



Office of General Services

DESIGN & CONSTRUCTION GROUP
THE GOVERNOR NELSON A. ROCKEFELLER
EMPIRE STATE PLAZA
ALBANY, NY 12242

ADDENDUM NO. 2 TO PROJECT NO. M3207

HVAC AND ELECTRICAL WORK REPLACE BOILER, VARIOUS POWERHOUSE EQUIPMENT AND BOILER CONTROL SYSTEM BEDFORD HILLS CORRECTIONAL FACILITY 247 HARRIS ROAD BEDFORD HILLS, NY

March 6, 2026

NOTE: This Addendum forms a part of the Contract Documents. Insert it in the Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

HVAC SPECIFICATIONS

1. SECTION 232500 HVAC Water Treatment: Discard the Section bound in the Project manual and substitute with the accompanying Section (pages 232500 – 1 thru 232500 – 8) noted “Addendum No. 2.”

HVAC DRAWINGS

2. Drawing MR-101, Keyed Note 12: Replace “Section 230925” with “Section 230926”.
3. Drawing MR-101, Keyed Note 20: Replace this note in its entirety to read: “CHEMICAL FEED SYSTEM TO REMAIN”.
4. Drawing MR-102, Keyed Note 1: Replace this note in its entirety with the following: “RETAIN 1/2" CF PIPING FROM DA BACK TO CHEMICAL FEED STATION.”
5. Drawing MR-102, Keyed Note 2: Replace this note in its entirety with the following: “RETAIN 1/2" CF PIPING FROM BOILER BACK TO CHEMICAL FEED STATION.”
6. Drawing MR-102, Keyed Note 3: Replace this note in its entirety with the following: “CHEMICAL FEED SYSTEM TO REMAIN”.
7. Drawing MR-104, Keyed Note 4: Replace this note in its entirety with the following: “CHEMICAL FEED SYSTEM TO REMAIN”.

8. Revised Drawings:
- a. Drawing M-101 noted Addendum No. 2 dated 3/4/2026, accompanies this Addendum and supersedes the same numbered previously issued drawing.
 - b. Drawing M-102 noted Addendum No. 2 dated 3/4/2026, accompanies this Addendum and supersedes the same numbered previously issued drawing.
 - c. Drawing M-103 noted Addendum No. 2 dated 3/4/2026, accompanies this Addendum and supersedes the same numbered previously issued drawing.
 - d. Drawing M-104 noted Addendum No. 2 dated 3/4/2026, accompanies this Addendum and supersedes the same numbered previously issued drawing.
 - e. Drawing M-401 noted Addendum No. 2 dated 3/4/2026, accompanies this Addendum and supersedes the same numbered previously issued drawing.
 - f. Drawing M-501 noted Addendum No. 2 dated 3/4/2026, accompanies this Addendum and supersedes the same numbered previously issued drawing.
 - g. Drawing M-503 noted Addendum No. 2 dated 3/4/2026, accompanies this Addendum and supersedes the same numbered previously issued drawing.
 - h. Drawing M-601 noted Addendum No. 2 dated 3/4/2026, accompanies this Addendum and supersedes the same numbered previously issued drawing.
 - i. Drawing M-702 noted Addendum No. 2 dated 3/4/2026, accompanies this Addendum and supersedes the same numbered previously issued drawing.

ELECTRICAL DRAWINGS

9. Revised Drawings:
- a. Drawing E-101 noted Addendum No. 2 dated 3/4/2026, accompanies this Addendum and supersedes the same numbered previously issued drawing.
 - b. Drawing E-601 noted Addendum No. 2 dated 3/4/2026 accompanies this Addendum and supersedes the same numbered previously issued drawing.

END OF ADDENDUM

Brady M. Sherlock, P.E.
Director, Division of Design
Design & Construction

SECTION 232500 - HVAC WATER TREATMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes the following HVAC water-treatment systems:
 1. Boiler automatic blowdown valve package.
 2. Total dissolved solids meters.
 3. Makeup water flow meter.
 4. Sample cooler
 5. Injection quills.
 6. Cleaning of piping systems.

1.3 SUBMITTALS

- A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
- B. Manufacturer's installation instructions shall be provided along with product data.
- C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
- D. Product Data: Catalog sheets, specifications and installation instructions for each item specified
- E. Pipe Cleaning Procedures: Provide a detailed plan for pressure testing, cleaning and flushing of the piping systems. Include the following:
 1. A drawing indicating all proposed locations for connection to site potable water supplies and drain locations for the purpose of filling and draining the systems.
 2. A diagram at each connection to the potable water system indicating the proposed piping and backflow preventer arrangement.
 3. A written system cleaning plan indicating the following:
 - a. Fill and pre-cleaning flush procedure.
 - b. Cleaning solution concentration.
 - c. Ambient and system solution temperature requirements during cleaning.
 - d. Cleaning solution circulation duration.
 - e. Post cleaning flush procedure including confirmation of water cleanliness via pH measurement.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For all equipment and controllers to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. HVAC Water-Treatment Service Provider Qualifications: An experienced HVAC water-treatment service provider, capable of analyzing water qualities, installing water-treatment equipment, and applying water treatment as specified in this Section.
- B. Regulatory Requirements:
 - 1. Perform factory testing of factory fabricated equipment in complete accordance with the agencies having jurisdiction.
 - 2. Perform field testing of piping systems in complete accordance with the local utilities and other agencies having jurisdiction and as specified.
 - 3. Comply with the State Department of Health Sanitary Code for Cross Connection Control, and the other standards listed in Part 2 of this section.
- C. Pre-Work Conference: Before the Work of this Section is scheduled to commence, a conference will be held by the Director's Representative at the Site for the purpose of reviewing the Contract Documents, discussing requirements for the Work, and reviewing the Work procedures.
 - 1. The conference shall be attended by the Contractor, and the Contractor's cleaning agent supplier.

PART 2 - PRODUCTS

2.1 HVAC WATER-TREATMENT MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Northeast Environmental Water Technologies LLC.
 - 2. Anderson Chemical Company.
 - 3. Aqua-Chem, Inc.
 - 4. Barclay Water Management, Inc.
 - 5. Boland Trane Services.
 - 6. Cascade Water Services, Inc.
 - 7. Earthwise Environmental Inc.
 - 8. H-O-H Water Technology, Inc.
 - 9. Metro Group, Inc. (The).
 - 10. Nalco; an Ecolab company.
 - 11. Sonitec-Vortisand Inc.
 - 12. Suez Water Technologies (Formerly GE Water).
 - 13. Watcon, Inc.
 - 14. Approved equivalent.

2.2 MISCELLANEOUS EQUIPMENT

- A. Cold Water Meter, Contacting Head:
 - 1. Basis of Design: Advantage Controls AWM-100 contacting-head meter.
 - 2. 1-inch bronze body, AWWA C-708, 150 psig working pressure.
 - 3. Reed switch contact output (1 pulse per 10 gallons).
 - 4. Accuracy ± 2 percent over normal flow range.
 - 5. Provide union connections and strainer ahead of meter.

- B. Chemical Injection Assemblies:
 - 1. Basis of Design: Advantage Controls ASQ-Series.
 - 2. Quill: Minimum NPS 1/2 with insertion length sufficient to discharge into at least 25 percent of pipe diameter.
 - 3. Ball Valve: Two-piece stainless steel, as described in "Stainless Steel Pipes and Fittings" Article; selected to fit quill.
 - 4. Packing Gland: Mechanical seal on quill of sufficient length to allow quill removal during system operation.
 - 5. Assembly Pressure/Temperature Rating: Minimum 600 psig at 200 deg F.

2.3 AUTOMATIC BLOWDOWN SYSTEM

- A. Basis of Design: Advantage Controls AVP-50-30 automatic blowdown package with integral NFC-1/2 needle valve.

- B. Valve: Two-way motorized ball valve rated 250 psig @ 450 °F with manual override and limit switches.

- C. Needle Valve: 1/2 in. stainless-steel body, fine adjustment, used to regulate sample flow.

- D. Actuator: Electric modulating type, 24 VDC control signal from MegaTron MT.

- E. Provide integral sample cooler coil and stainless piping nipples for field connection to boiler blowdown line.

- F. Mount assembly on panel or wall frame adjacent to controller.

2.4 CHEMICAL-TREATMENT TEST EQUIPMENT

- A. Sample Cooler:
 - 1. Basis of Design: Advantage Controls LBC-SS sample cooler.
 - 2. Construction: 316 stainless-steel coil and shell, ASME Section VIII design 2500 psig MAWP, 500 °F MAWT.
 - 3. Connections: ½ in. FNPT inlet and outlet, ¼ in. cooling water inlet and drain.
 - 4. Provide mounting bracket, needle valves for sample and cooling water, and drain valve.

2.5 CHEMICALS

- A. Chemicals shall be as recommended by water-treatment system manufacturer that are compatible with piping system components and connected equipment and that can attain water quality specified in "Performance Requirements" Article.
- B. Cleaning chemicals:
 - 1. Alkaline cleaner for oil and grease removal: trisodium phosphate (TSP), sodium carbonate, or commercial detergent (e.g., Nalco 718, Betz Dearborn CL-1, or Cleaver-Brooks CB-Flush 2000).
 - 2. Neutralizing agent: sodium carbonate or sodium nitrite/borax blend.
 - 3. Passivating solution: sodium nitrite (0.5–1 percent) with sodium tetraborate buffer.
 - 4. All solutions shall be non-acidic and compatible with carbon steel, stainless steel, and copper alloys.
- C. Temporary Cleaning Equipment
 - 1. General: Provide complete, self-contained temporary cleaning and flushing system including pumps, tanks, heaters, strainers, hoses, fittings, and controls necessary to circulate cleaning solution through new piping systems at the specified flow and temperature.
 - 2. Temporary Cleaning Pump:
 - a. Type: Centrifugal, close-coupled, electric motor-driven, portable service.
 - b. Capacity: Sized to produce a minimum velocity of 5 feet per second in the largest diameter pipe in the cleaning loop.
 - c. Head: Minimum 50 feet total dynamic head, capable of continuous operation with high-solids content.
 - d. Construction: Cast-iron casing, stainless steel impeller and shaft, mechanical seal rated for 200 °F solution.
 - e. Motor: 230/460 V, 3-phase, TEFC enclosure, continuous-duty rated. Provide isolation valves on suction and discharge, pressure gauges, and drain connections.
 - f. Mount pump on portable skid with vibration isolators and lifting eyes.
 - 3. Mixing and Holding Tank:
 - a. Provide an open-top steel or high-density polyethylene (HDPE) tank for preparation of the cleaning solution.
 - b. Minimum capacity: 10 percent of the total system volume or 250 gallons, whichever is greater.
 - c. Tank shall include:
 - 1) Calibrated volume markings in gallons.
 - 2) Vent and removable cover.
 - 3) Drain valve with union connection.
 - 4) 2-inch suction fitting with strainer.
 2-inch return connection with diffuser to minimize aeration.
 - d. Provide mechanical agitation or circulating return to ensure chemical mixing.
 - e. Include integral or external electric immersion heater or steam coil to maintain 140–180 °F solution temperature.
 - f. Construct tank of materials compatible with cleaning solutions.
 - 4. Temporary Filtration Unit:
 - a. Provide an inline cartridge or basket strainer in the return line to collect debris.
 - b. Mesh: 100 microns (150 mesh) or finer.

