

ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATION

ADDENDUM NO. 4

DATE: March 27, 2024

ENGINEER: Gipe Associates
1220 East Joppa Road, Suite 223
Baltimore, Maryland 21286
Phone: (410) 832-2420

OWNER: Harford County Public Schools

PROJECT: Aberdeen Middle School
HVAC Systemic Renovation
111 Mt. Royal Avenue
Aberdeen, Maryland 21001
Gipe Project No. 23043

TO: All Prospective Bidders

The following revisions and responses to questions are made to the original bid documents, dated February 26, 2024. This addendum forms a part of the Contract Documents and modifies the Original Solicitation Documents accordingly and as noted below. Acknowledge receipt of this Addendum in the space provided on the "Addenda" form within the Form of Proposal.

A. CHANGES TO SPECIFICATIONS

1. 00 03 00 - FORM OF PROPOSAL
See attached revised FORM OF PROPOSAL.
2. 01 21 00 – ALLOWANCES
Paragraph 3.3: Add the following:
C. Allowance No.3: \$250,000.00. Work associated with technology systems.

B. CHANGES TO DRAWINGS

1. All Civil Drawings.
Remove the words “NOT FOR CONSTRUCTION”.
2. **M203 – LOWER LEVEL AREA E – NEW WORK**
See attached revised drawing.
3. **M303 – ENLARGED EQUIPMENT ROOM NEW WORK**
See attached revised drawing.
4. **M705 – DETAILS**
See attached revised drawing.
5. **ES001 – ELECTRICAL SITE PLAN**

Add General Note 4 to read: “Provide surge protection on all low voltage cabling entering Modular Classrooms.”

6. **E001 – LOWER LEVEL ELECTRICAL PHASING PLAN**

Add “Replace Panels ELP-L1 and ERP-R1 during phase 1 as required to power new emergency lighting and fire alarm system” note to Activity Equipment Storage Rm S-19 in Phase 9 Area.

7. **E002 – LOWER LEVEL ELECTRICAL PHASING PLAN**

Add “Replace Panels ELP-U1 and ERP-U1 during phase 1 as required to power new emergency lighting and fire alarm system” note to Storage Rm S-34 in Phase 5 Area.

8. **E101 THROUGH E110 – DEMOLITION DRAWINGS**

Revise Drawing Note 4 to read: “Remove and reinstall ceiling mounted devices, wireless access points, motion sensors, cameras, etc. As required for installation of hvac equipment. The general scope of ceiling work is indicated. Contractor is responsible for removal and relocation of additional devices not indicated as required for installation of electrical work.”

Add Drawing Note 16 to read: “Remove all existing PA speakers and provide new with wiring to new headend (furnished by owner.)”

Add Drawing Note 17 to read: “Remove all existing overhead projectors and associated wall mounted whiteboards in same room (between local surface mounted speakers). Owner has right of first refusal. Dispose of any not retained by HCPS.”

Revise Drawing Note callout “RR PA Speaker (Typ)” to “RX PA Speaker (Typ).”

Revise Drawing Note callout “RR Clg Mtd Projector and Conduit with Associated A/V Wiring (Typ)” to “Remove Clg Mtd Projector and conduit and associated wall mounted whiteboard located between wall mounted local speakers.”

Revise Drawing Note callout “RR duplex receptacle flush mounted in ceiling for projector (typ)” to “RX duplex receptacle flush mounted in ceiling. Maintain circuit for extension to new receptacle.”

9. **E101, E102, E103, E105, E106, E107, E109 – DEMOLITION DRAWINGS**

Revise Drawing Note callout “RR PA Speaker (Typ)” to “RX PA Speaker (Typ).”

Revise Drawing Note callout “RR Clg Mtd Projector and Conduit with Associated A/V Wiring (Typ)” to “Remove Clg Mtd Projector and conduit and associated wall mounted whiteboard located between wall mounted local speakers.”

Revise Drawing Note callout “RR duplex receptacle flush mounted in ceiling for projector (typ)” to “RX duplex receptacle flush mounted in ceiling. Maintain circuit for extension to new receptacle.”

10. **E301, E302, E304, E305, E306, E307, E308, E309, E310– POWER DRAWINGS**

Provide new projector high (with duplex receptacle) and projector low drops as indicated on attached drawing. Field coordinate exact location of projector low drops with owner.

Provide PA speakers as indicated on attached drawing.

11. **E303 – LOWER LEVEL AREA E – POWER**
Add Fan-5 in Air Handling Unit Room between columns AN and AO and 19 and 20, with associated combination starter located on exterior wall.

Provide new projector high (with duplex receptacle) and projector low drops as indicated on attached drawing. Field coordinate exact location of projector low drops with owner.

Provide PA speakers as indicated on attached drawing.

12. **E312 – ELECTRICAL PART PLANS**
Add Fan-4 in Mechanical Room – Base Bid – between Pump-7 and exterior wall, with associated combination starter located adjacent to Pump-7 VDF. Add Fan-4 in Mechanical Room – Alternate No. 1 – at same location.
13. **E501 – PARTIAL SCHEMATIC POWER RISER DIAGRAMS**
Revise EX Switchboard SWBD (Modified) FDR 8 to “WSHPS 1&2, 3P-800A-CB, 2 sets (3-500kcmil+1/0GW-3”C.” and FDR 7 to “WSHPS 3, 3P-500A-CB, 1 set (3-500kcmil+2GW-3”C.”

Add General Note 9 to read: “Provide Transformer Primary disconnects, where indicated, sized to match (or exceed) the rating of the primary CB indicated on the Dry Type Transformer Schedule.”

Add General Note 10 to read: “Transformer Primary ECB’s shall be rated 42kAIC UON. Transformer Primary Disconnects shall have 42kA withstand rating UON.”

Revise Drawing Note 2 to read “Provide 3P-100A (480V) contactor with 24 coil in Nema 1 enclosure for panelboard. Make connection to Building Management System for On/Off controls.”

Add Drawing Note 4 to read: “Provide wiretrough, sized as required.” Apply to “boxes” fed from Xfmr T5, and serving Panel LP-L1 on Partial Schematic Power Riser Diagram – New Work.

Revise Dry Type Transformer Schedule, Tranformer T10 from 30kVA to 45kVA with 3#1+8GW- 1 ¼”C. primary wiring, 90A primary CB, 4#1/0+6GW-2”C secondary wiring with 150A secondary CB, #6 case neutral and ground.

Revise Partial Schematic Power Riser Diagram – New Work connection to Panel CLP from contactor as indicated to Panel DP-L1.

Revise Partial Schematic Power Riser Diagram – New Work connection to Transformer T10 from Panel DPM to panel MP.

Add Partial Schematic Power Riser Diagram – New Work a pullbox and splice at DPM feeder to Temporary connection to EX MCC, remove at end of project.

Add Partial Schematic Power Riser Diagram – New Work a 3P-30A shunt trip fused safety switch with (1) N.O. and (1) N.C. auxiliary contacts, fused per manufacturer’s nameplate data for elevator motor. Switch shall be equipped

with latching mechanism capable of being locked in the open position.

14. **E502 – FIRE ALARM RISER DIAGRAMS**

Revise “120V” from elevator smoke detector on Schematic Fire Alarm Riser Diagram to “ERP-L1-13.”

Revise “120V” from NAC on Schematic Fire Alarm Riser Diagram to “ERP-U1-13,15,17.”

Add homerun from circuits ERP-L1-15,17 to FACP on Schematic Fire Alarm Riser Diagram.

Add connection between FACP and FAAP on Schematic Fire Alarm Riser Diagram.

Revise Drawing Note 12 to read: “Provide monitoring of fire alarm system in modulars, (1 combination speaker/strobe (75cd) per room and 4 pull stations each) to send alarm signal to UL Listed Central Station and provide supervisory notification at building.”

15. **E602 – SCHEDULES**

Revise per attached Drawing.

16. **E603 – SCHEDULES**

Revise Panel MP-U1 circuit 7 to 15A circuit breaker.

Revise Panel LP-L1 circuits 20,22 and 24 from spares to 3P-30A-CB with 4#6+8GW-1”C for SPD.

Revise Panel LP-U1 circuits 28,30 and 32 from spares to 3P-30A-CB with 4#6+8GW-1”C for SPD.

Revise Panel LP-L1A circuits 37, 39 and 41 from spares to 3P-30A-CB with 4#6+8GW-1”C for SPD.

17. **E604 – SCHEDULES**

Revise Panel LP-U2 circuits 25, 27 and 29 from spares to 3P-30A-CB with 4#6+8GW-1”C for SPD.

Revise Panel LP-L2 circuit 28 wiring to read “Refer to XFMR Schedule.”

18. **E605 – SCHEDULES**

Revise Panel LP-L3 bus description to “100% rated Neutral Bus/Sub-feed Lugs.”

Revise Panel LP-L3 circuits 37, 39 and 41 from spares to 3P-30A-CB with 4#6+8GW-1”C for SPD.

Revise Panel LP-L3 circuit 38 description to “Transformer T3” and wiring to read “Refer to XFMR Schedule.”

Revise Panel ELP-L1 bus description to “100% rated Neutral Bus/Sub-feed Lugs.”

Revise each section of Panel RP-L3 from 42 poles to 60 poles with 1 pole spaces, except circuits 116, 118 and 120 to 3P-30A-CB with 4#6+8GW-3/4”C for

SPD.

Revise Panel DP-L1 circuits 8, 10 and 12 to 3P-50A-CB with 4#6+10GW-3/4" C for Panel CLP.

Revise Fusible Panel ERP-R1 circuits 13, 15 and 17 to "FACP" with 2#12+12GW-3/4" C.

19. **E606 – SCHEDULES**
Revise Panel LP-U3 circuits 25, 27 and 29 from spares to 3P-30A-CB with 4#6+8GW-1" C for SPD.

20. **E606 – SCHEDULES**
Revise Panel LP-U4 circuits 26, 28 and 30 from spares to 3P-30A-CB with 4#6+8GW-3/4" C for SPD.

Revise Fusible Panel ERP-U1 circuits 8, 10 and 12 to FACP with 2#12+12GW-3/4" C.

Revise Fusible Panel ERP-U1 circuit 7 description to "DAS."

Revise Fusible Panel ERP-U1 main to 60A.

21. **E610 – SCHEDULES**
Add Fan-4 to Mechanical Equipment Connection Schedule, 1 ½ HP, 480V, 3 Phase, Circuit MP-43, Nema 0 starter with 3P-30A-F/ss (f@15A) in Nema 1 enclosure, note 3.

Add Fan-5 to Mechanical Equipment Connection Schedule, 1 ½ HP, 480V, 3 Phase, Circuit MP-43, Nema 0 starter with 3P-30A-F/ss (f@15A) in Nema 1 enclosure, note 3.

Revise WWSHP-3 on Mechanical Equipment Connection Schedule – Add Alternate #1 circuit to SWBD-7. Revise Amps from "(3)60" to "360." Delete Note 12 reference.
22. **E702 – DETAILS**
Add projector high and low details per attached sheet.

C. RFI QUESTIONS, ANSWERS AND CLARIFICATIONS

1. Panel LP-L3 and LP-U4 are shown on panel schedule feed off same breaker in SWBD. However Riser shows LP-U4 is feed from LP-L3. Same for LP-L2 and LP-U2. Are they doing a feeder tap that is not shown.
Provide feed-thru or sub-feed lugs as indicated on panel schedules. Refer to Addendum.
2. On drawing MS001, at Geothermal Circuit No.1, a Test Well is referenced. Does this mean a Test Well has been conducted for this design and won't need to be drilled again, or is this to be drilled as part of the construction for this project.
The test well has not been drilled and will be drilled under a separate contract.
3. There is a design issue with the 8" water main that is a part of the base bid. Sheet C321 profile 2 shows the EX 24" SD at INV 84.33 (coming in from the northeast), 25' to the northeast the

ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATION

proposed 8" water crosses the EX 24" SD. The water profile 3 on sheet C302 shows inv elevations 85.34 – 85.1 at stations 2+41 to 2+95, which would be going right through the middle of the EX 24" SD that isn't shown on the profiles like the other existing utilities. Will there be an updated design for this 8" water. **See this addendum for additional information.**

4. Is the owner or contractor connecting the new PA speakers to the existing system? **The contractor shall supply the PA speakers and wiring to the new headend system to be furnished by the owner. See this addendum.**
5. What manufacture/vendor is the existing PA system? **The existing PA system is Rauland. A new PA system head-end will be furnished by the owner. See this addendum.**
6. Is the owner or contractor supplying the peer less ceiling plate for the projectors? **There are no peerless ceiling plates. We are doing wall mounted short throw projectors. All whiteboard areas need blocking.**
7. Per the specs, the fire alarm system for the modular classrooms is to be a standalone system as mentioned in the pre-bid, however drawing ES001 shows it tying into the existing panel. Please confirm if this is standalone or not. **The modular classrooms shall have standalone system with monitoring of this from the new fire alarm system for UL Central Station notification, and supervisory alarm on building system only.**
8. Is the owner or contractor supplying the CCTV cameras for the temporary modular classrooms? **The owner is providing the equipment, the contractor is to provide the infrastructure, including cabling.**
9. Is the owner or contractor supplying the security system for the temporary modular classrooms? **The owner is providing the equipment, the contractor is to provide the infrastructure, including cabling.**
10. WSHPS 1-3 are shown with a 1200 amp feeder coming from Main switchboard. However the three WSHP units are only 60 amp. How do we feed the 3 60 amp circuits with a 1200 amp feeder? **Ampacity per WSHPS are 360A each. Refer to this Addendum for revised connection.**
11. In base bid does the feeder to the chillers get replaced or reused? **The feeders are indicated to be replaced on E501 under base bid.**

D. ATTACHMENTS

1. 00 03 00 – FORM OF PROPOSAL
2. 23 06 00 - paragraphs 2.18 and 3.23
3. Civil Drawings C111, C121, C301, C302, C401, C411, C412.
4. Mechanical Drawings M203, M303, M705.
5. Electrical Drawings E301, E302, E303, E304, E305, E306, E307, E308, E309, E310, E602, E702.

END OF ADDENDUM NO. 4

SECTION 00 03 00 - FORM OF PROPOSAL

Proposal of: _____ (firm name)

Re: Aberdeen Middle School HVAC Systemic Renovations
Location: 111 Mt. Royal Ave., Aberdeen, MD 21001

Date: _____

To: Board of Education of Harford County
Harford County Public Schools
2209 Conowingo Rd.
Bel Air, Maryland 21015

Gentlemen

Having examined the Instruction to Bidders, the Drawings and the Specification, including Addenda Nos. _____, _____, _____, _____, and _____, thereto, and other proposed Contract Documents prepared by **Gipe Associates, Inc.** and having examined the site and other conditions affecting the construction, the undersigned hereby proposes to furnish all labor, materials, equipment and services to perform all work required for the **Aberdeen Middle School HVAC Systemic Renovations at Aberdeen Middle School** in strict accordance with the Contract Documents for the sums listed in the following bid items:

It is understood that if no figure is listed for an Alternate, that the Alternate may be accepted and there shall be no change in the Base Bid amount indicated below:

1. BASE BID:

The Lump Sum Base Bid for the site work, ceilings, mechanical, electrical, fire protection, plumbing, fire alarm, lighting, and controls associated with the project including the prevailing wage scale.

Base Bid Work,
Dollars (\$) _____).

2. ALLOWANCES:

Bidder shall include allowance amount in BASE BID.
Allowances conform to applicable project specification section.

Allowance No.1: **\$200,000.00**. Miscellaneous existing wiring laying on existing ceiling shall be attached

to the existing structure.

Allowance No.2: _____. Work associated with the PV relocation by the PV contractor in accordance with the Solar Power Purchase Agreement.

Allowance No.3: **\$250,000.00**. Work associated with Technology components.

3. ALTERNATE NO.1

The Lump Sum Bid for the Alternate No.1 site work, mechanical, electrical, plumbing and associated automatic temperature controls with the project including the prevailing wage scale.

Alternate No.1 Work,
Dollars (\$ _____).

4. ALTERNATE NO.2

The Lump Sum Bid for the Alternate No.2, laminate associated with architectural with the project including the prevailing wage scale.

Alternate No.2 Work,
Dollars (\$ _____).

5. ALTERNATE NO.3

The Lump Sum Bid for the Alternate No.3, window sill cladding associated with architectural with the project including the prevailing wage scale.

Alternate No.3 Work,
Dollars (\$ _____).

6. ALTERNATE NO.4

The Lump Sum Bid for the Alternate No.4, Fire Protection Mains, four new sprinkler zones with vertical alarm check assemblies including the prevailing wage scale.

Alternate No.4 Work,
Dollars (\$ _____).

7. ALTERNATE NO.5

The Lump Sum Bid for the Alternate No.5, New Additional Water Service piping, fire hydrants, required site work and restoration of existing surfaces including the prevailing wage scale.

Alternate No.5 Work,
Dollars (\$ _____).

SUBSTITUTIONS REQUESTS:

Indicate proposed substitutions below and attach copies of "Substitution Request Form" referenced in Section 01 06 00A.

Proposed SubstitutionPrice Change

_____	\$ _____
_____	\$ _____

EXECUTION:

The undersigned affirms that the Base Bid stated above represents the entire cost of the Project in accordance with the Bid Documents and that no claim shall be made on account of any increase in wage, scales, material prices, taxes, insurance, cost indexes, or any other rate affecting the construction industry and/or this project.

The undersigned agrees, upon receipt of written notice of the acceptance of this bid within (60) calendar days after the date of opening of bids to execute the standard form of contract in accordance with the bid as accepted, and to give performance and payment bond with good and sufficient surety or sureties, for the faithful performance of the contract and for the protection of all persons supplying labor and materials in the prosecution of the work, within ten (10) calendar days after the prescribed forms are presented for signature.

Signature of:

X _____
Bidder if the bidder is an individual

Name and Title (printed)

Registered Maryland Contractor No. _____

OR

X _____
Partner if the bidder is a partnership

Name and Title (printed)

Registered Maryland Contractor No. _____

OR

X _____
Officer if bidder is a corporation

Name and Title (printed)

Registered Maryland Contractor No. _____

ALL

Subscribed and sworn before me this _____ day of _____, 20____.

X _____
Notary Public

My Commission expires: _____

NOTE: The following items shall be completed and submitted as attachments to the Bid at the time of the Bid opening:

- *☐1. Section 00 05 00 Bid Bond
- *☐2. Section 00 06 60 MBE Attachment D-1A; MBE Utilization and Fair Solicitation Affidavit and MBE Participation Schedule
- ☐3. Section 00 06 30 Affidavit of Qualification to Bid

***NOTE: Item 1 must be submitted in proper form and content at the time of bid opening or the bid will be rejected as non-responsive.**

END OF SECTION

2.18. MODULAR HEAT PUMP UNITS

A. OPERATING CONDITIONS

1. Provide water-to-water heat pump with the capacity as schedule on drawings.
2. Heat Pump shall be designed to operate using R-410A or R-134a Refrigerant.
3. Heat Pump shall be designed for parallel evaporator water flow.

B. WATER-TO-WATER PACKAGE HEAT PUMP

1. Provide water-to-water heat pump as manufactured by MULTISTACK. Model MR or approved equal by ClimaCool.
2. System Description: Heat Pump shall incorporate Scroll-type compressors and consist of multiple refrigerant circuits. Each refrigerant circuit shall consist of an individual compressor, condenser, evaporator circuit, thermal expansion valve, reversing valve, and control system. Each circuit shall be constructed to be independent of other circuits from a refrigeration and electrical stand-point. The multi-circuit heat pump must be able to produce chilled water even in the event of a failure of one or more refrigerant circuits. Circuits shall not contain more than 20 lb. of R-410A refrigerant.
3. General
 - a. Heat Pump Modules shall be ETL listed in accordance with UL Standard 1995, CSA certified per Standard C22.2#236, and bear the ASME UM stamp on all heat exchangers (not applicable for modules with R-410A refrigerant).
 - b. Modules shall ship wired and charged with refrigerant. All modules shall be factory run tested prior to shipment.
 - c. Compressors, heat exchangers, piping and controls shall be mounted on a heavy gauge steel frame. Electrical controls, contractors, and relays for each module shall be mounted with that module.
4. Water Mains: Each module shall include supply and return mains for both load and source-sink water. Grooved end connections are provided for interconnection to six-inch standard piping with grooved type couplings.
5. Heat Exchangers: Each load and source-sink heat exchanger shall be brazed plate heat exchangers constructed of 316 stainless steel; designed, tested and stamped in accordance with UL code 1995 for 650 psig working pressure on load and source-sink heat exchangers. Heat exchangers shall be mounted below the compressor, to eliminate the effect of migration of refrigerant to the cold evaporator with consequent liquid slugging on start-up.

6. Compressor: Each module shall contain two hermetic scroll compressors independently circuited and with internal spring isolation mounted to the module with rubber-in-shear isolators. Each system also includes high discharge pressure and low suction pressure manual reset safety cut-outs.
7. Central Control System
 - a. Scheduling of the various compressors shall be performed by a microprocessor based control system (Master Controller). A new lead compressor is selected every 24 hours to assure even distribution of compressor run time.
 - b. The Master Controller shall monitor and report the following on each refrigeration system:
 - 1) Discharge Pressure Fault
 - 2) Suction Pressure Fault
 - 3) Compressor Winding Temperature
 - 4) Suction Temperature
 - 5) Load Leaving Water Temp.
 - 6) Source-Sink Leaving Water Temp.
 - c. The Master Controller shall monitor and report the following on each refrigeration system:
 - 1) Load Water Entering and Leaving Temperature
 - 2) Source-Sink Water Entering and Leaving Temperature
 - 3) Load Water and Source-Sink Water Flow
 - d. An out of tolerance indication from these controls or sensors shall cause a “fault” indication at the Master Controller and shutdown of that compressor with the transfer of load requirements to the next available compressor. In the case of a System Fault the entire heat pump will be shut down. When a fault occurs, the Master Controller shall record conditions at the time of the fault and store the data for recall. This information shall be capable of being recalled through the keypad of the Master Controller and displayed on the Master Controller’s semigraphical display. A history of faults shall be maintained including date and time of day of each fault (up to the last 20 occurrences).
 - e. Individual monitoring of leaving water temperature from each refrigeration system shall be programmed to protect against heat exchanger freeze-up.
 - f. The control system shall monitor entering and leaving water temperature to determine system load and select the number of compressor circuits required to operate. Response times and set points shall be adjustable. The system shall provide for variable time between compressor sequencing and temperature sensing, so as to fine tune the heat pump to different existing building conditions.

- g. Optionally, the Heat Pump shall be capable of interfacing with the Building Automation System via an Interoperability Web Portal.
 - h. The heat pump mode (heating and cooling) shall be selected by an external dry contact interlock to the Master Controller. If no interlock is present, or in the event of a reversing valve solenoid failure, the system shall revert to heating mode.
8. Heat Pump shall have a single point power connection and external inputs and outputs to be compatible with the building management system. Inputs/Outputs include:
- a. Remote Start/Stop
 - b. Cooling Alarm
9. Each inlet water header shall incorporate a built in 30-mesh in-line strainer system to prevent heat exchanger fouling.

C. SAFETIES, CONTROLS AND OPERATOIN

1. Heat Pump safety controls system shall be provided with the unit (minimum) as follows:
- a. Low refrigerant pressure
 - b. Loss of flow through the source/sink heat exchanger
 - c. Loss of flow through the load heat exchangers
 - d. High refrigerant pressure
 - e. High compressor motor temperature
 - f. Low suction gas temperature
 - g. Low leaving water temperature
2. Failure of heat pump to start or heat pump shutdown due to any of the above safety cutouts shall be enunciated by display of the appropriate diagnostic description at the unit control panel. This annunciation will be in plain English. Alphanumeric codes shall be unacceptable.
3. The heat pump shall be furnished with a Master Controller as an integral portion of the heat pump control circuitry to provide the following functions:
- a. Provide automatic heat pump shutdown during periods when the load level decreases below the normal operating requirements of the heat pump. Upon an increase in load, the heat pump shall automatically restart.
 - b. Provisions for connection to automatically enable the heat pump from a remote energy management system.
 - c. The control panel shall provide alphanumeric display showing all system parameters in the English language with numeric data in English units.

4. Normal Heat Pump Operation

- a. When heat pump is enabled, the factory supplied Master Controller modulates the heat pump capacity from minimum to maximum as required by building load.
- b. The heat pump control system shall respond to Entering Water Temperature and will have an integral reset based on entering water temperature to provide for efficient operation at part-load conditions.
- c. The operating mode (heating and cooling) shall be determined by a customer provided dry contact interlock.

5. Power Phase Monitor

- a. Provide a Power Phase Monitor on the incoming power supply to the heat pump. This device shall prevent the heat pump from operating during periods when the incoming power is unsuitable for proper operation.
- b. The Power Phase Monitor shall provide protection against the following conditions:
 - 1) Low Voltage (Brown-Out)
 - 2) Phase Rotation
 - 3) Loss of Phase
 - 4) Phase Imbalance

PART 3. EXECUTION

3.23. INSTALLATION

A. PIPING SYSTEM FLUSHING PROCEDURE

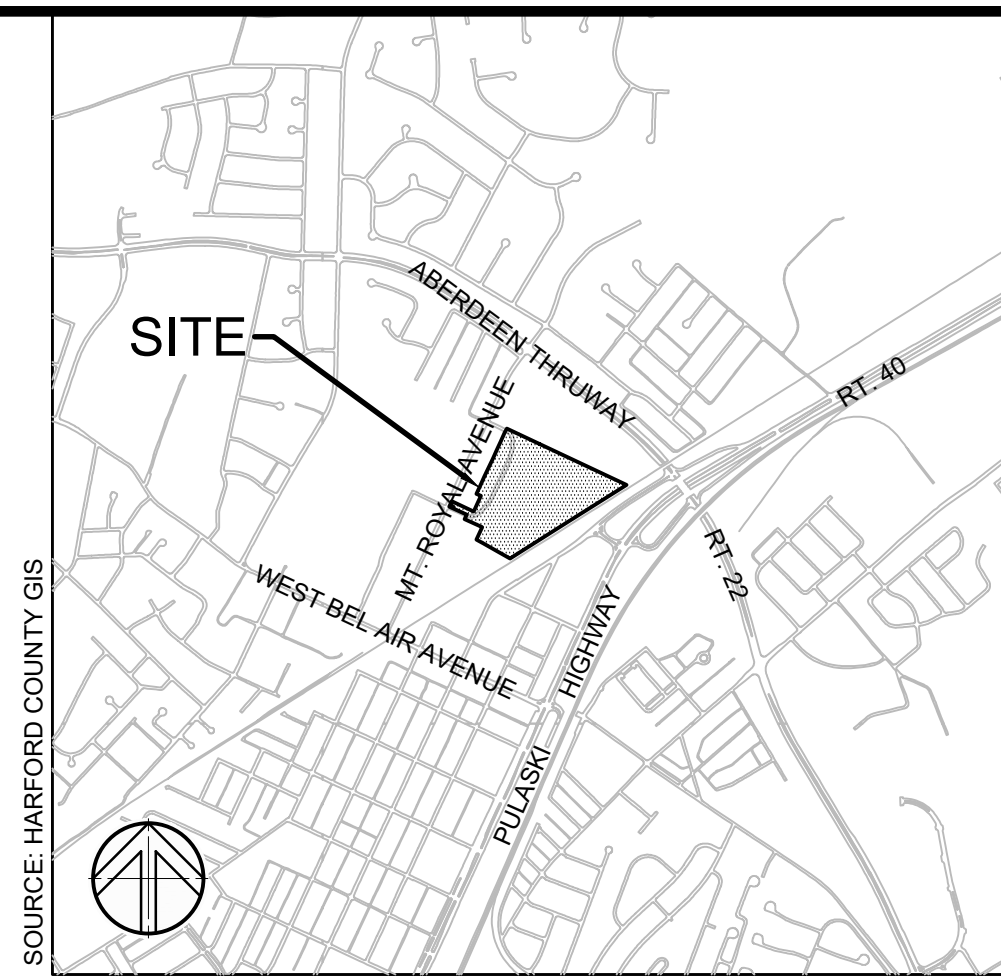
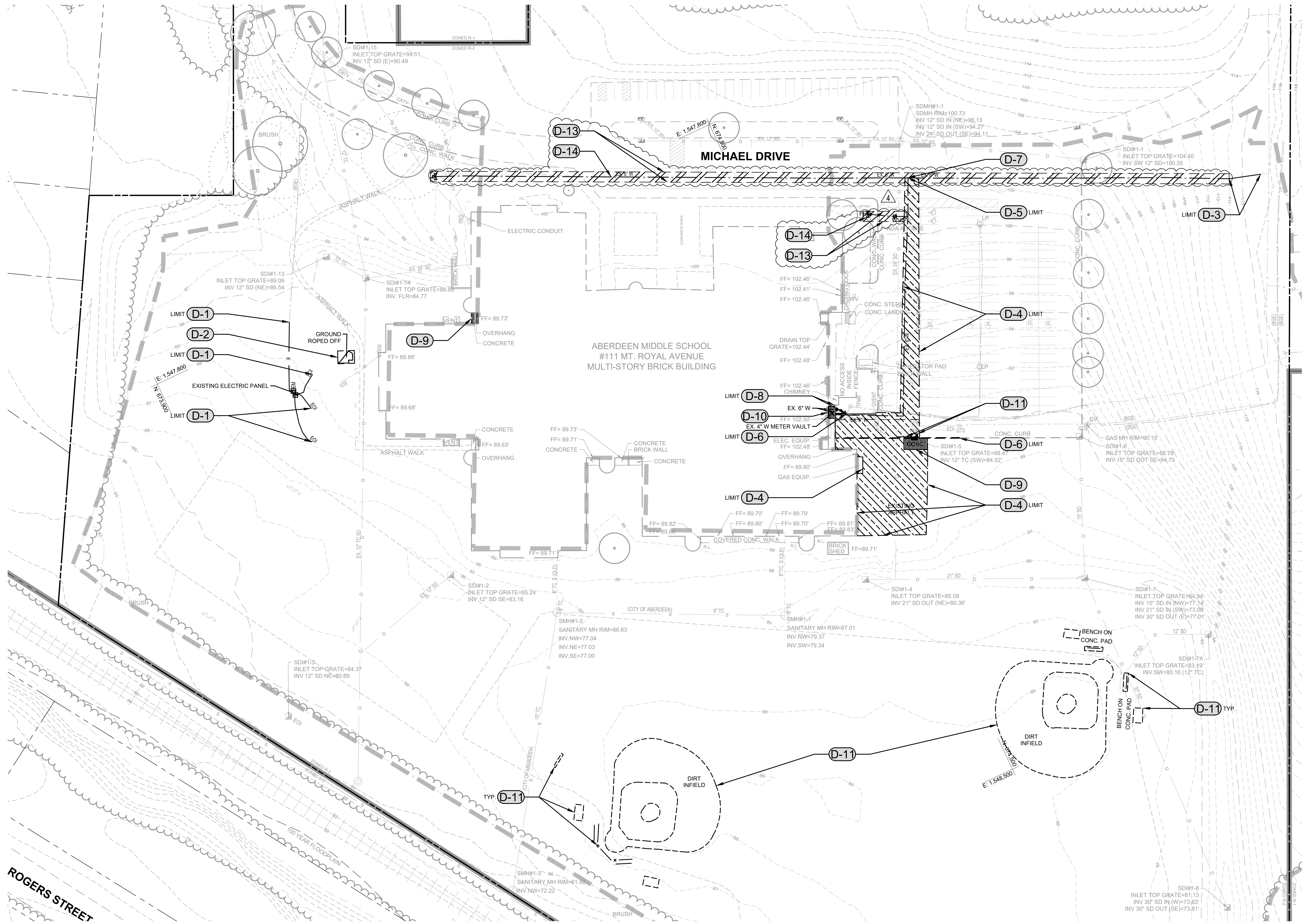
1. Prior to connection the heat pump to the condenser and chilled water loop, the piping loops shall be flushed with a detergent and hot water (110-130°F) mixture to remove previously accumulated dirt and other organic. In old piping systems with heavy encrustation of inorganic materials consult a water treatment specialist for proper passivation and/or removal of these contaminants.
2. During the flushing 30 mesh (max.) Y-strainers (or acceptable equivalent) shall be in place in the system piping and examined periodically as necessary to remove collected residue. The flushing process shall take no less than 6 hours or until the strainers when examined after each flushing are clean. Old systems with heavy encrustation shall be flushed for a minimum of 24 hours and may take as long as 48 hours before the filters run clean. Detergent and acid concentrations shall be used in strict accordance with the respective chemical manufacturer's instructions. After flushing with the detergent and/or dilute acid concentrations, the system loop shall be purged with clean water for at least one hour to ensure that all residual cleaning chemicals have been flushed out.

3. Prior to supplying water to the heat pump the Water Treatment Specification shall be consulted for requirements regarding the water quality during heat pump operation. The appropriate heat pump manufacturer's service literature shall be available to the operation and/or service contractor and consulted for guidelines concerning preventative maintenance and off-season shutdown procedures.

