting shall provide a water proof seal. The discharge flange shall be faced and drilled to match ANSI Class 125 steel flange connections. The design shall permit the vertical hollow shaft motor drive shaft to be coupled above the stuffing box. The discharge head shall be of the shrouded type with a 1/2-inch, minimum, NPT drain connection so that the relief water from the stuffing box and water leaking around the packing gland can be collected and piped away from the well site. The discharge base will be designed to withstand the pressure produced by the pump at shut off head as the pump may be operated against a closed valve. The motor drive shaft shall be the same diameter as the line shaft and shall be manufactured of 416 stainless steel. The coupling to connect the motor drive shaft to the line shaft shall be manufactured of 416 stainless steel and the O.D. of the coupling shall be machined. The shaft above the stuffing box shall be equipped with a rubber water slinger to protect the motor. The discharge base shall also be fitted with a connection for the pre-lubrication water line.
2. Cast iron stuffing box shall be of the deep bore type with a minimum of five (5) rings of packing and a seal cage. Connections for grease inlet and pressure relief shall be provided. The packing gland shall be of the bronze split type and severed in place with ASTM A193, Grade B8 stainless steel studs and silicon bronze nuts. The bottom of the stuffing box casting shall be provided with a bronze bearing of adequate length to prevent shaft deflection through the box and to serve as a throttle bushing. The stuffing box will be designed to withstand pressure produced by the pump at shutoff head as the pump will operate against a closed valve.
3. The pump base shall be equipped with two fittings through which to pass a 3/8" air line and install a 2" cap.

**E. Column Pipe:**

1. Column assembly shall be flanged-connected to the discharge head. Column pipe shall be of ASTM A53, Grade B steel pipe. Ends shall be machined with 8 threads per inch and faced. Intermediate sections of column shall not exceed ten feet (10'). Top and bottom section of column pipe shall not exceed five feet (5'). All column pipe couplings shall be steel, long pattern, fully threaded to allow the installation of a machined SAE 43 bronze drop-in spider bearing retainer that has a 3/4" thick web for column pipe joints to tightly butt against. The line shaft bearing shall be of synthetic rubber (R-3). The external shape of the bearing shall be such as to retain it in the spider without use of auxiliary collars or rings. The shape of the bearings shall be polygon to provide minimum friction contact to the shaft. Replacement bearings shall be capable of being installed by hand without special tools. Line shafts shall be of A276, Type 416 stainless steel ground and polished with a surface not to exceed 40 rms. Shaft diameter selection shall be based on a combined shear stress of not more than eighteen percent (18%) of the



ultimate strength or not in excess of thirty percent (30%) of the elastic limit in tension. Intermediate shaft sections shall be interchangeable and shall not exceed ten feet (10') in length. The butting ends shall be machined square to the axis of the shaft and shall be threaded and coupled by stainless steel couplings designed with a safety factor of 1 1/2 times the shaft factor.

2. Column Pipe: 8" x 0.322" carbon steel epoxy coated

F. Pump Bowls:

1. The pump bowls shall be constructed of ASTM A48 Class 30 cast iron and shall be so designed to operate in accordance with the pumping conditions as specified. Each bowl interior shall be enameled to provide smooth passage of water and increase efficiency. The bowl exterior shall be epoxy coated. The impeller shaft shall be Type 416 stainless steel and of sufficient size to carry the full load of the impellers. Each stage shall be fitted with a removable bowl wear ring and the impellers shall be of the fully enclosed type, non-overloading and so designed that the motor will not be overloaded nor the pump break suction in the event the above ground head is removed from the pump. The impellers, wear rings and bushings shall be bronze, SAE 43 or SAE 660. The bowls shall be set with a minimum submergence of 30 feet below the drawdown level attained when pumping at the rated capacity.

G. Suction Pipe:

1. The pump bowl shall be equipped with not less than thirty (30') feet of standard weight suction pipe. The inlet shall include a Type 304 stainless steel inlet strainer.

H. Air Line:

1. The pump assembly will be equipped with an air line for monitoring water levels. The air line shall be 3/8-inch (minimum inside diameter) red brass pipe, 3/8-inch copper tubing or 3/8-inch polyethylene tubing attached to the discharge column from the pump head to a point 20 feet below the pump bowls. The installation shall be made in such a manner as to prevent the intrusion of foreign matter. Piping, fittings, air valves and a pressure gauge indicating pressure in feet shall be provided and mounted to facilitate water level and drawdown monitoring.
2. In addition, a 2-inch diameter casing access portal shall be installed and capped to allow direct measurement of the water level by tape or 3/4-inch probe.

2.2 MOTOR:

- A. The electric motor shall be manufactured by U.S. Motors. The electrical motor shall conform in construction and performance with the National Electrical Manufacturers Association standards for motors as last revised. It shall be of the squirrel cage, low starting current type in vertical, weather-protected frame. The motor shall be the vertical hollow shaft type for high trust with 40-degree centigrade rise, Class B insulation WP-1 enclosure with epoxy encapsulated windings. The service shall be 480V, 3-Ph, 60 Hz; WP-1 "Premium Efficiency Inverter Duty Rated". Motor shall be rated with 1.15 service factor, and shall have a non-reverse ratchet.
- B. The rotors shall run in the ball bearings provided with adequate means of continuous lubrication. The thrust bearing shall be of ample size to carry the thrust load of the pump, the

weight of the shaft, couplings and impellers without overheating. It shall be of ample size to insure long life when operating continuously in carrying maximum load. Minimum thrust rating allowable as by Anti-Friction Bearing Manufacturers Association (A.F.B.M.A.) is 175% of Standard High Trust. The motor shall be overloaded, operating continuously or intermittently at any point on the pump operating curve.

**2.3 MISCELLANEOUS:**

- A. Data Plates: The pump shall be equipped with a data plate securely fastened to the pump that contains the manufacturer's name, pump size and type, serial number, pump speed, impeller data, capacity and head rating, and any other pertinent information.
- B. Testing: The pump shall be performance tested prior to shipment to confirm pump performance. Test shall comply with ANSI/HI 14.6 Grade 1U requirements, and shall include, but not be limited to, checking the unit at its rated speed, capacity, head, efficiency, and brake horsepower at such conditions of head and capacity so as to properly establish the actual performance curve. Certified copies of the test reports shall be submitted for review prior to shipment. The Standards of the Hydraulic Institute shall govern the procedures and calculations for the prescribed testing.

**PART 3 - EXECUTION**

**3.1 DISINFECTION:**

- A. Before mobilizing any drill rig or other equipment potentially having contact with the aquifer through physical contact or through the transport of fluids, such equipment shall be decontaminated using steam, mechanical cleaning, or disinfection with a chlorine bleach solution applied by a hand sprayer. Thereupon, the exterior of all drill rigs, tools, and equipment shall be cleaned. The purpose of the decontamination shall be the prevention of the introduction of iron bacteria or other bacteriological contaminants to the aquifer.
- B. After the pumping equipment has been installed and the well is completed, the installation shall be disinfected by introducing a chlorine solution into the well and starting and stopping the pump until the solution has been thoroughly mixed with the water. The solution shall contain 50 ppm of chlorine and shall remain in the well for a period of 12 hours. The well shall then be pumped to waste until an orthotolidine test indicates that all chlorinated water has been pumped out.
- C. The Contractor shall secure three (3) sterilized sample bottles from the nearest State Testing Laboratory and carefully obtain samples of the water. The bottles shall be promptly delivered to the nearest branch Laboratory. If the report on the samples is not satisfactory, the Contractor shall re-disinfect the well for as many times as is necessary to obtain a satisfactory report.

**3.2 WELL CAPACITY TEST:**

- A. The pumping equipment installer will be required to perform a well capacity test utilizing a temporary test pump of suitable size. The test shall be conducted in accordance with ADEM Administrative Code 335-7-5. The approximate design capacity will be determined as part of the well drilling project. The maximum test capacity shall be 150% of the design capacity.

- B. The capacity test shall be run at design capacity until the water level in the water supply well has stabilized (+/- 1.0 foot) and shall then be continued for a period of 24 hours with water level readings collected at regular intervals (the test shall be run for 21 hours after the drawdown has shown to remain constant for three consecutive hourly readings). The pumping rate shall then be increased to the maximum test capacity and shall continue to run until the water level is stabilized (+/- 1.0 foot) and shall then continue to run for a period of six (6) hours with water level readings collected at regular intervals. Immediately upon pump shut-down a full recovery test shall be performed. The conduction of the well capacity test shall meet the requirements of the Measurement section below.
- C. Measurements:
1. The pumping test shall be conducted to determine the aquifer storage coefficient and transmissivity. Accurate drawdown readings shall be taken in both the production well and observation well simultaneously. Water levels shall be recorded three times within one day prior to the start of the capacity test and within five (5) minutes of the start of the test to provide background water level information. Drawdown readings shall be taken at two-minute intervals the first hour of the test; at five-minute intervals the second hour; at ten-minute intervals for the next two hours; thirty-minute intervals for the next two hours; and hourly thereafter to the end of the test. Drawdown data collected during the period of the test shall be corrected for changes in barometric pressure and tidal oscillations.
  2. Immediately upon pump shut-down a full recovery test shall be performed. Water level recordings shall be made no less than one-minute intervals the first ten minutes; two-minute intervals the next ten minutes; five-minute intervals the next thirty minutes; and ten-minute intervals until practical recovery

### 3.3 WATER QUALITY:

- A. During the testing of the water supply well capacity (pumping test) periodic water samples shall be taken during the pumping test and analyzed for turbidity. Complete analysis shall be performed for Primary and Secondary drinking water containments per chapters 335-7-2 and 335-7-3 of the ADEM Administrative Code. All other samples shall be stored in clean glass containers for future analysis if needed. A complete chemical analysis to include inorganic, radiological and VOC (regulated and unregulated) analysis shall be performed. The analyses must be performed by a laboratory certified by the Alabama Department of Environmental Management. Levels of primary and secondary contaminants shall be reported along with pH, total alkalinity, carbon dioxide, calcium, magnesium, hardness, sodium, and specific conductance

### 3.4 WELL PUMP:

- A. Well Pump:
1. The well pump shall be furnished, set, aligned and made fully operational by the licensed well driller. The Contractor shall employ a factory-trained engineer to supervise the installation and alignment of all items of mechanical and electrical equipment. He shall see that all items of equipment are installed, piped and wired in accordance with the manufacturer's recommendations, and shall place all equipment in satisfactory operation and demonstrate such to the satisfaction of the Owner/Engineer. The Contractor shall guarantee the satisfactory operation of all apparatus and machinery against defects in workmanship, materials and installation for a period of one (1) year.

**B. Pump Foundation:**

1. After the well has been completed and the Contractor, Engineer and Owner have reviewed all results from the Well Completion Report and after the Contractor has been given the authorization to proceed, the Contractor may begin construction of the pump foundation and pumping equipment. The foundation shall consist of Class A concrete and be formed in a workmanlike manner with chamfered edges on the sides and top. All unsuitable soils around the casing pipe shall be removed and approved fill material placed as specified elsewhere.
2. The top of the foundation shall be set approximately 12-inches above ground. The bottom of the foundation shall be carried to a firm bearing capacity of 2,500 psf and not less than 2-feet below the surface. The concrete foundation shall be at least 2-feet square and the exposed surfaces shall be rubbed with a carborundum stone to remove form marks.
3. The Contractor shall provide a schematic drawing to the Engineer for approval of the pump foundation which shows the dimensions of the foundation, base plate design, details of the base plate-to-casing connection, airline and electric cable penetration, discharge elbow or tee, connections for pump removal, etc.
4. The Casing shall project a minimum of 12-inches above the finished concrete slab around the well.


**3.5 FIELD QUALITY CONTROL:**

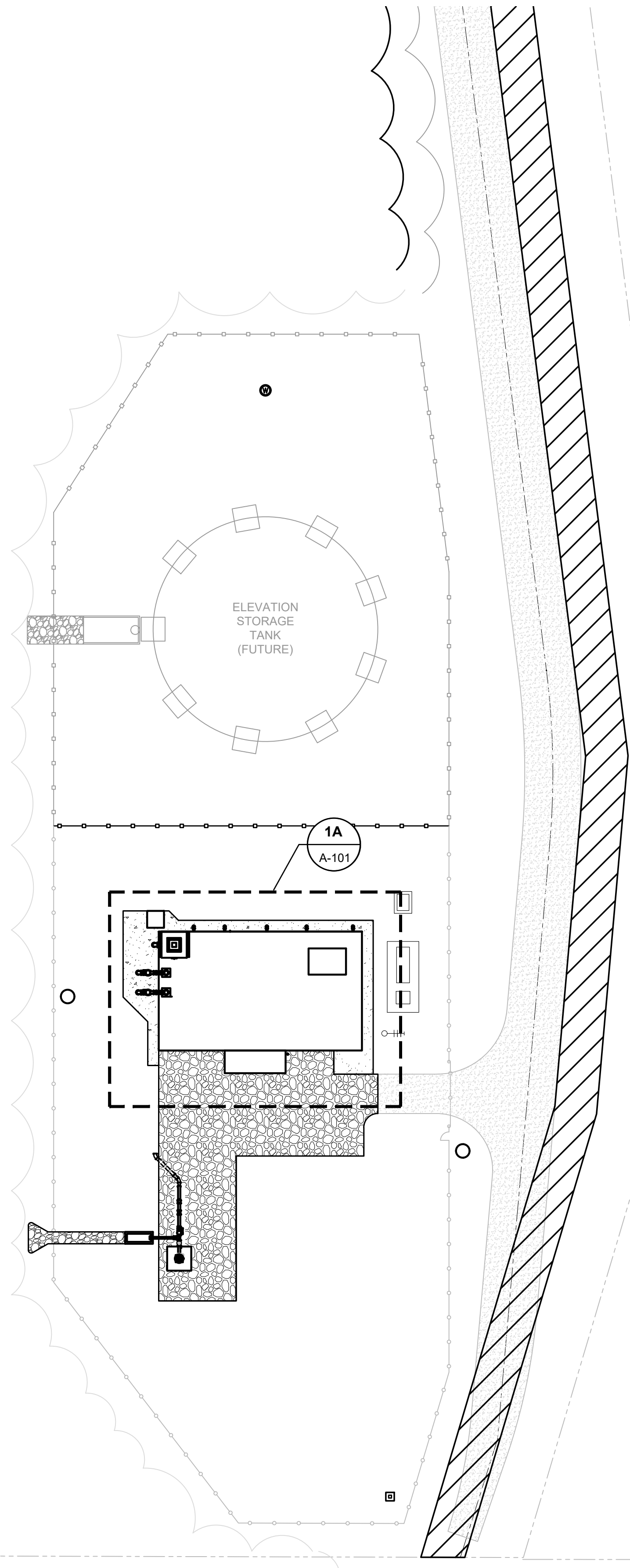
- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Section 01 70 00 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.
- C. Preoperational Check: Before operating system or components, perform following:
  1. Check pump and motor alignment.
  2. Check for proper motor rotation.
  3. Check pump and drive units for proper lubrication.
- D. Startup and Performance Testing:
  1. Operate the pump at the design point for a minimum continuous period of thirty (30) minutes, under supervision of manufacturer's representative and in presence of Engineer's Field Representative.
- E. Manufacturer Services: Furnish services of manufacturer's representative experienced in installation of products furnished under this Section for not less than two (2) eight-hour days on Site for installation, inspection, startup, field testing, and instructing Owner's personnel in maintenance of equipment.
- F. Check pump and motor for excessive vibration according to manufacturer instructions. Check for motor overload by taking ampere readings.
- G. Equipment Acceptance:

1. Adjust, repair, modify, or replace system components that fail to perform as specified and rerun tests.
2. Make final adjustments to equipment under direction of manufacturer's representative.

END OF SECTION 33 11 13

DRAWING FILE: T:\Projects\ALL\Loxley, City of\CMOB220078\02 - New WTP\0 DWG+PLANS\01 Bid Drawings\07 ARCHITECTURAL\A-001.dwg  
PLOTTED: Mar 27, 2024 - 2:35pm

 **1** **SITE PLAN**  
A-001 SCALE: 1" = 30'



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**ARCHITECTURAL  
SITE PLAN - KEY**

**A-001**



**NEW LOXLEY WATER  
TREATMENT PLANT**  
FOR THE CITY OF LOXLEY  
LOXLEY, ALABAMA

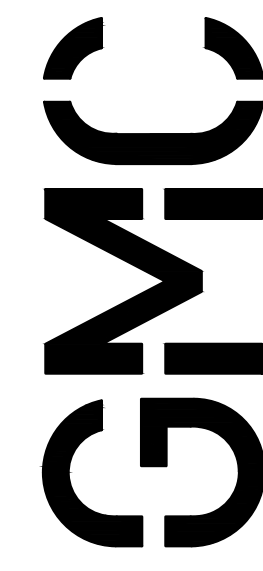
**GMC Project #CMOB220078(2)**

ISSUE	DATE
60% Submittal	07.25.2023
90% Submittal	10.20.2023
Bid Set	03.29.2024

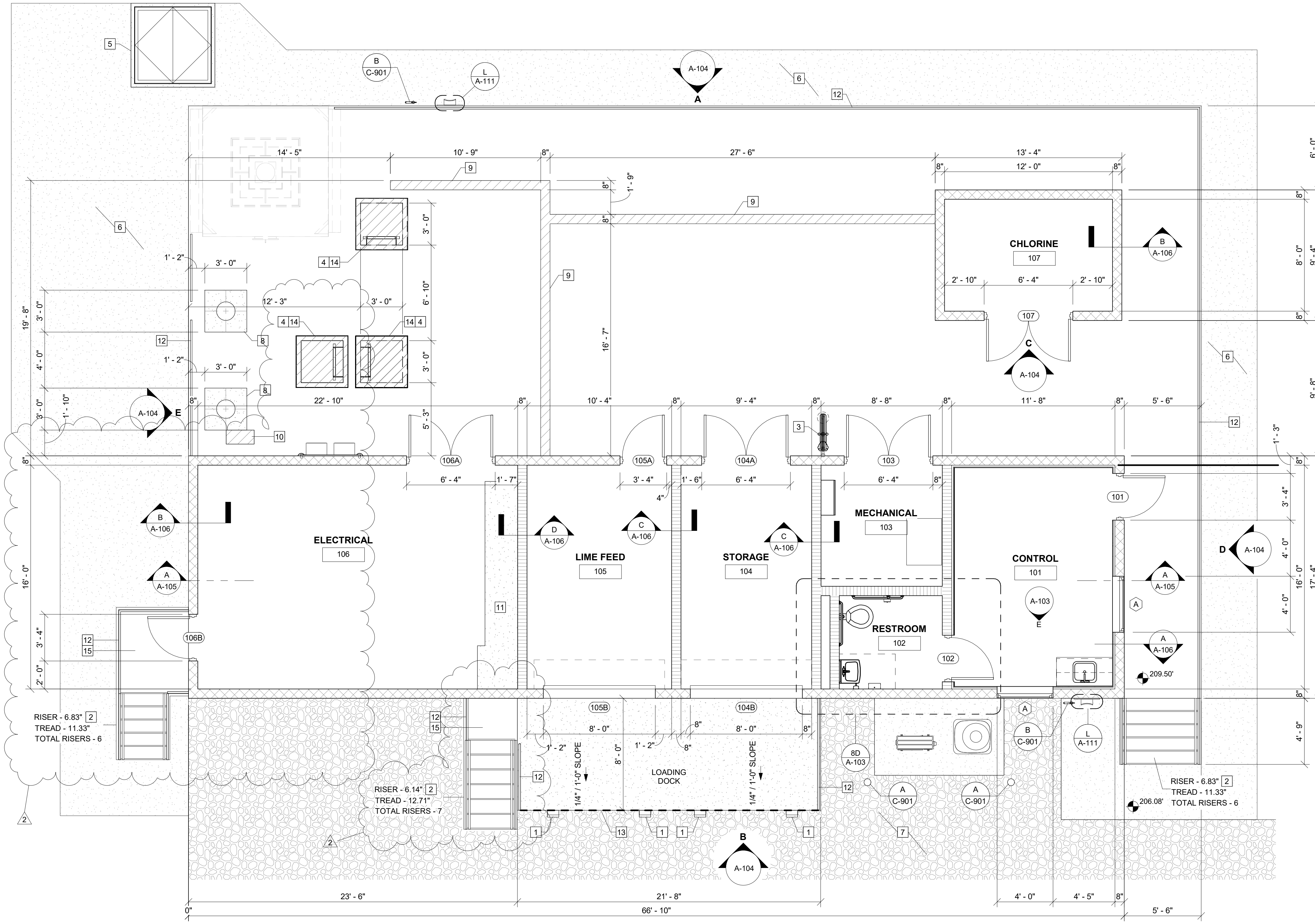
Project Manager:	DK
Engineer:	DT
Designer:	DT
Drawn By:	HKD

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BM 360://loyley/CMOB220078(2)/Chemical and Admin Building - Loyley.rvt  
8/15/2024 8:38:16 AM

**1A FLOOR PLAN**  
A-101 SCALE: 1/4" = 1'-0"



- KEY NOTES:** #
- RUBBER BUMPERS
  - ALUMINUM STAIRS WITH HANDRAIL
  - EMERGENCY SHOWER & EYEWASH STATION
  - 6" TALL X 4" WIDE CONCRETE CURB WITH ALUMINUM CHECKERED PLATE
  - 60" SQUARE DOUBLE LEAF DRIP PROOF HATCH
  - CONCRETE SIDEWALK
  - GRAVEL DRIVE
  - 8" TALL PUMP PAD
  - 8" WIDE X 6" DEEP TROUGH FOR CHEMICAL FEED LINES WITH CAST IRON HEAVY DUTY GRATING
  - METAL HATCH FOR WEIGHTED FLOAT LEVEL SWITCH
  - 4" TALL EQUIPMENT PAD
  - 3'-6" ALUMINUM HANDRAIL
  - REMOVABLE SAFETY CHAIN
  - FIBER REINFORCED PLASTIC LADDER
  - STAIR LANDING

- PLAN LEGEND**
- 8" CMU
  - 8" WIDE X 6" DEEP TROUGH
  - 8" SPLIT-FACED CMU

NEW LOXLEY WATER TREATMENT PLANT FOR THE CITY OF LOXLEY, ALABAMA

CHEMICAL BUILDING PLAN

A-101

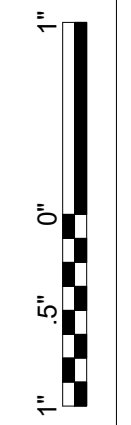
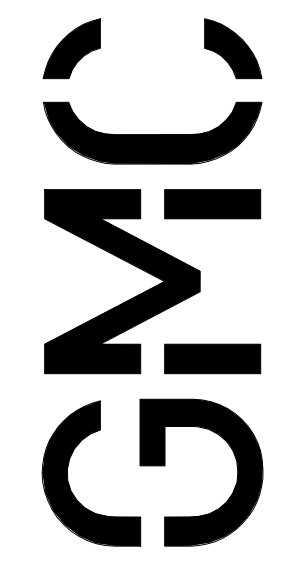
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Engineer: DT  
Designer: DT  
Drawn By: HKD

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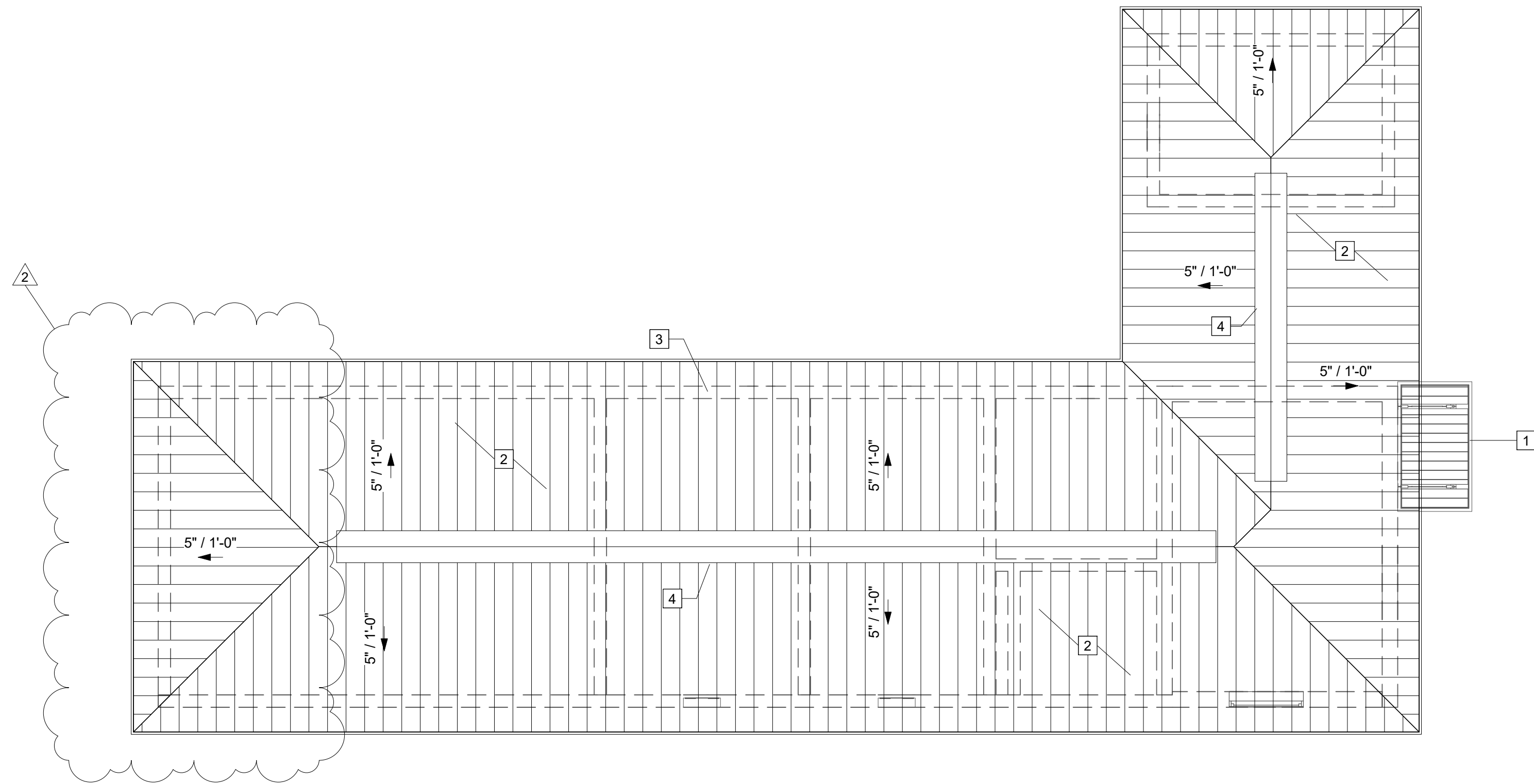


GMC Project #CMOB220078(2)

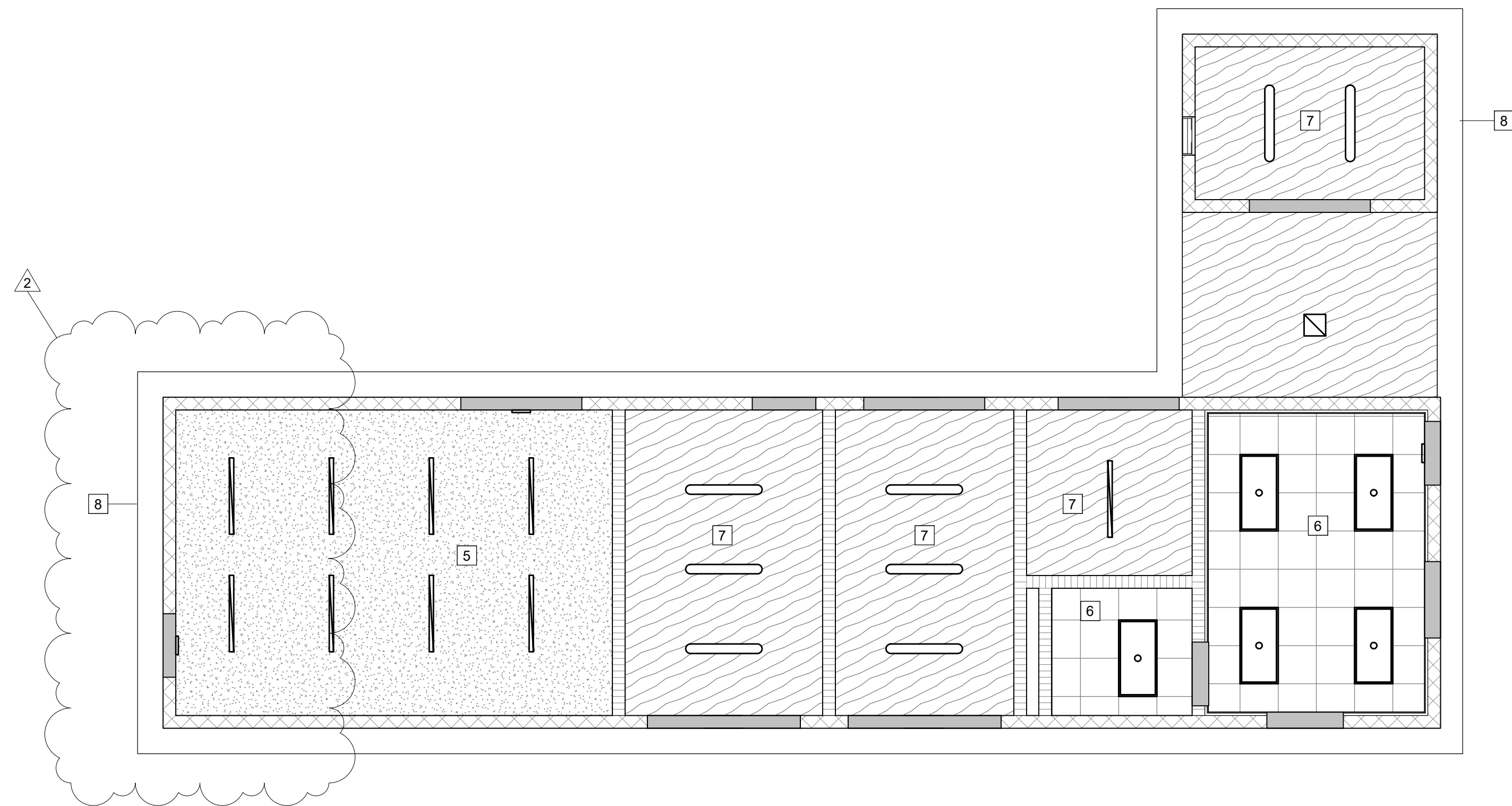


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**1B ROOF PLAN**  
A-102 SCALE: 3/16" = 1'-0"



**1C REFLECTED CEILING PLAN**  
A-102 SCALE: 3/16" = 1'-0"








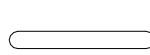

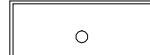
**REFLECTED CEILING PLAN NOTES**

1. LOCATION OF LIGHTS, DIFFUSERS, AND RETURN AIR GRILLES TO BE COORDINATED BETWEEN REFLECTED CEILING PLANS, LIGHTING PLANS, AND HVAC PLANS.
2. SEE SPECIFICATIONS FOR ADDITIONAL CEILING FINISH INFORMATION AND REQUIREMENTS. NOTIFY ARCHITECT W/ ANY DISCREPANCIES BETWEEN SPECIFICATION AND DRAWINGS.
3. WHERE EXIT SIGNS ARE LOCATED ABOVE DOORWAYS, CENTER W/ DOOR.

**KEY NOTES:** #

1. METAL AWNING
2. STANDING SEAM METAL ROOF SYSTEM
3. HIDDEN LINE INDICATES OUTSIDE FACE OF EXTERIOR WALL BELOW
4. RIDGE VENT
5. GYPSUM BOARD (FIRE RATED) ON FURRING CHANNEL
6. LAY-IN ACOUSTIC CEILING TILE SYSTEM
7. PLYWOOD ON LIGHT GAUGE STEEL FRAMING
8. VENTED VINYL SOFFIT

**LEGEND**

-  5/8" PAINTED GYPSUM CEILING
-  LAY-IN ACOUSTICAL TILE CEILING
-  STANDING SEAM METAL ROOF SYSTEM
-  PLYWOOD ON LIGHT GAUGE STEEL FRAMING
-  LIGHT FIXTURE - SEE ELECTRICAL
-  LIGHT FIXTURE - SEE ELECTRICAL
-  LIGHT FIXTURE - SEE ELECTRICAL
-  LIGHT FIXTURE - SEE ELECTRICAL

NEW LOXLEY WATER  
TREATMENT PLANT  
FOR THE CITY OF LOXLEY  
LOXLEY, ALABAMA



CHEMICAL BUILDING  
REFLECTED CEILING  
PLAN & ROOF PLAN  
**A-102**

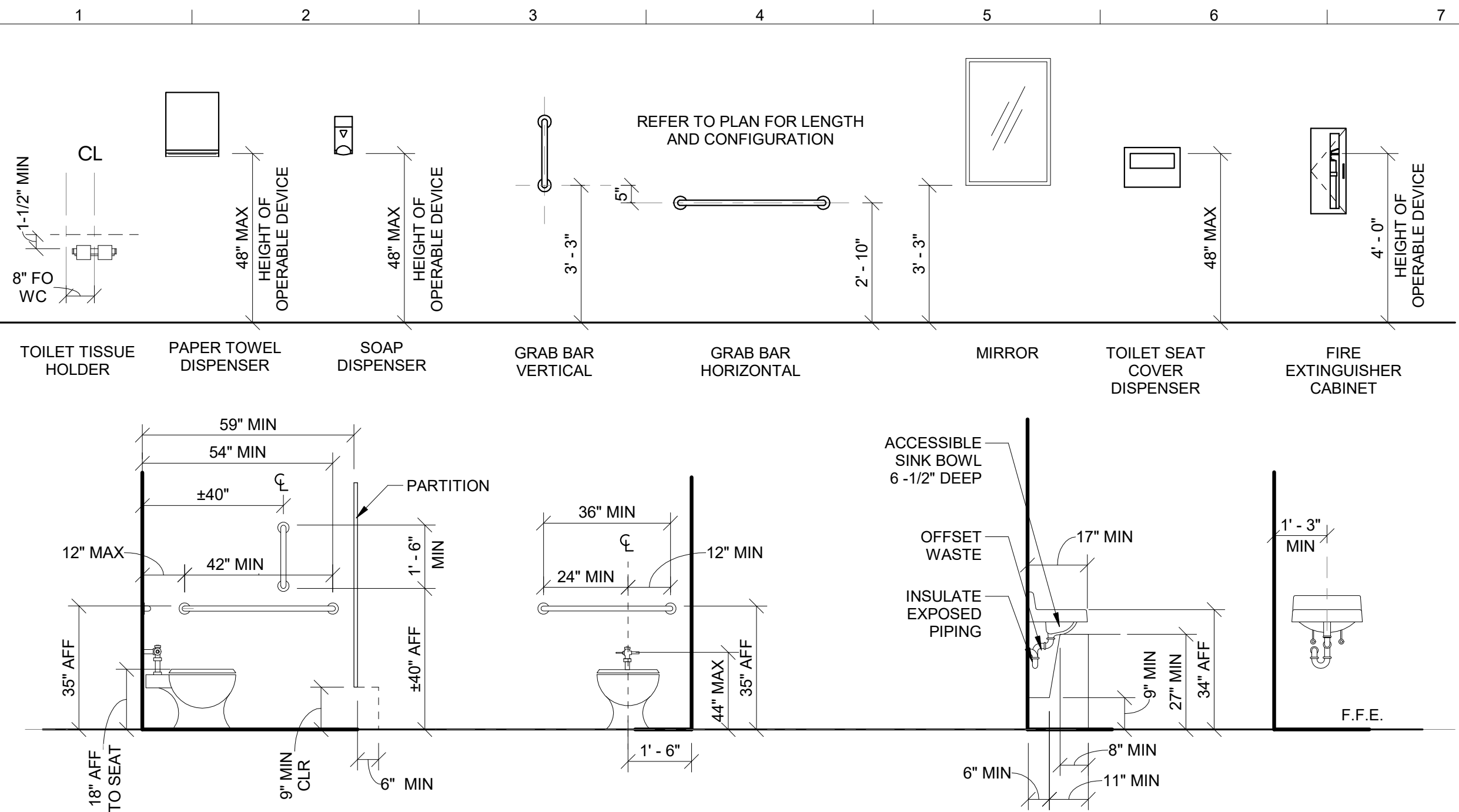
**GMC Project #CMOB220078(2)**

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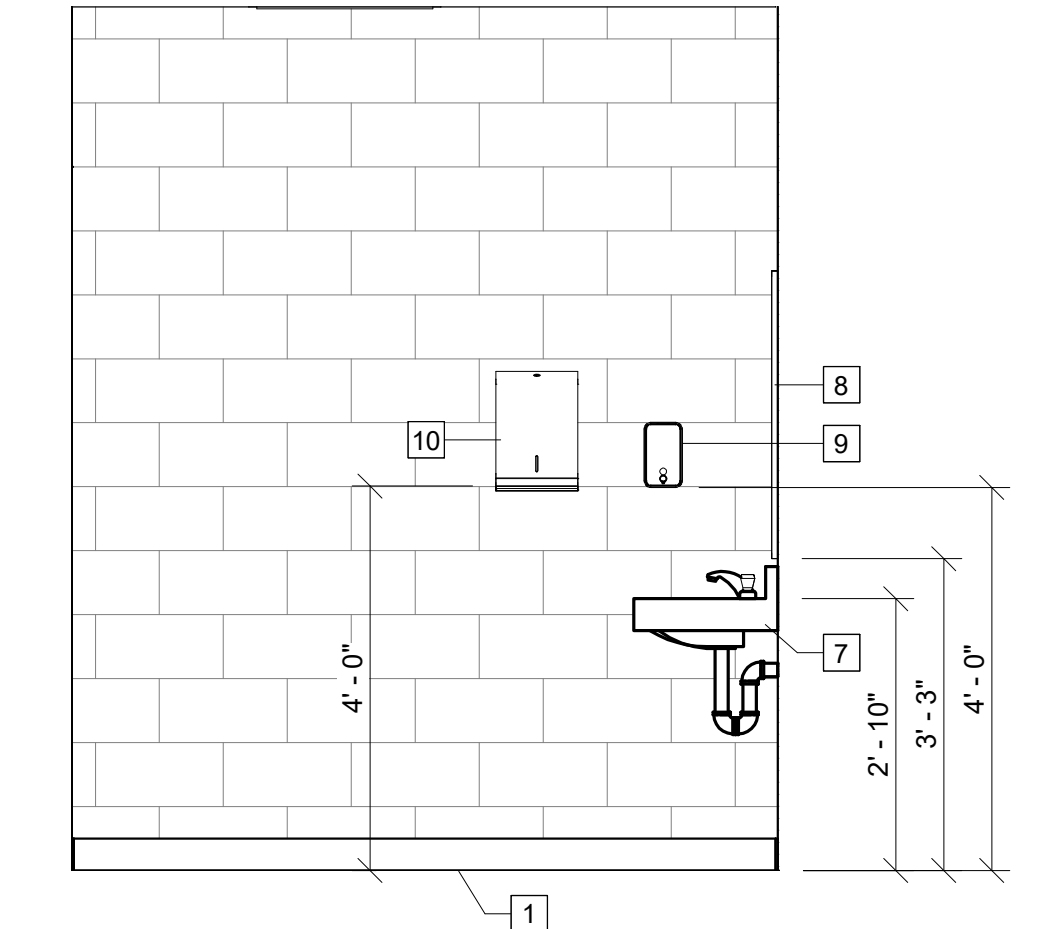
ISSUE	DATE	Project Manager:	DK
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Bid Set	03.29.2024	Drawn By:	HKD
REVISION 2	08.09.2024		



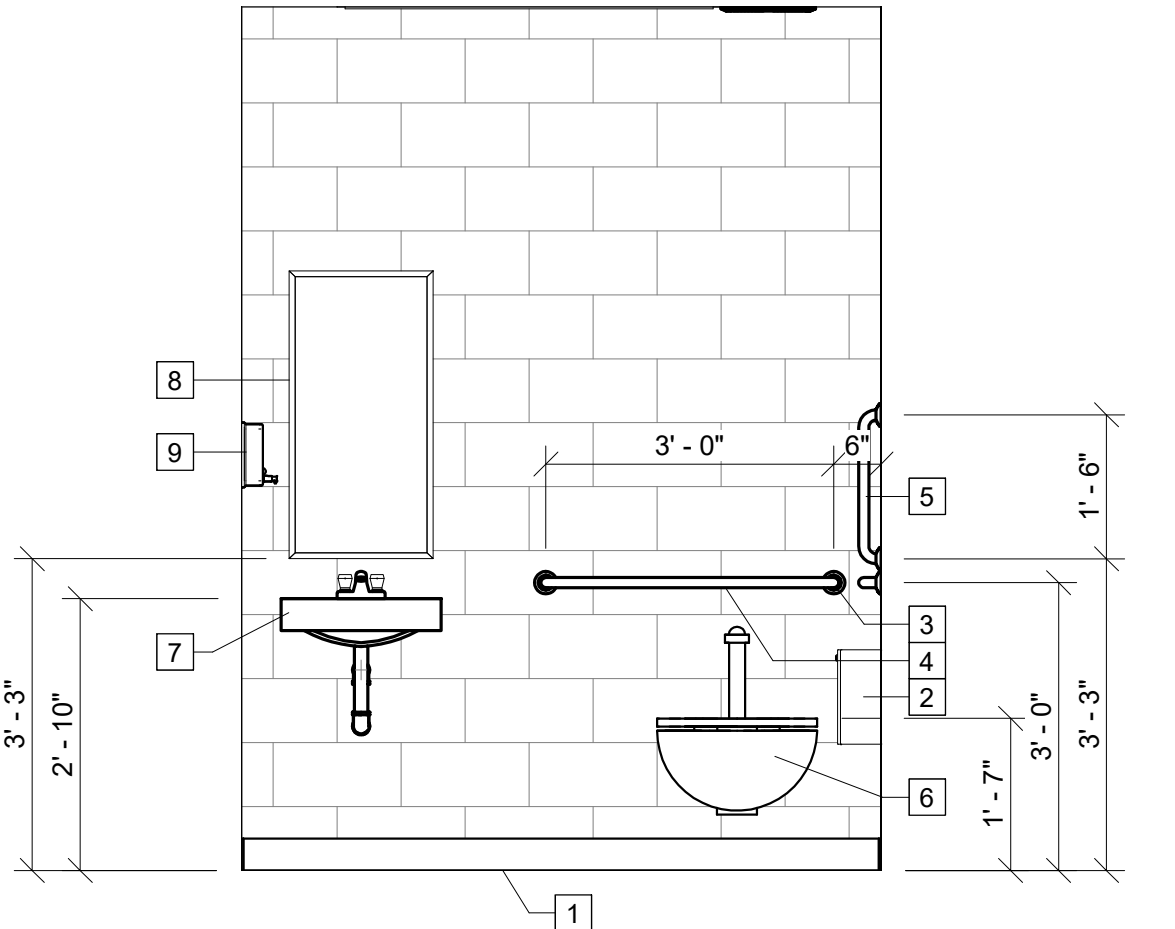




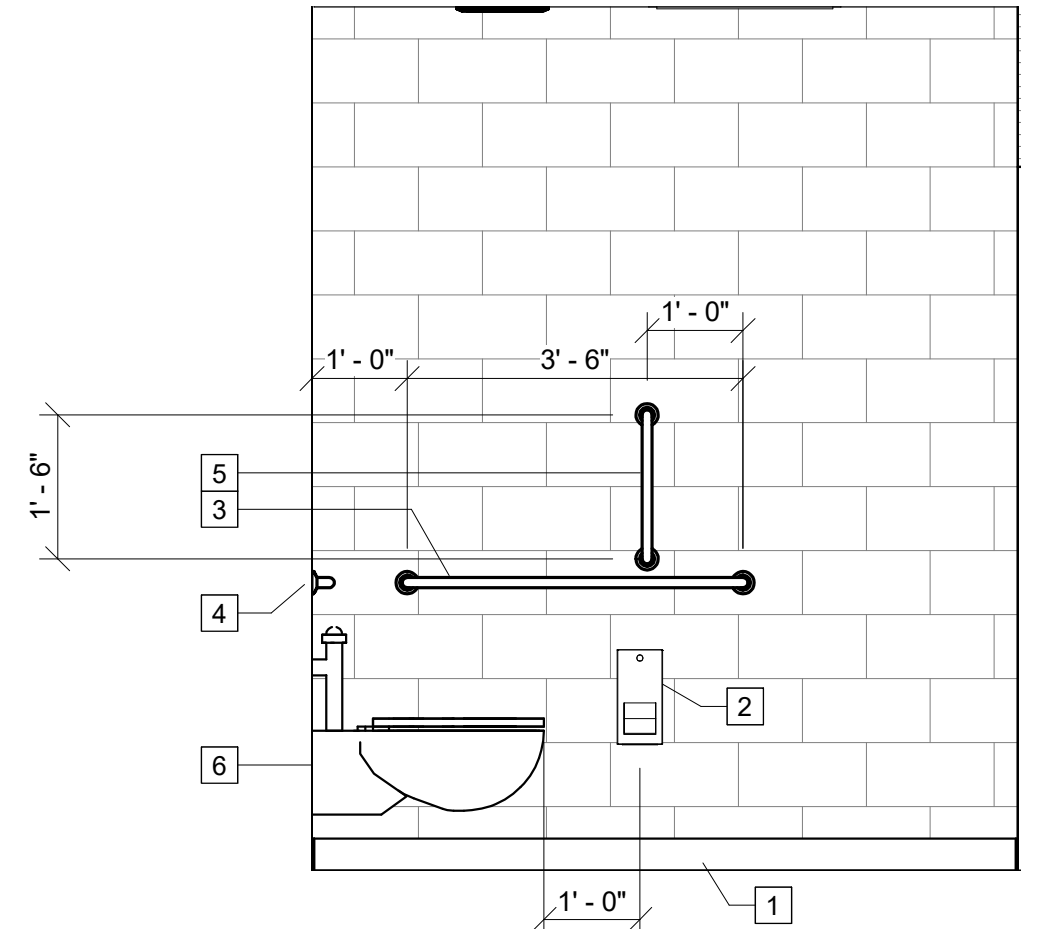
**A ACCESSIBLE MOUNTING HEIGHTS**  
A-103 SCALE: 3/8" = 1'-0"



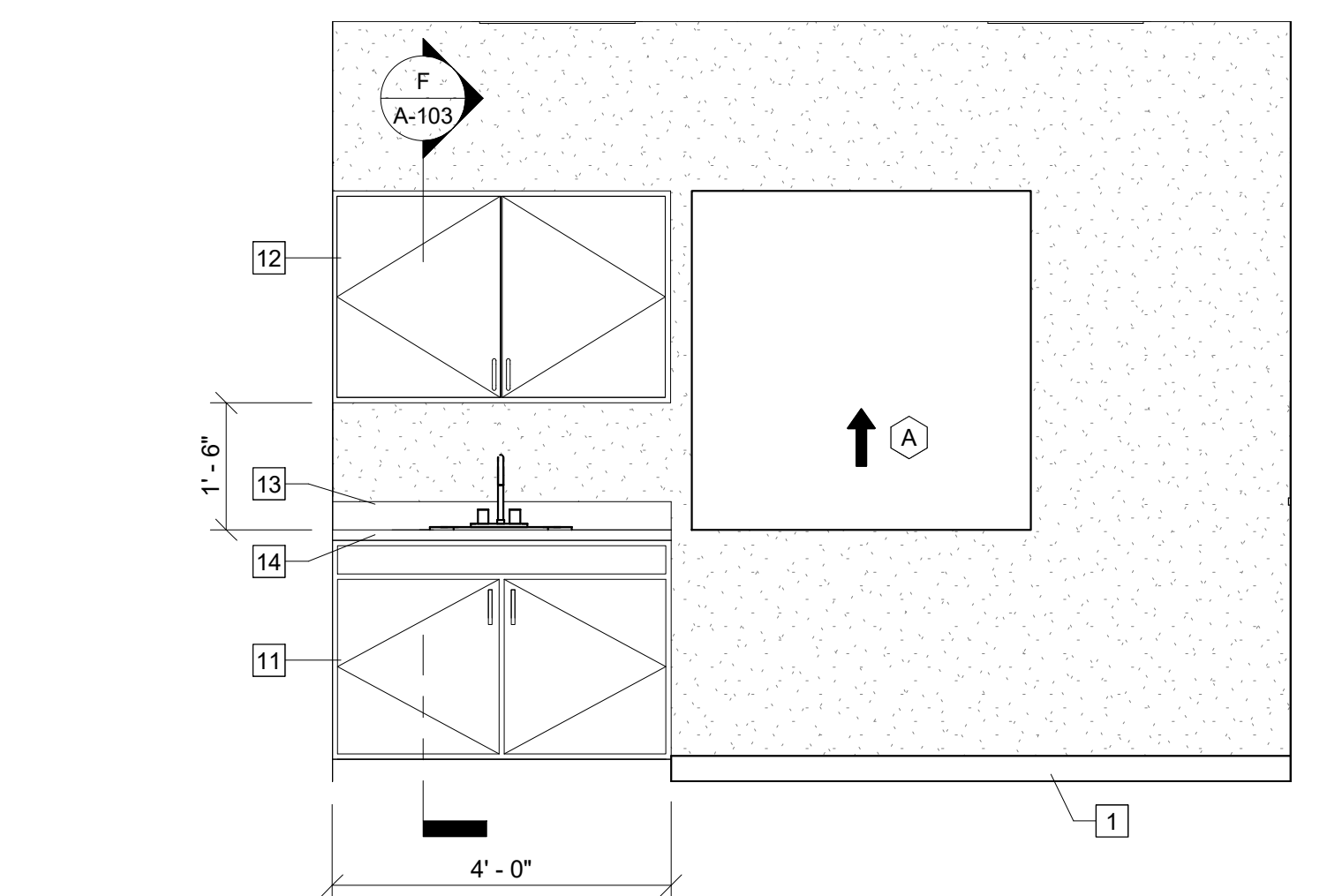
**B INTERIOR ELEV.**  
A-103 SCALE: 1/2" = 1'-0"



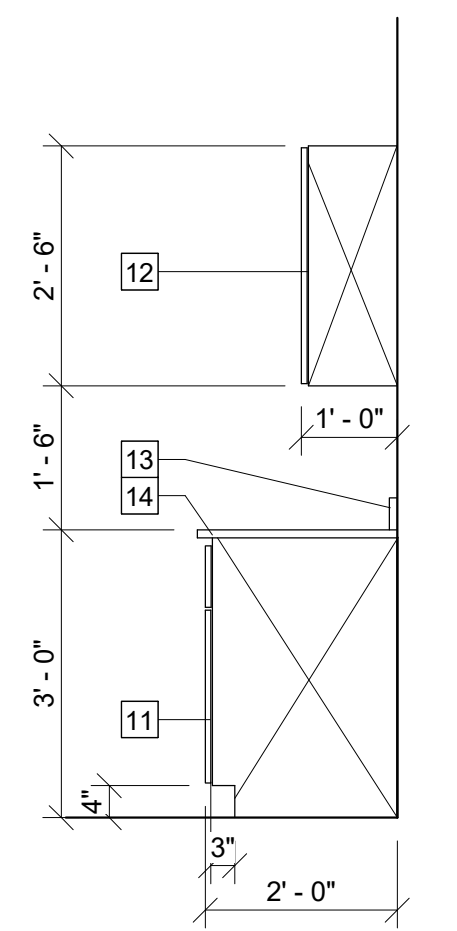
**C INTERIOR ELEV.**  
A-103 SCALE: 1/2" = 1'-0"



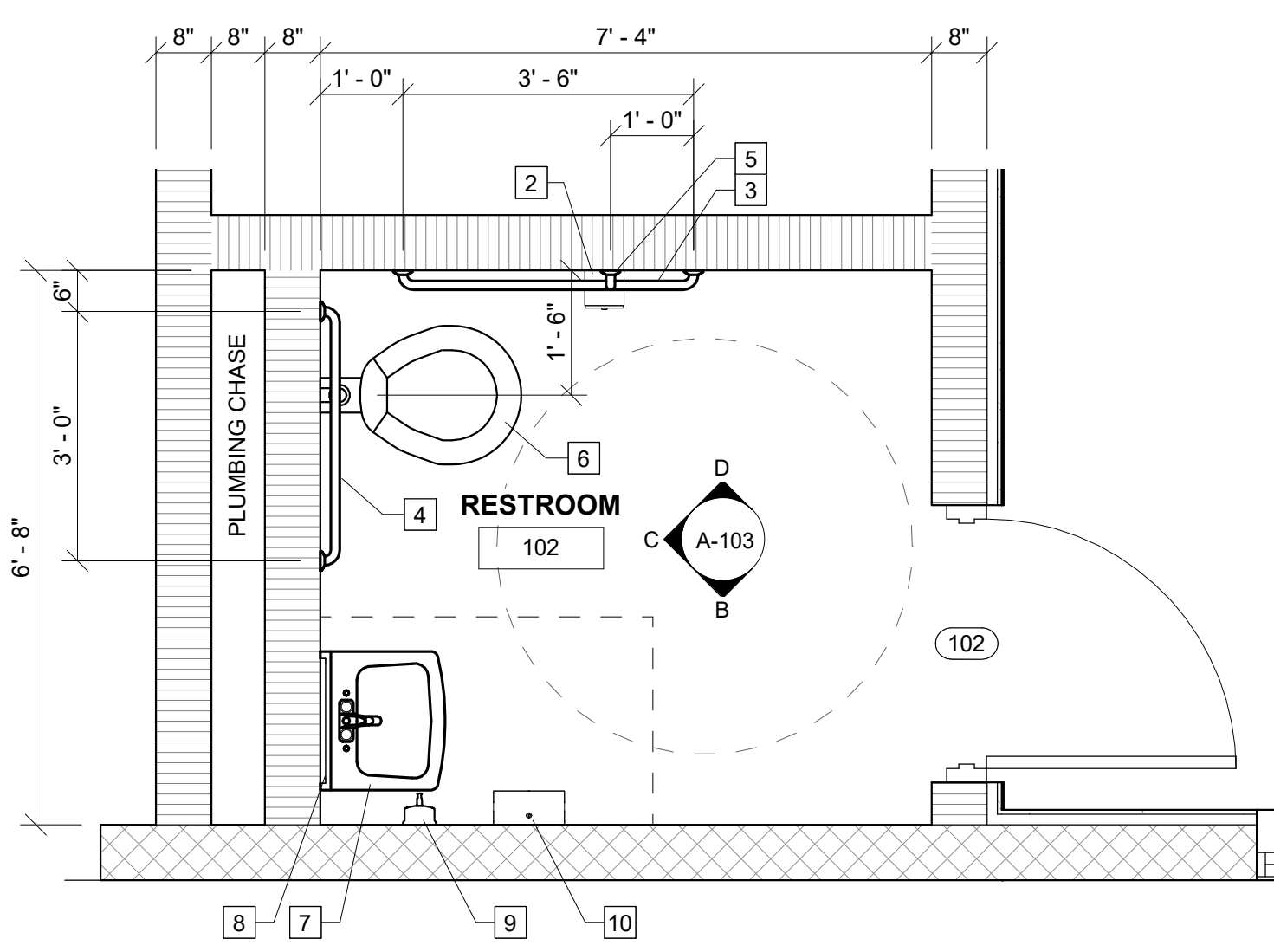
**D INTERIOR ELEV.**  
A-103 SCALE: 1/2" = 1'-0"



**E INTERIOR ELEV.**  
A-101 SCALE: 1/2" = 1'-0"



**F SECTION**  
A-103 SCALE: 1/2" = 1'-0"



**8D PLAN**  
A-101 SCALE: 1/2" = 1'-0"

**ACCESSIBLE ELEMENTS NOTES:**

- 1. ACCESSIBILITY STANDARDS:** CONTRACTOR MUST BE FAMILIAR W/ AND, SHALL MAINTAIN ON THE JOB SITE, A COPY OF THE CURRENT ADAAG STANDARDS AND IBC CHAPTER 11 ACCESSIBILITY REQUIREMENTS AS APPLICABLE. DURING CONSTRUCTION THE GENERAL CONTRACTOR SHALL BE MINDFUL OF THESE ACCESSIBILITY REQUIREMENTS INCLUDING MOUNTING HEIGHTS AND FLOOR MANEUVERING CLEARANCES AND, IN THE EVENT THAT FIELD CONDITIONS WILL NOT ALLOW FOR ACCESSIBILITY REQUIREMENTS TO BE MAINTAINED IN A PARTICULAR CONDITION OR INSTALLATION, CONTRACTOR SHALL NOTIFY THE ARCHITECT FOR FURTHER DIRECTION PRIOR TO PROCEEDING.
- 2. ADA DEVICES:** ALL DEVICES AND FIXTURES DEPICTED HEREIN AND WHERE NOTED AS "ADA" OR "ACCESSIBLE" SHALL AT MINIMUM BE INSTALLED IN STRICT ACCORDANCE W/ THE AMERICANS W/ DISABILITIES ACT AND APPLICABLE BUILDING CODES. WHERE ACCESSIBILITY REQUIREMENTS MAY VARY BY JURISDICTION, FOLLOW THE MOST STRINGENT REQUIREMENTS.
- 3. ADA MOUNTING HEIGHTS:** ALL MOUNTING HEIGHTS SHOWN ON THIS PAGE ARE TO BE MEASURED FROM THE TOP OF FLOOR FINISH (i.e. NOT FROM SUBFLOOR). THE CONTRACTOR SHALL ACCOUNT FOR THE THICKNESS OF THE SPECIFIED FLOOR FINISH WHEN ESTABLISHING THE MOUNTING HEIGHTS OF ACCESSIBLE ITEMS.
- 4. ADA PLAN DIMENSIONS:** ALL PLAN DIMENSIONS SHALL BE MEASURED FROM THE FINISH FACE OF SCHEDULED WALL FINISH. THE CONTRACTOR SHALL ACCOUNT FOR THE THICKNESS OF THE SPECIFIED WALL FINISH e.g., WALL TILE, WHEN ESTABLISHING PLAN DIMENSIONS AND CLEARANCES FOR ACCESSIBLE ELEMENTS.
- 5. PLUMBING ELEMENTS AND FIXTURES:** SEE PLUMBING DRAWINGS AND SPECIFICATIONS FOR REQUIRED LOCATIONS AND MOUNTING HEIGHT OF PLUMBING ELEMENTS AND FIXTURES. SHOULD CONFLICT EXIST BETWEEN MOUNTING HEIGHTS AND/OR CLEARANCES INDICATED HEREIN AND THE REQUIREMENTS OF THE PLUMBING ENGINEER, THE GENERAL CONTRACTOR SHALL NOTIFY THE ARCHITECT FOR CLARIFICATION PRIOR TO ROUGH-IN.
- 6. ELECTRICAL DEVICES:** SEE ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR REQUIRED MOUNTING HEIGHT OF ELECTRICAL DEVICES AND FIXTURES. SHOULD CONFLICT EXIST BETWEEN MOUNTING HEIGHTS INDICATED HEREIN AND THE REQUIREMENTS OF THE ELECTRICAL ENGINEER, THE GENERAL CONTRACTOR SHALL NOTIFY THE ARCHITECT FOR CLARIFICATION PRIOR TO ROUGH-IN.