- c. Provide means for pressure differential monitoring and cleaning without system shutdown.
- d. Provide spare cartridges or screens.
- 5. Piping and Hose Assemblies:
 - a. Provide temporary reinforced flexible hoses and Schedule 80 PVC or steel pipe as required for connection between pump, tank, and system piping.
 - b. Hoses shall be rated for 200 °F, 100 psig minimum service.
 - c. Hose ends shall have cam-lock quick couplings with safety clips and gaskets compatible with chemicals used.
 - d. Provide temporary flanged or grooved spool pieces to bypass boilers, valves, and instruments not to be exposed to cleaning solution.
 - e. Secure hoses to prevent movement during operation.
- 6. Valves and Fittings:
 - a. Provide all temporary valves, fittings, and reducers required for connection to permanent system.
 - b. Ball valves: Full-port bronze or stainless steel, 200 psig rating minimum.
 - c. Provide unions, caps, and blind flanges to seal open connections after cleaning.
- 7. Neutralization Equipment:
 - a. Provide a neutralization tank for receiving and treating spent cleaning solution before disposal.
 - b. Tank shall have:
 - 1) Minimum volume equal to 25 percent of system volume.
 - 2) Agitator or recirculation pump for mixing.
 - 3) pH sensor or litmus test kit for monitoring pH.
 - 4) Vent and drain connections.
 - c. Adjust pH to 6–8 before disposal to sanitary drain per applicable codes and environmental regulations.
- 8. Instrumentation and Test Equipment:
- 9. Thermometers: 0–250 °F, stainless-steel stem, 1% accuracy.
 - a. Pressure gauges: 0–100 psig, liquid-filled, 2½-inch dial.
 - b. Flow indicators: Inline sight-glass type, rated for 200 °F.
 - c. Portable pH meter, range 0–14, accuracy ±0.1 pH.
 - d. Conductivity meter, range 0–10,000 µS/cm, accuracy ±2%.
 - e. Turbidity tube or nephelometer for visual confirmation of clean water discharge.
- 10. Electrical Power and Controls:
 - a. Provide weather-resistant power cables and disconnect switches for temporary pumps and heaters.
 - b. Each motor circuit shall include overload protection and start/stop switch.
 - c. All temporary equipment shall meet OSHA electrical safety requirements.
- 11. Cleaning Chemical Feed:
 - a. Add cleaning chemicals to the mixing tank under supervision of chemical vendor or manufacturer representative.
 - b. Do not pour concentrated chemical directly into system piping.
 - c. Maintain written record of chemicals added, concentrations, and temperatures.

PART 3 - EXECUTION

3.1 CLEANING PIPING SYSTEMS

A. Preparation

1. Verify completion of pressure testing under Section 230548 prior to cleaning operations.
2. Isolate all equipment not intended to be exposed to cleaning solutions, including boilers, deaerators, pumps, heat exchangers, control valves, and instruments.
 - a. Install temporary spool pieces or blinds to protect sensitive equipment.
 - b. Bypass strainers, PRVs, orifices, and flow meters.
3. Remove or open all strainers and screens; clean prior to reinstalling after flushing.
4. Install temporary cleaning pump, tank, filters, and hoses as specified in Part 2.
5. Confirm direction of flow and arrange temporary valves to ensure complete circulation through all portions of the system.
6. Ensure all vents and drains are operable. Open vents at all high points during filling and close when full.

B. Initial Flushing

1. Fill system with clean water and circulate using the temporary pump for a minimum of 30 minutes at a velocity not less than 5 feet per second in the largest pipe.
2. Drain the system completely to remove construction debris and loose sediment.
3. Inspect strainers and filters; remove and clean screens.

C. Chemical Cleaning Procedure

1. Refill system with clean water. Add approved cleaning chemical to the mixing tank under the supervision of the chemical vendor or manufacturer's representative.
 - a. Typical cleaning solution concentration: 1–3 percent by volume alkaline detergent such as trisodium phosphate, sodium carbonate, or commercial equivalent.
 - b. Maintain solution temperature between 140 °F and 180 °F.
2. Circulate the cleaning solution continuously through the entire system for a minimum of 4 hours or until samples of return water are free of visible oil, grease, and particulate matter.
3. Reverse direction of flow at least twice during cleaning cycle to dislodge trapped debris.
4. Periodically check and record:
 - a. Solution temperature.
 - b. pH (should remain > 9 during cleaning).
 - c. Visual clarity of effluent.
5. Continue circulation until effluent samples taken at system return and remote ends are uniform in clarity and color.
6. Shut down pump, open all low-point drains, and discharge solution to the neutralization tank.
7. Neutralize effluent to pH 6 to 8 before disposal in accordance with local environmental regulations.

D. Rinsing And Final Flush

1. After draining cleaning solution, refill system with clean water.
2. Circulate at 5 ft/s for at least 30 minutes; drain completely.
3. Repeat rinse until discharge water meets the following criteria:
 - a. pH between 6 and 8.
 - b. Turbidity < 20 NTU or equivalent visual clarity.

- c. Conductivity change between supply and return < 10 percent.
4. Open strainers and remove any remaining debris; reinstall with clean screens.
5. Drain system and prepare for passivation.

E. Passivation

1. Fill system with clean water and add passivating solution to the mixing tank.
 - a. Use 0.5 percent sodium nitrite with 0.25 percent sodium tetraborate or equivalent alkaline corrosion inhibitor.
 - b. Circulate solution for 2 hours at 120 °F to 150 °F.
2. Drain or leave filled per direction of the Director's Representative:
3. For immediate startup, drain completely and refill with treated boiler feedwater.
4. For extended idle periods, leave system filled with inhibited water (nitrite level 300–500 ppm).

F. Final Inspection And Restoration

1. Remove all temporary cleaning equipment, hoses, and spool pieces.
2. Reconnect isolated equipment and restore normal piping configuration.
3. Reinstall strainers, control valves, and instrumentation removed for cleaning.
4. Wipe down all accessible piping surfaces and remove any chemical residue.
5. Dispose of all waste and neutralized solution in accordance with governing regulations.

G. Field Quality Control

1. Contractor shall record cleaning data including:
 - a. Dates and durations of cleaning, rinsing, and passivation.
 - b. Temperatures, pH values, and flow rates measured.
 - c. Concentrations and types of chemicals used.
2. Submit written certification, signed by the chemical vendor and Contractor, stating:
 - a. System has been flushed, cleaned, and passivated in accordance with this specification.
 - b. Effluent samples meet the cleanliness requirements above.
 - c. System is ready for connection to boilers and final operation.
3. Provide laboratory water-quality report for final rinse sample showing pH, conductivity, total suspended solids, and oil-and-grease content.

H. Startup Coordination

1. Cleaning and flushing shall be completed prior to connection of boilers, deaerators, or other permanent equipment.
2. Coordinate with the boiler manufacturer's field service technician before initial filling of boilers.

3.2 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Tests and Inspections:

1. Inspect field-assembled components and equipment installation, including piping and electrical connections.

ADDENDUM NO. 2

2. Inspect piping and equipment to determine that systems and equipment have been cleaned, flushed, and filled with water, and are fully operational before introducing chemicals for water-treatment system.
 3. Do not enclose, cover, or put piping into operation until it is tested and satisfactory test results are achieved.
 4. Test for leaks and defects. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
 5. Leave uncovered and unconcealed new, altered, extended, and replaced water piping until it has been tested and approved. Expose work that has been covered or concealed before it has been tested and approved.
 6. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow test pressure to stand for four hours. Leaks and loss in test pressure constitute defects.
 7. Repair leaks and defects with new materials, and retest piping until no leaks exist.
- C. Equipment will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

END OF SECTION 232500

CONTROLS KEYED NOTES:

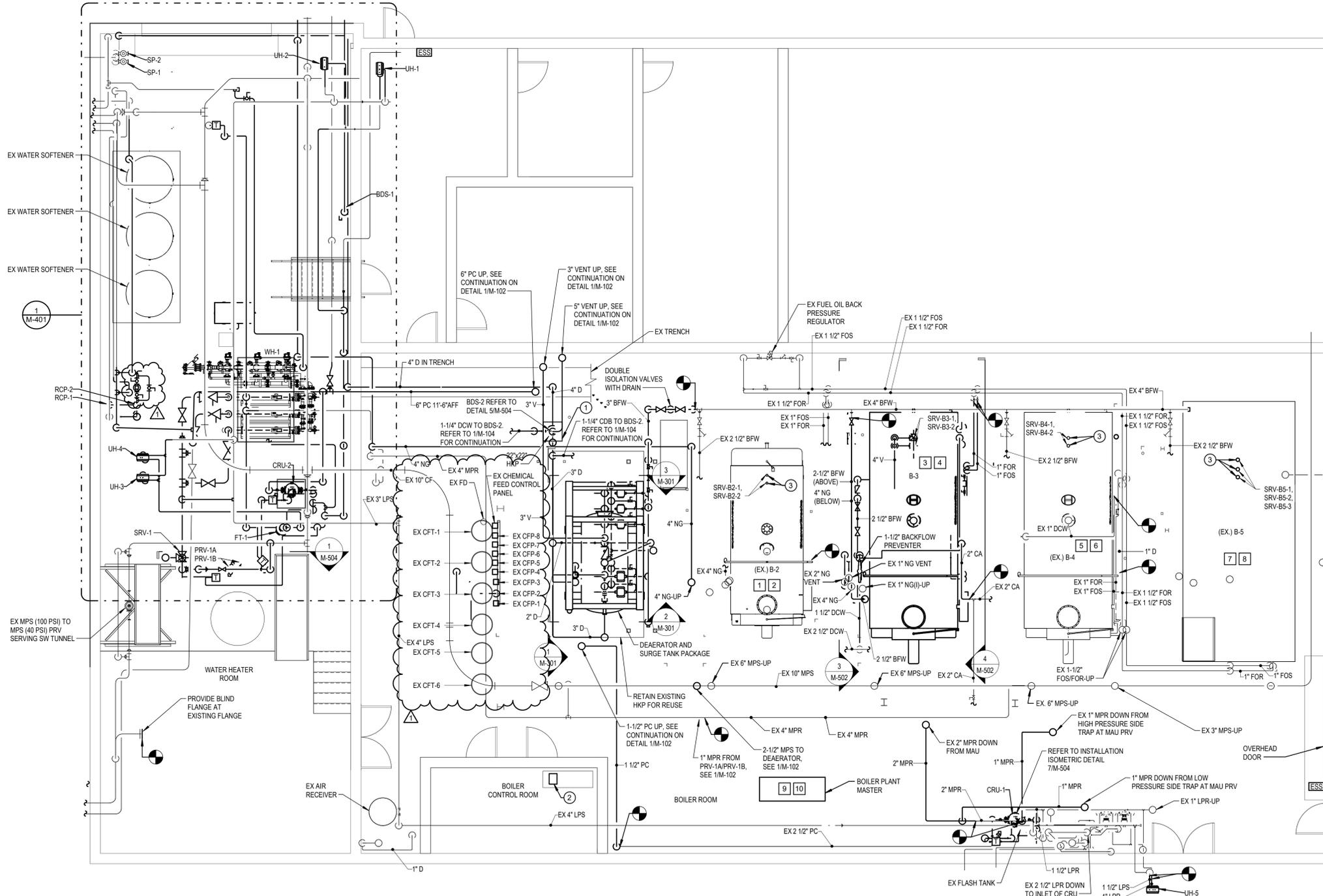
- 1 PROVIDE COMPLETE BURNER MANAGEMENT AND COMBUSTION CONTROL RETROFIT AT BOILER NO. 2 IN ACCORDANCE WITH SPECIFICATION SECTION 230926. INCLUDE REPLACEMENT PLC-BASED CONTROL SYSTEM WITH INTEGRATED FLAME SAFEGUARD, PARALLEL POSITIONING, OXYGEN TRIM, DRAFT CONTROL, VARIABLE-SPEED BLOWER MOTOR CONTROL, FLAME SCANNER, FIELD INSTRUMENTS, AND ALL WIRING. INTEGRATE WITH PLANT MASTER CONTROLLER.
- 2 PROVIDE FACTORY-PACKAGED AIR-ATOMIZING COMPRESSOR, AC-2, RECEIVER, SAFETY RELIEF VALVE, FILTER/REGULATOR, AND PRESSURE SWITCHES AT BOILER NO. 2. INTERLOCK WITH OIL-FIRING SEQUENCE IN ACCORDANCE WITH SPECIFICATION SECTION 230926.
- 3 PROVIDE COMPLETE COMBUSTION CONTROL AND FLAME SAFEGUARD SYSTEM FOR REPLACEMENT BOILER NO. 3 IN ACCORDANCE WITH SPECIFICATION SECTION 230926. INCLUDE PARALLEL POSITIONING, OXYGEN TRIM, DRAFT CONTROL, SERVO ACTUATORS ON AIR, GAS, AND OIL VALVES, 10-INCH HMI, VFD BLOWER CONTROL, AND INTEGRATION WITH PLANT MASTER CONTROLLER.
- 4 PROVIDE AIR-ATOMIZING COMPRESSOR PACKAGE, AC-3, FOR BOILER NO. 3. VERIFY PROPER OPERATION AND INTERLOCK WITH OIL-FIRING CONTROLS IN ACCORDANCE WITH SPECIFICATION SECTION 230926.
- 5 PROVIDE AIR-ATOMIZING COMPRESSOR SYSTEM, AC-4, FOR EXISTING BOILER NO. 4 IN ACCORDANCE WITH SPECIFICATION SECTION 230926. VERIFY CORRECT OPERATION WITH OIL BURNER ASSEMBLY AND INTERLOCK WITH EXISTING HAWK 4000 CONTROLS.
- 6 INTEGRATE EXISTING BOILER NO. 4 HAWK 4000 CONTROL SYSTEM WITH THE NEW PLANT MASTER CONTROLLER FOR LOAD SEQUENCING, HEADER-PRESSURE CONTROL, AND ALARM REPORTING IN ACCORDANCE WITH SPECIFICATION SECTION 230926.
- 7 REMOVE EXISTING COEN BMS-2000 CONTROLS AND PROVIDE NEW SERVO-BASED COMBUSTION CONTROL AND FLAME SAFEGUARD SYSTEM AT BOILER NO. 5 IN ACCORDANCE WITH SPECIFICATION SECTION 230926. INCLUDE DUAL FLAME SCANNERS, OXYGEN TRIM, DRAFT CONTROL, VARIABLE-SPEED BLOWER CONTROL, SERVO ACTUATORS FOR GAS AND OIL VALVES, AND FULL HMI. INTEGRATE WITH PLANT MASTER CONTROLLER.
- 8 PROVIDE DEDICATED AIR-ATOMIZING COMPRESSOR PACKAGE, AC-5, AT BOILER NO. 5 RATED 100 SCFM AT 25 PSIG, INCLUDING ASME RECEIVER, PRESSURE SWITCHES, RELIEF VALVE, FILTER/REGULATOR, CHECK VALVE, AND CONTROLS. INTERLOCK WITH BURNER OIL SYSTEM AND VERIFY AUTOMATIC START/STOP FUNCTION PER SPECIFICATION SECTION 230926.
- 9 PROVIDE COMPLETE PLANT MASTER CONTROLLER, CONTROL PANEL, PLC, POWER SUPPLIES, MANAGED ETHERNET SWITCH, AND 15-INCH HMI IN ACCORDANCE WITH SPECIFICATION SECTION 230926. SYSTEM SHALL COORDINATE BOILERS 2 THROUGH 5 FOR LEAD/LAG SEQUENCING, HEADER-PRESSURE CONTROL, ALARM LOGGING, AND DATA TRENDING.
- 10 PROVIDE ALL COMMUNICATION CABLES, GATEWAYS, AND POINT MAPPING BETWEEN PLANT MASTER CONTROLLER AND BOILERS 2 THROUGH 5 IN ACCORDANCE WITH SPECIFICATION SECTION 230926. VERIFY FULL READ/WRITE FUNCTIONALITY, DEMAND BROADCAST, AND ALARM EXCHANGE DURING COMMISSIONING.

KEYED NOTES:

- 1 PROVIDE HOUSEKEEPING PAD PER DETAIL 6M-501.
- 2 PLANT OPERATOR WORKSTATION. PROVIDE PLANT DISTRIBUTED CONTROL SYSTEM (DCS) / SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM IN ACCORDANCE WITH SPECIFICATION SECTION 230925 - DISTRIBUTED CONTROL SYSTEM - HEATING PLANT. INTERFACE THE DISTRIBUTED CONTROL SYSTEM (SPEC 230925) WITH THE PLANT MASTER CONTROLLER (SPEC 230926) USING OPEN PROTOCOLS. EXCHANGE OPERATING STATUS, HEADER-PRESSURE, LOAD, AND ALARM DATA. CONFIGURE SCADA FOR MONITORING, TRENDING, AND REPORTING ONLY. MAINTAIN CONTROL AUTHORITY AT THE PLANT MASTER CONTROLLER. VERIFY FUNCTIONAL COMMUNICATION AND DATA MAPPING DURING SYSTEM STARTUP.
- 3 PROVIDE REPLACEMENT SAFETY RELIEF VALVES PER SCHEDULE ON M-601. REMOVE AT EXISTING FLANGES AND REPLACE WITH EQUIPMENT OF SAME DIMENSION.

GENERAL NOTES:

1. COORDINATE UTILITY SHUTDOWNS WITH DIRECTOR'S REPRESENTATIVE.
2. REFER TO STRUCTURAL DRAWINGS FOR CATWALK MODIFICATIONS.
3. PROVIDE ALL CONTROL, INSTRUMENTATION, AND INTERLOCK WIRING IN RIGID GALVANIZED STEEL (RGS) CONDUIT. PROVIDE LIQUID-TIGHT FLEXIBLE METAL CONDUIT FOR CONNECTIONS TO EQUIPMENT OR LOCATIONS SUBJECT TO VIBRATION OR MOVEMENT. REFER TO SPECIFICATION SECTION 26502 - ELECTRICAL WORK FOR ADDITIONAL REQUIREMENTS REGARDING CONDUIT TYPES, FITTINGS, GROUNDING, AND INSTALLATION DETAILS.
4. REFER TO DRAWING M-104 FOR BOILER BLOWDOWN SYSTEM, AUTOMATIC CONTINUOUS BLOWDOWN SYSTEM WITH CHEMICAL FEED AND DEAERATOR SECONDARY (COLD WATER) MAKEUP PREHEAT SYSTEM.