B. WATER TREATMENT REQUIREMENTS

1. Supply water for both the chilled water and condenser water circuits shall be analyzed and treated by a professional water treatment specialist who is familiar with the operating conditions and materials of construction specified for the heat pump's heat exchangers, headers and associated piping. Cycles of concentration shall be controlled such that recirculated water quality for modular heat pumps using 316 stainless steel brazed plate heat exchangers and carbon steel headers is maintained within the following parameters:
 - a. pH Greater than 7 and less than 9
 - b. Total Dissolved Solids (TDS) Less than 100 ppm
 - c. Hardness as CaCO_3 30 to 500 ppm
 - d. Alkalinity as CaCO_3 30 to 500 ppm
 - e. Chlorides Less than 200 ppm
 - f. Sulfates Less than 200 ppm

END OF SECTION

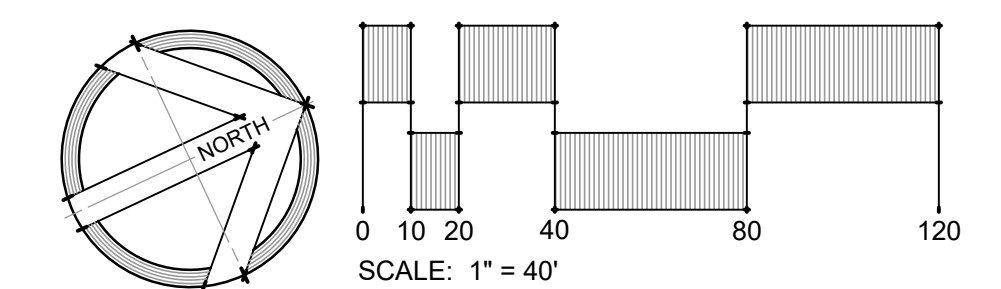


VICINITY MAP
LEGEND

- PROPERTY LINE
- EXISTING TREELINE
- EXISTING BUILDING
- EXISTING WALK TO REMAIN
- EXISTING WALK TO BE REMOVED
- EXISTING ROAD
- EXISTING CURB
- EXISTING ASPHALT PAVING TO BE REMOVED
- EXISTING FENCE
- EXISTING SIGN
- EXISTING 100 YR. FLOODPLAIN
- EXISTING TREES TO REMAIN
- EXISTING STORM DRAIN TO REMAIN
- EXISTING WATER TO REMAIN
- EXISTING WATER TO BE REMOVED
- EXISTING SANITARY SEWER TO REMAIN
- EXISTING GAS TO REMAIN
- EXISTING TELEPHONE TO REMAIN
- EXISTING ELECTRIC TO REMAIN
- EXISTING ELECTRIC TO BE REMOVED
- EXISTING OVERHEAD ELECTRIC TO REMAIN
- EXISTING LIGHTING TO REMAIN
- EXISTING COMMUNICATIONS TO REMAIN
- EXISTING CABLE TV TO REMAIN
- EXISTING FIBER OPTIC TO REMAIN
- EXISTING UNKNOWN UTILITY
- EXISTING CONTOURS
- SURVEY LIMITS
- ZONING LINE
- ADD-ALTERNATE 5

DEMOLITION NOTES

- THESE NOTES PERTAIN TO C111 ONLY.
- D-1** REMOVE EXISTING ELECTRIC LINES TO LIMITS SHOWN. SEE ELECTRIC PLANS.
 - D-2** REMOVE EXISTING WOOD POST REMNANTS AND ANY ASSOCIATED FOOTINGS.
 - D-3** REMOVE EXISTING WATER LINE TO LIMITS SHOWN. CONTRACTOR SHALL COORDINATE FINAL SHUTDOWN ON WEEKEND WITH HARFORD COUNTY PUBLIC SCHOOLS.
 - D-4** BASE BID: SAW-CUT AND REMOVE EXISTING ASPHALT PAVING AND BASE MATERIAL TO LIMITS SHOWN AND TO EDGE OF GRASS. PROTECT THE EXISTING GAS FENCE ENCLOSURE AND FENCE FOOTINGS TO REMAIN. DEDUCT ALTERNATE IF ADD ALTERNATE 1 IS ACCEPTED.
 - D-5** REMOVE EXISTING WATER LINES AND WATER METER VAULT TO LIMITS SHOWN. COORDINATE FINAL SHUTDOWN ON WEEKEND WITH HARFORD COUNTY PUBLIC SCHOOLS.
 - D-6** SAW-CUT AND REMOVE CURB AT LIMITS SHOWN AND TO EDGE OF GRASS. PROPOSED CURB TO MEET EXISTING IN LINE AND GRADE.
 - D-7** REMOVE EXISTING 8" WATER VALVES AND SERVICE CONNECTION. REMOVE EXISTING 8" MAIN AND REPLACE WITH 6" SLEEVE AND SPACER IN ACCORDANCE WITH ALL APPLICABLE CODE REQUIREMENTS.
 - D-8** REMOVE EXISTING CHAIN-LINK FENCE, GATE, AND ASSOCIATED FOOTINGS TO NEAREST FENCE POST AT LIMITS SHOWN.
 - D-9** REMOVE EXISTING CONCRETE PAD AND BASE MATERIAL.
 - D-10** REMOVE EXISTING CONCRETE SIDEWALK AND BASE MATERIAL.
 - D-11** ABANDON EXISTING STORM DRAIN IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS. REMOVE EXISTING STORM DRAIN STRUCTURE.
 - D-12** ALTERNATE 1: REMOVE EXISTING ATHLETIC FIELDS AND ALL ACCOMPANYING SITE FURNISHINGS SURROUNDING (BENCHES, STORAGE, FENCES). COORDINATE WITH OWNER IF ANY ITEMS ARE TO BE RELOCATED OR SALVAGED.
 - D-13** ADD-ALTERNATE 5: REMOVE AND REPLACE EXISTING SURFACE IN KIND FOR UTILITY TRENCH. SAW CUT ALL PAVEMENT AT LIMITS OF TRENCH.
 - D-14** ADD-ALTERNATE 5: REMOVE EXISTING WATER AND ASSOCIATED APPURTENANCES. CONTRACTOR SHALL COORDINATE FINAL WORK SHUTDOWN WITH HARFORD COUNTY PUBLIC SCHOOLS.



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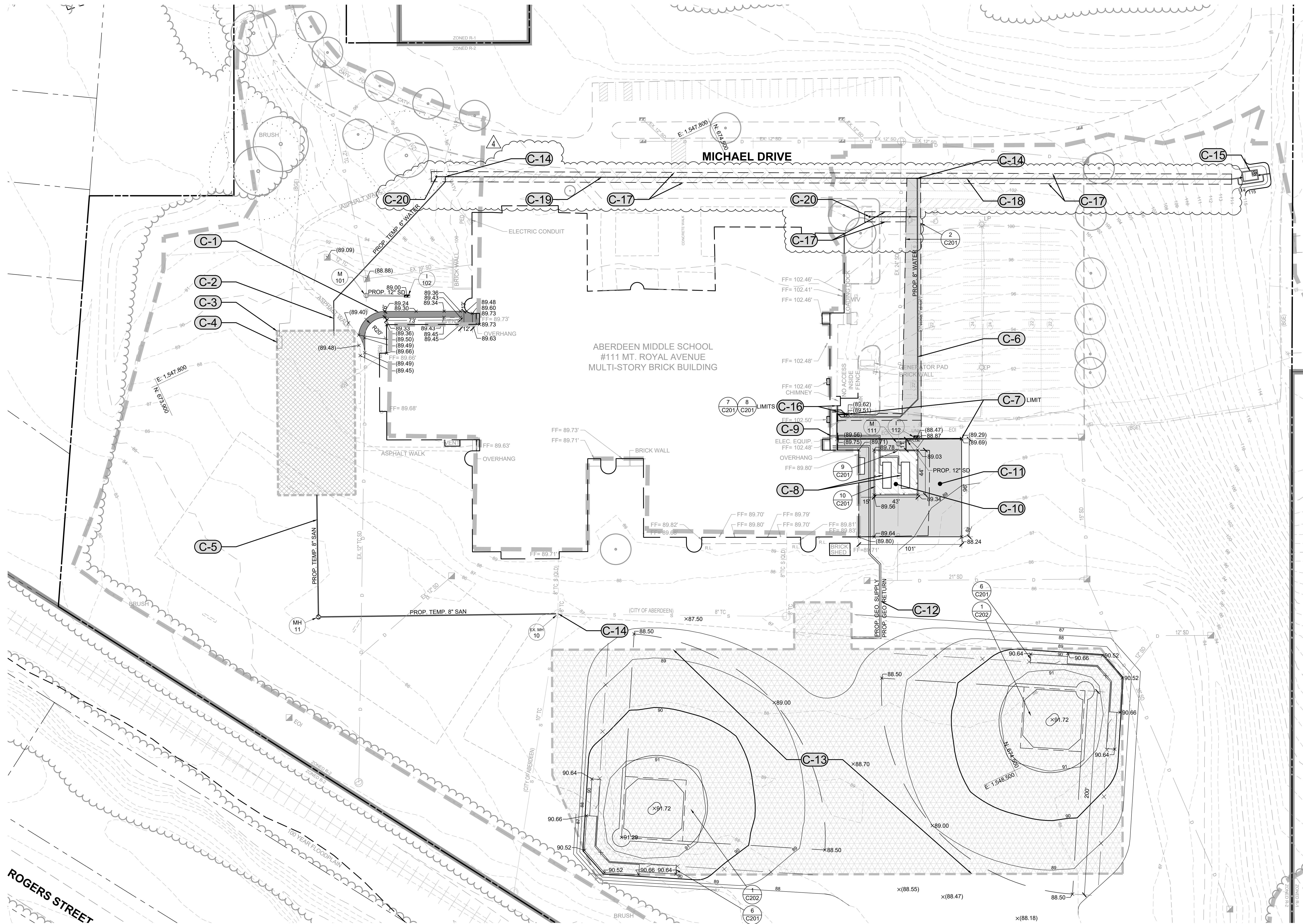
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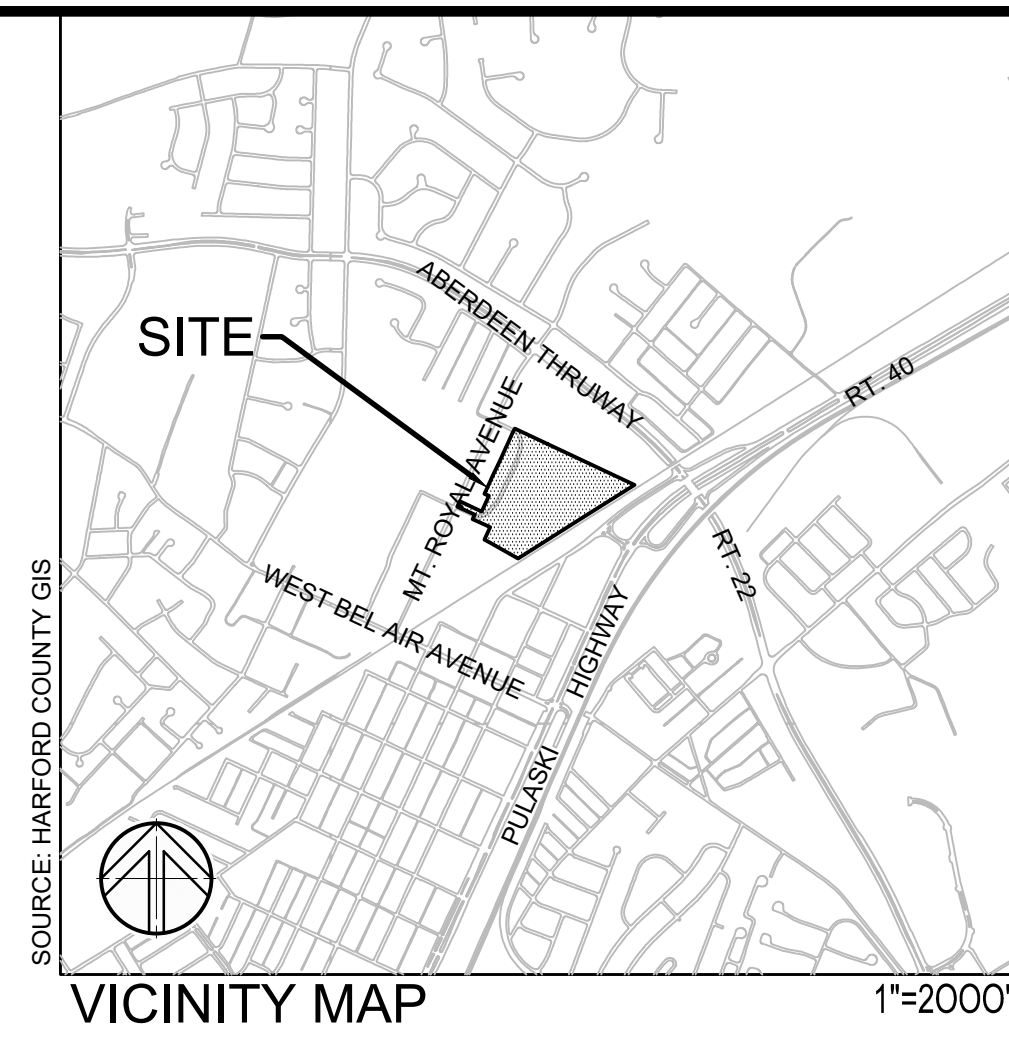
DEMOLITION PLAN	
HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL HVAC SYSTEMIC RENOVATIONS 111 MT. ROYAL AVE, ABERDEEN, MARYLAND 21001.	

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C111	
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ROGERS STREET



VICINITY MAP

LEGEND

- PROPERTY LINE
- EXISTING TREELINE
- EXISTING BUILDING
- EXISTING WALK
- EXISTING ROAD
- EXISTING CURB
- EXISTING FENCE
- EXISTING SIGN
- EXISTING 100 YR. FLOODPLAIN
- EXISTING TREES
- EXISTING STORM DRAIN
- EXISTING WATER
- EXISTING SANITARY SEWER
- EXISTING GAS
- EXISTING TELEPHONE
- EXISTING ELECTRIC
- EXISTING OVERHEAD ELECTRIC
- EXISTING LIGHTING
- EXISTING COMMUNICATIONS
- EXISTING CABLE TV
- EXISTING FIBER OPTIC
- EXISTING UNKNOWN UTILITY
- EXISTING CONTOURS
- SURVEY LIMITS
- ZONING LINE
- ADD-ALTERNATE 5
- PROPOSED ASPHALT WALK
- PROPOSED HEAVY DUTY CONCRETE
- PROPOSED ASPHALT
- PROPOSED FENCE
- PROPOSED TEMPORARY MODULAR BUILDING LOCATION
- PROPOSED GEOTHERMAL WELL FIELD
- ADD-ALTERNATE 1
- PROPOSED CURB
- DETAIL REFERENCE
- PROPOSED STORM DRAIN
- PROPOSED WATER
- PROPOSED SANITARY SEWER
- PROPOSED ELECTRIC
- PROPOSED CONTOURS
- SPOT ELEVATIONS

CONSTRUCTION NOTES

- THESE NOTES PERTAIN TO C121 ONLY.
- C-1 PROPOSED ADA ASPHALT WALK. TRANSITION WALK TO SMOOTHLY MEET EXISTING VENT SHAFT. ASPHALT WALK, AND BUILDING ENTRANCE FFE IN LINE AND GRADE AT LIMITS SHOWN.
 - C-2 PROPOSED TEMPORARY 6" WATER. SEE WATER PLANS.
 - C-3 PROPOSED MODULAR BUILDING LOCATION. TEMPORARY MODULAR BUILDING DESIGN AND FFE SHALL BE DETERMINED BY MODULAR BUILDING DESIGNER.
 - C-4 PROPOSED TEMPORARY ELECTRIC. SEE ELECTRIC PLANS.
 - C-5 PROPOSED TEMPORARY 8" SANITARY SEWER FOR MODULARS. SEE SANITARY PLANS.
 - C-6 PROPOSED 6" WATER LINE TO REPLACE THE EXISTING WATER LINE. SEE WATER PLANS. SEE MEP PLANS FOR WALL PENETRATIONS, CONNECTIONS, AND SCHEDULING. CONTRACTOR SHALL COORDINATE FINAL WORK SHUTDOWN ON A WEEKEND WITH HARFORD COUNTY PUBLIC SCHOOLS.
 - C-7 TRANSITION CURB TO SMOOTHLY MEET EXISTING CURB IN LINE AND GRADE AT LIMITS SHOWN.
 - C-8 BASE BID: PROPOSED CHILLER BASE SLABS. SEE STRUCTURAL PLANS. DEDUCT ALTERNATE IF ADD-ALTERNATE 1 IS ACCEPTED.
 - C-9 BASE BID: PROPOSED CHILLER YARD SUPPLY AND RETURN. SEE MEP PLANS. DEDUCT ALTERNATE IF ADD-ALTERNATE 1 IS ACCEPTED.
 - C-10 BASE BID: PROPOSED CHILLER YARD WITH FENCE ENCLOSURE. SEE MEP PLANS FOR CHILLER EQUIPMENT AND PIPING DETAILS. SEE STRUCTURAL PLANS FOR CHILLER PADS. DEDUCT ALTERNATE IF ADD-ALTERNATE 1 IS ACCEPTED.
 - C-11 BASE BID: PROPOSED ASPHALT PLAY AREA EXPANSION. DEDUCT ALTERNATE IF ADD-ALTERNATE 1 IS ACCEPTED. EXISTING BASEBALL FIELDS AND BACKSTOPS TO REMAIN UNCHANGED.
 - C-12 ADD-ALTERNATE 1: PROPOSED GEOTHERMAL SUPPLY AND RETURN. SEE MEP PLANS.
 - C-13 ADD-ALTERNATE 1: PROPOSED GEOTHERMAL WELL FIELD. SEE MEP PLANS. CONTRACTOR SHALL REPLACE AND REGRADE TWO EXISTING BASEBALL FIELDS AND BACKSTOPS AS SHOWN FOLLOWING INSTALLATION OF GEOTHERMAL WELL FIELD.
 - C-14 SEE PROPOSED CITY OF ABERDEEN WATER AND SEWER PLANS FOR FURTHER DETAILS.
 - C-15 PROPOSED 8" WATER METER. SEE WATER PLANS.
 - C-16 PROPOSED CHAIN LINK FENCE AND GATE TO REPLACE THE EXISTING FENCE AT LIMITS SHOWN. MATCH EXISTING ADJACENT FENCE HEIGHT.
 - C-17 ADD-ALTERNATE 5: PROPOSED UTILITY TRENCH - REPLACE ALL EXISTING MATERIALS DEMOLISHED DURING CONSTRUCTION IN KIND.
 - C-18 ADD-ALTERNATE 5: PROPOSED 8" WATER LINE TO REPLACE EXISTING WATER LINE. SEE WATER PLANS. CONTRACTOR SHALL COORDINATE FINAL WORK SHUTDOWN WITH HARFORD COUNTY PUBLIC SCHOOLS.
 - C-19 ADD-ALTERNATE 5: PROPOSED 6" WATER LINE TO REPLACE EXISTING WATER LINE. SEE WATER PLANS. CONTRACTOR SHALL COORDINATE FINAL WORK SHUTDOWN WITH HARFORD COUNTY PUBLIC SCHOOLS.
 - C-20 ADD-ALTERNATE 5: PROPOSED FIRE HYDRANTS TO REPLACE EXISTING FIRE HYDRANTS. SEE WATER PLANS. CONTRACTOR SHALL COORDINATE FINAL WORK SHUTDOWN WITH HARFORD COUNTY PUBLIC SCHOOLS.

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WO# 23043

PROJECT MANAGER SED

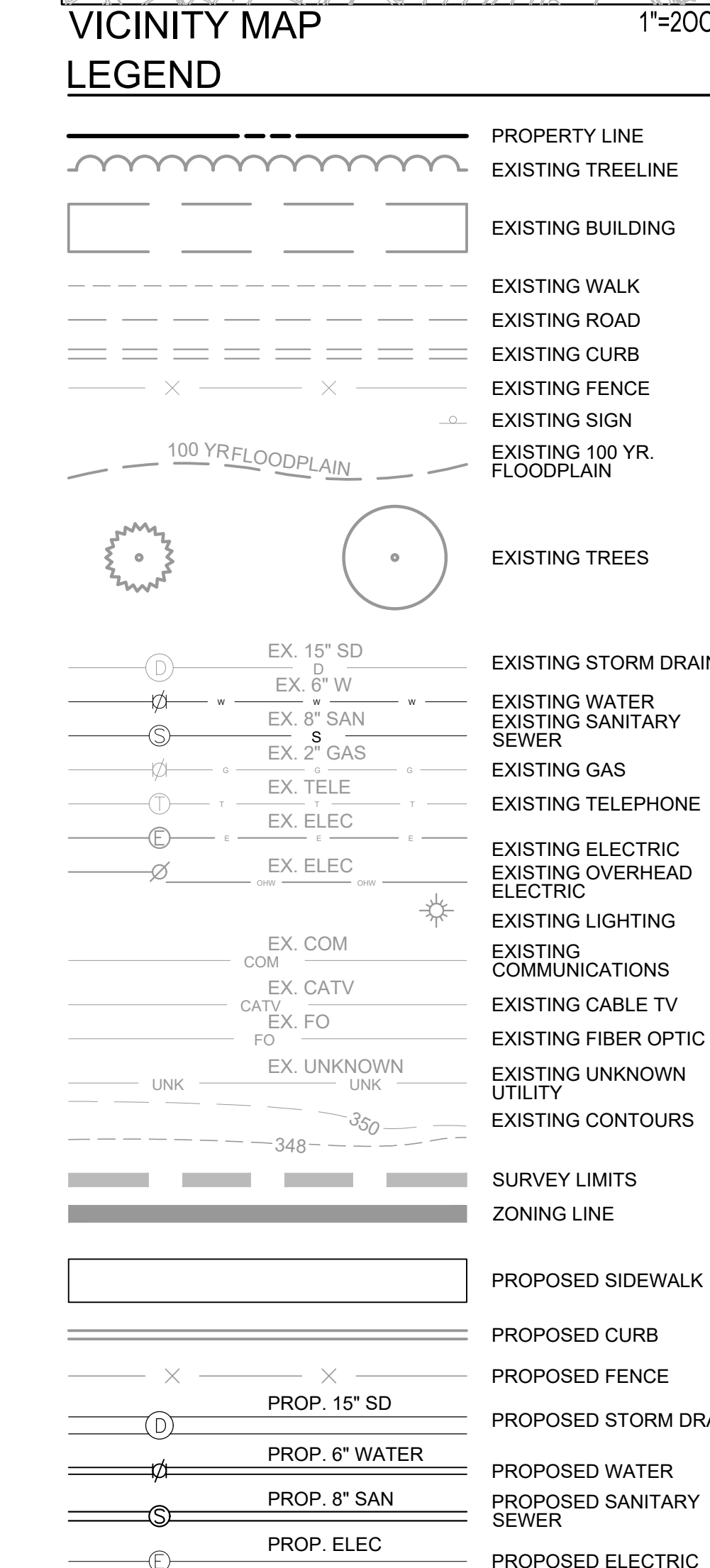
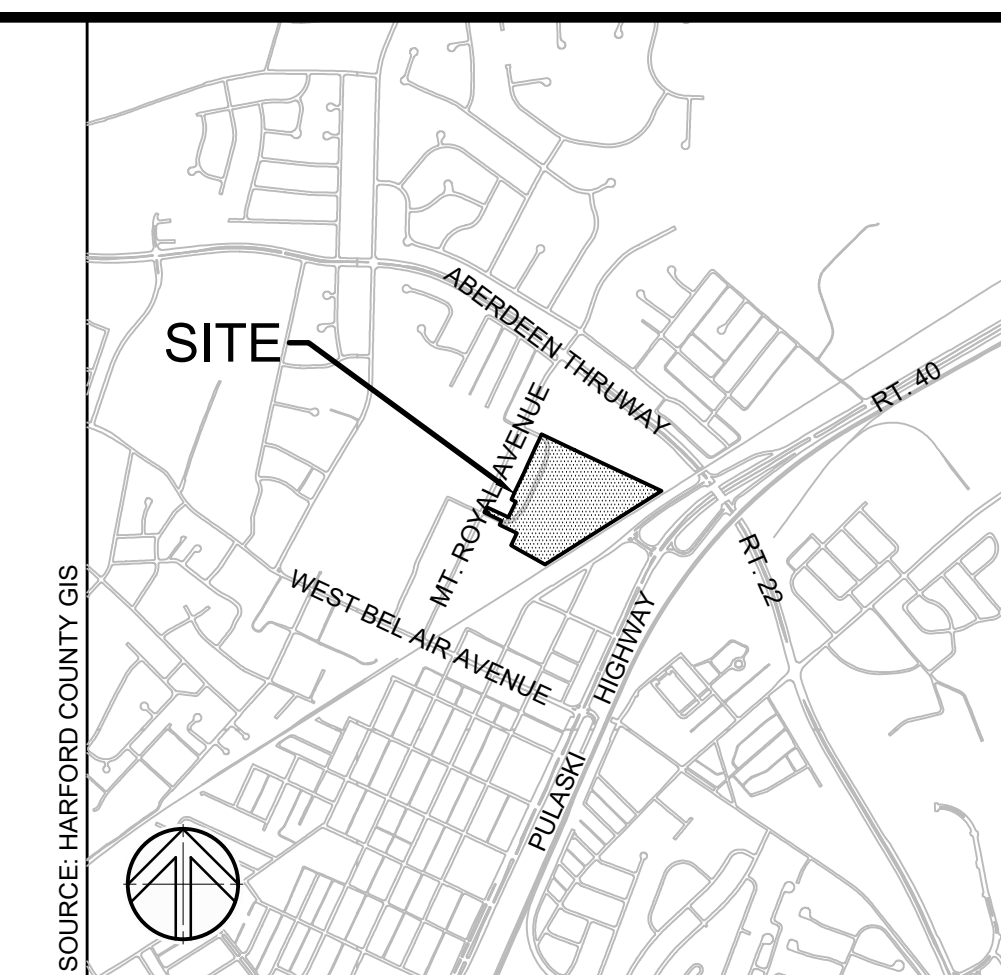
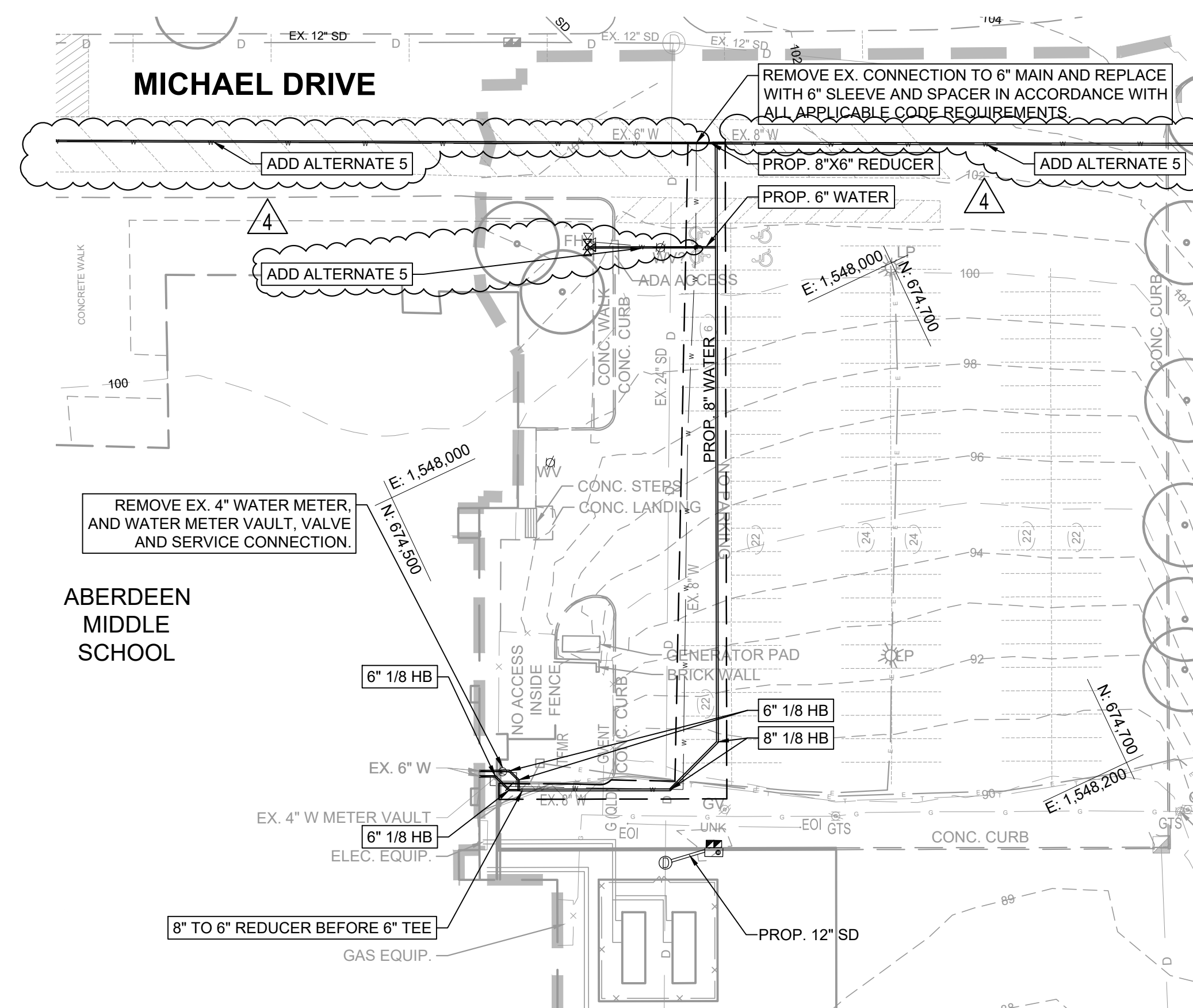
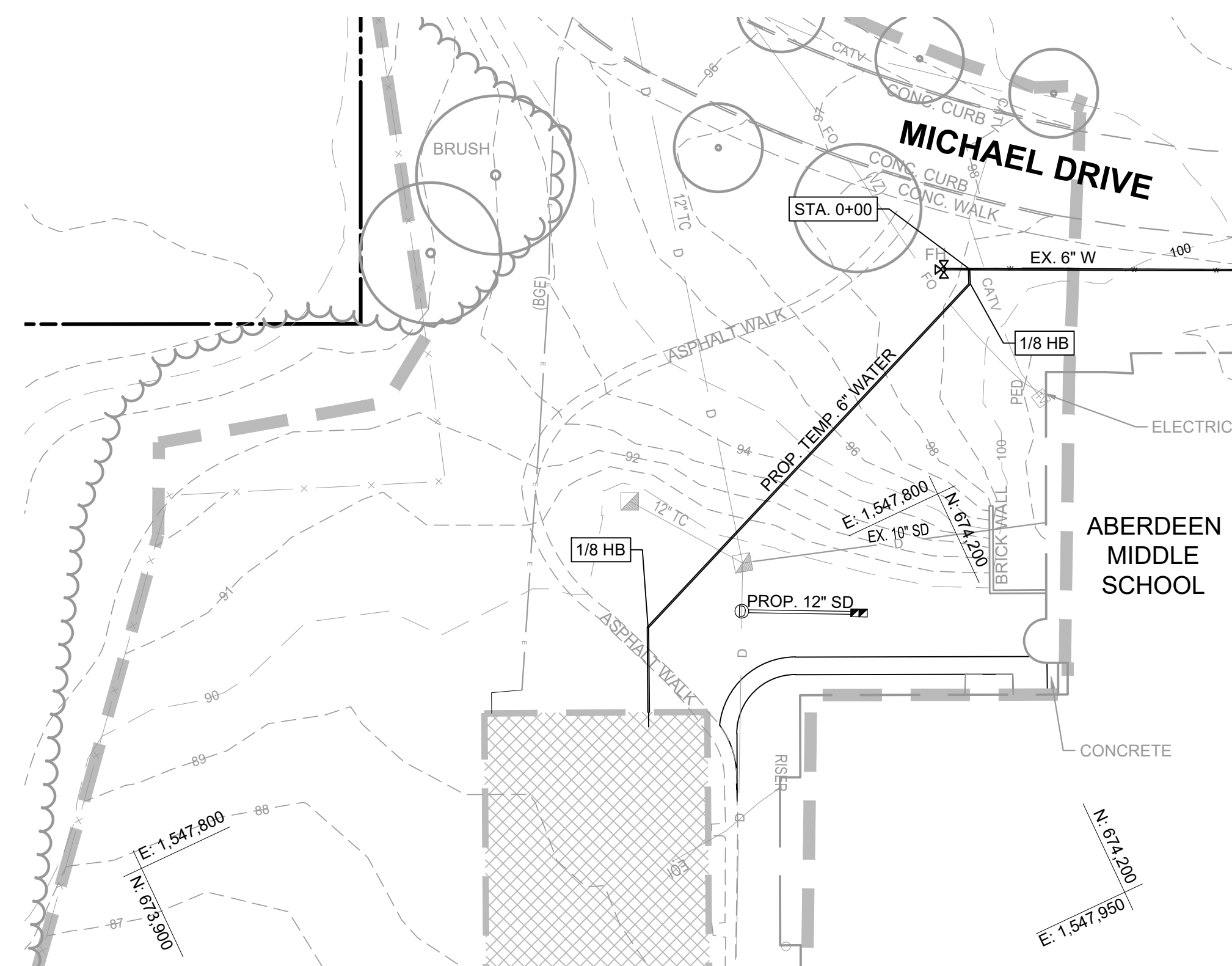
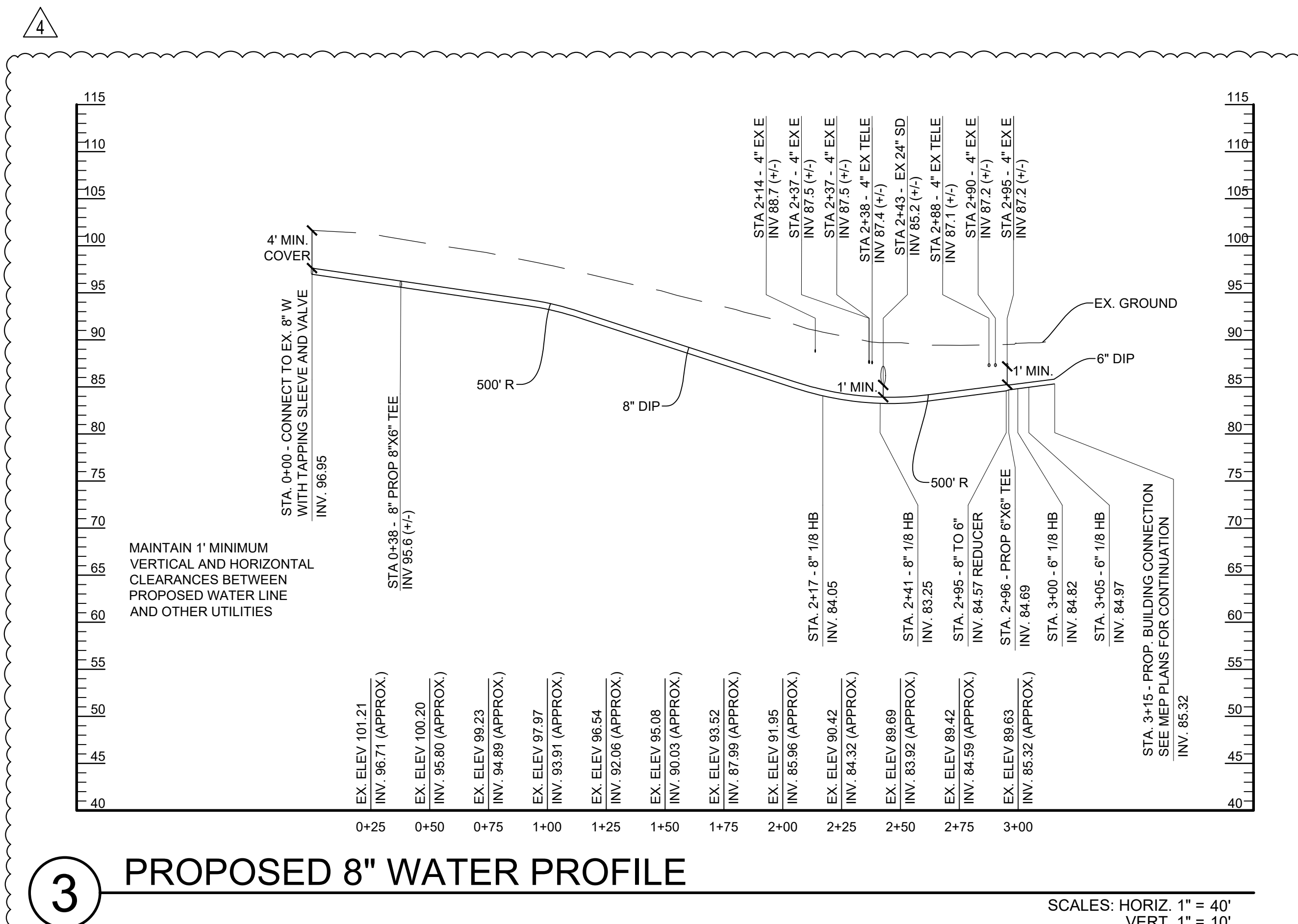
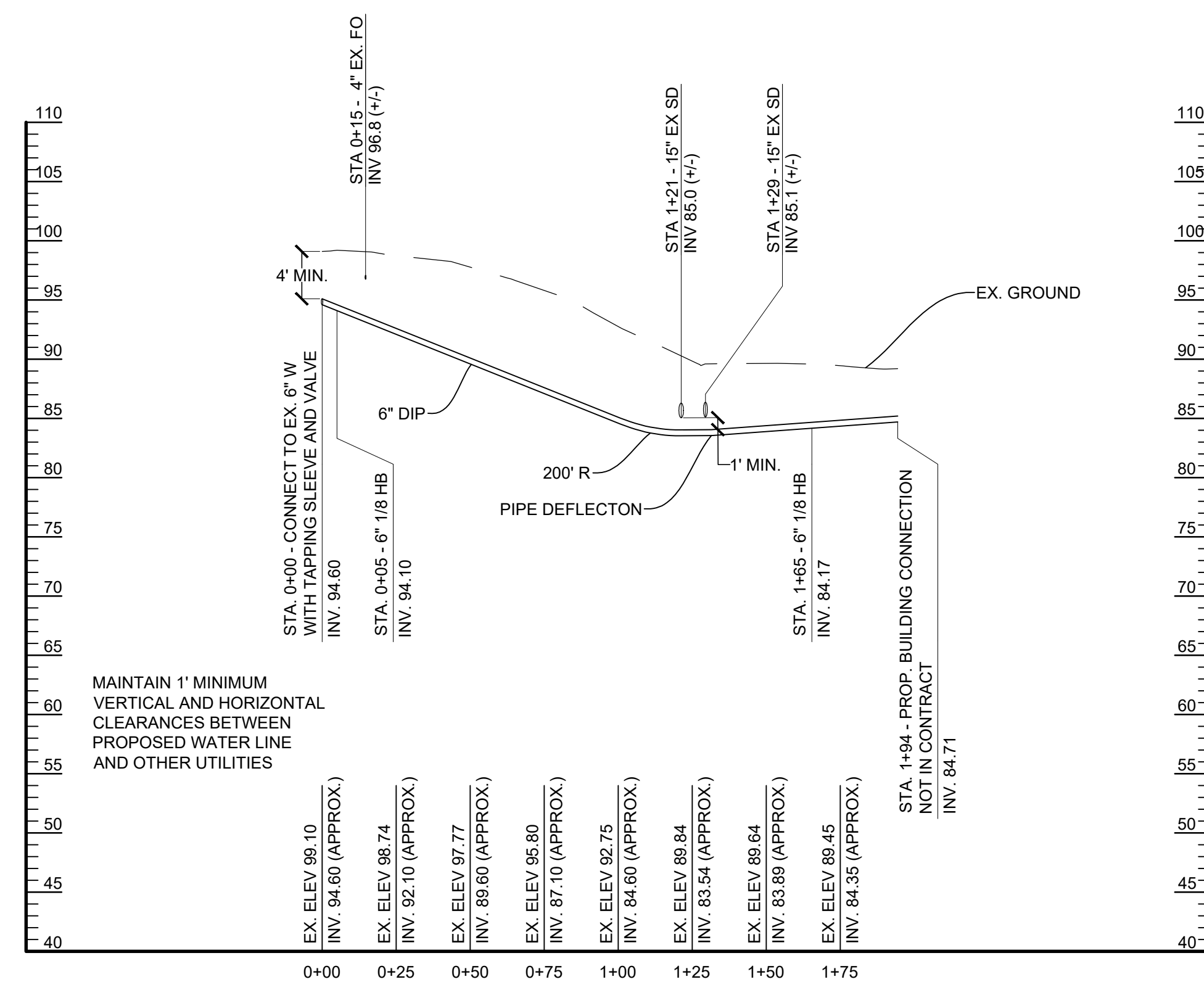
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SITE PLAN, UTILITY PLAN, AND GRADING PLAN
HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATIONS
111 MT. ROYAL AVE, ABERDEEN, MARYLAND 21001.