**GENERAL NOTES:**

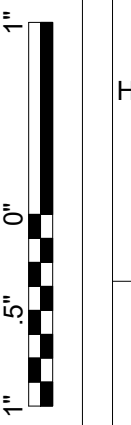
- ALL DRAIN LOCATIONS ARE AS NOTED ON PLUMBING SHEETS. COORDINATE DRAIN LOCATION W/ FLOORING.

**KEY NOTES:**

- 4" RUBBER BASE
- TOILET PAPER DISPENSER
- 42" GRAB BAR
- 36" GRAB BAR
- 18" GRAB BAR
- TOILET
- WALL HUNG LAVATORY
- MIRROR
- SOAP DISPENSER
- PAPER TOWEL DISPENSER
- PLASTIC LAMINATE LOWER CABINET
- PLASTIC LAMINATE WALL CABINET
- 4" BACKSPASH
- SOLID SURFACE COUNTER TOP
- STAINLESS STEEL SINK & FAUCET



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Project Manager:	DK
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Designer:	DT
Drawn By:	HKD

NEW LOXLEY WATER  
TREATMENT PLANT  
FOR THE CITY OF LOXLEY  
LOXLEY, ALABAMA

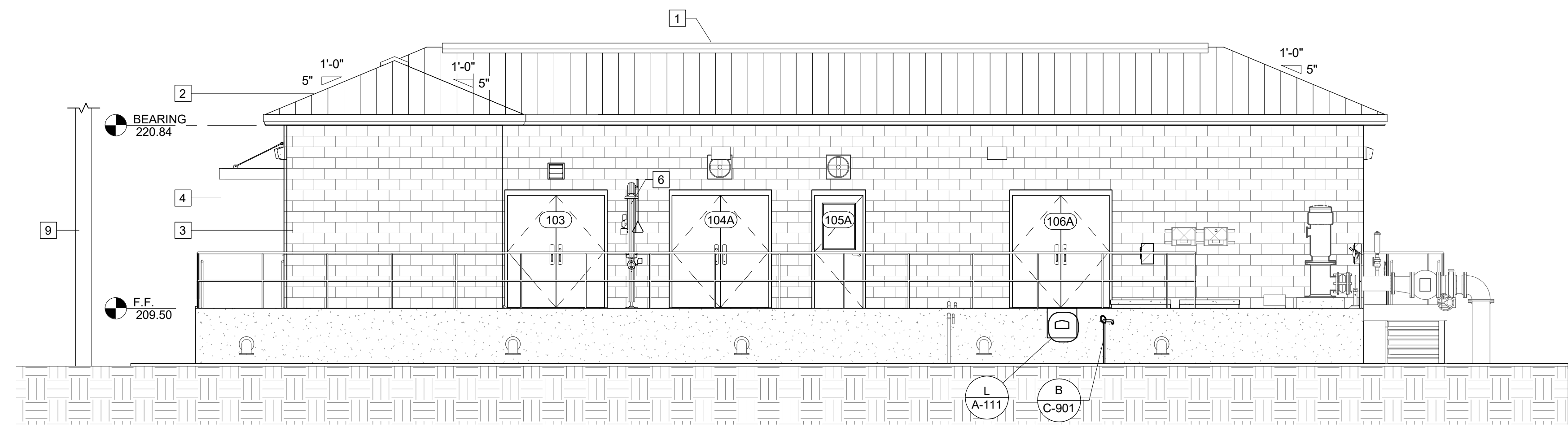
GMC Project #C-MOB220078(2)



CHEMICAL BUILDING  
ENLARGE PLAN &  
INTERIOR ELEVATIONS

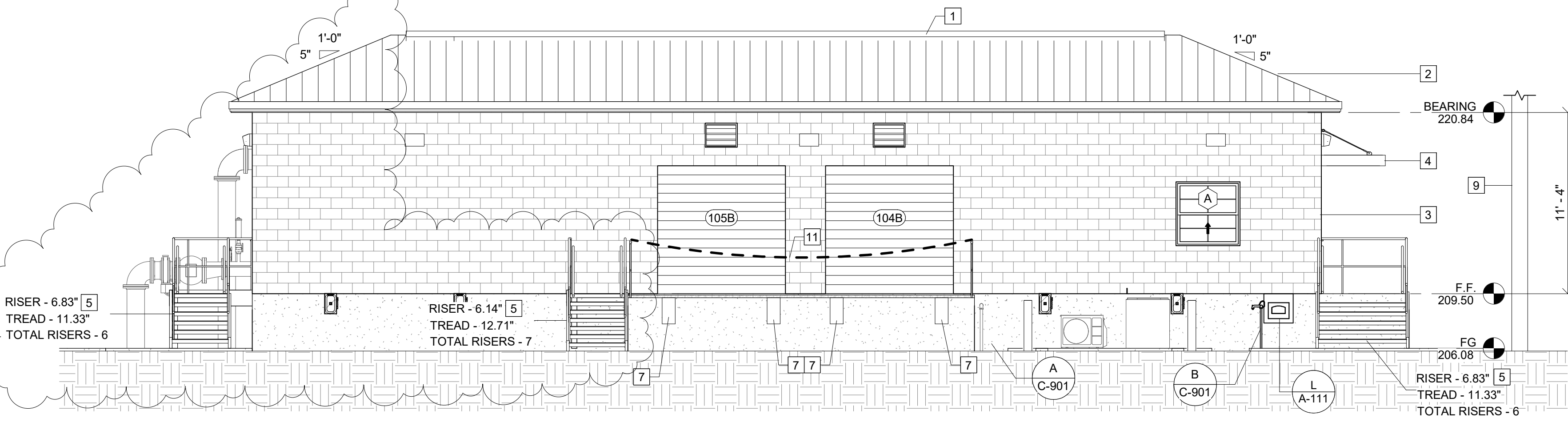
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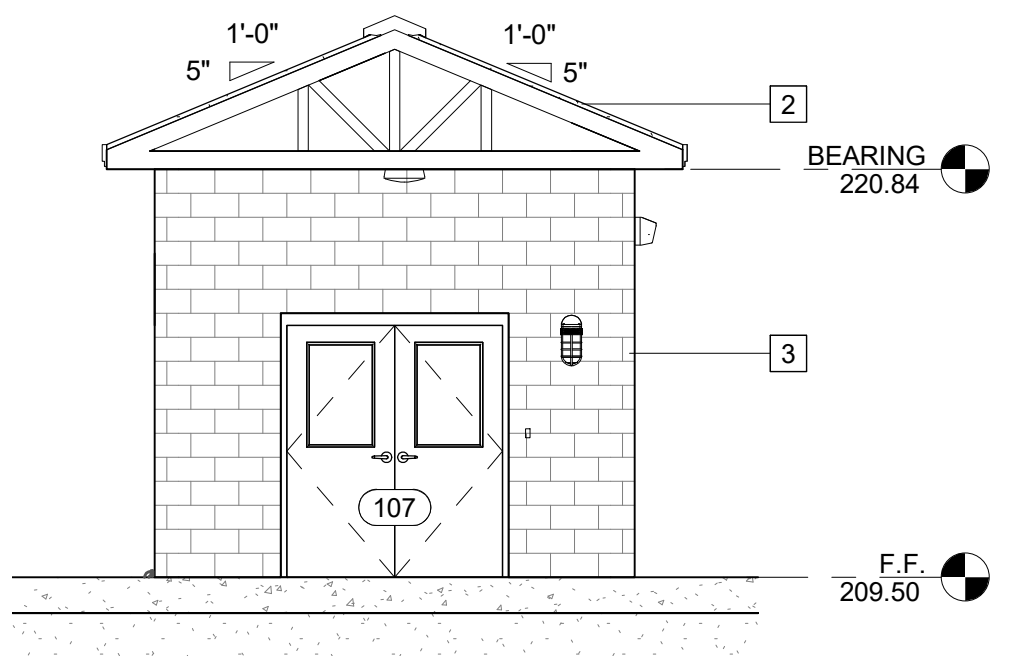


- KEY NOTES: #**
1. RIDGE VENT
  2. STANDING SEAM METAL ROOF SYSTEM
  3. SPLIT FACE 8" CMU
  4. ALUMINUM AWNING
  5. ALUMINUM STAIRS WITH HANDRAILS
  6. EMERGENCY SHOWER & EYEWASH STATION
  7. RUBBER BUMPERS
  8. 4'-0" LONG X 6" HIGH OVERFLOW PORT W/ STAINLESS STEEL SCREEN
  9. SCADA ANTENNA & POLE. SEE ELECTRICAL
  10. 3'-6" ALUMINUM HANDRAIL
  11. REMOVABLE SAFETY CHAIN
  12. 6" TALL X 4" WIDE CONCRETE CURB WITH ALUMINUM CHECKERED PLATE
  13. 60" SQUARE DOUBLE LEAF DRIP PROOF HATCH

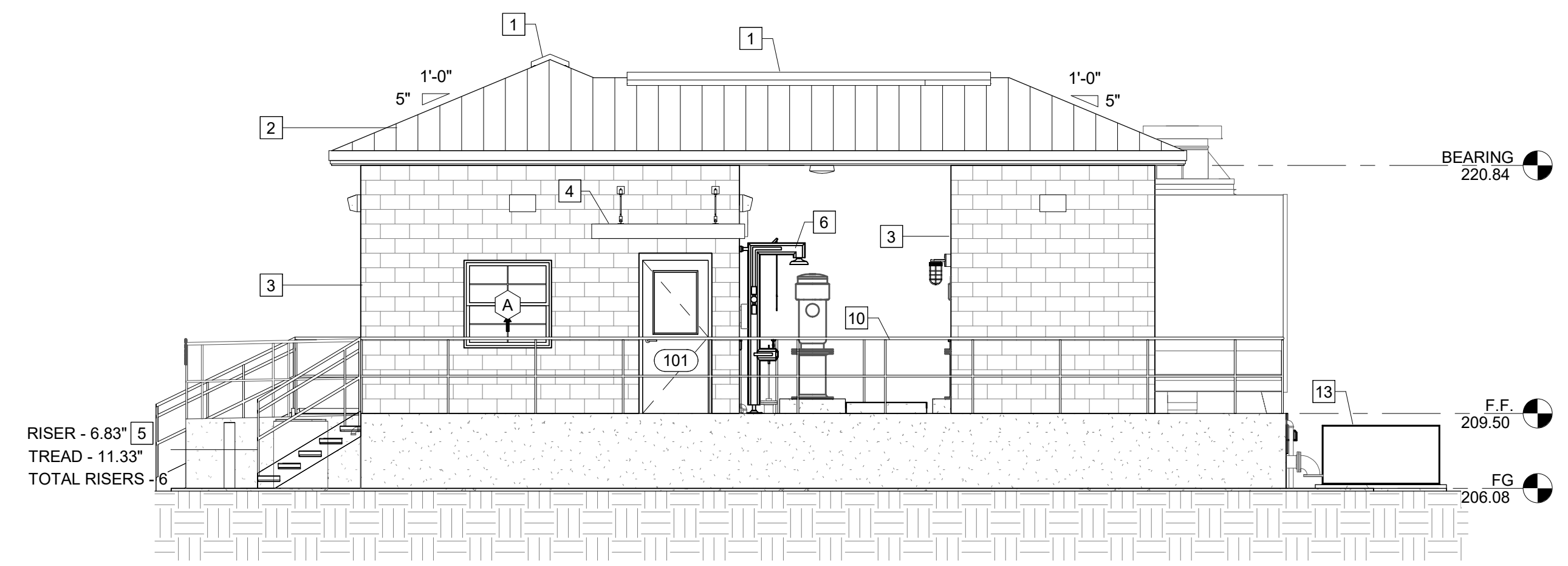
**A EXTERIOR ELEVATION**  
 A-101 SCALE: 3/16" = 1'-0"



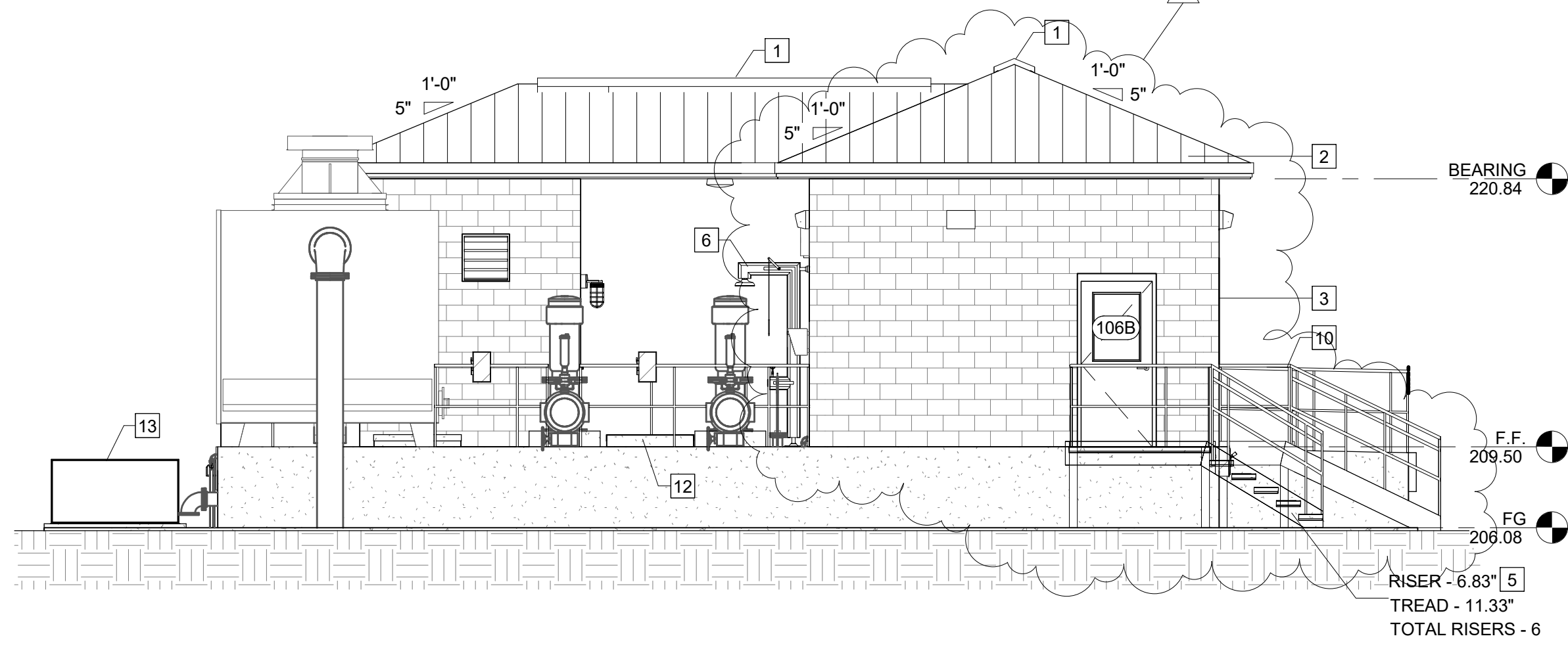
**B EXTERIOR ELEVATION**  
 A-101 SCALE: 3/16" = 1'-0"



**C EXTERIOR ELEVATION**  
 A-101 SCALE: 3/16" = 1'-0"



**D EXTERIOR ELEVATION**  
 A-101 SCALE: 3/16" = 1'-0"



**E EXTERIOR ELEVATION**  
 A-101 SCALE: 3/16" = 1'-0"

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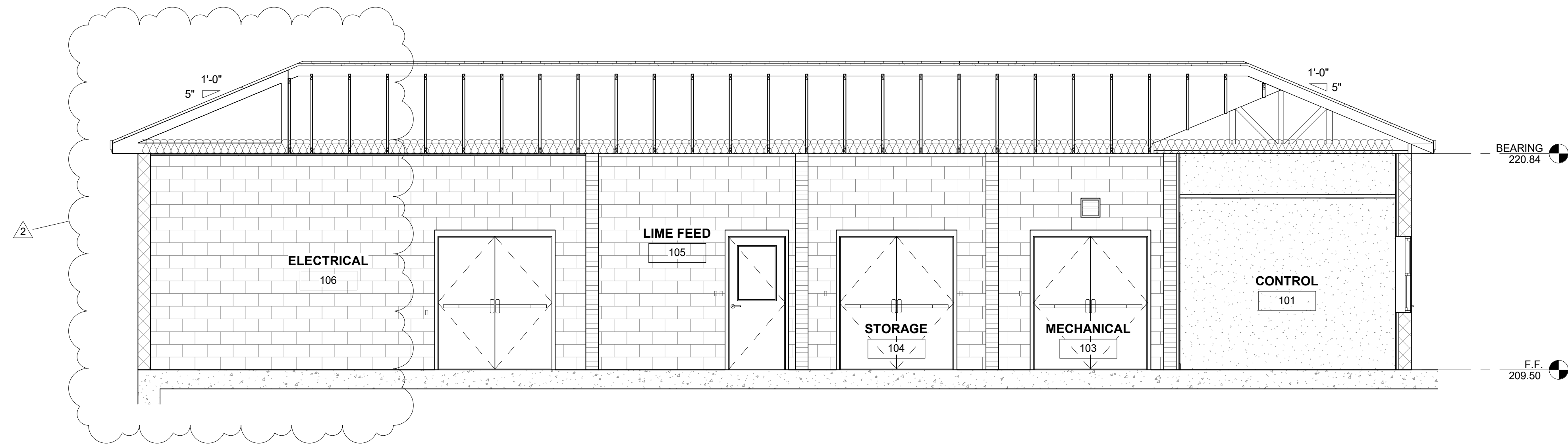
NEW LOXLEY WATER  
 TREATMENT PLANT  
 FOR THE CITY OF LOXLEY  
 LOXLEY, ALABAMA

GMC Project #CMOB22078(2)

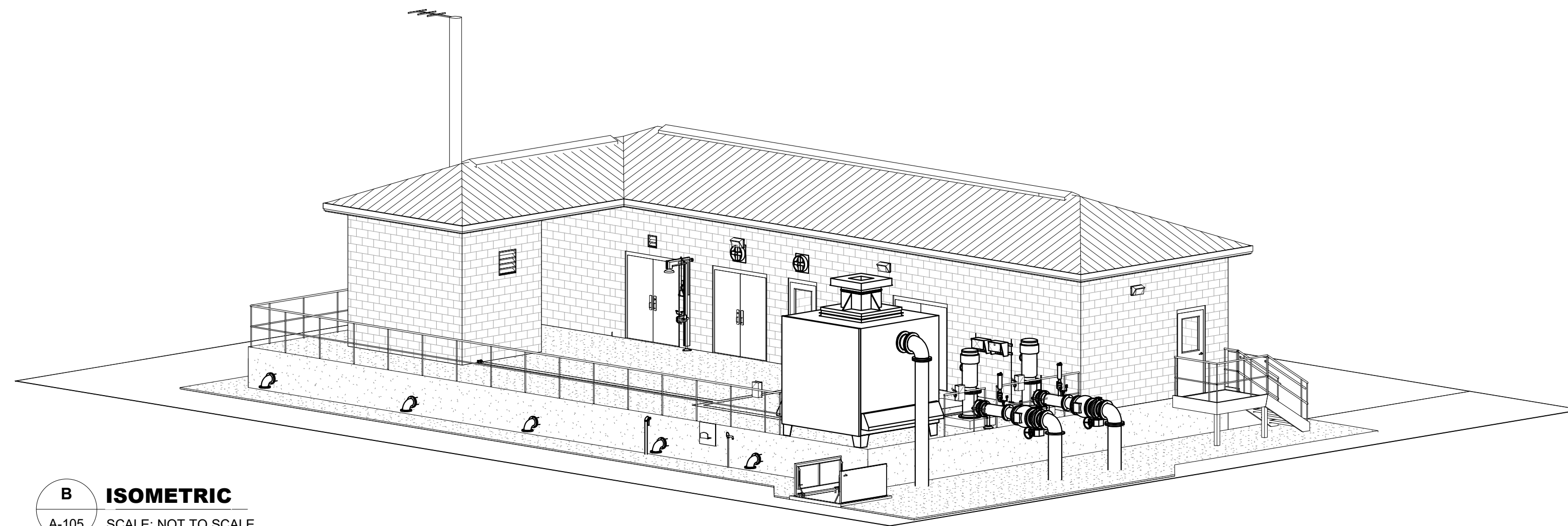


CHEMICAL BUILDING  
 EXTERIOR  
 ELEVATIONS

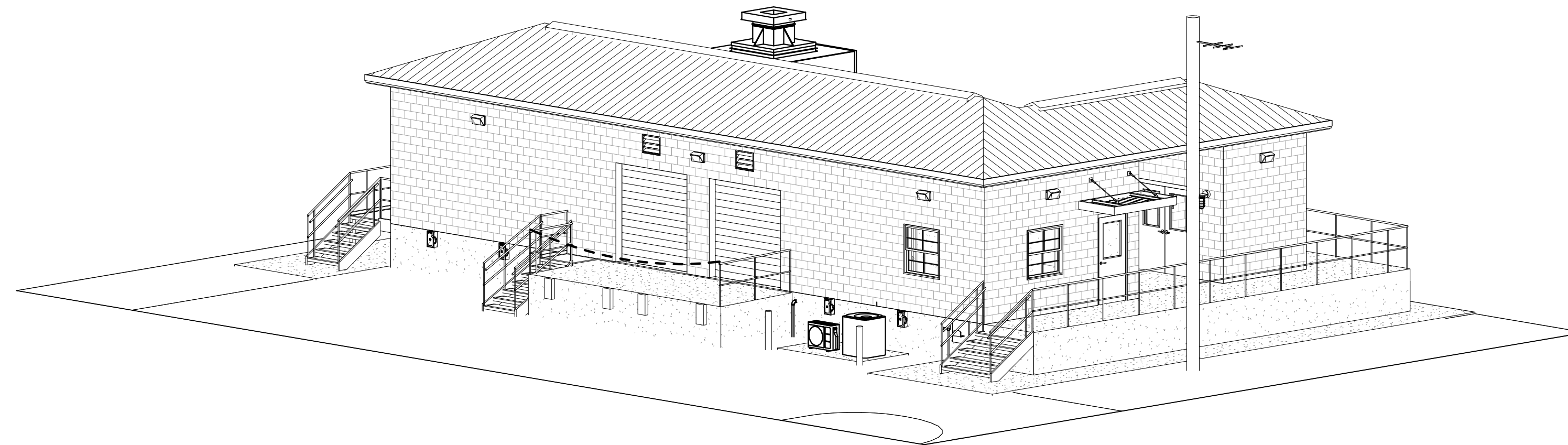
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**A BUILDING SECTION**  
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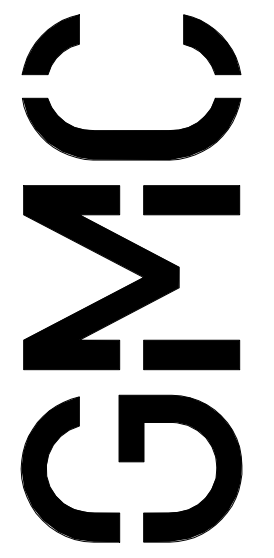


**B ISOMETRIC**  
A-105 SCALE: NOT TO SCALE



**C ISOMETRIC**  
A-105 SCALE: NOT TO SCALE

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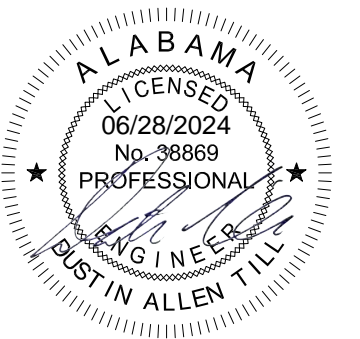
ISSUE	DATE
60% Submittal	07.25.2023
90% Submittal	10.20.2023
Bid Set	03.29.2024
REVISION 2	08.09.2024

Project Manager:	DK
Engineer:	DT
Designer:	DT
Drawn By:	HKO

NEW LOXLEY WATER  
TREATMENT PLANT  
FOR THE CITY OF LOXLEY  
LOXLEY, ALABAMA

GMC Project #CMOB220078(2)

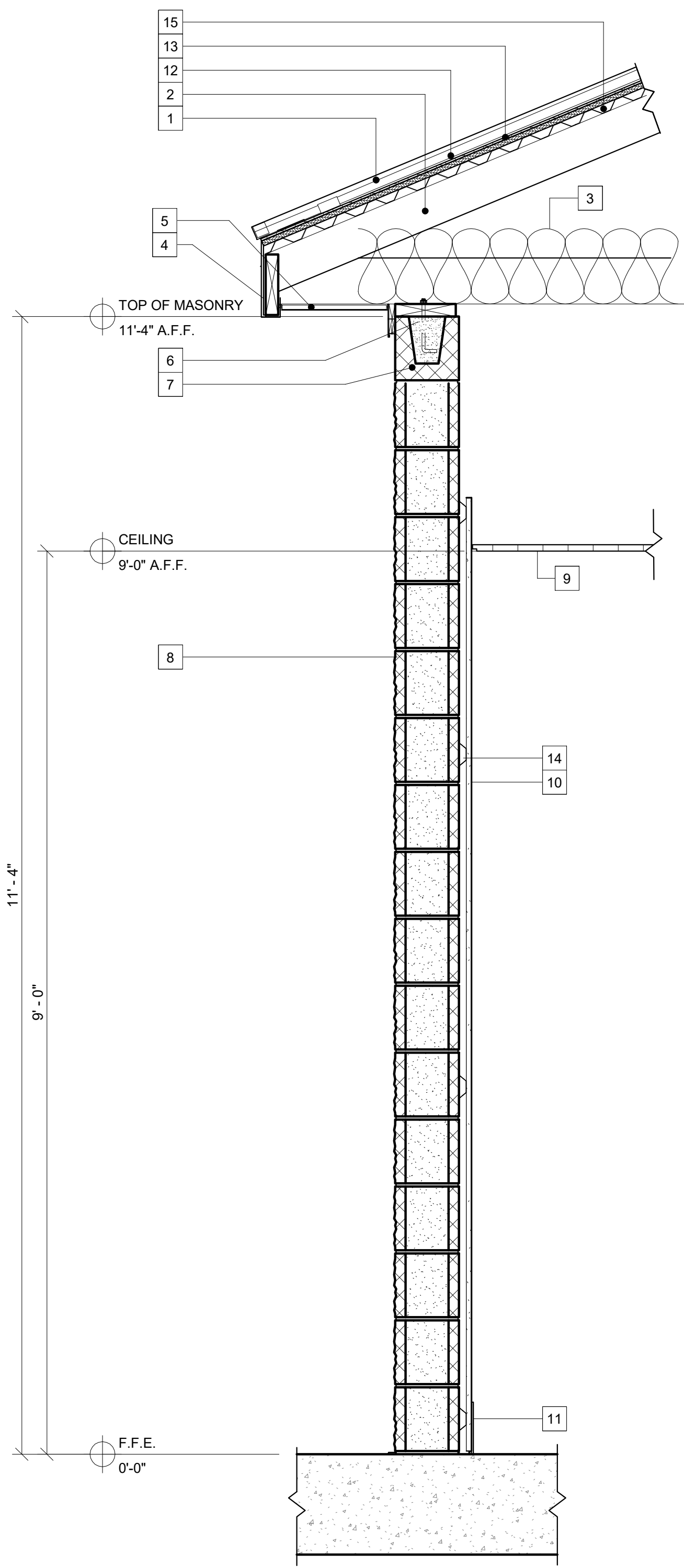


CHEMICAL BUILDING &  
BUILDING SECTION &  
ISOMETRICS

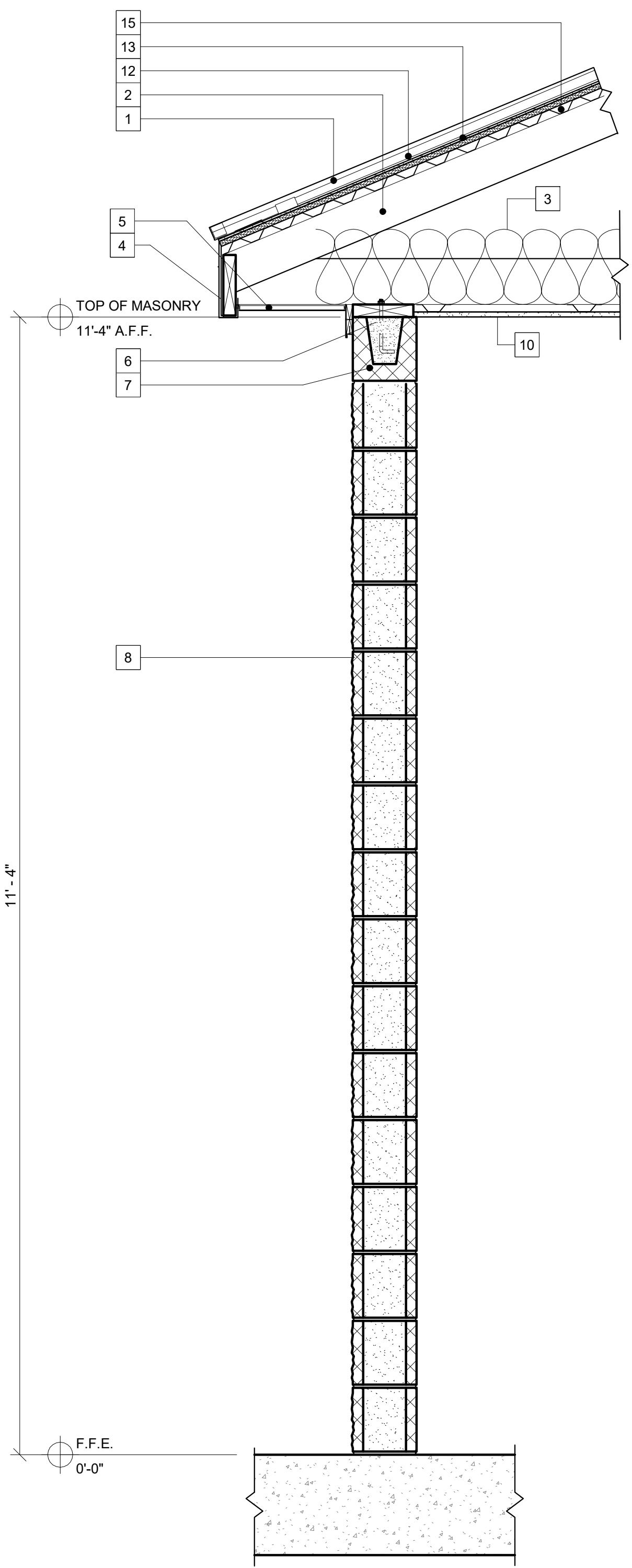
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BM 360/Loxley/CMOB220078(2)/Chemical and Admin Building - Loxley.rvt  
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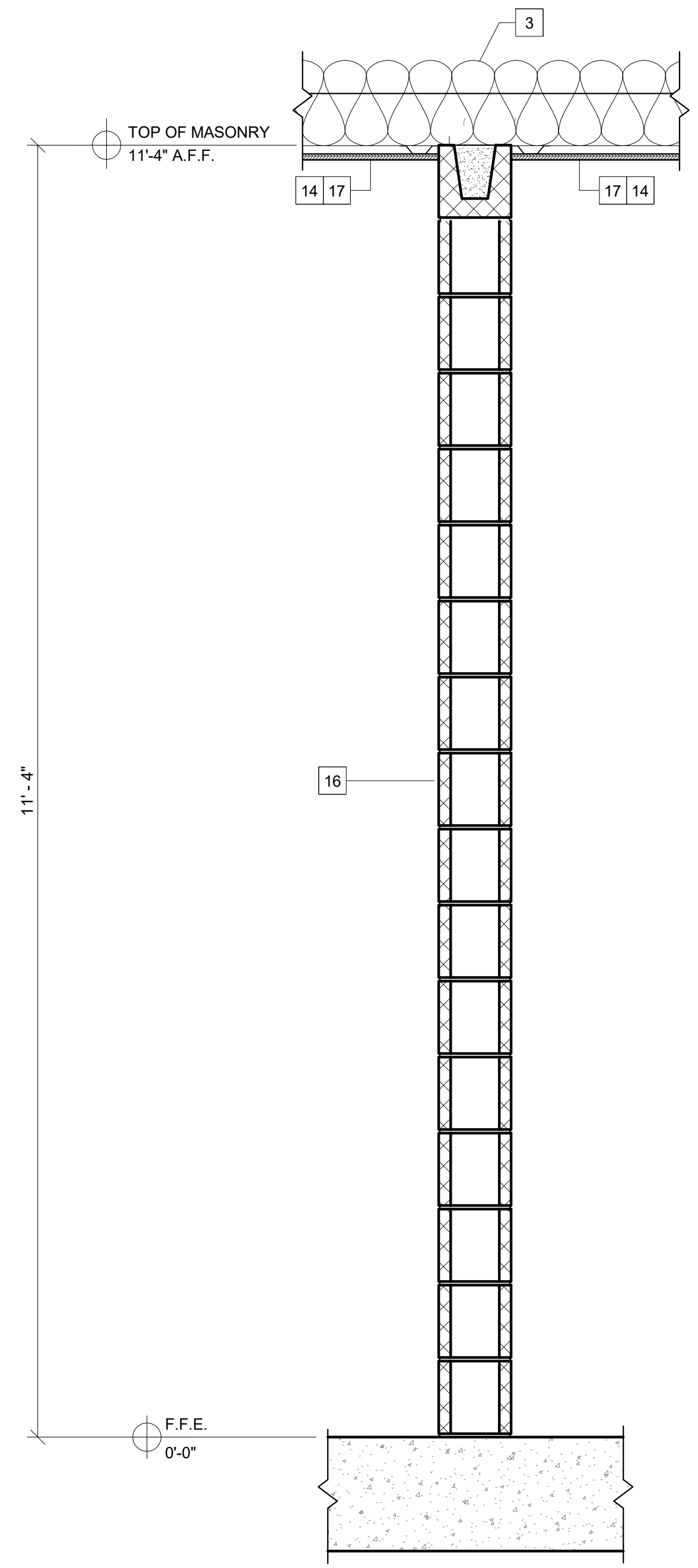
- KEY NOTES:** #
1. STANDING SEAM METAL ROOFING
  2. PRE-ENGINEERED TRUSS @ 4'-0" O.C.
  3. BATT INSULATION ON SUSPENSION SYSTEM
  4. PRE-FINISHED METAL FASCIA ON P.T. 2X SUBFASCIA
  5. PRE-FINISHED VENTED VINYL SOFFIT W/ CLIPS
  6. P.T. 2X8 PLATE ANCHORED TO BOND BEAM
  7. SMOOTH FACE BOND BEAM (SEE STRUCT.)
  8. SPLIT FACE 8" CMU
  9. LAY-IN ACOUSTICAL CEILING
  10. GYPSUM BOARD
  11. BASE AS SCHEDULED
  12. SYNTHETIC UNDERLAYMENT FT SYNTHETICS GOLD OR EQUAL
  13. 1/4" ROOF BOARD - GAF DENSDECK OR EQUAL
  14. 1 1/2" METAL FURRING
  15. 1-1/2" 22 GAUGE METAL DECK
  16. 8" CMU
  17. 3/4" PLYWOOD



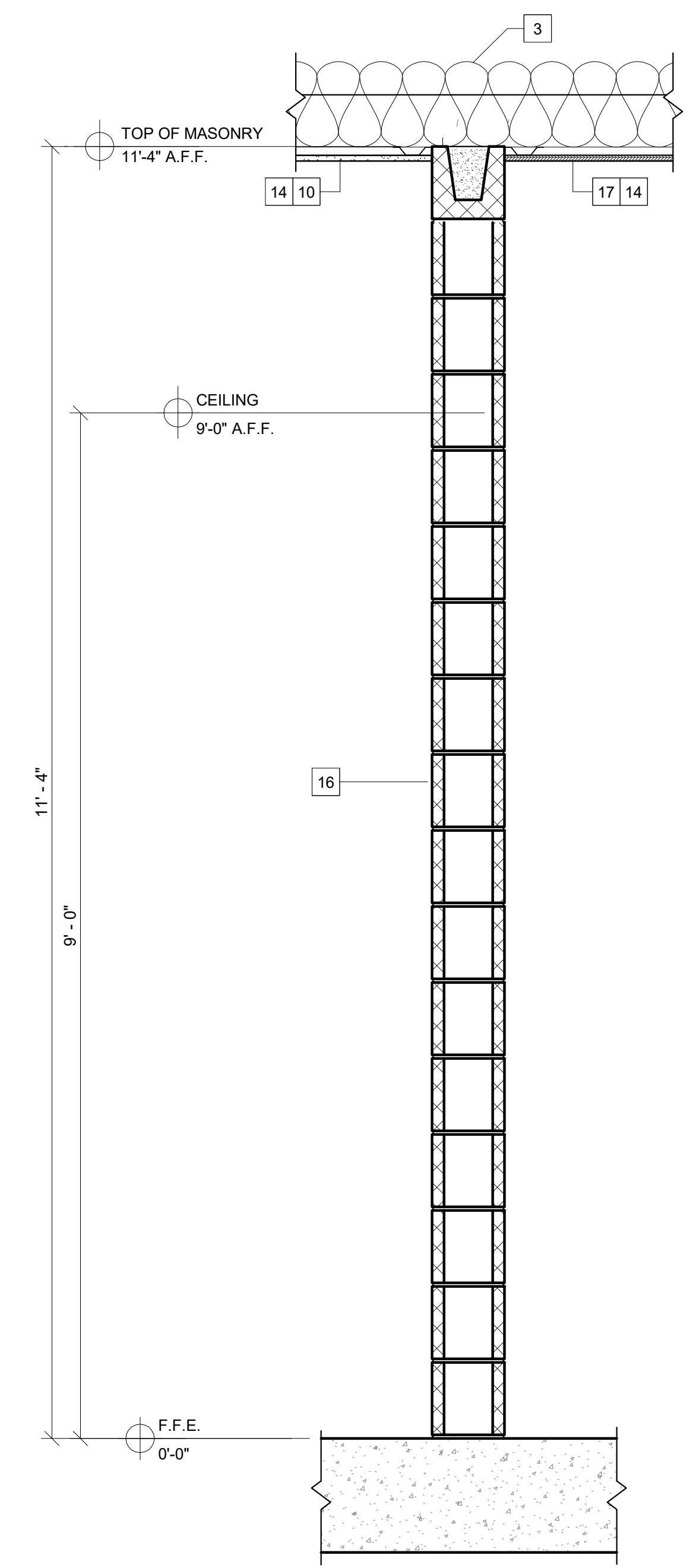
**A SECTION**  
A-101 SCALE: 1" = 1'-0"



**B SECTION**  
A-101 SCALE: 1" = 1'-0"



**C SECTION**  
A-101 SCALE: 1" = 1'-0"



**D SECTION**  
A-101 SCALE: 1" = 1'-0"

NEW LOXLEY WATER  
 TREATMENT PLANT  
 FOR THE CITY OF LOXLEY  
 LOXLEY, ALABAMA



**CHEMICAL BUILDING**  
**WALL SECTIONS**

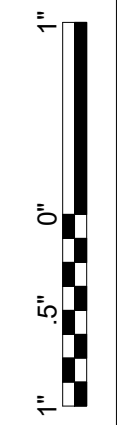
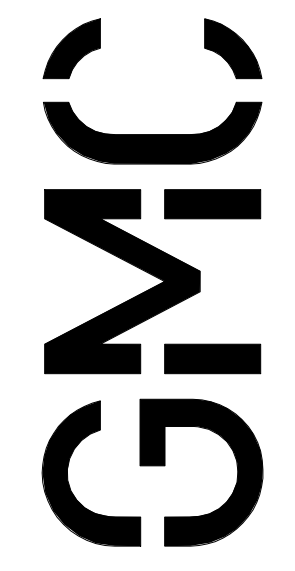
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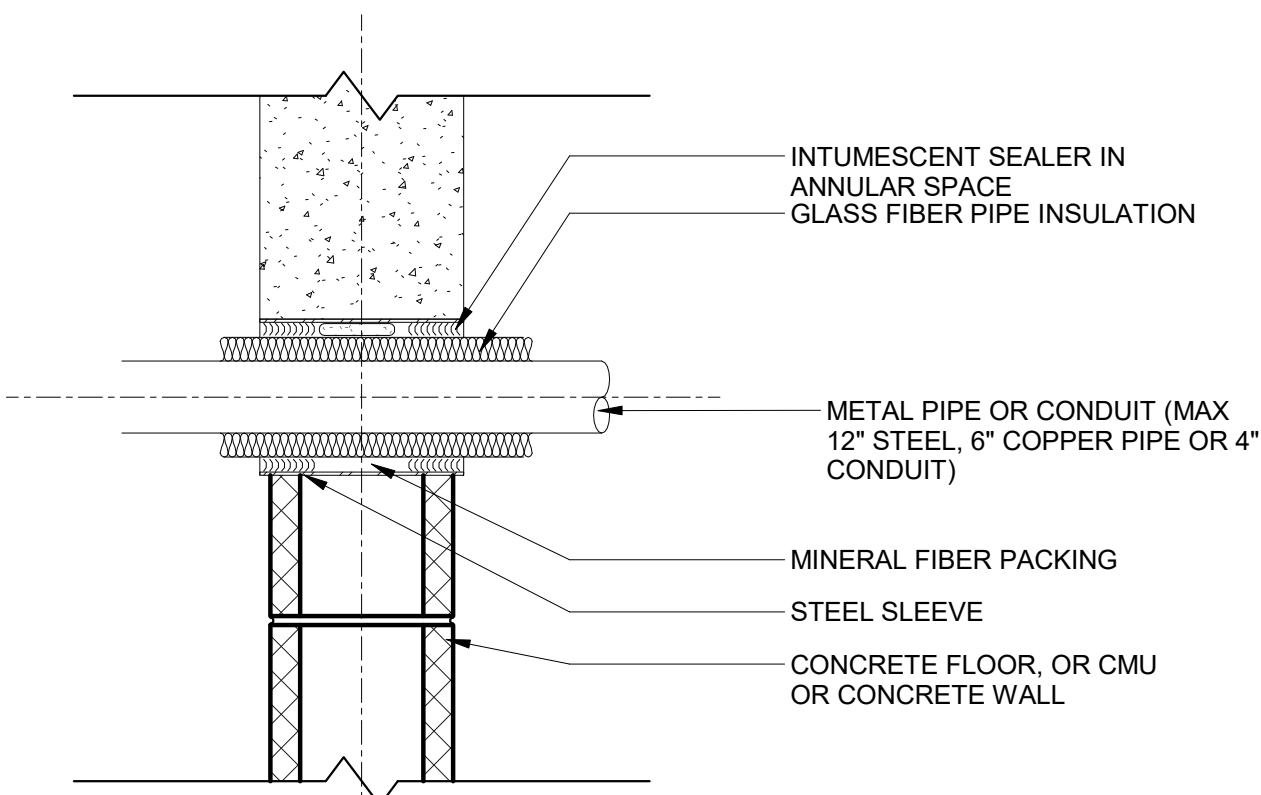
  

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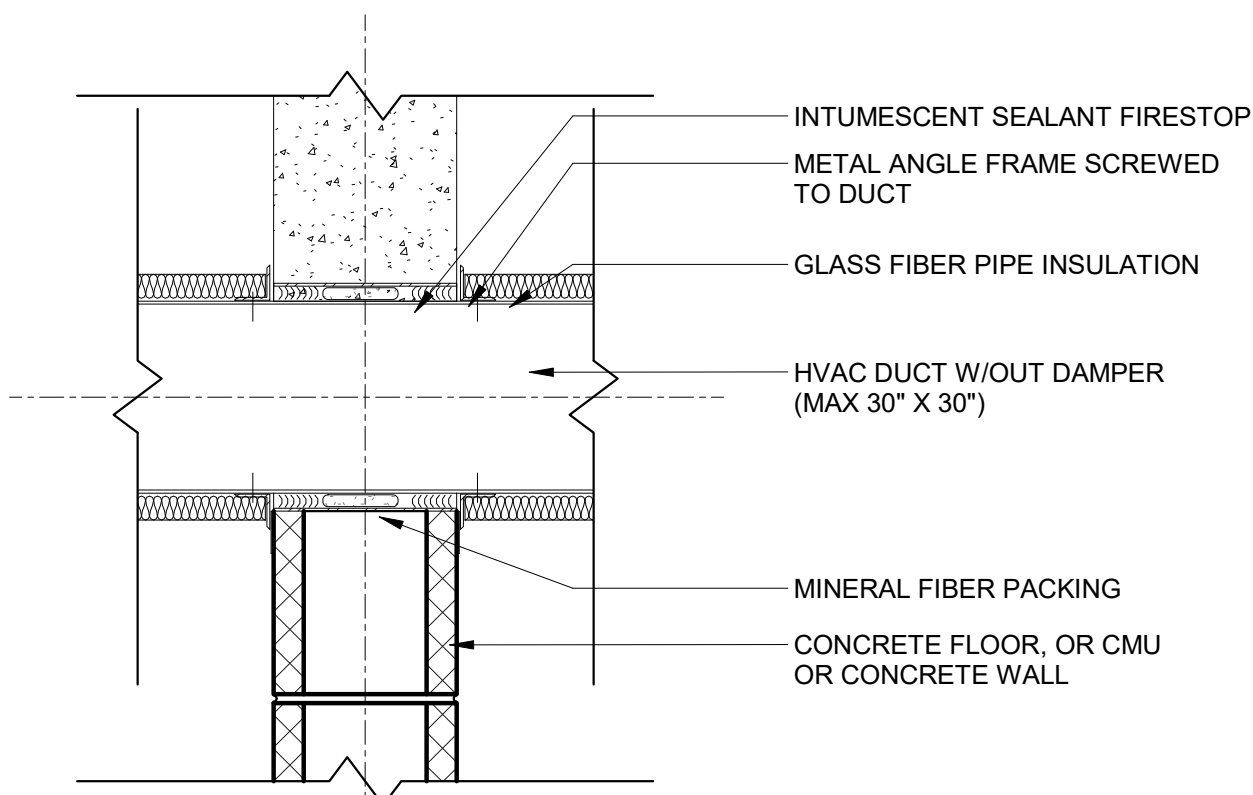


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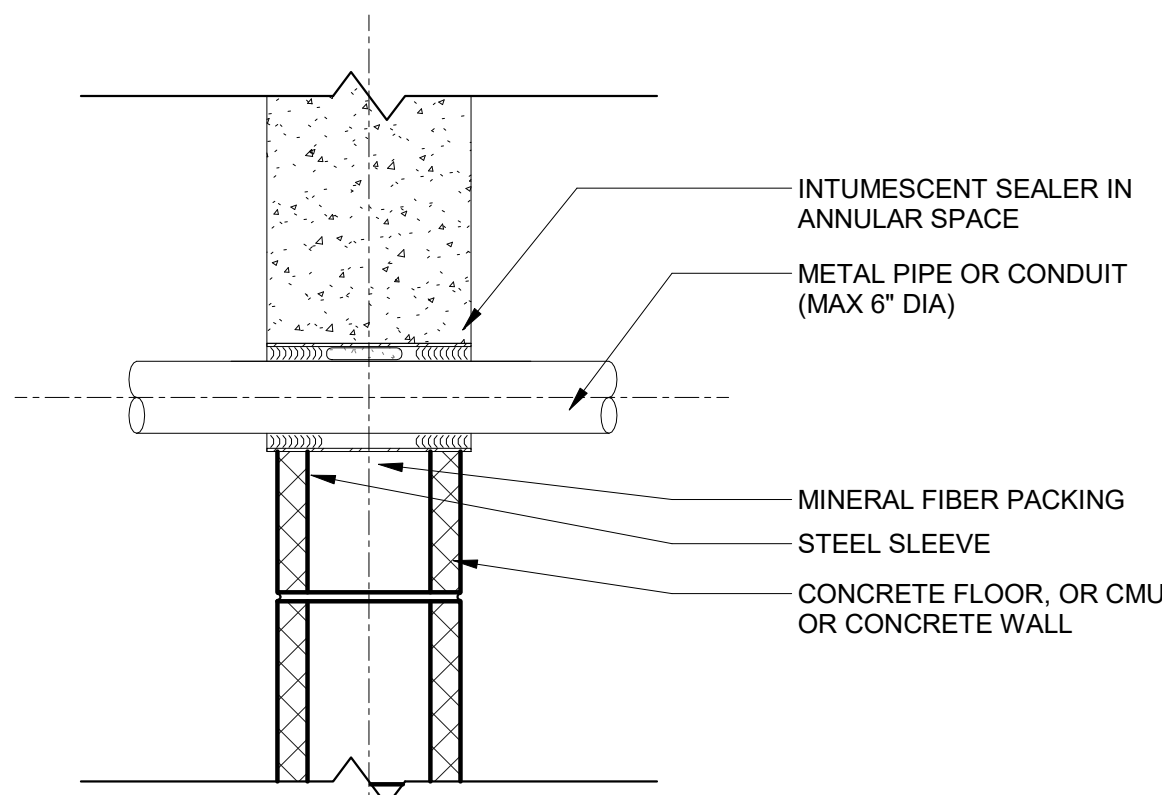
NOTE: FIRESTOP BOTH SIDES AT WALLS;  
FIRESTOP ONE SIDE AT FLOORS