1 FIRST FLOOR INSTALLATION PLAN
M-101 3/16" = 1'-0"

DESIGN & CONSTRUCTION

CONSULTANT:
CERTIFICATE OF AUTHORIZATION #: 0018644



SAGE ENGINEERING ASSOCIATES, LLP

TO THE BEST OF THE ENGINEER'S KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND/OR SPECIFICATION ARE IN COMPLIANCE WITH THE 2025 ENERGY CONSTRUCTION CODE OF NEW YORK STATE.

TO THE BEST OF THE ENGINEER'S KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND/OR SPECIFICATION ARE IN COMPLIANCE WITH THE 2025 BUILDING CODE OF NEW YORK STATE.

WARNING:
THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.



REGISTRATION EXPIRES: 02/28/2026

CONTRACT:
HVAC

TITLE:
REPLACE BOILER, VARIOUS POWERHOUSE EQUIPMENT AND BOILER CONTROL SYSTEM

LOCATION:
BEDFORD HILLS CORR. FACILITY
247 HARRIS ROAD
BEDFORD HILLS, NY

CLIENT:
DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION

| MARK | DATE | DESCRIPTION |
|-----------------|--------------------------------------|---------------|
| ▲ | 03/04/2026 | ADDENDUM NO 2 |
| | 12/2/2025 | BID DOCUMENT |
| PROJECT NUMBER: | M3207 - H | |
| DESIGNED BY: | MWM | |
| DRAWN BY: | MWM | |
| FIELD CHECK: | LSI | |
| APPROVED: | DPL | |
| SHEET TITLE: | FIRST FLOOR INSTALLATION PLAN | |
| DRAWING NUMBER: | M-101 | |

FIRST FLOOR INSTALLATION PLAN

DRAWING NUMBER: **M-101**

DESIGN & CONSTRUCTION

CONSULTANT:
CERTIFICATE OF AUTHORIZATION #: 0018644



SAGE ENGINEERING ASSOCIATES, LLP

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REGISTRATION EXPIRES: 02/28/2026

CONTRACT:

HVAC

TITLE: REPLACE BOILER, VARIOUS POWERHOUSE EQUIPMENT AND BOILER CONTROL SYSTEM

LOCATION: BEDFORD HILLS CORR. FACILITY 247 HARRIS ROAD BEDFORD HILLS, NY

CLIENT: DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION

| MARK | DATE | DESCRIPTION |
|------|------------|---------------|
| ▲ | 03/04/2026 | ADDENDUM NO 2 |
| | 12/2/2025 | BID DOCUMENT |

| | |
|-----------------|------------------|
| PROJECT NUMBER: | M3207 - H |
| DESIGNED BY: | MWM |
| DRAWN BY: | MWM |
| FIELD CHECK: | LSI |
| APPROVED: | DPL |

SHEET TITLE: UPPER LEVEL INSTALLATION PLAN

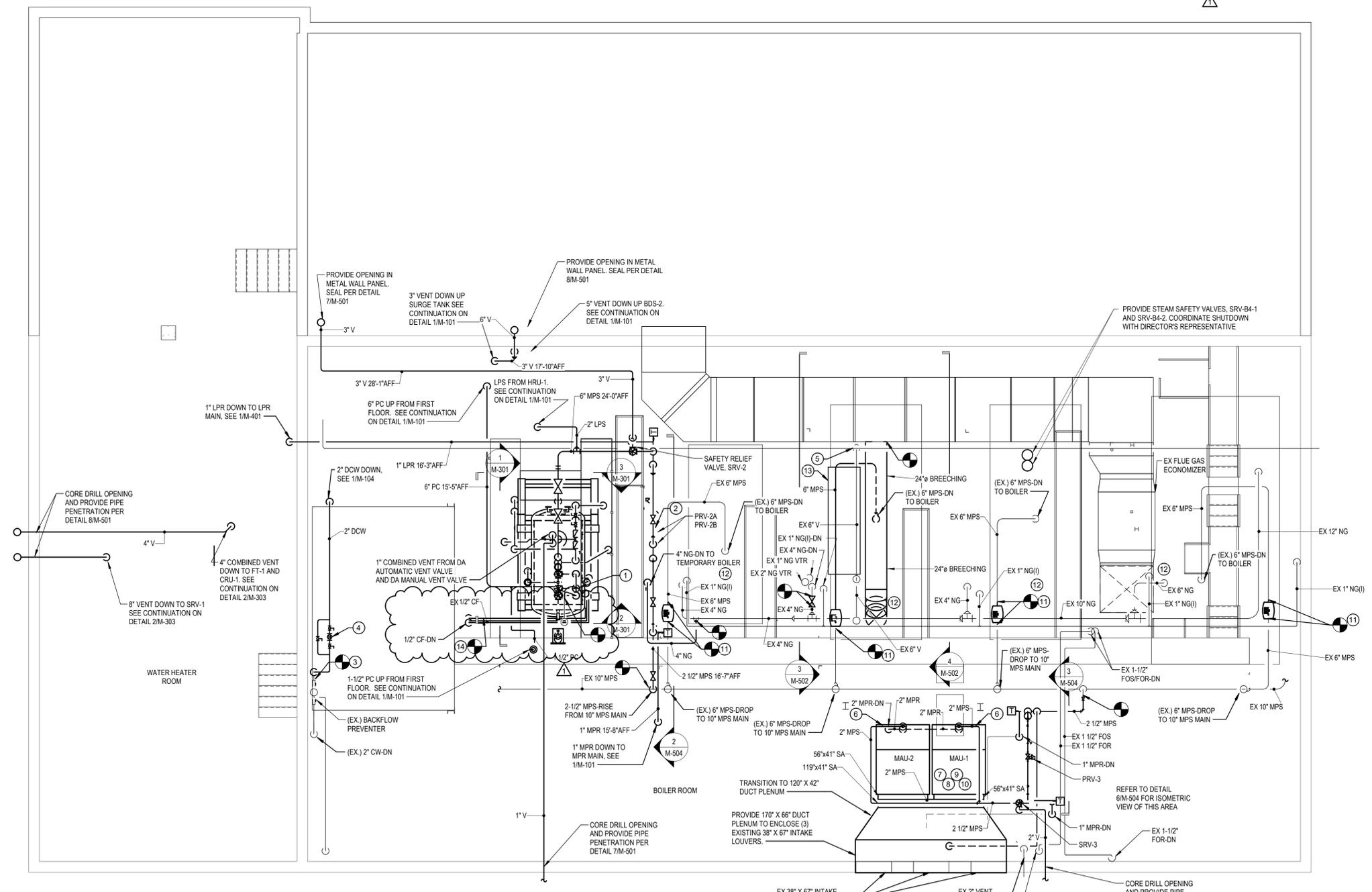
DRAWING NUMBER: M-102

GENERAL NOTES:

- COORDINATE UTILITY SHUTDOWNS WITH DIRECTOR'S REPRESENTATIVE.
- REFER TO STRUCTURAL DRAWINGS FOR CATWALK MODIFICATIONS.
- REFER TO PHOTO 2 ON DRAWING MR-105 FOR TEMPORARY REMOVAL OF HANDRAIL TO ALLOW FOR INSTALLATION OF MAKEUP AIR UNITS MAU-1 AND MAU-2.

KEYED NOTES:

- CONNECT DISCHARGE FROM (3) DRIP PAN ELBOWS SERVING SAFETY RELIEF VALVES TO EXISTING 6" VENT THROUGH ROOF. REMOVE CAP FROM TOP OF PIPE ON TOP OF ROOF.
- LOCATE PRVs AT ELEVATION SUCH THAT SENSING LINE IS SLOPED TOWARDS CONNECTION AT DA TANK WITH MINIMAL ELBOWS.
- TIE-IN 2" DCW CONNECTION AFTER EXISTING BACKFLOW PREVENTOR TO ALLOW EXISTING DA TANK AND REPLACEMENT DA TO OPERATE SIMULTANEOUSLY.
- PROVIDE WATER METER PER SPECIFICATION SECTION 221119.
- BOILER SAFETY RELIEF VALVE VENT TIE-IN IN RISER. REFER TO SECTIONS 3 AND 4 ON M-502.
- REFER TO DETAIL 3M-501 FOR MAKEUP AIR UNIT HEATING COIL PIPING DIAGRAM.
- INTERFACE COMBUSTION AIR MAKE-UP UNIT WITH BOILERS AND PLANT MASTER CONTROLLER. PROVIDE DRY CONTACT OUTPUT FROM EACH BOILER TO ENABLE THE MAU FAN WHEN ANY BOILER IS ENABLED OR FIRING. CONNECT ALL BOILER ENABLE CONTACTS IN PARALLEL TO FORM A COMMON START SIGNAL TO THE MAU.
- PROVIDE DIFFERENTIAL PRESSURE AIRFLOW-PROVING SWITCH EQUAL TO DWYER SERIES AA RANGE 0.02-0.20 IN. W.C. NEMA 4 ENCLOSURE. SPDT 10 A @ 120 VAC CONTACTS. MOUNT ON MAU DISCHARGE DUCT WITH HIGH AND LOW PRESSURE TUBES INSTALLED PER MANUFACTURER'S INSTRUCTIONS. SET SWITCH TO CLOSE AT APPROXIMATELY 0.05 IN. W.C. ON AIRFLOW INCREASE. WIRE SWITCH CONTACTS THROUGH BOILER SAFETY PERMISSIVE CIRCUIT IN SERIES WITH EXISTING SAFETY DEVICES.
- PROVIDE 0-10 VDC ANALOG OUTPUT FROM PLANT MASTER CONTROLLER TO THE MAU VARIABLE-SPEED MOTOR CONTROLLER. SCALE OUTPUT LINEARLY WITH TOTAL BOILER FIRING-RATE DEMAND. 0 V = 300 CFM, 10 V = 16,000 CFM. USE SIGNAL TO START AND MODULATE MAU FAN SPEED.
- VERIFY PROPER OPERATION OF MAU FAN CONTROL AND AIRFLOW INTERLOCKS DURING STARTUP. CONFIRM SPEED RESPONSE TO PLANT MASTER SIGNAL AND VERIFY AIRFLOW PROOF PRIOR TO BOILER IGNITION.
- 6" STEAM FLOWMETER.
- REPLACE STACK DAMPER. REFER TO CONTROLS DRAWINGS M-703 AND M-704.
- 3'-0" X 10'-0" BOILER ACCESS PLATFORM BY BOILER MANUFACTURER, MOUNTED TO BOILER. COORDINATE SIZE AND LOCATION TO ALLOW ACCESS TO BOILER APPURTENANCES.
- EXTEND (3) 1/2" CF PIPES TO INJECTION QUILLS AT REPLACEMENT DEAERATOR.