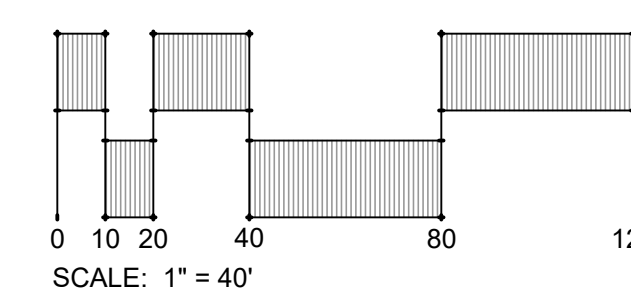
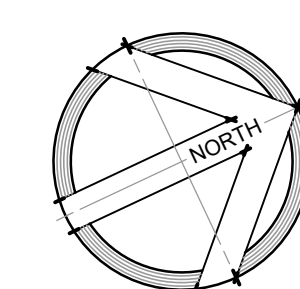
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UTILITY NOTES

1. EXISTING UTILITIES SHOWN ARE APPROXIMATE AND CONTRACTOR SHALL TEST PIT AREAS TO CONFIRM HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES BY HAND OR VACUUM EXCAVATION PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IF LOCATIONS OF EXISTING UTILITY LOCATIONS DIFFER FROM THE LOCATIONS SHOWN ON THE APPROVED DEVELOPER'S AGREEMENT DRAWINGS. OBTAIN PERMISSION TO TEST PIT.
2. FLUSH EXISTING WATER LINE PRIOR TO INSTALLING TEMPORARY WATER TAP.
3. CONTRACTOR SHALL COORDINATE FINAL WORK SHUTDOWN ON A WEEKEND WITH HARFORD COUNTY PUBLIC SCHOOLS.



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DESIGNER	SED

DATE 3/12/2024


WATER PLAN & PROFILE
HARFORD COUNTY PUBLIC SCHOOLS -
ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATIONS
111 MT ROYAL AVE. ABERDEEN, MARYLAND 21001

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PROJECT MANAGER	SED
DESIGNER	SED

DATE 2/22/2024

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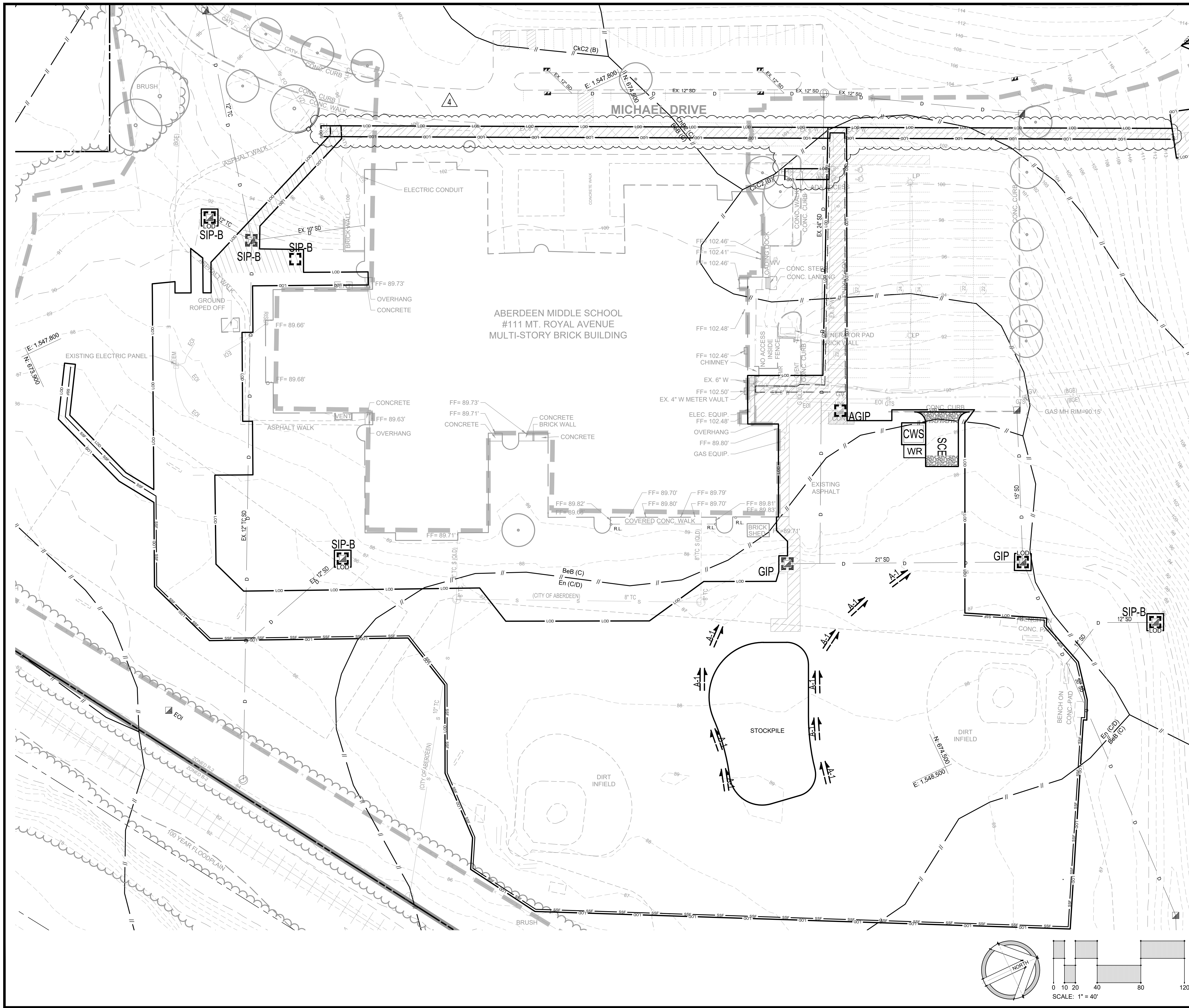
PROFILE

WATER PLAN & PROJECT
HARFORD COUNTY PUBLIC
HVAC SYSTEMS RENOVATION
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P.O. BOX 10000
HARFORD, MD 21140-0000

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Page 10 of 10



SAME DAY STABILIZATION NOTE

THE WORK IN THIS AREA SHALL BE DONE USING THE METHOD OF "SAME DAY STABILIZATION". NO MORE AREA SHALL BE DISTURBED THAN CAN BE STABILIZED BY THE END OF THE WORKDAY. ALL DISTURBED AREAS THAT DO NOT DRAIN TO A SEDIMENT CONTROL DEVICE SHALL BE STABILIZED AT THE END OF THE WORKDAY. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN ADE APPROVED SEDIMENT CONTROL DEVICE.

STABILIZATION SHALL BE AS FOLLOWS:
- FOR AREAS TO BE PAVED: APPLICATION OF STONE SUBBASE.
- FOR AREAS TO BE VEGETATIVELY STABILIZED: PERMANENT SEED AND EROSION CONTROL MATTING FOR ALL SWALES/CHANNELS AND PERMANENT SEED AND MULCH FOR ALL OTHER AREAS.

LEGEND

- PROPERTY LINE
- EXISTING TREELINE
- EXISTING BUILDING
- EXISTING WALK
- EXISTING ROAD
- EXISTING CURB
- EXISTING FENCE
- EXISTING SIGN
- EXISTING 100 YR. FLOODPLAIN
- EXISTING TREES
- EXISTING STORM DRAIN
- EXISTING WATER
- EXISTING SANITARY SEWER
- EXISTING GAS
- EXISTING TELEPHONE
- EXISTING ELECTRIC
- EXISTING OVERHEAD ELECTRIC
- EXISTING LIGHTING
- EXISTING COMMUNICATIONS
- EXISTING CABLE TV
- EXISTING FIBER OPTIC
- EXISTING UNKNOWN UTILITY
- EXISTING CONTOURS
- SURVEY LIMITS
- ZONING LINE
- EXISTING SOIL GROUP DELINEATION
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- WASH RACK
- CONCRETE WASHOUT
- SAME DAY STABILIZATION
- TREE PROTECTION FENCE
- TEMPORARY SWALE

GENERAL ESC NOTE

CONTRACTOR CAN SUBSTITUTE SUPER SILT FENCE WITH ACF ENVIRONMENTAL SMART FENCE, IF DESIRED. REFER TO C-412 AND C-413 FOR EROSION AND SEDIMENT CONTROL DETAILS.

LIMIT OF DISTURBANCE:
251,481 SF / 5.60 AC



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EXISTING CONDITIONS ESC PLAN		HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL HVAC SYSTEMIC RENOVATIONS		111 MT ROYAL AVE, ABERDEEN, MARYLAND 21001.	
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EXISTING EROSION & SEDIMENT CONTROL PLAN

HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL HVAC SYSTEMIC RENOVATIONS

111 MT ROYAL AVE, ABERDEEN, MARYLAND 21001.

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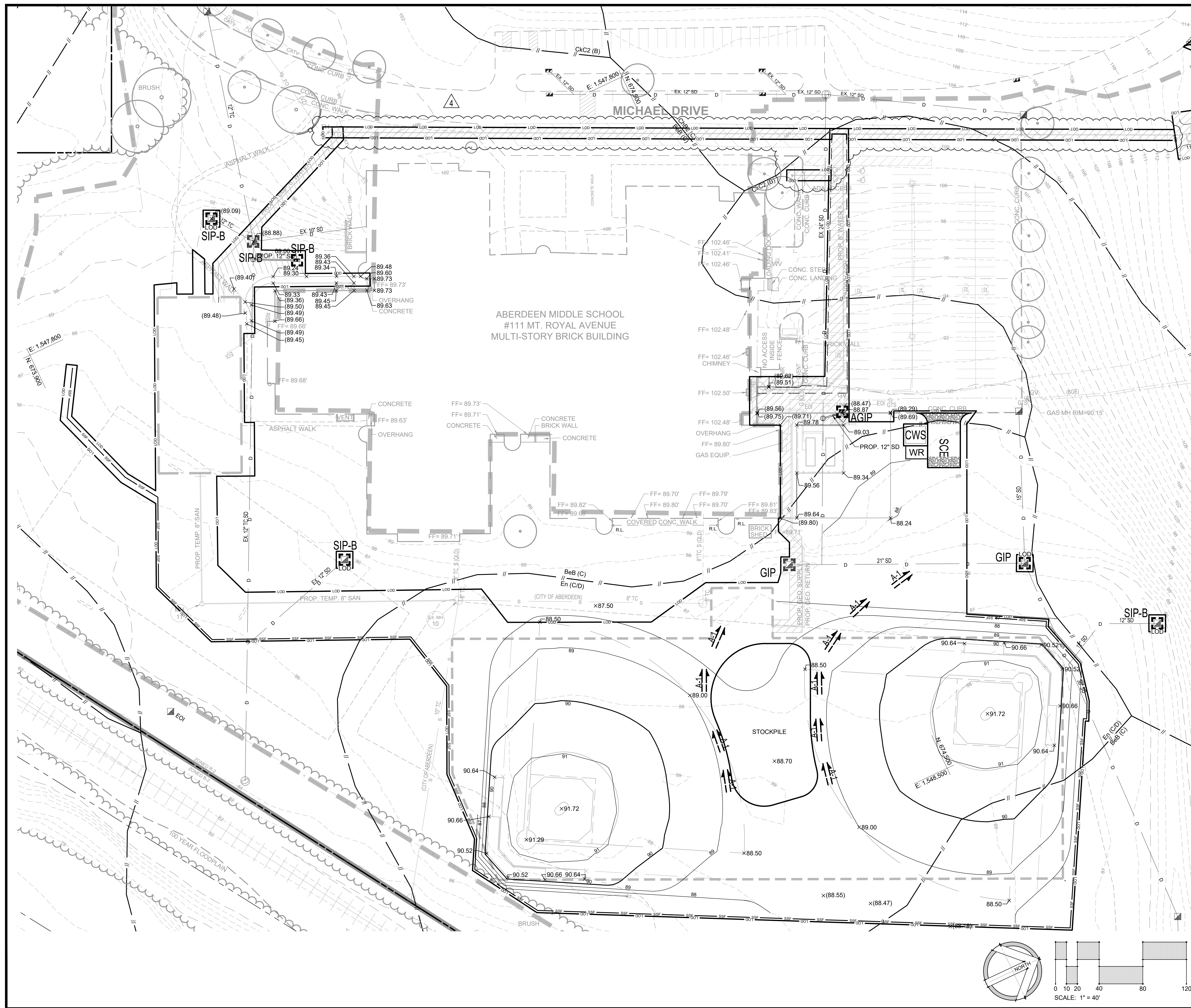
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-
- PROPERTY LINE
- EXISTING TREELINE
- EXISTING BUILDING
- EXISTING WALK
- EXISTING ROAD
- EXISTING CURB
- EXISTING FENCE
- EXISTING SIGN
- EXISTING 100 YR. FLOODPLAIN
- 100 YR. FLOODPLAIN
- EXISTING TREES
- EXISTING STORM DRAIN
- EXISTING WATER
- EXISTING SANITARY SEWER
- EXISTING GAS
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- EXISTING CONTOURS
- SURVEY LIMITS
- ZONING LINE
- EXISTING SOIL GROUP DELINEATION
- PROPOSED SIDEWALK
- PROPOSED CURB
- PROPOSED FENCE
- PROPOSED TEMPORARY MODULAR BUILDING AREA NOT IN CONTRACT
- PROPOSED GEOTHERMAL WELL FIELD
- ADD-ALTERNATE 1
- PROPOSED STORM DRAIN
- PROPOSED WATER
- PROPOSED SANITARY SEWER
- PROPOSED ELECTRIC
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- WASH RACK
- CONCRETE WASHOUT
- SAME DAY STABILIZATION
- TREE PROTECTION FENCE
- TEMPORARY SWALE

C411	BID DOCUMENTS	PROPOSED CONDITIONS ESC PLAN HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL HVAC SYSTEM RENOVATIONS 111 MT ROYAL AVE, ABERDEEN, MARYLAND 21001.	DATE 3/12/2024	DESIGNER SED	PROJECT MANAGER SED	 Gipe Associates Inc. Consulting Engineers 8719 Brooke Drive Aberdeen, MD, 21206 Phone: 410-262-2488 Fax: 410-262-2489				REVISIONS	NO. DATE DESCRIPTION
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PROPOSED EROSION & SEDIMENT CONTROL PLAN
HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATIONS
111 MT ROYAL AVE, ABERDEEN, MARYLAND 21001.

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION
USING VEGETATION AS COVER TO PROTECT EXPOSED SOIL FROM EROSION.

PURPOSE
TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.

CONDITIONS WHERE PRACTICE APPLIES
ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS. THIS SPECIFICATION IS DIVIDED INTO SECTIONS ON INCREMENTAL STABILIZATION, SOIL PREPARATION, SOIL AMENDMENTS AND TOPSOILING, SEEDING AND MULCHING, TEMPORARY STABILIZATION, AND PERMANENT STABILIZATION.

EFFECTS ON WATER QUALITY AND QUANTITY
STABILIZATION PRACTICES ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZED WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUNOFF TO DOWNSTREAM AREAS.

PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF. INFILTRATION, EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE. OVER TIME, VEGETATION WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH.

VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITHIN THE ROOT ZONE.

SEDIMENT CONTROL PRACTICES MUST REMAIN IN PLACE DURING GRADING, SEEDED PREPARATION, SEEDING, MULCHING, AND VEGETATIVE ESTABLISHMENT.

ADEQUATE VEGETATIVE ESTABLISHMENT
INSPECT SEEDED AREAS FOR VEGETATIVE ESTABLISHMENT AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

1. ADEQUATE VEGETATIVE STABILIZATION REQUIRES 95 PERCENT GROUND COVER.
2. IF AN AREA HAS LESS THAN 40 PERCENT GROUND COVER, RESTABILIZE FOLLOWING THE ORIGINAL RECOMMENDATIONS FOR LIME, FERTILIZER, SEEDED PREPARATION, AND SEEDING.
3. IF AN AREA HAS BETWEEN 40 AND 94 PERCENT GROUND COVER, OVER-SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED.
4. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDING ARE SHOWN IN TABLE B.6.

B-4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

DEFINITION
ESTABLISHMENT OF VEGETATIVE COVER ON CUT AND FILL SLOPES.

PURPOSE
TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.

CONDITIONS WHERE PRACTICE APPLIES
ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT. THIS PRACTICE ALSO APPLIES TO STOCKPILES.

- CRITERIA
- A. INCREMENTAL STABILIZATION - CUT SLOPES
1. EXCAVATE AND STABILIZE CUT SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDED AND APPLY SEED AND MULCH ON ALL CUT SLOPES AS THE WORK PROGRESSES.
 2. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.1)
 - a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO CONVEY RUNOFF AROUND THE EXCAVATION.
 - b. PERFORM PHASE 1 EXCAVATION, PREPARE SEEDED, AND STABILIZE.
 - c. PERFORM PHASE 2 EXCAVATION, PREPARE SEEDED, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
 - d. PERFORM FINAL PHASE EXCAVATION, PREPARE SEEDED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN, THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

- B. INCREMENTAL STABILIZATION - FILL SLOPES
1. CONSTRUCT AND STABILIZE FILL SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDED AND APPLY SEED AND MULCH ON ALL SLOPES AS THE WORK PROGRESSES.
 2. STABILIZE SLOPES IMMEDIATELY WHEN THE VERTICAL HEIGHT OF A LIFT REACHES 15 FEET, OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED ON THE PLANS.
 3. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
 4. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.2)
 - a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SILT FENCE ON LOW SIDE OF FILL UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
 - b. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
 - c. PLACE PHASE 1 FILL, PREPARE SEEDED, AND STABILIZE.
 - d. PLACE PHASE 2 FILL, PREPARE SEEDED, AND STABILIZE.
 - e. PLACE FINAL PHASE FILL, PREPARE SEEDED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN, THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS

DEFINITION
THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES
WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

- CRITERIA
- A. SOIL PREPARATION
1. TEMPORARY STABILIZATION
 - a. SEEDED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPER MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 2. PERMANENT STABILIZATION
 - a. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - i. SOIL PH BETWEEN 6.0 AND 7.0.
 - ii. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 - iii. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - b. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 - c. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - d. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
 - e. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
 - f. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
 - g. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE. REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION.
 - h. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDED PREPARATION.
 - i. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRABLE. SEEDED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

- B. TOPSOILING
1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
 2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
 3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 - c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
 4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
 5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
 - a. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER.
 - b. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - c. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
 6. TOPSOIL APPLICATION
 - a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
 - b. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - c. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDED PREPARATION.

- C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
 2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
 3. LIME MATERIALS MUST BE GROUND LIMES (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #200 MESH SIEVE.
 4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION
THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE
TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES
TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

- CRITERIA
- A. SEEDING
1. SPECIFICATIONS
 - a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - b. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
 - c. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - d. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
 2. APPLICATION
 - a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - b. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - c. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - d. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - e. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1¼ INCH OF SOIL COVERING. SEEDED MUST BE FIRM AFTER PLANTING.
 - f. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - g. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
 - h. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P2O5 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - i. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - j. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - k. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

- B. MULCHING
1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - c. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
 - d. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - e. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BOND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - f. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - g. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
 2. APPLICATION
 - a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
 - b. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO COVER THE ENTIRE UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
 - c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 3. ANCHORING
 - a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
 - i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE. THE ANCHORING TOOL MUST BE USED AT AN ANGLE OF 45 DEGREES TO THE SURFACE. THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
 - ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - iii. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSEET, TERRA TACK, TERRA TACK AR OR OTHER APPROVED EQUAL, MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND AT THE EDGES OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
 - iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE
TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES
EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

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EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

- CRITERIA
1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
 2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
 3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3 A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE 7A					
SPECIES	APPLICATION RATE (LBS./AC.)	SEEDING DATES	SEEDING DEPTH	FERTILIZER RATE (10-20-20)	LIME RATE
ANNUAL RYEGRASS	40 LBS./AC.	2/15 - 4/30 8/15 - 11/30	1/2"		
FORKTAL MILLET	30 LBS./AC.	5/1 - 8/14	1/2"	436 LB./AC. (10 LB./1000 S.F.)	2 TONS/AC. (90 LB./1000 S.F.)

NOTE:

THE PURPOSE OF THIS PLAN IS TO ADDRESS SEDIMENT CONTROL FOR MASS GRADING, ROAD AND UTILITY CONSTRUCTION ONLY. INDIVIDUAL OR COLLECTIVE HOME/ COMMERCIAL BUILDING CONSTRUCTION WILL REQUIRE A SEPARATE SEDIMENT CONTROL PLAN. THE DEVELOPER/CONTRACTOR SHALL COMPLY WITH ALL STABILIZATION REQUIREMENTS OF THIS PLAN. TEMPORARY BUILDINGS MAY BE PERMITTED WITH THE APPROVAL OF THE HARFORD COUNTY DPW.

INLET PROTECTION NOTES

1. THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS IN ACCORDANCE WITH THE APPROVED EROSION & SEDIMENT CONTROL PLANS.
2. ALL INLET PROTECTION WILL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

UTILITY NOTES

1. CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE) THE TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROL DISTURBED BY UTILITY CONSTRUCTION IS TO BE REPAIRED IMMEDIATELY.

TEMPORARY STOCKPILE NOTE

TEMPORARY STOCKPILES SHALL BE LOCATED WITHIN THE LIMIT OF DISTURBANCE, DRAIN TO A FUNCTIONING SEDIMENT CONTROL DEVICE, AND POSITIONED SO AS NOT TO IMPEDE UPON OR IMPAIR THE FUNCTION OF SAID DEVICE. THE STOCKPILE SHALL NOT ALTER THE DRAINAGE DIRECTION.

TEMPORARY SWALE NOTE

TEMPORARY SWALE SHALL BE LOCATED WITHIN THE LIMIT OF DISTURBANCE, TYPE A-1.

MAINTENANCE NOTE

CONTRACTOR SHALL INSPECT AND MAINTAIN ALL SILT FENCE, SUPER SILT FENCE, AND INLET PROTECTION DEVICES AFTER EACH STORM EVENT. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO REMOVAL OF ALL ACCUMULATED SEDIMENT.

NPDES NOTE

IT IS THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT ALL OF THE PROVISIONS AND REQUIREMENTS OF THE NPDES PERMIT.

ESC GENERAL NOTES

1. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE) OF THE TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROL DISTURBED BY UTILITY CONSTRUCTION IS TO BE REPAIRED IMMEDIATELY.

HYDROLOGIC SOIL GROUP RATING

SYMBOL	NAME	% SLOPE	RATING
BeA	BELTSVILLE SILT LOAM	0-2	C
BeB	BELTSVILLE SILT LOAM	2-5	C
ChB2	CHILLIUM SILT LOAM	2-5	C
CkC2	CHILLIUM-NESHAMINY SILT LOAM	5-10	B
EN	ELKTON SILT LOAM	-	C/D

OWNER INFORMATION

1. OWNER/DEVELOPER: BOARD OF EDUCATION OF HARFORD COUNTY
2. CONTACT: HARRY MILLER
3. ADDRESS: 102 S. HICKORY AVE. BEL AIR, MD 21014 410-538-7300
4. PHONE:

SITE ANALYSIS

1. TOTAL SITE AREA: 26.466 AC
2. TOTAL DISTURBED AREA: 231.481 SF (5.60 AC)
3. AREA TO BE PAVED: 3.236 SF
4. AREA TO BE STABILIZED: 252.481 SF (5.60 AC)
5. CUT: 945 CY

NPDES ID PT. NORTHING: 1,547,800
EASTING: 674,500

*TO THE EXTENT THAT QUANTITIES MAY BE LISTED ON THESE PLANS, THEY ARE FOR PERMITTING PURPOSES ONLY AND NOT FOR BIDDING PURPOSES. CONTRACTOR SHALL FORM HIS OWN CONCLUSIONS ABOUT THE QUANTITIES OF ALL MATERIALS AND OPERATIONS NECESSARY TO COMPLETE THE PROJECT.



C421

PSC-12.006

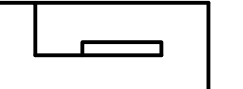
BID DOCUMENTS

ESC NOTES!
HARFORD COUNTY PUBLIC SCHOOLS -
ABERDEEN MIDDLE SCHOOL
HVAC SYSTEM RENOVATIONS
111 MT ROYAL AVE, ABERDEEN, MARYLAND 21001.

WO#23043

PROJECT MANAGER	SED
DESIGNER	SED
DATE	3/12/2024

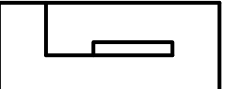
Gipe Associates Inc.
Consulting Engineers
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Fax: 410.822-5306



WO# 23043

PROJECT MANAGER	SED
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DATE	2/22/2024

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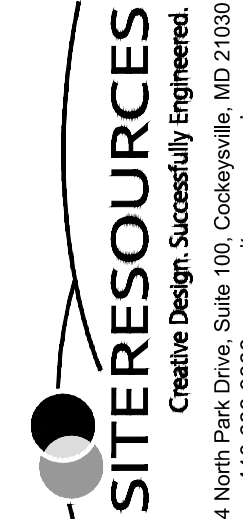
EROSION & SEDIMENT CONTROL NOTES!
HARFORD COUNTY PUBLIC SCHOOLS -
ABERDEEN MIDDLE SCHOOL
HVAC SYSTEM RENOVATIONS
111 MT ROYAL AVE, ABERDEEN, MARYLAND 21001.

DRAFT

BID DOCUMENTS

C421

PSC-12.006



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REVISIONS		NO.	DATE	DESCRIPTION
		4	3/20/2024	ADDENDUM #4

1. EX IS INDICATED IN THIN/LIGHT LINE WEIGHT.
2. NEW WORK IS INDICATED IN THICKER/DARK LINE WEIGHT
3. ALL SP WORK INDICATED ON PLAN IS BASE BIDWORK.

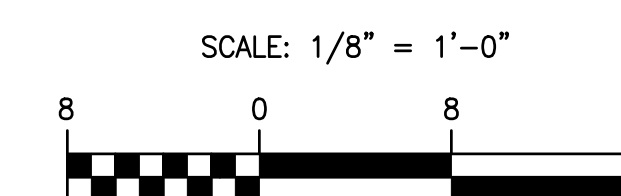
- ① DSS-3 EVAPORATOR. MOUNT ON WALL ABOVE DOOR.
- ② 40X20 R/A UP. 40X12 S/A AND 40X8 S/A UP TO 40X20 SA UP. 40X20 RA AND 40X20 SA DN.
- ③ RS, RL AND 2" PD. SIZE RS AND RL PIPING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ④ FAN-1. SUPPORT FROM STRUCTURE ABOVE.
- ⑤ 1-1/4" CD DN TO CONDENSATE PUMP P-A.