**INSULATED METAL PIPE THRU CMU /  
CONC WALL OR CONC FLOOR**



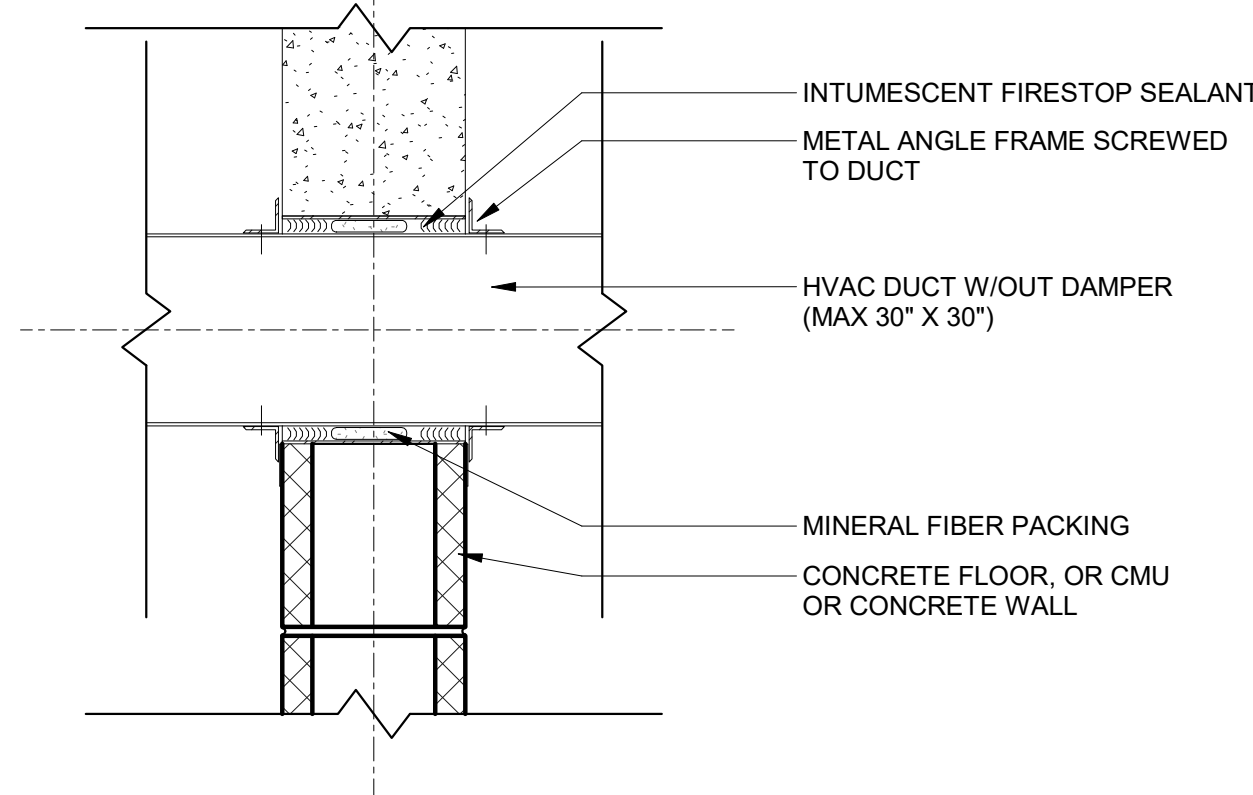
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**INSULATED HVAC DUCT THRU CMU  
/ CONC WALL OR CONC FLOOR**



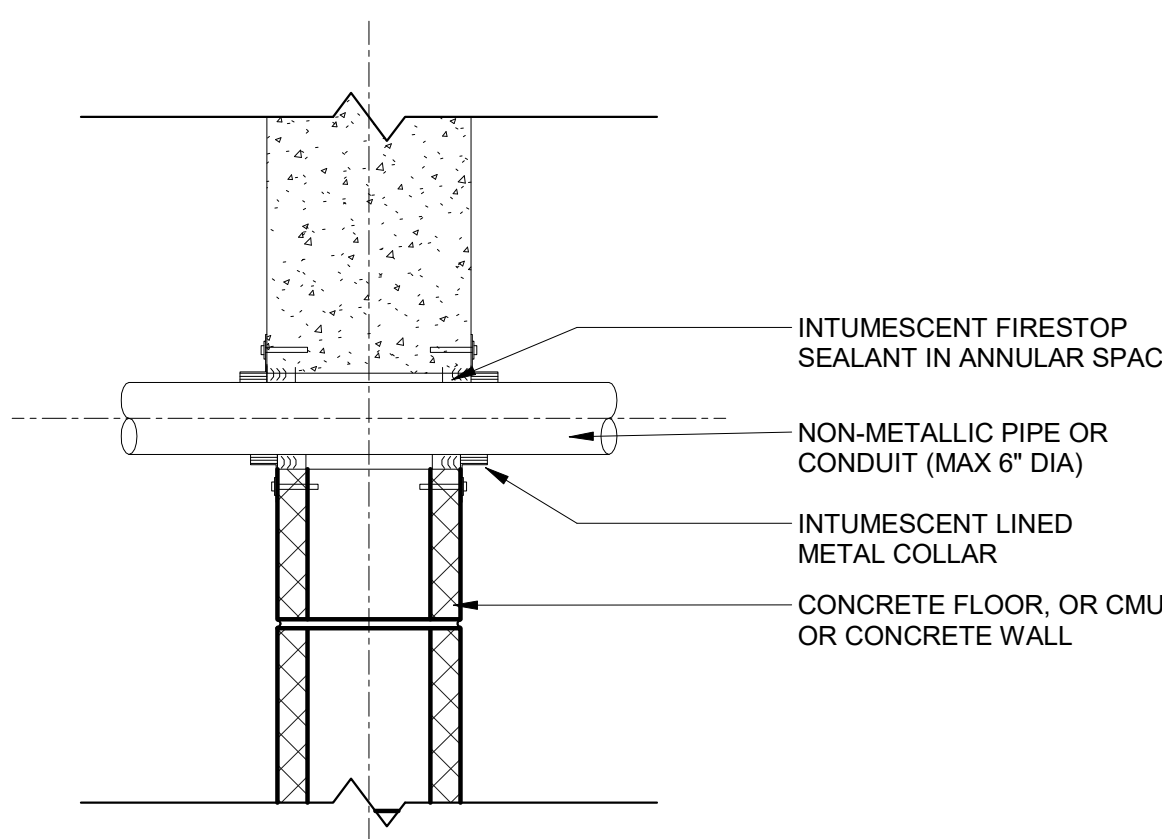
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**SINGLE UNINSULATED METAL PIPE THRU  
CONC FLOOR/WALL OR CMU WALL**



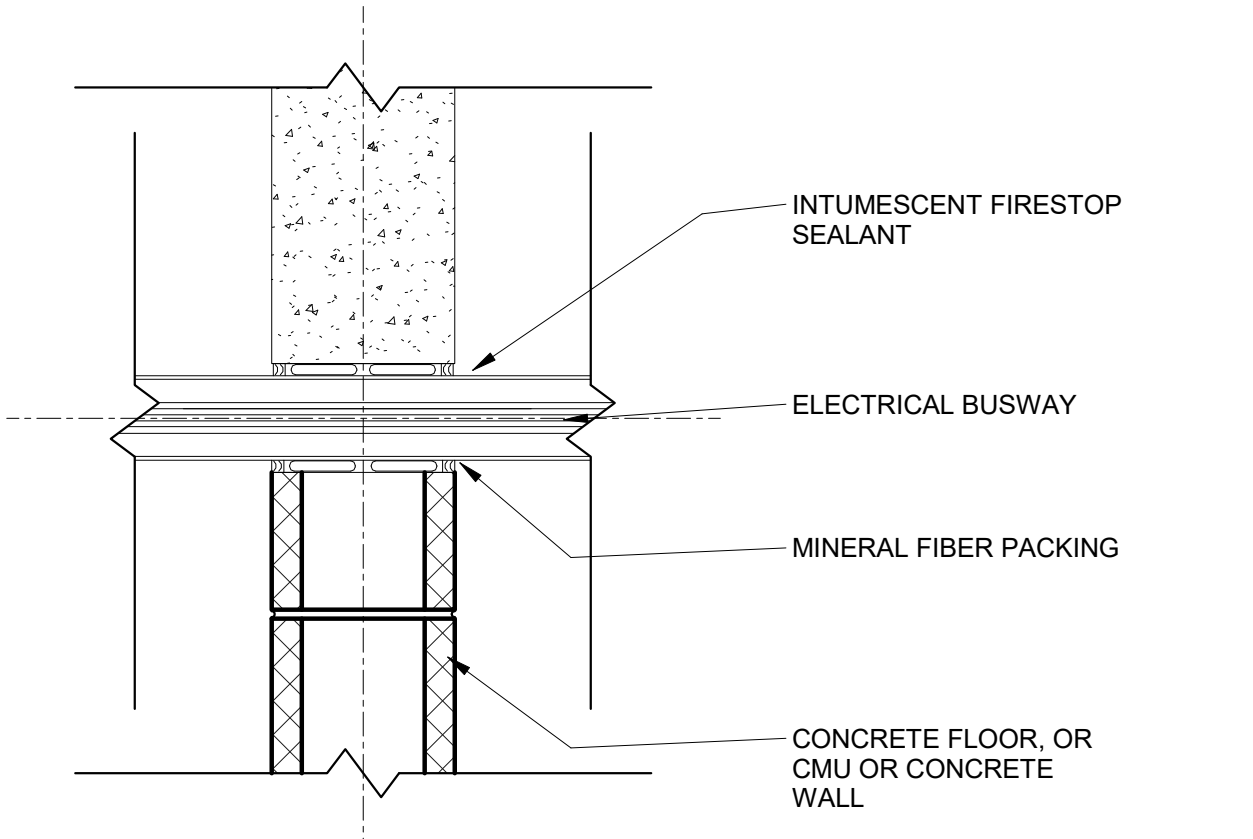
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**UNINSULATED HVAC DUCT THRU  
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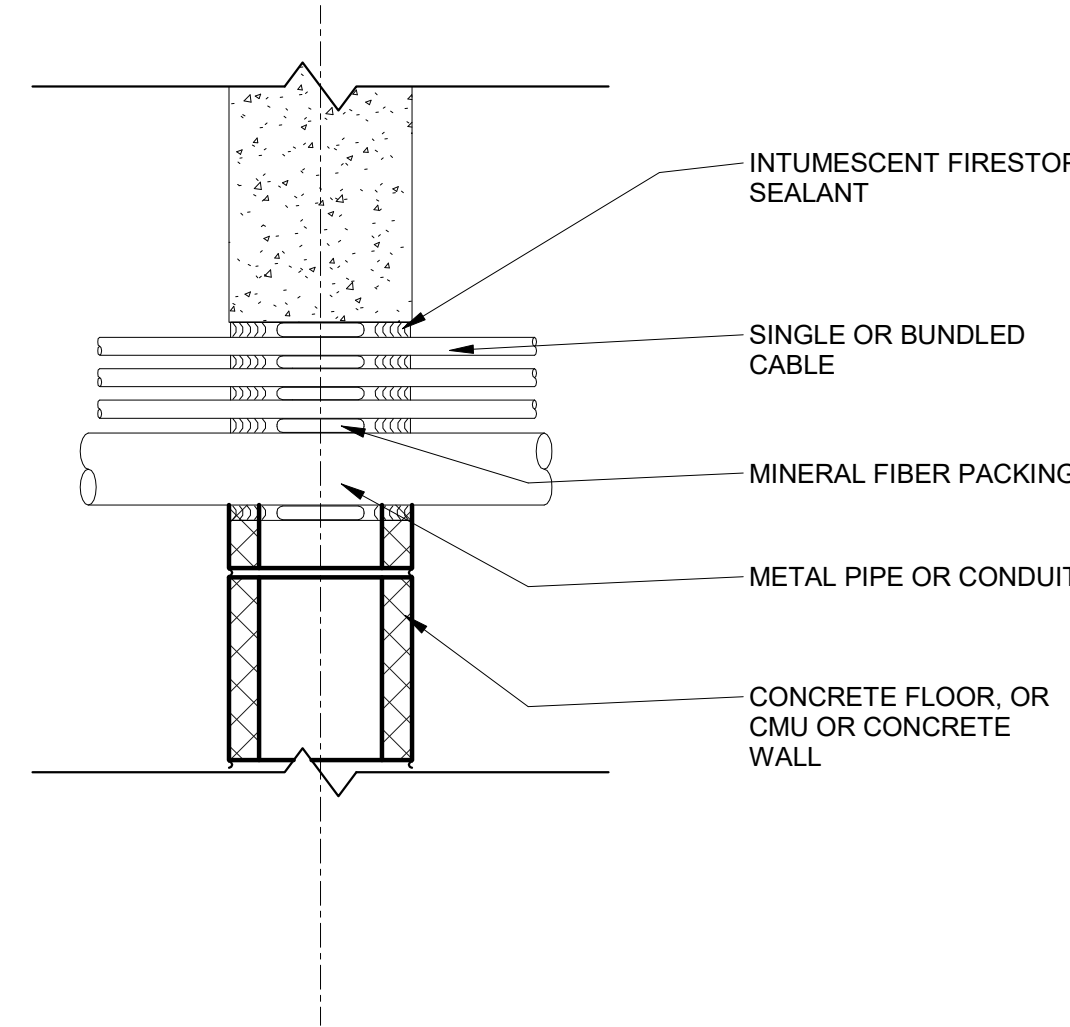
NOTE: FIRESTOP BOTH SIDES AT WALLS;  
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**SINGLE NONMETALLIC PIPE THRU  
CONC FLOOR / WALL OR CMU WALL**

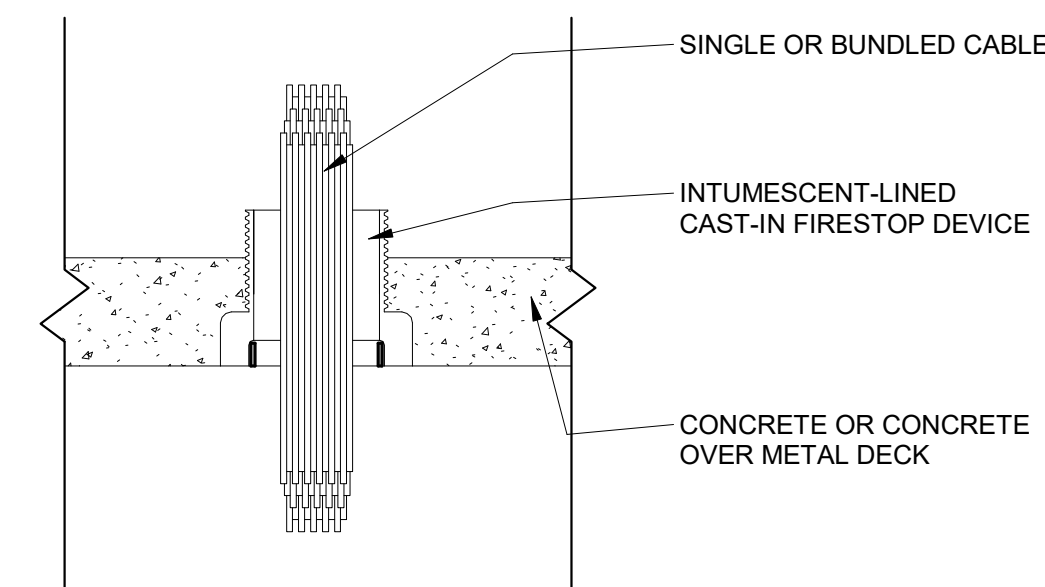


NOTE: FIRESTOP BOTH SIDES AT WALLS;  
FIRESTOP ONE SIDE AT FLOORS

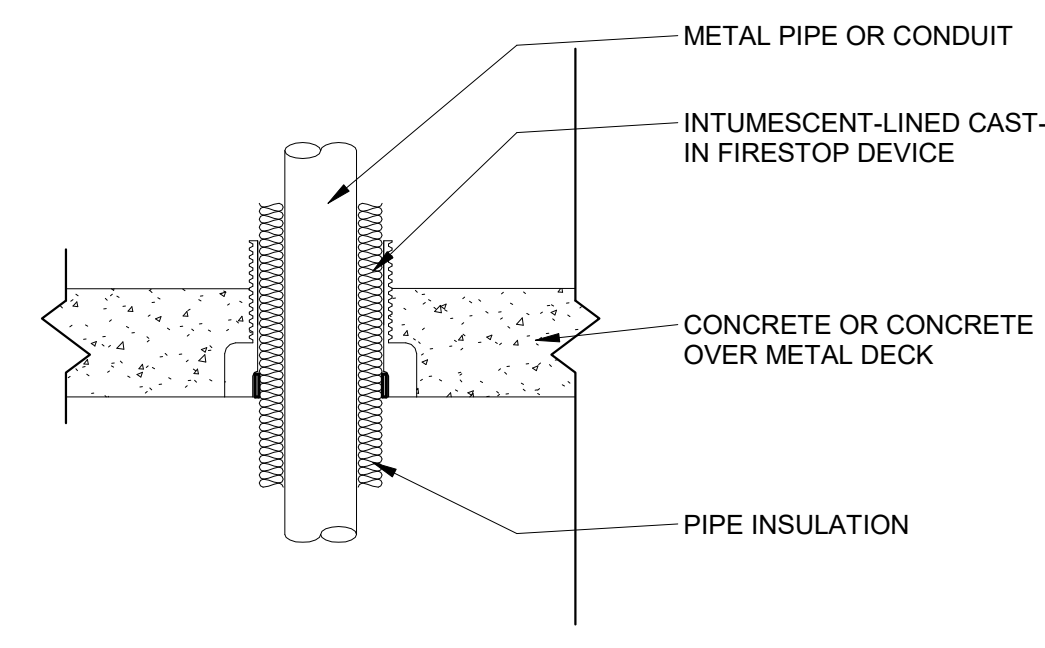
**BUSWAY THRU CONC FLOOR / WALL  
OR CMU WALL**



**MULTIPLE PENETRATIONS THRU  
CONC FLOOR /WALL OR CMU WALL**



**SINGLE OR BUNDLED CABLE  
THRU CONC OVER METAL FLOOR**



**INSULATED METAL PIPE THRU  
CONC OR CONC ON METAL DECK**

**GENERAL THRU-PENETRATION NOTES:**

**GENERAL**

- a. ALL THROUGH-PENETRATION FIRESTOP WORK SHALL COMPLY W/ THE REQUIREMENTS OF SECTION 07841 - THROUGH PENETRATION FIRESTOP SYSTEMS.
- b. THE DETAILS SHOWN HEREIN ILLUSTRATE FREQUENTLY ENCOUNTERED THROUGH-PENETRATION FIRESTOP CONDITIONS. THEY ARE GENERIC REPRESENTATIONS OF SYSTEMS AVAILABLE FROM SEVERAL MANUFACTURERS.
- c. SELECTION OF APPROPRIATE SYSTEMS SHALL BE THE RESPONSIBILITY OF THE FIRESTOP CONTRACTOR, AND MUST BE SUBMITTED FOR ARCHITECT'S APPROVAL. EACH SELECTION SHALL BE APPROPRIATE FOR THE PENETRATING ITEM AND SUBSTRATE, AND SHALL COMPLY W/ THE SPECIFIC REQUIREMENTS OF A UL LISTED SYSTEM DESIGN.
- d. WHERE NO APPLICABLE UL DESIGN IS AVAILABLE FOR A PARTICULAR FIRESTOP CONFIGURATION, SUBMIT AN ENGINEERING JUDGMENT (EJ), OR EQUIVALENT FIRE RESISTANCE RATED ASSEMBLY (EFFRA), PREPARED BY THE FIRESTOP MANUFACTURER.

**APPLICABILITY**

PROVIDE THROUGH-PENETRATION FIRESTOP SYSTEMS FOR ALL PENETRATIONS (INCLUDING SINGLE-SIDED MEMBRANE PENETRATIONS) OF FIRE RESISTANCE RATED CONSTRUCTION, WHETHER OR NOT SPECIFICALLY DETAILED ON THE DRAWINGS (APPLICABLE TO BOTH EMPTY OPENINGS AND OPENINGS CONTAINING PENETRATING ITEMS). ALL PIPING AND DUCTWORK SUBJECT TO MOVEMENT SHALL BE FIRESTOPPED W/ FLEXIBLE FIRE RATED SEALANT. TO EXTENT THAT APPROPRIATE UL DESIGNS ARE AVAILABLE FOR SUBSTRATE REQUIRED, USE THE FOLLOWING APPROACH TO SELECTION OF SYSTEMS:

- a. FOR SIMPLE PENETRATIONS: ONE-PART FIRESTOP SEALANT
- b. FOR COMPLEX PENETRATIONS: FOAMED-IN-PLACE FIRESTOP SEALANT
- c. SEALANT
- d. FOR INSULATED METAL PIPE: INTUMESCENT WRAP STRIP AND
- e. ONE-PART FIRESTOP SEALANT.
- f. FOR DUCTS OR VENTS:
- g. FOR CABLE TRAYS OR RACEWAYS:

**SLEEVING**

THE FOLLOWING PENETRATIONS MUST BE SLEEVED:

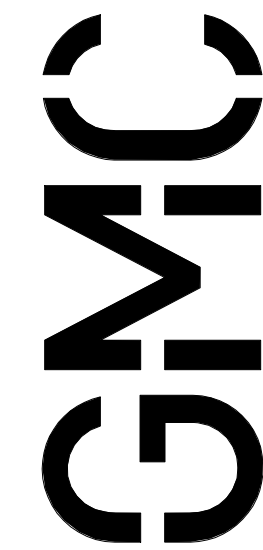
- a. SINGLE ROUND PENETRATIONS IN RATED CMU WALLS
- b. INSULATED PIPE PENETRATIONS IN RATED GYPSUM BOARD WALLS
- c. BUNDLED CABLE PENETRATIONS IN RATED GYPSUM BOARD WALLS
- d. ALL PENETRATIONS IN ELEVATED CONCRETE SLABS.
- e. ALL SLEEVES SHALL BE METAL. PLASTIC IS NOT PERMITTED. THE JUNCTION OF STEEL SLEEVES AND WALL SHALL BE SEALED W/ FLEXIBLE FIRE RATED SEALANT.

**QUALITY ASSURANCE**

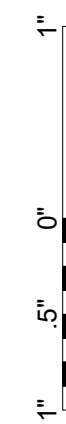
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- c. COMMENCE FIRESTOPPING WORK ONLY AFTER SUBMITTALS (INCLUDING MOCKUPS WHERE APPLICABLE) ARE APPROVED, AND PRE-INSTALLATION CONFERENCE IS SUCCESSFULLY CONCLUDED.

**INSTALLATION - GENERAL**

- a. COMPLY W/ UL SYSTEM REQUIREMENTS AND FIRESTOPPING MANUFACTURERS' PRINTED INSTALLATION INSTRUCTIONS.
- b. INSTALL FORMING /DAMMING /BACKING MATERIALS AND OTHER ACCESSORIES OF TYPES REQUIRED TO SUPPORT FILL MATERIALS DURING THEIR APPLICATION AND IN THE POSITION NEEDED TO PRODUCE CROSS-SECTIONAL SHAPES AND DEPTHS REQUIRED TO ACHIEVE FIRE RATINGS INDICATED.
- c. INSTALL FILL MATERIALS BY PROVEN TECHNIQUES TO PRODUCE THE FOLLOWING RESULTS:
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- f. FOR FILL MATERIALS THAT WILL REMAIN EXPOSED AFTER COMPLETING WORK, FINISH TO PRODUCE SMOOTH UNIFORM SURFACES THAT ARE FLUSH W/ ADJOINING FINISHES.
- g. REMOVE COMBUSTIBLE FORMING MATERIALS, AND OTHER ACCESSORIES, THAT ARE NOT INDICATED AS PERMANENT COMPONENTS OF FIRESTOP SYSTEMS.
- h. REMOVE EXCESS SEALANT FROM ADJOINING SURFACES.
- i. IDENTIFY THROUGH PENETRATION FIRESTOP SYSTEMS W/ PERMANENTLY ATTACHED, PREPRINTED METAL OR PLASTIC LABELS, AS SPECIFIED.
- j. INSPECT FILL MATERIALS AFTER 48 HOURS FOR COMPLETE ADHESION AND SEAL IN ACCORDANCE W/ MANUFACTURER'S INSTRUCTIONS. CORRECT DEFICIENCIES AND RE-INSPECT.



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TREATMENT PLANT**  
FOR THE CITY OF LOXLEY  
LOXLEY, ALABAMA

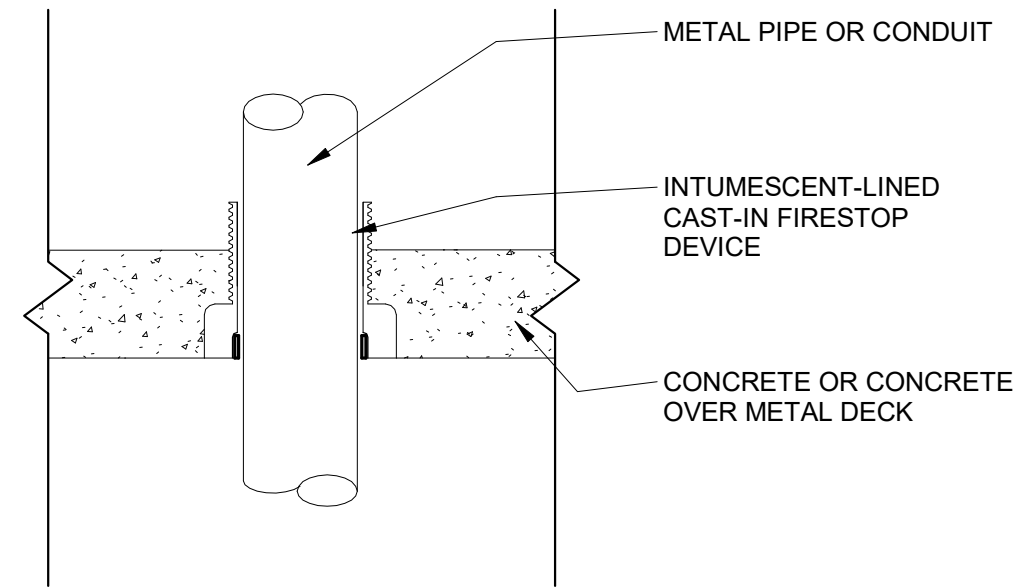
**GMC Project #CMOB22078(2)**



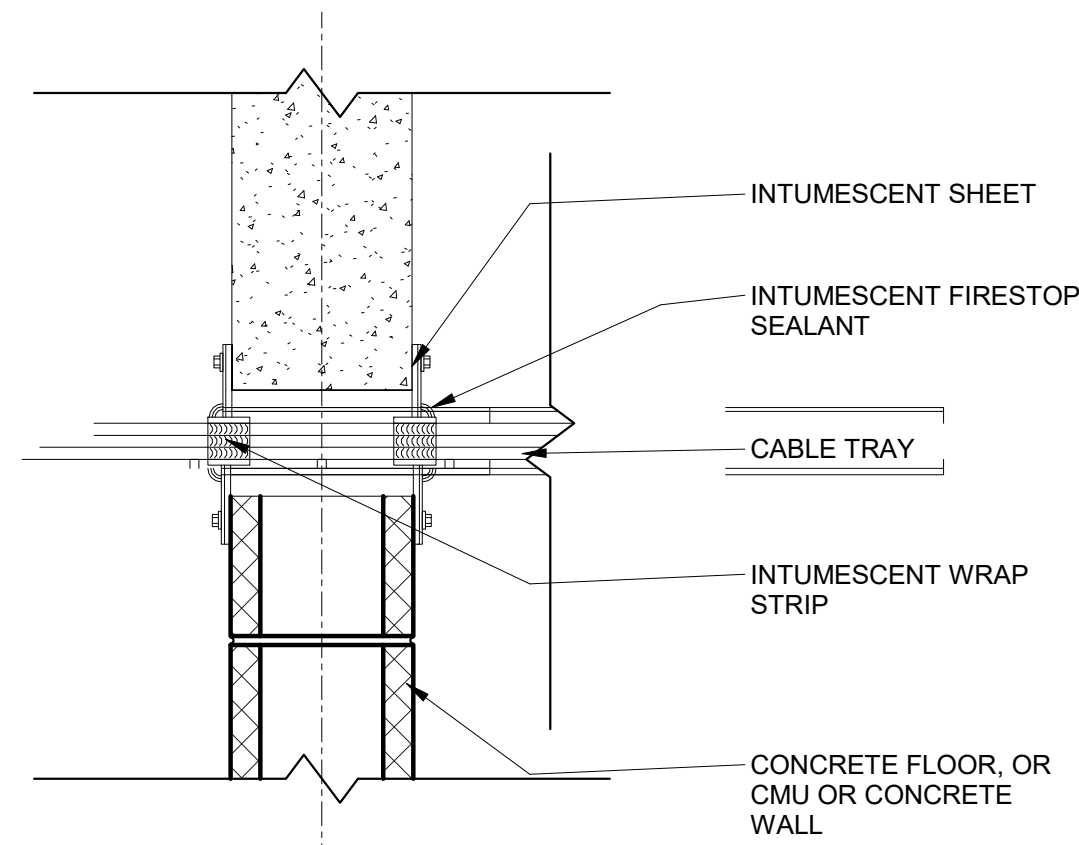
**CHEMICAL BUILDING  
FIRESTOPPING  
SYSTEMS**

**A-107**

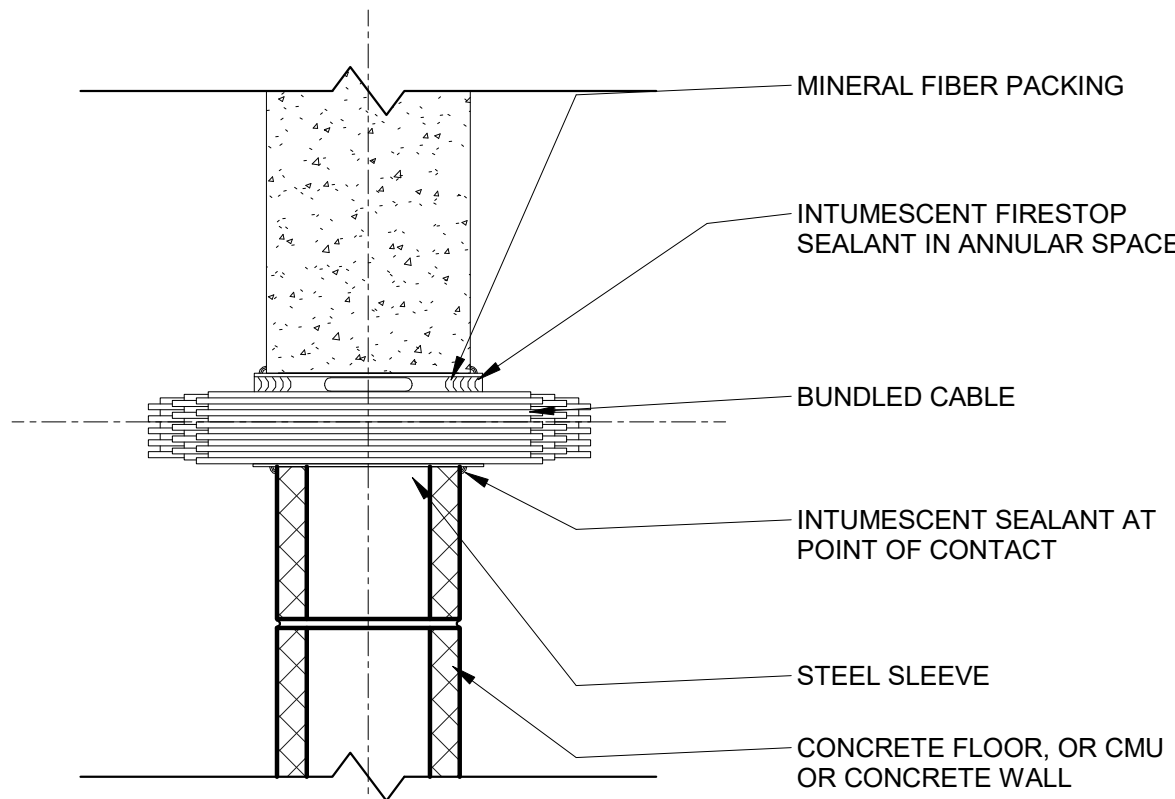
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**SINGLE UNINSULATED METAL PIPE THRU CONC OVER METAL FLOOR**

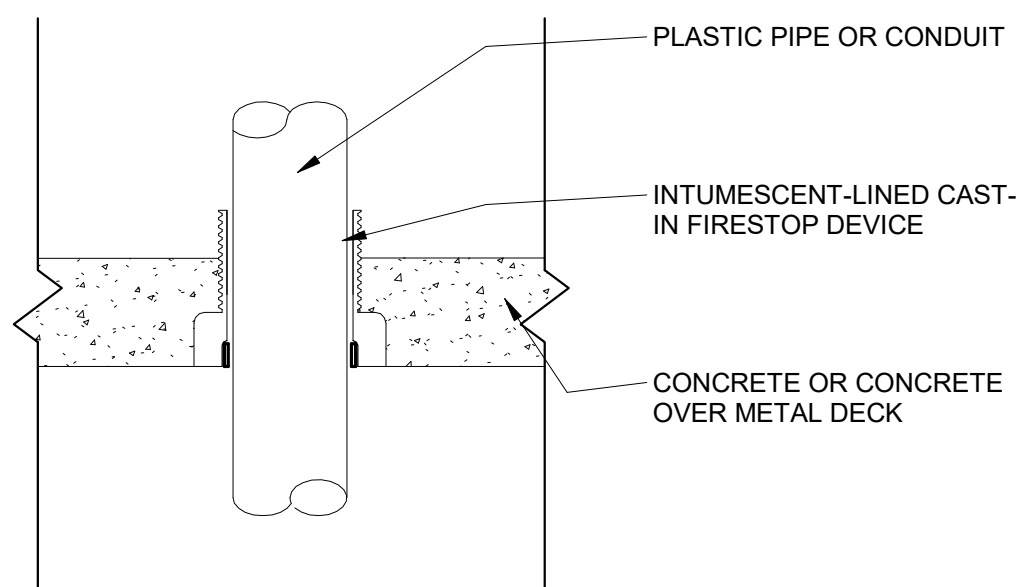


**CABLE TRAY THRU CONC FLOOR / WALL OR CMU WALL**



NOTE: FIRESTOP BOTH SIDES AT WALLS;  
FIRESTOP ONE SIDE AT FLOORS

**BUNDLED CABLE THRU CONC FLOOR / WALL OR CMU WALL**



**SINGLE NONMETALLIC PIPE THRU CONCRETE OVER METAL FLOOR**

**GENERAL THRU-PENETRATION NOTES:**

**GENERAL**

- a. ALL THROUGH-PENETRATION FIRESTOP WORK SHALL COMPLY W/ THE REQUIREMENTS OF SECTION 07841 - THROUGH PENETRATION FIRESTOP SYSTEMS.
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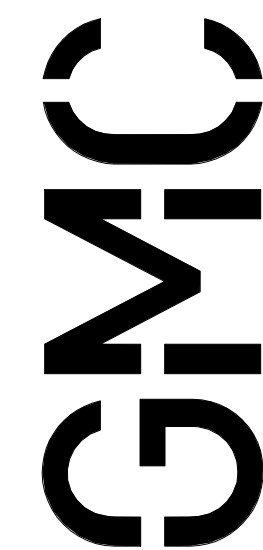
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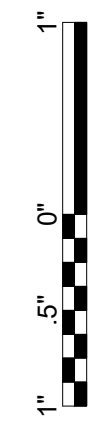
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**NEW LOXLEY WATER TREATMENT PLANT**  
FOR THE CITY OF LOXLEY  
LOXLEY, ALABAMA

**GMC Project #CMOB22078(2)**



**CHEMICAL BUILDING FIRESTOPPING SYSTEMS**

**A-108**

**FINISH SCHEDULE**

ROOM #	ROOM NAME	WALL FINISH				BASE	FLOOR MATERIAL	CEILING		COMMENTS
		NORTH	EAST	SOUTH	WEST			MATERIAL	HEIGHT	
101	CONTROL	GYP-1/PNT-1	GYP-1/PNT-1	GYP-1/PNT-1	GYP-1/PNT-1	RUB-1	SFF-1	ACT-1	9'-0"	
102	RESTROOM	GYP-1/PNT-1	GYP-1/PNT-1	GYP-1/PNT-1	GYP-1/PNT-1	RUB-1	SFF-1	ACT-1	9'-0"	
103	MECHANICAL	CMU/PNT-1	CMU/PNT-1	CMU/PNT-1	CMU/PNT-1	-	SFF-1	PLY-1	11'-4"	
104	STORAGE	CMU/PNT-1	CMU/PNT-1	CMU/PNT-1	CMU/PNT-1	-	SFF-1	PLY-1	11'-4"	
105	LIME FEED	CMU/PNT-1	CMU/PNT-1	CMU/PNT-1	CMU/PNT-1	-	SFF-1	PLY-1	11'-4"	
106	ELECTRICAL	CMU/PNT-1	CMU/PNT-1	CMU/PNT-1	CMU/PNT-1	-	SFF-1	GYP-1	11'-4"	
107	CHLORINE	CMU/PNT-1	CMU/PNT-1	CMU/PNT-1	CMU/PNT-1	-	SFF-1	PLY-1	11'-4"	

**DOOR SCHEDULE**

DOOR #	DOOR			FRAMES					COMMENTS	
	SIZE		TYPE	MATERIAL	TYPE	MATERIAL	DETAILS			
	WIDTH	HEIGHT					HEAD	JAMB		SILL
101	3'-0"	7'-0"	DR-2	HM	FR-1	FRP	A/A-110	B/A-110	C/A-110	
102	3'-0"	7'-0"	DR-1	HM	FR-1	FRP	A/A-110	B/A-110	-	
103	6'-0"	7'-0"	DR-3	HM	FR-1	FRP	D/A-110	E/A-110	C/A-110	
104A	6'-0"	7'-0"	DR-3	HM	FR-1	FRP	D/A-110	E/A-110	C/A-110	
104B	8'-0"	8'-0"	-	-	-	-	-	-	-	COILING DOOR
105A	3'-0"	7'-0"	DR-1	HM	FR-1	FRP	D/A-110	E/A-110	C/A-110	
105B	8'-0"	8'-0"	-	-	-	-	-	-	-	COILING DOOR
106A	6'-0"	7'-0"	DR-3	HM	FR-1	FRP	D/A-110	E/A-110	C/A-110	
106B	3'-0"	7'-0"	DR-2	HM	FR-1	FRP	D/A-110	E/A-110	C/A-110	
107	6'-0"	7'-0"	DR-4	FRP	FR-1	FRP	D/A-110	E/A-110	C/A-110	

**WINDOW SCHEDULE**

WINDOW #	ROUGH OPENING		TYPE	DETAILS			COMMENTS
	WIDTH	HEIGHT		HEAD	JAMB	SILL	
A	4'-0"	4'-0"	Window-Single-Hung	F/A-111	-	G/A-111	

**FLOOR LEGEND**

NUMBER	TYPE	DESCRIPTION
SFF-1	SMOOTH FLOAT FINISH CONCRETE	N/A

**CEILING LEGEND**

NUMBER	TYPE	DESCRIPTION
GYP-1	GYPSUM BOARD	GYPSUM BOARD, STYLE/COLOR: BY OWNER
ACT-1	LAY-IN CEILING TILE	ACCOUSTICAL CEILING TILE SYSTEM
PLY-1	PLYWOOD	PAINTED PLYWOOD

**BASE LEGEND**

NUMBER	TYPE	DESCRIPTION
RUB-1	RUBBER WALL BASE	PRODUCT EQUAL TO; REFER TO SPECIFICATION 09 65 13, STYLE/COLOR: BY OWNER

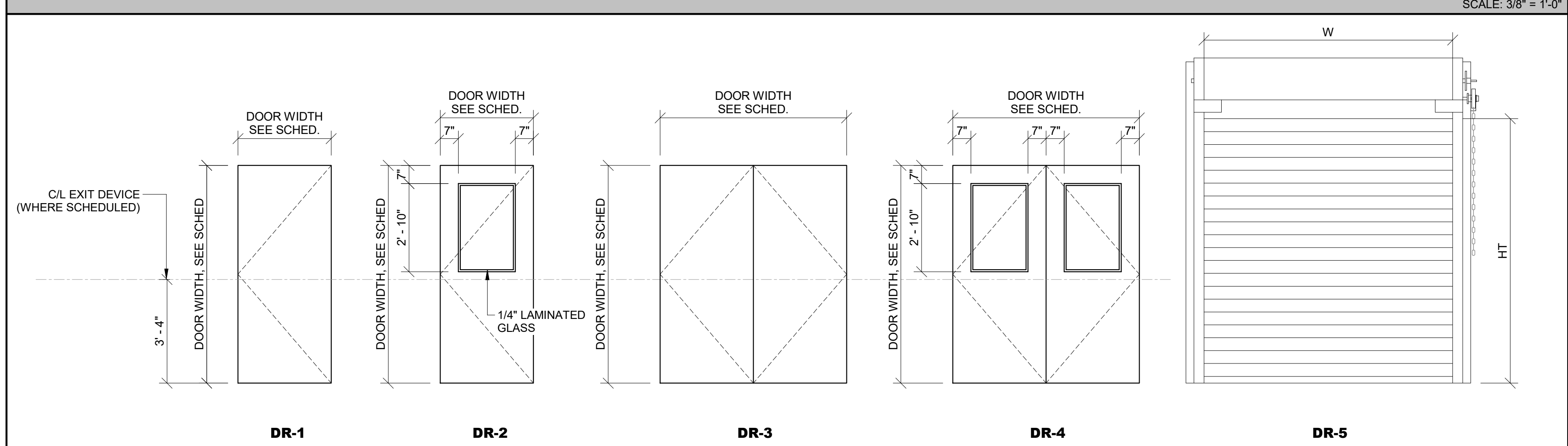
**WALLS LEGEND**

NUMBER	TYPE	DESCRIPTION
PNT-1	PAINT	PRODUCT EQUAL TO; MANUFACTURER: TNEMEC COLOR: BY OWNER
GYP-1	TYPE X GYPSUM BOARD	PRODUCT EQUAL TO; PAINTED GYP BOARD, STYLE/COLOR: BY OWNER; REFER TO SPECIFICATION 09 29 00

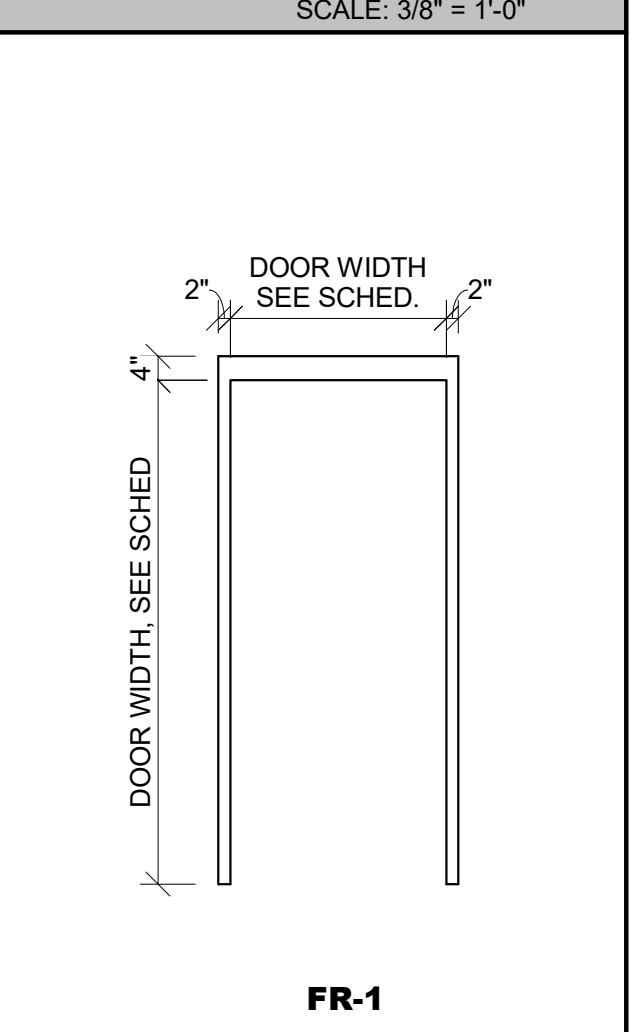
**MISCELLANEOUS LEGEND**

NUMBER	TYPE	DESCRIPTION
CMU-1	CONCRETE MASONRY UNITS	PRODUCT EQUAL TO; COLOR: BY OWNER
SSMR	METAL ROOF	PRODUCT EQUAL TO; COLOR: BY OWNER
HM	HOLLOW METAL	PRODUCT EQUAL TO; COLOR: BY OWNER
FRP	FIBERGLASS REINFORCED PLASTIC	PRODUCT EQUAL TO; COLOR: BY OWNER

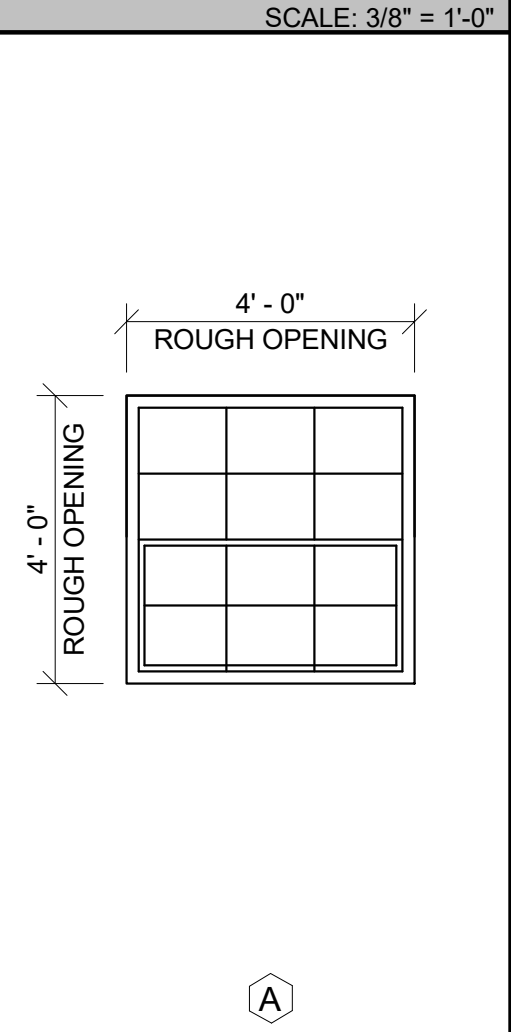
**DOOR TYPES**



**FRAME TYPES**



**WINDOW TYPES**



**NOTES**

- ALL BUILDING MATERIALS STYLE/COLOR SHALL BE COORDINATED WITH THE OWNER VIA THE SUBMITTAL PROCESS AS OUTLINED IN SPECIFICATION 01330 PRIOR TO PLACING ORDERS.
- THRESHOLDS AT DOORWAYS SHALL NOT EXCEED 1/2" IN HEIGHT. RAISED THRESHOLDS AND DOOR LEVEL CHANGES AT ACCESSIBLE DOORWAYS SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2.
- SEE SPECIFICATIONS FOR HARDWARE INFORMATION.

**SIGNAGE NOTES**

- RAISED CHARACTERS SHALL BE 1/32 INCH MINIMUM ABOVE THEIR BACKGROUND.
- CHARACTERS SHALL BE UPPERCASE.
- CHARACTERS SHALL BE SANS SERIF. CHARACTERS SHALL NOT BE ITALIC, OBLIQUE, SCRIPT, HIGHLY DECORATIVE, OR OF OTHER UNUSUAL FORMS.
- CHARACTERS SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 55 PERCENT MINIMUM AND 110 PERCENT MAXIMUM OF THE HEIGHT OF THE UPPERCASE LETTER "I".
- STROKE THICKNESS OF THE UPPERCASE LETTER "I" SHALL BE 15 PERCENT MAXIMUM OF HEIGHT OF CHARACTER.
- SPACING BETWEEN THE BASELINES OF SEPARATE LINES OF RAISED CHARACTERS WITHIN A MESSAGE SHALL BE 135 PERCENT MINIMUM AND 170 PERCENT MAXIMUM OF THE RAISED CHARACTER HEIGHT.