1 UPPER LEVEL INSTALLATION PLAN
M-102 3/16" = 1'-0"

- KEYED NOTES:**
- 1 PROVIDE AUTOMATED BLOWDOWN. REFER TO DETAIL 1/M-503.
 - 2 REFRAIN EXISTING CHEMICAL FEED TIE-IN AT EXISTING BOILER.
 - 3 EXISTING CHEMICAL FEED SYSTEM. EXTEND EXISTING 1/2" CHEMICAL FEED (CF) LINES TO BOILER #3 AND DEAERATOR.

- GENERAL NOTES:**
1. COORDINATE UTILITY SHUTDOWNS WITH DIRECTOR'S REPRESENTATIVE.
 2. REFER TO STRUCTURAL DRAWINGS FOR CATWALK MODIFICATIONS.
 3. PROVIDE ALL CONTROL, INSTRUMENTATION, AND INTERLOCK WIRING IN RIGID GALVANIZED STEEL (RGS) CONDUIT. PROVIDE LIQUID-TIGHT FLEXIBLE METAL CONDUIT FOR CONNECTIONS TO EQUIPMENT OR LOCATIONS SUBJECT TO VIBRATION OR MOVEMENT. REFER TO SPECIFICATION SECTION 26502 - ELECTRICAL WORK FOR ADDITIONAL REQUIREMENTS REGARDING CONDUIT TYPES, FITTINGS, GROUNDING, AND INSTALLATION DETAILS.

DESIGN & CONSTRUCTION

CONSULTANT:
CERTIFICATE OF AUTHORIZATION #: 0018644



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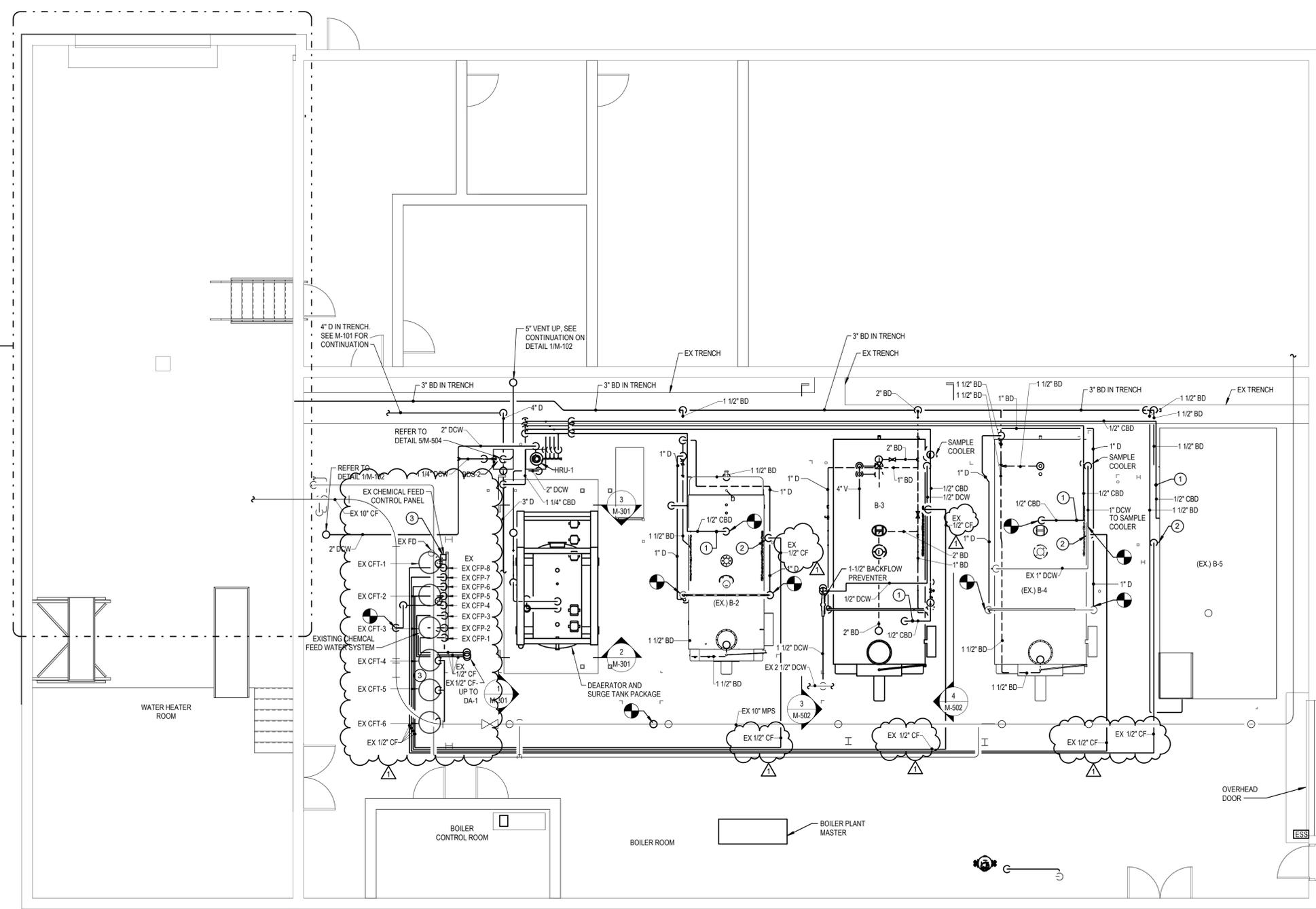
REGISTRATION EXPIRES: 02/28/2026

CONTRACT: HVAC

TITLE: REPLACE BOILER, VARIOUS POWERHOUSE EQUIPMENT AND BOILER CONTROL SYSTEM

**LOCATION: BEDFORD HILLS CORR. FACILITY
247 HARRIS ROAD
BEDFORD HILLS, NY**

CLIENT: DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION



FIRST FLOOR INSTALLATION PLAN - BLOWDOWN SYSTEM
1 M-104 3/16" = 1'-0"

36X24 PLOT SHEET

| MARK | DATE | DESCRIPTION |
|------|------------|---------------|
| △ | 03/04/2026 | ADDENDUM NO 2 |
| | 12/2/2025 | BID DOCUMENT |

PROJECT NUMBER: M3207 - H
DESIGNED BY: MWM
DRAWN BY: MWM
FIELD CHECK: LSI
APPROVED: DPL

SHEET TITLE: FIRST FLOOR INSTALLATION PLAN - BLOWDOWN SYSTEM
DRAWING NUMBER: M-104



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REGISTRATION EXPIRES: 02/28/2026

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LOCATION: BEDFORD HILLS CORR. FACILITY
247 HARRIS ROAD
BEDFORD HILLS, NY

CLIENT: DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION

| | | |
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| 12/2/2025 | BID DOCUMENT | |
| MARK | DATE | DESCRIPTION |
| PROJECT NUMBER: | M3207 - H | |
| DESIGNED BY: | MWM | |
| DRAWN BY: | MWM | |
| FIELD CHECK: | LSI | |
| APPROVED: | DPL | |

| | | |
|--|--|--|
| SHEET TITLE: | | |
| ENLARGED PLAN - WATER HEATER ROOM | | |
| DRAWING NUMBER: | | |
| M-401 | | |
| SHEET 19 OF 39 | | |

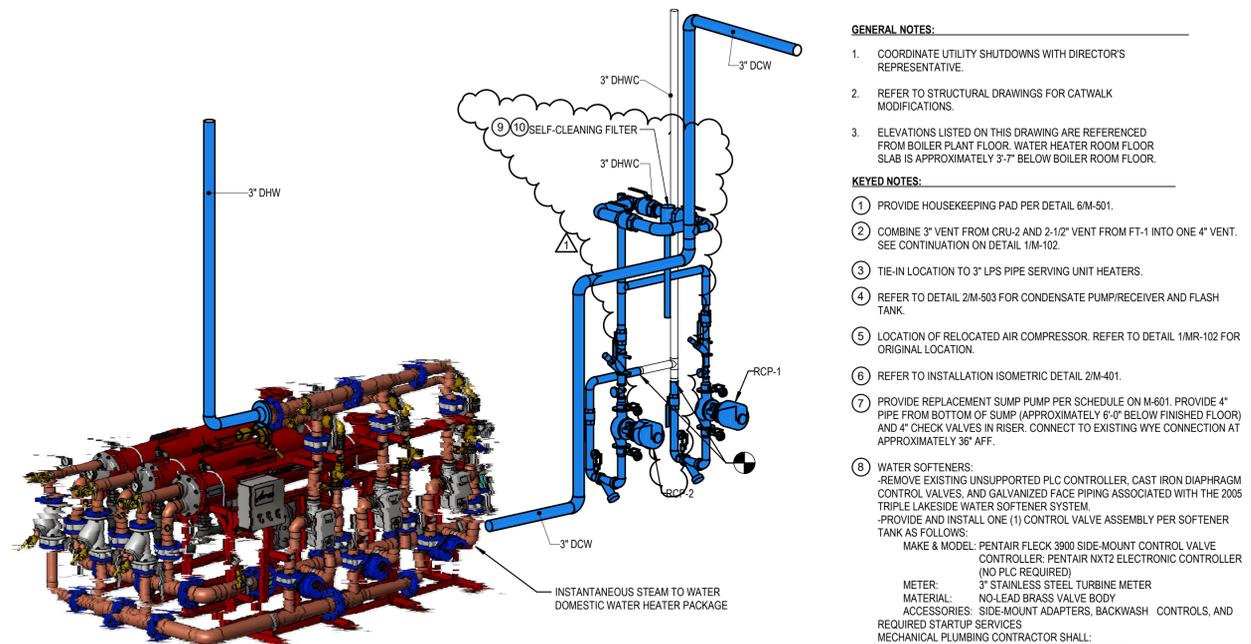
GENERAL NOTES:

- COORDINATE UTILITY SHUTDOWNS WITH DIRECTOR'S REPRESENTATIVE.
- REFER TO STRUCTURAL DRAWINGS FOR CATWALK MODIFICATIONS.
- ELEVATIONS LISTED ON THIS DRAWING ARE REFERENCED FROM BOILER PLANT FLOOR. WATER HEATER ROOM FLOOR SLAB IS APPROXIMATELY 3'-7" BELOW BOILER ROOM FLOOR.