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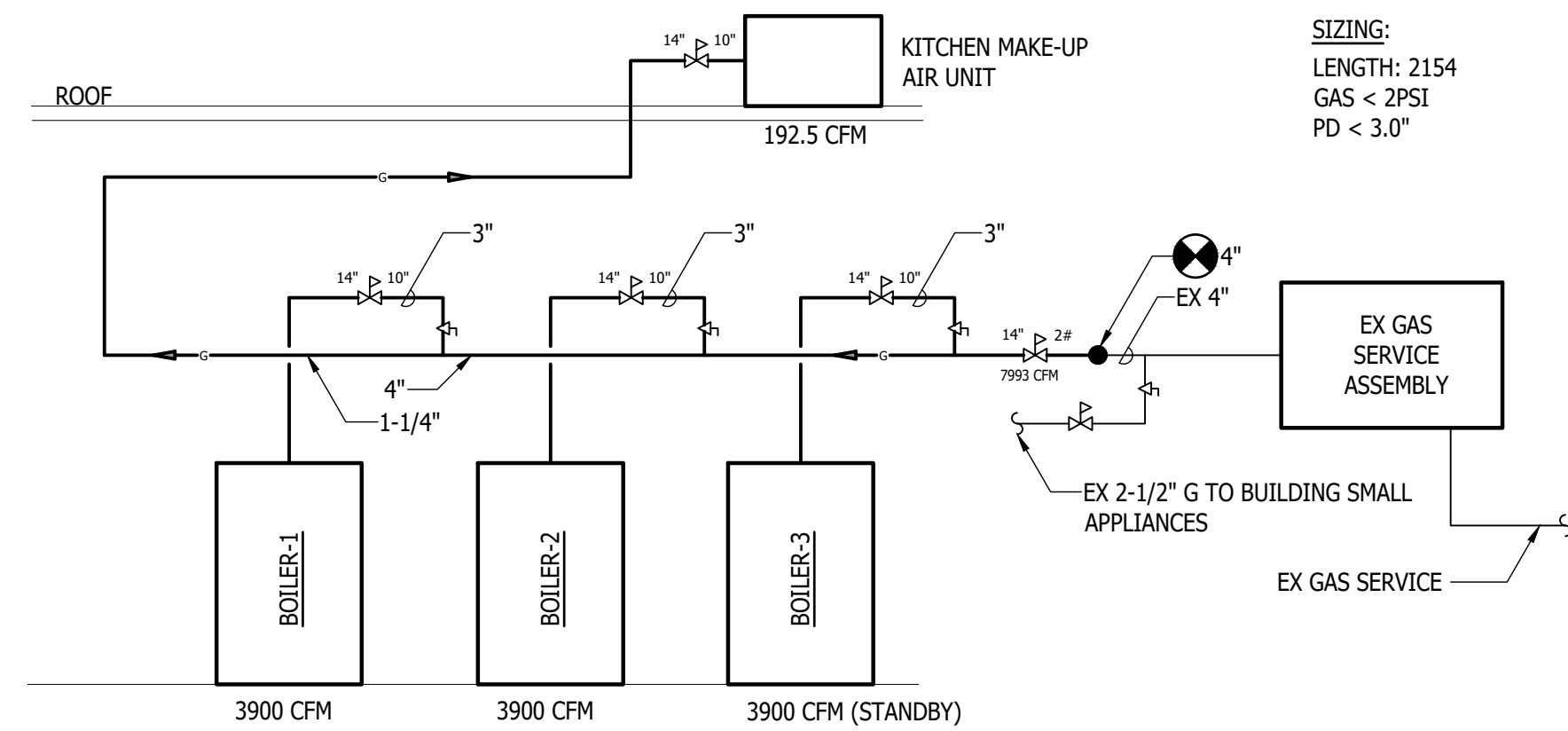
WO# 23043	
PROJECT MANAGER	SED
DESIGNER	SED
DATE	2/26/202

BID SUBMISSION

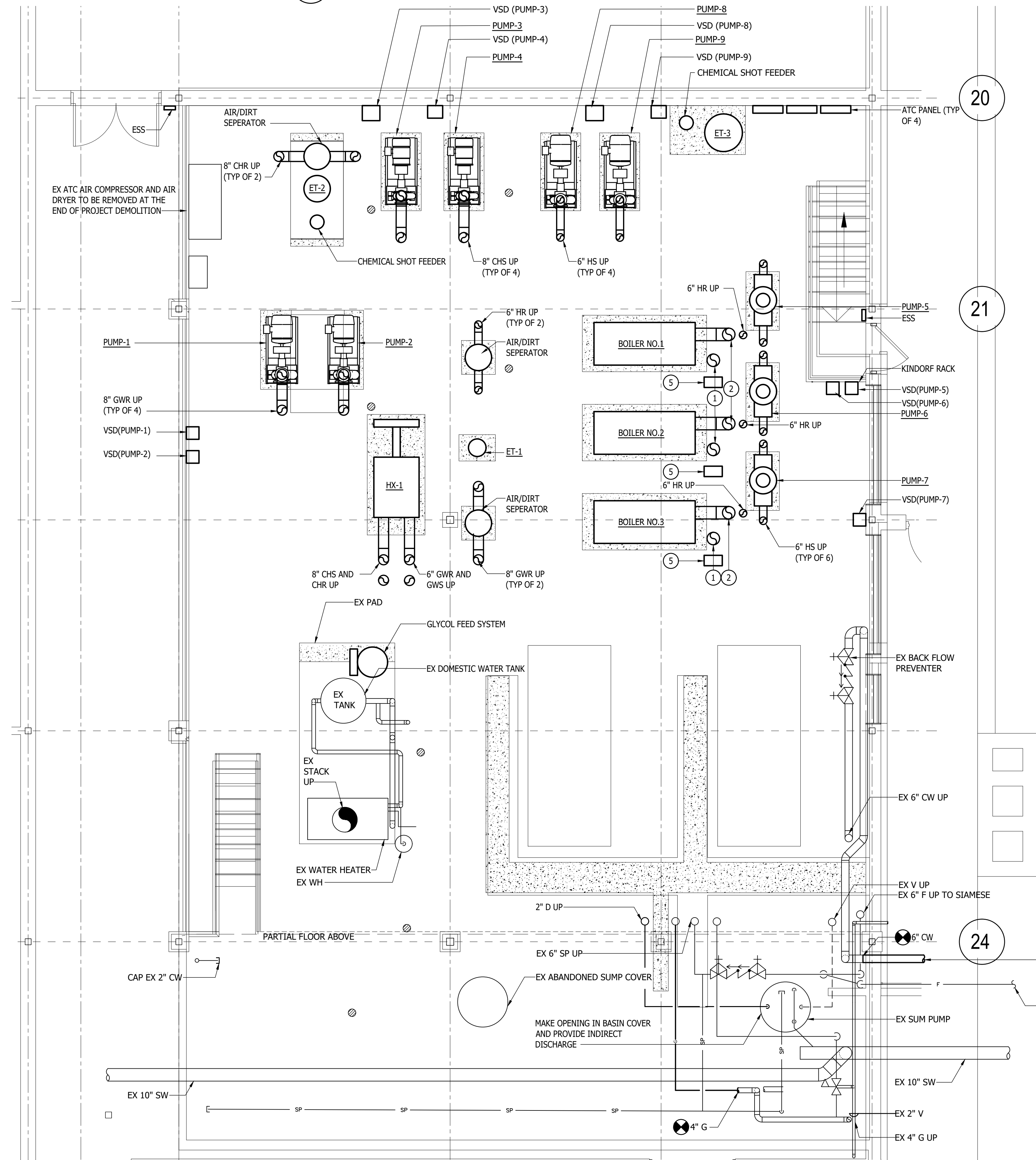
PSC-12.006



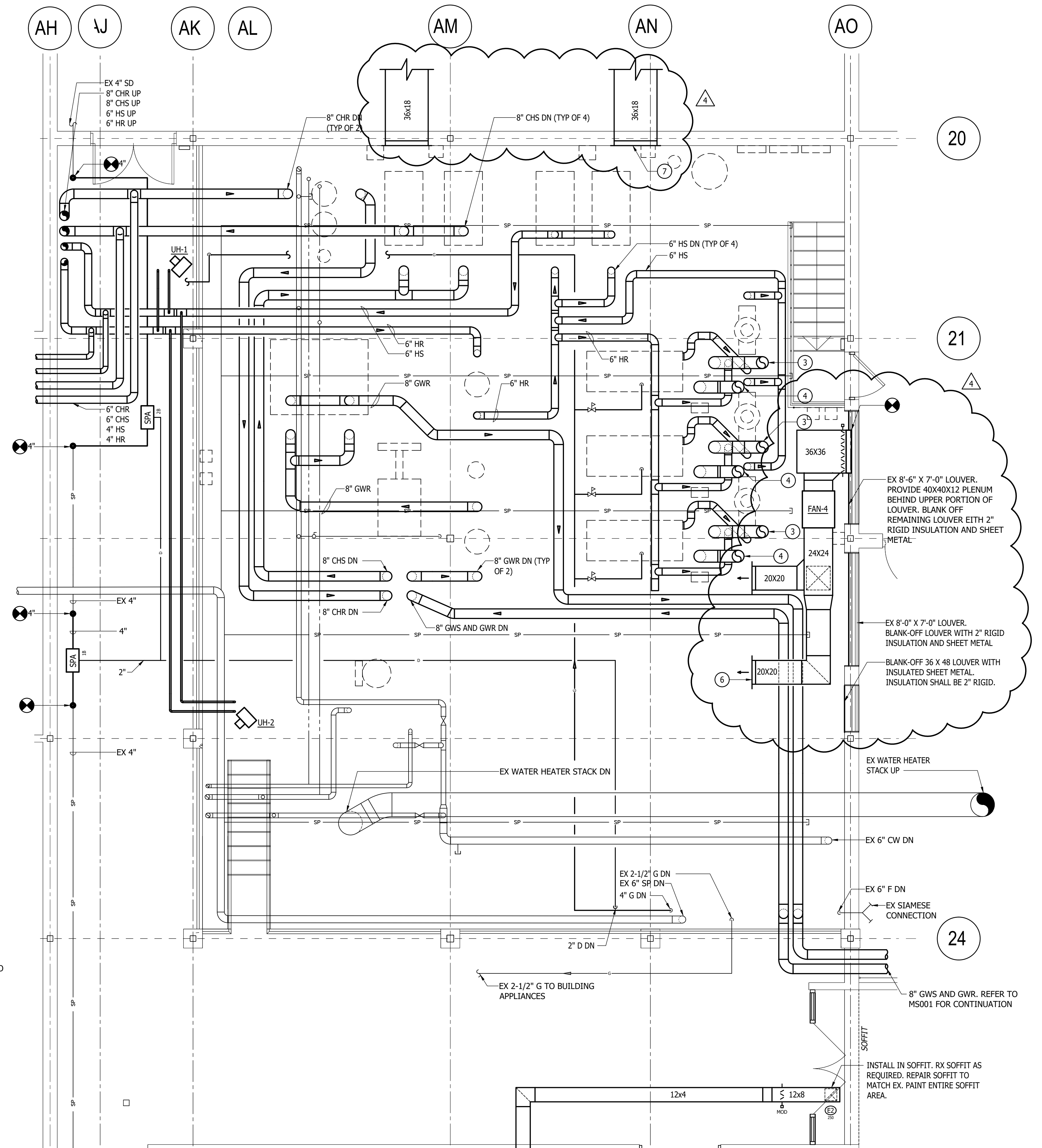
KEY PLAN
N.T.S.



3 NATURAL GAS RISER
NOT TO SCALE



1 ENLARGED EQUIPMENT ROOM-NETWORK- LOWER ELEVATION
SCALE: 1/4" = 1'-0"



2 ENLARGED EQUIPMENT ROOM-NEW WORK-UPPER ELEVATION
SCALE: 1/4" = 1'-0"

DRAWING NOTES:

- 12" COMBUSTION AIR EXHAUST UP. (TYP OF 3)
- 10" COMBUSTION AIR INTAKE UP. (TYP OF 3)
- 12" COMBUSTION AIR EXHAUST UP. OFFSET TO AVOID EX STEEL AT ROOF AS REQUIRED. (TYP OF 3)
- 10" COMBUSTION AIR INTAKE UP. OFFSET TO AVOID EX STEEL AT ROOF AS REQUIRED. (TYP OF 3)
- ACID NEUTRALIZATION TANK. PIPE TO FLOOR DRAIN
- 20X20 TITUS 300R REGISTER 1334 CFM. (TYP OF 3)
- 36X18 TITUS 350RL REGISTER BALANCE FOR 2000 CFM. (TYP OF 2)

GENERAL NOTES:

- EX IS INDICATED IN THIN/LIGHT LINE WEIGHT.
- NEW WORK IS INDICATED IN THICKER/DARK LINE WEIGHT.
- CONCRETE HOUSEKEEPING PADS SHALL BE MIN OF 4" HIGH.
- MOUNT VSDS FROM EX WALL UNLESS OTHERWISE INDICATED.
- MOUNT AIR SEPARATORS AND EXPANSION TANKS ON HOUSEKEEPING PADS UNLESS OTHERWISE INDICATED.
- CONTRACTOR SHALL DE-GREASE THE EX FLOOR, PATCH ALL HOLES AND PAINT THE SLAB AND CONCRETE PADS GREY.

REVISIONS			
NO.	DATE	DESCRIPTION	
1	3/7/24	ADD BOILER NO. 3	ADDENDUM NO. 1
2	3/14/24	ADD BOILER NO. 2	ADDENDUM NO. 2
3	3/20/24	ADD BOILER NO. 3	ADDENDUM NO. 3
4	3/27/24	ADDENDUM NO. 4	ADDENDUM NO. 4

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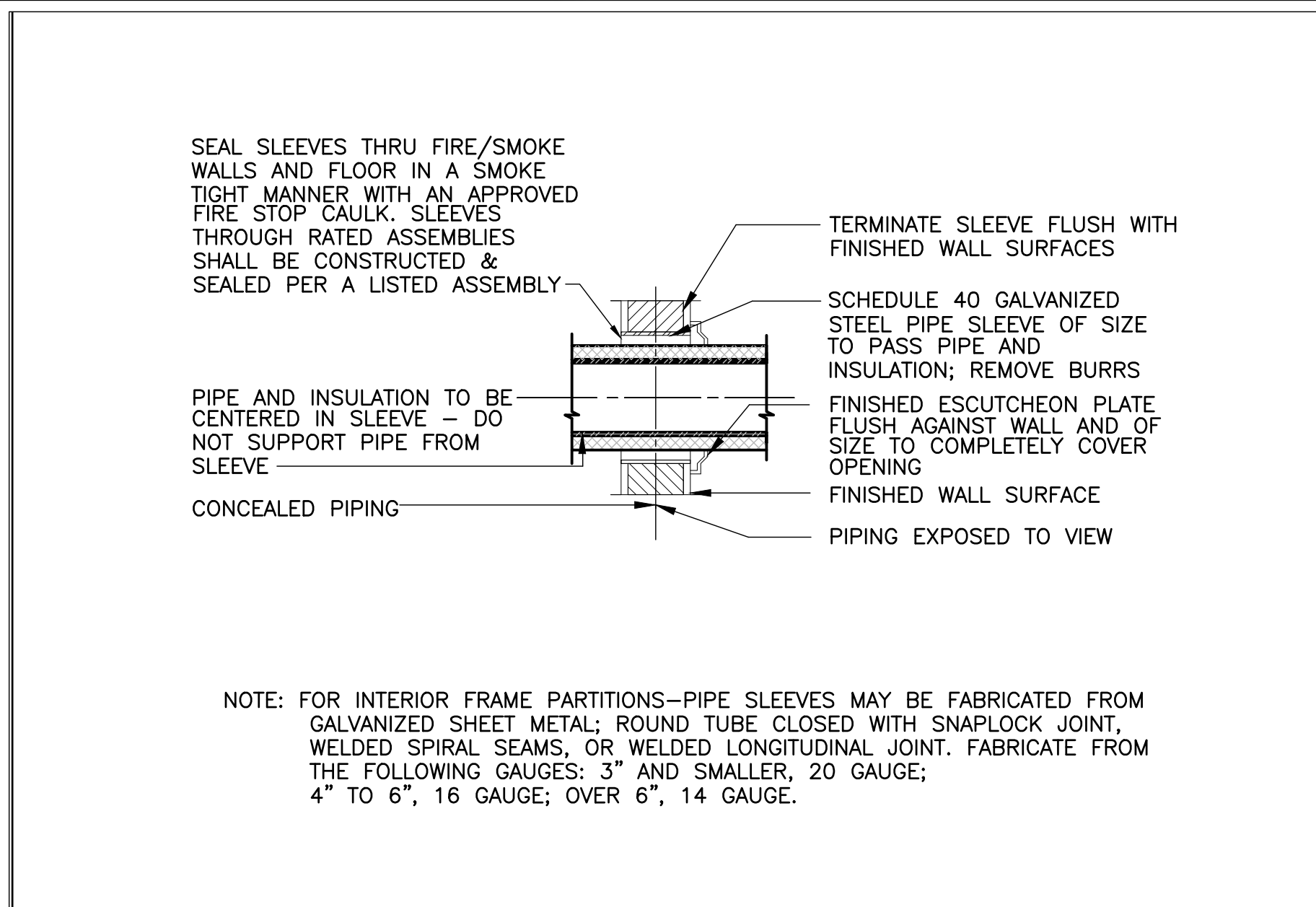
W0# 23043
PROJECT MANAGER SED
DESIGNER MJK
DATE 2/26/2024

ENLARGED EQUIPMENT ROOM NEW WORK
HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATIONS
111 MT ROYAL AVE, ABERDEEN, MARYLAND 21001.

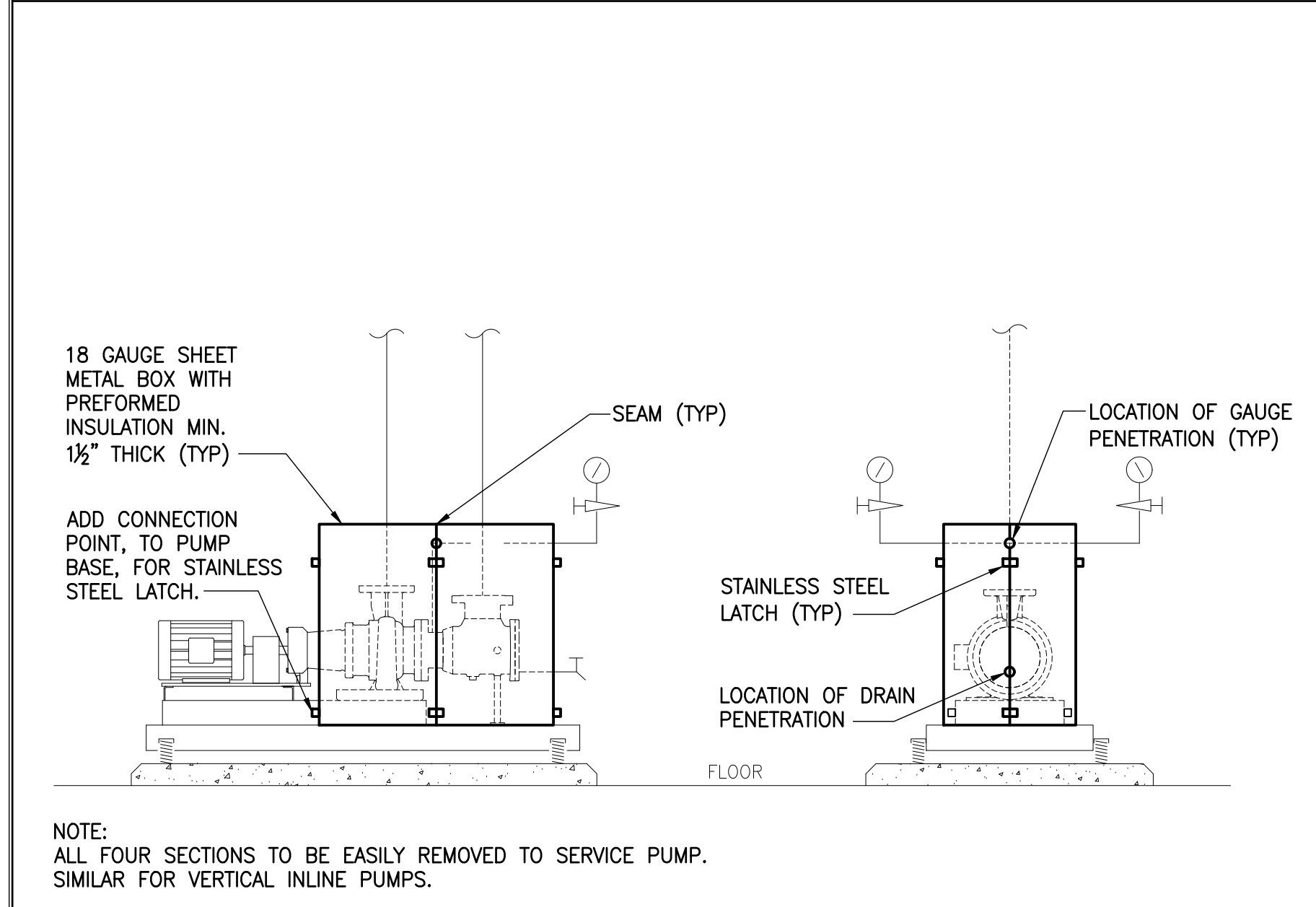
BID SUBMISSION

M303

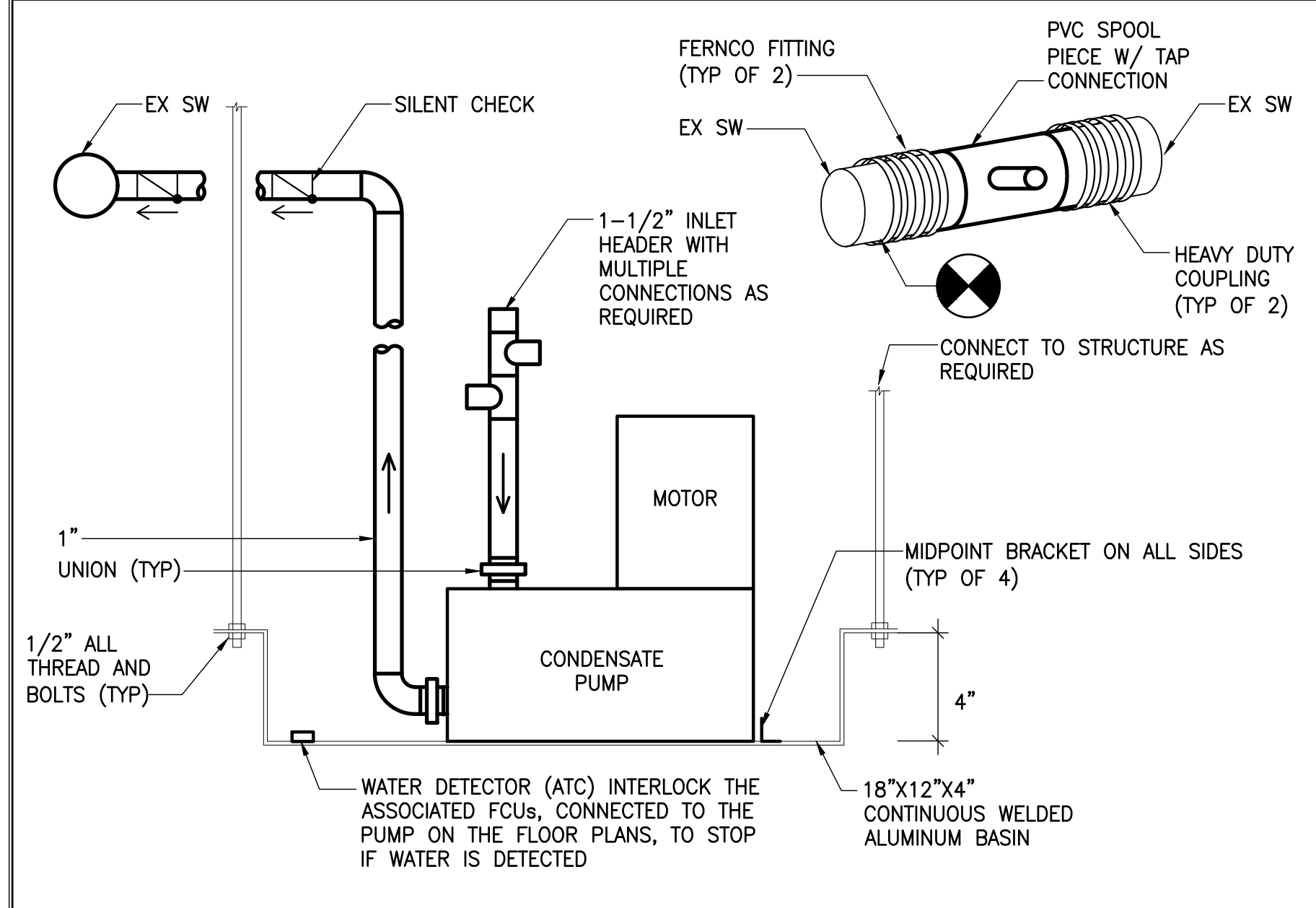
PSC-12.006



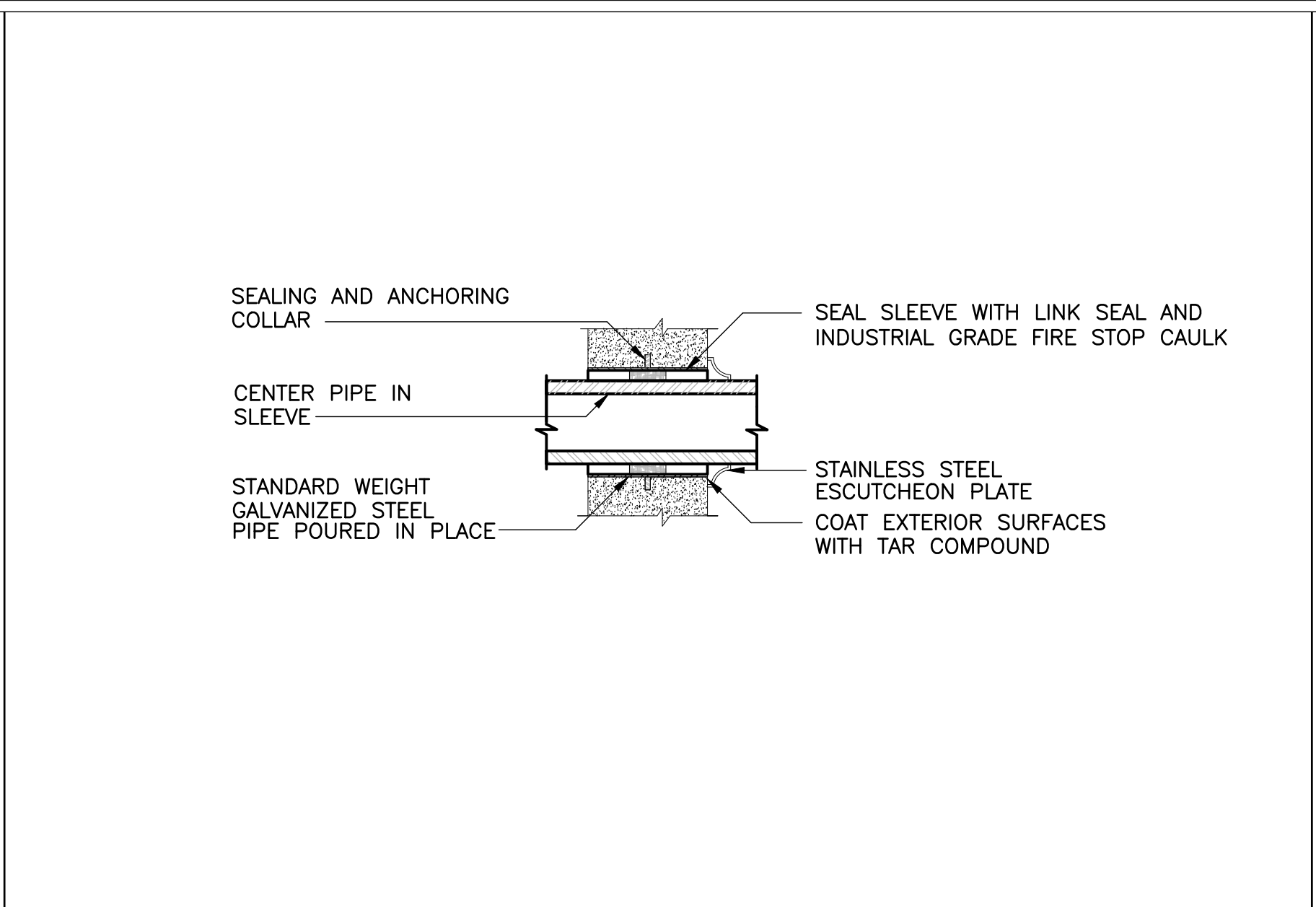
4 TYPICAL PIPE SLEEVE THRU INTERNAL WALL DETAIL SCALE: AS NOTED



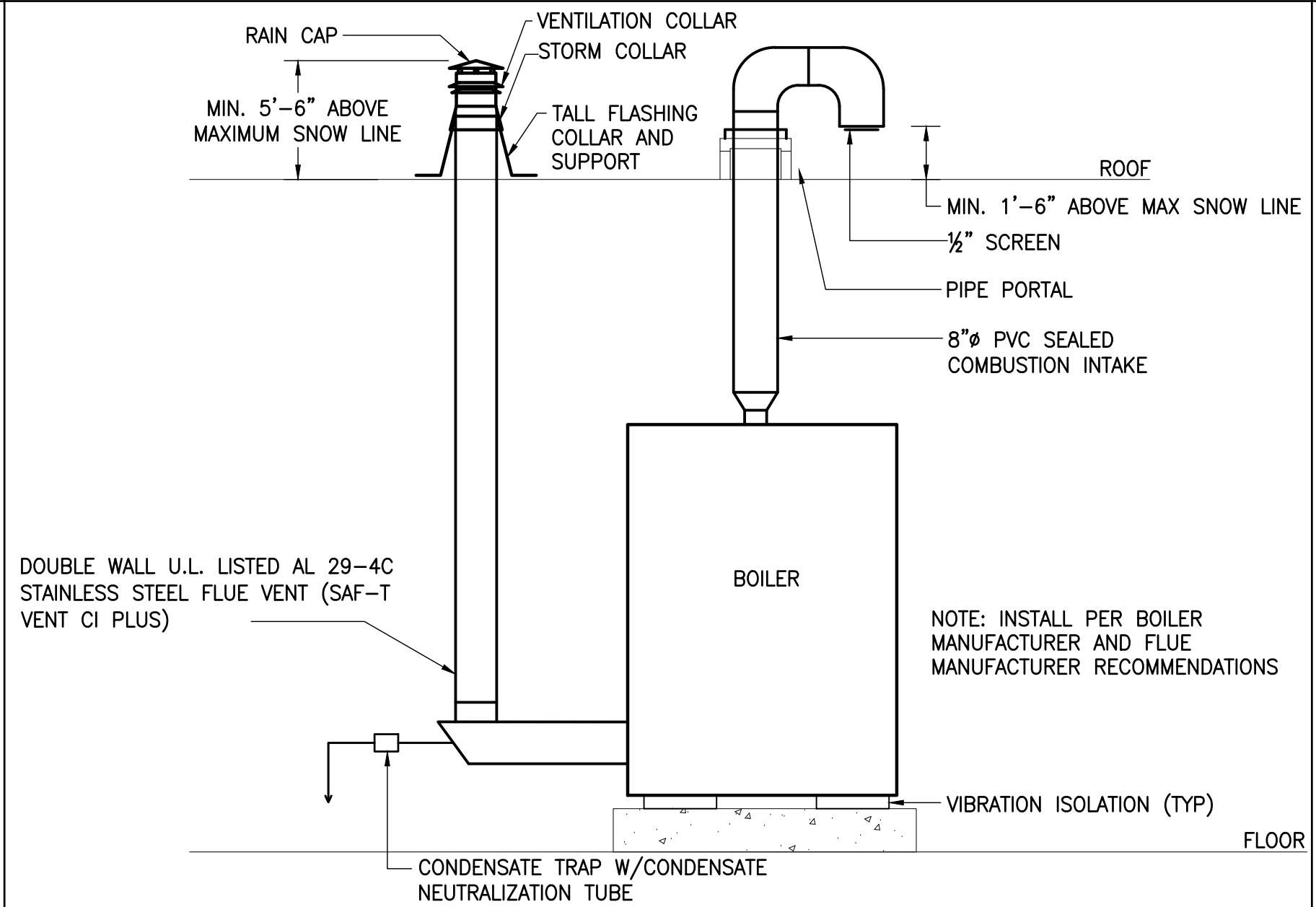
8 BASE MOUNTED END SUCTION PUMP INSULATION BOX DETAIL SCALE: AS NOTED



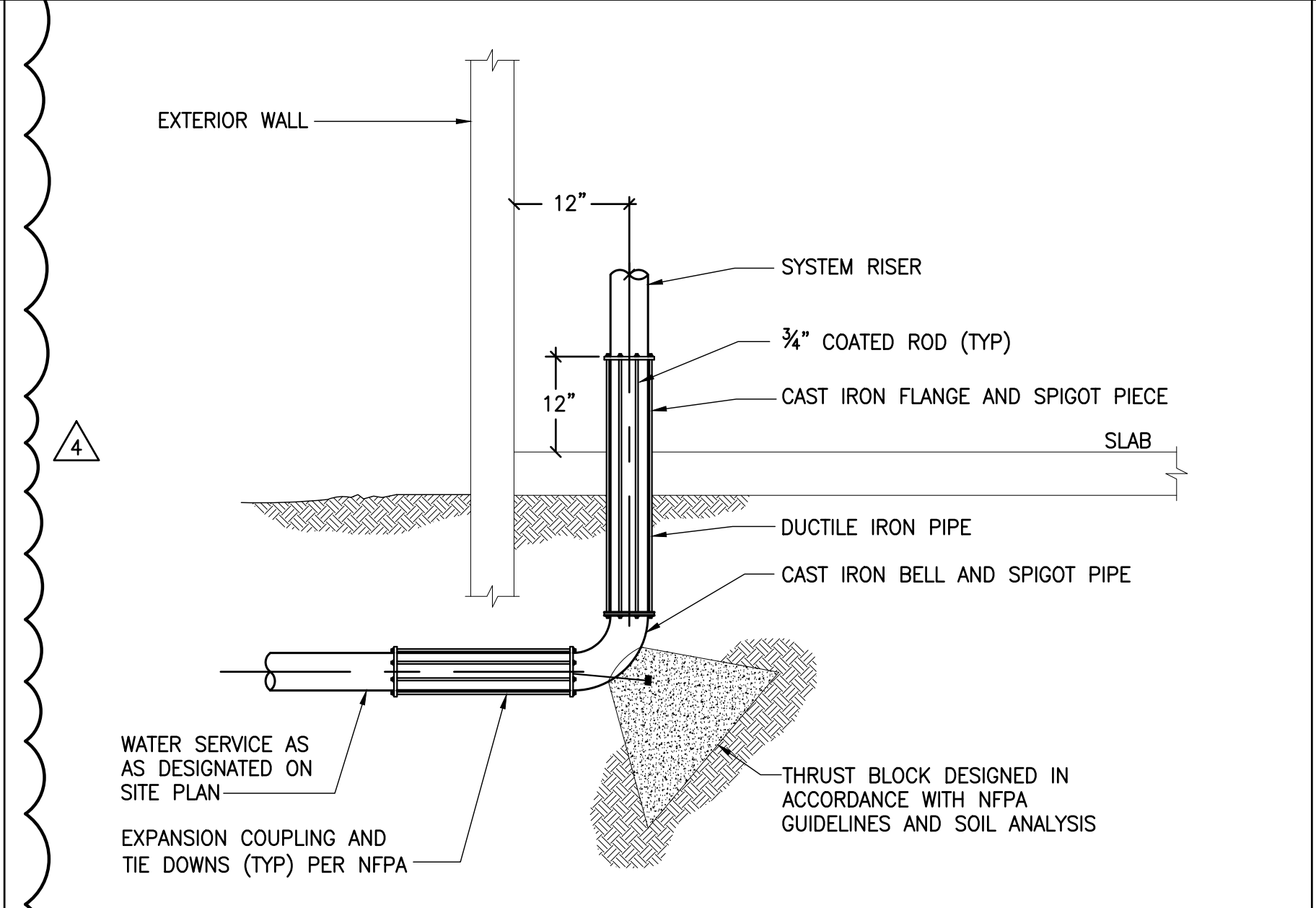
12 CONDENSATE PUMP-A DETAIL NOT TO SCALE