**GMC**

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REVISION 2	08.09.2024

Project Manager:	DK
Engineer:	DT
Designer:	DT
Drawn By:	HKD

NEW LOXLEY WATER TREATMENT PLANT FOR THE CITY OF LOXLEY, LOXLEY, ALABAMA

GMC Project #CMB0220078(2)

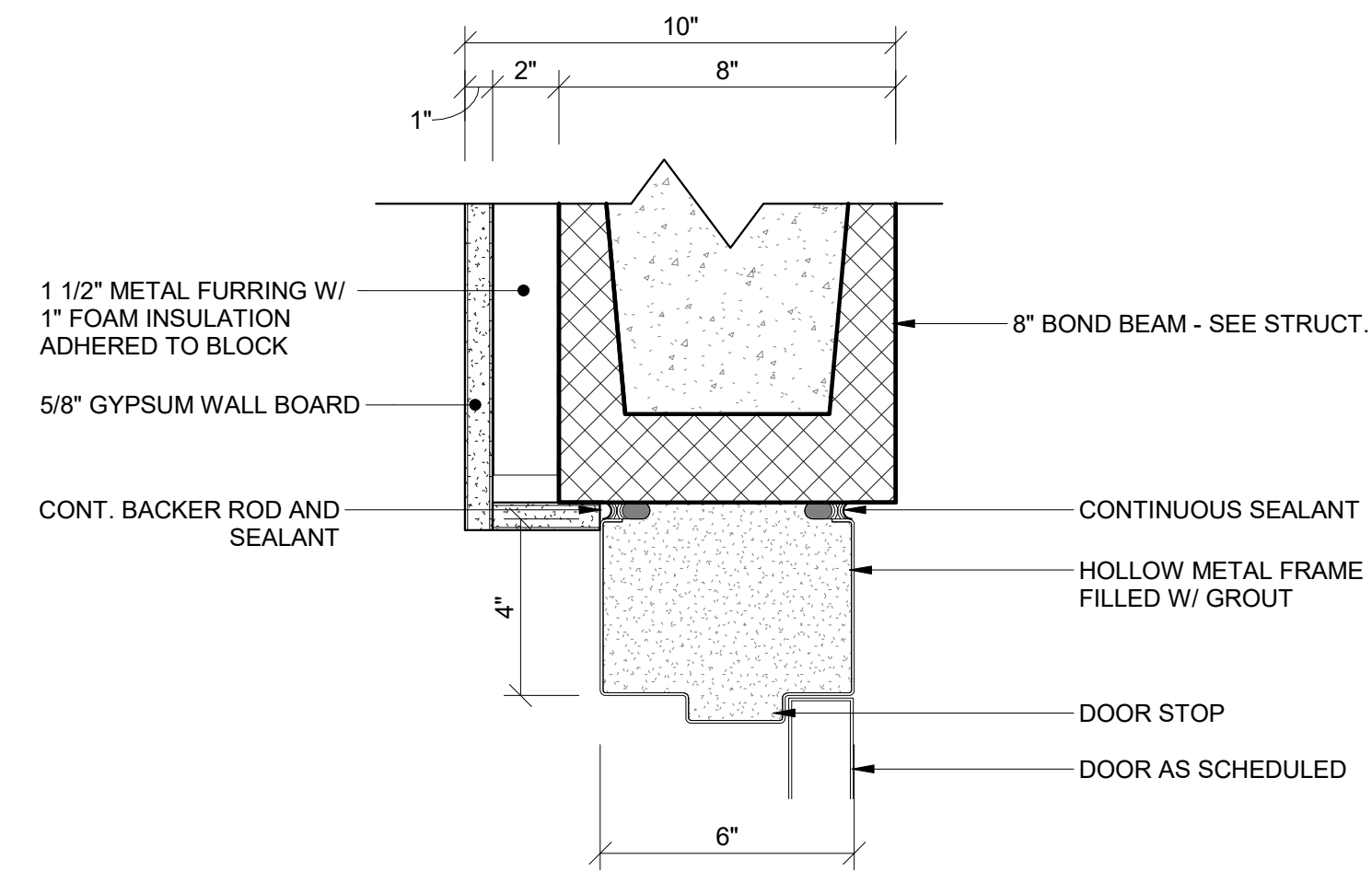


CHEMICAL BUILDING SCHEDULES

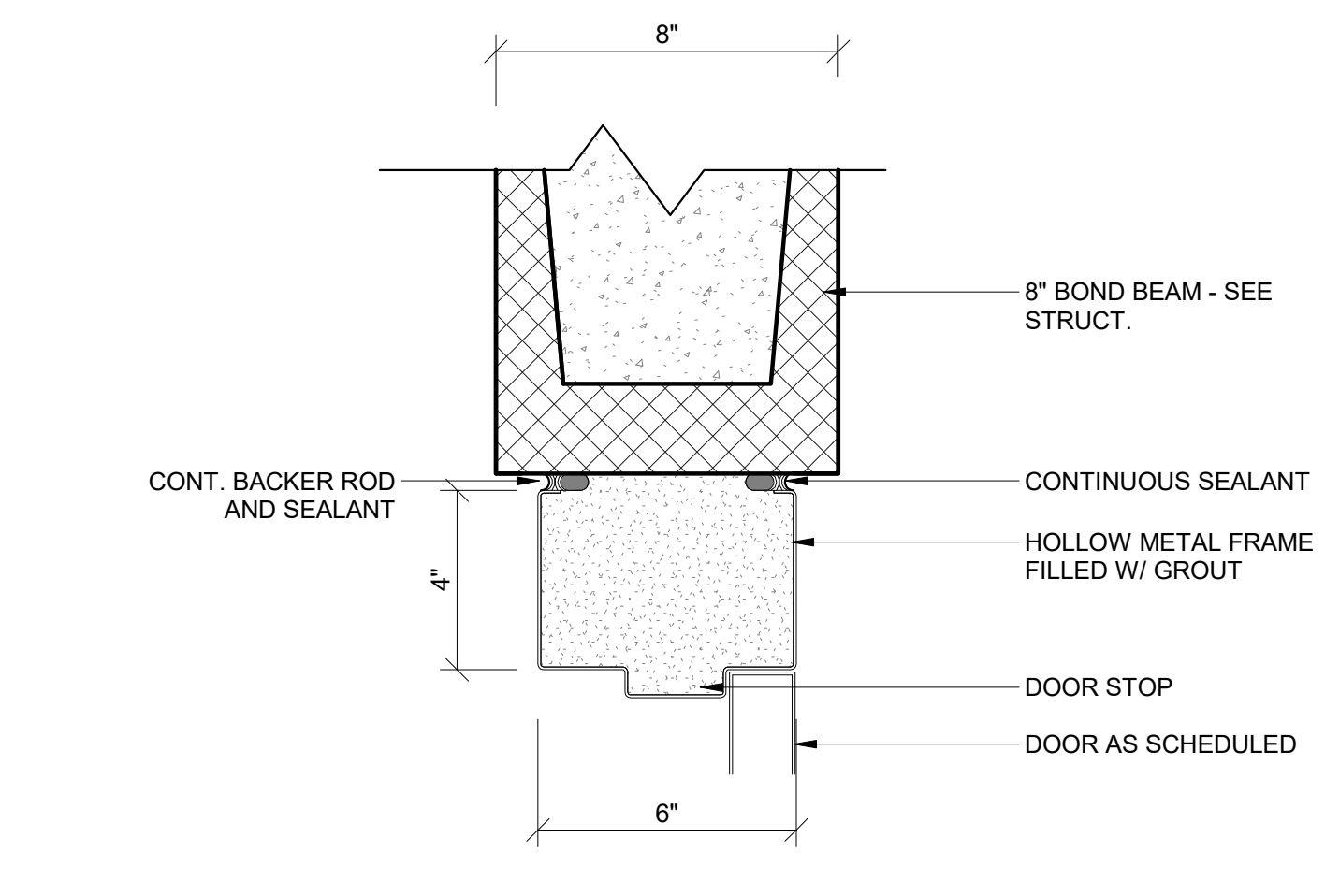
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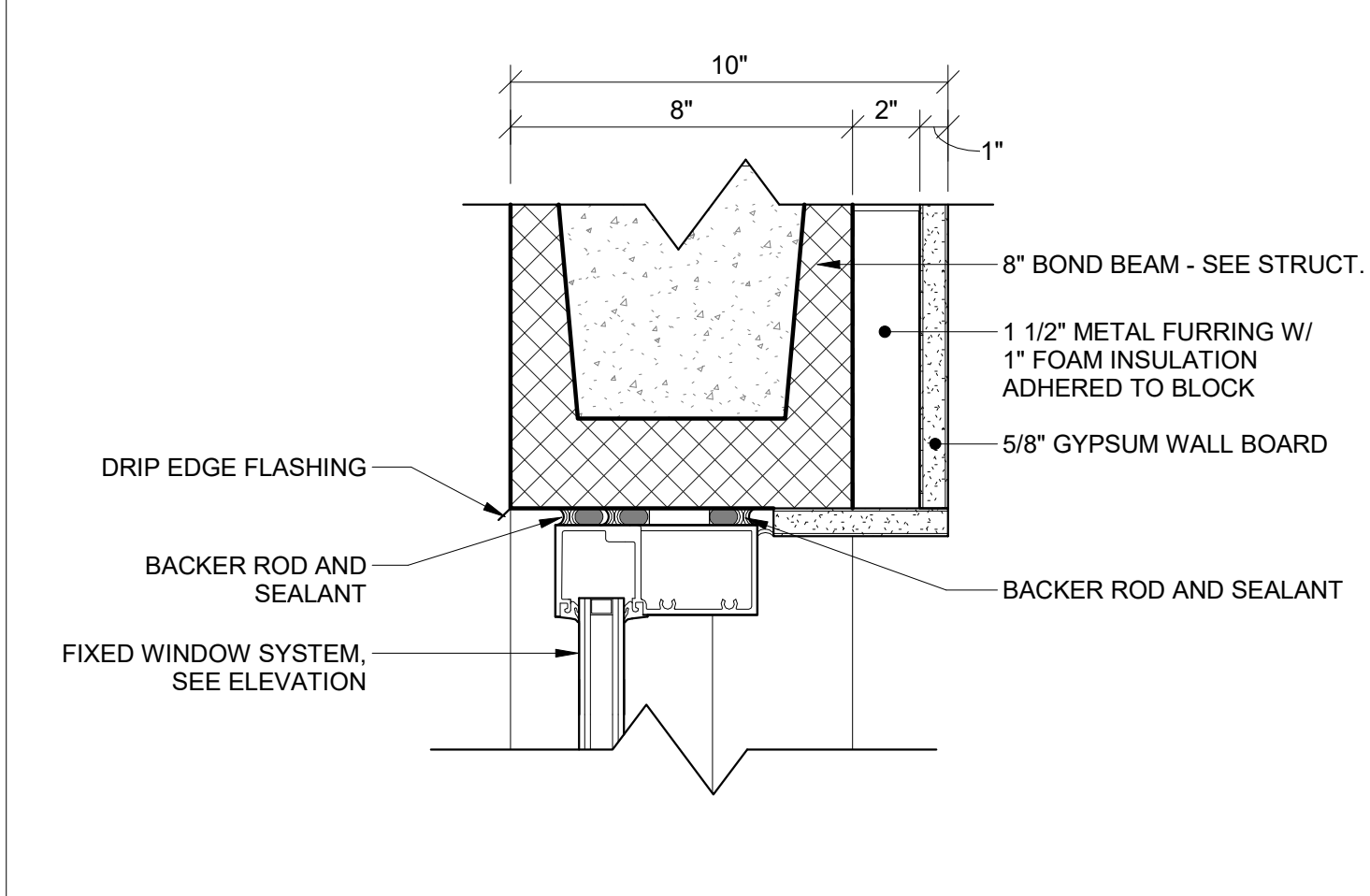
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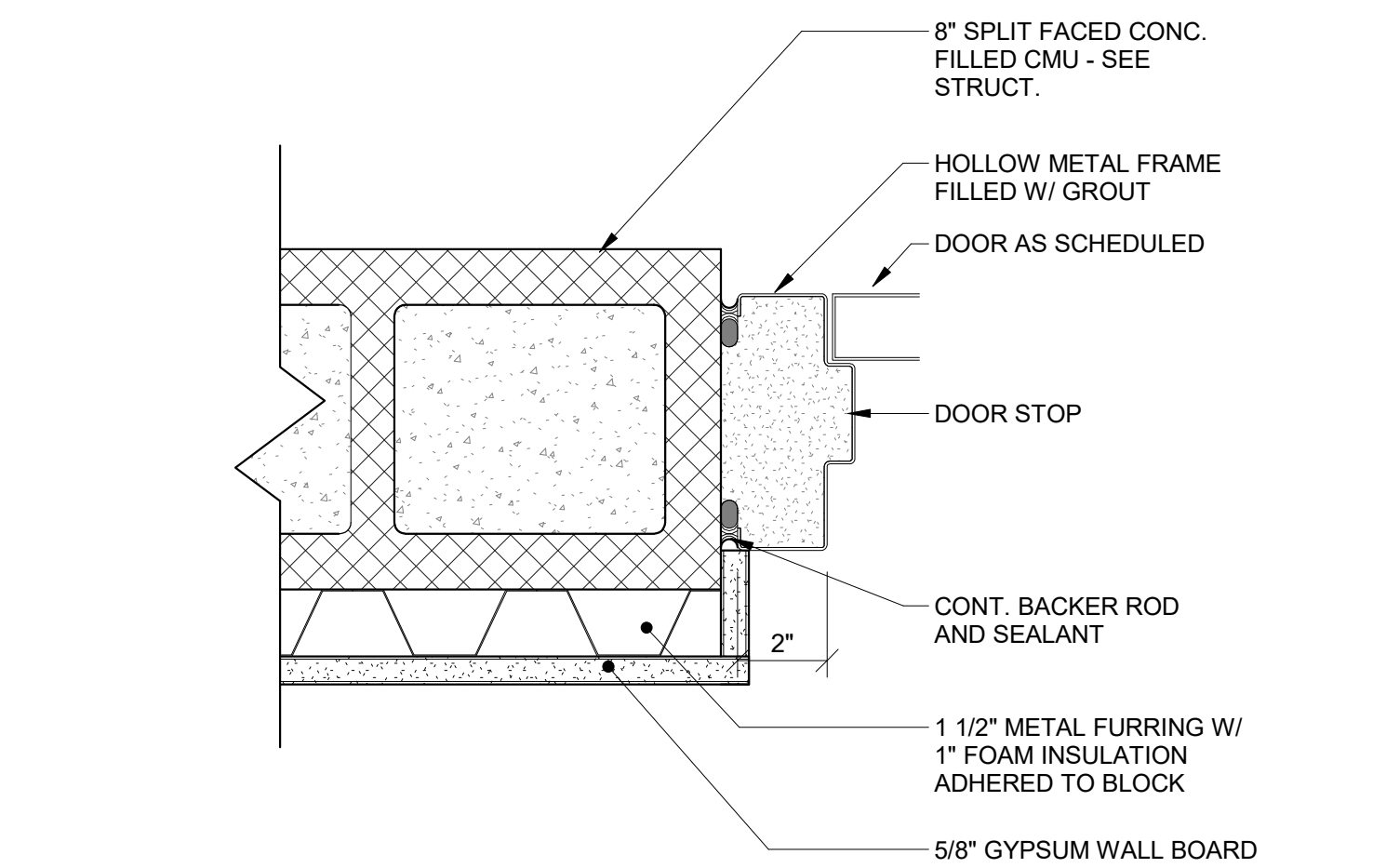
**A DOOR - HEAD**  
A-110 SCALE: 3" = 1'-0"



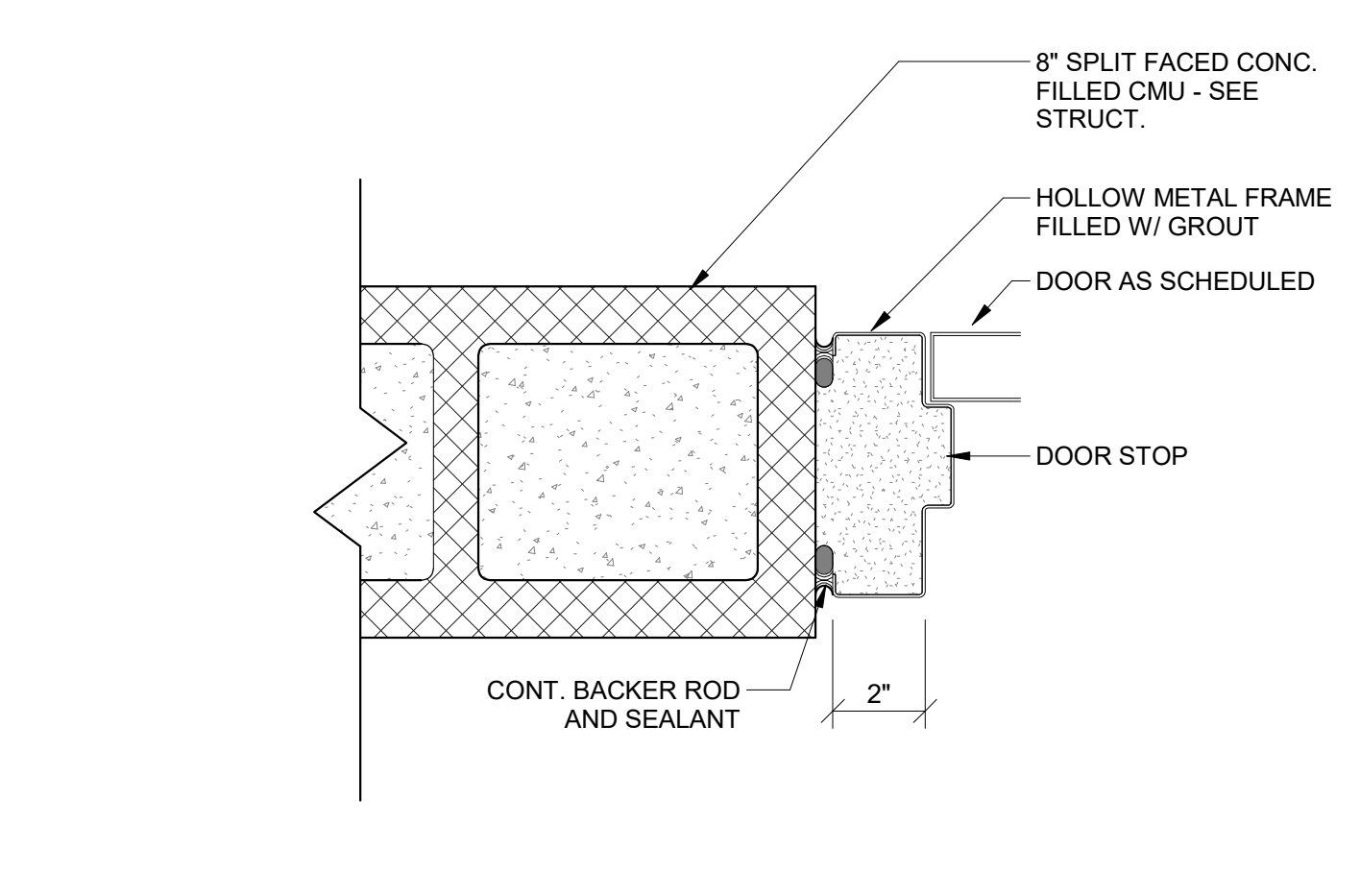
**D DOOR - HEAD**  
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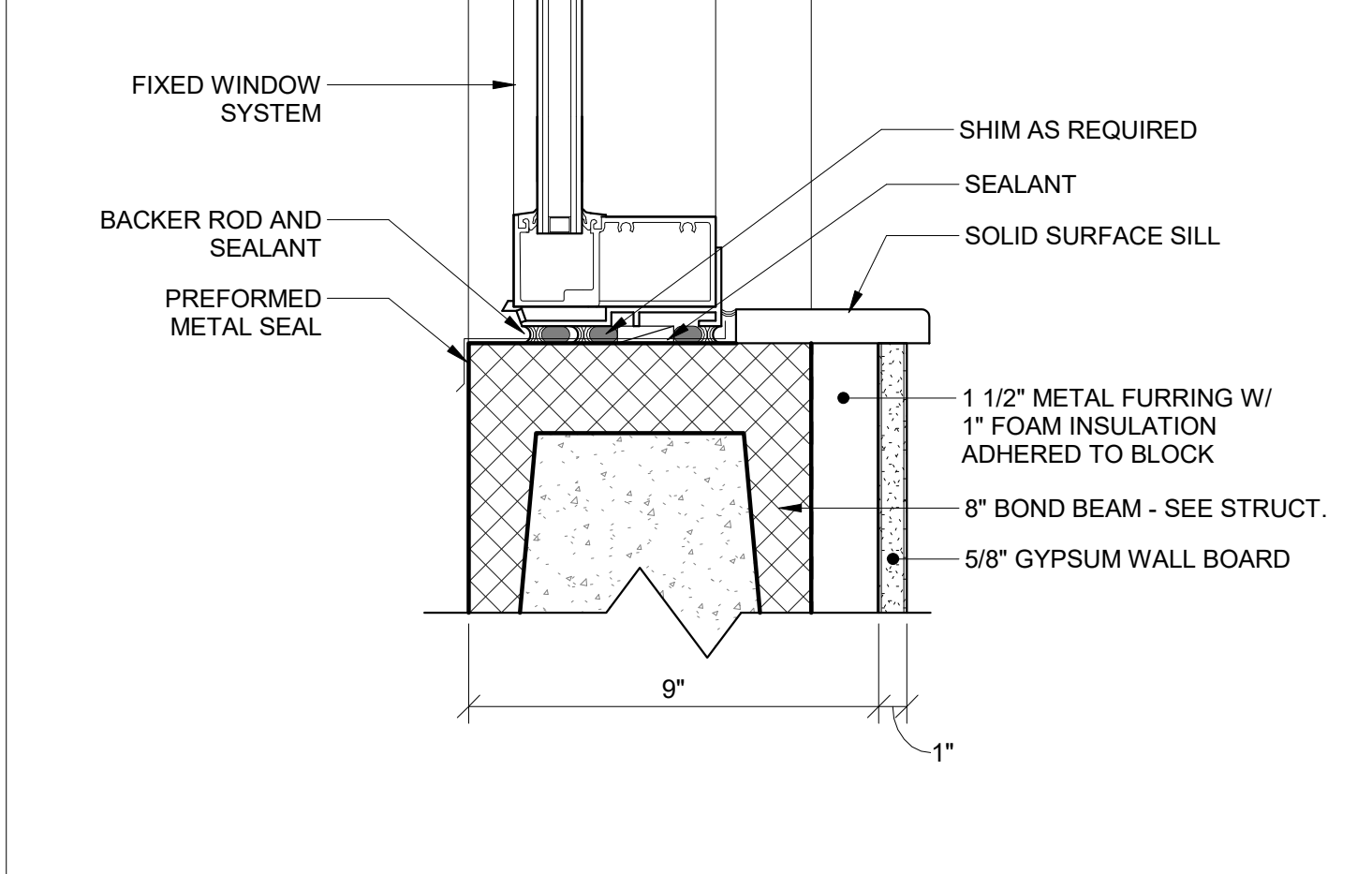
**F WINDOW - HEAD - EXTERIOR**  
A-110 SCALE: 3" = 1'-0"



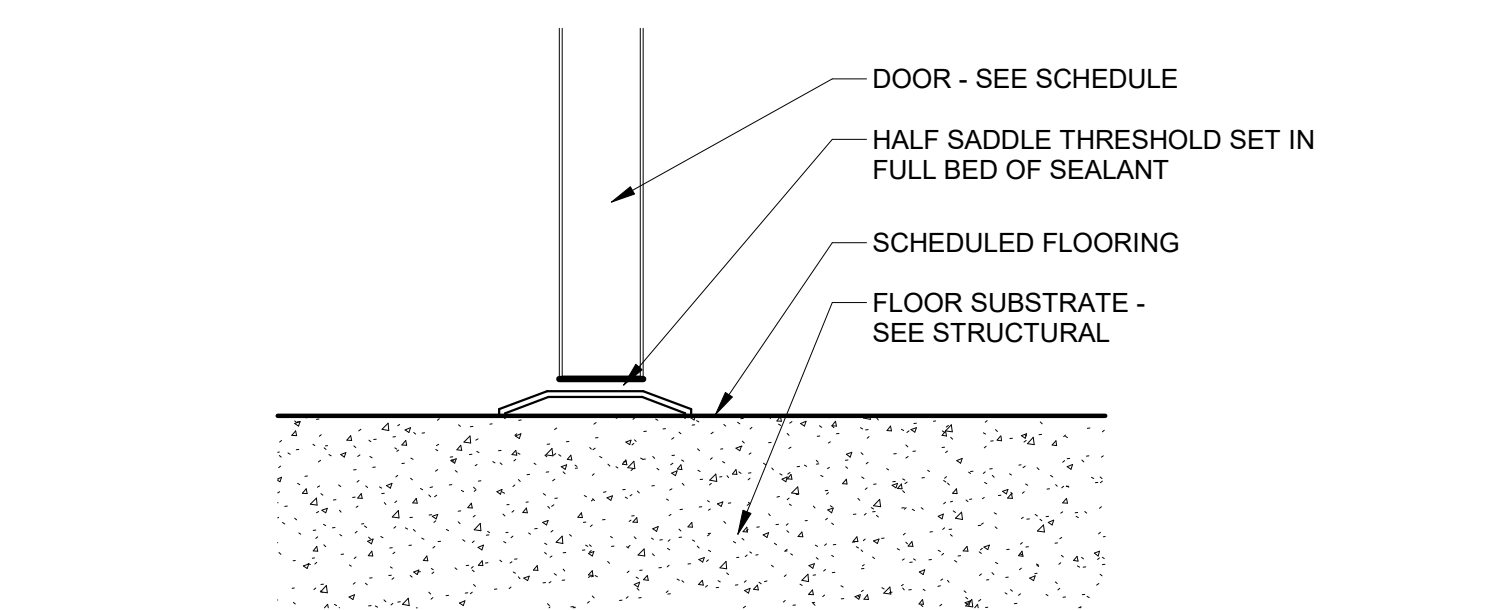
**B DOOR - JAMB**  
A-110 SCALE: 3" = 1'-0"



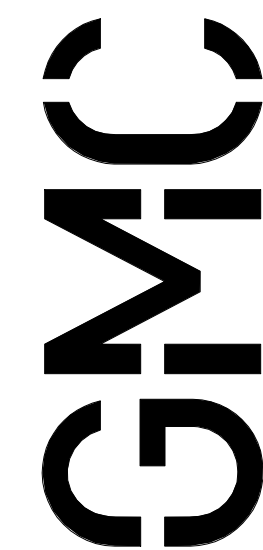
**E DOOR - JAMB**  
A-110 SCALE: 3" = 1'-0"



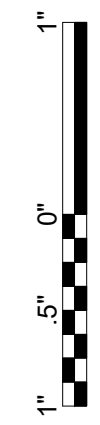
**G WINDOW - SILL - EXTERIOR**  
A-110 SCALE: 3" = 1'-0"



**C DOOR - SILL**  
A-110 SCALE: 3" = 1'-0"



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NEW LOXLEY WATER  
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 FOR THE CITY OF LOXLEY  
 LOXLEY, ALABAMA

**GMC Project #CMOB220078(2)**



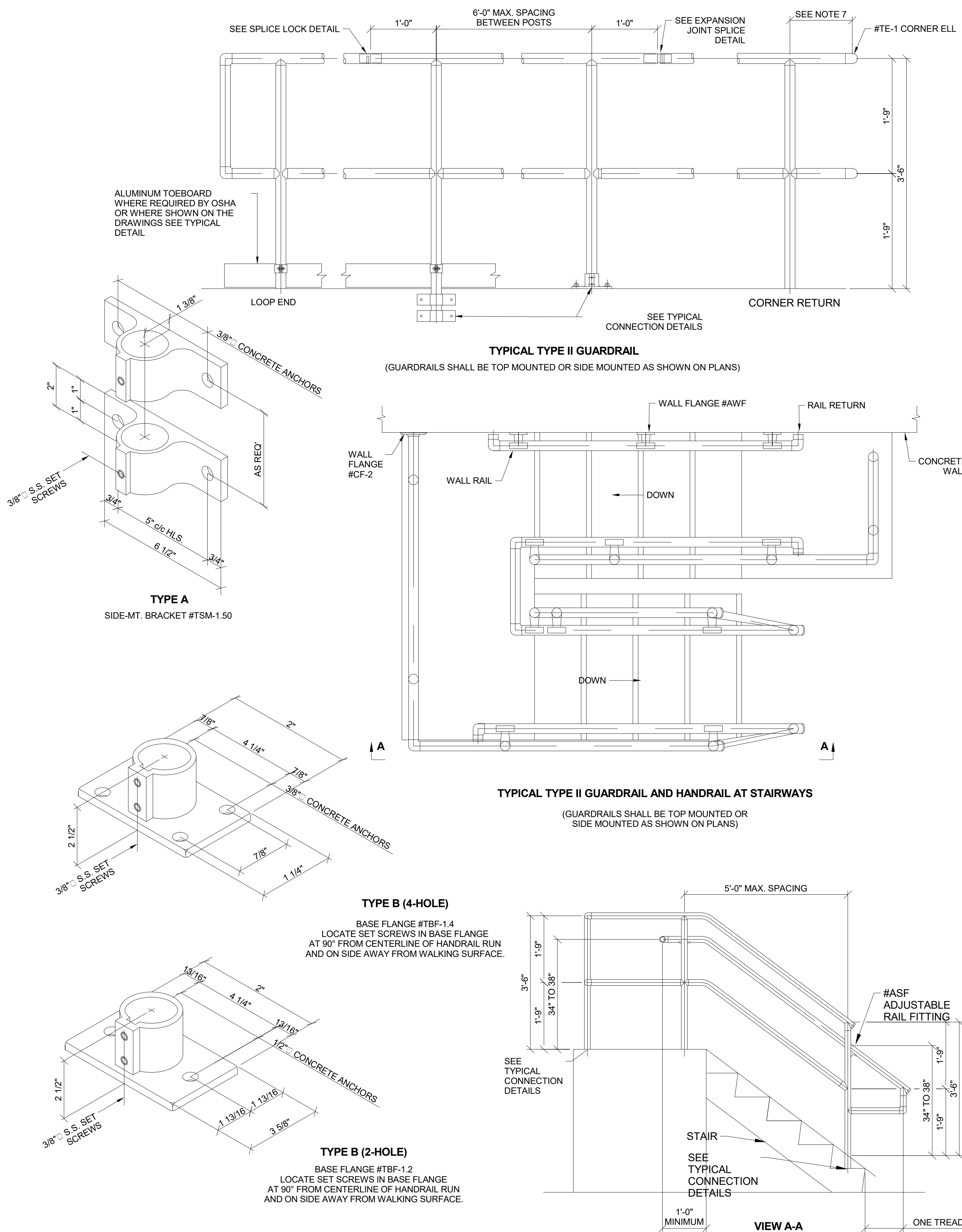
**CHEMICAL BUILDING**  
**DETAILS**

**A-110**

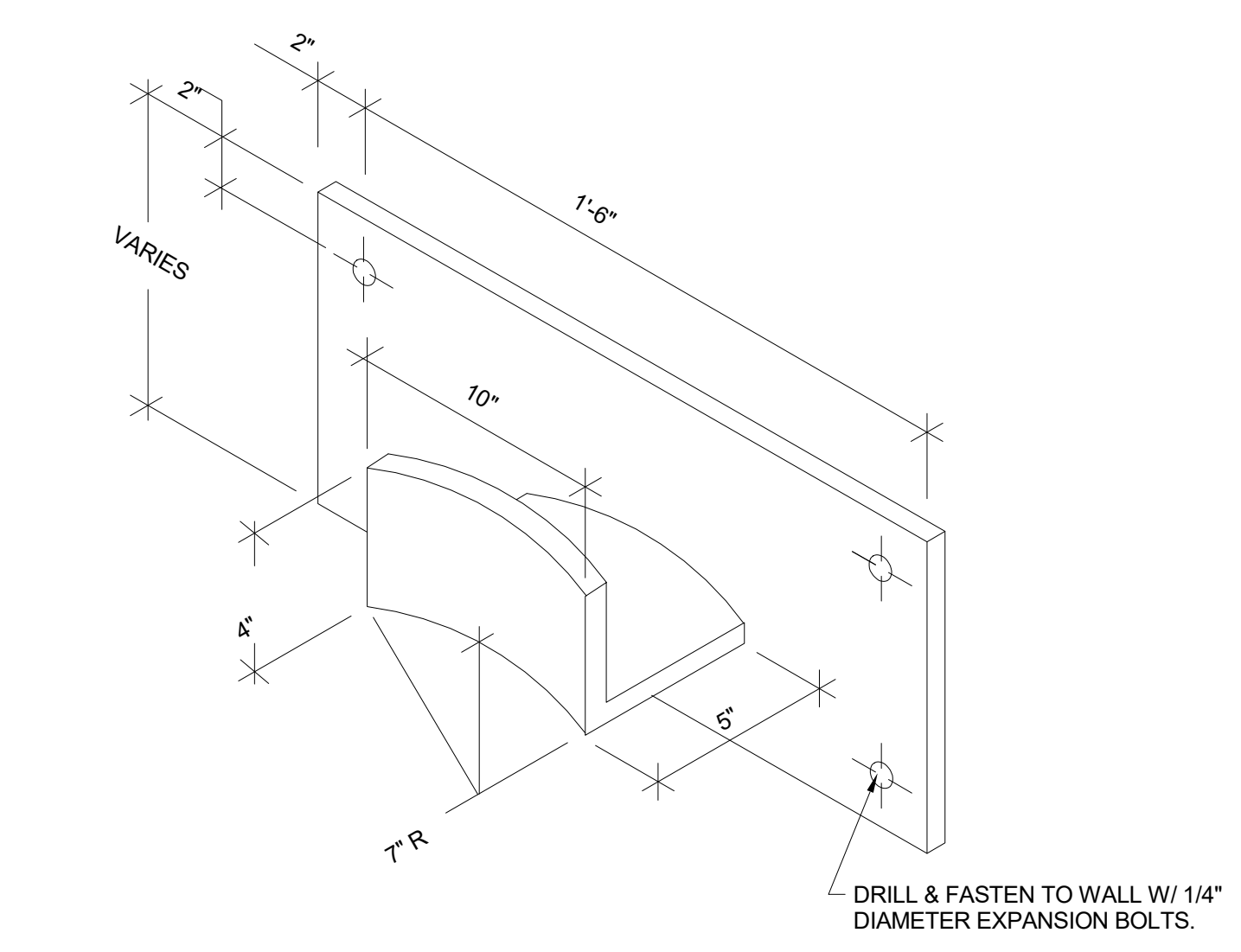


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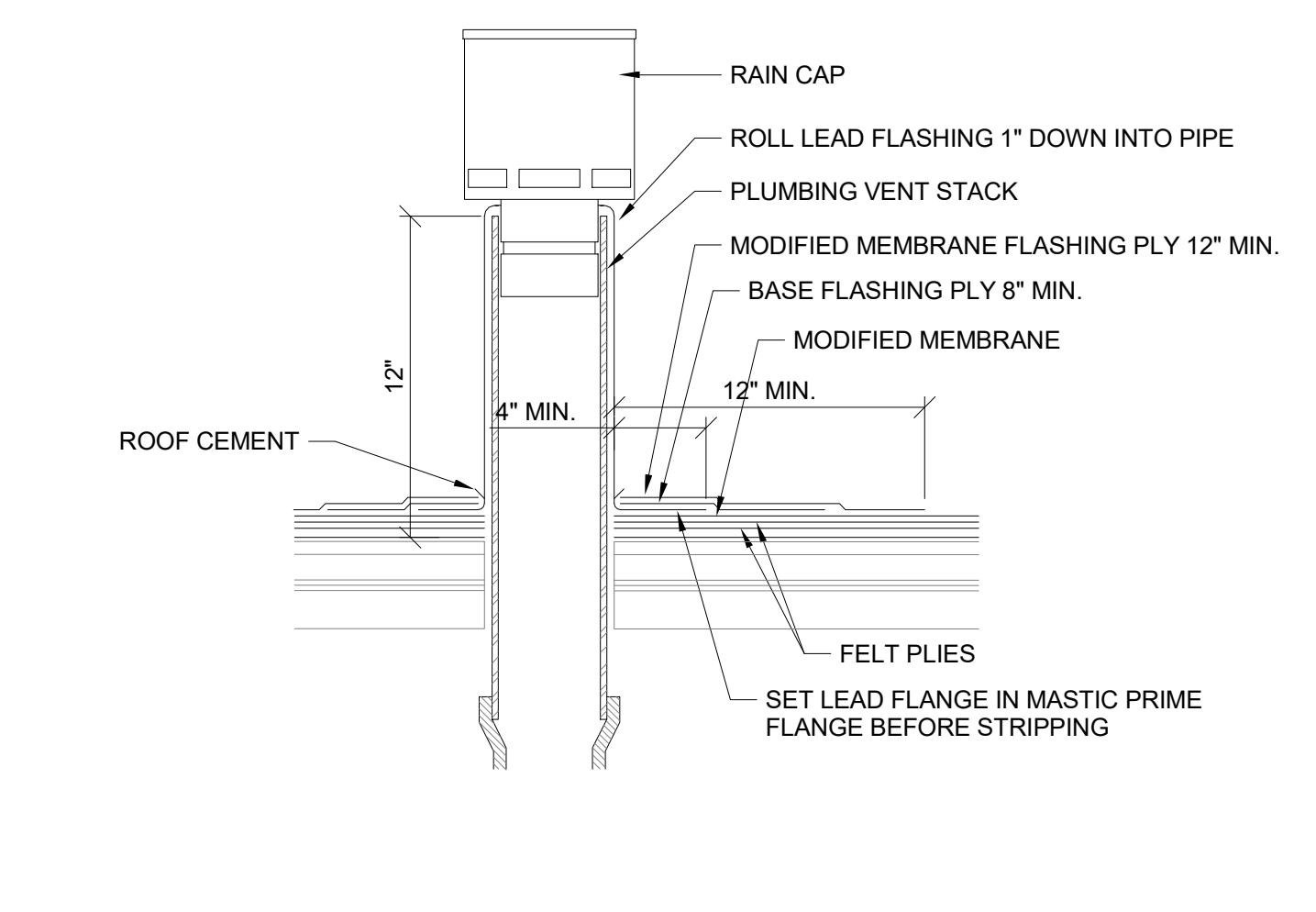
**H RAILING**  
A-111 SCALE: NOT TO SCALE



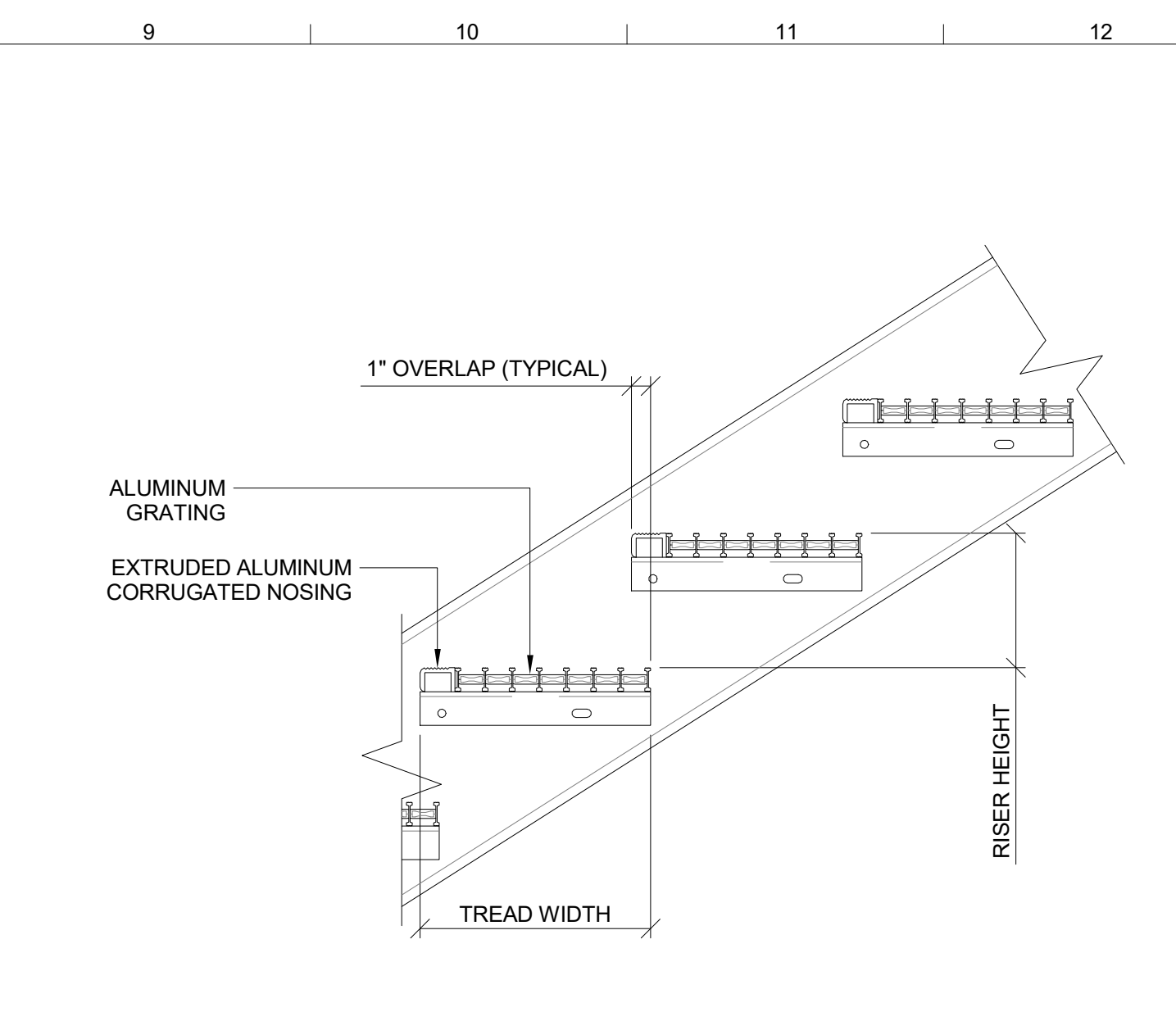
**L HOSE RACK**  
A-111 SCALE: NOT TO SCALE



**K VENT THRU ROOF**  
A-111 SCALE: NOT TO SCALE



**J STAIR TREAD**  
A-111 SCALE: NOT TO SCALE



**RAILING NOTES:**

- GUARDRAILS AND HANDRAILS SHALL BE THE PRODUCT OF A COMPANY NORMALLY ENGAGED IN THE MANUFACTURE OF PIPE RAILING. RAILINGS SHALL BE SHOP ASSEMBLED IN LENGTHS NOT TO EXCEED 24 FEET FOR FIELD ERECTION.
- THE HANDRAIL SHALL BE MADE OF PIPES JOINED TOGETHER WITH COMPONENT FITTINGS. SAMPLES OF ALL COMPONENTS, BASES, TOE PLATE AND PIPE MUST BE SUBMITTED FOR APPROVAL AT THE REQUEST OF THE ENGINEER. COMPONENTS THAT ARE POP-RIVETED OR GLUED AT THE JOINTS WILL NOT BE ACCEPTABLE. ALL COMPONENTS MUST BE MECHANICALLY FASTENED WITH STAINLESS STEEL HARDWARE. HANDRAIL AND COMPONENTS SHALL BE TUFRAIL AS MANUFACTURED BY THOMPSON FABRICATING, LLC (BIRMINGHAM, ALABAMA) OR AN APPROVED EQUAL.
- RAILINGS SHALL BE 1 1/2" SCHEDULE 40 ALUMINUM PIPE ALLOY 6105-T5, ASTM-B-429 OR ASTM-B-221. POST SHALL BE 1 1/2" SCHEDULE 40 ALUMINUM PIPE OF THE SAME ALLOY. POST SPACING SHALL BE A MAXIMUM OF 6'-0".
- GUARDRAILS AND HANDRAILS SHALL BE DESIGNED TO WITHSTAND A 200 LB CONCENTRATED LOAD APPLIED IN ANY DIRECTION AND AT ANY POINT ON THE TOP RAIL. GUARDRAILS AND HANDRAILS SHALL ALSO BE DESIGNED TO WITHSTAND A UNIFORM LOAD OF 20 LB/FT APPLIED HORIZONTALLY TO THE TOP RAIL. UNIFORM LOADS ARE NOT TO BE APPLIED SIMULTANEOUSLY WITH THE CONCENTRATED LOADS.
- INTERMEDIATE RAILINGS SHALL BE PROVIDED SUCH THAT A 21-INCH DIAMETER SPHERE CANNOT PASS THROUGH ANY OPENING.
- INTERMEDIATE RAILINGS SHALL BE DESIGNED TO WITHSTAND A HORIZONTALLY APPLIED NORMAL LOAD OF 50 LB ON AN AREA NOT TO EXCEED ONE SQUARE FOOT INCLUDING OPENINGS AND SPACES BETWEEN RAILS.
- THE MANUFACTURER SHALL SUBMIT CALCULATIONS FOR APPROVAL AT THE REQUEST OF THE ENGINEER. TESTING OF BASE CASTINGS OR BASE EXTRUSIONS BY AN INDEPENDENT LAB OR MANUFACTURER'S LAB (IF MANUFACTURER'S LAB MEETS THE REQUIREMENTS OF THE ALUMINUM ASSOCIATION) WILL BE AN ACCEPTABLE SUBSTITUTE FOR CALCULATIONS. CALCULATIONS WILL BE REQUIRED FOR APPROVAL OF ALL OTHER DESIGN ASPECTS.
- POSTS SHALL NOT INTERRUPT THE CONTINUATION OF THE TOP RAIL AT ANY POINT ALONG THE RAILING, INCLUDING CORNERS AND END TERMINATIONS (OSHA 1910.23). THE TOP SURFACE OF THE TOP RAILING SHALL BE SMOOTH AND SHALL NOT BE INTERRUPTED BY PROJECTED FITTINGS.
- THE MID-RAIL AT A CORNER RETURN SHALL BE ABLE TO WITHSTAND A 200LB LOAD WITHOUT LOOSENING. THE MANUFACTURER IS TO DETERMINE THIS DIMENSION FOR THEIR SYSTEM AND PROVIDE PHYSICAL TESTS FROM A LABORATORY TO CONFIRM COMPLIANCE.
- CONCRETE ANCHORS SHALL BE STAINLESS STEEL TYPE 303 OR 304 WEDGE ANCHORS AND SHALL BE FURNISHED BY THE HANDRAIL MANUFACTURER. THE ANCHOR DESIGN SHALL INCLUDE THE APPROPRIATE REDUCTION FACTORS FOR SPACING AND EDGE DISTANCES IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED DATA.
- TOEBOARD SHALL CONFORM TO OSHA STANDARDS. TOEBOARD SHALL BE A MINIMUM OF 4" HIGH AND SHALL BE AN EXTRUSION THAT ATTACHES TO THE POSTS WITH CLAMPS THAT WILL ALLOW FOR EXPANSION AND CONTRACTION BETWEEN POSTS. TOEBOARD SHALL BE SET 1/4" ABOVE THE WALKING SURFACE. TOEBOARDS SHALL BE PROVIDED ON HANDRAILS AS REQUIRED BY OSHA AND/OR AS SHOWN ON DRAWINGS. TOEBOARDS SHALL BE SHIPPED IN STOCK LENGTHS FOR FIELD INSTALLATION.
- A SELF-CLOSING GATE SHALL GUARD OPENINGS IN THE RAILING (OSHA 1910.23). SAFETY CHAINS SHALL NOT BE USED UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS.
- FINISH SHALL BE ALUMINUM ASSOCIATION M10-C22-A41 (215-R1). THE PIPE SHALL BE PLASTIC-WRAPPED. THE PLASTIC WRAP IS TO BE REMOVED AFTER ERECTION.
- ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT OR DISSIMILAR METALS WILL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR ISOLATORS OR OTHER APPROVED MATERIAL.

**STAIR TREAD NOTES:**

- ALUMINUM STAIR TREADS SHALL BE I-BAR GRATING TYPE TREADS AND SHALL BE FURNISHED WITH EXTRUDED ALUMINUM CORRUGATED NOSING. ALUMINUM CARRIER ANGLES SHALL BE WELDED TO THE ENDS OF STAIR TREADS. MINIMUM DEPTH OF GRATING AT TREADS SHALL BE 1-1/4".

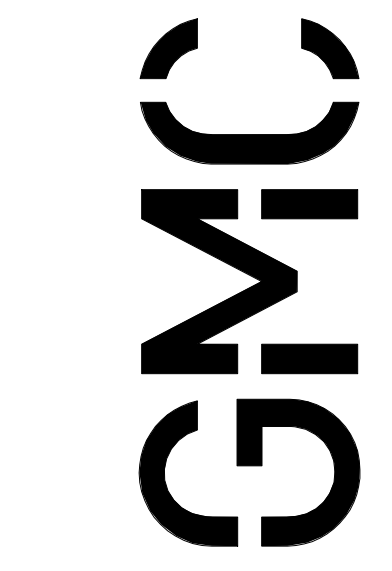
NEW LOXLEY WATER TREATMENT PLANT FOR THE CITY OF LOXLEY LOXLEY, ALABAMA

CHEMICAL BUILDING DETAILS

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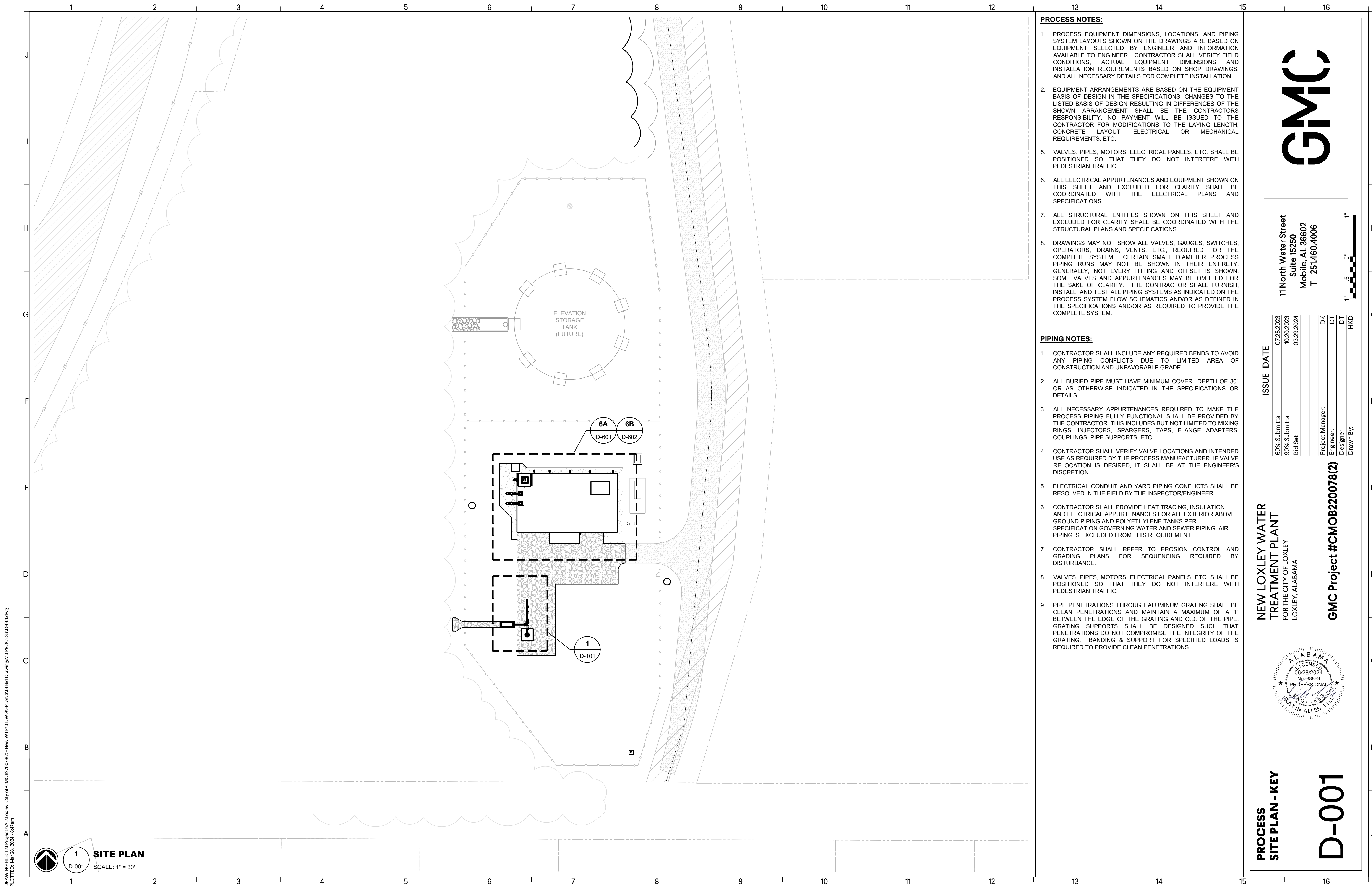
Project Manager:	DK
Engineer:	DT
Designer:	DT
Drawn By:	HKD



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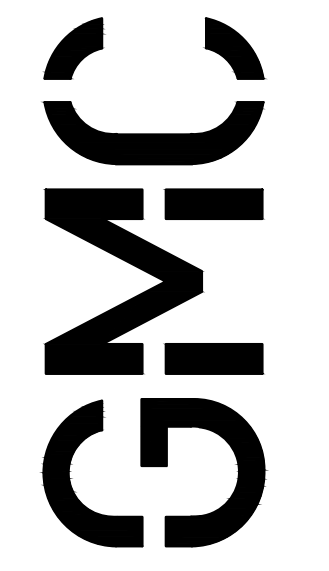


**PROCESS NOTES:**

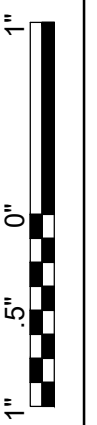
1. PROCESS EQUIPMENT DIMENSIONS, LOCATIONS, AND PIPING SYSTEM LAYOUTS SHOWN ON THE DRAWINGS ARE BASED ON EQUIPMENT SELECTED BY ENGINEER AND INFORMATION AVAILABLE TO ENGINEER. CONTRACTOR SHALL VERIFY FIELD CONDITIONS, ACTUAL EQUIPMENT DIMENSIONS AND INSTALLATION REQUIREMENTS BASED ON SHOP DRAWINGS, AND ALL NECESSARY DETAILS FOR COMPLETE INSTALLATION.
2. EQUIPMENT ARRANGEMENTS ARE BASED ON THE EQUIPMENT BASIS OF DESIGN IN THE SPECIFICATIONS. CHANGES TO THE LISTED BASIS OF DESIGN RESULTING IN DIFFERENCES TO THE SHOWN ARRANGEMENT SHALL BE THE CONTRACTORS RESPONSIBILITY. NO PAYMENT WILL BE ISSUED TO THE CONTRACTOR FOR MODIFICATIONS TO THE LAYING LENGTH, CONCRETE LAYOUT, ELECTRICAL OR MECHANICAL REQUIREMENTS, ETC.
5. VALVES, PIPES, MOTORS, ELECTRICAL PANELS, ETC. SHALL BE POSITIONED SO THAT THEY DO NOT INTERFERE WITH PEDESTRIAN TRAFFIC.
6. ALL ELECTRICAL APPURTENANCES AND EQUIPMENT SHOWN ON THIS SHEET AND EXCLUDED FOR CLARITY SHALL BE COORDINATED WITH THE ELECTRICAL PLANS AND SPECIFICATIONS.
7. ALL STRUCTURAL ENTITIES SHOWN ON THIS SHEET AND EXCLUDED FOR CLARITY SHALL BE COORDINATED WITH THE STRUCTURAL PLANS AND SPECIFICATIONS.
8. DRAWINGS MAY NOT SHOW ALL VALVES, GAUGES, SWITCHES, OPERATORS, DRAINS, VENTS, ETC., REQUIRED FOR THE COMPLETE SYSTEM. CERTAIN SMALL DIAMETER PROCESS PIPING RUNS MAY NOT BE SHOWN IN THEIR ENTIRETY. GENERALLY, NOT EVERY FITTING AND OFFSET IS SHOWN. SOME VALVES AND APPURTENANCES MAY BE OMITTED FOR THE SAKE OF CLARITY. THE CONTRACTOR SHALL FURNISH, INSTALL, AND TEST ALL PIPING SYSTEMS AS INDICATED ON THE PROCESS SYSTEM FLOW SCHEMATICS AND/OR AS DEFINED IN THE SPECIFICATIONS AND/OR AS REQUIRED TO PROVIDE THE COMPLETE SYSTEM.

**PIPING NOTES:**

1. CONTRACTOR SHALL INCLUDE ANY REQUIRED BENDS TO AVOID ANY PIPING CONFLICTS DUE TO LIMITED AREA OF CONSTRUCTION AND UNFAVORABLE GRADE.
2. ALL BURIED PIPE MUST HAVE MINIMUM COVER DEPTH OF 30" OR AS OTHERWISE INDICATED IN THE SPECIFICATIONS OR DETAILS.
3. ALL NECESSARY APPURTENANCES REQUIRED TO MAKE THE PROCESS PIPING FULLY FUNCTIONAL SHALL BE PROVIDED BY THE CONTRACTOR. THIS INCLUDES BUT NOT LIMITED TO MIXING RINGS, INJECTORS, SPARGERS, TAPS, FLANGE ADAPTERS, COUPLINGS, PIPE SUPPORTS, ETC.
4. CONTRACTOR SHALL VERIFY VALVE LOCATIONS AND INTENDED USE AS REQUIRED BY THE PROCESS MANUFACTURER. IF VALVE RELOCATION IS DESIRED, IT SHALL BE AT THE ENGINEER'S DISCRETION.
5. ELECTRICAL CONDUIT AND YARD PIPING CONFLICTS SHALL BE RESOLVED IN THE FIELD BY THE INSPECTOR/ENGINEER.
6. CONTRACTOR SHALL PROVIDE HEAT TRACING, INSULATION AND ELECTRICAL APPURTENANCES FOR ALL EXTERIOR ABOVE GROUND PIPING AND POLYETHYLENE TANKS PER SPECIFICATION GOVERNING WATER AND SEWER PIPING. AIR PIPING IS EXCLUDED FROM THIS REQUIREMENT.
7. CONTRACTOR SHALL REFER TO EROSION CONTROL AND GRADING PLANS FOR SEQUENCING REQUIRED BY DISTURBANCE.
8. VALVES, PIPES, MOTORS, ELECTRICAL PANELS, ETC. SHALL BE POSITIONED SO THAT THEY DO NOT INTERFERE WITH PEDESTRIAN TRAFFIC.
9. PIPE PENETRATIONS THROUGH ALUMINUM GRATING SHALL BE CLEAN PENETRATIONS AND MAINTAIN A MAXIMUM OF A 1" BETWEEN THE EDGE OF THE GRATING AND O.D. OF THE PIPE. GRATING SUPPORTS SHALL BE DESIGNED SUCH THAT PENETRATIONS DO NOT COMPROMISE THE INTEGRITY OF THE GRATING. BANDING & SUPPORT FOR SPECIFIED LOADS IS REQUIRED TO PROVIDE CLEAN PENETRATIONS.