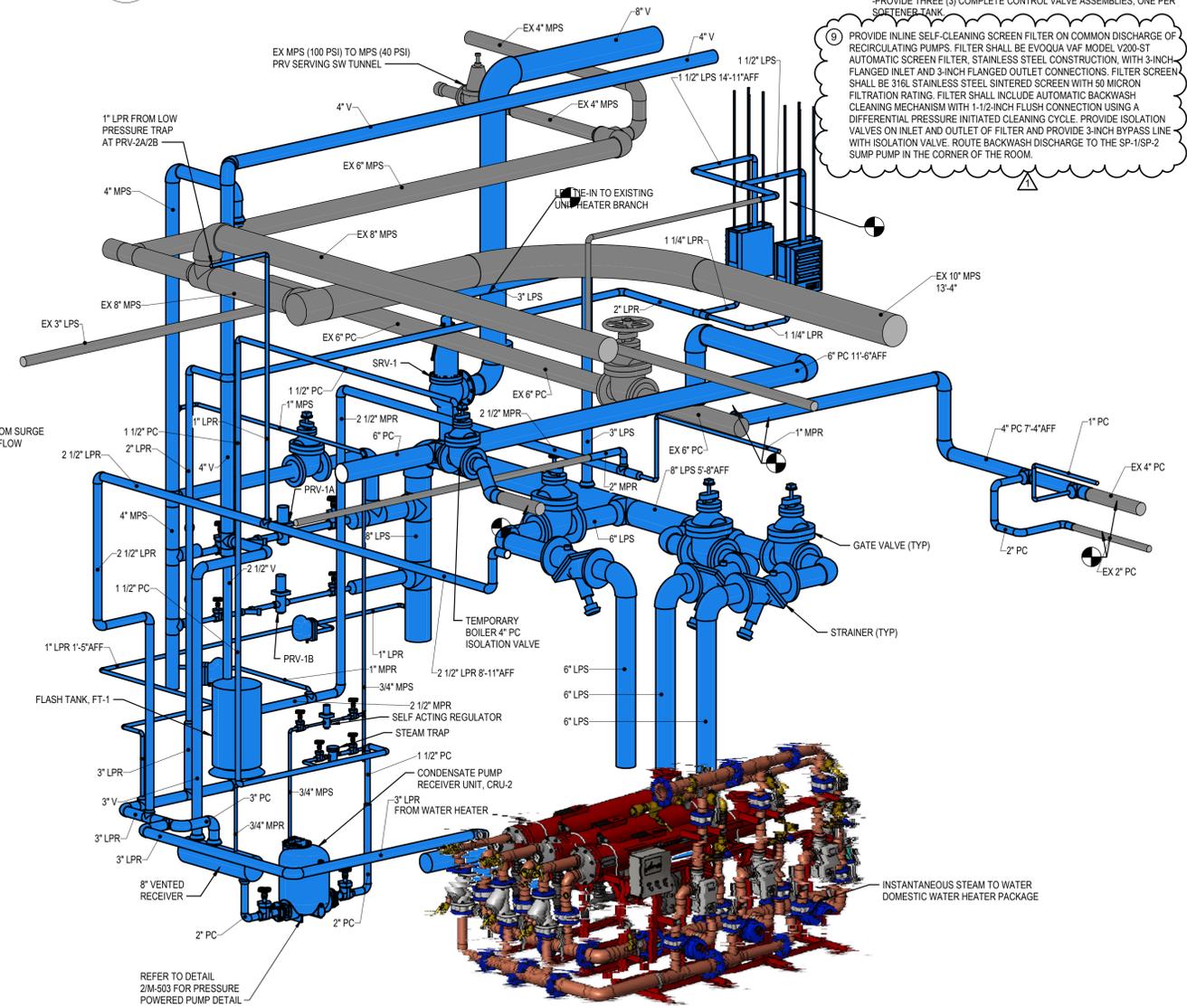
KEYED NOTES:

- PROVIDE HOUSEKEEPING PAD PER DETAIL 6/M-501.
- COMBINE 3" VENT FROM CRU-2 AND 2-1/2" VENT FROM FT-1 INTO ONE 4" VENT. SEE CONTINUATION ON DETAIL 1/M-102.
- TIE-IN LOCATION TO 3" LPS PIPE SERVING UNIT HEATERS.
- REFER TO DETAIL 2/M-503 FOR CONDENSATE PUMP/RECEIVER AND FLASH TANK.
- LOCATION OF RELOCATED AIR COMPRESSOR. REFER TO DETAIL 1/M-102 FOR ORIGINAL LOCATION.
- REFER TO INSTALLATION ISOMETRIC DETAIL 2/M-401.
- PROVIDE REPLACEMENT SUMP PUMP PER SCHEDULE ON M-601. PROVIDE 4" PIPE FROM BOTTOM OF SUMP (APPROXIMATELY 6'-0" BELOW FINISHED FLOOR) AND 4" CHECK VALVES IN RISER. CONNECT TO EXISTING WYE CONNECTION AT APPROXIMATELY 36" AFF.
- WATER SOFTENERS:
-REMOVE EXISTING UNSUPPORTED PLC CONTROLLER, CAST IRON DIAPHRAGM CONTROL VALVES, AND GALVANIZED FACE PIPING ASSOCIATED WITH THE 2005 TRIPLE LAKESIDE WATER SOFTENER SYSTEM.
-PROVIDE AND INSTALL ONE (1) CONTROL VALVE ASSEMBLY PER SOFTENER TANK AS FOLLOWS:
MAKE & MODEL: PENTAIR FLECK 3900 SIDE-MOUNT CONTROL VALVE CONTROLLER; PENTAIR NXT2 ELECTRONIC CONTROLLER (NO PLC REQUIRED)
METER: 3" STAINLESS STEEL TURBINE METER (NO PLC REQUIRED)
MATERIAL: NO-LEAD BRASS VALVE BODY
ACCESSORIES: SIDE-MOUNT ADAPTERS, BACKWASH CONTROLS, AND REQUIRED STARTUP SERVICES
MECHANICAL PLUMBING CONTRACTOR SHALL:
-PIPE CONTROL VALVES TO EACH SOFTENER TANK
-CONNECT BRINE LINES BETWEEN CONTROL VALVES AND BRINE TANK
-PROVIDE AND CONNECT BACKWASH AND DRAIN PIPING
-COORDINATE FINAL CONNECTIONS, STARTUP, AND OPERATIONAL VERIFICATION
-PROVIDE THREE (3) COMPLETE CONTROL VALVE ASSEMBLIES, ONE PER SOFTENER TANK

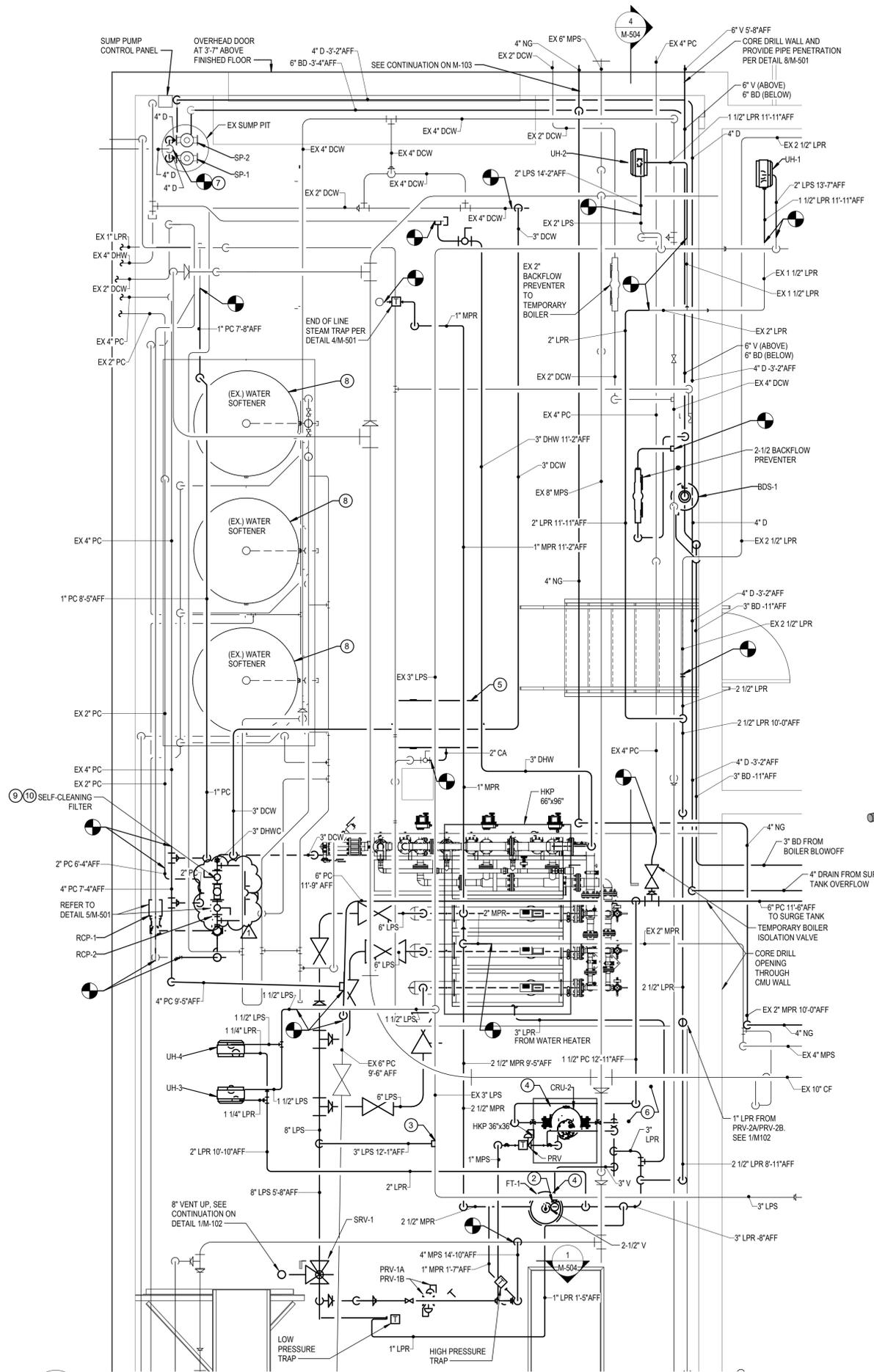
9 PROVIDE INLINE SELF-CLEANING SCREEN FILTER ON COMMON DISCHARGE OF RECIRCULATING PUMPS. FILTER SHALL BE EVOQUA VAF MODEL V200-ST AUTOMATIC SCREEN FILTER, STAINLESS STEEL CONSTRUCTION, WITH 3-INCH FLANGED INLET AND 3-INCH FLANGED OUTLET CONNECTIONS. FILTER SCREEN SHALL BE 316L STAINLESS STEEL SINTERED SCREEN WITH 50 MICRON FILTRATION RATING. FILTER SHALL INCLUDE AUTOMATIC BACKWASH CLEANING MECHANISM WITH 1-1/2-INCH FLUSH CONNECTION USING A DIFFERENTIAL PRESSURE INITIATED CLEANING CYCLE. PROVIDE ISOLATION VALVES ON INLET AND OUTLET OF FILTER AND PROVIDE 3-INCH BYPASS LINE WITH ISOLATION VALVE. ROUTE BACKWASH DISCHARGE TO THE SP-1/SP-2 SUMP PUMP IN THE CORNER OF THE ROOM.