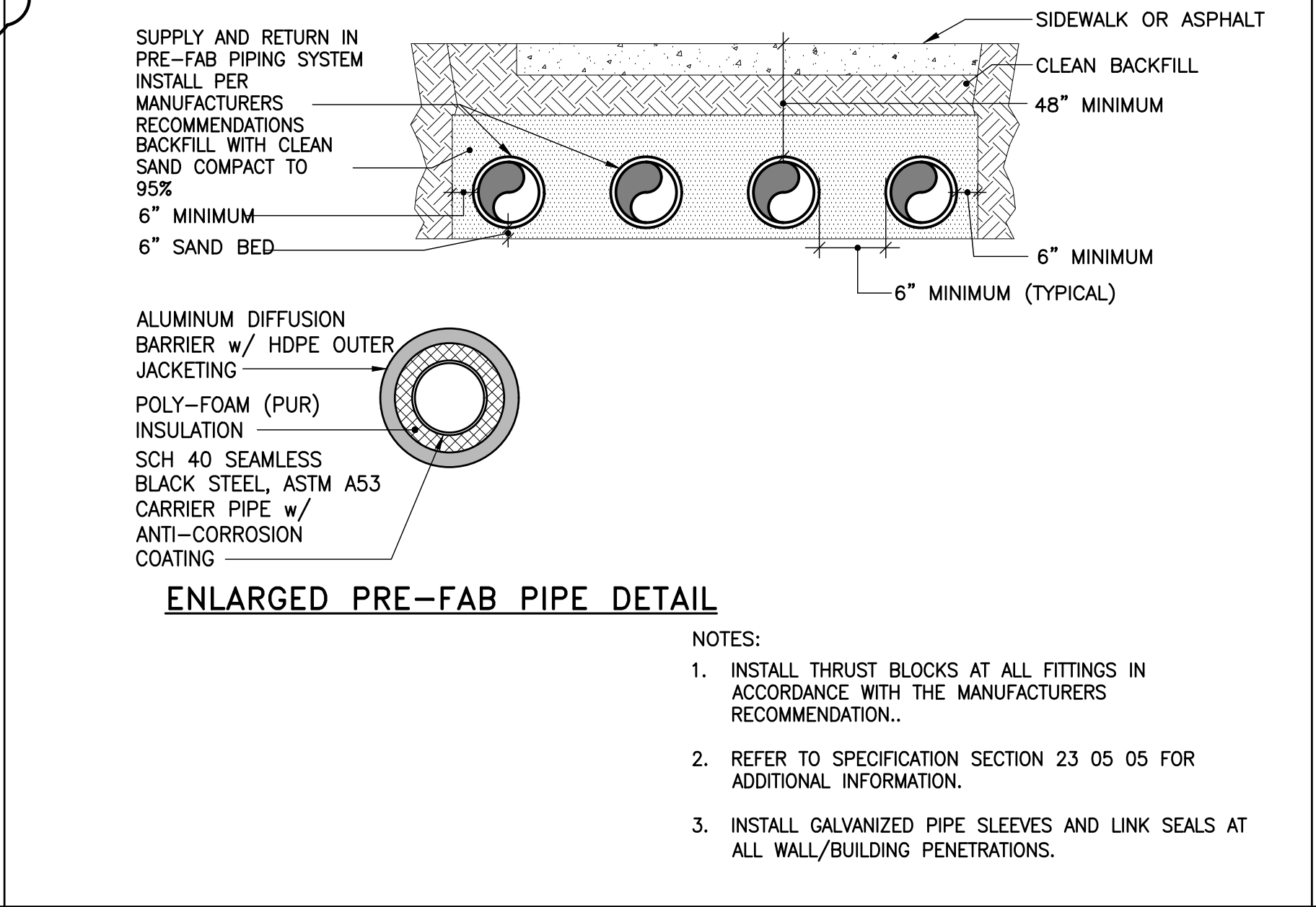
3 TYPICAL PIPE SLEEVE THRU EXTERIOR WALL ABOVE GRADE DETAIL SCALE: AS NOTED



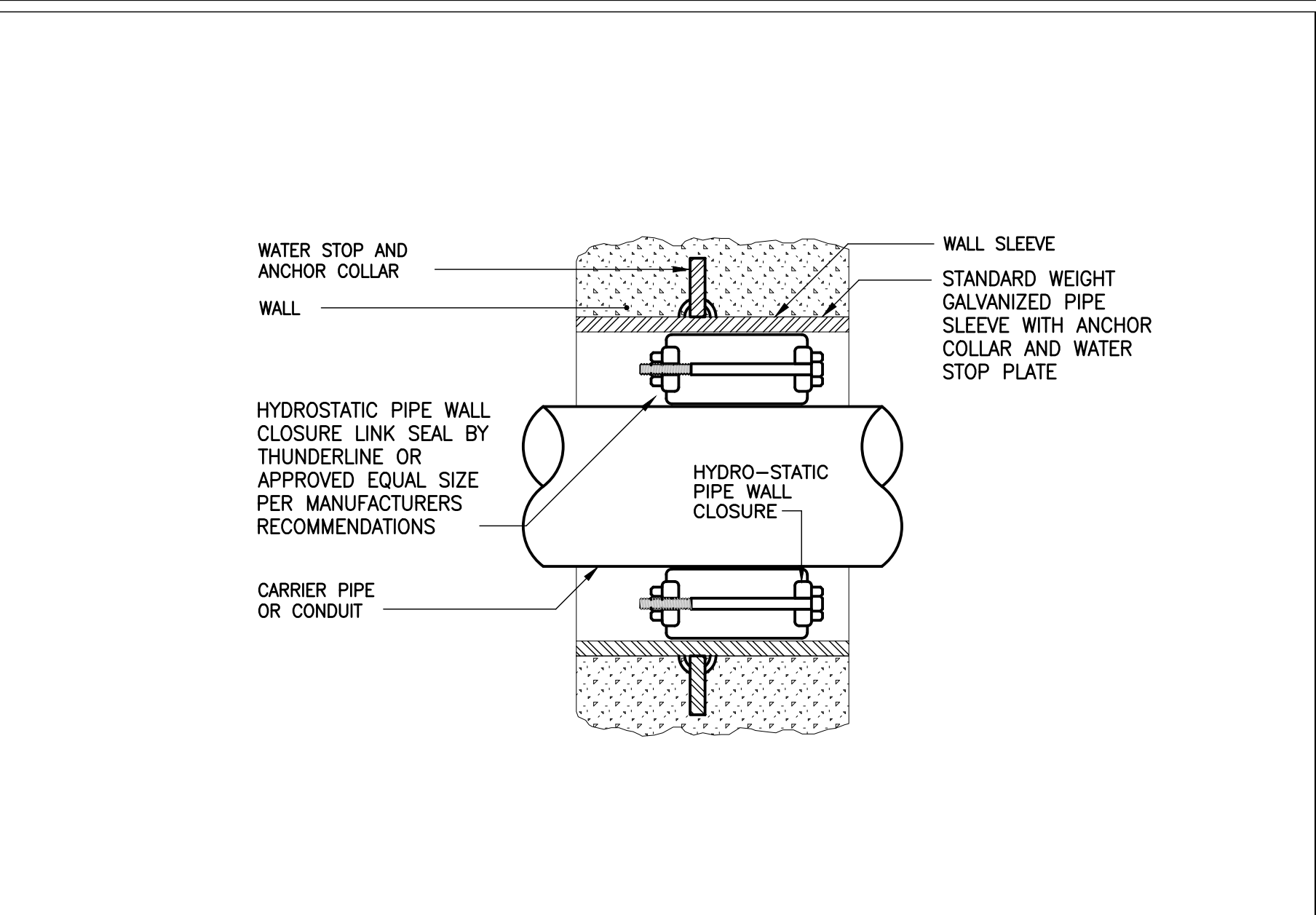
7 TYPICAL BOILER VENT DETAIL SCALE: AS NOTED



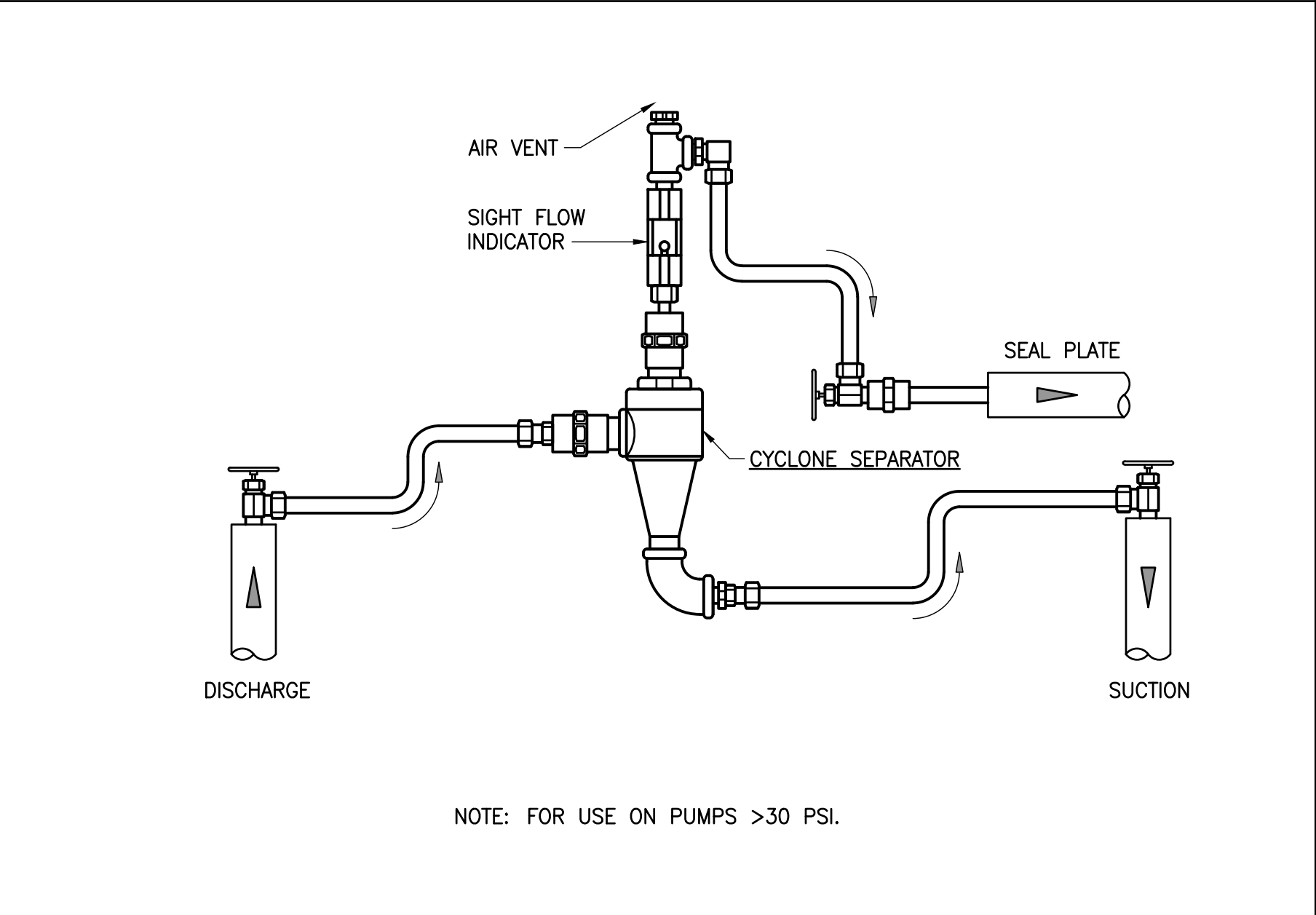
11 THRUST BLOCK DETAIL SCALE: AS NOTED



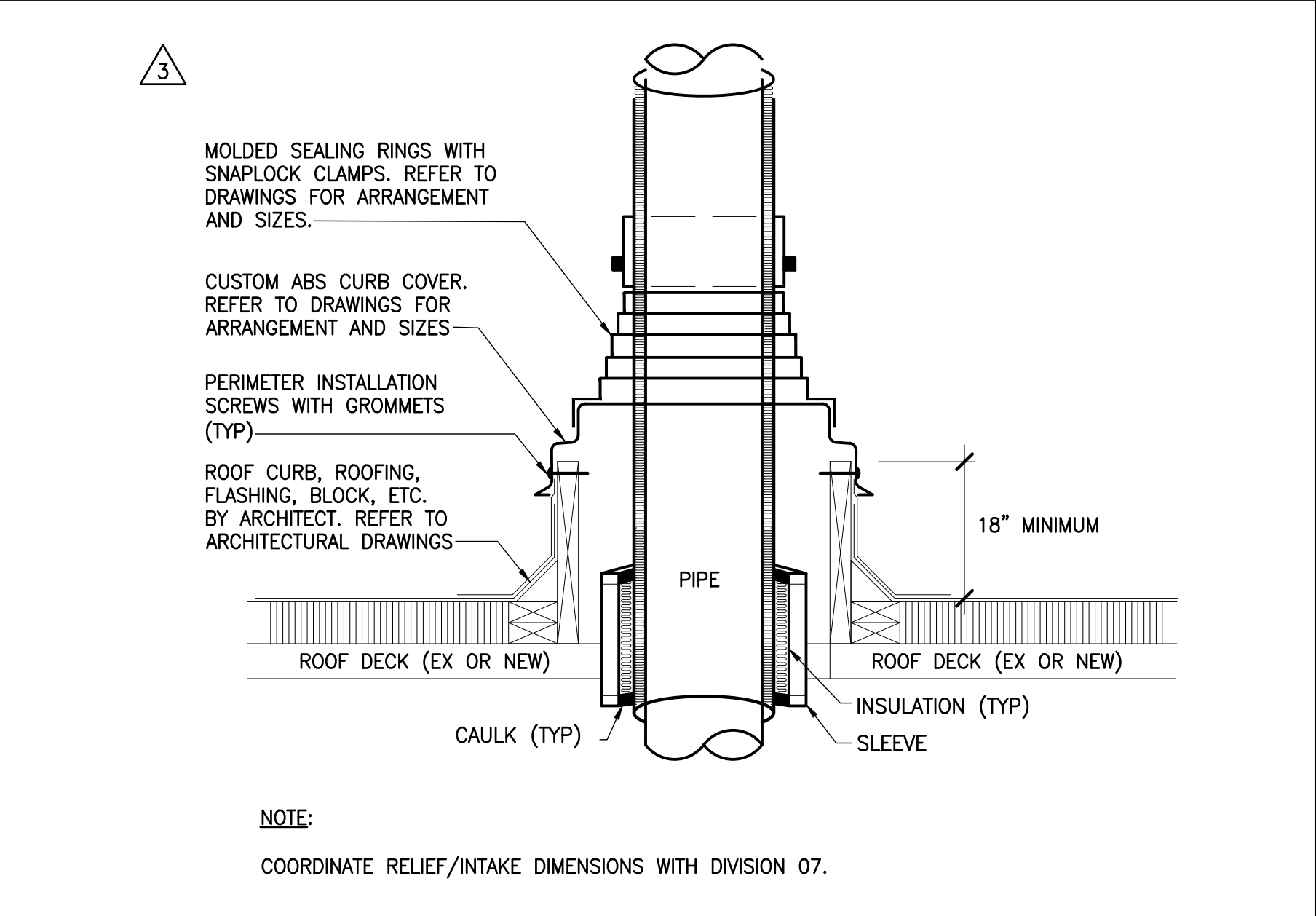
14 UNDERGROUND GLYCOL WATER SUPPLY & RETURN PIPING SCALE: AS NOTED



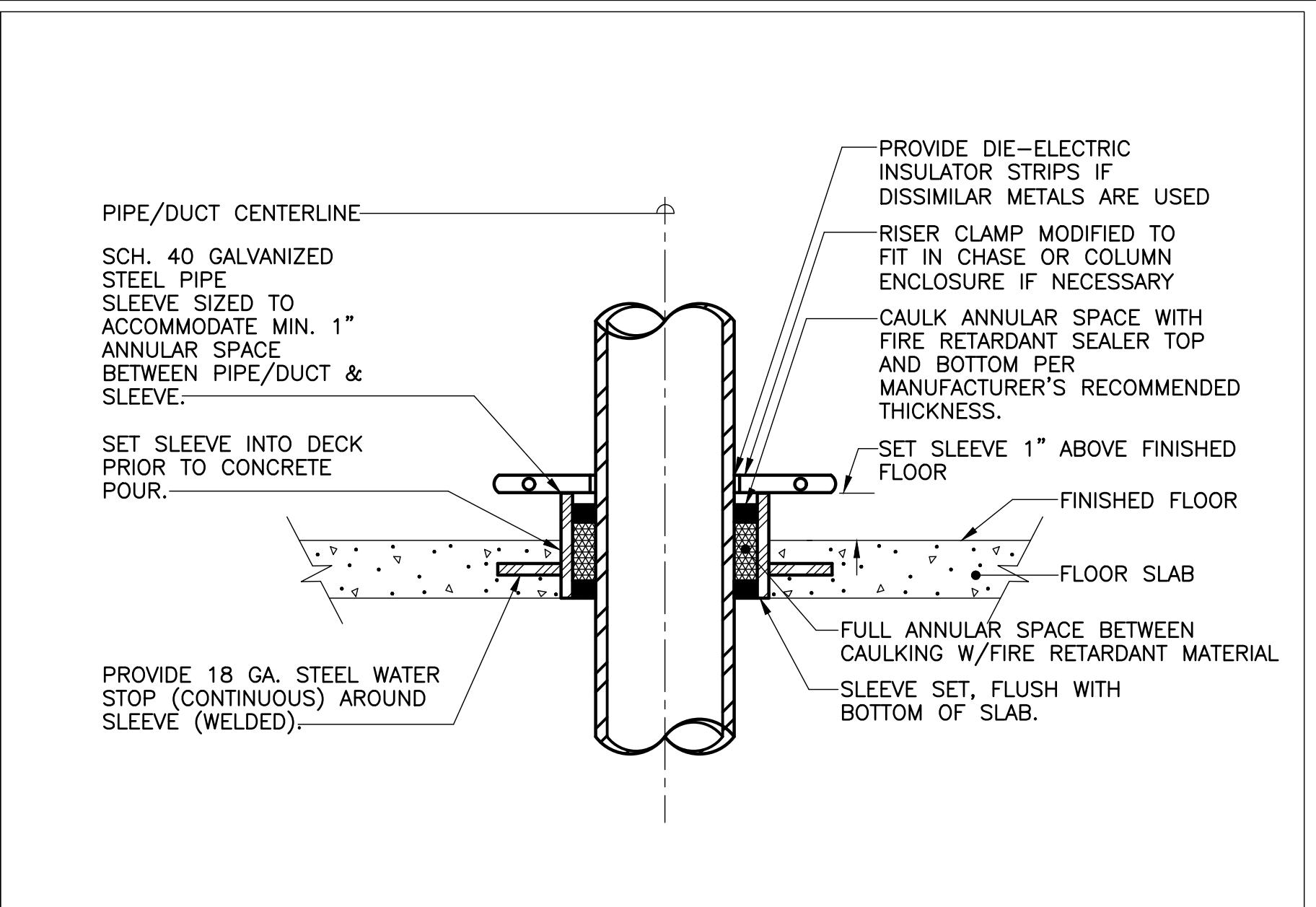
2 TYPICAL PIPE THRU EXTERIOR WALL PENETRATION SEAL BELOW GRADE DETAIL SCALE: AS NOTED



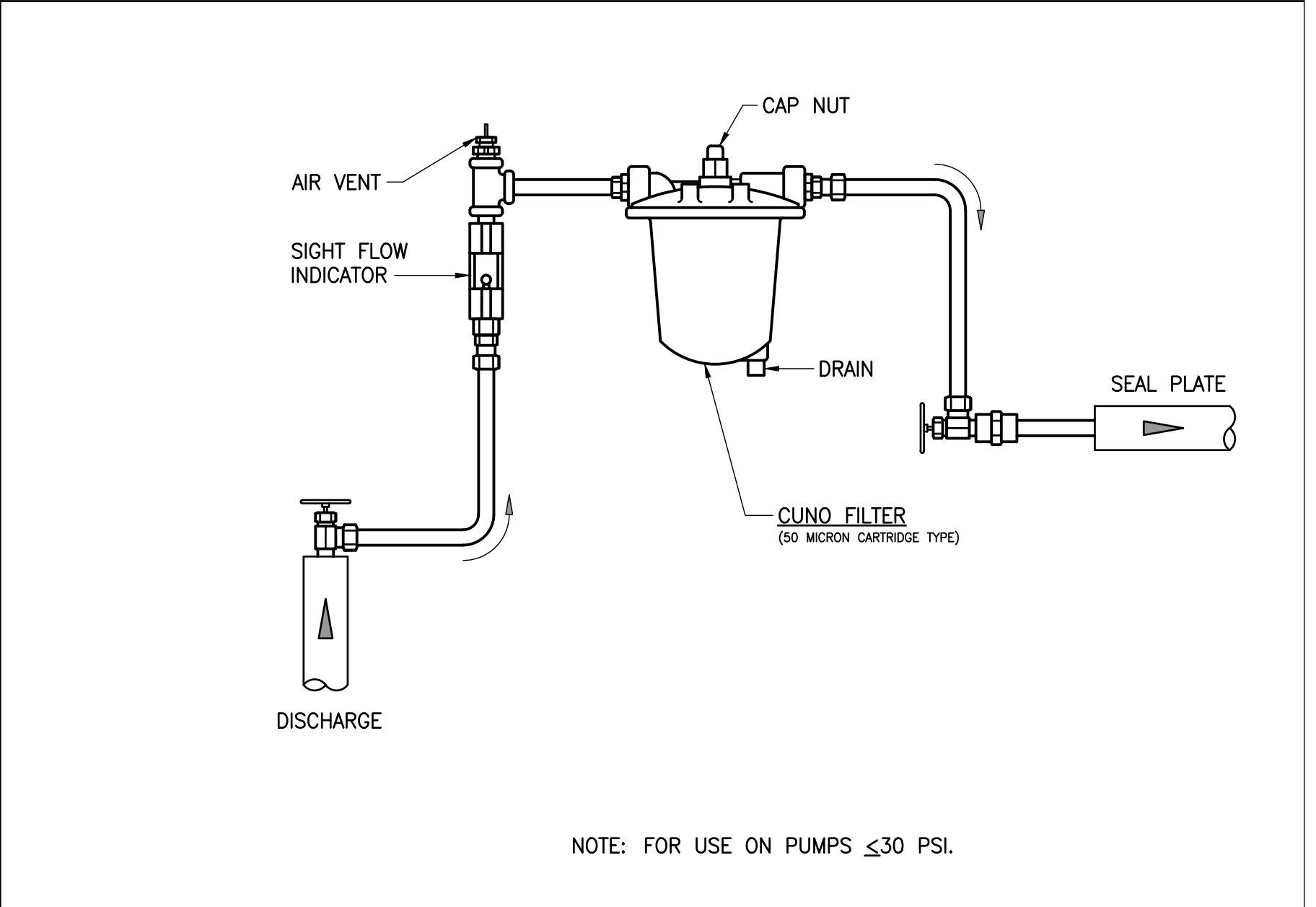
6 CYCLONE SEPARATOR w/ SIGHT FLOW INDICATOR DETAIL SCALE: AS NOTED



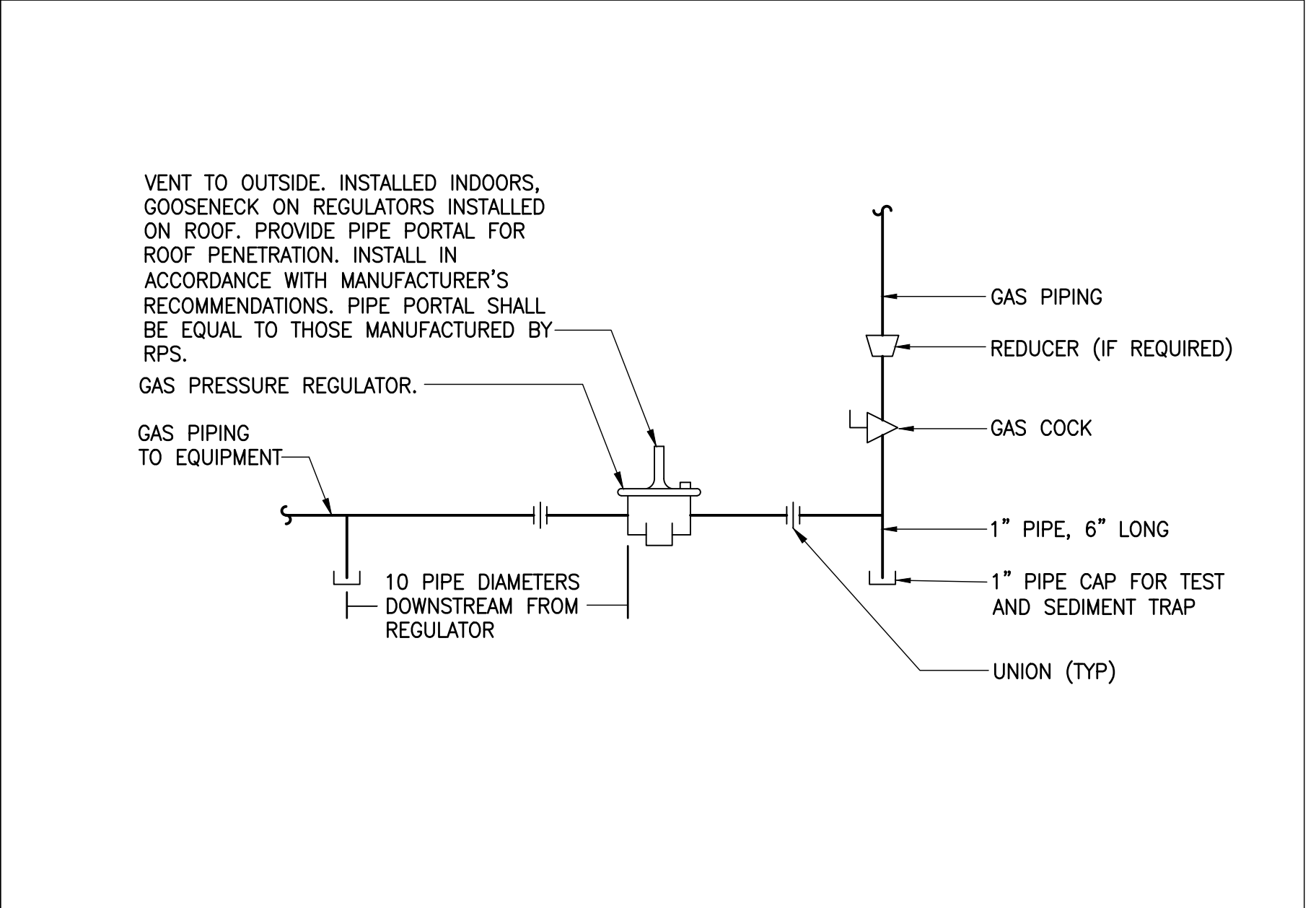
10 PIPE PORTAL DETAIL SCALE: AS NOTED



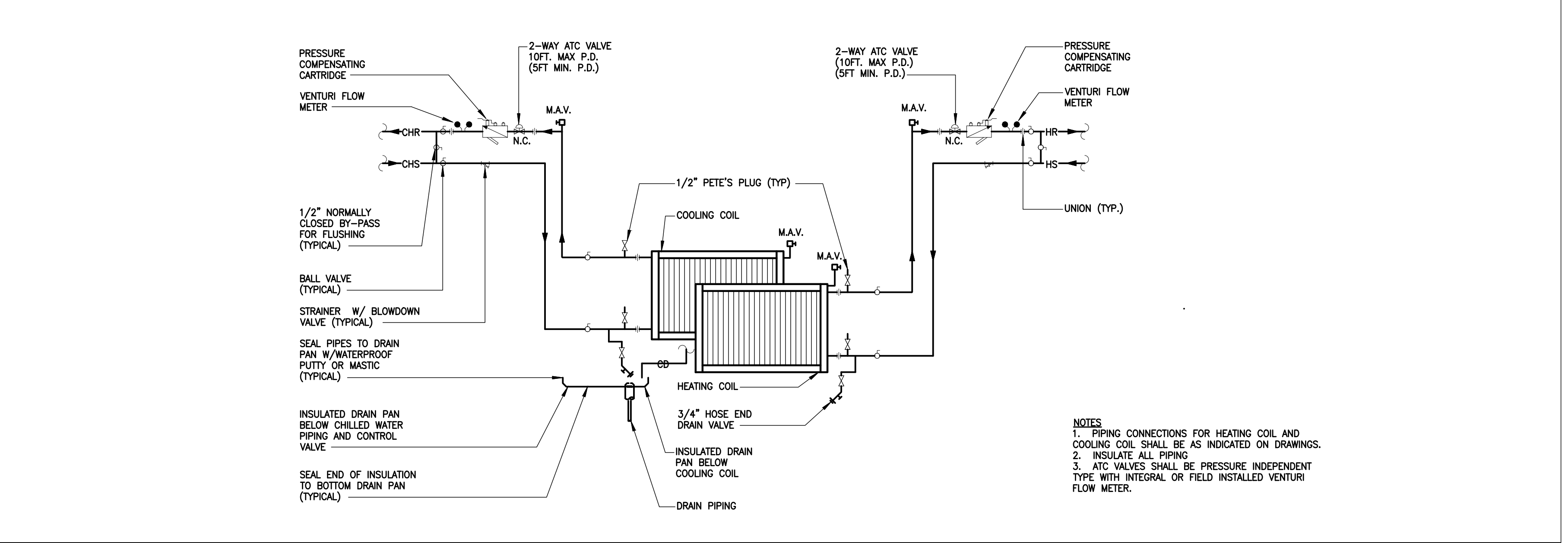
1 TYPICAL SLEEVE THRU FLOOR DETAIL SCALE: AS NOTED



5 CUNO FILTER w/ SIGHT FLOW INDICATOR DETAIL SCALE: AS NOTED



9 TYPICAL GAS PRESSURE REGULATOR DETAIL SCALE: AS NOTED



13 TYPICAL FOUR PIPE FAN COIL UNIT w/ 2-WAY CONTROL VALVE DETAIL SCALE: AS NOTED

15 NOT USED

REVISIONS			
NO.	DATE	DESCRIPTION	
1	3/7/24	ADDENDUM NO. 1	
2	3/14/24	ADDENDUM NO. 2	
3	3/20/24	ADDENDUM NO. 3	
4	3/27/24	ADDENDUM NO. 4	