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Engineer:	DT
Designer:	DT
Drawn By:	HKD

**NEW LOXLEY WATER TREATMENT PLANT**  
FOR THE CITY OF LOXLEY  
LOXLEY, ALABAMA

**GMC Project #CMOB220078(2)**



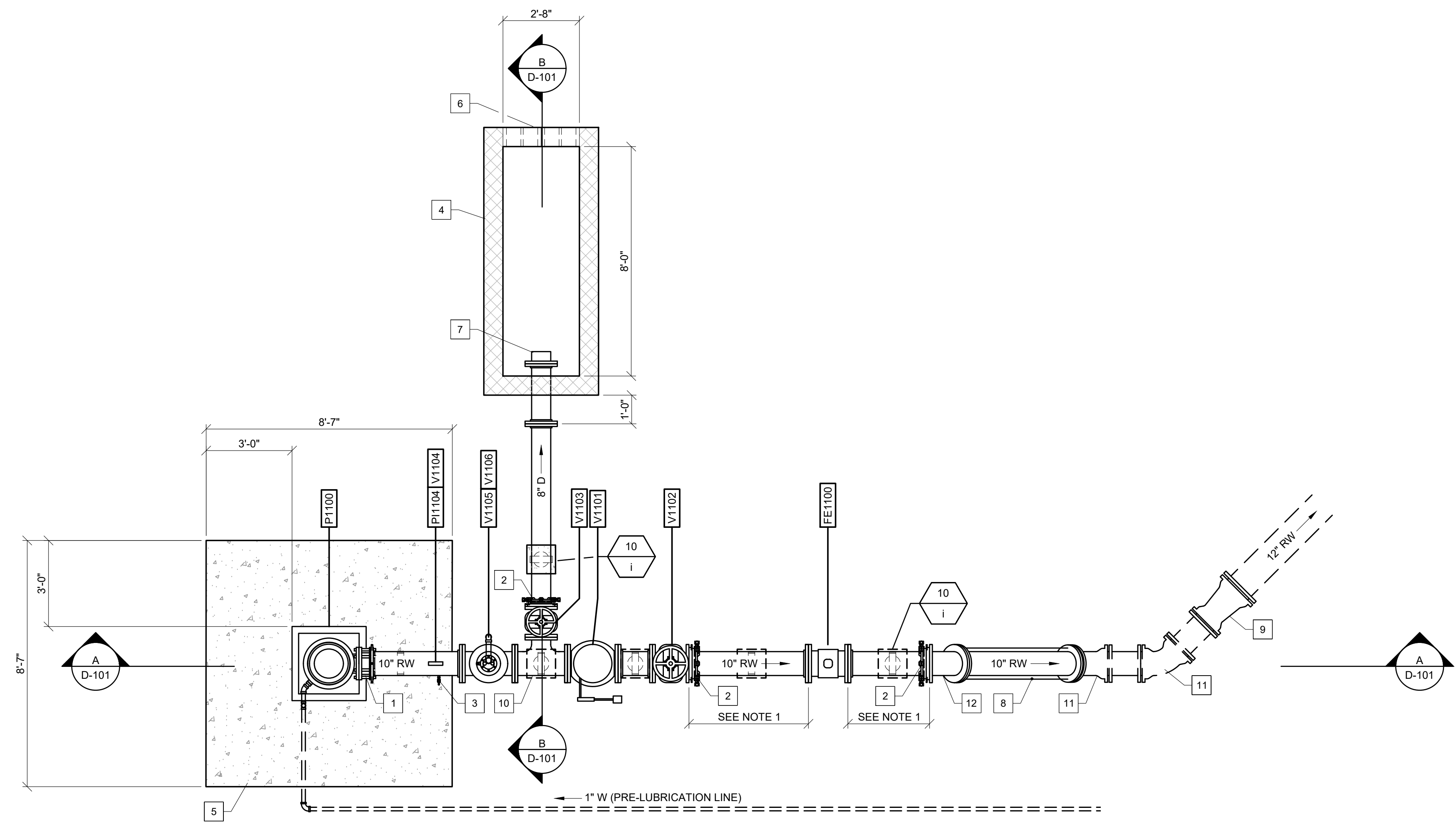
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**D-001**

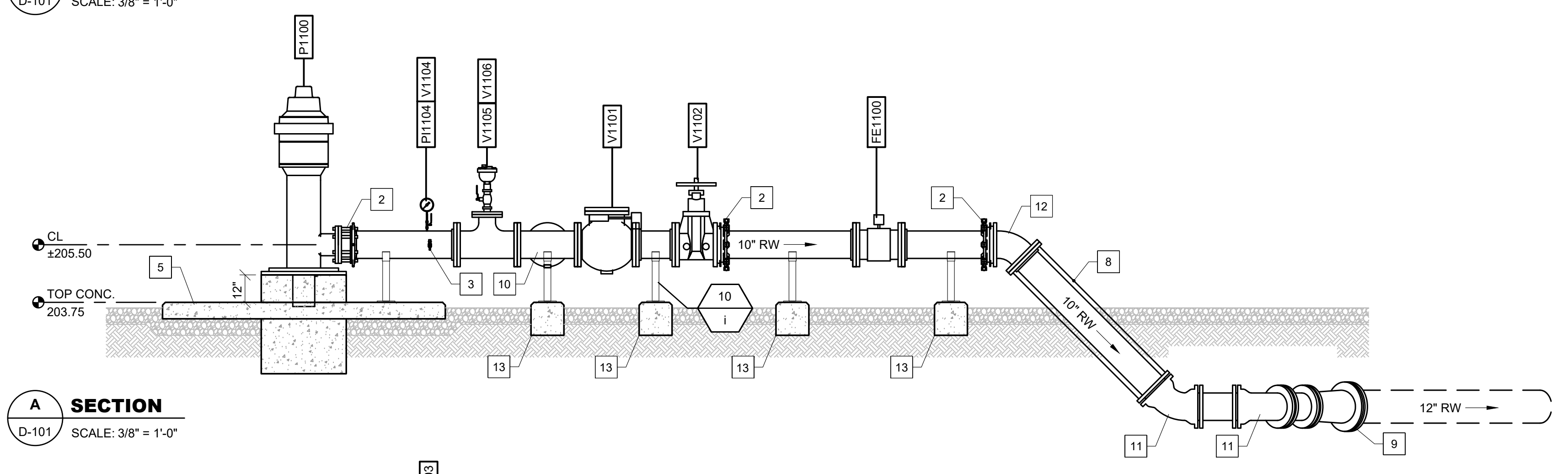
**1 SITE PLAN**  
D-001 SCALE: 1" = 30'

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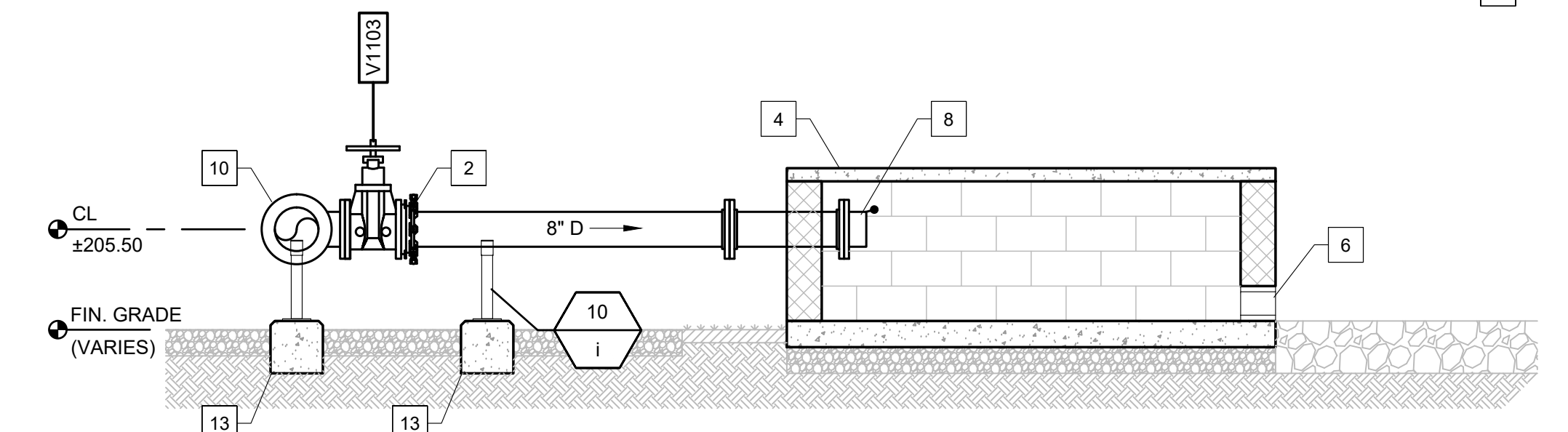
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PLOTTED: Mar 27, 2024 - 2:35pm



**1 PLAN**  
D-101 SCALE: 3/8" = 1'-0"



**A SECTION**  
D-101 SCALE: 3/8" = 1'-0"



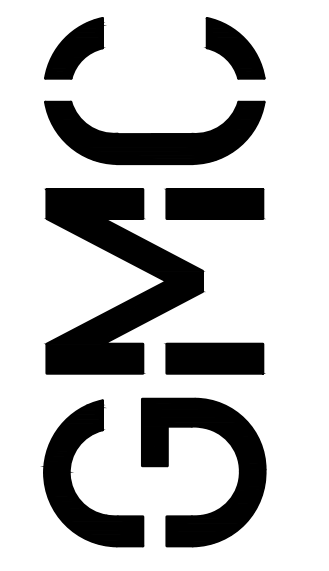
**B SECTION**  
D-101 SCALE: 3/8" = 1'-0"

**NOTES**

1. FLOW METERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS FOR UPSTREAM AND DOWNSTREAM SPACING.


**KEY NOTES: #**

1. SINGLE ARC EXPANSION JOINT W/ CONTROL RODS
2. FLANGE COUPLING ADAPTER
3. SPIGOT
4. PUMP-TO-WASTE BASIN
5. CONCRETE APRON
6. CMU TURNED ON ITS SIDE
7. 8" FLAP VALVE
8. THREADED ROD BETWEEN VERTICAL 45-DEGREE BENDS
9. 12" X 10" MJ REDUCER
10. 10" X 8" MJ TEE
11. 10" X 45" MJ BEND
12. 10" X 45" FL BEND
13. 12" SQUARED CONCRETE FOOTER



**NEW LOXLEY WATER TREATMENT PLANT**  
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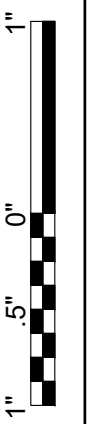
**WELL - PLAN & SECTIONS**

**D-101**

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Project Manager:	DK
Engineer:	DT
Designer:	DT
Drawn By:	HKD

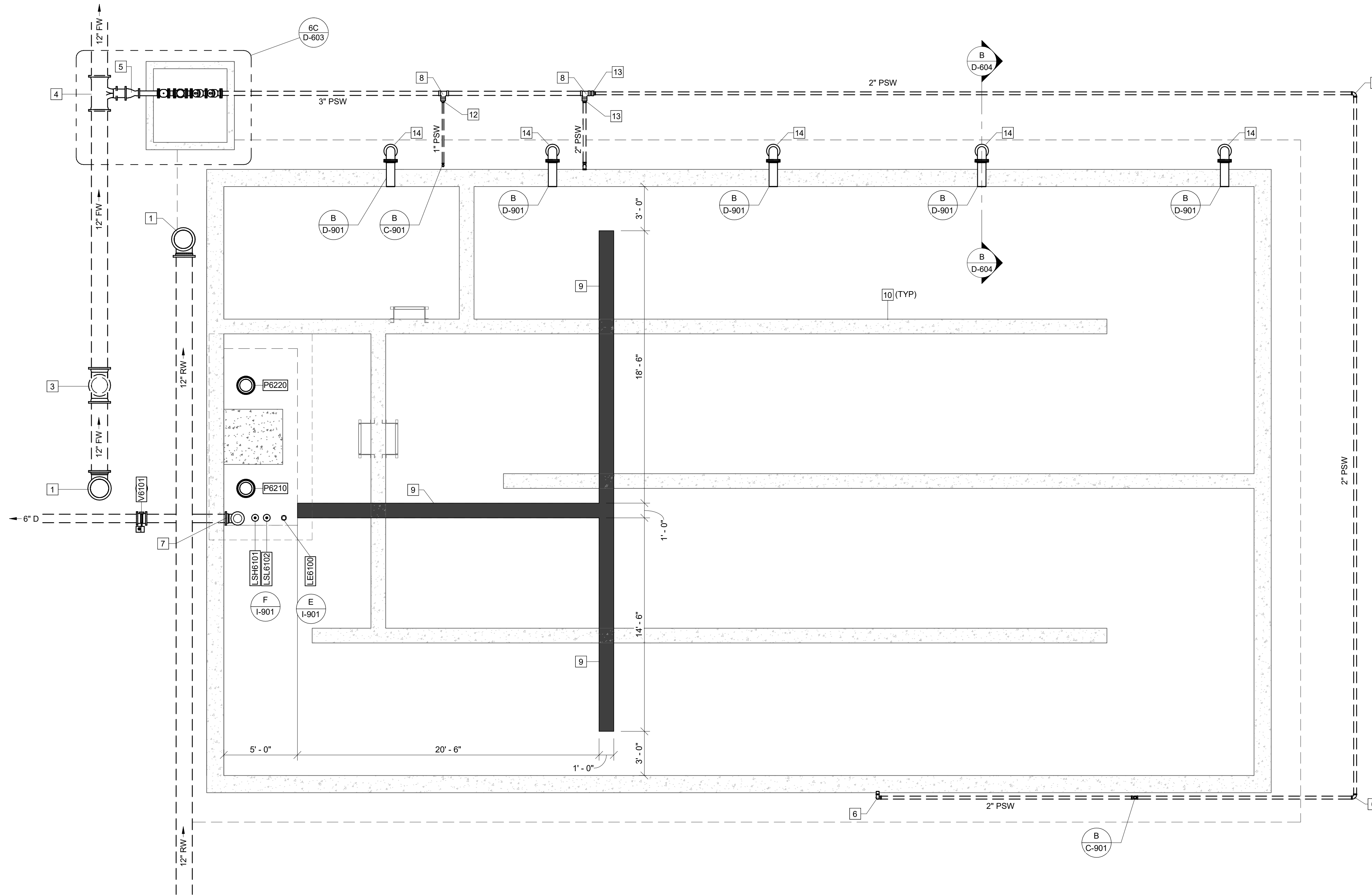
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**6A PLAN**  
D-601 SCALE: 1/4" = 1'-0"



**KEY NOTES: #**

1. 12" 90° MJ BEND
2. 12" 45° MJ BEND
3. 12" MJ TEE
4. 12" X 6" MJ TEE
5. 6" X 3" REDUCER
6. 2" 90° BEND
7. 6" 90° MJ BEND
8. 3" X 2" TEE
9. 12" WIDE X 8" DEEP DRAINAGE TROUGH
10. ALL INTERIOR BAFFLE WALLS SHALL BE COATED WITH THE SYSTEM SPECIFIED IN 09 96 00 - HIGH PERFORMANCE COATINGS
11. FLANGED COUPLING ADAPTER (RESTRAINED)
12. 3" X 1" TEE
13. 3" X 2" REDUCER
14. 6" 90° FL BEND W/ STAINLESS STEEL VENT SCREEN W/ RETAINING FLANGE

NEW LOXLEY WATER  
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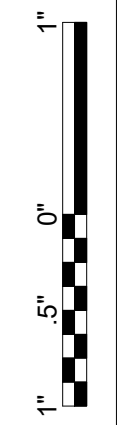
Project Manager:	DK
Engineer:	DT
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Drawn By:	HKD

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**CLEARWELL - LOWER  
PLAN**

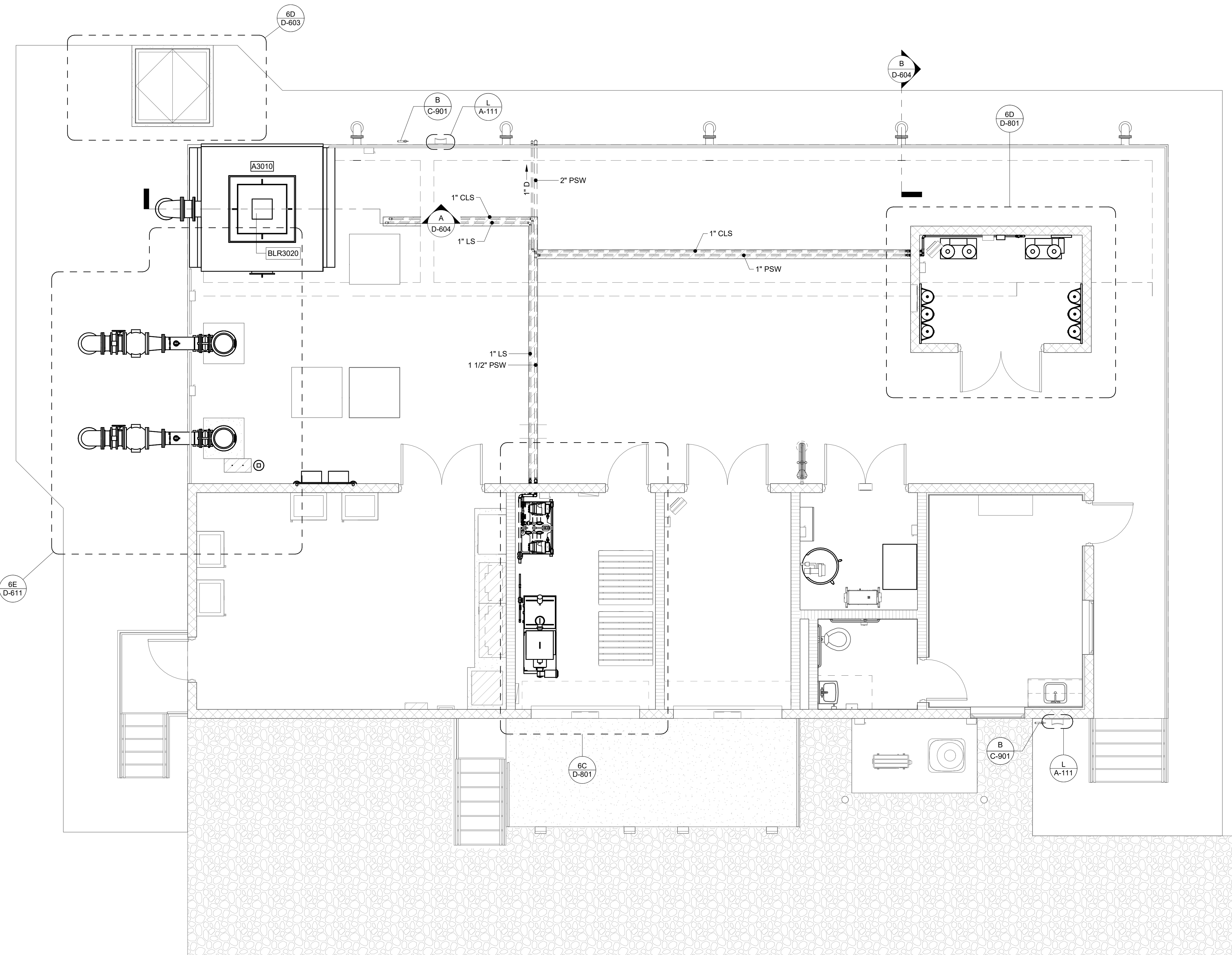
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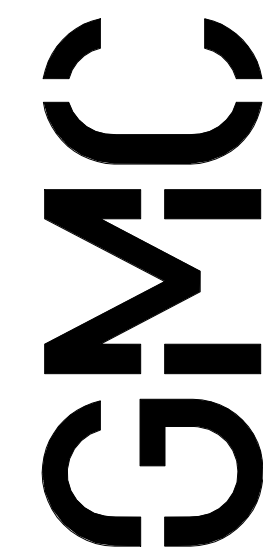
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8/15/2024 9:46:40 AM



**6B PLAN**  
D-602 SCALE: 1/4" = 1'-0"



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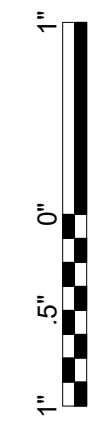


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FOR THE CITY OF LOXLEY  
LOXLEY, ALABAMA

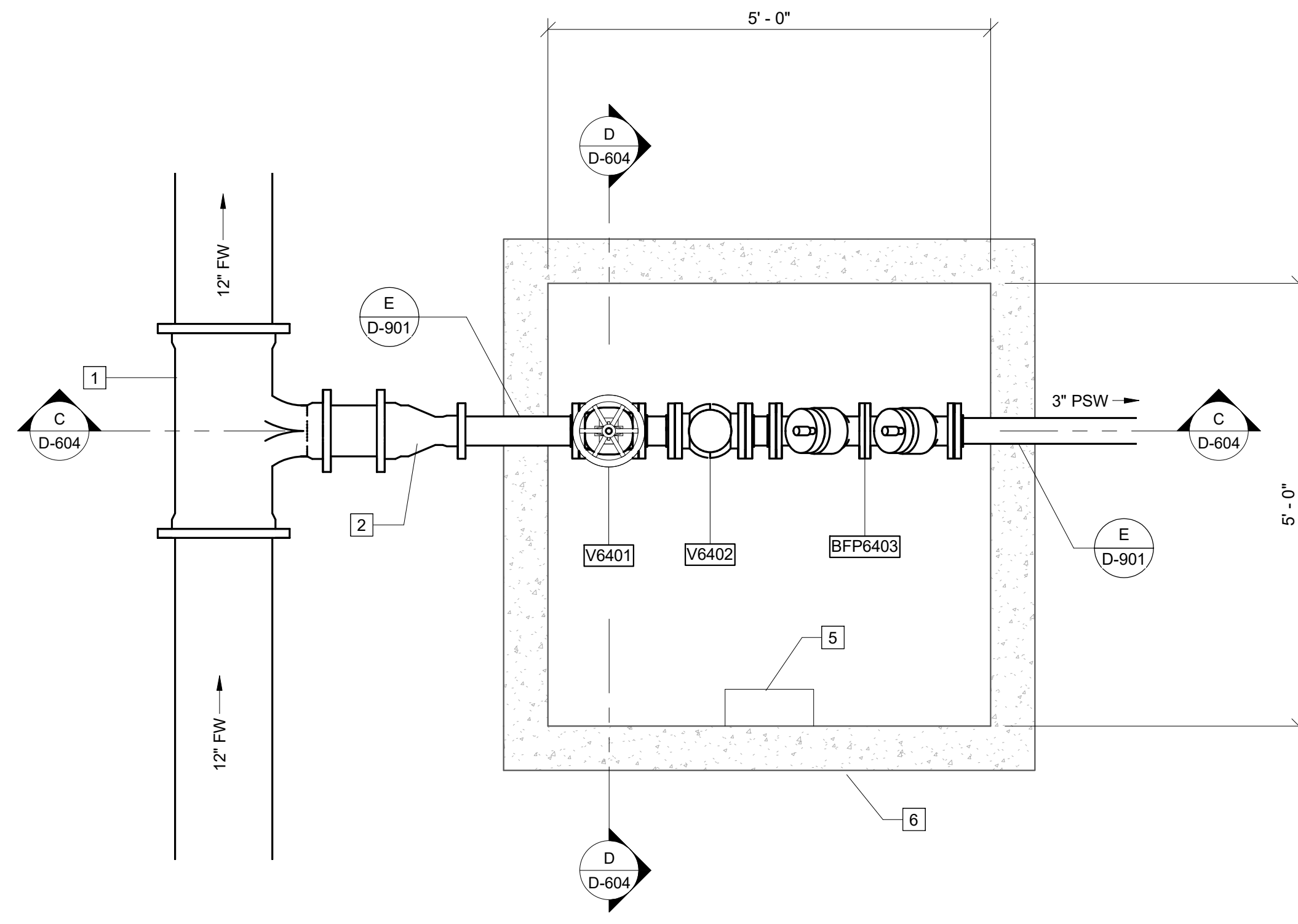
GMC Project #CMOB220078(2)



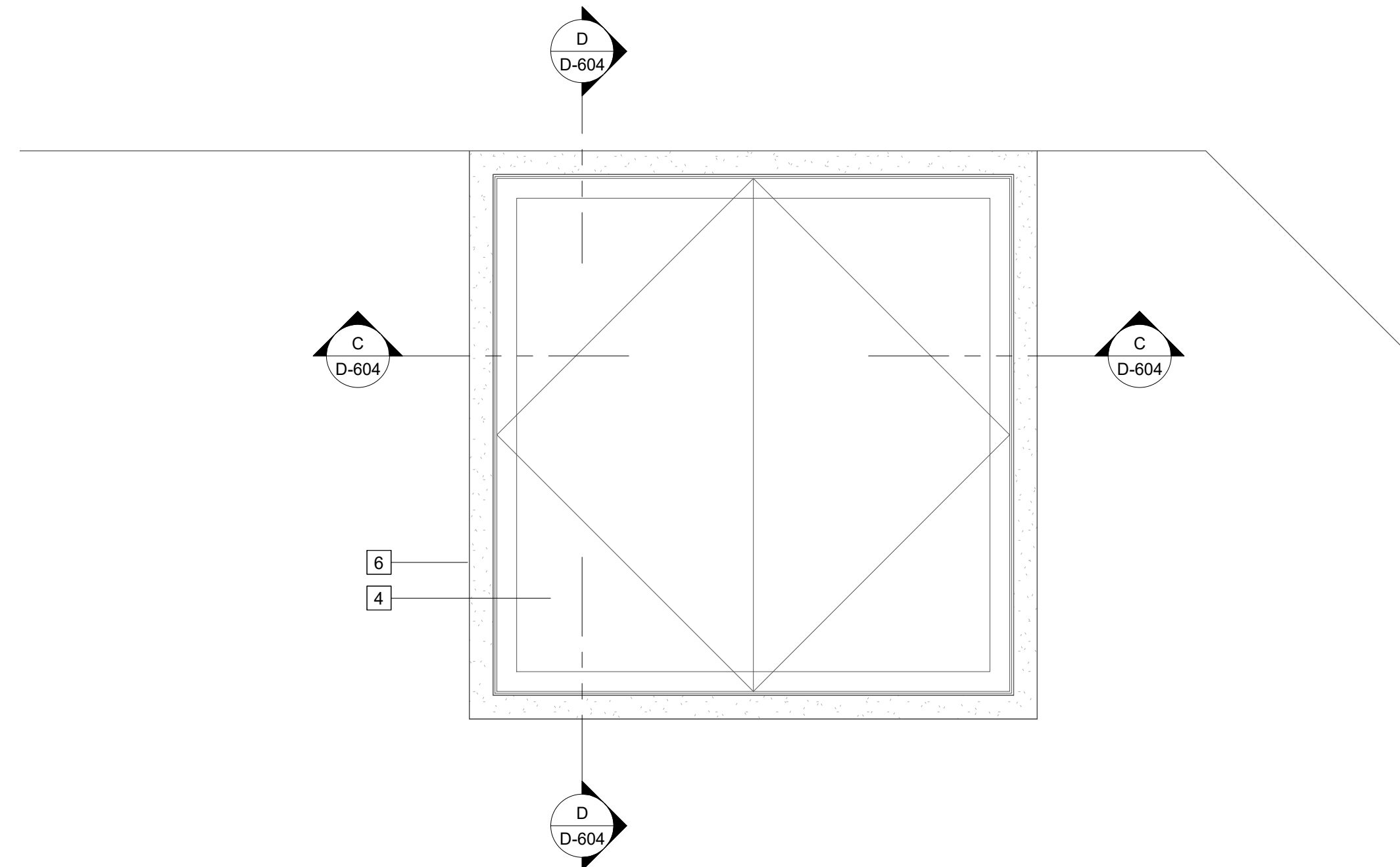
CLEARWELL - UPPER  
PLAN

D-602

BM 360/Loxley/CMOB220078(2)/Chemical and Admin Building - Loxley.vrt  
8/15/2024 9:46:40 AM



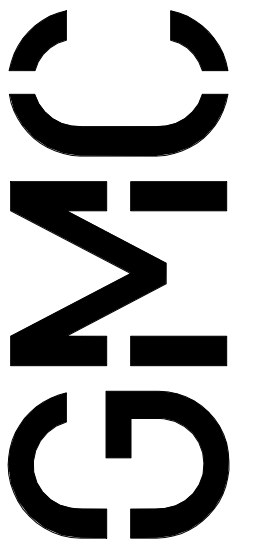
**6C LOWER PLAN**  
D-601 SCALE: 3/4" = 1'-0"



**6D UPPER PLAN**  
D-602 SCALE: 3/4" = 1'-0"

**KEY NOTES:** #

1. 12" X 6" MJ TEE
2. 6" X 3" REDUCER
3. FLANGED COUPLING ADAPTER (RESTRAINED)
4. 60" SQUARE DOUBLE LEAF DRIP PROOF HATCH
5. ACCESS STEPS
6. PRECAST CONCRETE VAULT



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Bid Set	03.29.2024

Project Manager:	DK
Engineer:	DT
Designer:	DT
Drawn By:	HKD

NEW LOXLEY WATER  
TREATMENT PLANT  
FOR THE CITY OF LOXLEY  
LOXLEY, ALABAMA

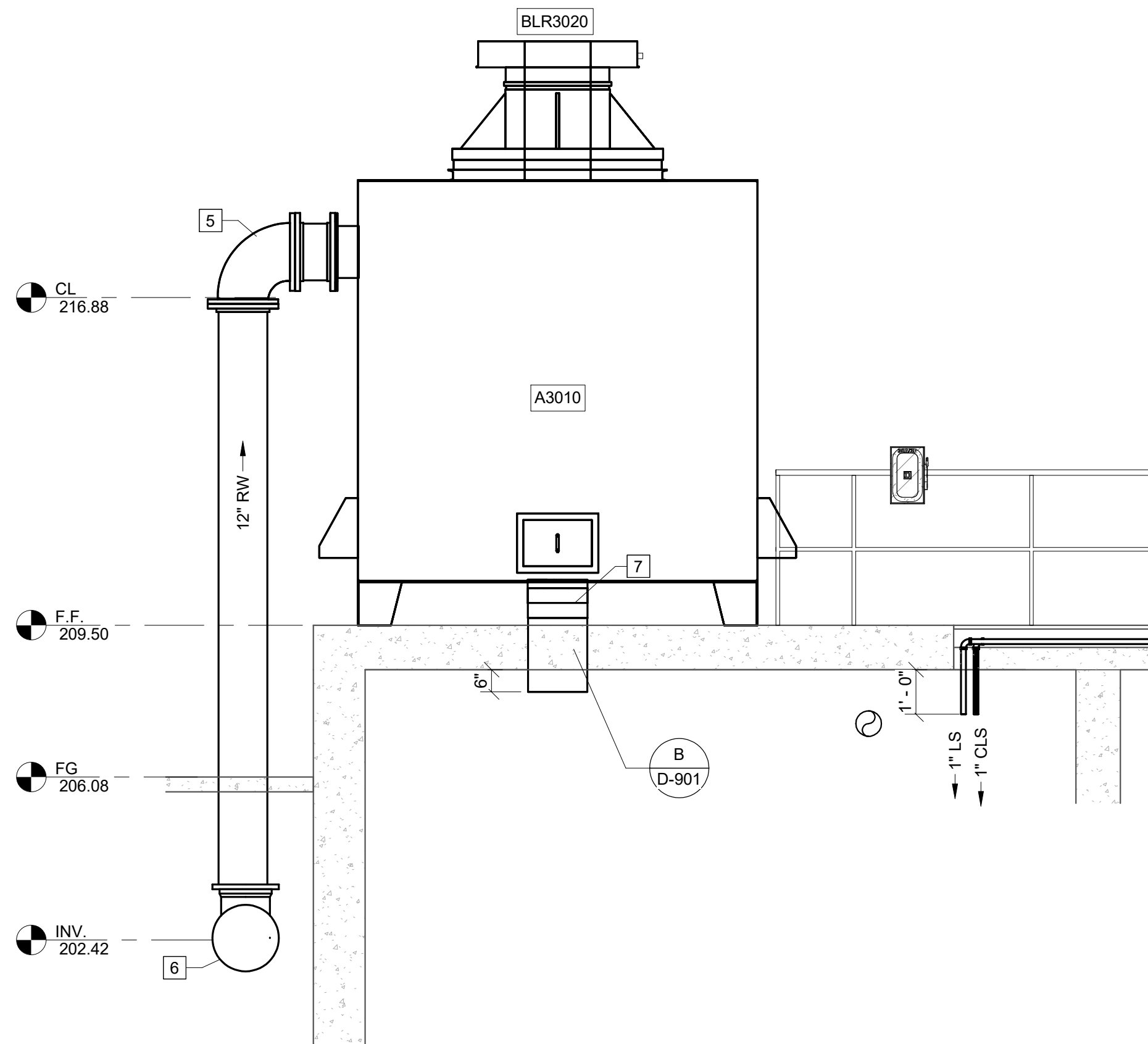
GMC Project #CMOB220078(2)



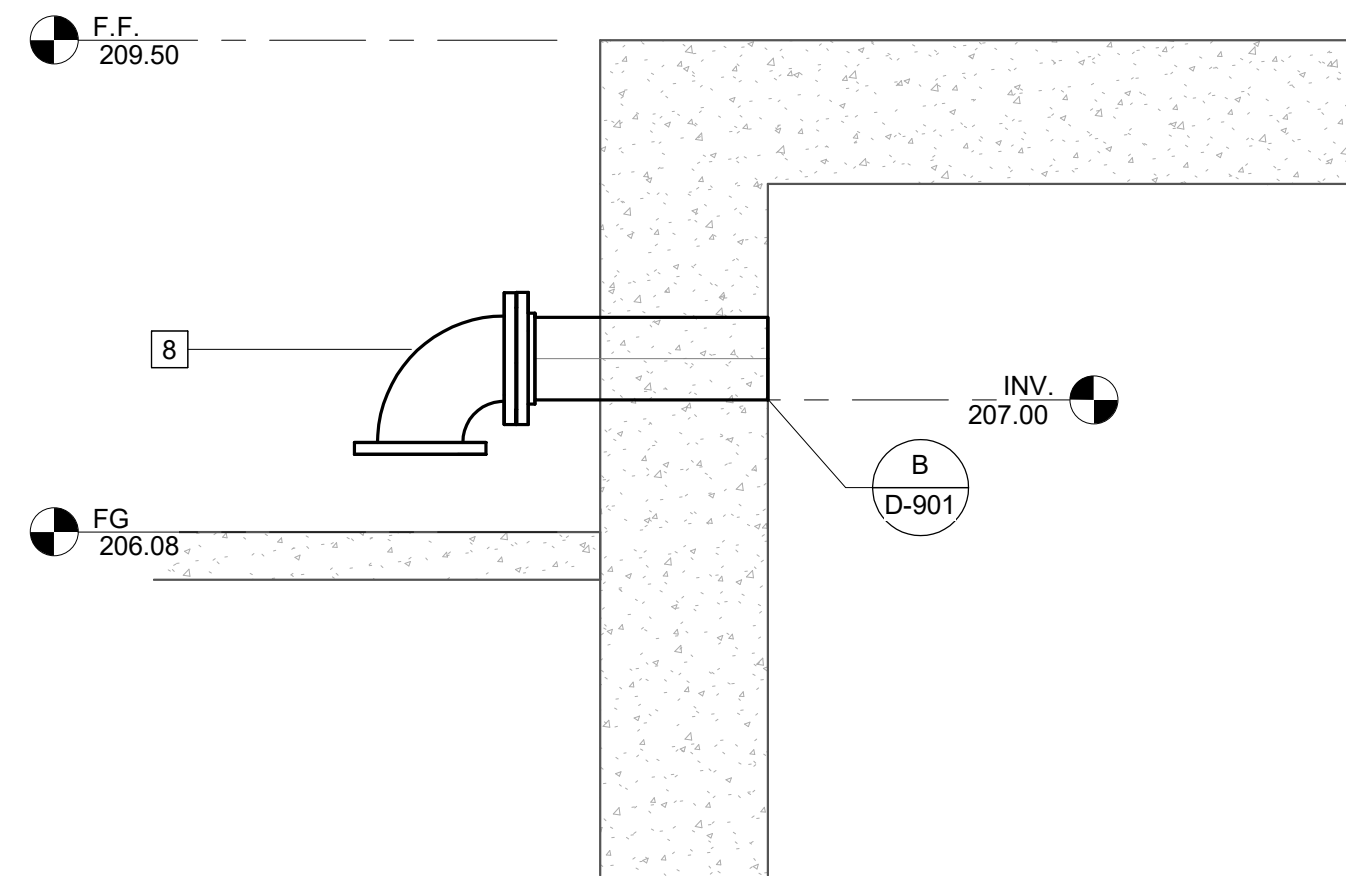
CLEARWELL -  
ENLARGE PLANS

**D-603**

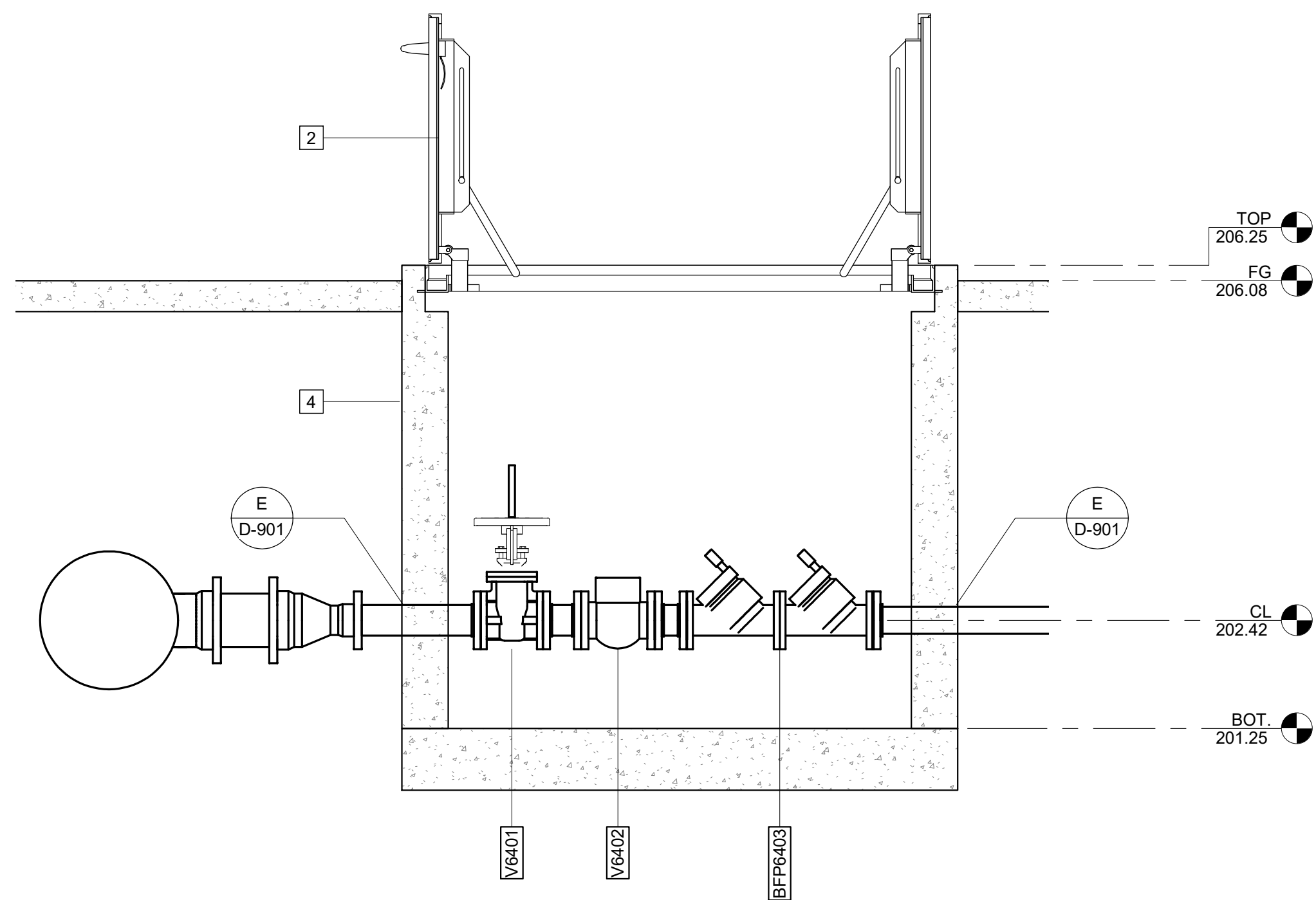
BM 360/Loxley Chemical and Admin Building - Loxley, AL  
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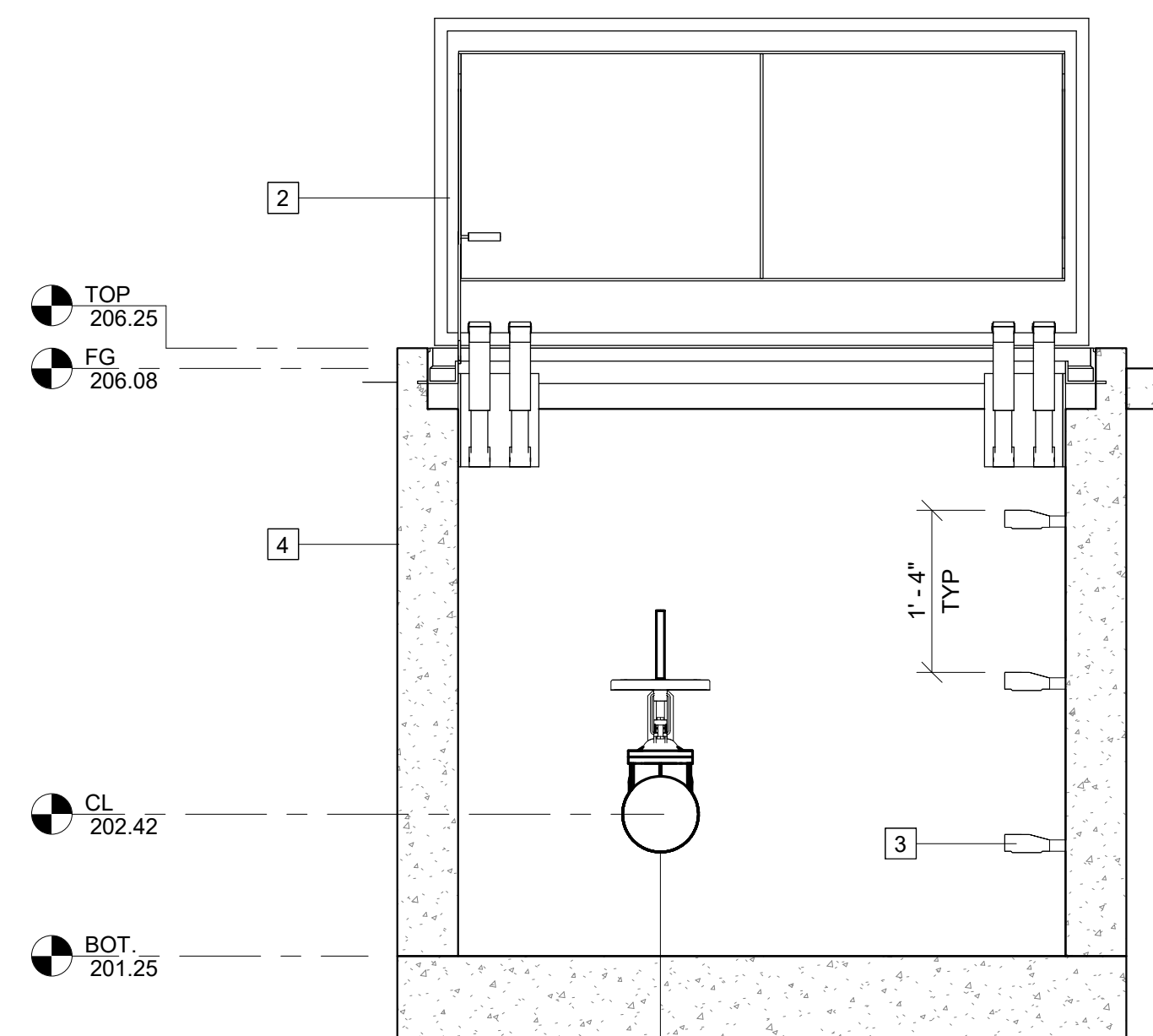
**A SECTION**  
D-602 SCALE: 3/8" = 1'-0"



**B SECTION**  
D-601 SCALE: 3/4" = 1'-0"



**C SECTION**  
D-603 SCALE: 3/4" = 1'-0"



**D SECTION**  
D-603 SCALE: 3/4" = 1'-0"

**KEY NOTES: #**

1. FLANGED COUPLING ADAPTER (RESTRAINED)
2. 60" SQUARE DOUBLE LEAF DRIP PROOF HATCH
3. ACCESS STEPS
4. PRECAST CONCRETE VAULT
5. 14"X12" 90° FL BEND
6. 12" 90° MJ BEND
7. FLEXIBLE COUPLING W/ SS BAND CLAMPS
8. 6" 90° FL BEND W/ STAINLESS STEEL VENT SCREEN W/ RETAINING FLANGE

NEW LOXLEY WATER  
 TREATMENT PLANT  
 FOR THE CITY OF LOXLEY  
 LOXLEY, ALABAMA

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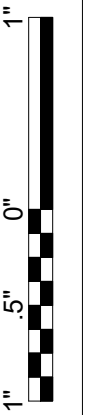


CLEARWELL -  
SECTIONS

D-604

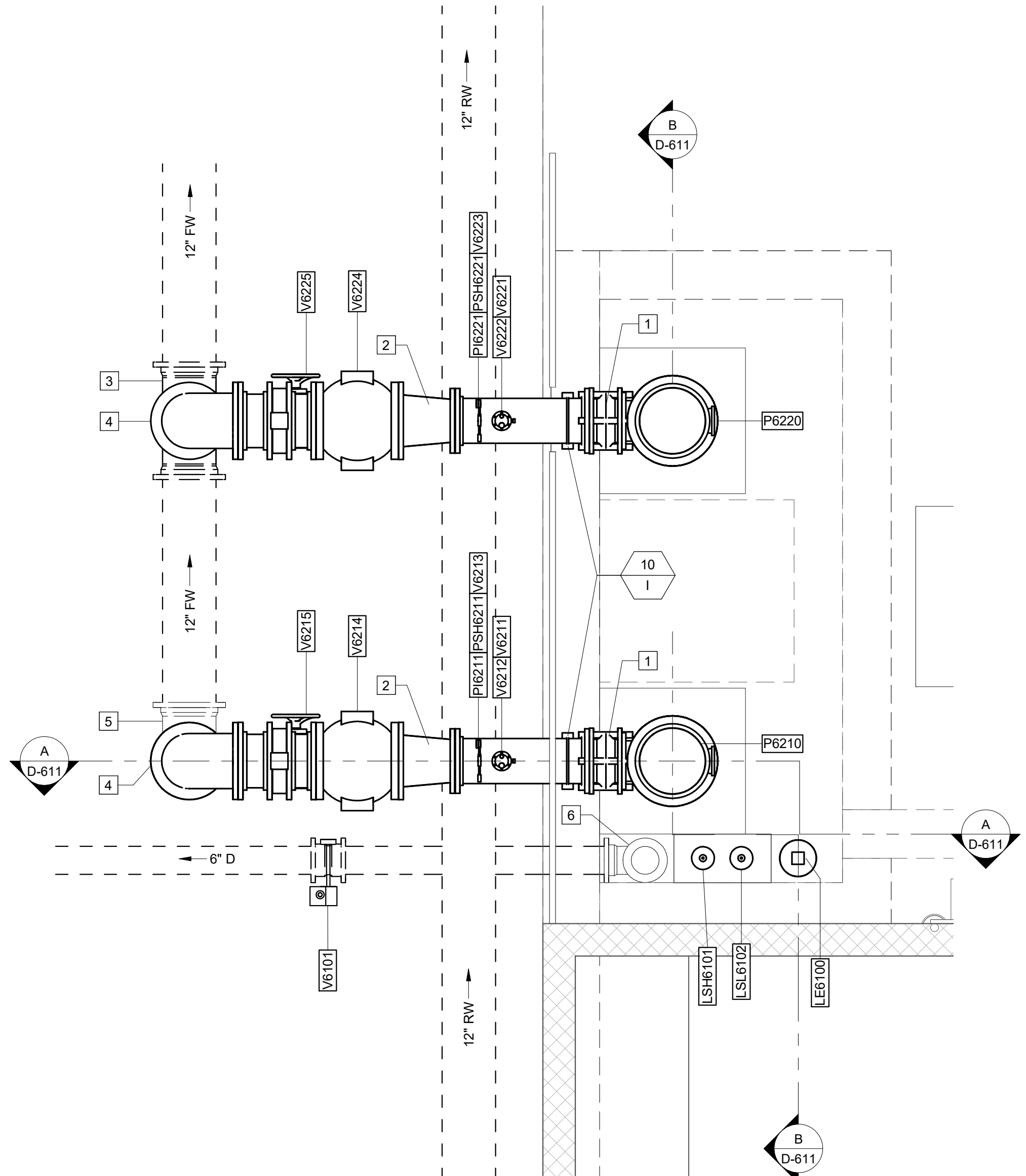
**GMC**

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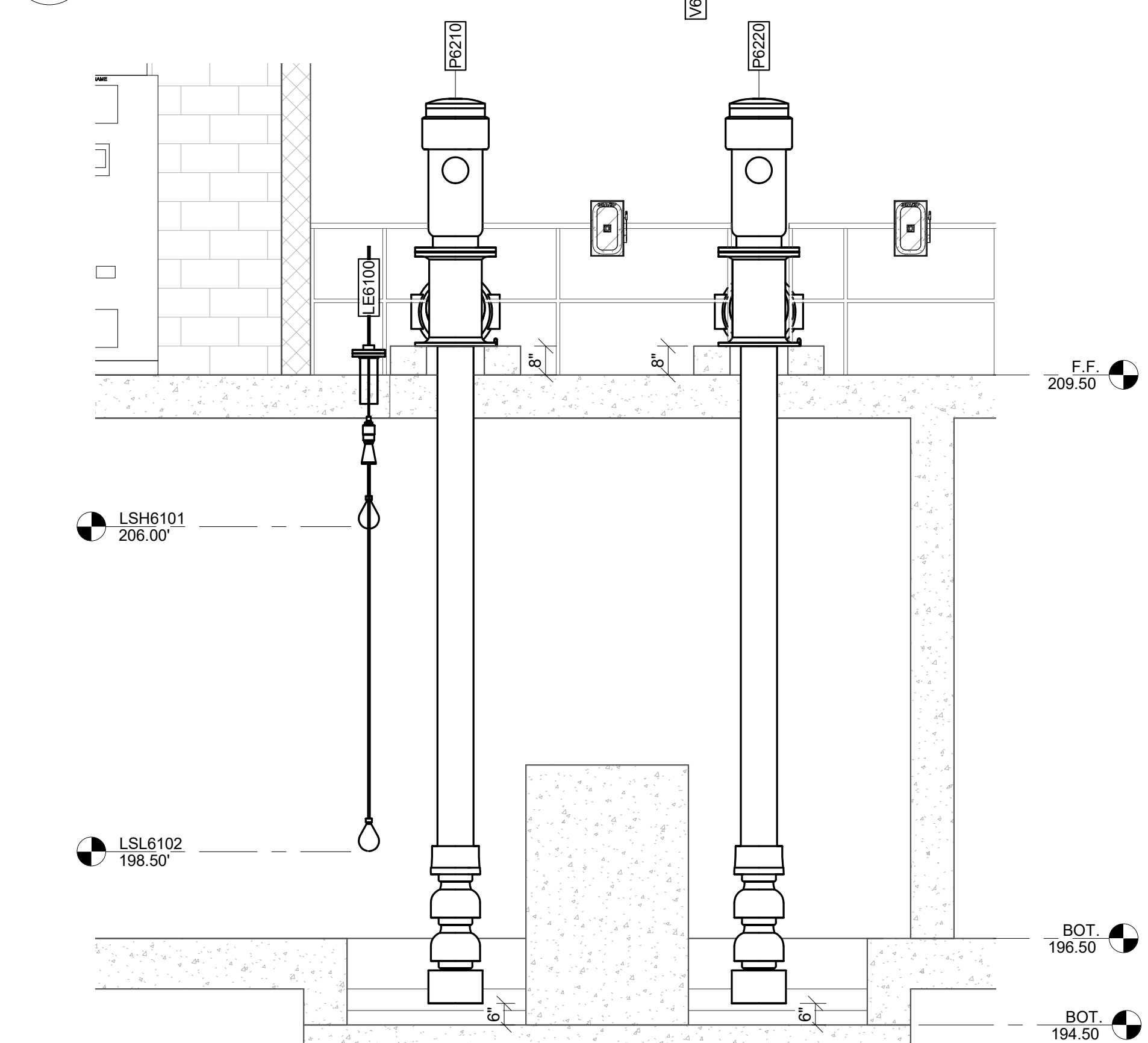


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**6E PLAN**  
D-602 SCALE: 1/2" = 1'-0"



**A SECTION**  
D-611 SCALE: 3/8" = 1'-0"



**B SECTION**  
D-611 SCALE: 3/8" = 1'-0"



**KEY NOTES: #**

1. 10" SINGLE ARCH EXPANSION JOINT WITH CONTROL RODS
2. 12"x10" ECCENTRIC REDUCER
3. 12" MJ TEE
4. 12" 90° FL BEND
5. 12" 90° MJ BEND
6. 6" 90° MJ BEND

NEW LOXLEY WATER  
TREATMENT PLANT  
FOR THE CITY OF LOXLEY  
LOXLEY, ALABAMA

HIGH SERVICE PUMP  
STATION - PLAN &  
SECTIONS  
**D-611**

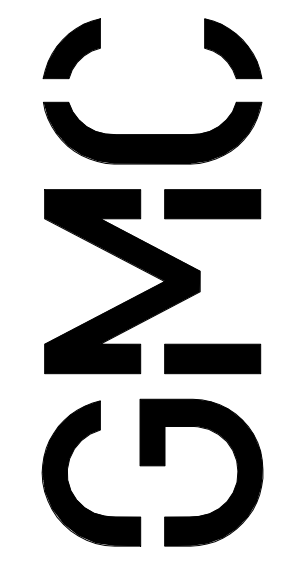


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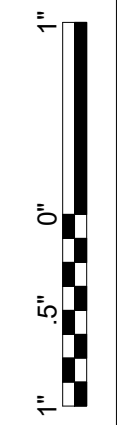
  