3 ISOMETRIC AT WATER HEATER-DOMESTIC WATER
M-401



2 ISOMETRIC AT WATER HEATER-STEAM AND CONDENSATE
M-401



1 ENLARGED WATER HEATER INSTALLATION PLAN
M-401 3/8" = 1'-0"

36X24 PLOT SHEET



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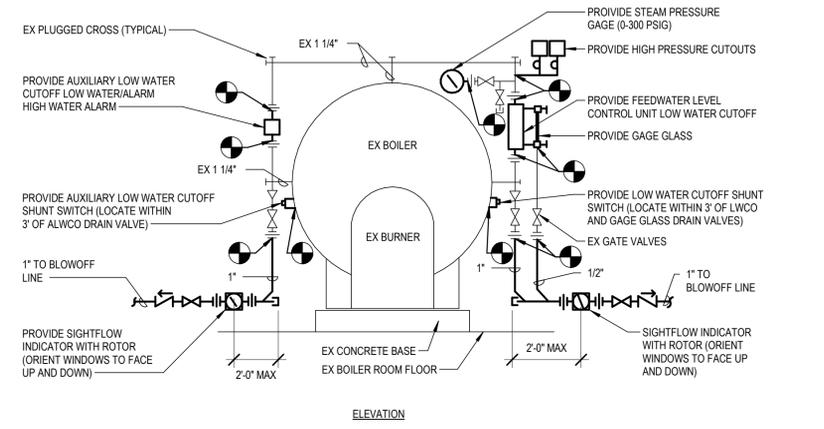
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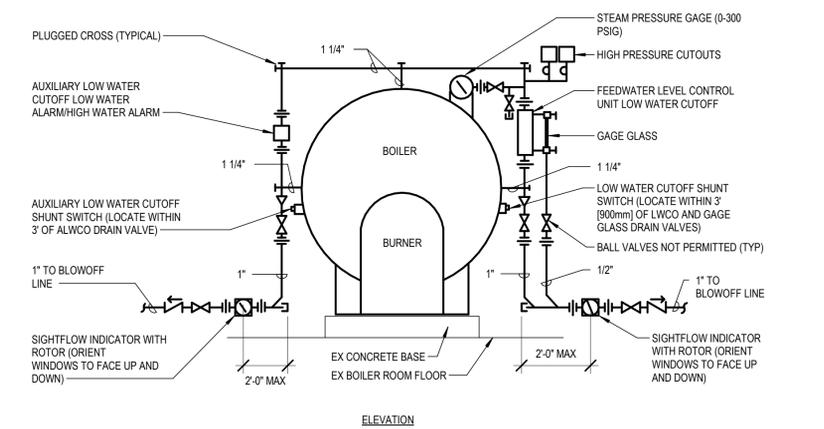
REGISTRATION EXPIRES: 02/28/2026

CONTRACT:
HVAC
TITLE: REPLACE BOILER, VARIOUS POWERHOUSE EQUIPMENT AND BOILER CONTROL SYSTEM
LOCATION: BEDFORD HILLS CORR. FACILITY 247 HARRIS ROAD BEDFORD HILLS, NY
CLIENT: DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION

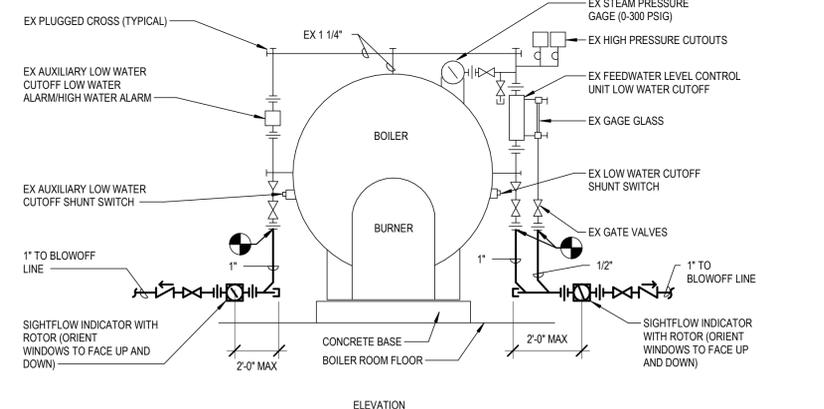
| MARK | DATE | DESCRIPTION |
|------------------------|------------------|---------------|
| ▲ | 03/04/2026 | ADDENDUM NO 2 |
| | 12/2/2025 | BID DOCUMENT |
| PROJECT NUMBER: | M3207 - H | |
| DESIGNED BY: | MWM | |
| DRAWN BY: | MWM | |
| FIELD CHECK: | LSI | |
| APPROVED: | DPL | |
| SHEET TITLE: | DETAILS | |
| DRAWING NUMBER: | M-503 | |



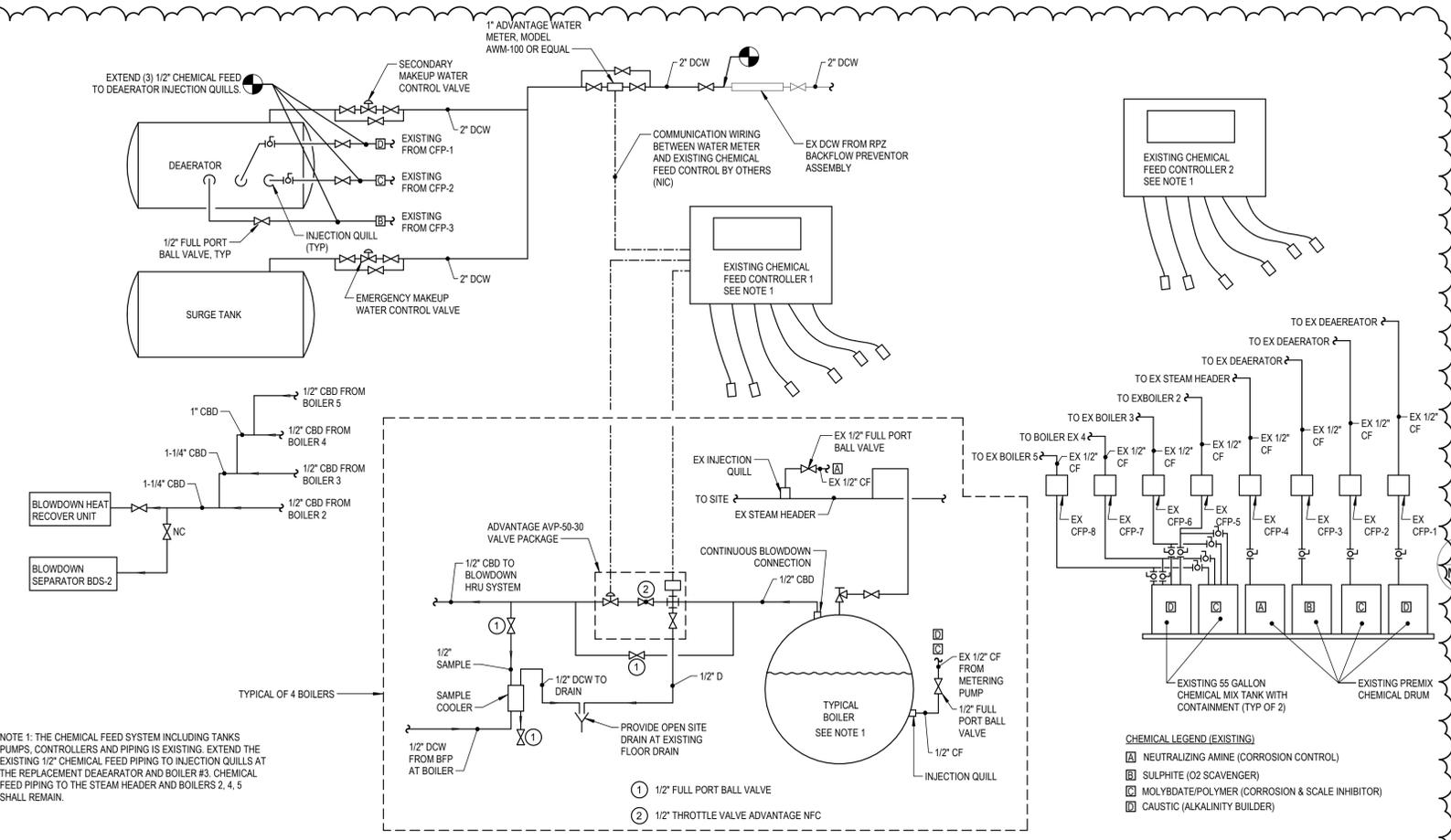
3 FIRE TUBE BOILER PIPING DETAILS AT BOILER 2 AND 5
M-503 NOT TO SCALE