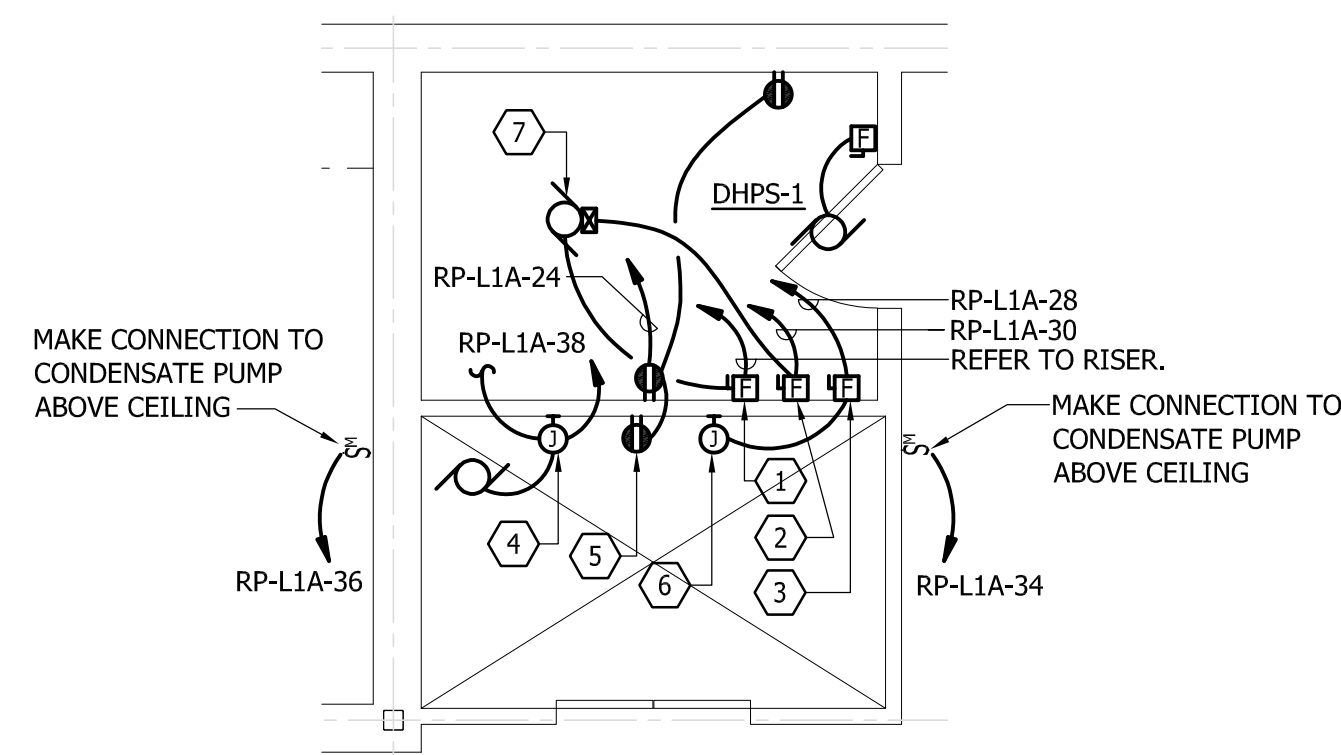
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WO# 23043
PROJECT MANAGER SED
DESIGNER EEE
DATE 2/26/2024

HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATIONS
111 MT ROYAL AVE, ABERDEEN, MARYLAND 21001

BID SUBMISSION
M705
PSC-12.006



ELEVATOR NOTES:

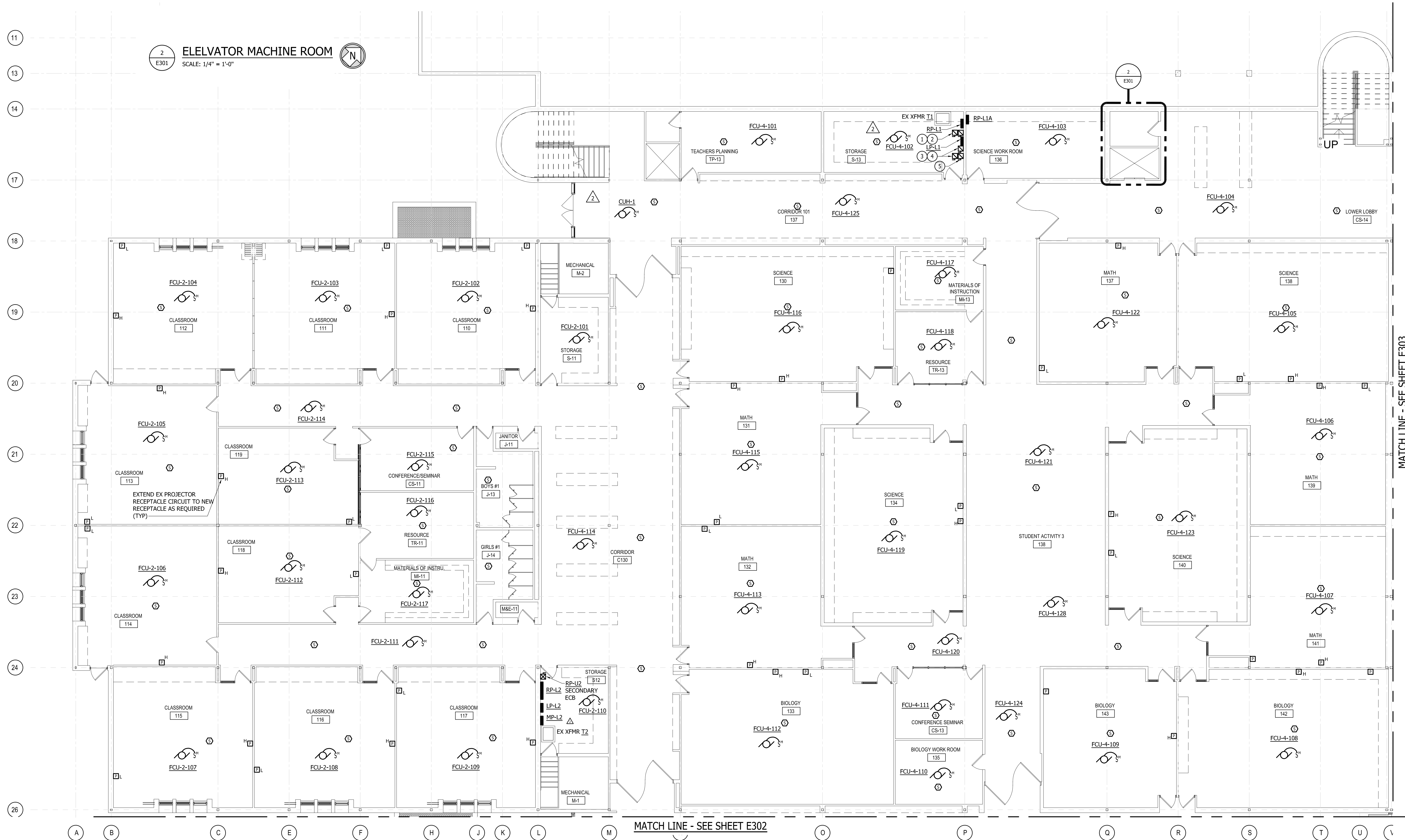
- 3P, 100A SHUNT TRIP FUSED DISCONNECT SAFETY SWITCH WITH (1) N.O. AND (1) N.C. AUXILIARY CONTACTS FUSED PER MANUFACTURERS NAMEPLATE DATA FOR ELEVATOR MOTOR. SWITCH SHALL BE EQUIPPED WITH LATCHING MECHANISM CAPABLE OF BEING LOCKED IN THE OPEN POSITION.
- 2P, 30A FUSED SAFETY SWITCH FUSED AT 20A FOR ELEVATOR CONTROLS.
- 2P, 30A FUSED SAFETY SWITCH FOR ELEVATOR CAB LIGHTS AND FAN.
- MAKE ALL NECESSARY CONNECTIONS TO ELEVATOR SUMP PUMP AND CONTROLLER-120V, 1Ø, 1/2HP.
- MOUNT RECEPTACLE 2'-0" ABOVE ELEVATOR PIT FLOOR. REFER TO ARCHITECTURAL SECTIONS FOR ADDITIONAL INFORMATION. MOUNT ADJACENT TO LADDER.
- JUNCTION BOX AT MIDPOINT OF ELEVATOR SHAFT FOR CAB LIGHTS AND FAN.
- CONFIRM EXACT ELEVATOR HORSEPOWER REQUIREMENTS WITH MANUFACTURERS APPROVED SHOP DRAWINGS AND PROVIDE BRANCH CIRCUIT REQUIREMENTS TO MATCH HORSEPOWER REQUIREMENTS.

GENERAL NOTES:

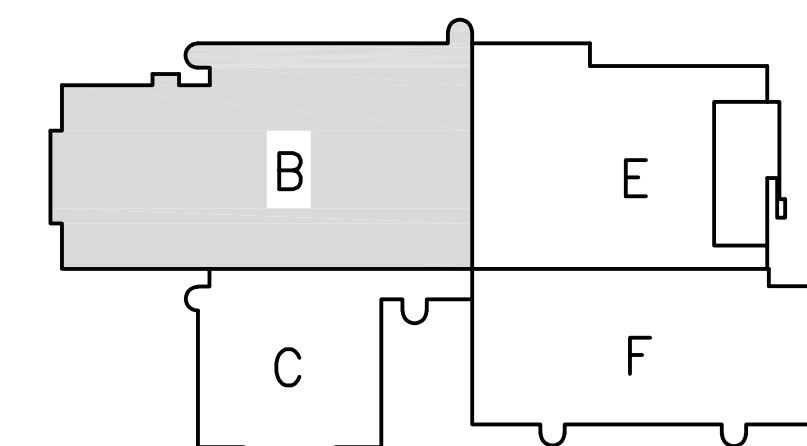
- REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE, DWGS. E608 THROUGH E610, FOR ADDITIONAL INFORMATION.
- REINSTALL CEILING MOUNTED DEVICES - REFER TO DEMOLITION DRAWINGS.
- FIELD COORDINATE EXACT LOCATION OF PROJECTOR LOW DROPS WITH HCPS.

DRAWING NOTES:

- RP-L1A ECB
- RP-U1 ECB
- T1 PRIMARY ECB
- LP-U1 PRIMARY ECB
- ELEVATOR ECB



1
E301
LOWER LEVEL AREA B - POWER
SCALE: 1/8" = 1'-0"



REVISIONS		DESCRIPTION			
NO.	DATE	DESCRIPTION	ADDENDUM NO.	ADDENDUM NO.	ADDENDUM NO.
1	3/7/24		1	2	
2	3/14/24		2	3	
3	3/20/24		3	4	
4	3/27/24		4		

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WO# 23043
PROJECT MANAGER EMP
DESIGNER EMP
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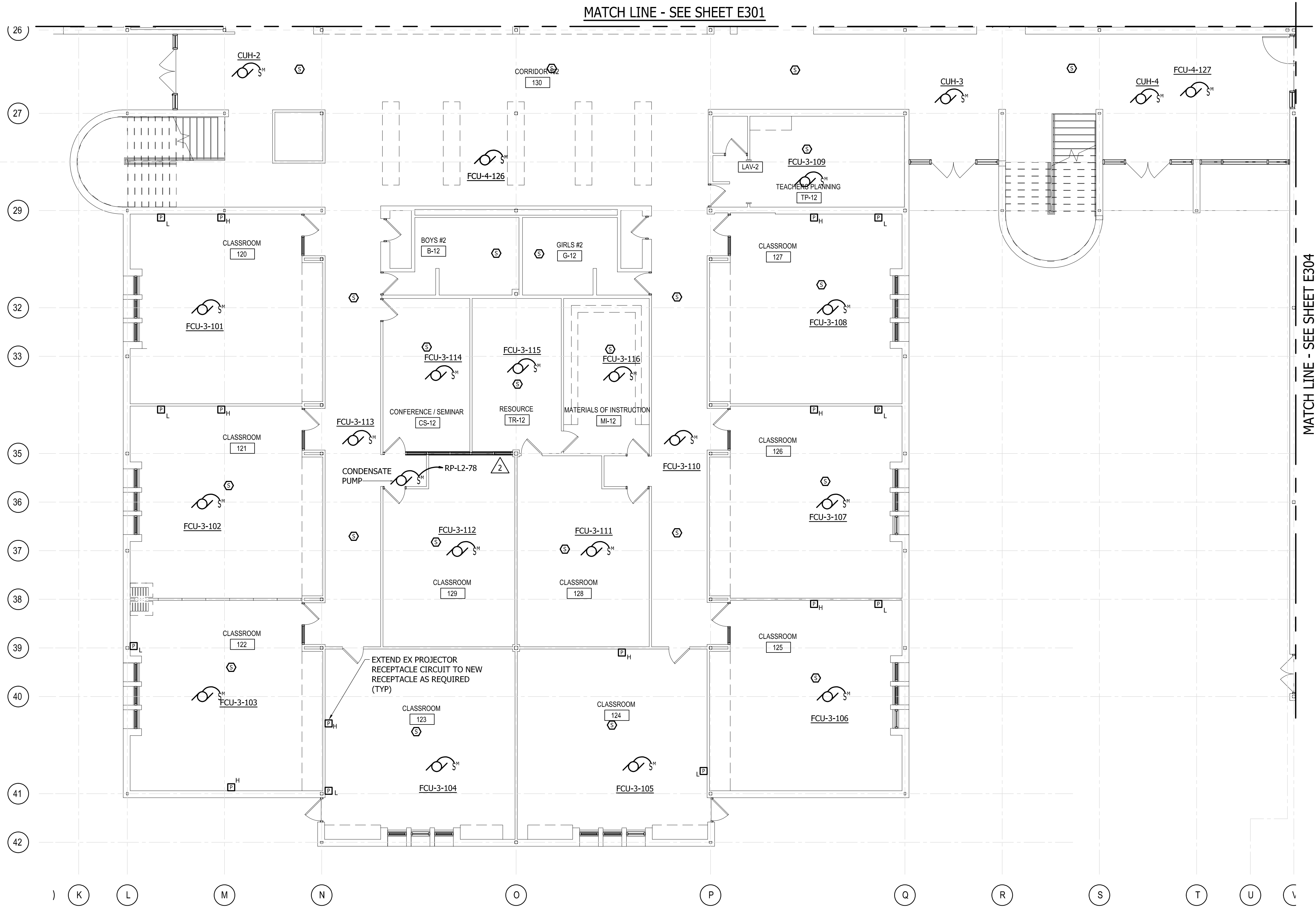
LOWER LEVEL AREA B - POWER
HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL
HVAC SYSTEM RENOVATIONS
111 MT. ROYAL AVE. ABERDEEN, MARYLAND 21001.

BID SUBMISSION

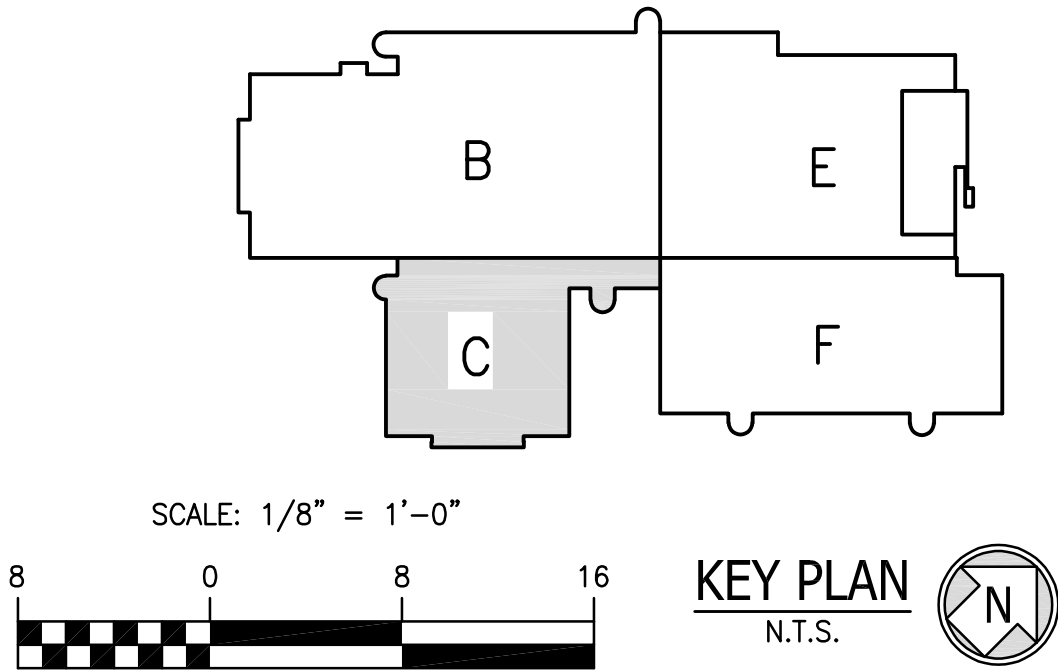
E301
PSC-12.006

GENERAL NOTES:

- REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE, DWGS. E608 THROUGH E610, FOR ADDITIONAL INFORMATION.
- REINSTALL CEILING MOUNTED DEVICES - REFER TO DEMOLITION DRAWINGS.
- FIELD COORDINATE EXACT LOCATION OF PROJECTOR LOW DROPS WITH HCPS.



1
E302 LOWER LEVEL AREA C - POWER
SCALE: 1/8" = 1'-0"



REVISIONS

NO.	DATE	DESCRIPTION
1	3/7/24	ADDENDUM NO. 1
2	3/14/24	ADDENDUM NO. 2
3	3/20/24	ADDENDUM NO. 3
4	3/27/24	ADDENDUM NO. 4

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WO# 23043

PROJECT MANAGER EMP

DESIGNER EMP

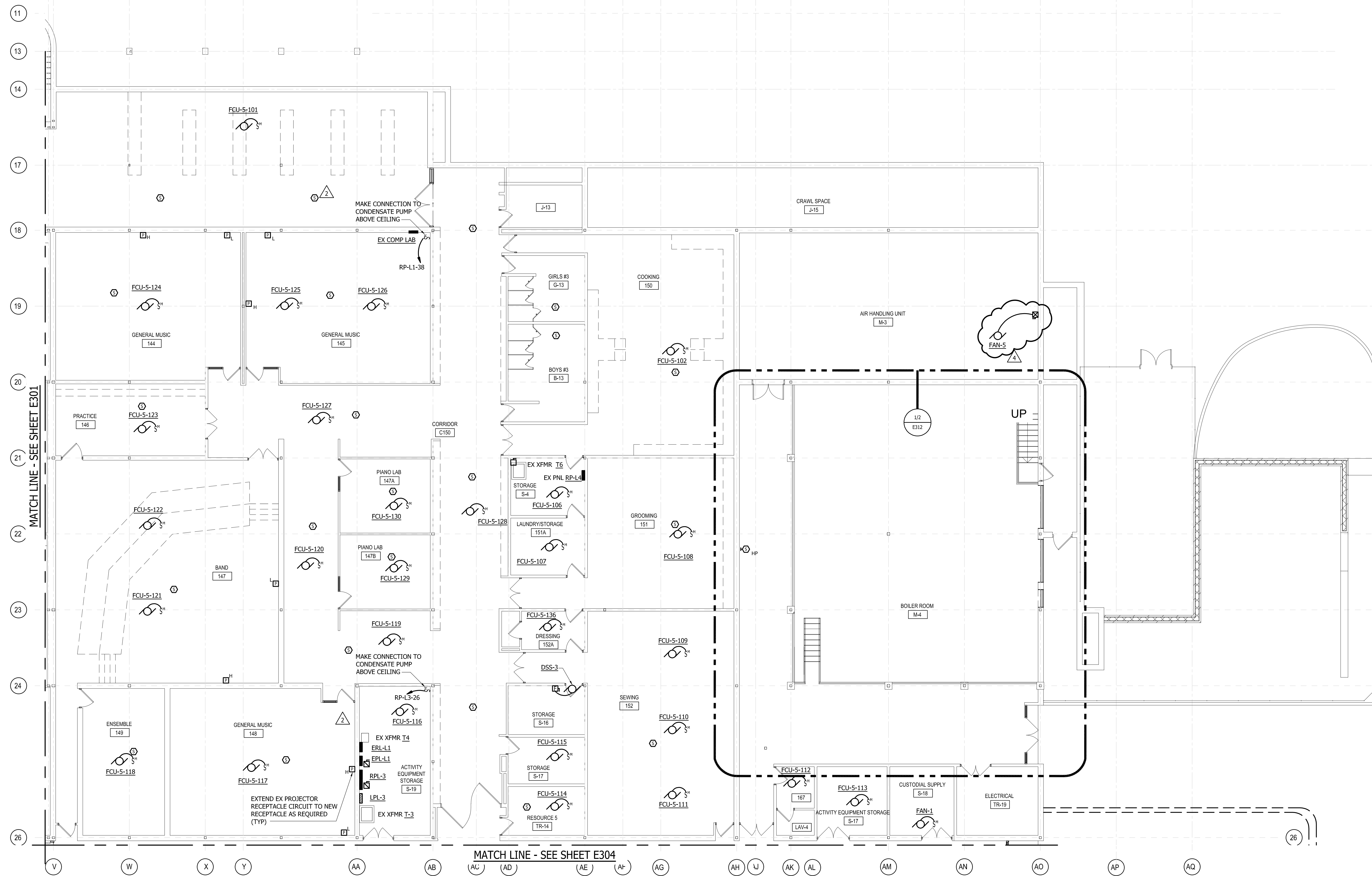
DATE 2/26/2024

LOWER LEVEL AREA C - POWER
HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATIONS
111 MT. ROYAL AVE, ABERDEEN, MARYLAND 21001.

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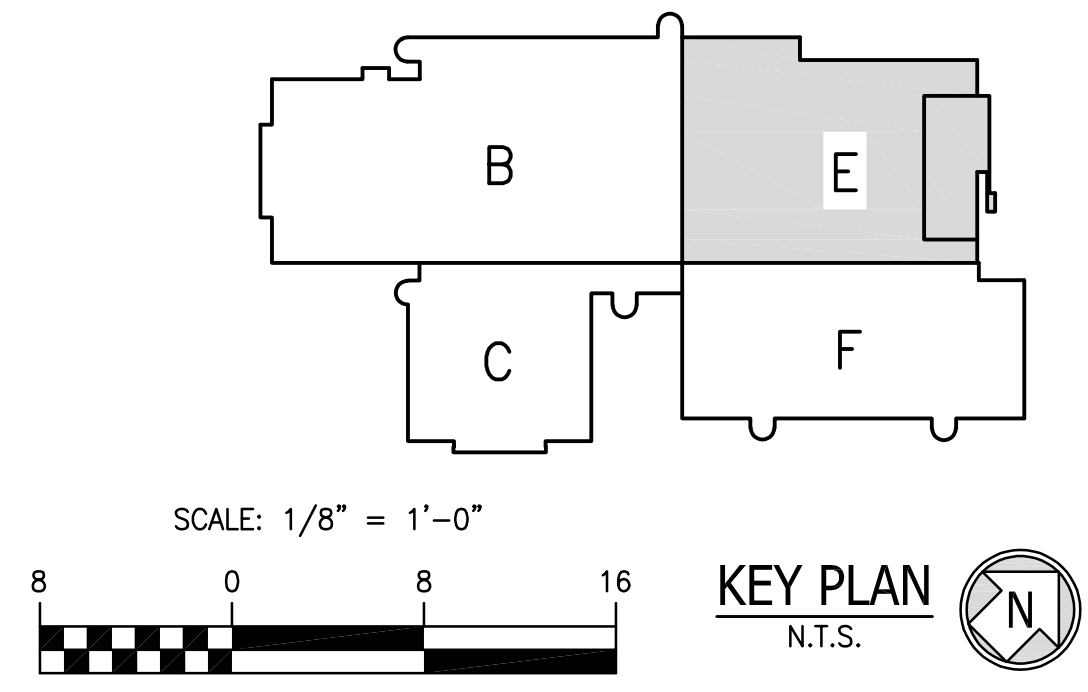
E302

PSC-12.006



- GENERAL NOTES:**
1. REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE, DWGS. E608 THROUGH E610, FOR ADDITIONAL INFORMATION.
 2. REINSTALL CEILING MOUNTED DEVICES - REFER TO DEMOLITION DRAWINGS.
 3. FIELD COORDINATE EXACT LOCATION OF PROJECTOR LOW DROPS WITH HCPS.

1
E303 LOWER LEVEL AREA E - POWER
SCALE: 1/8" = 1'-0"



REVISIONS		NO.	DATE	DESCRIPTION
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		2	3/14/24	ADDENDUM NO. 2
		3	3/20/24	ADDENDUM NO. 3
		4	3/27/24	ADDENDUM NO. 4

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DESIGNER EMP
DATE 2/26/2024

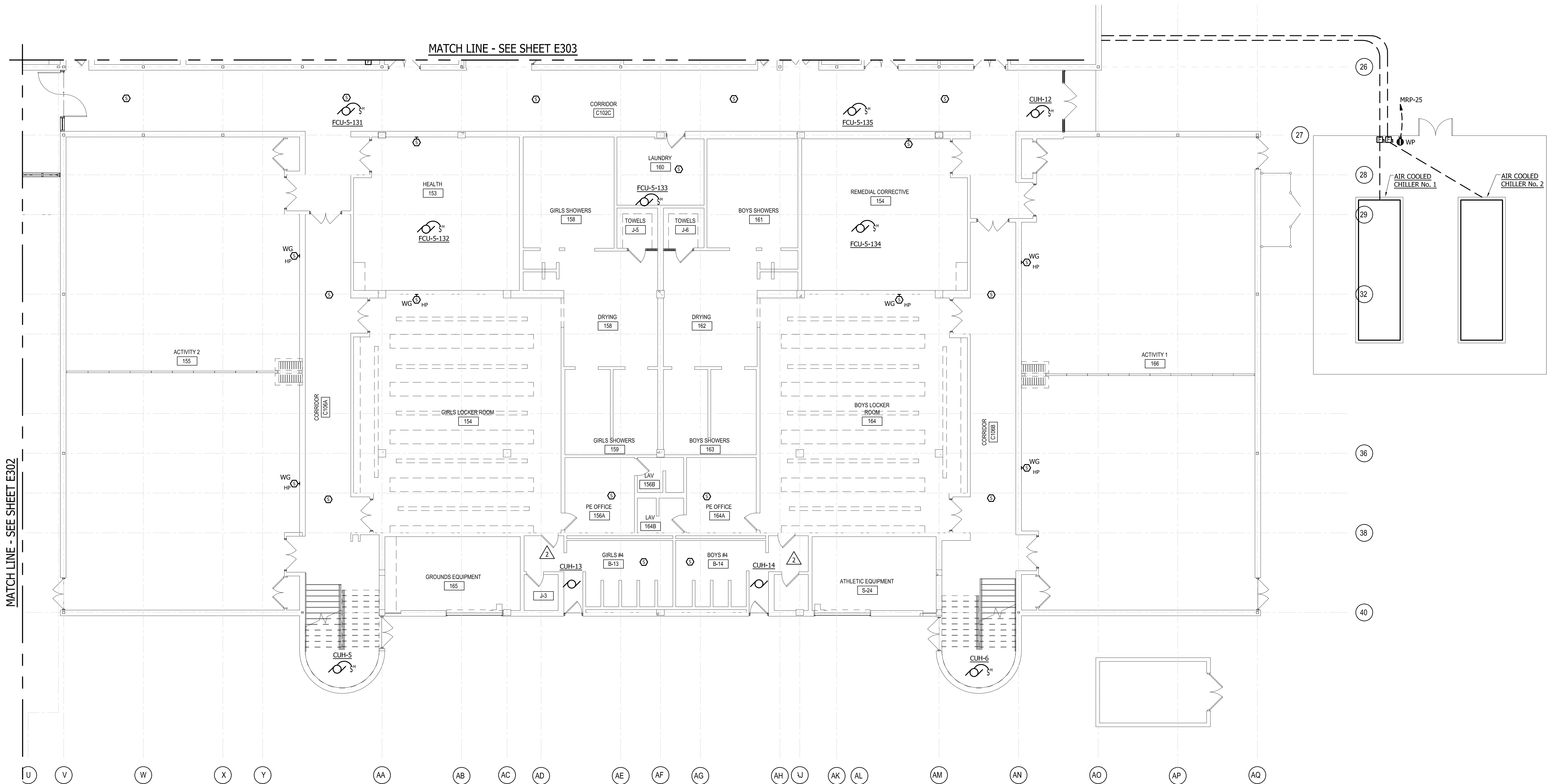
LOWER LEVEL AREA E - POWER
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111 MT. ROYAL AVE, ABERDEEN, MARYLAND 21001.

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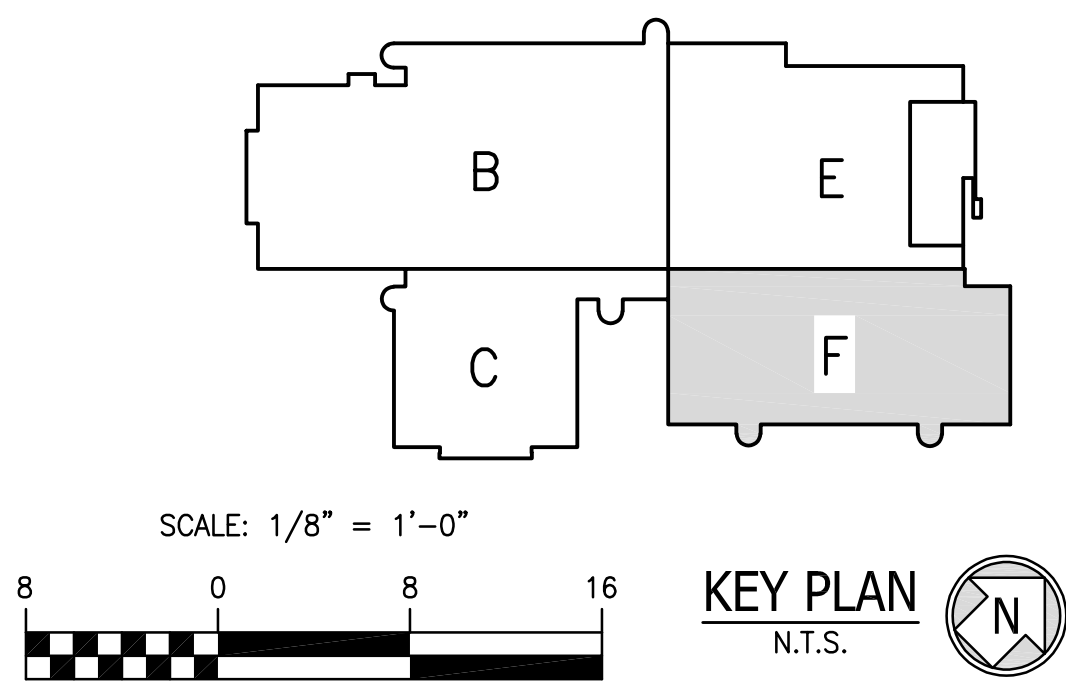
E303
PSC-12.006

GENERAL NOTES:

1. REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE, DWGS. E608 THROUGH E610, FOR ADDITIONAL INFORMATION.
2. REINSTALL CEILING MOUNTED DEVICES - REFER TO DEMOLITION DRAWINGS.
3. FIELD COORDINATE EXACT LOCATION OF PROJECTOR LOW DROPS WITH HCPS.



1
E304 LOWER LEVEL AREA F - POWER
SCALE: 1/8" = 1'-0"



REVISIONS		NO.	DATE	DESCRIPTION
1	A	1	3/7/24	ADDENDUM NO. 1
		2	3/14/24	ADDENDUM NO. 2
		3	3/20/24	ADDENDUM NO. 3
		4	3/27/24	ADDENDUM NO. 4

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Phone: 410.822.5306

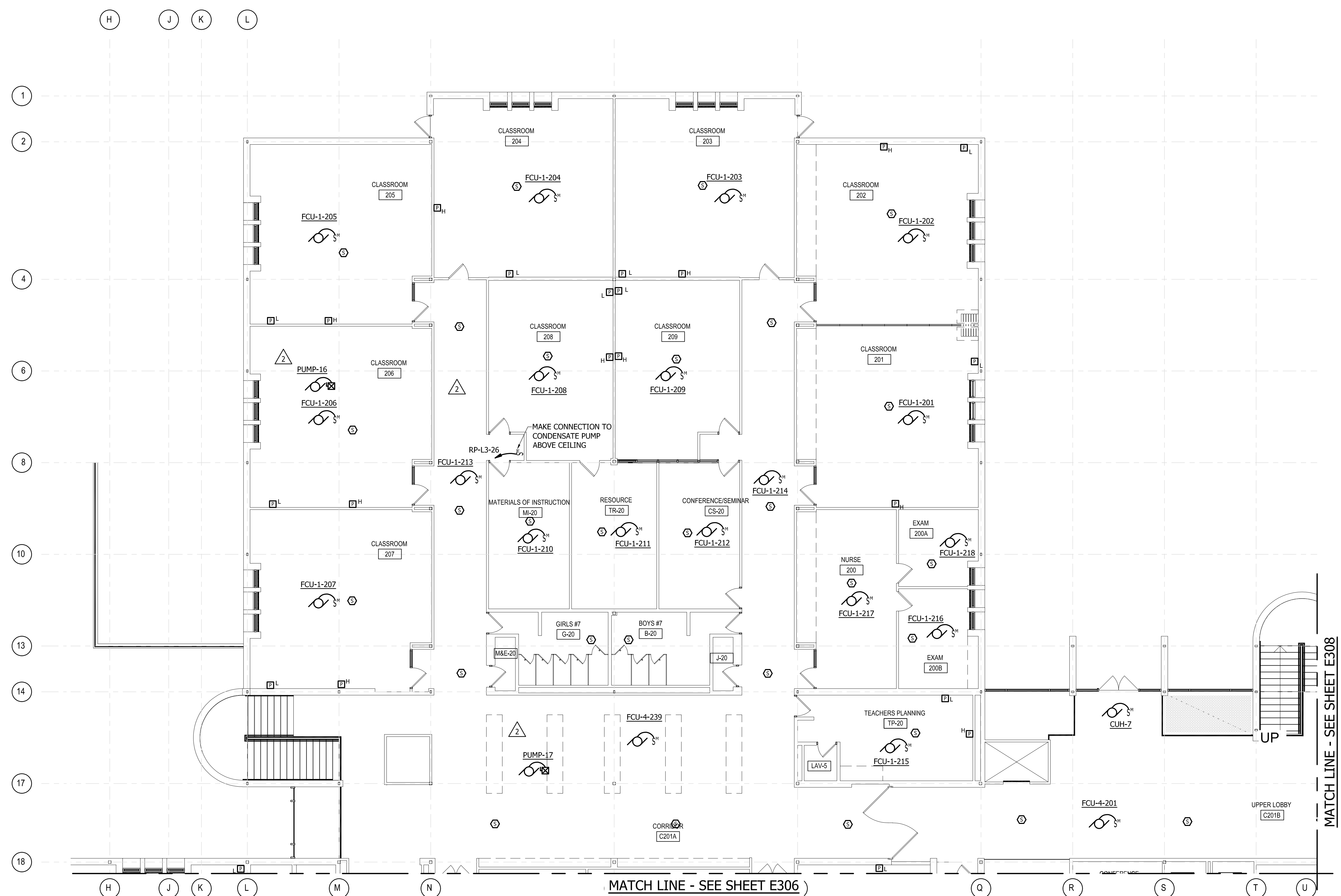
WO# 23043
PROJECT MANAGER EMP
DESIGNER EMP
DATE 2/26/2024

LOWER LEVEL AREA F - POWER
HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATIONS
111 MT. ROYAL AVE, ABERDEEN, MARYLAND 21001.