Project Manager:	DK
Engineer:	DT
Designer:	DT
Drawn By:	HKD

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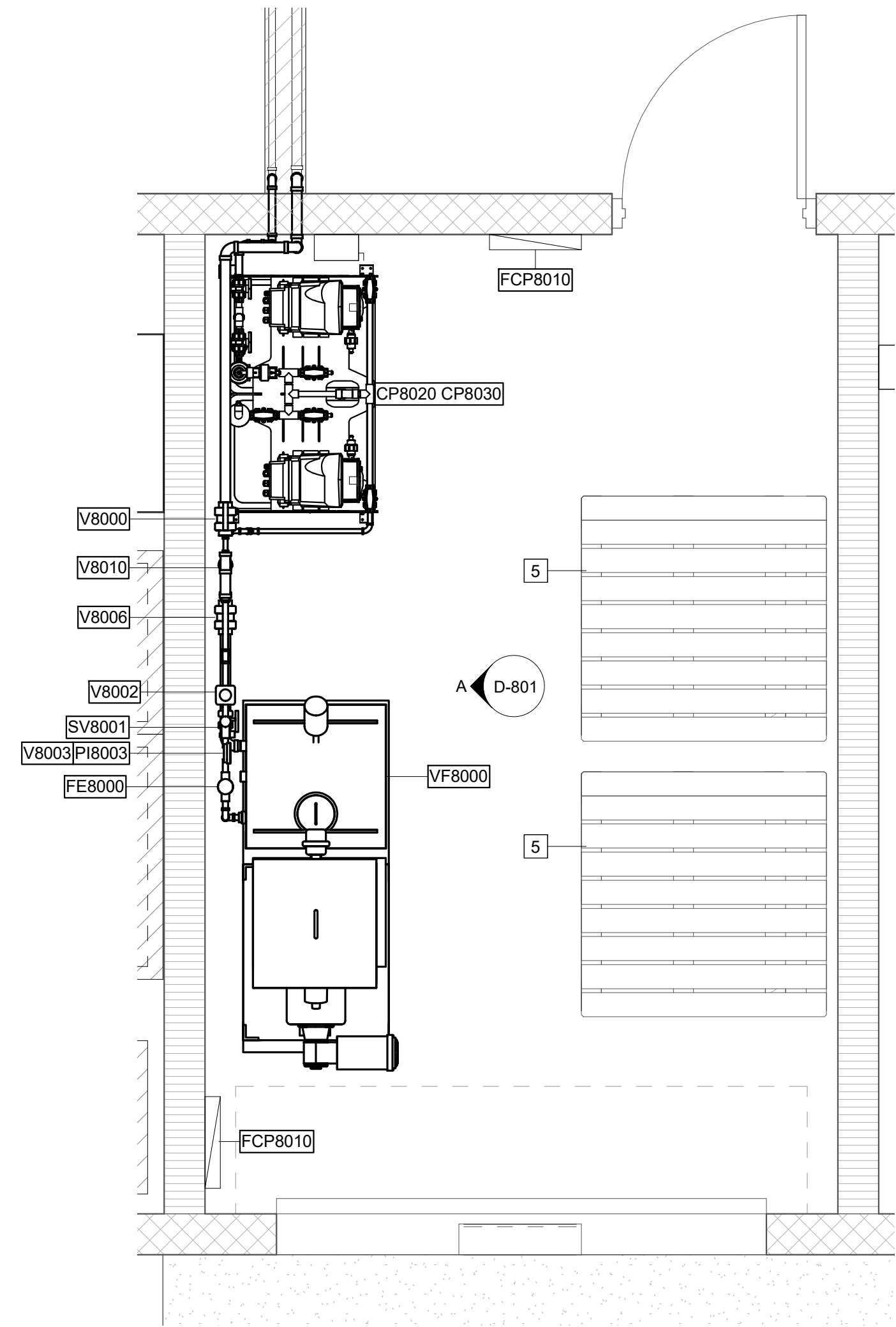


**D-611**

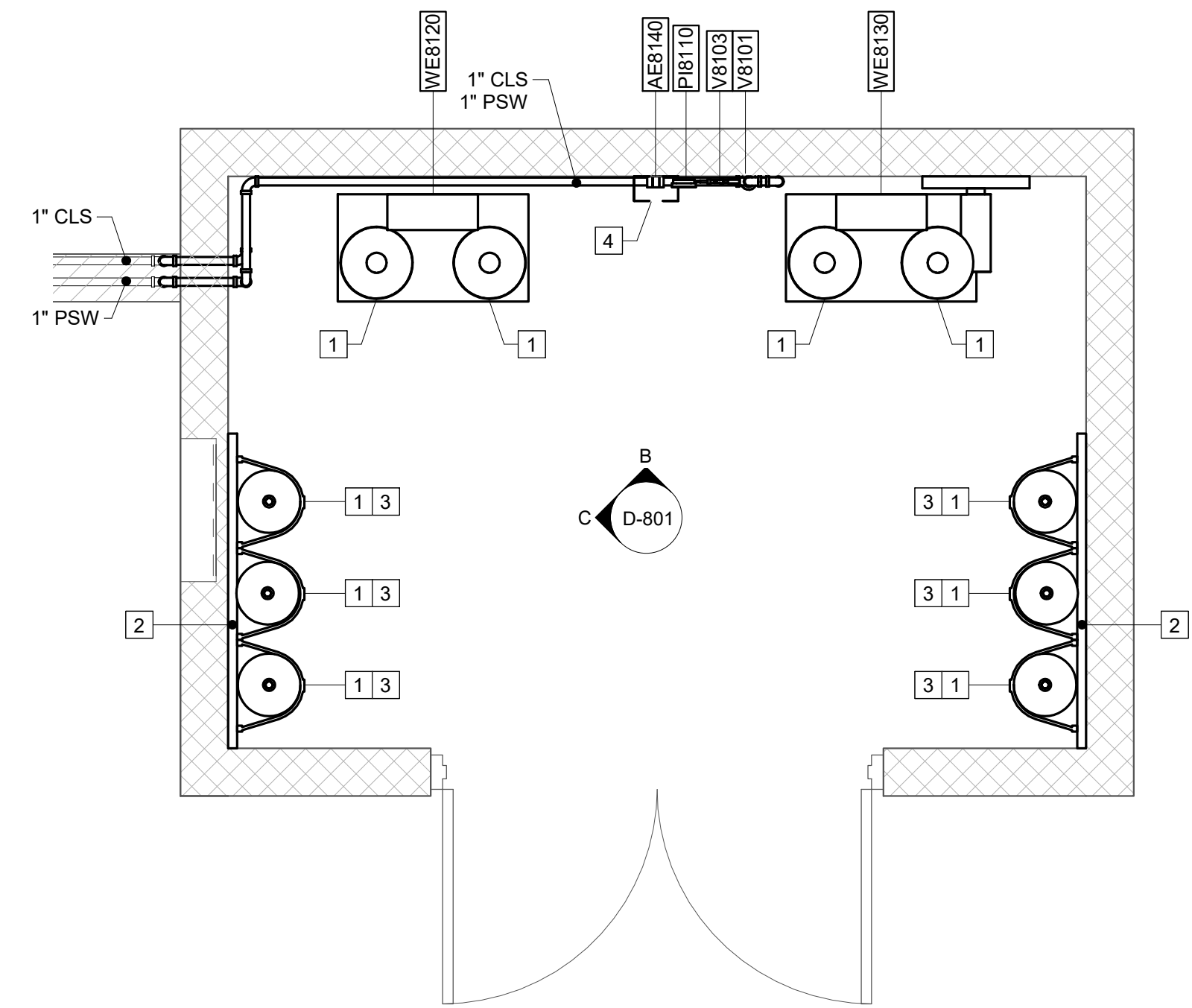




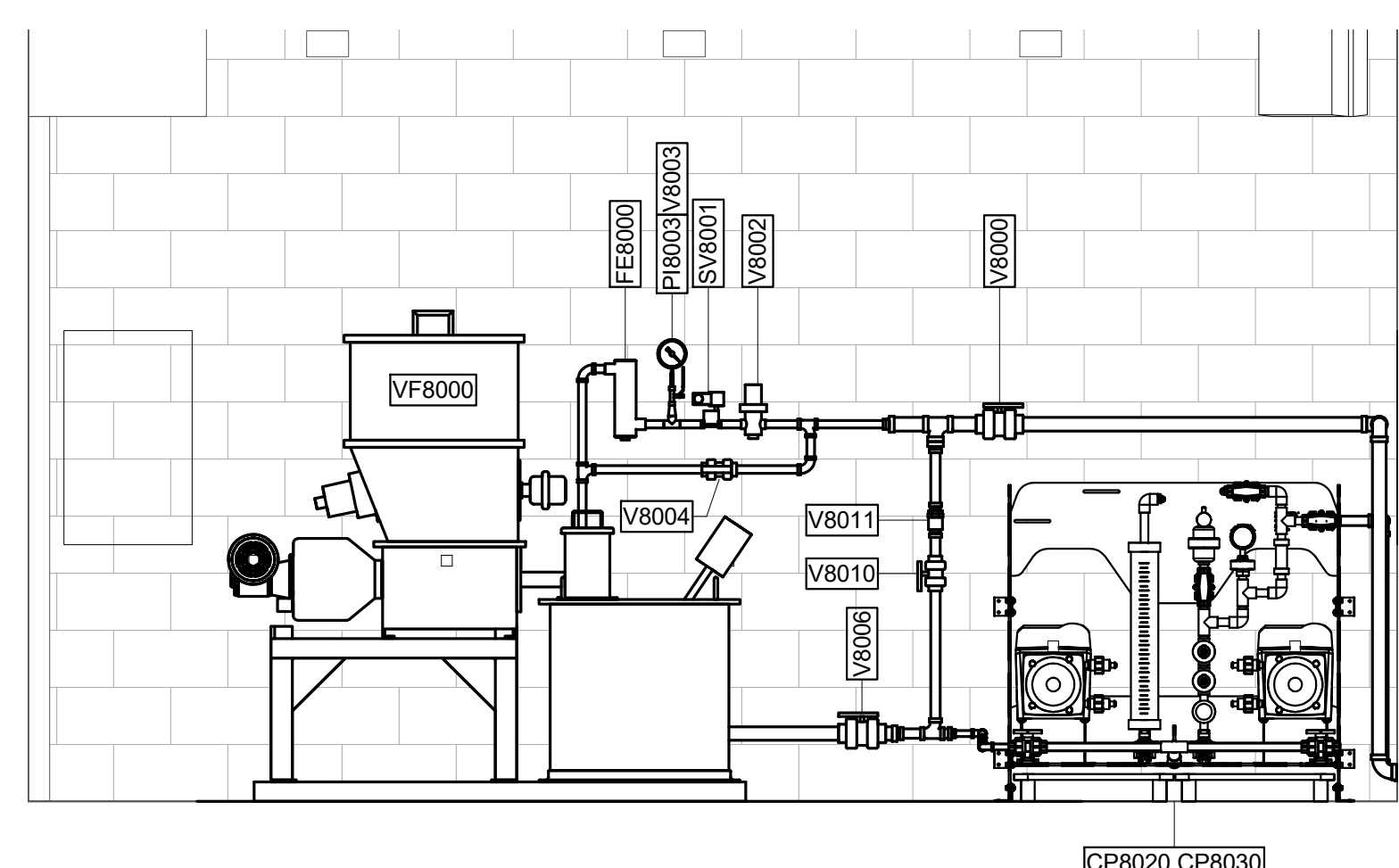
BM 360/Loxley/Chemical and Admin Building - Loxley,vt  
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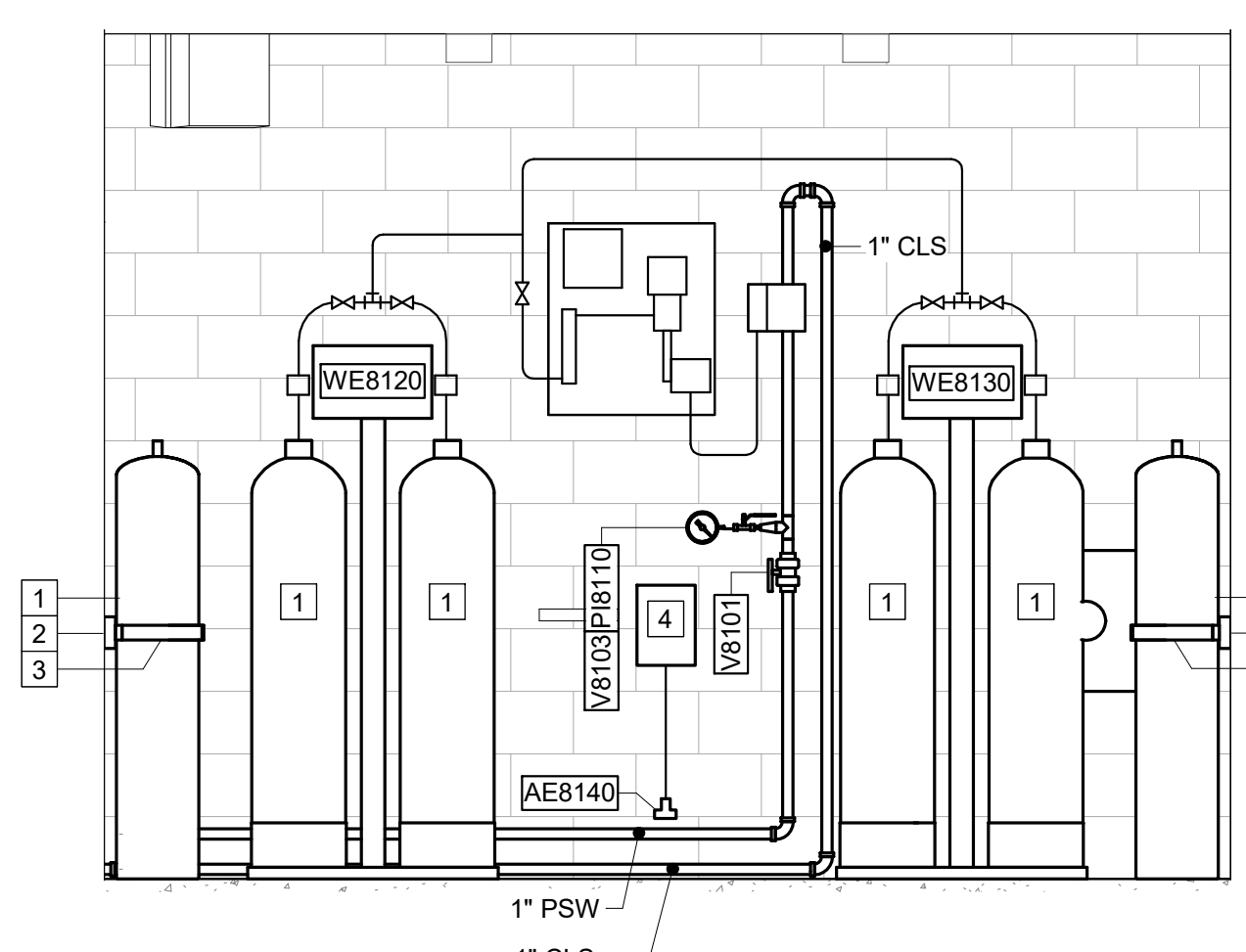
**6C PLAN**  
D-802 SCALE: 1/2" = 1'-0"



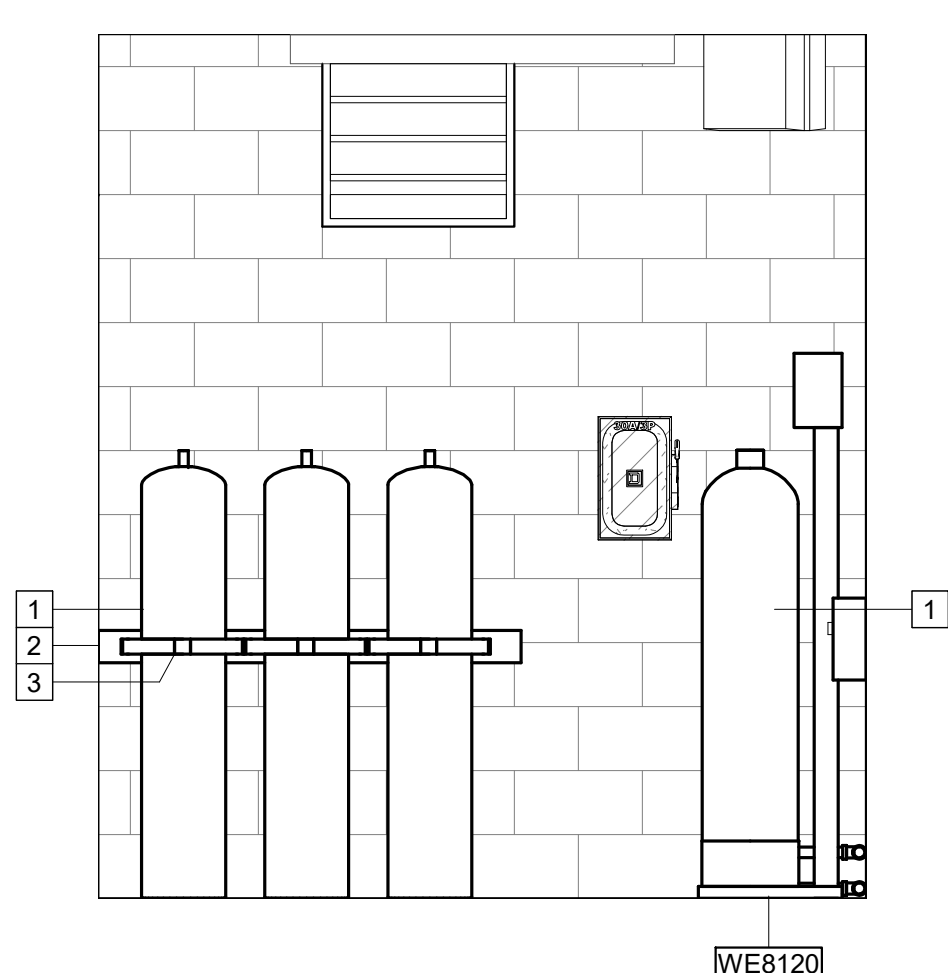
**6D PLAN**  
D-801 SCALE: 1/2" = 1'-0"



**A INTERIOR ELEV.**  
D-801 SCALE: 1/2" = 1'-0"



**B INTERIOR ELEV.**  
D-801 SCALE: 1/2" = 1'-0"



**C INTERIOR ELEV.**  
D-801 SCALE: 1/2" = 1'-0"

- KEY NOTES:** #
- CHEMICAL CYLINDERS
  - STEEL BRACKET EQUIVALENT TO GLOBAL EQUIPMENT PART NO. G300
  - ADJUSTABLE 1-1/2" WIDE POLYPROPYLENE STRAP W/ STEEL CLINCH BUCKLE
  - GAS DETECTION SYSTEM (IN VENDOR PACKAGE). CONNECT GAS DETECTION ALARM TO ALARM LIGHT ON EXTERIOR OF BUILDING
  - CHEMICAL STORAGE PALLETS (NOT IN CONTRACT)

NEW LOXLEY WATER  
 TREATMENT PLANT  
 FOR THE CITY OF LOXLEY  
 LOXLEY, ALABAMA

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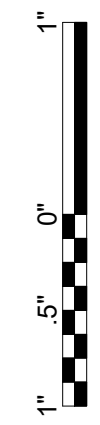
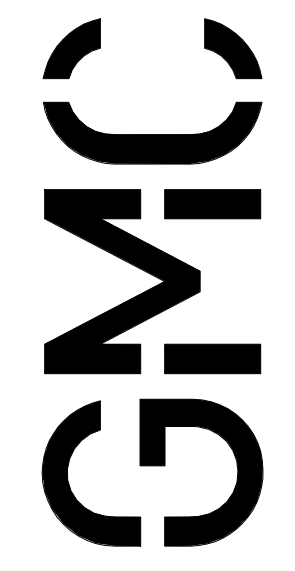
  

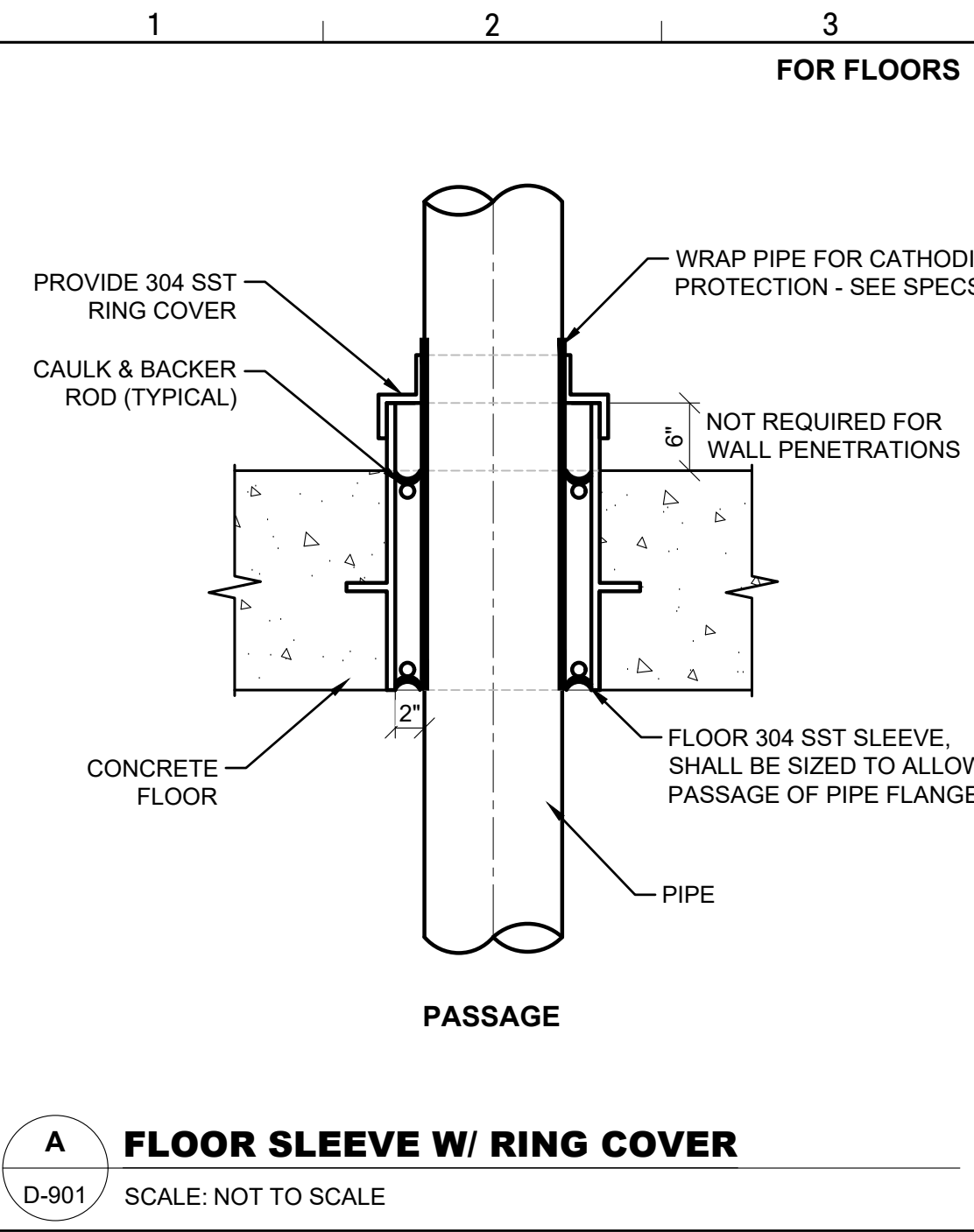
Project Manager:	DK
Engineer:	DT
Designer:	DT
Drawn By:	HKD

CHEMICAL FEED -  
 PLANS & INTERIOR  
 ELEVATIONS  
**D-801**

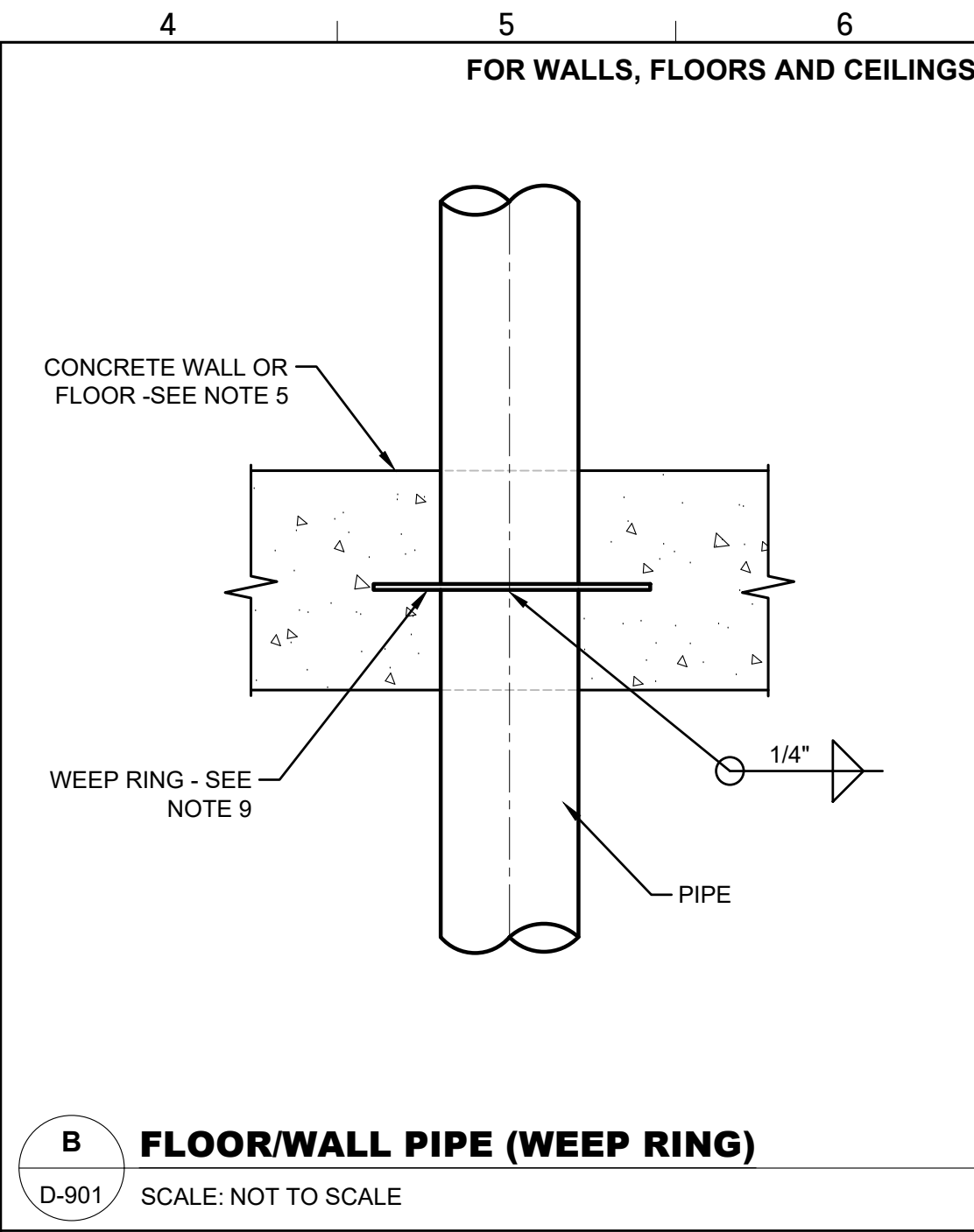


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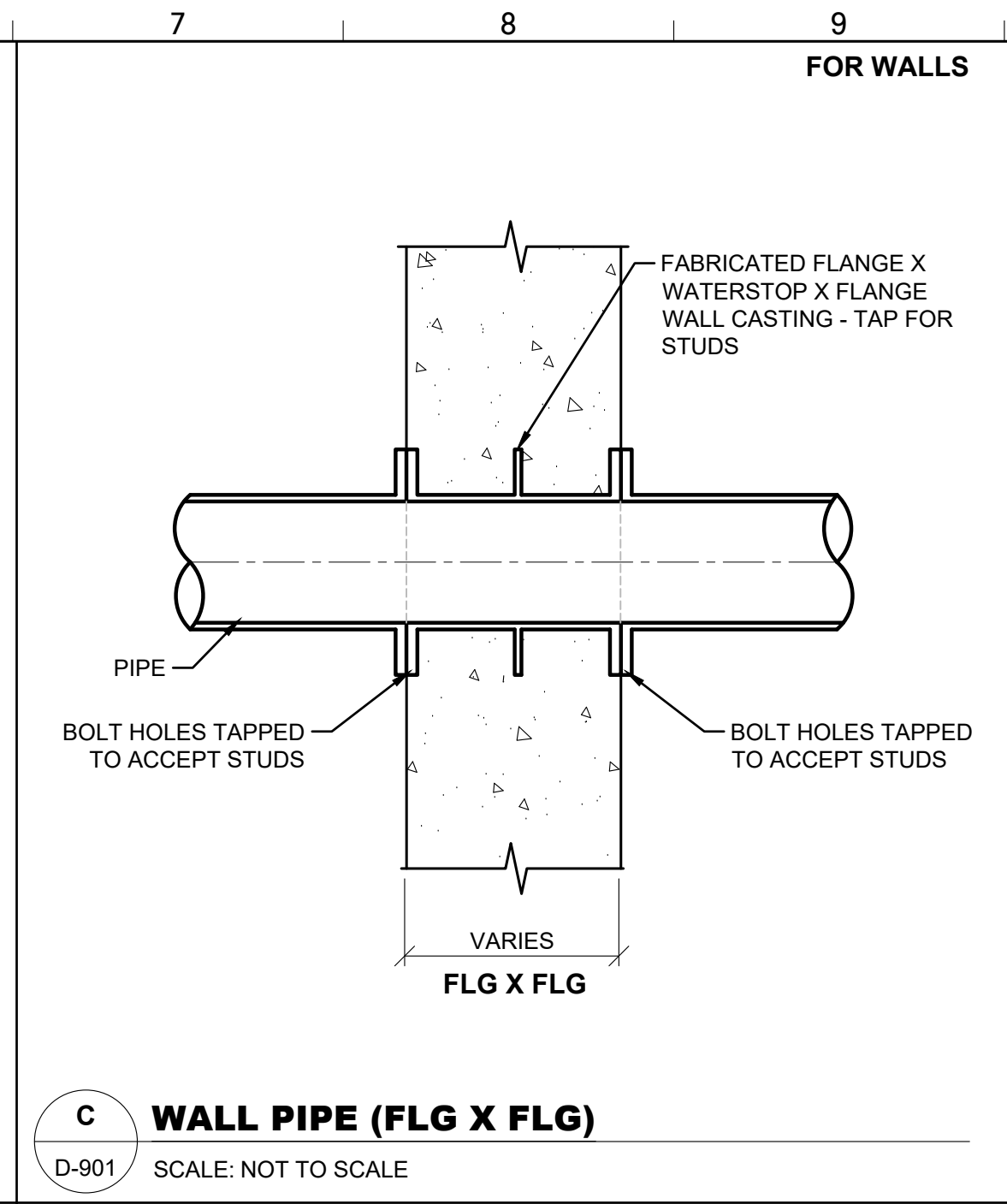




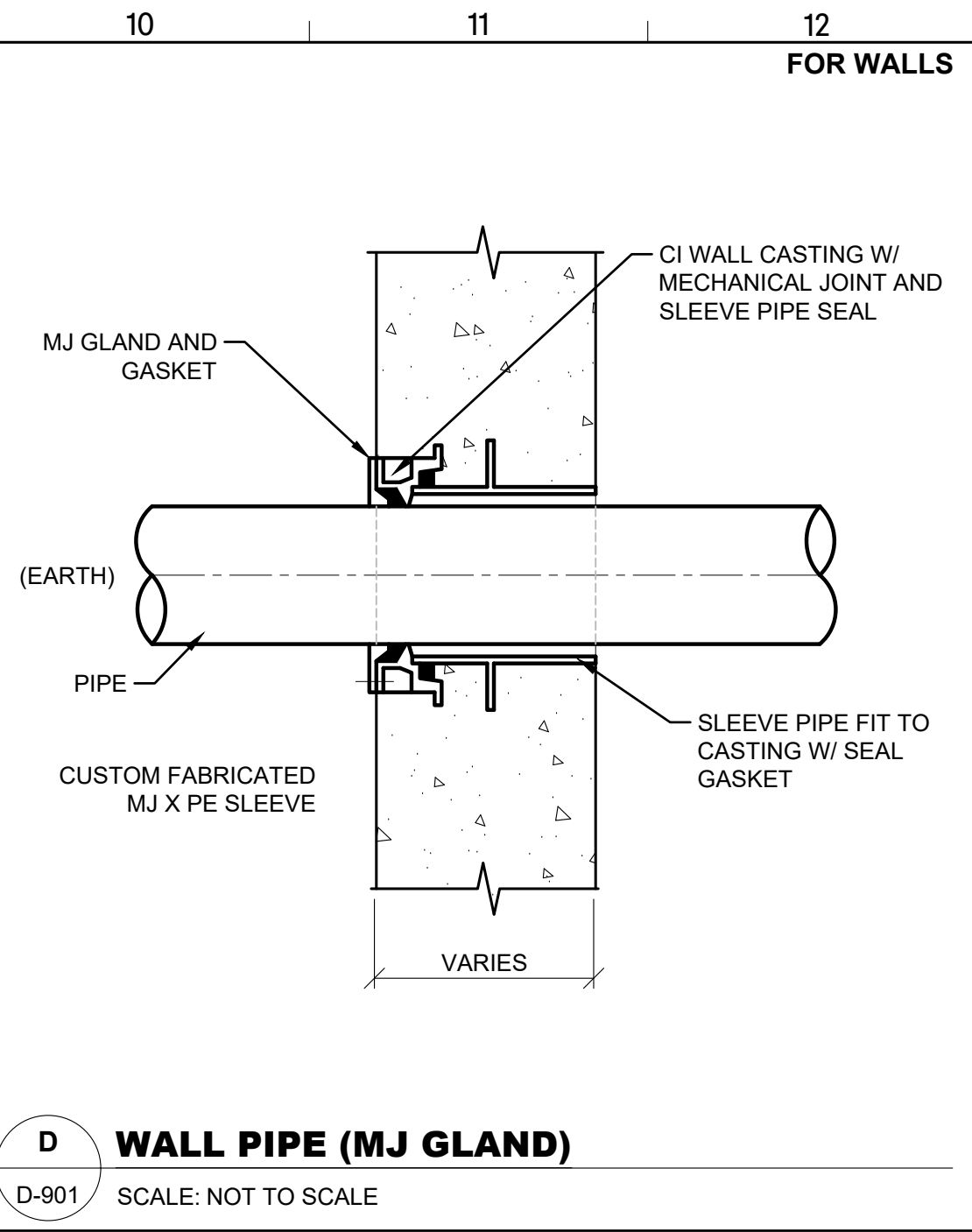
**A FLOOR SLEEVE W/ RING COVER**  
D-901 SCALE: NOT TO SCALE



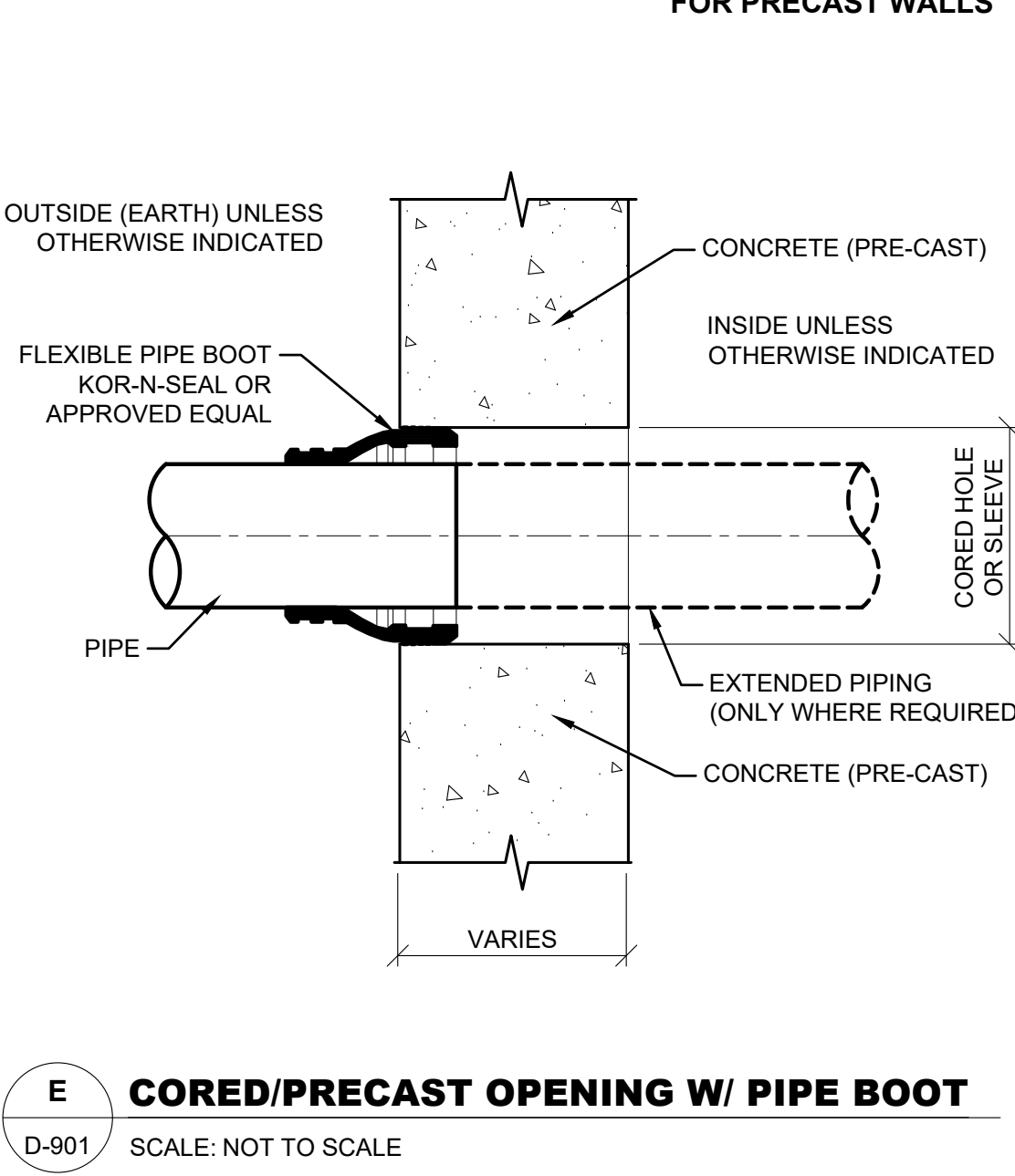
**B FLOOR/WALL PIPE (WEEP RING)**  
D-901 SCALE: NOT TO SCALE



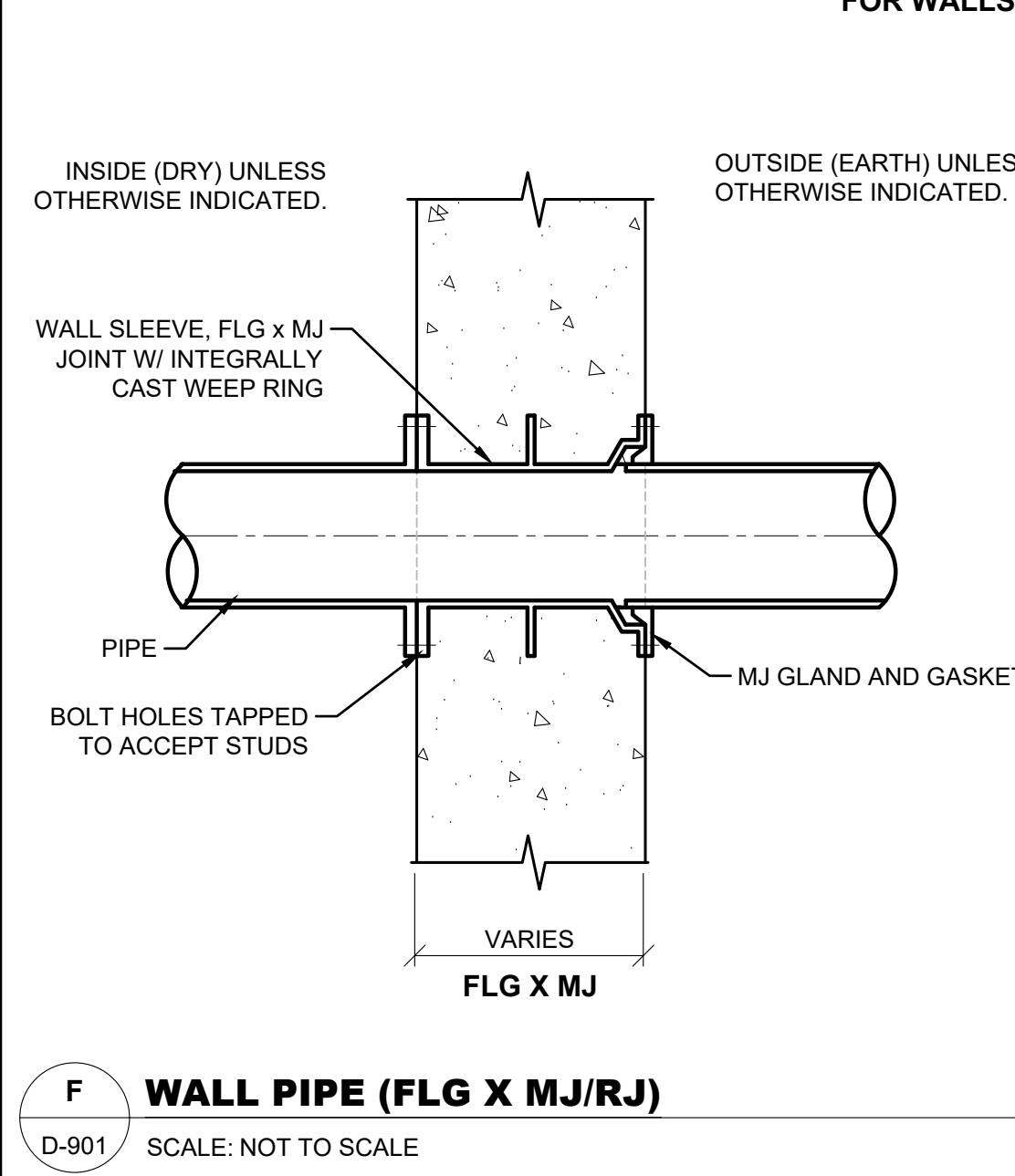
**C WALL PIPE (FLG X FLG)**  
D-901 SCALE: NOT TO SCALE



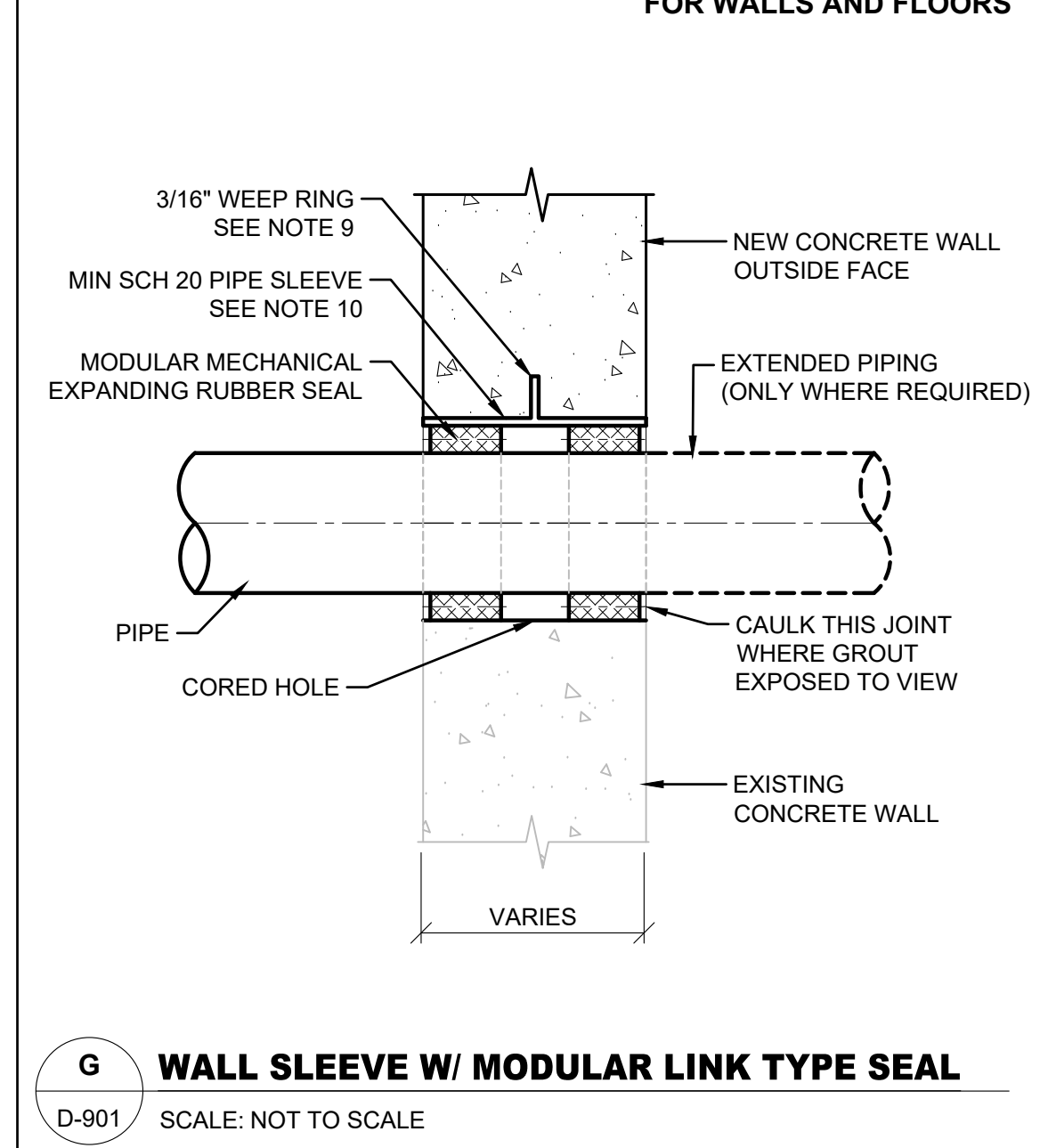
**D WALL PIPE (MJ GLAND)**  
D-901 SCALE: NOT TO SCALE



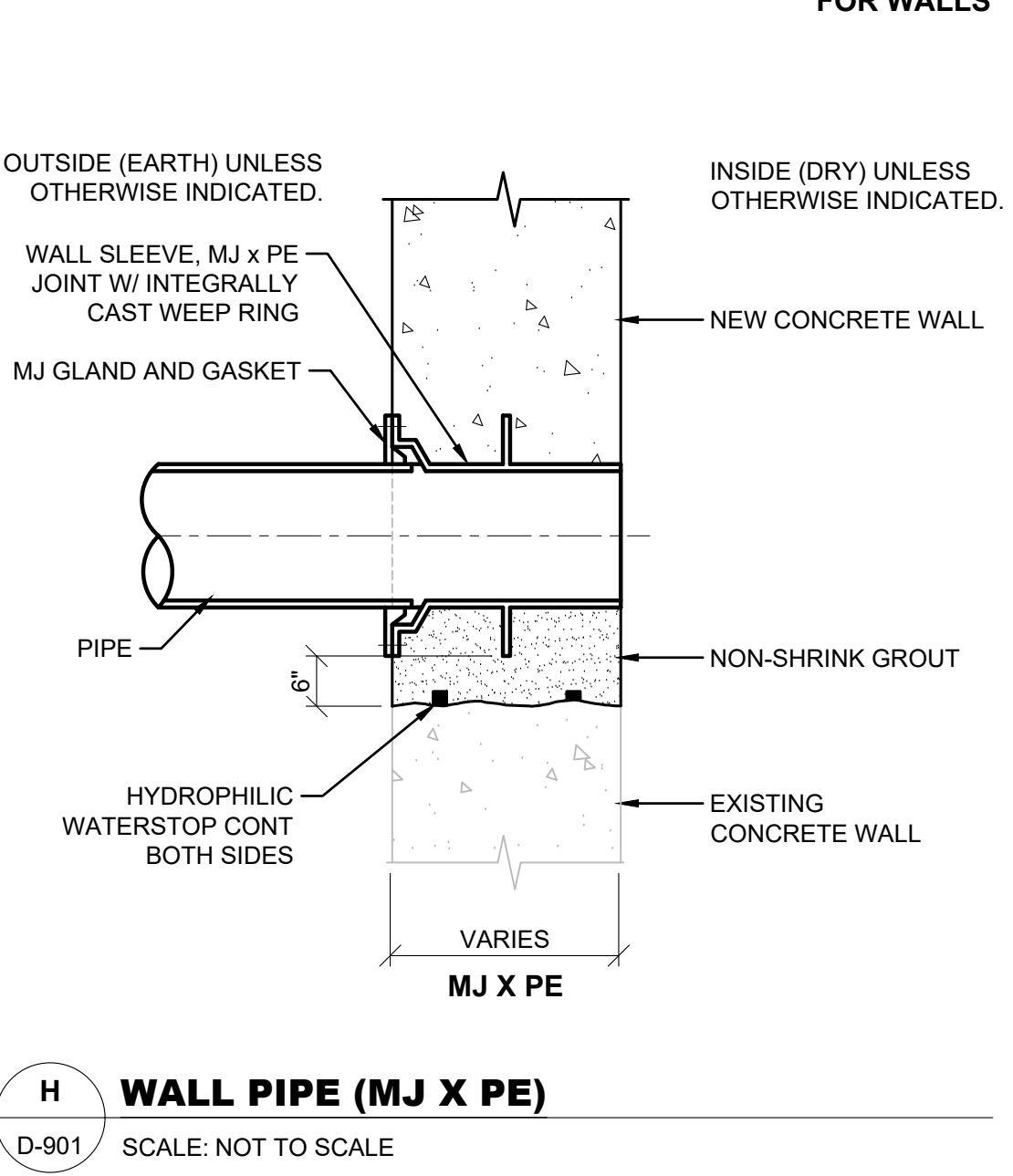
**E CORED/PRECAST OPENING W/ PIPE BOOT**  
D-901 SCALE: NOT TO SCALE



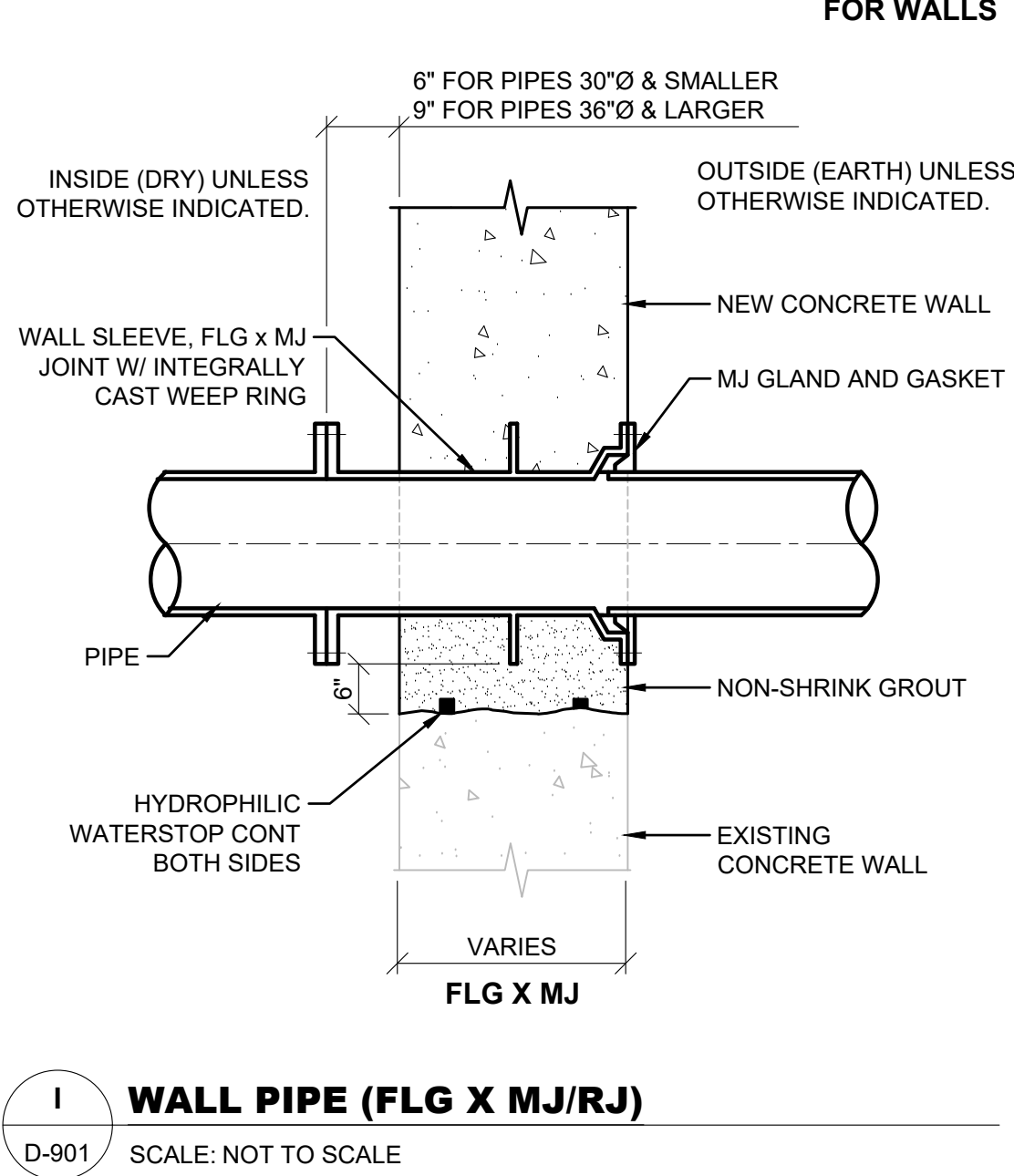
**F WALL PIPE (FLG X MJ/RJ)**  
D-901 SCALE: NOT TO SCALE



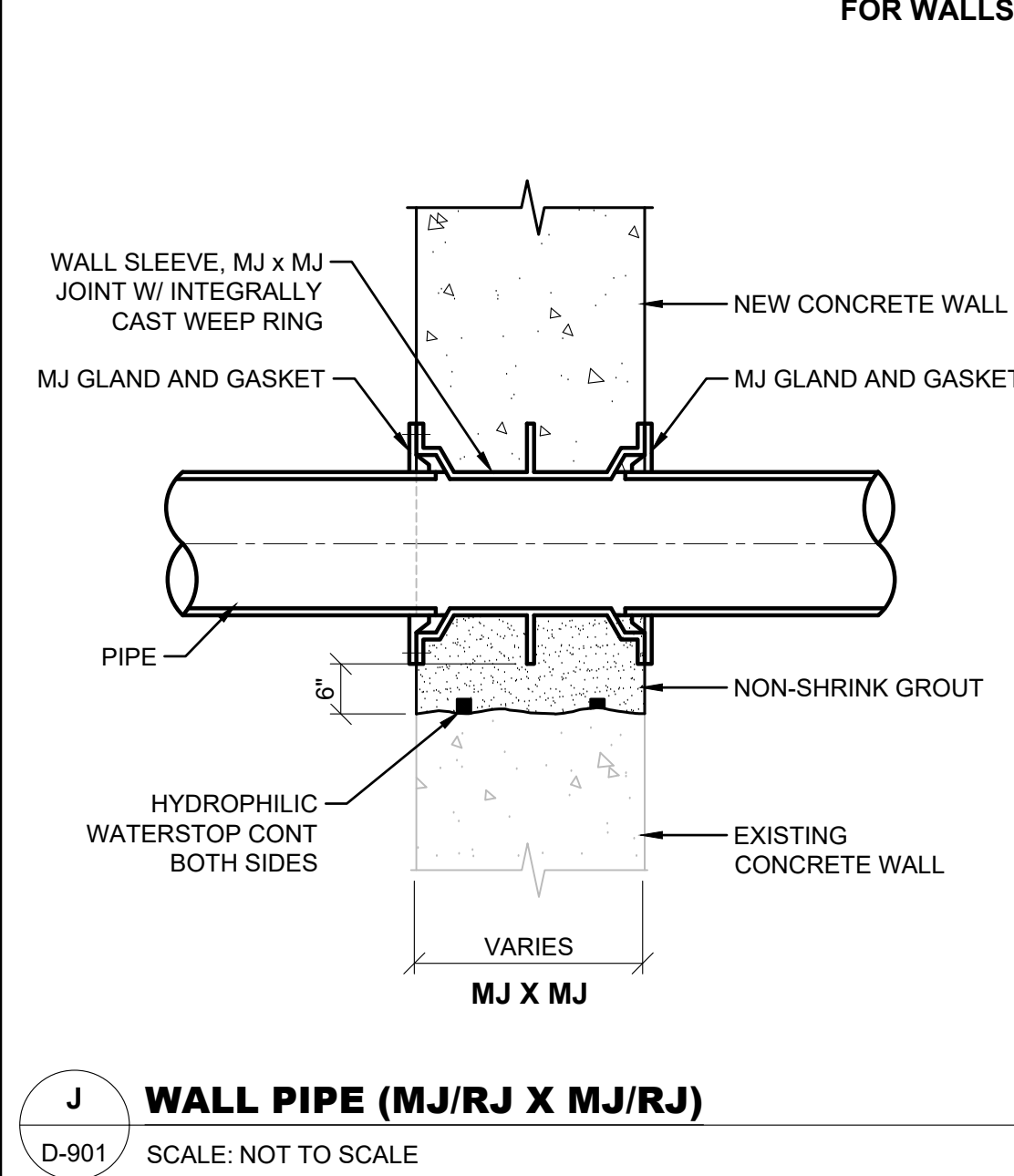
**G WALL SLEEVE W/ MODULAR LINK TYPE SEAL**  
D-901 SCALE: NOT TO SCALE



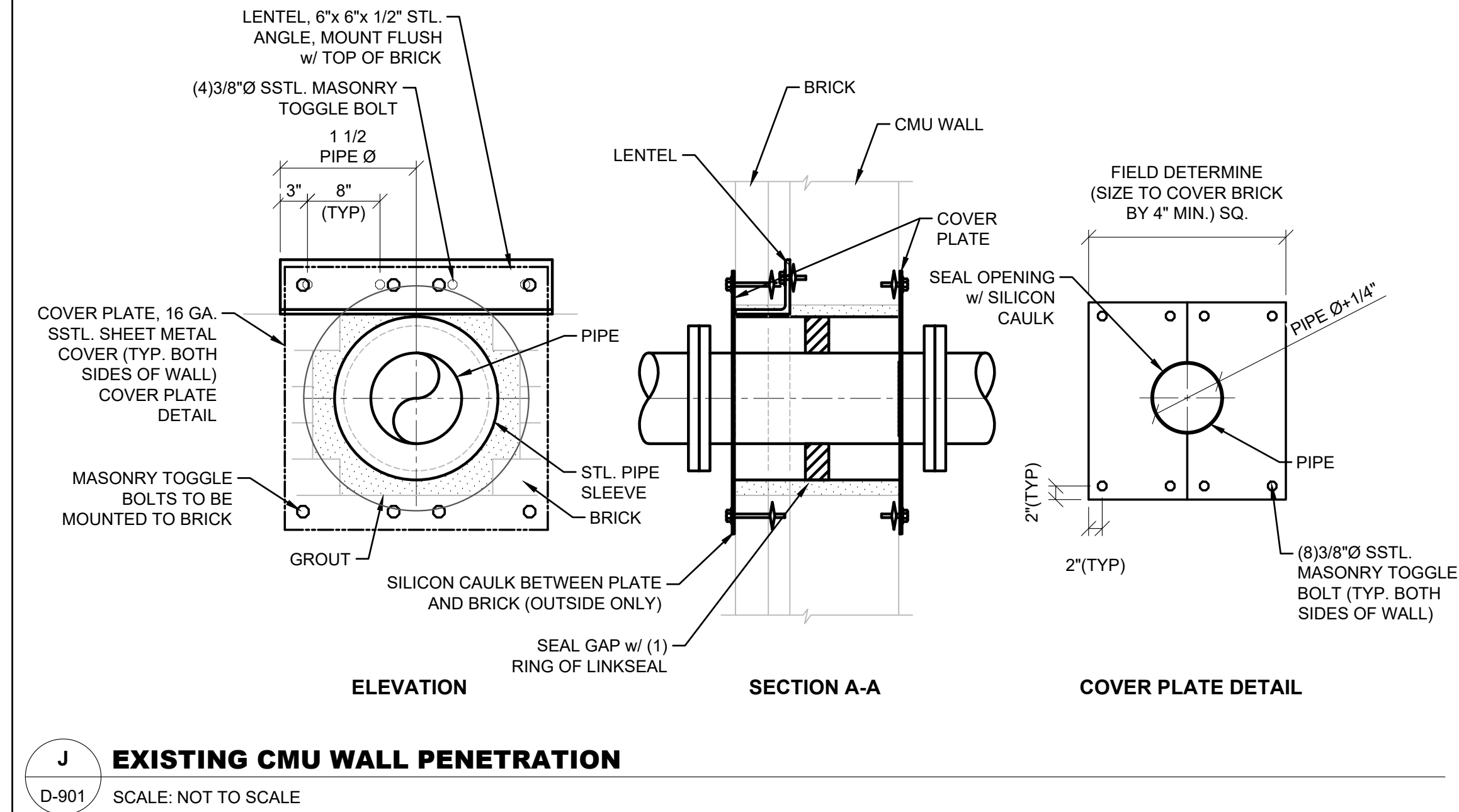
**H WALL PIPE (MJ X PE)**  
D-901 SCALE: NOT TO SCALE



**I WALL PIPE (FLG X MJ/RJ)**  
D-901 SCALE: NOT TO SCALE



**J WALL PIPE (MJ/RJ X MJ/RJ)**  
D-901 SCALE: NOT TO SCALE



**J EXISTING CMU WALL PENETRATION**  
D-901 SCALE: NOT TO SCALE

**PIPE PENETRATION NOTES:**

- ALL SLEEVES SHALL BE 304 STAINLESS STEEL, SCH 20 UNLESS NOTED OTHERWISE.
- SEAL FLANGES SHALL BE DRILLED TO 150 POUND STANDARD. EACH JOINT SHALL BE GASKETED.
- WHERE NOTED, DUCTILE IRON FLANGES MAY BE INSTALLED FLUSH W/ WALL & TAPPED FOR STUDS.
- PROVIDE CURB WHERE PENETRATING FLOOR EXCEPT FOR PENETRATION TYPE A. CURB SHALL BE 4" HIGH & 3" WIDE.
- PROVIDE A MINIMUM OF 3" CLEARANCE BETWEEN REINFORCING STEEL & PIPE PENETRATIONS.
- FLEXIBLE JOINTS SHALL BE PROVIDED FOR UNDERGROUND PIPING AS SPECIFIED.
- RESTRAINED FLEXIBLE COUPLINGS FOR STEEL PIPE SHALL BE DESIGNED FOR 100 PSI LINE PRESSURE IN ACCORDANCE W/ AWWA MANUAL M11. FIGURES 19.15 & 19.16 & TABLE 19.17 SHALL BE UTILIZED.
- INSULATION SHALL NOT EXTEND THROUGH SLEEVES UNLESS OTHERWISE NOTED.
- WEEP RINGS SHALL HAVE A MINIMUM DIAMETER EQUAL TO THE PIPE DIAMETER PLUS 3 INCHES.
- SLEEVED DIAMETER SHALL BE AS RECOMMENDED BY THE MECHANICAL SEAL MANUFACTURER.
- ALL WALL PIPE SHALL BE CAST UNLESS OTHERWISE NOTED.
- PROVIDE PIPE JOINT WITHIN TWO (2) FEET OF EXTERIOR WALL FACE OF WALL AT CONNECTION TO ALL NEW & EXISTING STRUCTURES OR MANHOLES.
- DETAIL NUMBERS G, H, I, & J REPRESENT MODIFICATIONS TO EXISTING STRUCTURES & NEW CONSTRUCTION.