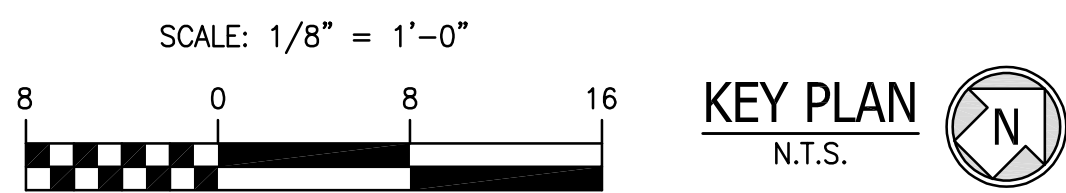
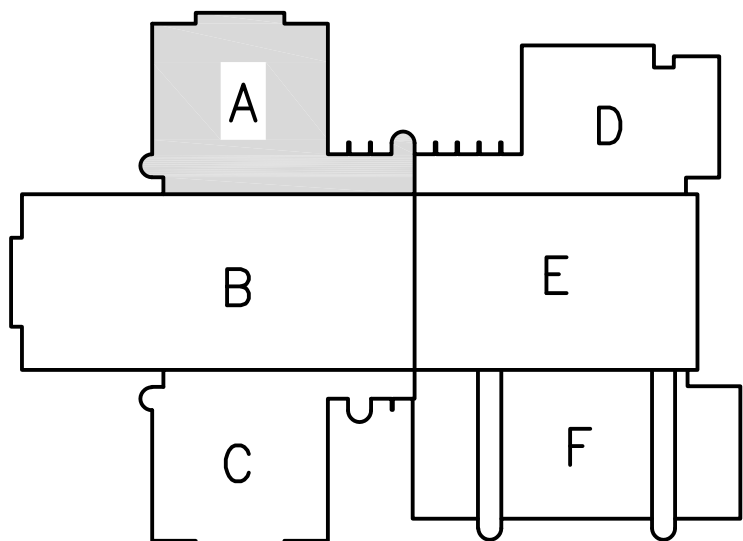
BID SUBMISSION

E304
PSC-12.006

- GENERAL NOTES:
1. REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE, DWGS. E608 THROUGH E610, FOR ADDITIONAL INFORMATION.
 2. REINSTALL CEILING MOUNTED DEVICES - REFER TO DEMOLITION DRAWINGS.
 3. FIELD COORDINATE EXACT LOCATION OF PROJECTOR LOW DROPS WITH HCPS.



1
E305
UPPER LEVEL AREA A - POWER
SCALE: 1/8" = 1'-0"



KEY PLAN
N.T.S.

REVISIONS		DESCRIPTION	
NO.	DATE	DESCRIPTION	
1	3/7/24	ADDENDUM NO. 1	
2	3/14/24	ADDENDUM NO. 2	
3	3/20/24	ADDENDUM NO. 3	
4	3/27/24	ADDENDUM NO. 4	

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WO# 23043
PROJECT MANAGER EMP
DESIGNER EMP
DATE 2/26/2024

UPPER LEVEL AREA A - POWER
HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATIONS
111 MT. ROYAL AVE, ABERDEEN, MARYLAND 21001.

BID SUBMISSION

E305
PSC-12.006

GENERAL NOTES:

- REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE, DWGS. E608 THROUGH E610, FOR ADDITIONAL INFORMATION.
- REINSTALL CEILING MOUNTED DEVICES - REFER TO DEMOLITION DRAWINGS.

2. DRAWING NOTES:

- INTERCEPT EX BRANCH CIRCUITS ABOVE CEILING, AND PROVIDE JB'S, SIZED PER NEC. EXTEND EXISTING BRANCH CIRCUITS TO NEW PANEL LOCATION AS REQUIRED.

NO.	DATE	DESCRIPTION	ADDENDUM NO.
1	3/7/24		1
2	3/14/24		2
3	3/20/24		3
4	3/27/24		4

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WO# 23043

PROJECT MANAGER EMP

DESIGNER EMP

DATE 2/26/2024

UPPER LEVEL AREA B - POWER
HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATIONS
111 MT. ROYAL AVE, ABERDEEN, MARYLAND 21001.

BID SUBMISSION

E306

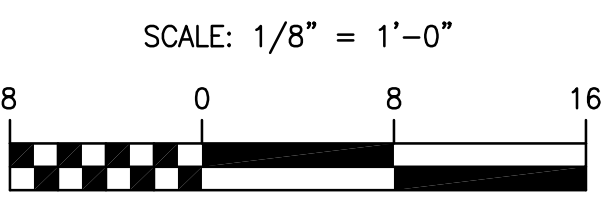
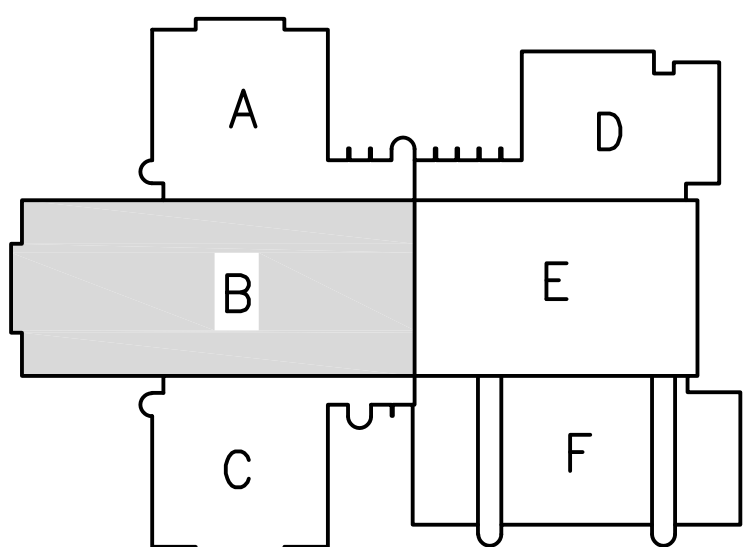
PSC-12.006

MATCH LINE - SEE SHEET E305

MATCH LINE - SEE SHEET E307

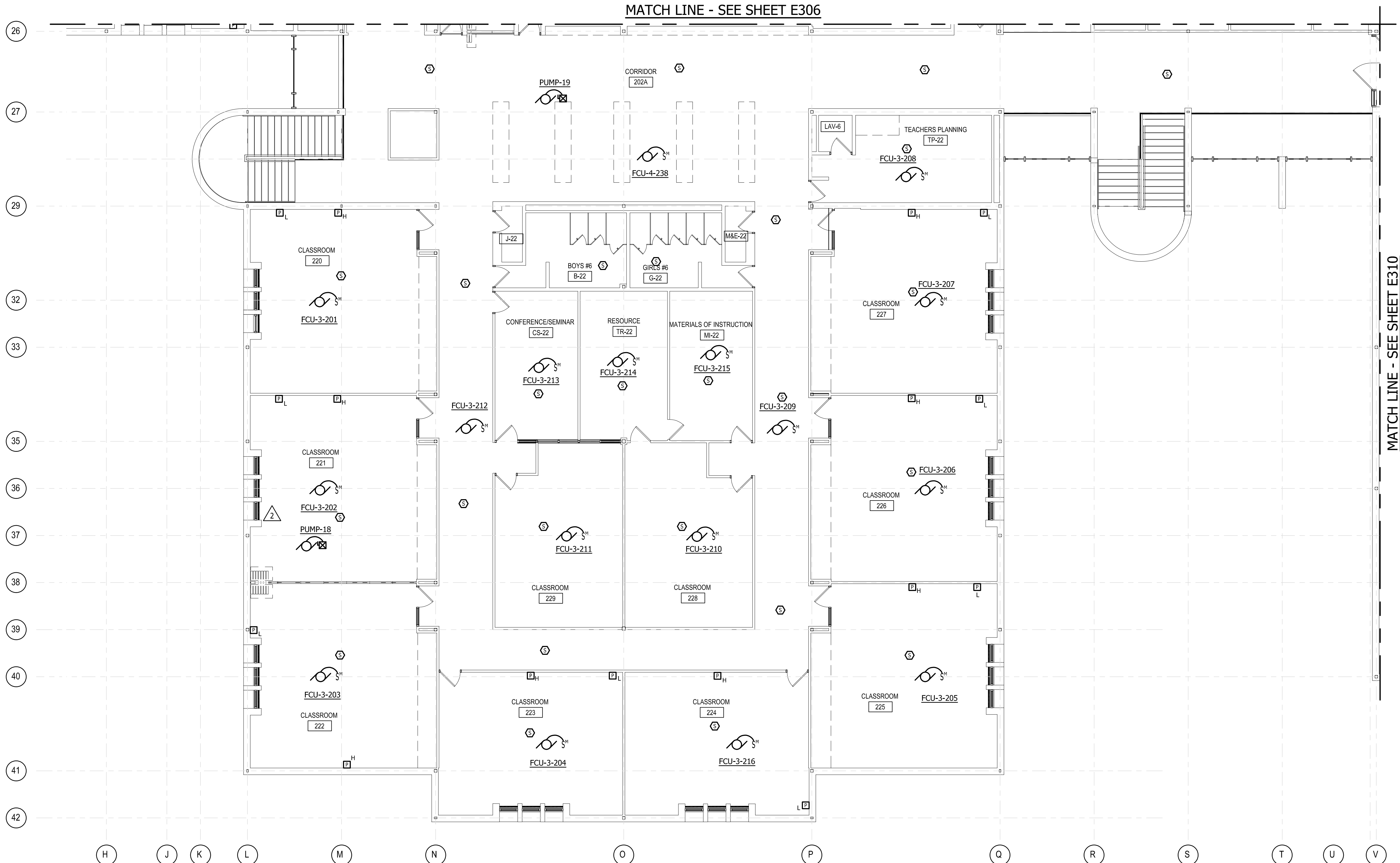
MATCH LINE - SEE SHEET E309

1 UPPER LEVEL AREA B - POWER
E306 SCALE: 1/8" = 1'-0"

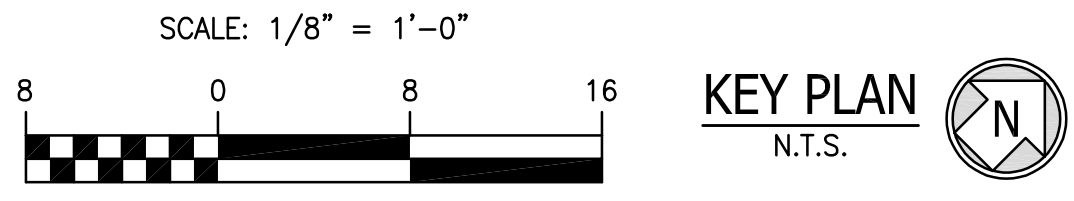
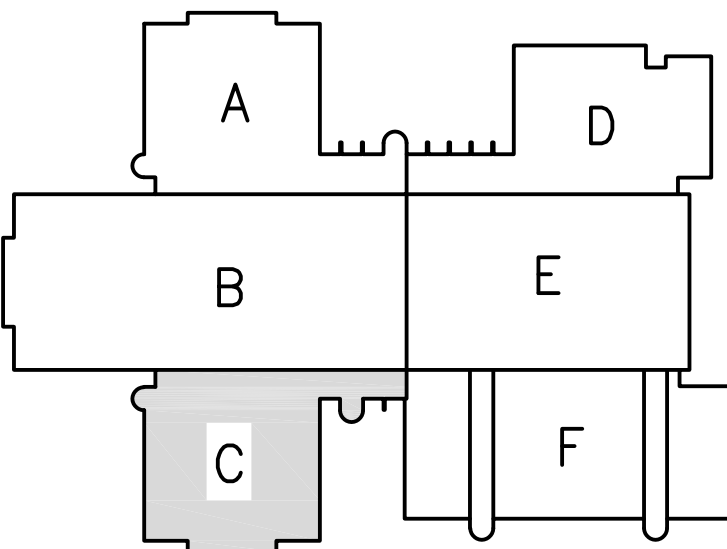


KEY PLAN
N.T.S.

- GENERAL NOTES:
1. REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE, DWGS. E608 THROUGH E610, FOR ADDITIONAL INFORMATION.
 2. REINSTALL CEILING MOUNTED DEVICES - REFER TO DEMOLITION DRAWINGS.
 3. FIELD COORDINATE EXACT LOCATION OF PROJECTOR LOW DROPS WITH HCPS.



1
E307
UPPER LEVEL AREA C - POWER
SCALE: 1/8" = 1'-0"



REVISIONS			
NO.	DATE	DESCRIPTION	
1	3/7/24	ADDENDUM NO. 1	
2	3/14/24	ADDENDUM NO. 2	
3	3/20/24	ADDENDUM NO. 3	
4	3/27/24	ADDENDUM NO. 4	

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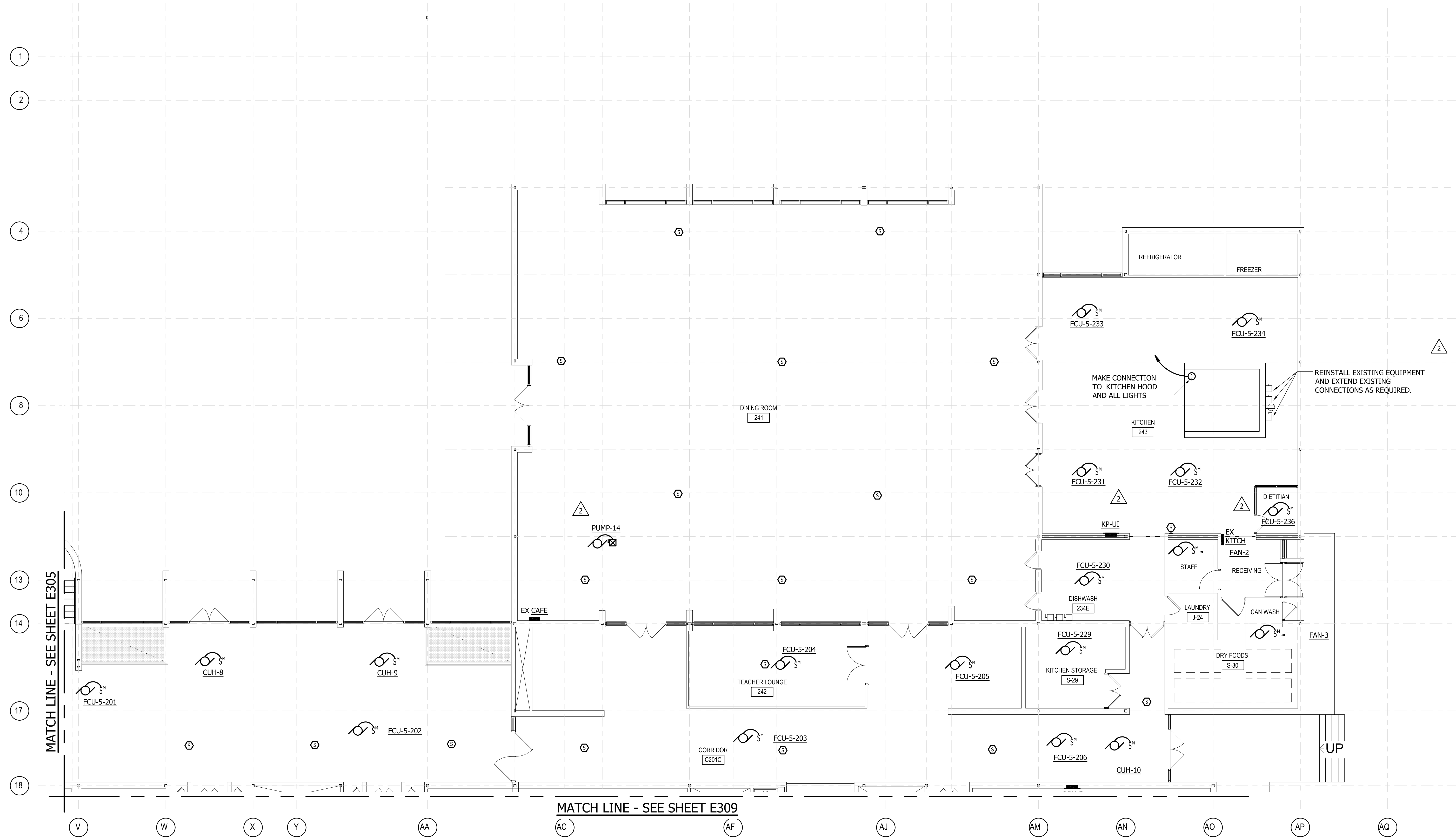
WO#	23043
PROJECT MANAGER	EMP
DESIGNER	EMP
DATE	2/26/2024

UPPER LEVEL AREA C - POWER
HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATIONS
111 MT. ROYAL AVE, ABERDEEN, MARYLAND 21001.

BID SUBMISSION

E307

PSC-12.006



1
E308 UPPER LEVEL AREA D - POWER
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE, DWGS. E608 THROUGH E610, FOR ADDITIONAL INFORMATION.
2. REINSTALL CEILING MOUNTED DEVICES - REFER TO DEMOLITION DRAWINGS.
3. FIELD COORDINATE EXACT LOCATION OF PROJECTOR LOW DROPS WITH HCPS.

REVISIONS			
NO.	DATE	DESCRIPTION	
1	3/7/24	ADDENDUM NO. 1	
2	3/14/24	ADDENDUM NO. 2	
3	3/20/24	ADDENDUM NO. 3	
4	3/27/24	ADDENDUM NO. 4	

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WO# 23043

PROJECT MANAGER EMP

DESIGNER EMP

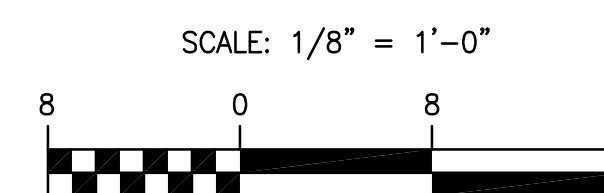
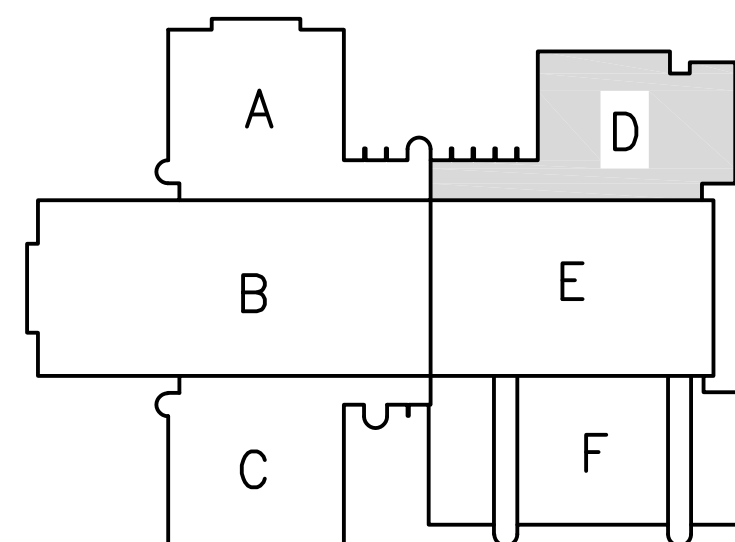
DATE 2/26/2024

UPPER LEVEL AREA D - POWER
HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATIONS
111 MT. ROYAL AVE, ABERDEEN, MARYLAND 21001.

BID SUBMISSION

E308

PSC-12.006



GENERAL NOTES:

1. REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE, DWGS. E608 THROUGH E610, FOR ADDITIONAL INFORMATION.
2. REINSTALL CEILING MOUNTED DEVICES - REFER TO DEMOLITION DRAWINGS.
3. FIELD COORDINATE EXACT LOCATION OF PROJECTOR LOW DROPS WITH HCPS.

REVISIONS

NO.	DATE	DESCRIPTION
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3	3/20/24	ADDENDUM NO. 3
4	3/27/24	ADDENDUM NO. 4

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WO# 23043

PROJECT MANAGER EMP

DESIGNER EMP

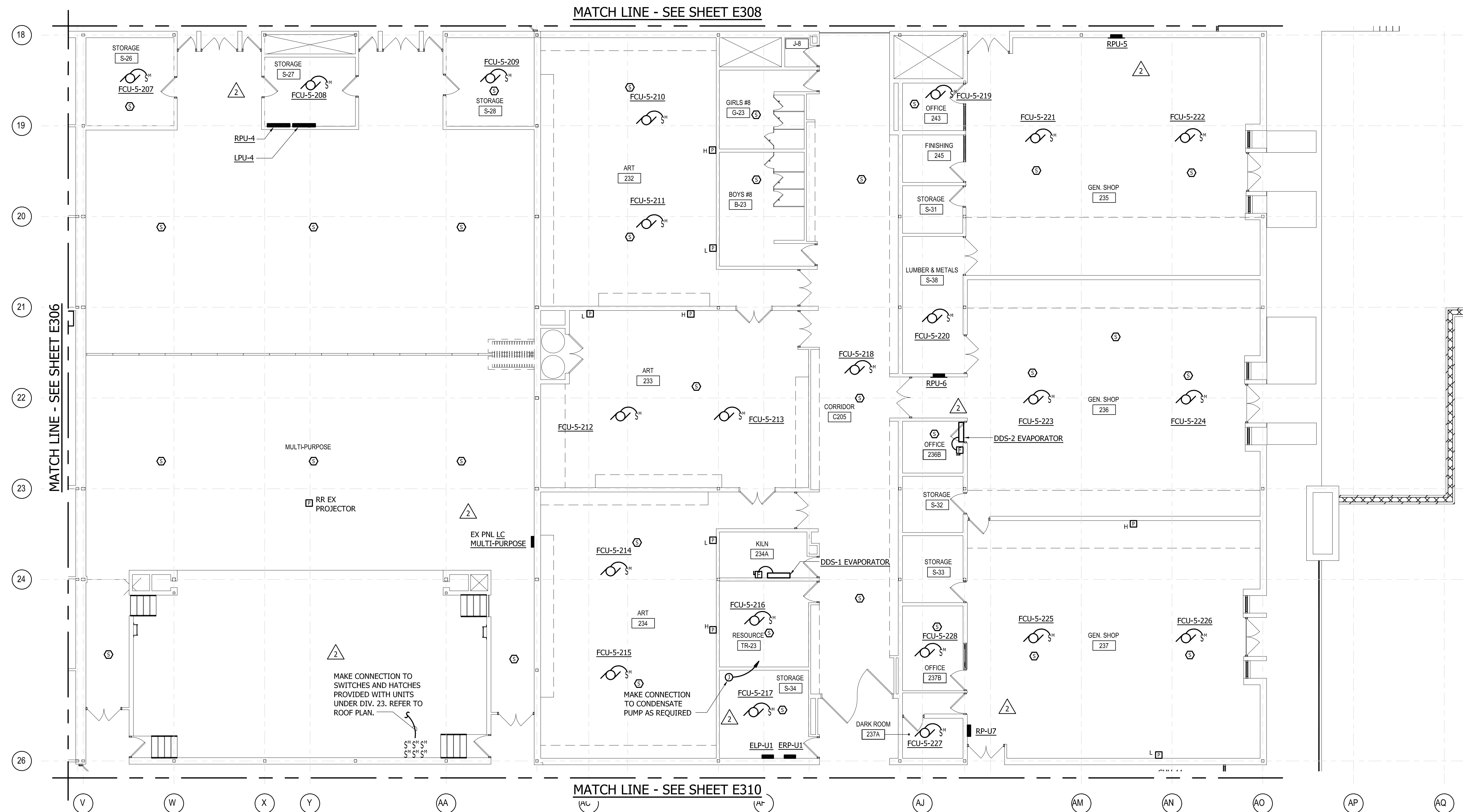
DATE 2/26/2024

UPPER LEVEL AREA E - POWER
HARFORD COUNTY PUBLIC SCHOOLS - ABERDEEN MIDDLE SCHOOL
HVAC SYSTEMIC RENOVATIONS
111 MT. ROYAL AVE, ABERDEEN, MARYLAND 21001.

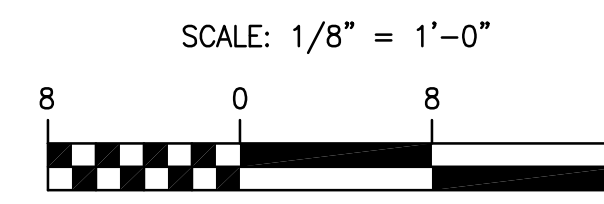
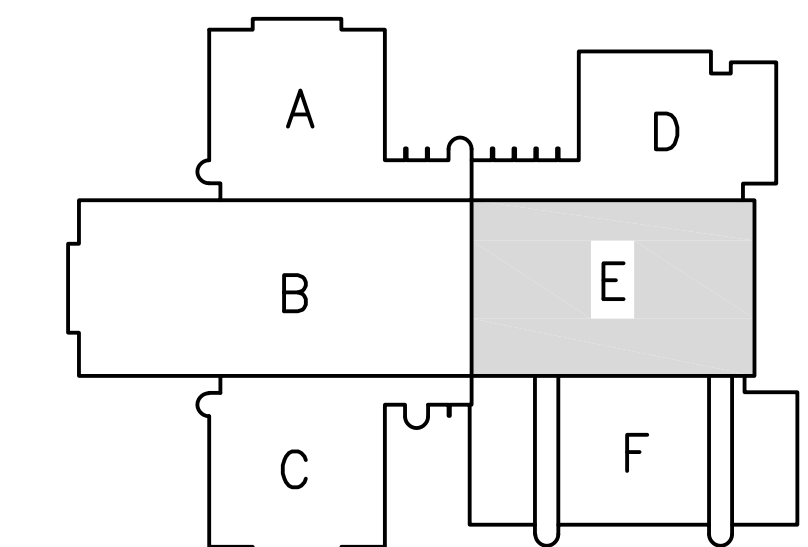
BID SUBMISSION

E309

PSC-12.006



1
E309
UPPER LEVEL AREA E - POWER
SCALE: 1/8" = 1'-0"



KEY PLAN
N.T.S.

1. REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE, DWGS. E608 THROUGH E610, FOR ADDITIONAL INFORMATION.
2. REINSTALL CEILING MOUNTED DEVICES - REFER TO DEMOLITION DRAWINGS.

- ① T5 PRIMARY ECB
- ② RP-U5 ECB
- ③ RP-U6 ECB
- ④ RP-U7 ECB

REVISIONS		
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WO# 23043

PROJECT MANAGER	EMP
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DESIGNER	EMP
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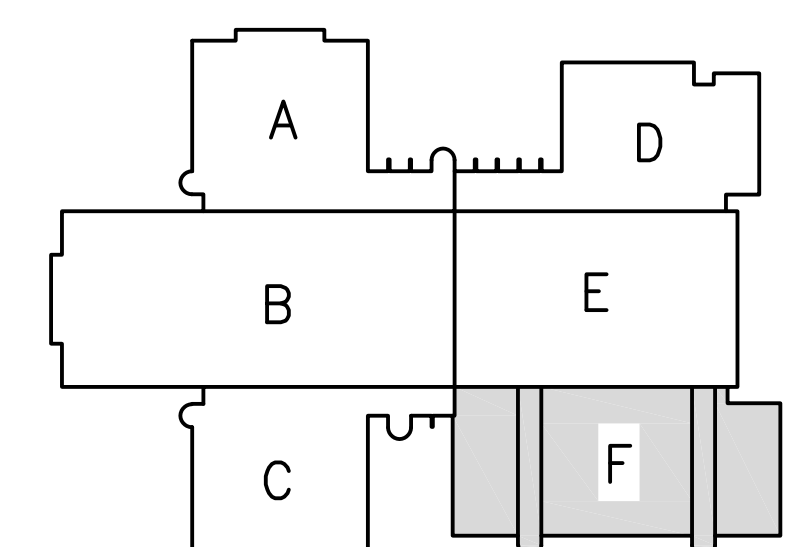
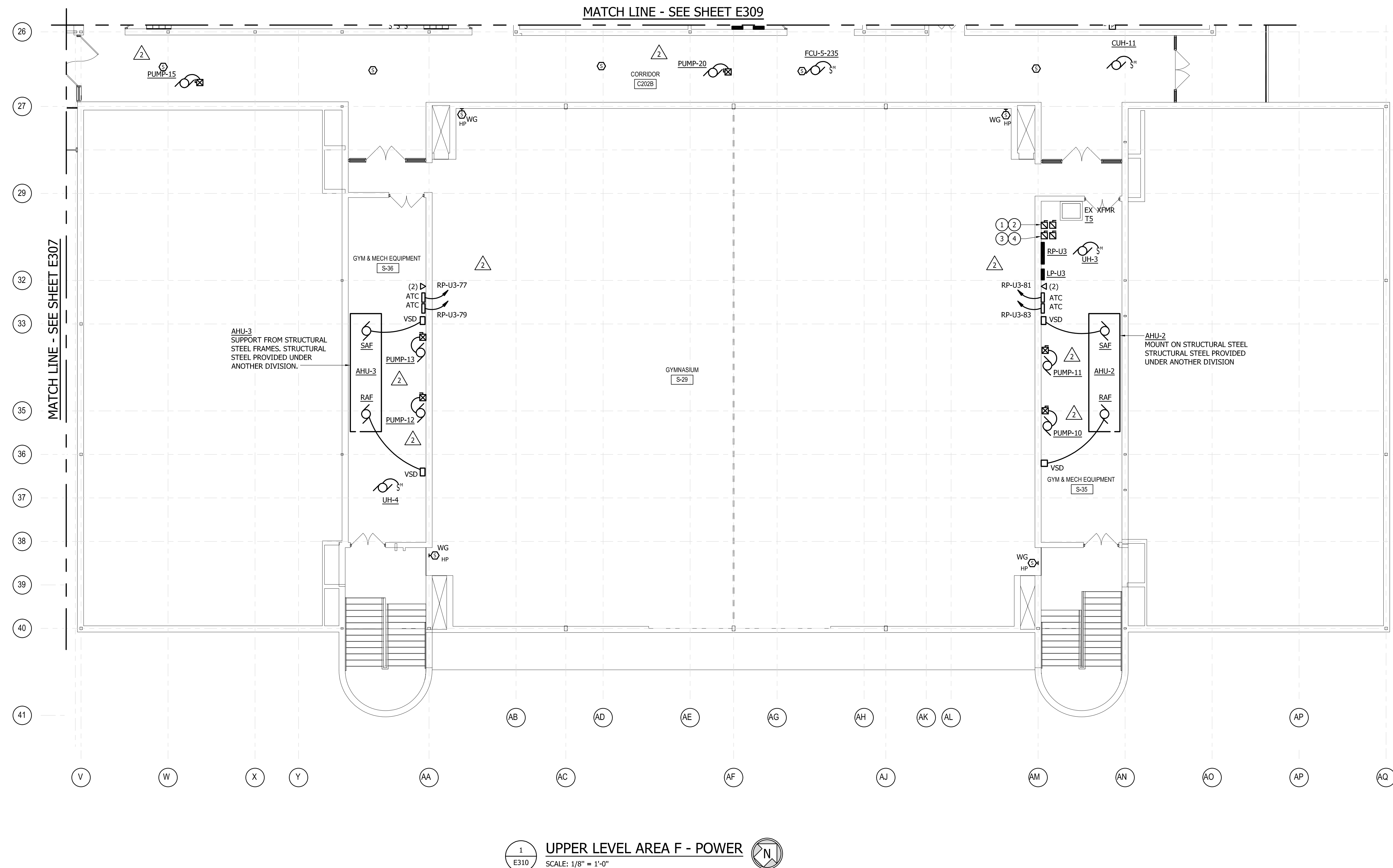
DATE 2/26/2024

UPPER LEVEL FLOOR PLAN - ELECTRICAL - AREA F

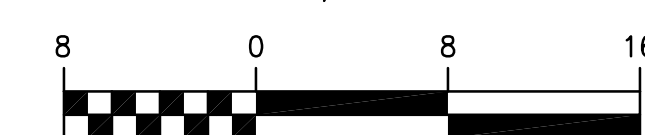
BID SUBMISSION

E310

4 PSC-12.006

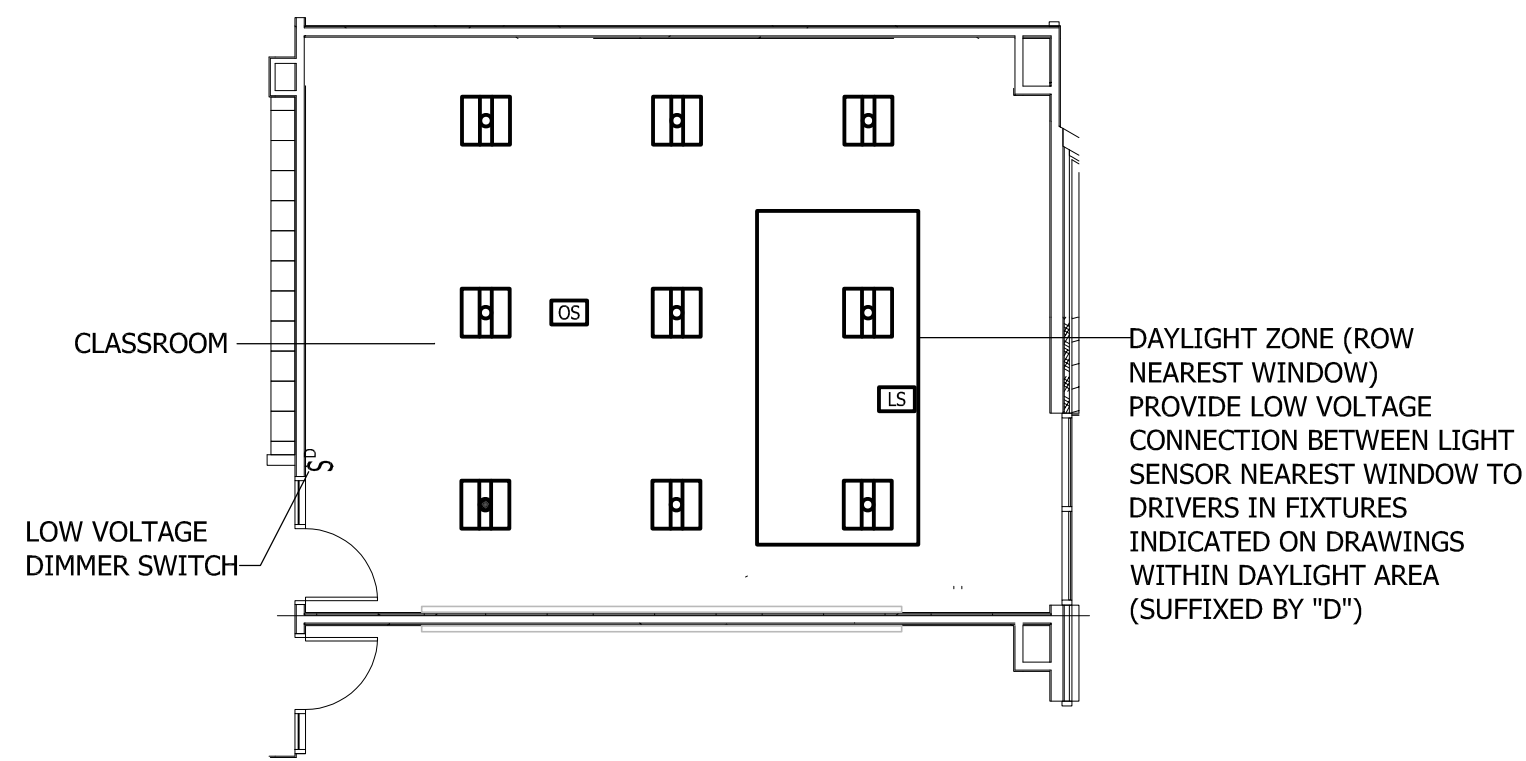


SCALE: 1/8" = 1'-0"



KEY PLAN
N.T.S.



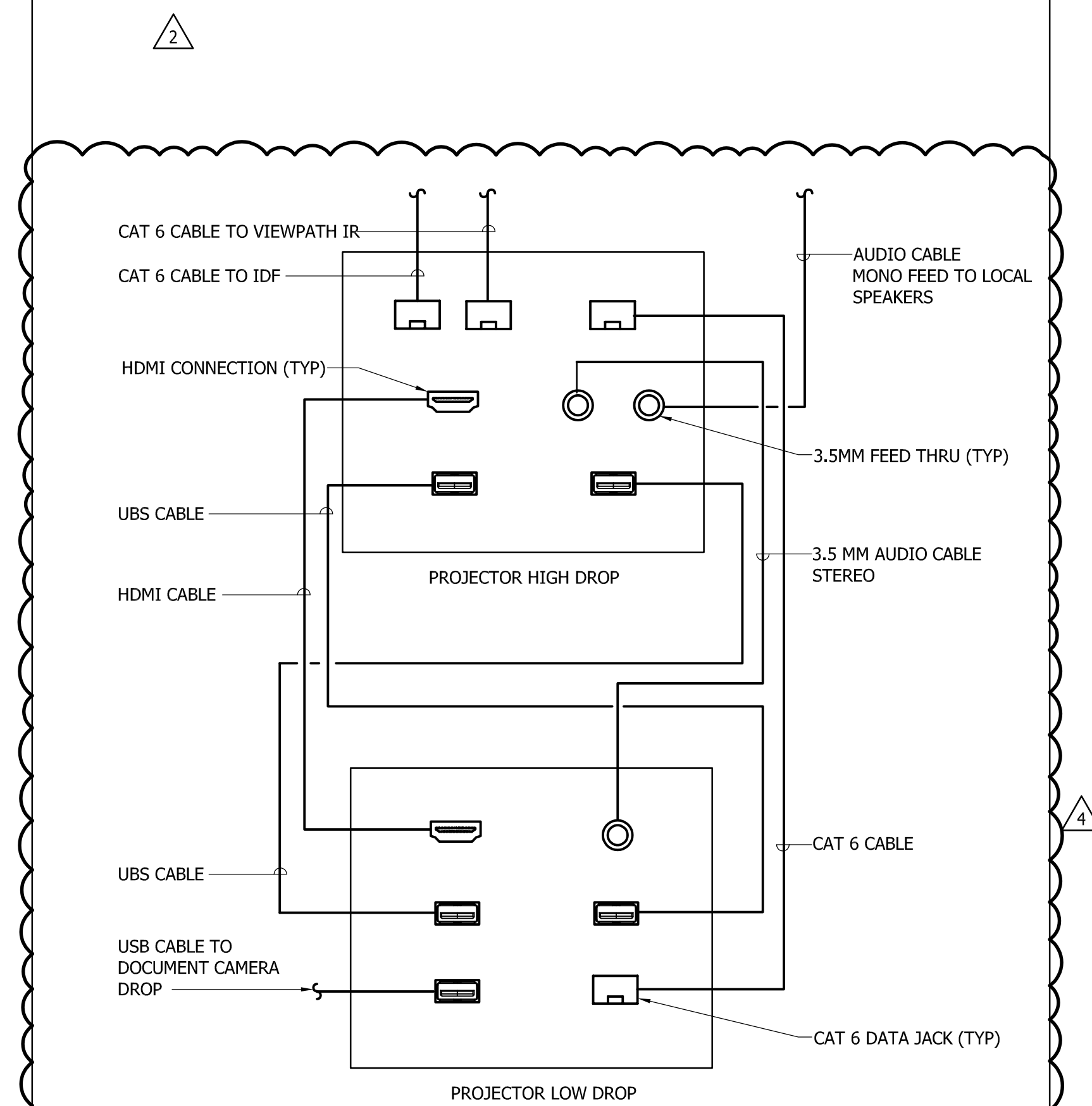


MANUFACTURER TO SUBMIT SHOP DRAWING SHOWING LOCATION OF OCCUPANCY/VACANCY SENSOR(S).

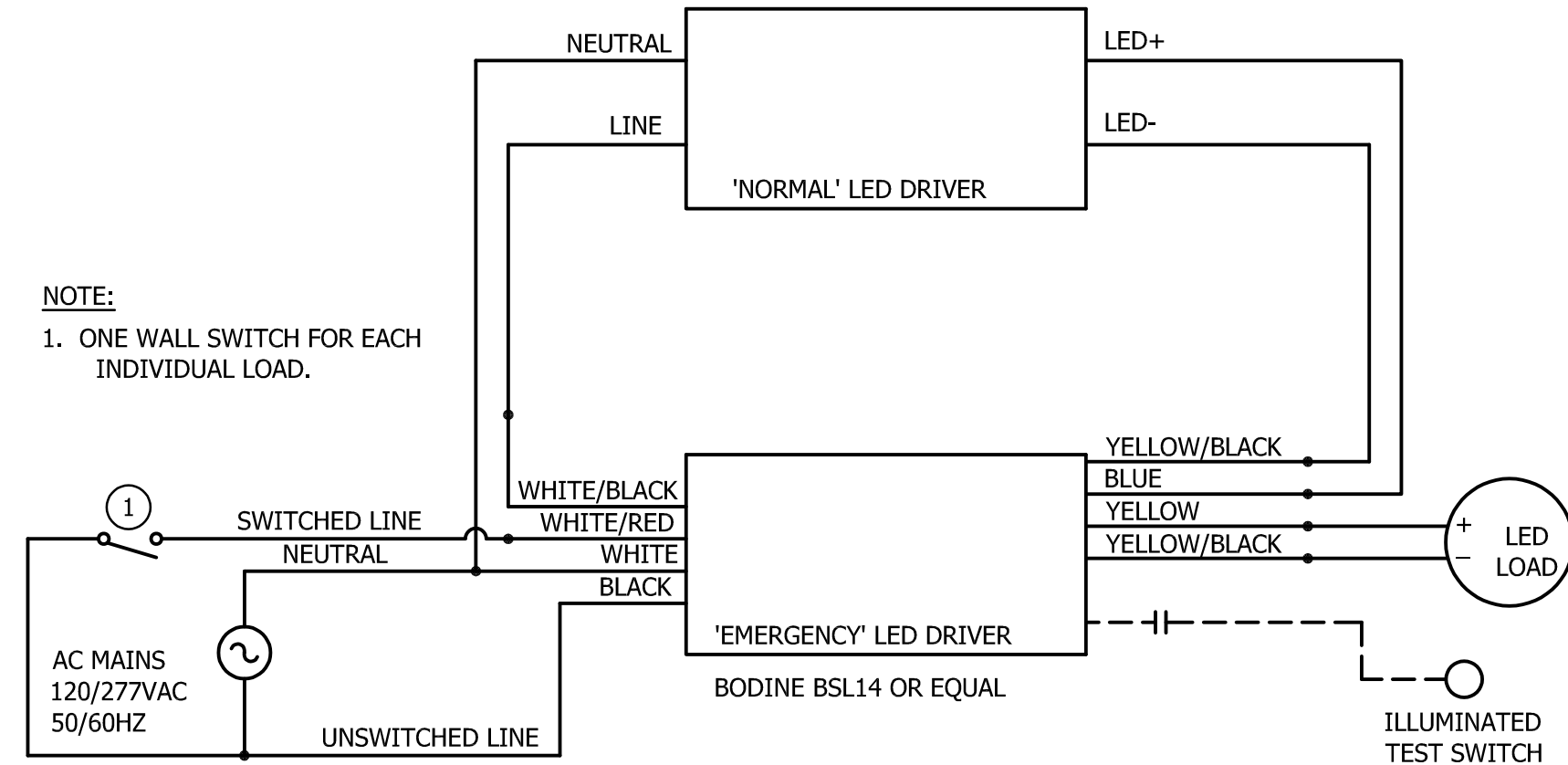
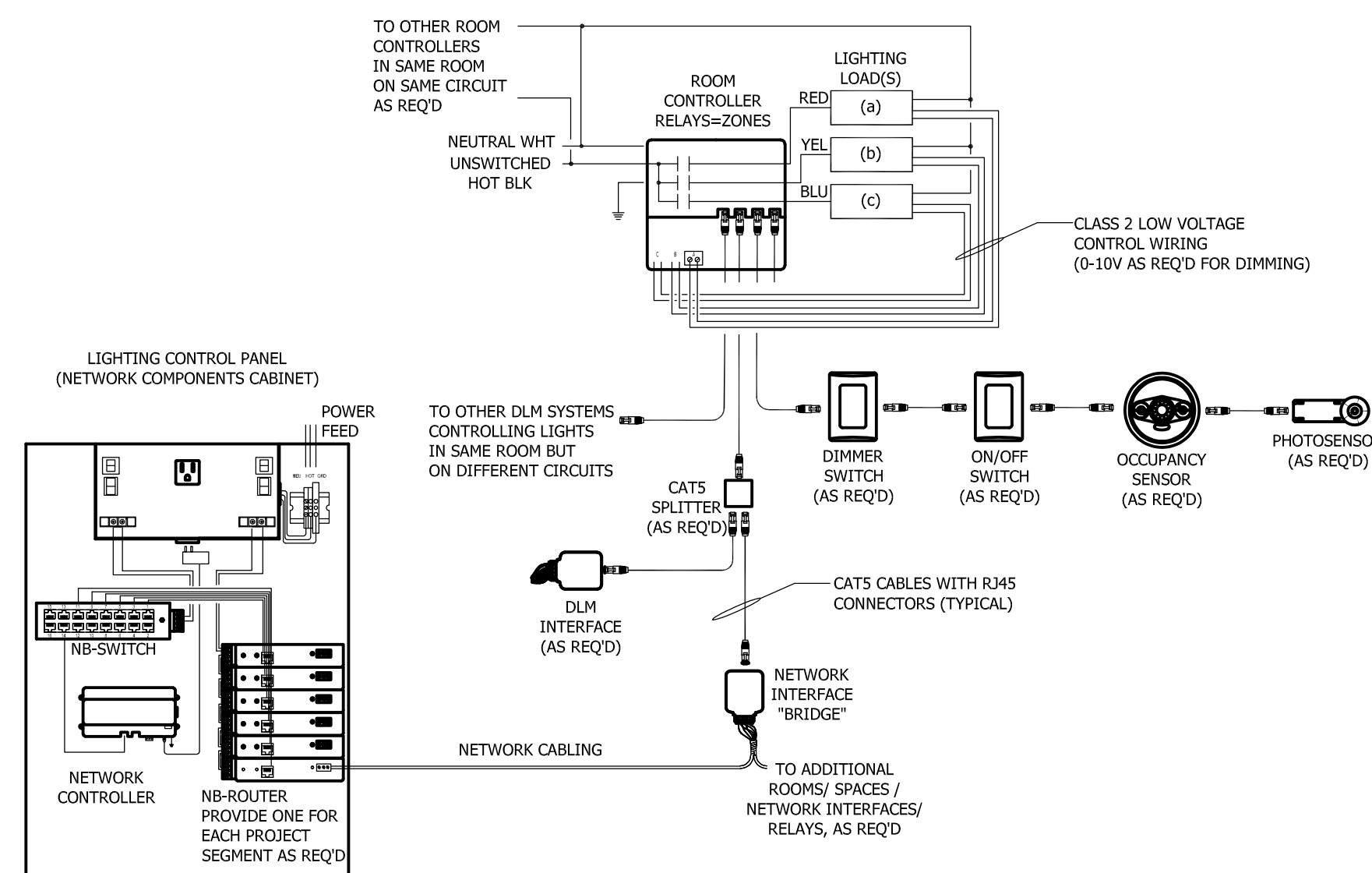
A. TWO CONTROL ZONES IN A TYPICAL CLASSROOM
 ZONE 1: CLASSROOM
 ZONE 2: DAYLIGHT AREA (AS APPLICABLE)

B. TWO-BUTTON ENTRY CONTROL STATION:
ZONE 1: ON/DIMMED/OFF

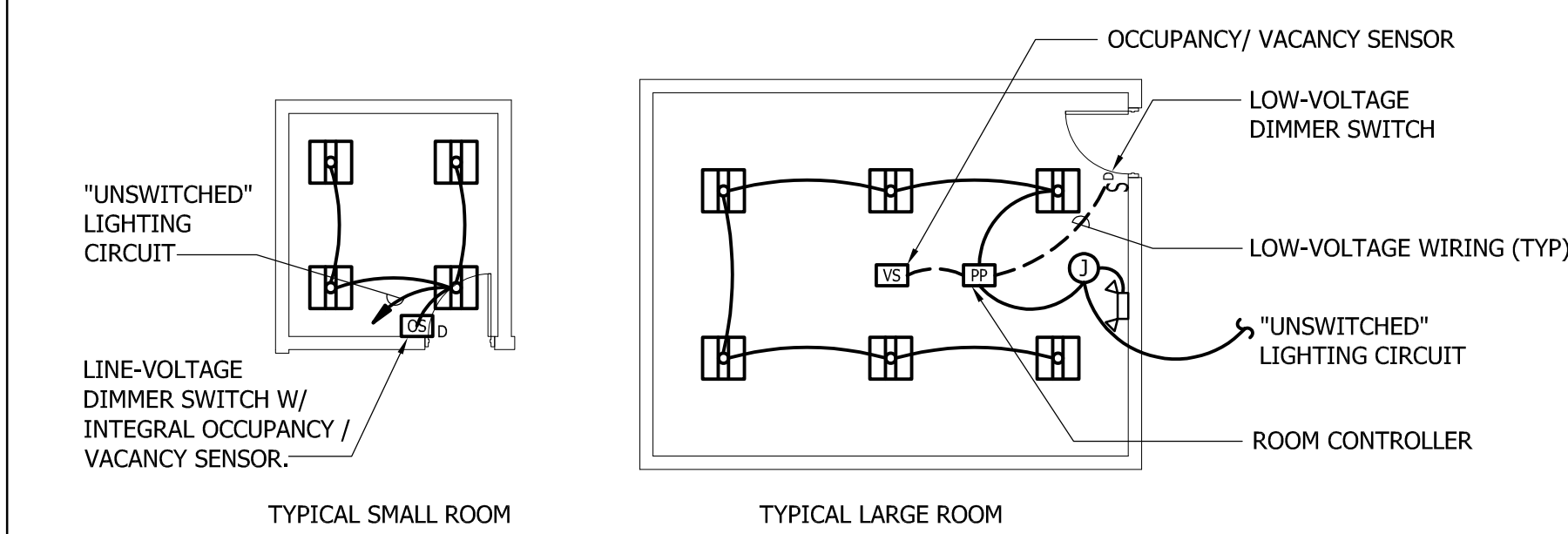
C. DAYLIGHT ZONE: LIGHTING LEVEL THE LOWER OF DIMMER SWITCH OR LS/OFF



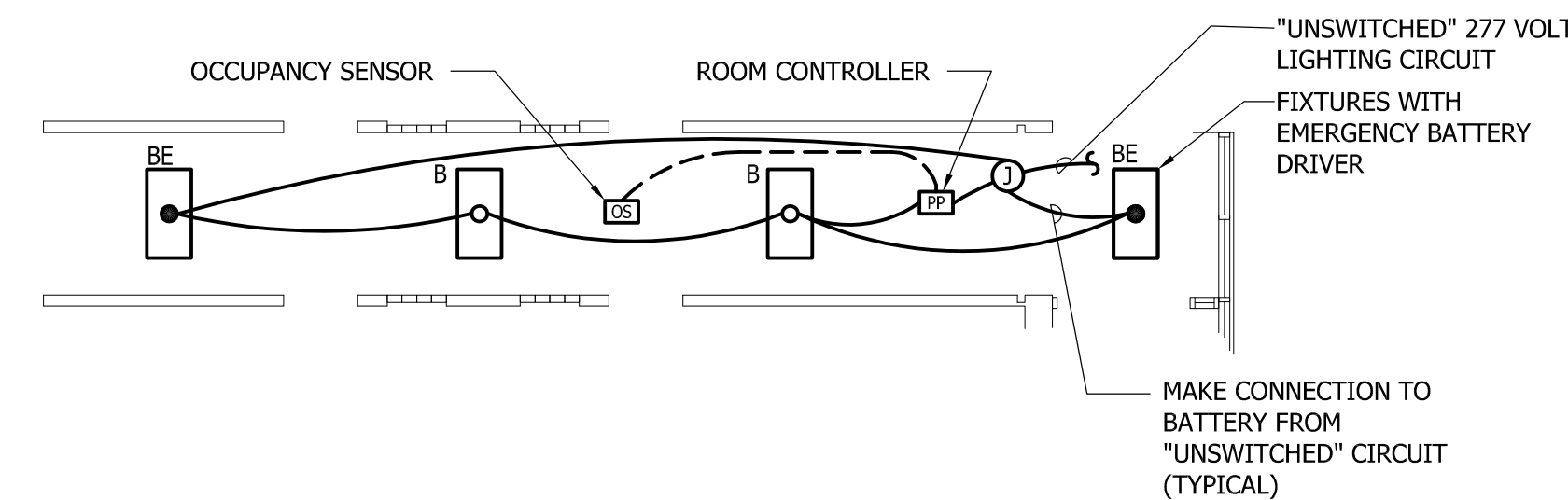
SCALE: NONE

SAP

NOTE: PROVIDE BATTERY BACK-UP FOR FIXTURES WITH "E" DESIGNATION



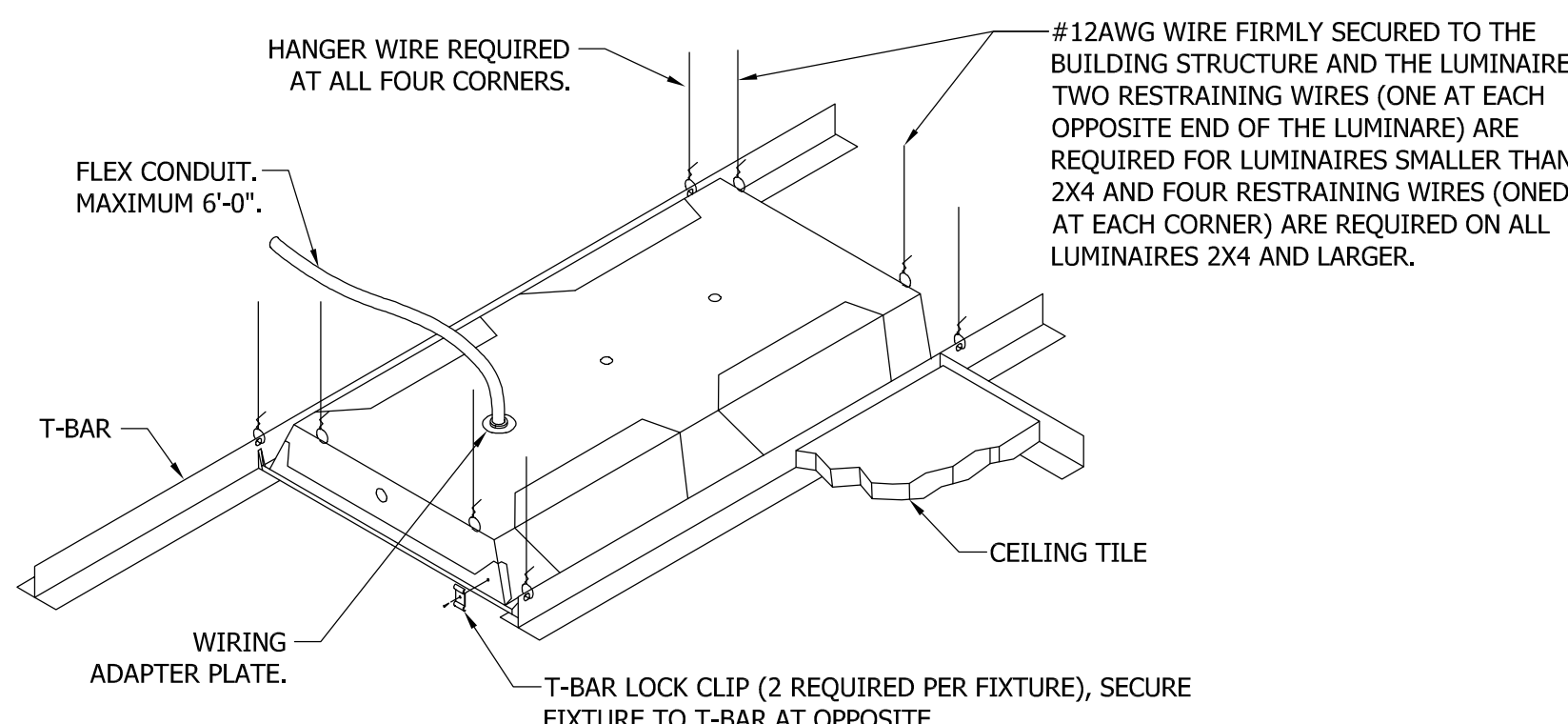
NOTE: SETTINGS TO BE APPLIED TO ROOM CONTROLLER AS INDICATED ON PLANS
REFER TO LIGHTING CONTROL MATRIX FOR ADDITIONAL INFORMATION.



NOTES:

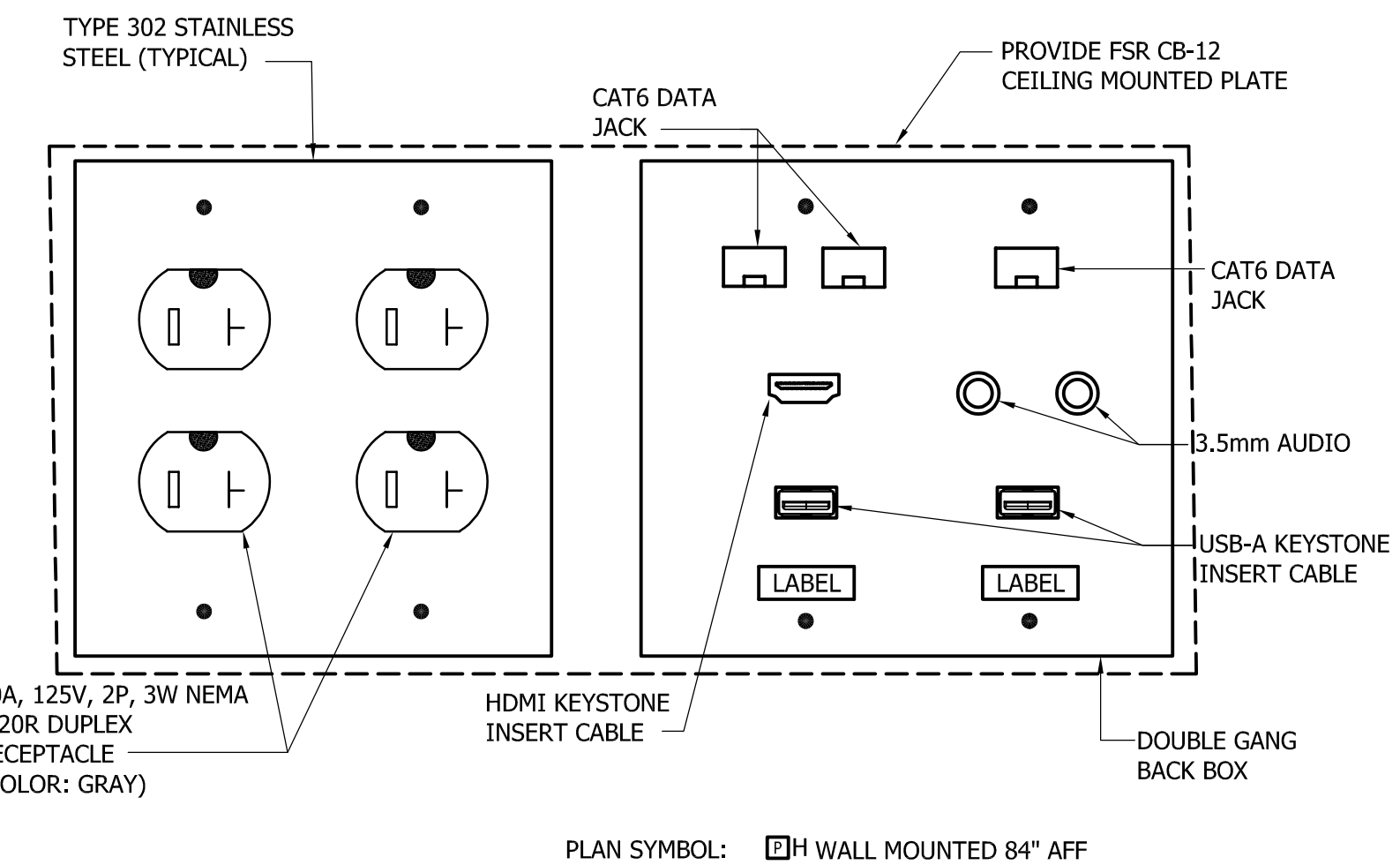
1. SETTINGS TO BE APPLIED TO ROOM CONTROLLER FOR AUTOMATIC ON, AUTOMATIC-OFF.
2. MAKE ALL CONNECTIONS ACCORDING TO MANUFACTUER'S RECOMMENDATIONS.

6 TYPICAL CORRIDOR SENSOR WIRING DIAGRAM



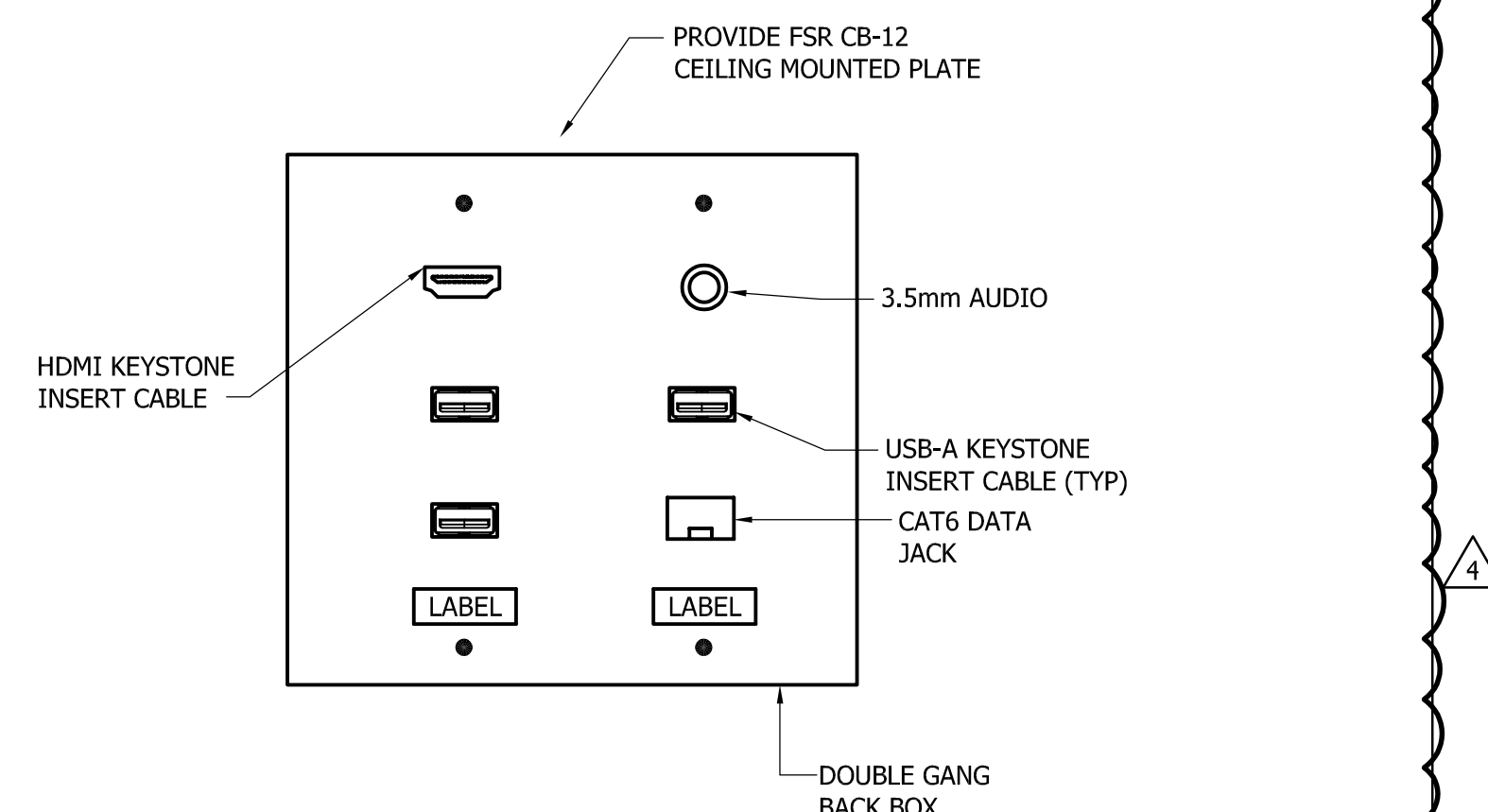
GENERAL NOTES:
1. SECURE FLEX CONDUIT WITH UL APPROVED ATTACHMENTS PER NEC. NO CABLE TIES.

SCALE: NONE



PLAN SYMBOL: H WALL MOUNTED 84" AFF

SCALE: NONE
SCALE: NONE



PLAN SYMBOL: ☒ L WALL MOUNTED 18" AFF

SCALE: NONE

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

REVISIONS		
NO.	DATE	DESCRIPTION
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WO# 23043

PROJECT MANAGER	EMP
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DESIGNER	EMP
----------	-----

DATE 2/26/2024

DETAILS

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111 MT ROYAL AVE, ABERDEEN, MARYLAND 21001.

BID SUBMISSION

E702

PSC-12.006