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 Engineer: DT  
 Designer: DT  
 Drawn By: HKD

NEW LOXLEY WATER TREATMENT PLANT FOR THE CITY OF LOXLEY, LOXLEY, ALABAMA

**GMC Project #CMOB220078(2)**

PROCESS PIPING PIPE PENETRATION DETAILS

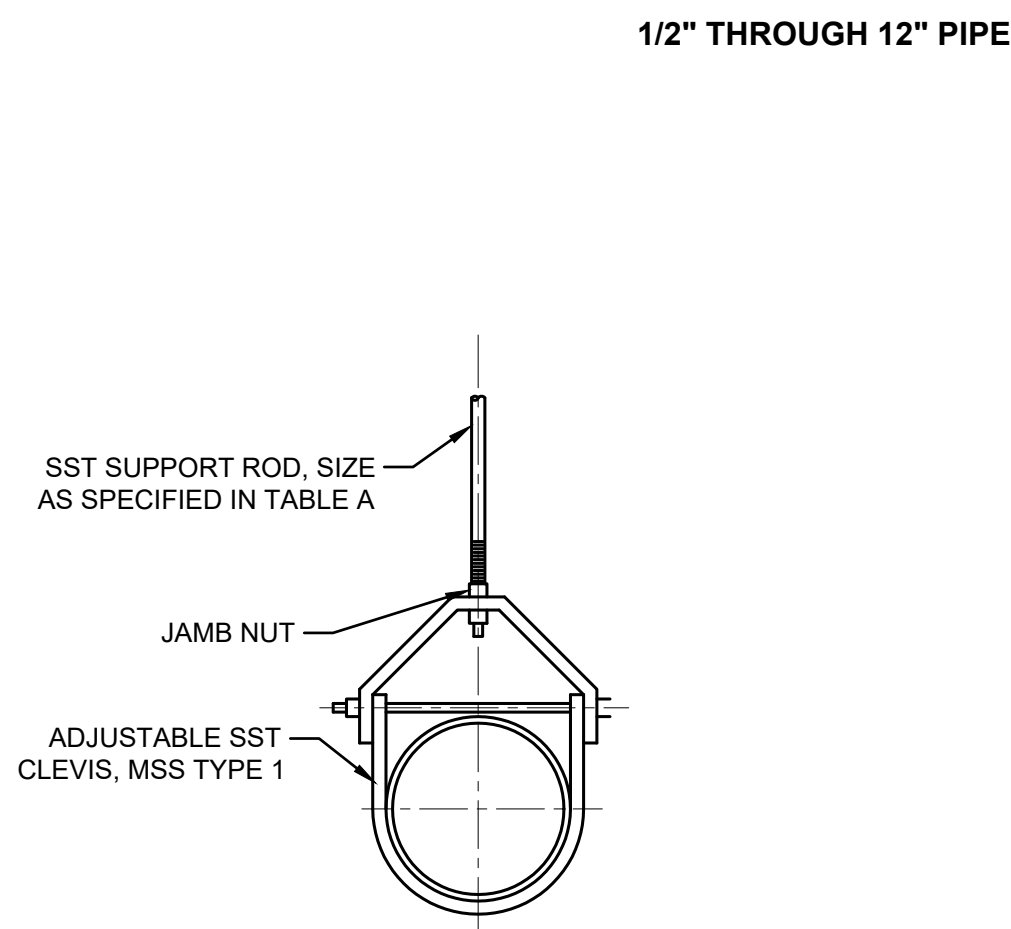
D-901

DRAWING FILE: T:\Projects\AL\Loxley City of\CMOB220078(2) - New WTP\DWG\PLANS\01 Bid Drawings\10 PROCESS\D-901 PIPE PENETRATIONS v2.dwg  
PLOT FILE: Mar 27, 2024 - 2:35pm

NOMINAL PIPE SIZE (INCHES)	SUPPORT ROD SIZE AND MAXIMUM LOAD PER ROD SEE NOTES 2 AND 3				MAXIMUM PIPE SPAN (FEET) SEE NOTE 4			
	ONE ROD SUPPORT SYSTEM		TWO ROD SUPPORT SYSTEM		STEEL SEE NOTE 3	COPPER	PLASTIC SEE NOTE 5	CAST IRON SEE NOTE 6
	ROD SIZE (INCHES)	MAX LOAD (POUNDS)	ROD SIZE (INCHES)	MAX LOAD (POUNDS)				
3/8 TO 3/4	3/8	610	3/8	610	5	5	CONTINUOUS	---
1	3/8	610	3/8	610	5	5	5	---
1 1/4	3/8	610	3/8	610	5	5	5	---
1 1/2	3/8	610	3/8	610	5	5	5	---
2	3/8	610	3/8	610	10	5	5	---
2 1/2	3/8	610	3/8	610	10	10	5	---
3	3/8	610	3/8	610	10	20	5	---
4	1/2	1130	3/8	610	10	20	10	---
6	3/4	1810	1/2	1130	15	20	20	---
8	3/4	2710	1/2 (5/8)	1130 (1810)	15	20	20	---
10	3/4 (1)	2710 (4960)	5/8 (3/4)	1810 (2710)	20	---	20	---
12	7/8 (1 1/4)	3770 (8000)	3/4 (7/8)	2710 (3370)	20	---	20	---
14	1	4960	---	---	20	---	---	---
16	1	4960	---	---	20	---	---	---
18	1	4960	---	---	20	---	---	---
20	1 1/4	8000	---	---	20	---	---	---
24	1 1/4	8000	---	---	20	---	---	---
30	1 1/2	12,000	1 1/2	24,000	20	---	---	---

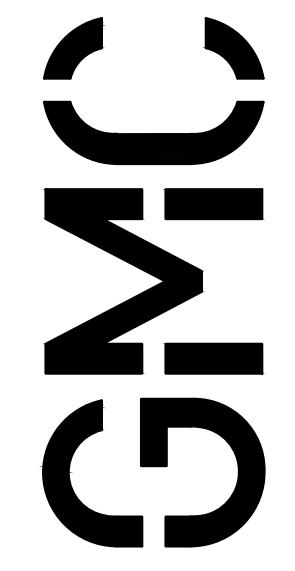
12 FEET FOR DUCTILE IRON  
10 FEET FOR CAST IRON

X INDICATES PIPE HANGERS SUITABLE FOR CONDITIONS LISTED BELOW:	PIPE HANGER TYPE						
	1	2	3	4	5	6	7
<b>SERVICE TEMPERATURE</b>							
33° F - 59° F			X	X	X	-	-
120° F - 450° F	X	X	X	X	X	X	X
60° F - 119° F	X	X	X	-	-	X	X
<b>PIPING MATERIALS</b>							
STEEL	X	X	X	X	X	X	X
COPPER	-	X	-	X	-	X	X
PLASTIC	X	X	-	X	X	X	X
CAST IRON	X	X	-	X	X	X	X

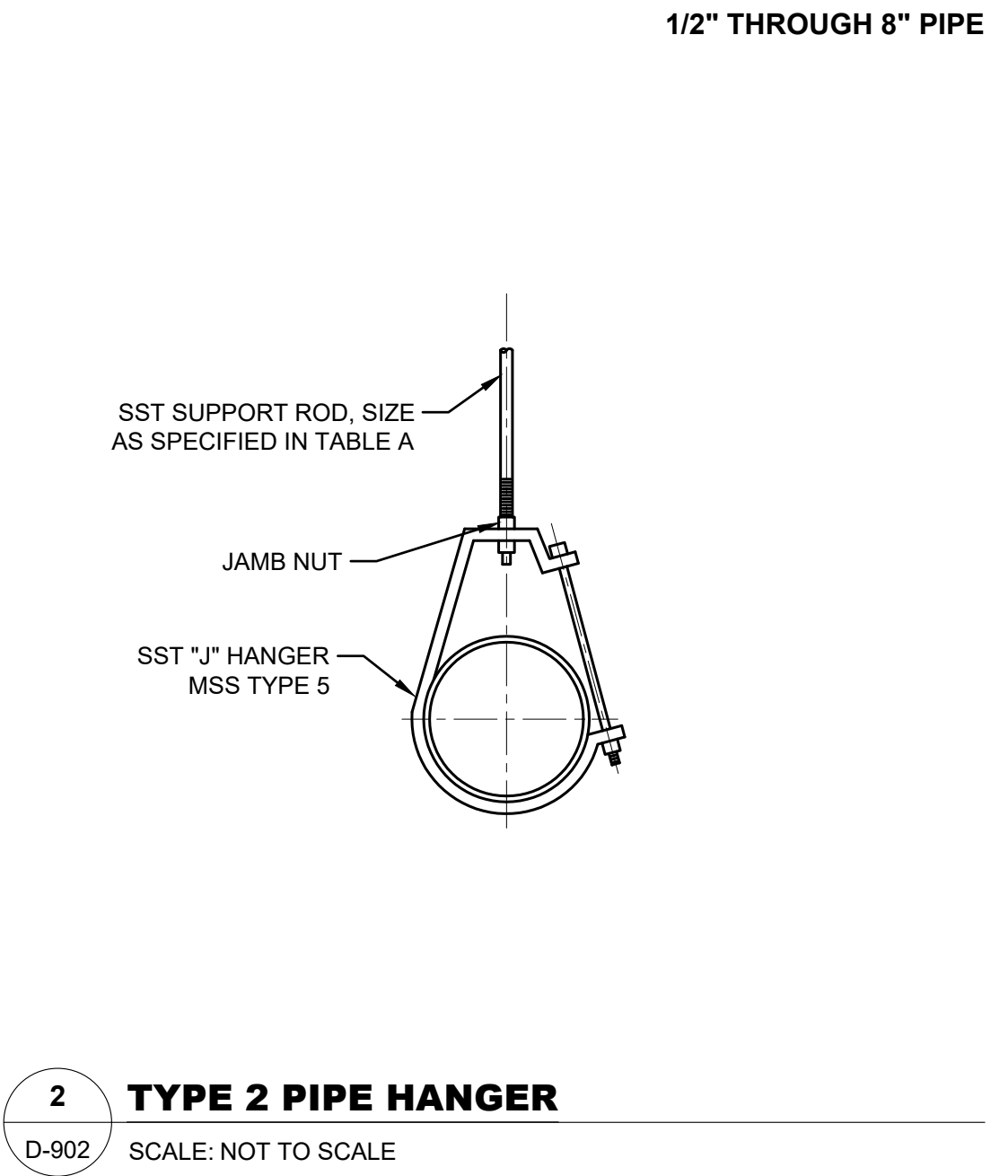
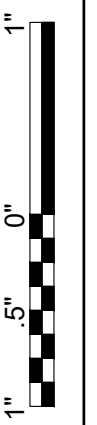


**1 TYPE 1 PIPE HANGER**  
D-902 SCALE: NOT TO SCALE

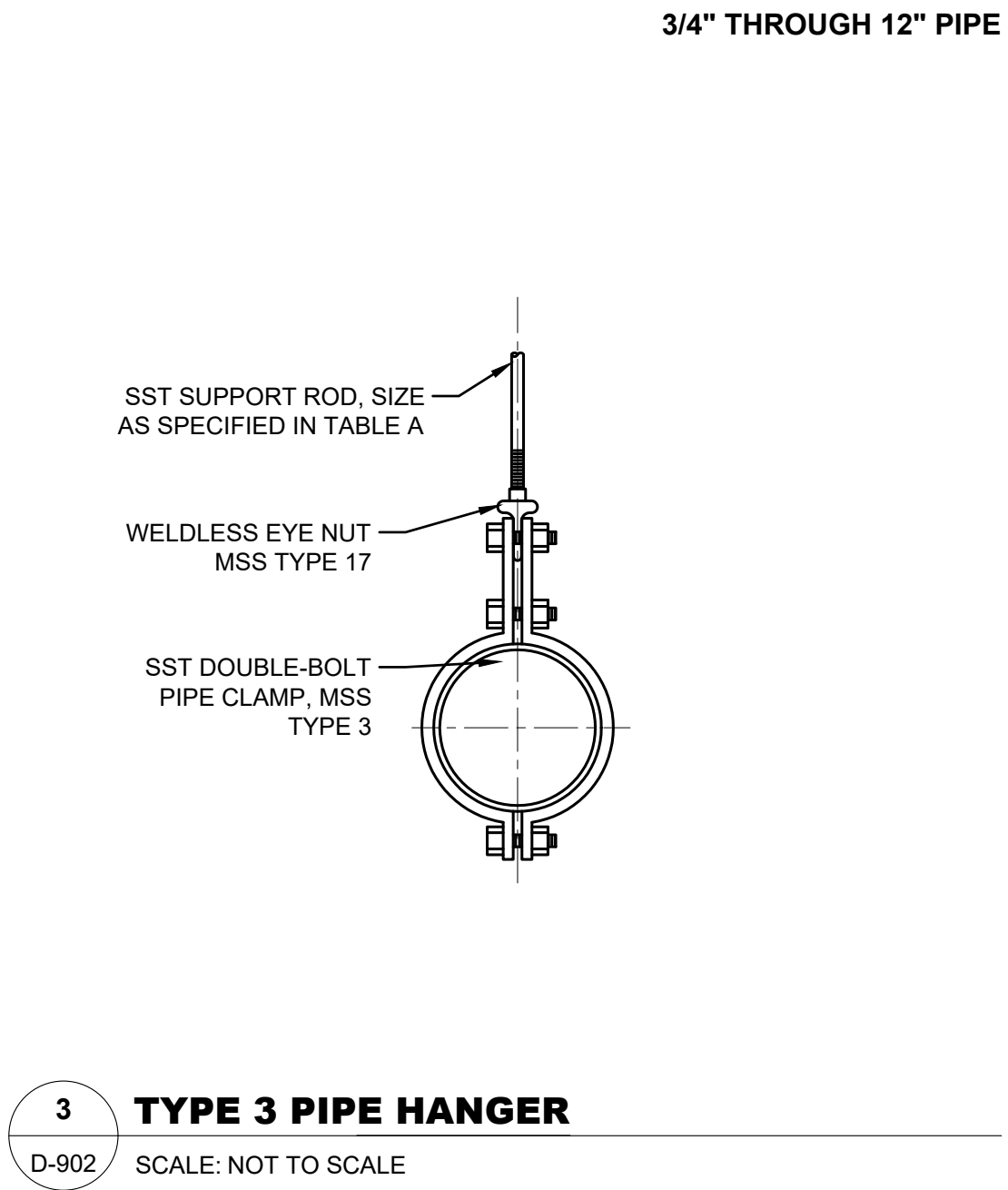
- GENERAL NOTES:**
- WHERE NO REFERENCE TO PIPE SUPPORT SYSTEMS ARE GIVEN ON THE DRAWINGS, THE CONTRACTOR SHALL USE AN APPROPRIATE SYSTEM. SEE TABLE "B". PIPE AND CONDUIT SUPPORT SYSTEMS SHALL BE UNISTRUT, ELCEN, OR EQUAL, AND SHALL BE DESIGNED BY THE CONTRACTOR TO MEET THE MINIMUM LOAD AND SPAN REQUIREMENTS AS SPECIFIED.
  - MATERIALS FOR HANGERS, SUPPORTS AND ASSOCIATED HARDWARE SHALL BE 304 OR 316 SST.
  - UNLESS OTHERWISE SPECIFIED, EXPANSION ANCHORS SHALL NOT BE USED.
  - MSS REFERS TO THE MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY, STANDARD PRACTICE SP58 AND SP69.
  - HANGER BRACKETS AND SUPPORT COMPONENTS MAY BE INTERCHANGED.
  - CONCRETE INSERTS IN AREA BELOW WATER SURFACE OR NORMALLY SUBJECT TO SUBMERGING SHALL BE EMBEDDED ANCHOR BOLTS OR EQUAL.
  - PROVIDE PLASTIC OR RUBBER CHANNEL END CAPS AT EXPOSED ENDS OF CHANNELS 7'-0" ABOVE FLOOR AND BELOW.
  - MAXIMUM DESIGN WEIGHTS AND LOADS SHALL BE AS SHOWN IN TABLE "A" OR AS SHOWN IN THE DETAILS ON THIS DRAWING.
  - WHEN SUPPORT PIPING REQUIRES HORIZONTAL FLEXIBILITY NORMAL TO A STEEL BEAM AXIS, USE STRUCTURAL ATTACHMENTS C AND D AS SHOWN ON DRAWING D-903.
  - ALL PIPING SUPPORTED BY HANGERS AND/OR STRUCTURAL ATTACHMENTS SHALL BE BRACED AGAINST HORIZONTAL, VERTICAL, AXIAL, AND LONGITUDINAL SWAY. BRACING SHALL BE CALCULATED TO RESIST SEISMIC LOADINGS AS SPECIFIED BY SMACNA AND AS INDICATED IN THE SPECIFICATIONS.
  - FITTINGS SHALL NOT BE LESS THAN MSS CL B.
  - UNLESS OTHERWISE SPECIFIED, TRAPEZE AND PIPE RACK COMPONENTS SHALL HAVE A MINIMUM THICKNESS OF 12 GAGE WITH A MAXIMUM DEFLECTION 1/240 OF THE SPAN. MINIMUM CHANNEL COMPONENT SIZE SHALL BE 1 5/8" SQUARE 316 SST AS MANUFACTURED BY SUPER STRUT, UNISTRUT, ELCEN, OR EQUAL.



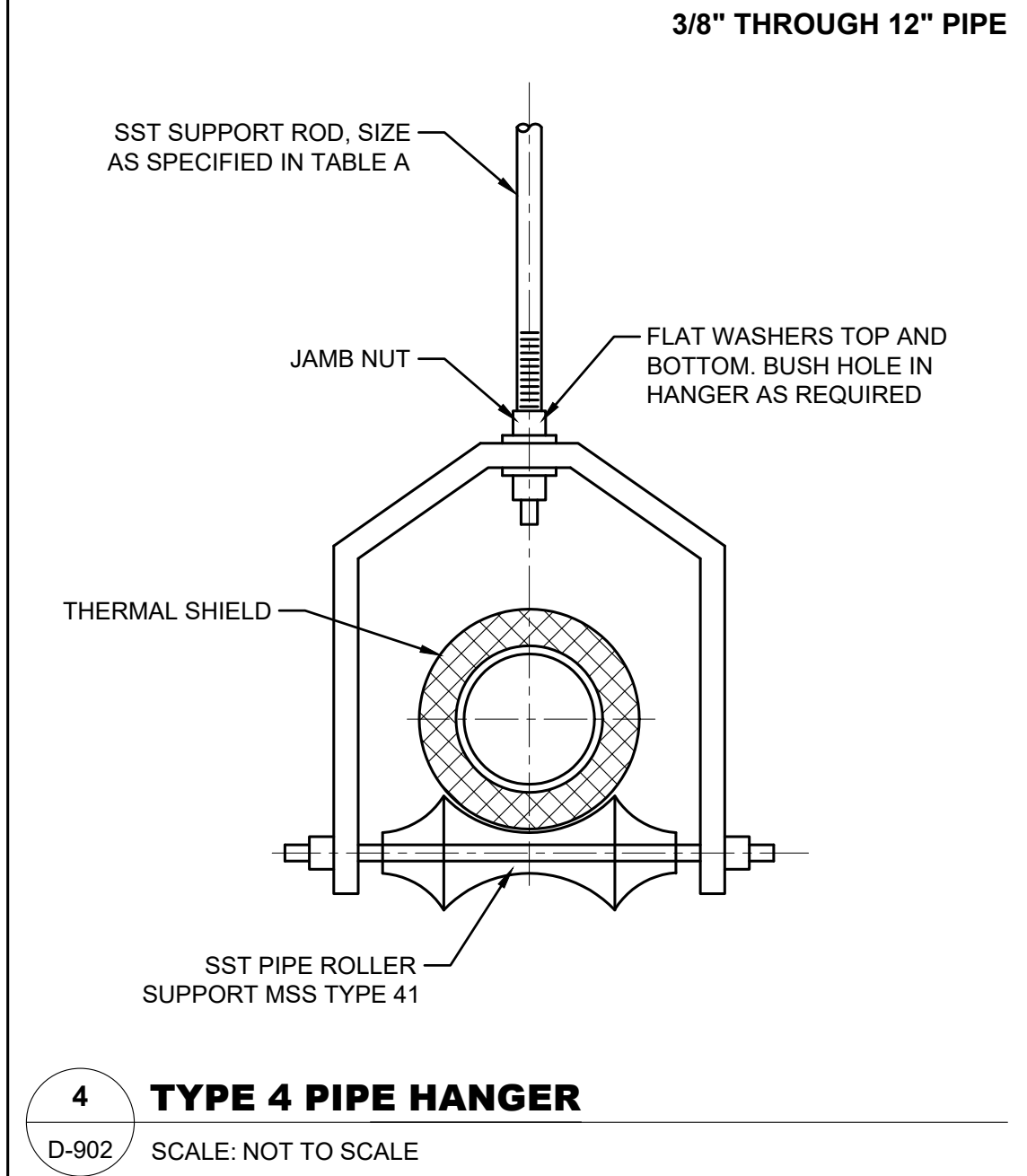
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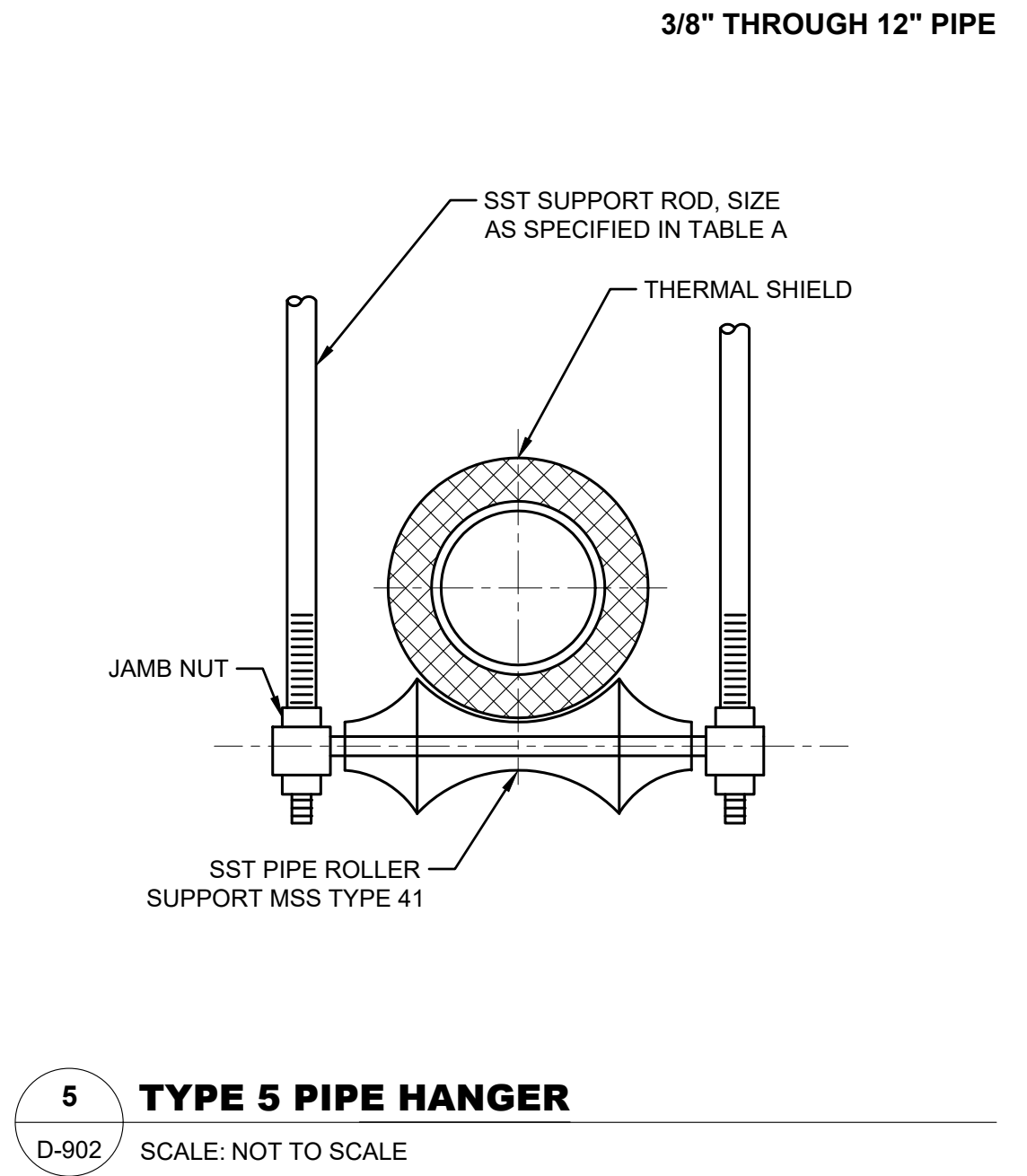
**2 TYPE 2 PIPE HANGER**  
D-902 SCALE: NOT TO SCALE



**3 TYPE 3 PIPE HANGER**  
D-902 SCALE: NOT TO SCALE



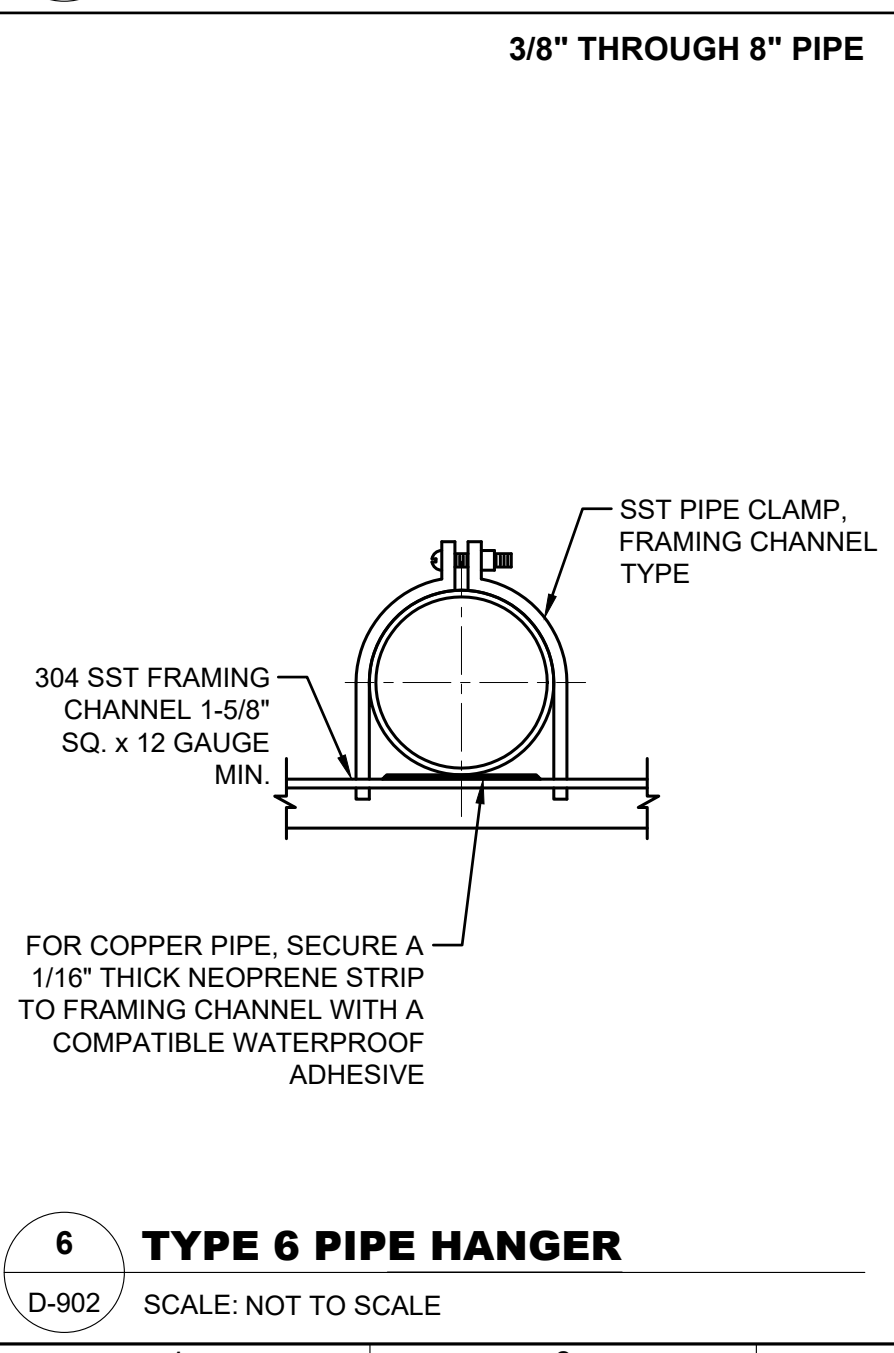
**4 TYPE 4 PIPE HANGER**  
D-902 SCALE: NOT TO SCALE



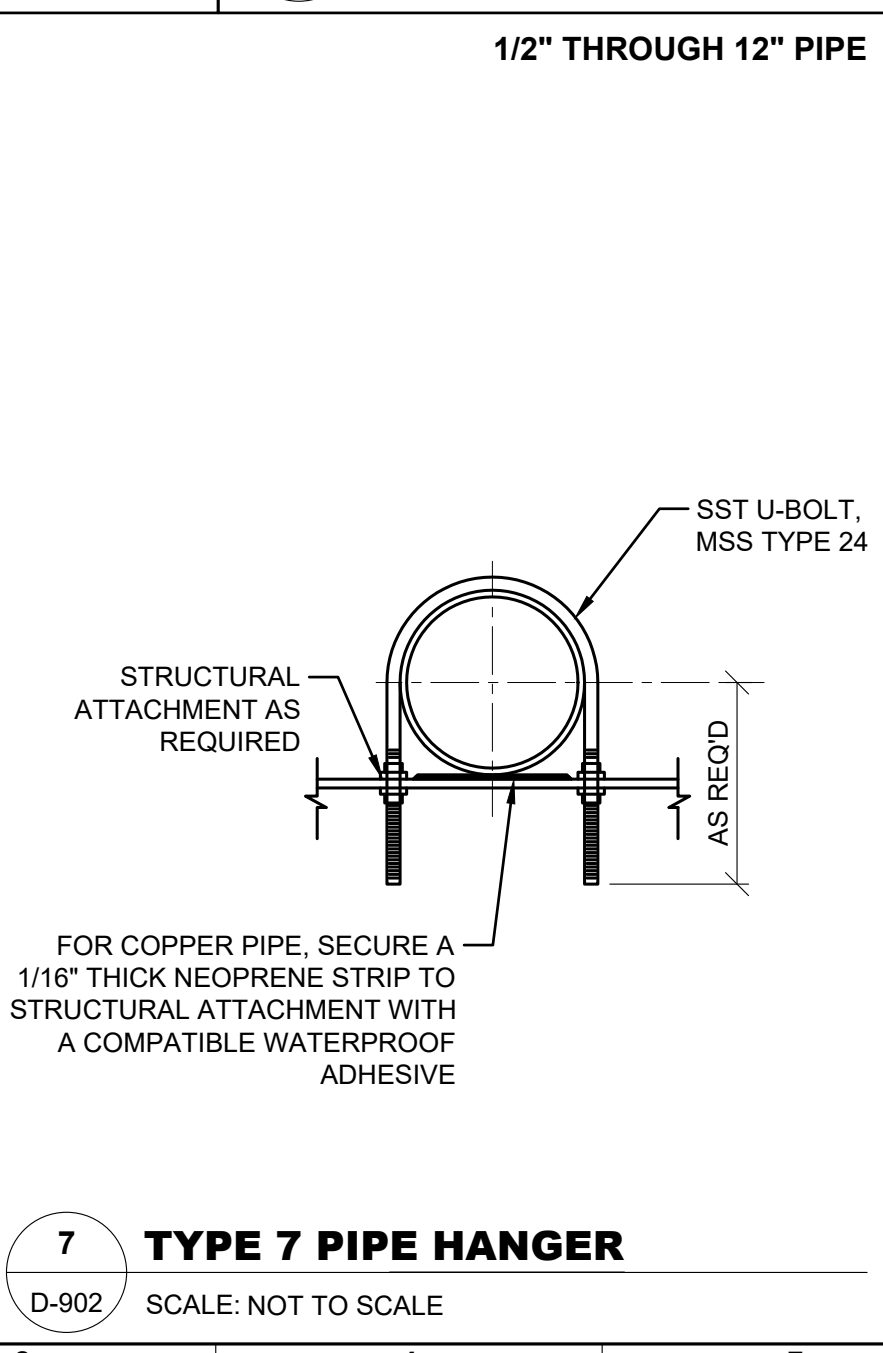
**5 TYPE 5 PIPE HANGER**  
D-902 SCALE: NOT TO SCALE

- TABLE A NOTES:**
- DESIGN WEIGHT SHALL BE TWICE THE WEIGHT OF THE PIPE FULL OF WATER PLUS THE WEIGHT OF VALVES, FITTINGS, INSULATING MATERIALS, AND SUSPENDED HANGER COMPONENTS ON THE RUN OF PIPE BEING SUPPORTED.
  - ROD SIZES SHOWN ARE FOR THE SUPPORT OF A SINGLE PIPE. WHEN SUPPORTING MORE THAN ONE PIPE, ROD SHALL BE SIZED USING THE DESIGN WEIGHTS (SEE NOTE 1) TO DETERMINE THE TOTAL DESIGN LOAD. THE TOTAL DESIGN LOAD SHALL NOT EXCEED THE MAXIMUM LOADS IN THE TABLE ABOVE.
  - ROD SIZES AND MAXIMUM LOADS IN PARENTHESIS ARE FOR 8", 10" OR 12" STEEL PIPE ONLY, AT SPANS SHOWN.
  - PIPE SHALL NOT HAVE POCKETS FORMED IN THE SPAN DUE TO SAGGING OF THE PIPE BETWEEN SUPPORTS CAUSED BY THE WEIGHT OF THE PIPE, MEDIUM IN THE PIPE, INSULATION, VALVES AND FITTINGS.
  - SPAN SHOWN IS FOR SCHEDULE 80 PVC PIPE AT 100 DEGREES F. SPANS FOR OTHER PLASTICS, OTHER PVC PIPE SCHEDULES, AND PIPES AT HIGHER TEMPERATURES, SHALL BE SHORTENED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS. CONTINUOUS MEANS PIPE SHALL BE IN UNISTRUT OR SIMILAR CHANNEL.
  - PROVIDE A MINIMUM OF ONE PIPE HANGER PER PIPE LENGTH, WITHIN 4 INCHES OF THE BELL.
  - PIPE HANGER AND SUPPORT SELECTION SHALL BE IN ACCORDANCE WITH TABLE B.

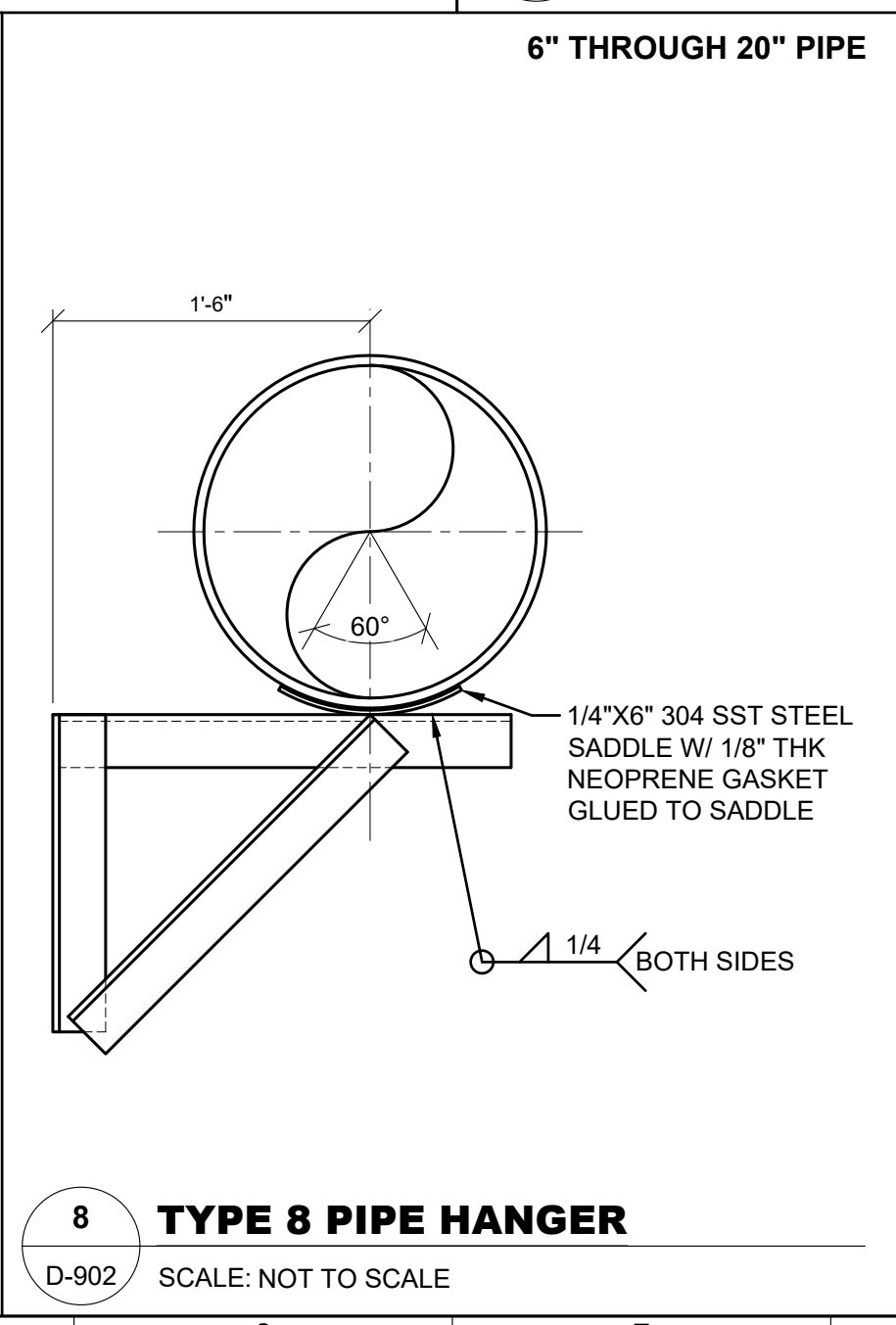
- TABLE B NOTES:**
- FOR SERVICES OTHER THAN THOSE SHOWN IN TABLE "B", PIPE ATTACHMENTS SHALL BE THOSE SPECIFIED IN THE PIPE SPECS.



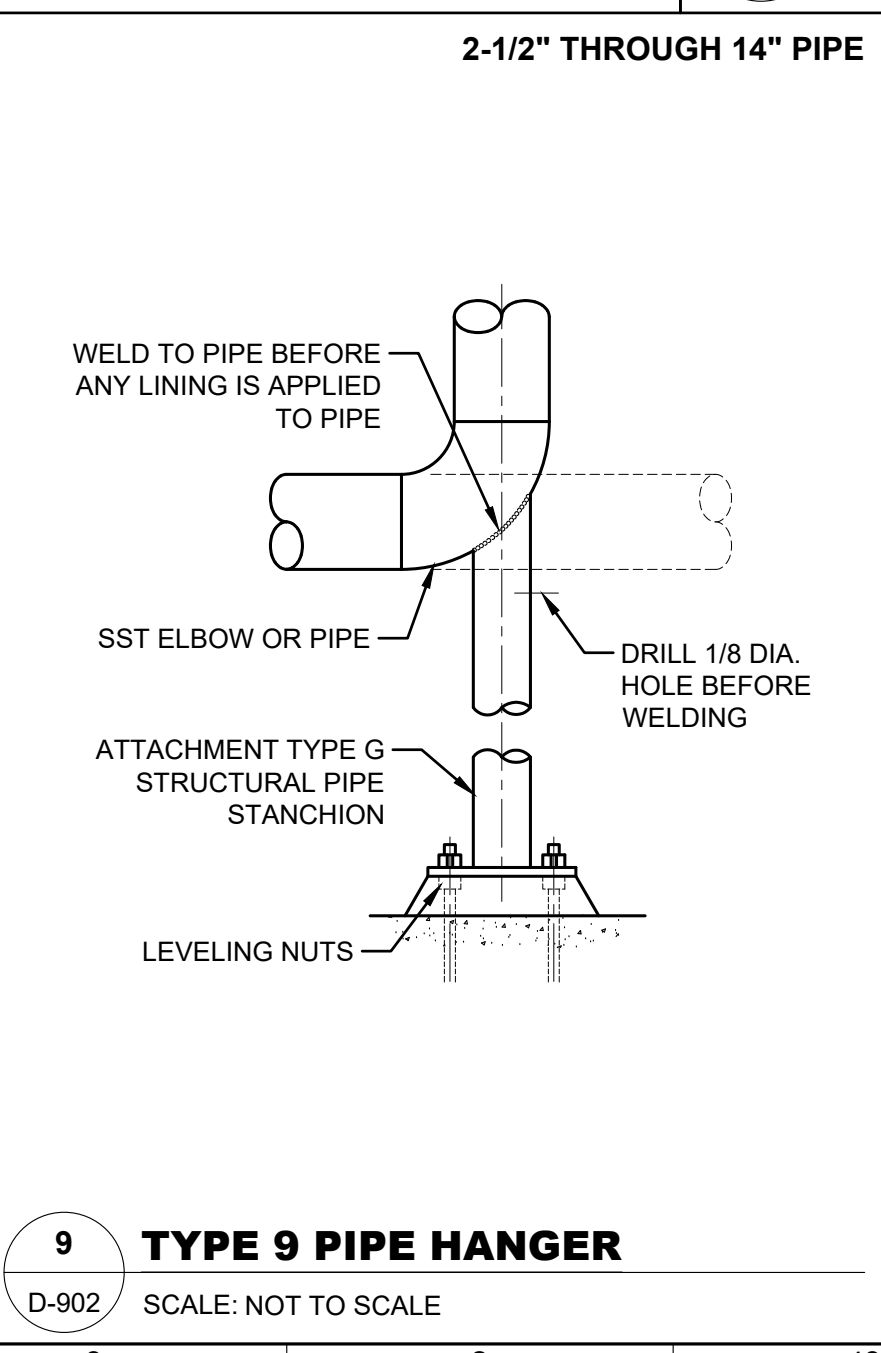
**6 TYPE 6 PIPE HANGER**  
D-902 SCALE: NOT TO SCALE



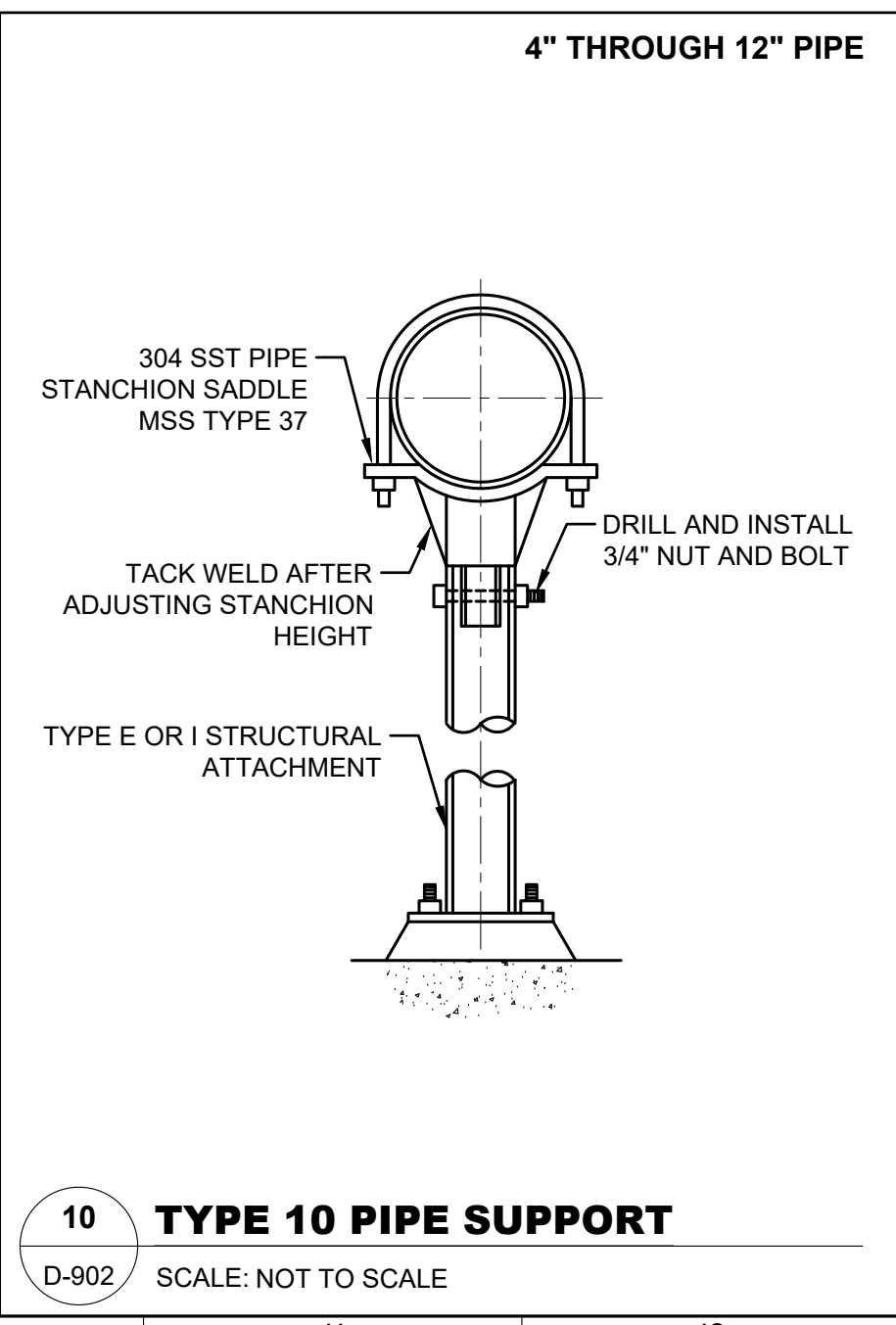
**7 TYPE 7 PIPE HANGER**  
D-902 SCALE: NOT TO SCALE



**8 TYPE 8 PIPE HANGER**  
D-902 SCALE: NOT TO SCALE



**9 TYPE 9 PIPE HANGER**  
D-902 SCALE: NOT TO SCALE



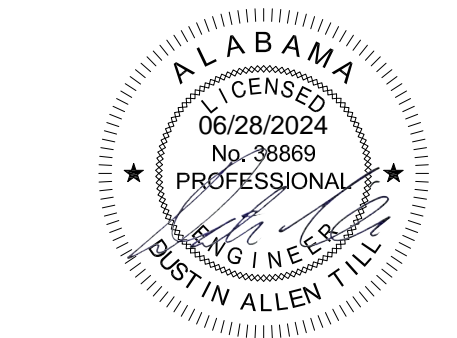
**10 TYPE 10 PIPE SUPPORT**  
D-902 SCALE: NOT TO SCALE

DRAWING FILE: T:\Projects\ALL\Code\City of GMC\220078\2 - New WTP\0 DWG\HLANS\01 Bid Drawings\10 PROCESS\D-902 PIPE SUPPORTS.rvt.dwg  
PLOTTED: Mar 27, 2024 - 2:35pm

NEW LOXLEY WATER TREATMENT PLANT FOR THE CITY OF LOXLEY, ALABAMA

PROCESS PIPING SUPPORT DETAILS

D-902

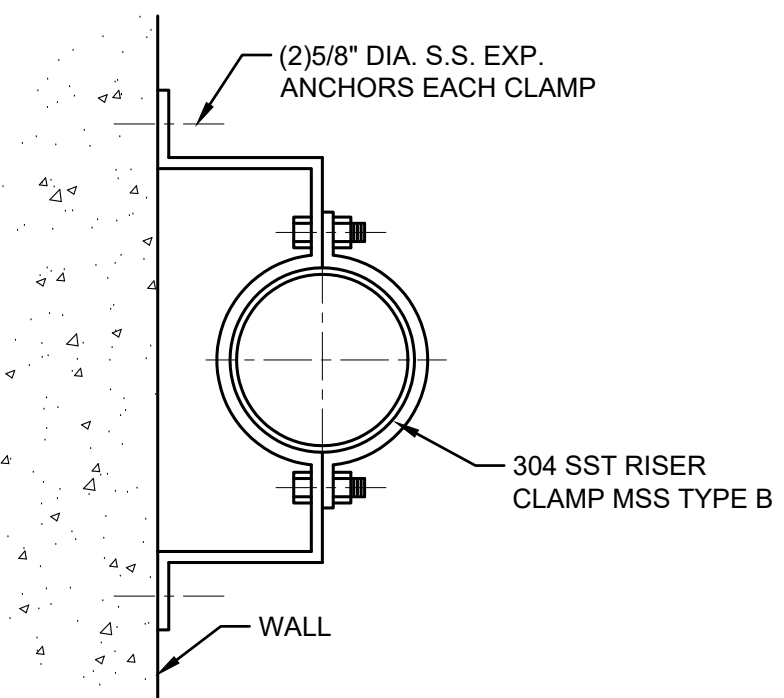


GMC Project #CMOB220078(2)

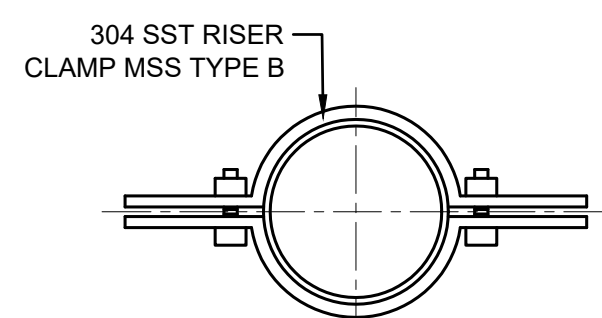
ISSUE	DATE	DESCRIPTION	BY
60% Submittal	07.25.2023		DK
90% Submittal	10.20.2023		DT
Bid Set	03.29.2024		DT

Project Manager: DK  
Engineer: DT  
Designer: DT  
Drawn By: HKD

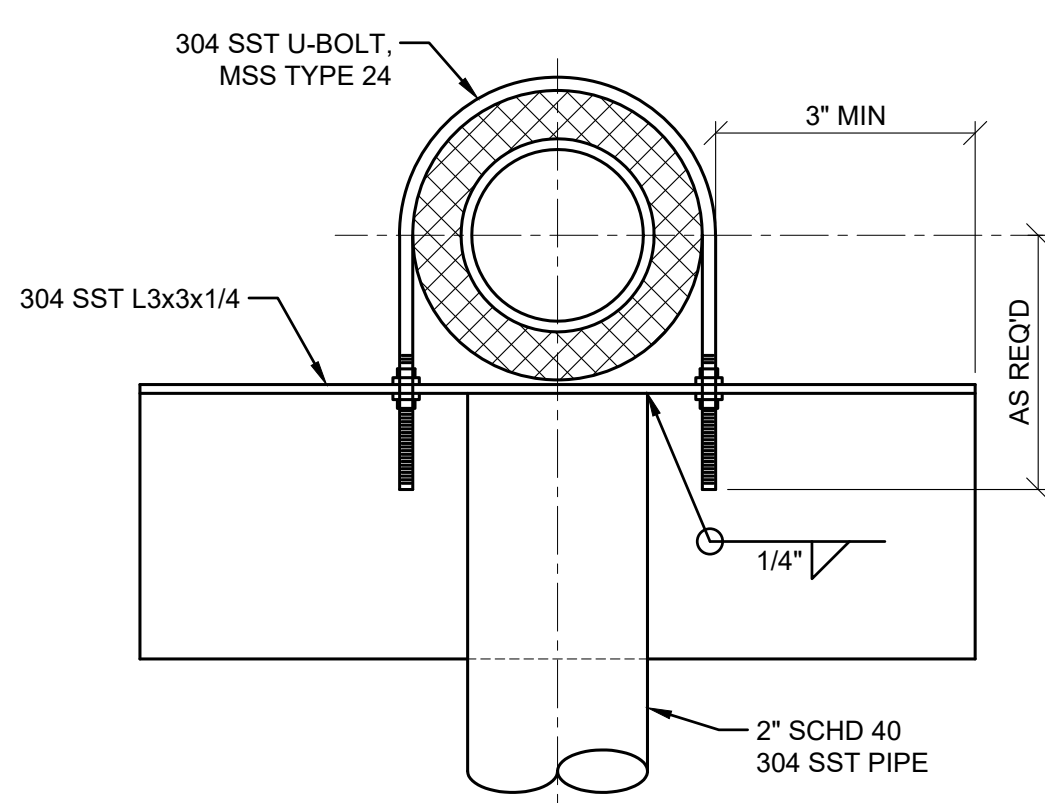
FOR VERTICAL PIPE ONLY  
3/4" THROUGH 8" PIPE



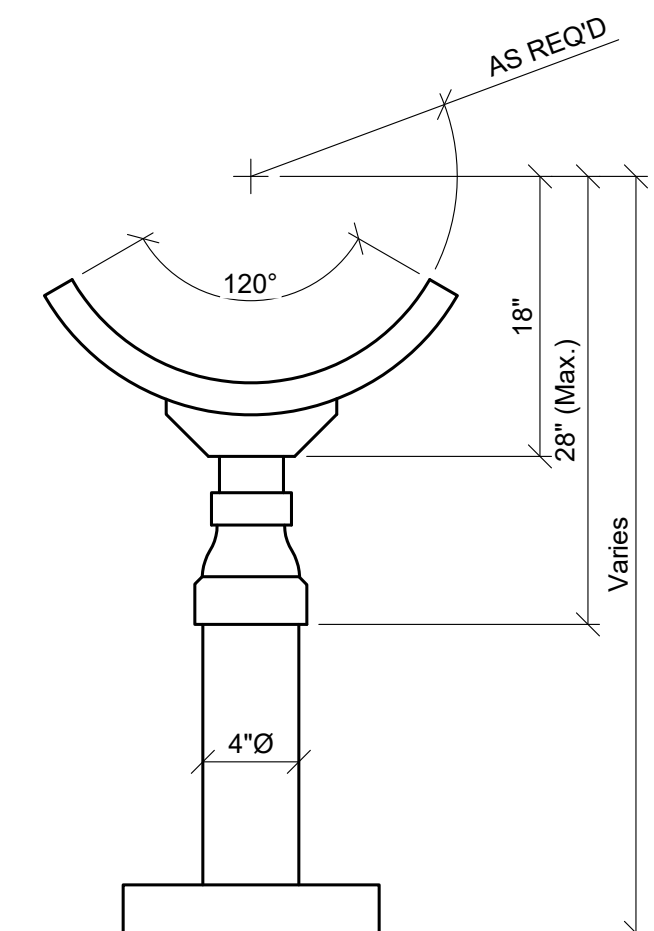
FOR VERTICAL PIPE ONLY  
1/2" THROUGH 12" PIPE



1/2" THROUGH 3" PIPE



14" THROUGH 30" PIPE

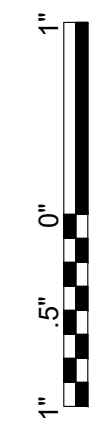


GENERAL NOTES:

- WHERE NO REFERENCE TO PIPE SUPPORT SYSTEMS ARE GIVEN ON THE DRAWINGS THE CONTRACTOR SHALL USE AN APPROPRIATE SYSTEM. SEE TABLE "B". PIPE AND CONDUIT SUPPORT SYSTEMS SHALL BE UNISTRUT, ELCEN, OR EQUAL, AND SHALL BE DESIGNED BY THE CONTRACTOR TO MEET THE MINIMUM LOAD AND SPAN REQUIREMENTS AS SPECIFIED.
- MATERIALS FOR HANGERS, SUPPORTS AND ASSOCIATED HARDWARE SHALL BE 316 SST.
- UNLESS OTHERWISE SPECIFIED, EXPANSION ANCHORS SHALL NOT BE USED.
- MSS REFERS TO THE MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY, STANDARD PRACTICE SP58 AND SP69.
- HANGER BRACKETS AND SUPPORT COMPONENTS MAY BE INTERCHANGED.
- CONCRETE INSERTS IN AREA BELOW WATER SURFACE OR NORMALLY SUBJECT TO SUBMERGING SHALL BE EMBEDDED ANCHOR BOLTS OR EQUAL.
- PROVIDE PLASTIC OR RUBBER CHANNEL END CAPS AT EXPOSED ENDS OF CHANNELS 7'-0" ABOVE FLOOR AND BELOW.
- MAXIMUM DESIGN WEIGHTS AND LOADS SHALL BE AS SHOWN IN TABLE "A" D-902 OR AS SHOWN IN THE DETAILS ON THIS DRAWING.
- WHEN SUPPORT PIPING REQUIRES HORIZONTAL FLEXIBILITY NORMAL TO A STEEL BEAM AXIS, USE STRUCTURAL ATTACHMENTS C AND D AS SHOWN ON D-904.
- ALL PIPING SUPPORTED BY HANGERS AND/OR STRUCTURAL ATTACHMENTS SHALL BE BRACED AGAINST HORIZONTAL, VERTICAL, AXIAL, AND LONGITUDINAL SWAY. BRACING SHALL BE CALCULATED TO RESIST SEISMIC LOADINGS AS SPECIFIED BY SMACNA AND AS INDICATED IN THE SPECIFICATIONS.
- FITTINGS SHALL NOT BE LESS THAN MSS CL B.
- UNLESS OTHERWISE SPECIFIED, TRAPEZE AND PIPE RACK COMPONENTS SHALL HAVE A MINIMUM THICKNESS OF 12 GAGE WITH A MAXIMUM DEFLECTION 1/240 OF THE SPAN. MINIMUM CHANNEL COMPONENT SIZE SHALL BE 1 5/8" SQUARE 316 SST AS MANUFACTURED BY SUPER STRUT, UNISTRUT, ELCEN, OR EQUAL.
- SPACING SHALL BE AS REQUIRED BUT SHALL NOT EXCEED THOSE SPANS SHOWN IN TABLE A ON SHEET D-902.

**GMC**

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ISSUE	DATE
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Project Manager:	DK
Engineer:	DT
Designer:	DT
Drawn By:	HKD

**11 TYPE 11 PIPE HANGER**  
D-903 SCALE: NOT TO SCALE

**12 TYPE 12 PIPE HANGER**  
D-903 SCALE: NOT TO SCALE

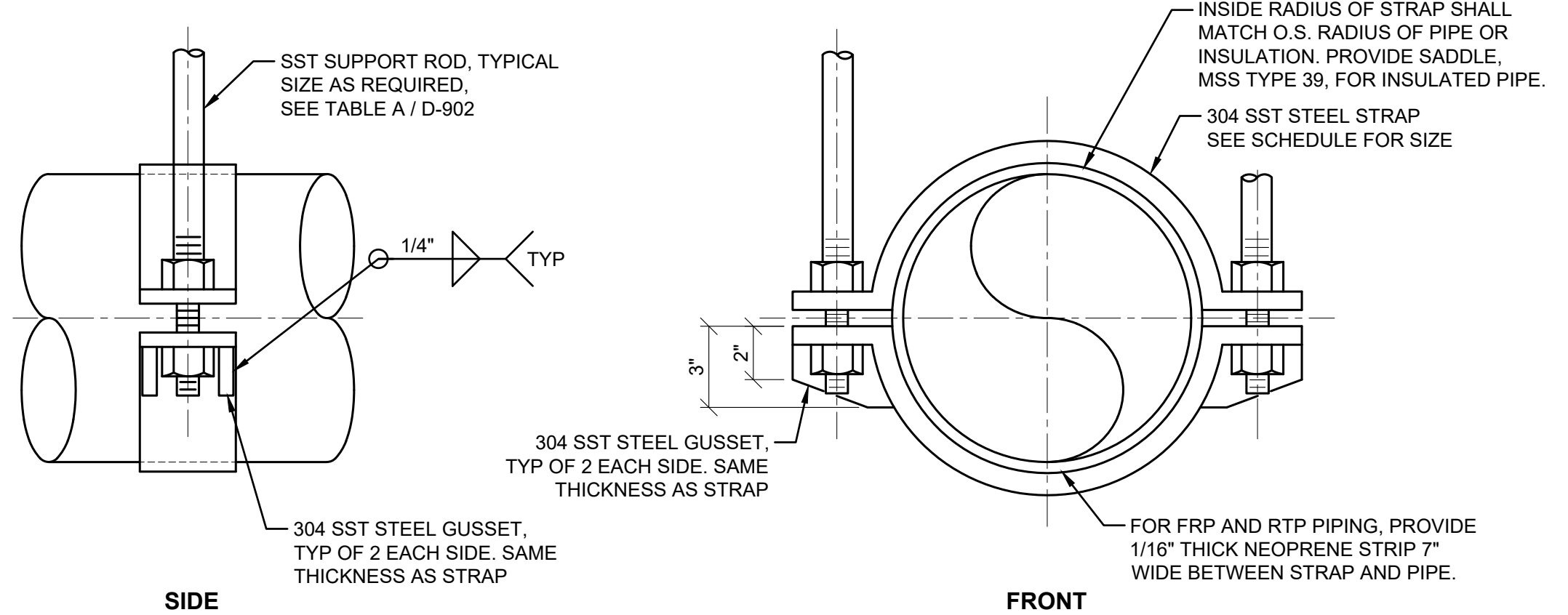
**13 TYPE 13 PIPE HANGER**  
D-903 SCALE: NOT TO SCALE

**14 TYPE 14 PIPE SUPPORT**  
D-903 SCALE: NOT TO SCALE

**STRAP SCHEDULE**

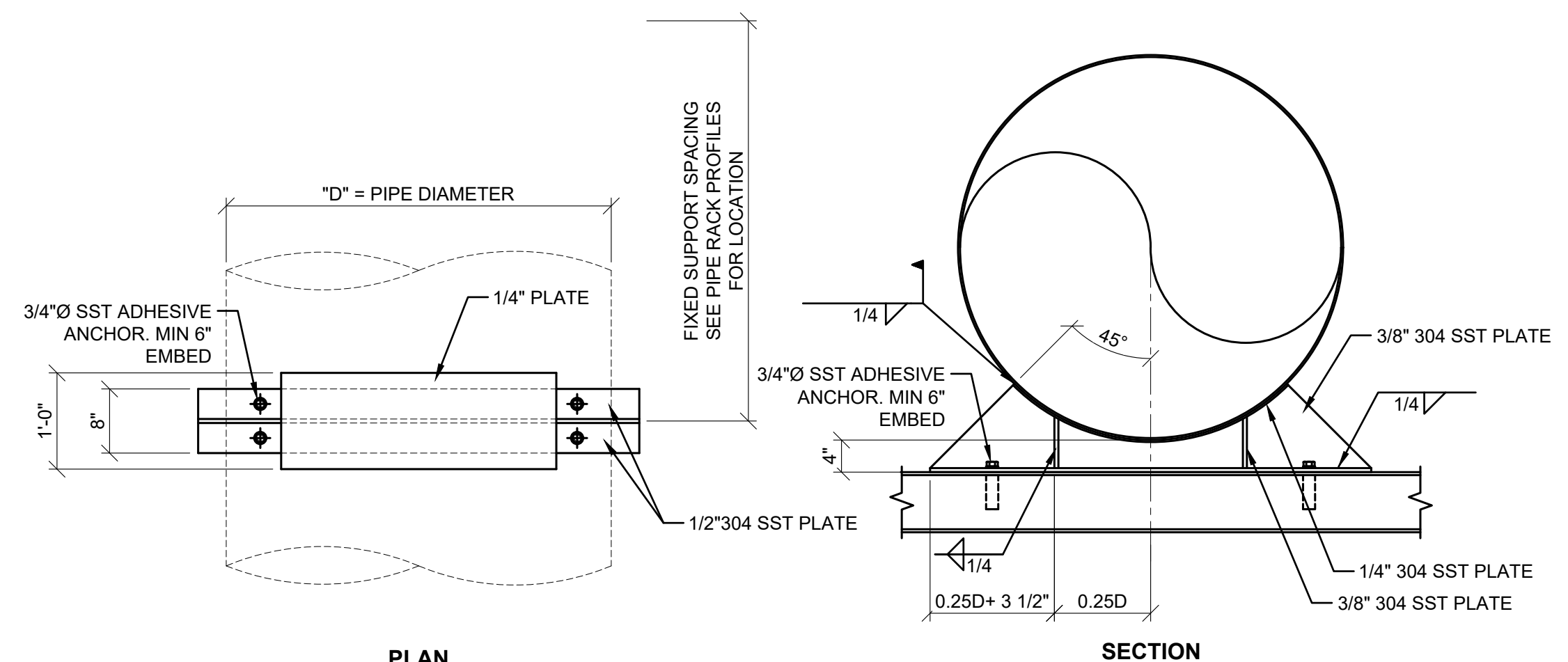
PIPE SIZE	STRAP SIZE
14" TO 16"	1/2"x6"
18" TO 20"	5/8"x6"
24" TO 30"	3/4"x6"

14" THROUGH 30" PIPE



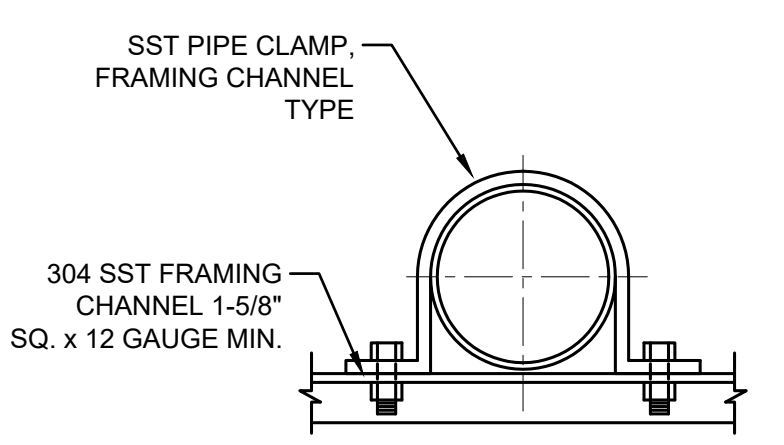
**15 TYPE 15 PIPE HANGER**  
D-903 SCALE: NOT TO SCALE

14" THROUGH 48" PIPE

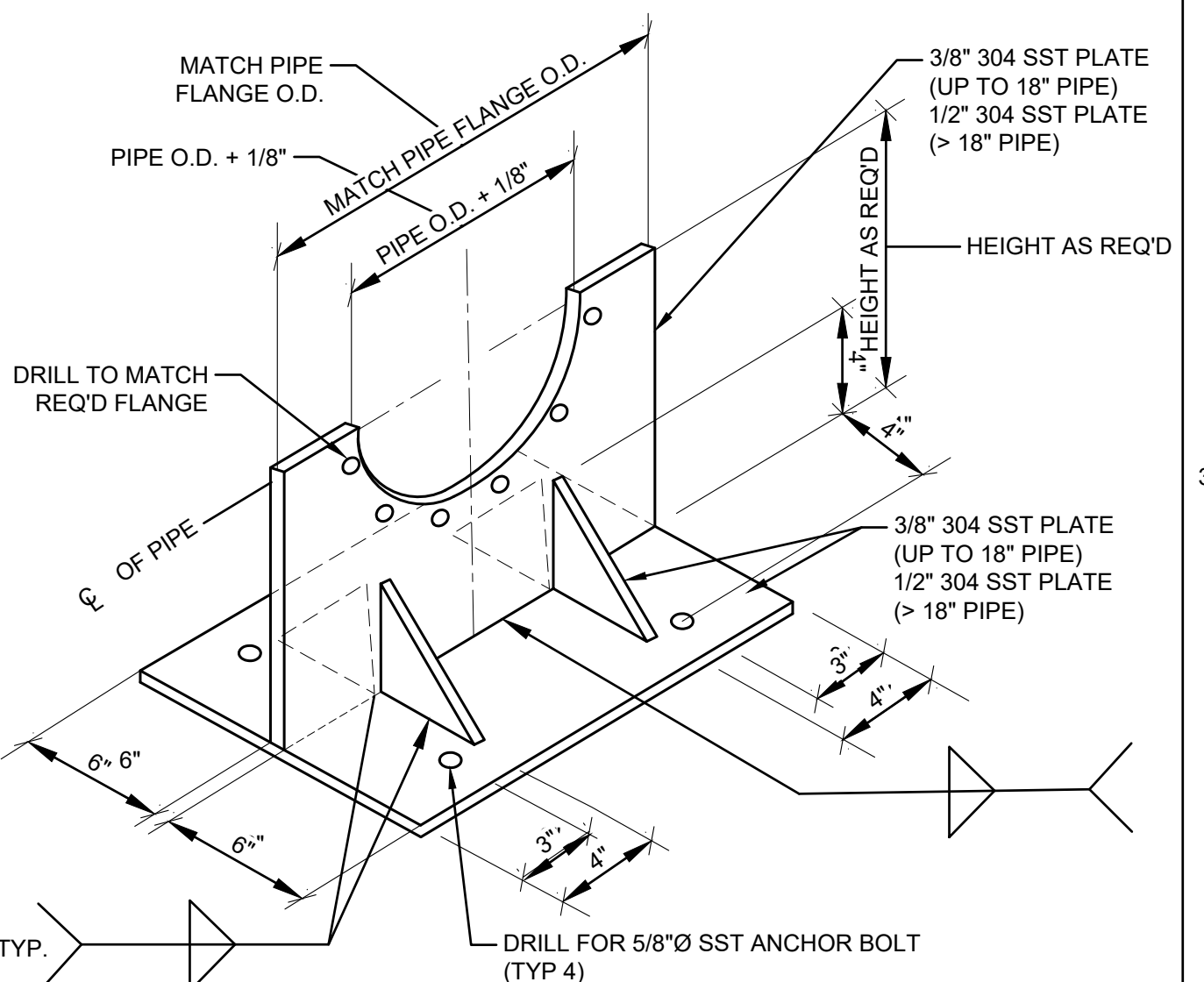


**16 FIXED PIPE SUPPORT**  
D-903 SCALE: NOT TO SCALE

1/2" THROUGH 6" PIPE

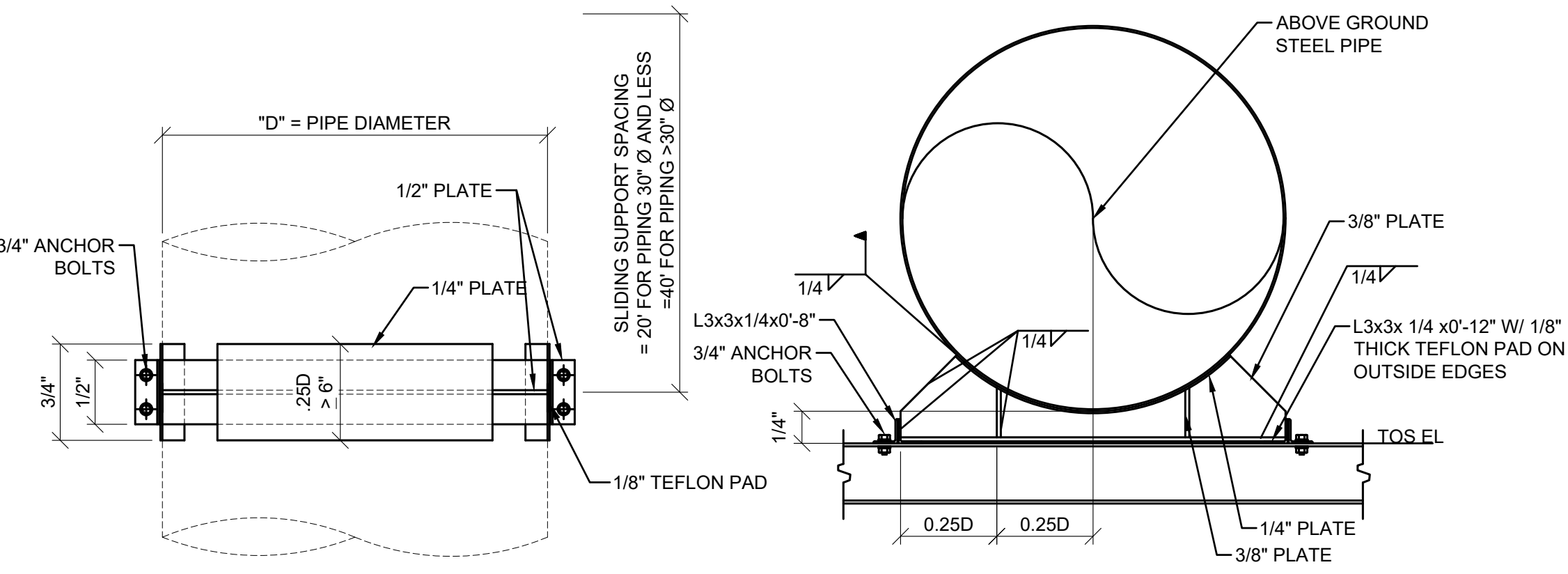


**17 TYPE 17 PIPE HANGER**  
D-903 SCALE: NOT TO SCALE



**18 TYPE 18 PIPE HANGER**  
D-903 SCALE: NOT TO SCALE

42" THROUGH 60" DIAMETER STEEL PIPING



**19 FIXED PIPE SUPPORT**  
D-903 SCALE: NOT TO SCALE

DRAWING FILE: T:\Projects\ALL\Loxley, City of\GMC\220078(2) - New WTP\0 DWG\HLANS\01 Bid Drawings\10 PROCESS\D-902 PIPE SUPPORTS.rvt.dwg PLOTTED: Mar 27, 2024 - 2:33pm

NEW LOXLEY WATER  
TREATMENT PLANT  
FOR THE CITY OF LOXLEY  
LOXLEY, ALABAMA

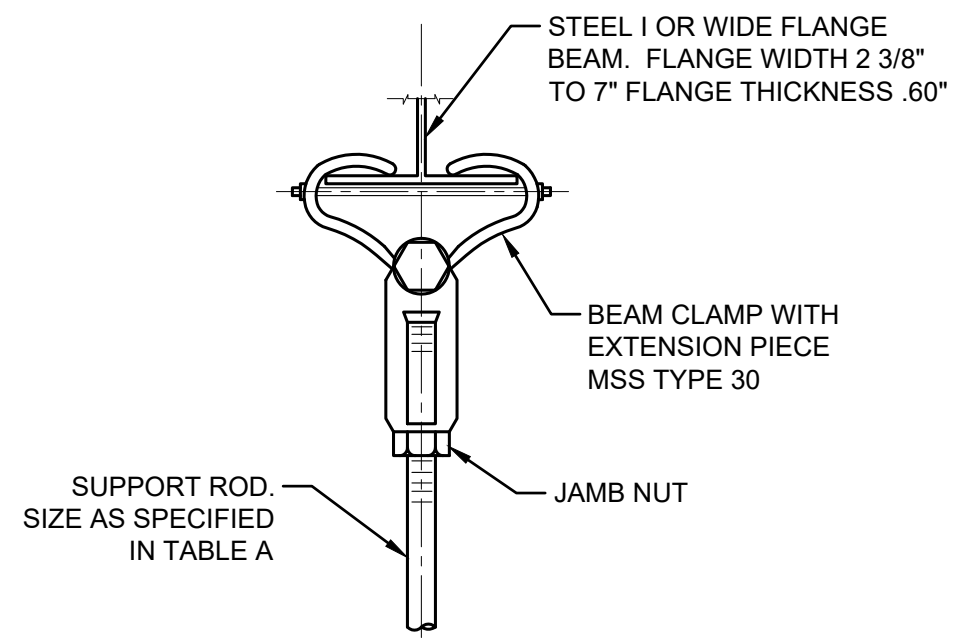
GMC Project #CJOB220078(2)



PROCESS PIPING  
SUPPORT DETAILS

D-903

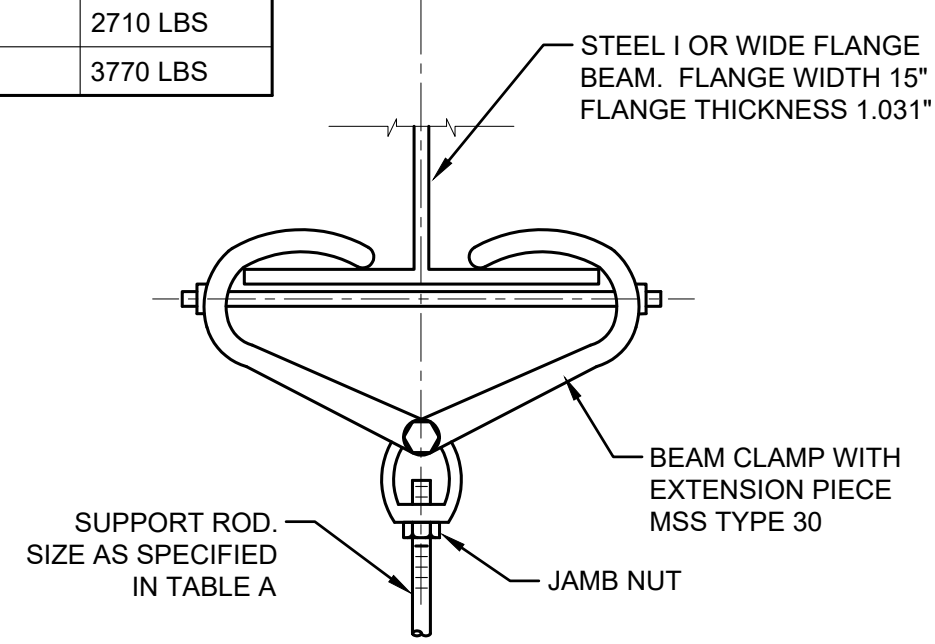
MAXIMUM ALLOWABLE LOAD	
ROD SIZE	LOAD
3/8"	610 LBS
1/2"	1130 LBS
5/8"-7/8"	1365 LBS



**A ATTACHMENT TYPE A**

D-904 SCALE: NOT TO SCALE

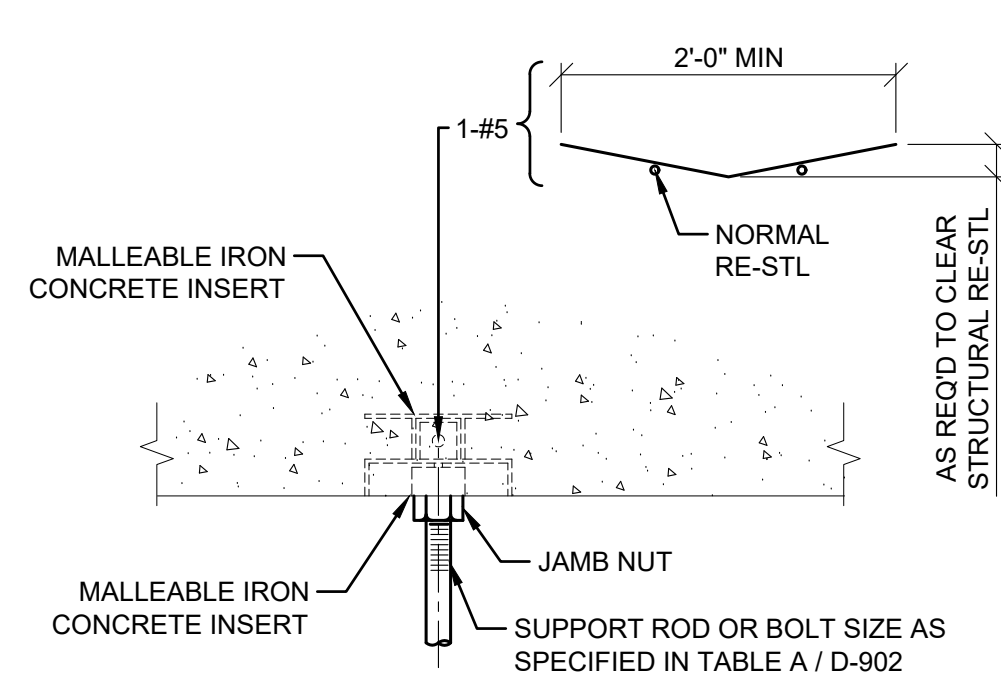
MAXIMUM ALLOWABLE LOAD	
ROD SIZE	LOAD
3/8"	610 LBS
1/2"	1130 LBS
5/8"	1810 LBS
3/4"	2710 LBS
7/8"	3770 LBS



**B ATTACHMENT TYPE B**

D-904 SCALE: NOT TO SCALE

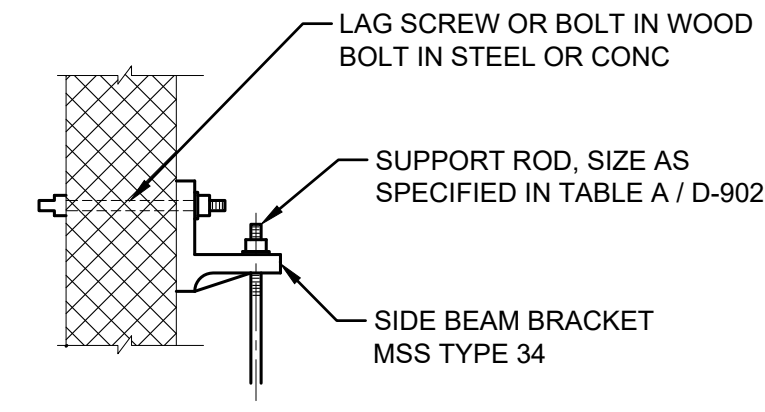
MAXIMUM ALLOWABLE LOAD	
ROD SIZE	LOAD
3/8"	610 LBS
1/2"	1130 LBS
5/8"-7/8"	1140 LBS



**C ATTACHMENT TYPE C**

D-904 SCALE: NOT TO SCALE

MAXIMUM ALLOWABLE LOAD		
ROD SIZE	LOAD	LOAD CONC/STEEL
3/8"	390 LBS	610 LBS
1/2"	640 LBS	1130 LBS
5/8"	760 LBS	1810 LBS
3/4"	830 LBS	2710 LBS
7/8"	830 LBS	3770 LBS



**D ATTACHMENT TYPE D**

D-904 SCALE: NOT TO SCALE

**GENERAL NOTES:**

- FOR EXISTING CONCRETE, NEW PRECAST CONCRETE OR NEW CONCRETE MASONRY UNITS USE SURFACE MOUNT CHANNEL UNISTRUT P-1000 OR EQUAL. FOR ALL POURED-IN-PLACE CONCRETE, USED EMBEDDED CONCRETE INSERT CHANNELS, UNISTRUT P3200 OR EQUAL AND DELETE THE SURFACE MOUNT ANCHOR BOLTS.
- SPACING SHALL BE AS REQUIRED BUT SHALL NOT EXCEED THOSE SPANS SHOWN IN TABLE A ON SHEET D-902.

**TYPE G ATTACHMENT NOTES**

- BRACKET MAY BE USED WITH VARIOUS HANGER, ROLLER, GUIDE AND CLAMP ASSEMBLIES

**TYPE H ATTACHMENT NOTES**

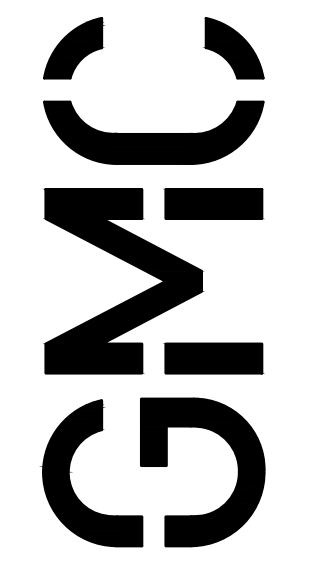
- BRACKET MAY BE WALL OR CEILING MOUNTED, AND MAY BE USED WITH VARIOUS HANGER, GUIDE, RACK, OR ANCHOR, AND SWAY BRACE ASSEMBLIES
- MAXIMUM LOAD CAPACITY SHALL BE AS RECOMMENDED BY THE CHANNEL MANUFACTURER.

**TYPE J ATTACHMENT NOTES**

- PROVIDE FLAT HEADED BOLTS 3/8"x1-1/2"L SCREWED IN PLACE TO CREATE FLUSH SURFACE WITH PLATE, PRIOR TO POURING CONCRETE. THESE BOLTS ARE TO BE REMOVED AND REPLACED WITH 2" L BOLTS AFTER CURING FOR SUPPORT ATTACHMENT.

**TYPE K ATTACHMENT NOTES**

- STRUCTURAL ATTACHMENTS MAY BE USED WITH VARIOUS HANGER, GUIDE AND ANCHOR ASSEMBLIES.



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Project Manager:	DK
Engineer:	DT
Designer:	DT
Drawn By:	HKD

NEW LOXLEY WATER  
TREATMENT PLANT  
FOR THE CITY OF LOXLEY  
LOXLEY, ALABAMA

GMC Project #CMOB220078(2)

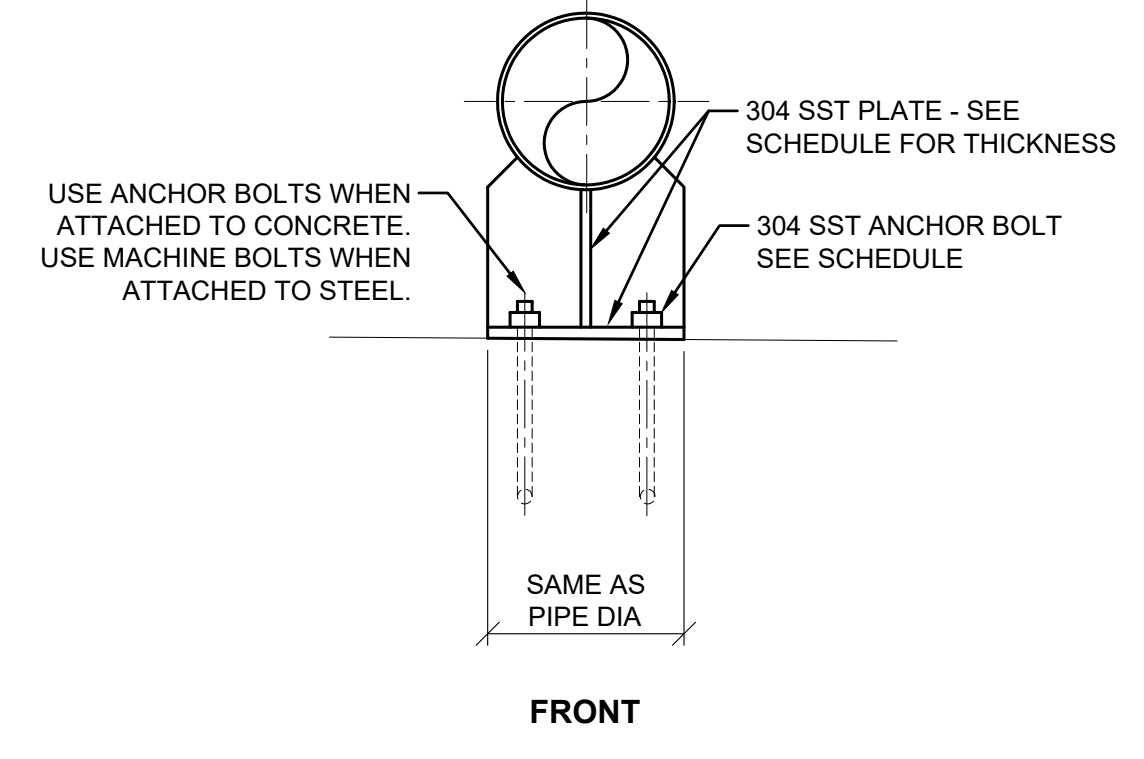


PROCESS PIPING  
STRUCTURAL  
ATTACHMENT  
DETAILS

D-904

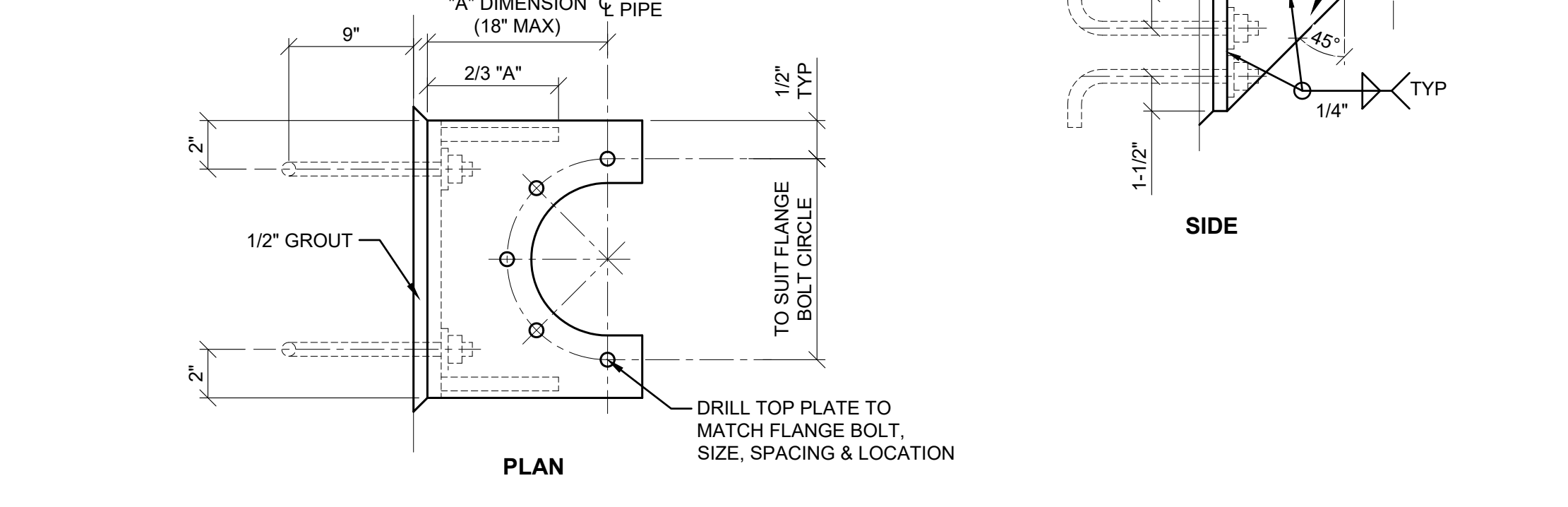
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COMPONENT SCHEDULE		
PIPE SIZE	BOLT SIZE	PL THK
2" & 2-1/2"	3/8"	1/4"
3" TO 6"	1/2"	3/8"
8" TO 12"	5/8"	3/8"
14" TO 16"	3/4"	1/2"
18" TO 20"	7/8"	5/8"

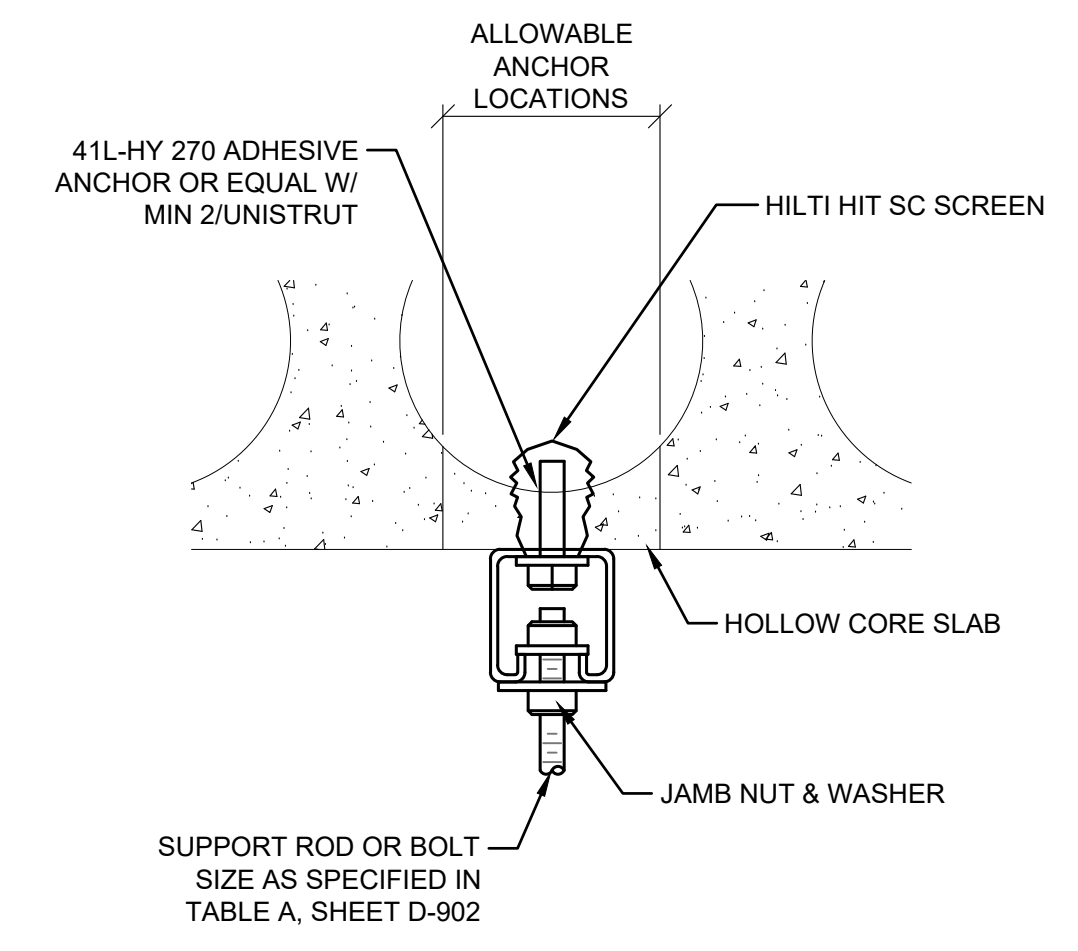


**L ATTACHMENT TYPE L**  
D-905 SCALE: NOT TO SCALE

COMPONENT SCHEDULE		
PIPE SIZE	BOLT SIZE	PL THK
2" & 2-1/2"	3/8"	1/4"
3" TO 6"	1/2"	3/8"
8" TO 12"	5/8"	3/8"
14" TO 16"	3/4"	1/2"
18" TO 20"	7/8"	5/8"
24" TO 30"	1"	3/4"

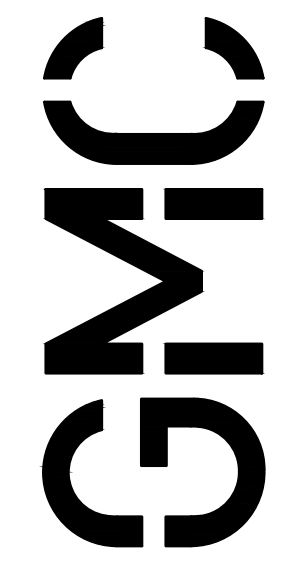


**M ATTACHMENT TYPE M**  
D-905 SCALE: NOT TO SCALE



**N ATTACHMENT TYPE N**  
D-905 SCALE: NOT TO SCALE

- GENERAL NOTES:**
- FOR EXISTING CONCRETE, NEW PRECAST CONCRETE OR NEW CONCRETE MASONRY UNITS USE SURFACE MOUNT CHANNEL UNISTRUT P-1000 OR EQUAL. FOR ALL POURED-IN-PLACE CONCRETE, USED EMBEDDED CONCRETE INSERT CHANNELS, UNISTRUT P3200 OR EQUAL AND DELETE THE SURFACE MOUNT ANCHOR BOLTS.
  - SPACING SHALL BE AS REQUIRED BUT SHALL NOT EXCEED THOSE SPANS SHOWN IN TABLE A ON SHEET D-902.



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ISSUE	DATE
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Project Manager:	DK
Engineer:	DT
Designer:	DT
Drawn By:	HKD

NEW LOXLEY WATER TREATMENT PLANT FOR THE CITY OF LOXLEY, ALABAMA

GMC Project #CMOB220078(2)



PROCESS PIPING STRUCTURAL ATTACHMENT DETAILS  
**D-905**

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DRAWING FILE: T:\Projects\ALL\Loxley, City of\CMOB220078\2 - New WTP\0 DWG+PLANS\01 Bid Drawings\10 PROCESS\10 VALVE SCHEDULE.dwg  
 PLOTTED: Jul 03, 2024 - 15:27pm

VALVE SCHEDULE								
	TAG	SERVICE	TYPE	SIZE (INCHES)	CONNECTION	OPERATOR	NOTES	
1000	V1101	RW	Swing Check	10	FL	N/A		
	V1102	RW	Gate	10	FL	HANDWHEEL		
	V1103	RW	Gate	8	FL	HANDWHEEL		
	V1104	RW	Ball	1/4	THD	LEVER	P1104 ISOLATION	
	V1105	RW	Ball	2	THD	LEVER		
	V1105	RW	Air Release	2	THD	N/A		
6000	V6101	D	PLUG	6	MJ	NUT	VALVE BOX	
	V6211	FW	BALL	2	THD	MANUAL LEVER		
	V6212	FW	AIR RELEASE	2	THD	N/A		
	V6213	FW	BALL	1/4	THD	MANUAL LEVER	PRESSURE GAUGE	
	V6214	FW	GLOBE CHECK	12	FLG	N/A		
	V6215	FW	BUTTERFLY	12	FLG	HANDWHEEL		
	V6221	FW	BALL	2	THD	MANUAL LEVER		
	V6222	FW	AIR RELEASE	2	THD	N/A		
	V6223	FW	BALL	1/4	THD	MANUAL LEVER	PRESSURE GAUGE	
	V6224	FW	GLOBE CHECK	12	FLG	N/A		
	V6225	FW	BUTTERFLY	12	FLG	HANDWHEEL		
	V6401	PSW	GATE	3	FLG	HANDWHEEL		
		6402	PSW	PRESSURE REGULATING	3	THD	N/A	
8000	V8001	PSW	BALL	1.5	THD	MANUAL LEVER		
	SV8001	PSW	SOLENOID	3/4	THD	ELECTRIC ACTUATED		
	V8002	PSW	PRESSURE REGULATING	3/4	THD	N/A		
	V8003	PSW	BALL	1/4	THD	MANUAL LEVER	PRESSURE GAUGE	
	V8004	PSW	BALL	3/4	THD	MANUAL LEVER	FURNISHED BY LIME FEEDER EQUIPMENT SUPPLIER	
	V8005	D	BALL	1.5	TRUE UNION	MANUAL LEVER		
	V8006	LS	BALL	1.5	TRUE UNION	MANUAL LEVER		
	V8010	PSW	BALL	1	THD	MANUAL LEVEL		
	V8011	PSW	CHECK	1	FLG	N/A		
	V8014	PSW	BALL	1	THD	MANUAL LEVER		
	V8020	LS	BALL	1/2	TRUE UNION	MANUAL LEVER	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER	
	V8021	LS	BALL	1/2	TRUE UNION	MANUAL LEVER	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER	
	V8022	V	BALL	1/2	TRUE UNION	MANUAL LEVER	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER	
	V8023	V	BALL	1/2	TRUE UNION	MANUAL LEVER	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER	
	V8024	V	SAFETY RELEASE	1/2		N/A	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER	
	V8025	LS	BALL	1/4	TRUE UNION	MANUAL LEVER	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER, PRESSURE GAUGE	
	V8031	LS	BALL	1/2	TRUE UNION	MANUAL LEVER	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER	
	V8032	V	BALL	1/2	TRUE UNION	MANUAL LEVER	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER	
	V8033	V	BALL	1/2	TRUE UNION	MANUAL LEVER	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER	
	V8034	V	SAFETY RELEASE	1/2		N/A	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER	
	V8035	LS	BALL	1/4	TRUE UNION	MANUAL LEVER	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER, PRESSURE GAUGE	
	V8040	LS	BALL	1	TRUE UNION	MANUAL LEVER	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER	
	V8041	LS	BALL	1	TRUE UNION	MANUAL LEVER	FURNISHED BY PUMP SKID EQUIPMENT SUPPLIER	
	V8101	PSW	BALL	1	THD	MANUAL LEVER		
		V8103	PSW	BALL	1/4	THD	MANUAL LEVER	PRESSURE GAUGE

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	PROJECT MANAGER	ENGINEER	DESIGNER	DRAWN BY
	DK	DT	DT	HKD

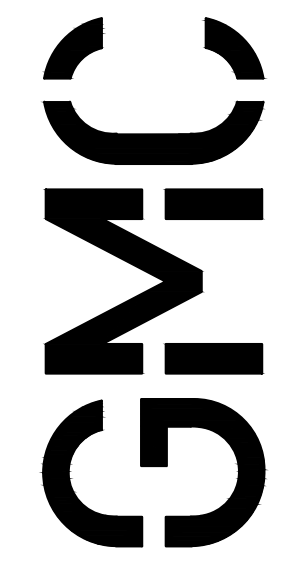
NEW LOXLEY WATER TREATMENT PLANT  
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 LOXLEY, ALABAMA

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**VALVE SCHEDULE**

# D-921



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