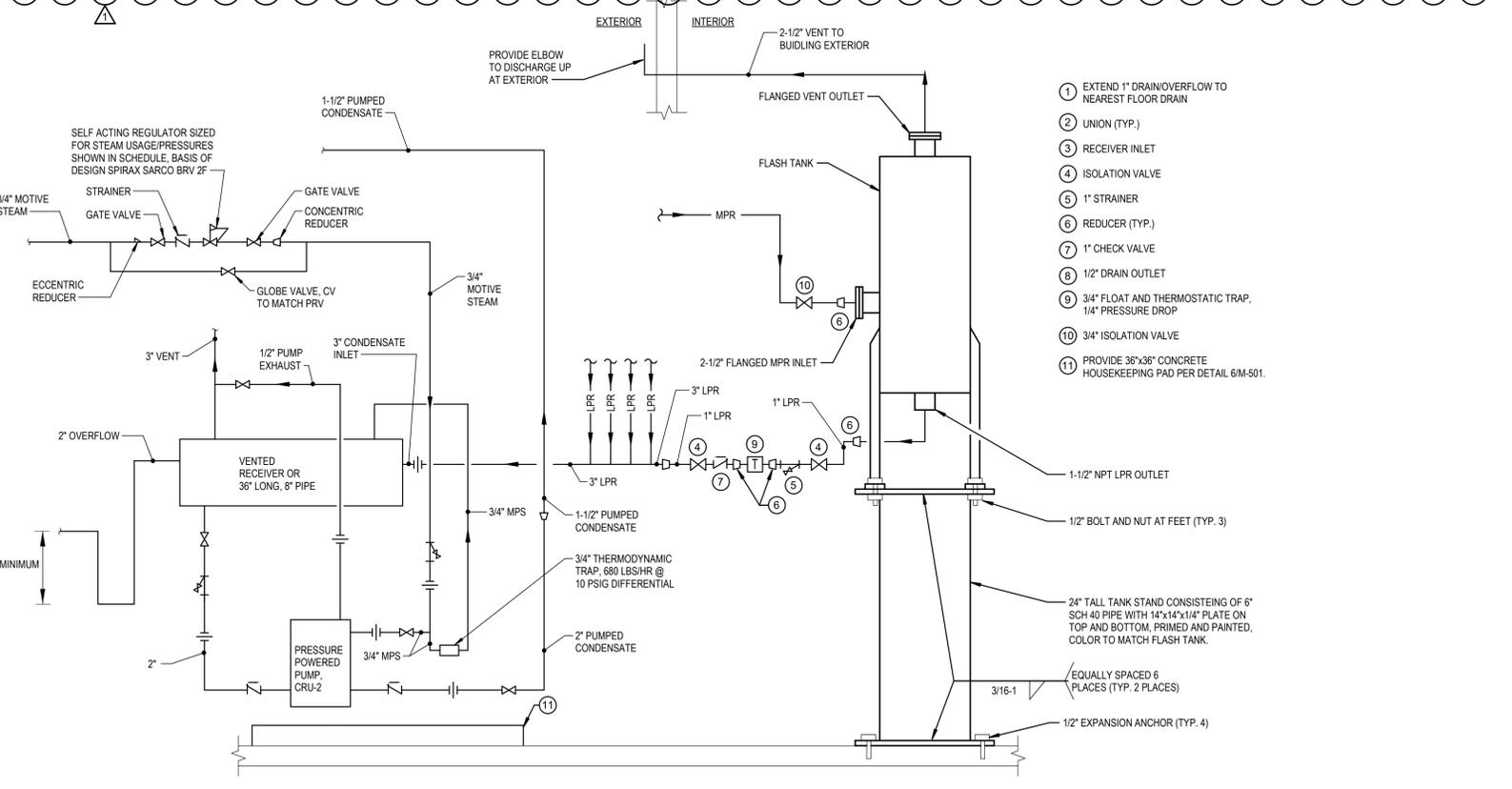
4 FIRE TUBE BOILER PIPING DETAILS AT BOILER 3
M-503 NOT TO SCALE



5 FIRE TUBE BOILER PIPING DETAILS AT BOILER 4
M-503 NOT TO SCALE



1 CHEMICAL FEED/AUTOMATED BLOWDOWN DIAGRAM
M-503 N.T.S.



2 CONDENSATE PUMP/RECEIVER/FLASH TANK DETAIL
M-503 N.T.S.

DESIGN & CONSTRUCTION

CONSULTANT:
CERTIFICATE OF AUTHORIZATION #: 0018644



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REGISTRATION EXPIRES: 02/28/2026

CONTRACT:
HVAC
TITLE:
REPLACE BOILER, VARIOUS POWERHOUSE EQUIPMENT AND BOILER CONTROL SYSTEM

LOCATION:
**BEDFORD HILLS CORR. FACILITY
247 HARRIS ROAD
BEDFORD HILLS, NY**

CLIENT:
DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION

| | |
|-----------------|------------------|
| PROJECT NUMBER: | M3207 - H |
| DESIGNED BY: | MWM |
| DRAWN BY: | MWM |
| FIELD CHECK: | LSI |
| APPROVED: | DPL |
| SHEET TITLE: | SCHEDULES |
| DRAWING NUMBER: | M-601 |

SUMP PUMP SCHEDULE

1. PROVIDE 36" SUMP PIT COVER WITH MECHANICAL ALTERNATING FLOAT SWITCH, COMPRESSION HIGH WATER ALARM, AUXILIARY FLOAT SWITCH, DISCHARGE CHECK VALVE AND DISCHARGE GATE VALVE.

| TAG | FLOW (GPM) | HEAD (FT) | DISCHARGE (IN.) | TEMPERATURE RATING (F) | ELECTRICAL VOLTS | PH | HP | RPM | BASIS OF DESIGN MFG. AND MODEL | REMARKS |
|------|------------|-----------|-----------------|------------------------|------------------|----|----|-------|--------------------------------|---------|
| SP-1 | 100 | 40 | 4 | 210 | 208 | 3 | 3 | 1,750 | FEDERAL PUMP CORP VSA-4F-3.4 | ALL |
| SP-2 | 100 | 40 | 4 | 210 | 208 | 3 | 3 | 1,750 | FEDERAL PUMP CORP VSA-4F-3.4 | ALL |

INSTANTANEOUS STEAM-WATER HEATER SCHEDULE

1. FLUID FLOWING FACTOR 0.00010 H.F.T. "FIBTU
2. PRE-PIPED ASSEMBLED REDUNDANT WATER HEATERS WITH DIGITAL RECIRCULATING VALVES COMPRISED OF VALVES, STRAINER, CHECK VALVES, RELIEF VALVES, THERMOMETERS, PRESSURE GAUGES AND CONDENSATE TRAP ASSEMBLY AND PAINTED CARBON STEEL FRAME.
3. THE THIRD HEAT EXCHANGER AND RECIRCULATING VALVE SHALL BE CONFIGURED FOR REDUNDANT BACKUP SERVICE. CONFIGURE TWO HEAT EXCHANGERS TO OPERATE IN PARALLEL AT STARTUP.
4. ASSEMBLY SHALL INCLUDE ARMSTRONG "SAGE FOR BAS" COMMUNICATION INTERFACE AND MOBILE CONNECTIVITY DATA PORT.
5. PRE-PIPED SKID SHALL HAVE A 2-YEAR WARRANTY, DIGITAL RECIRCULATION VALVE SHALL HAVE A 5 YEAR WARRANTY, WITH EXCEPTION OF BATTERIES AND O-RINGS, TUBE BUNDLES SHALL HAVE A 10 YEAR WARRANTY.
6. HORIZONTAL CONFIGURATION

| TAG | FLOW (GPM) | EWT (F) | LWT (F) | STEAM REQUIRED (LBS/HR) | STEAM PRESSURE (PSIG) | ELECTRICAL VOLTS | PHASE | AMPS | BASIS OF DESIGN MFG. AND MODEL | REMARKS |
|------|------------|---------|---------|-------------------------|-----------------------|------------------|-------|------|--|---------|
| WH-1 | 73 | 40 | 140 | 3883 | 15 | 120 | 1 | 20 | ARMSTRONG DF665DWT WITH DRV50 MIXING VALVE | ALL |
| WH-2 | 73 | 40 | 140 | 3883 | 15 | 120 | 1 | 20 | ARMSTRONG DF665DWT WITH DRV50 MIXING VALVE | ALL |
| WH-3 | 73 | 40 | 140 | 3883 | 15 | 120 | 1 | 20 | ARMSTRONG DF665DWT WITH DRV50 MIXING VALVE | ALL |

CIRCULATOR PUMP SCHEDULE

1. ALL BRONZE CONSTRUCTION.
2. CIRCULATING HOT WATER PUMP.
3. INSTALL PUMP PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. PROVIDE WITH FOUNDATION.

| TAG | LOCATION | TYPE | FLOW | HEAD (FT) | ELECTRICAL DATA VOLTS | PH | HP | RPM | BASIS OF DESIGN MFG. AND MODEL | REMARKS |
|-------|-------------------|--------------------|------|-----------|-----------------------|----|----|-------|--------------------------------|---------|
| RCP-1 | WATER HEATER ROOM | INLINE CENTRIFUGAL | 80 | 168 | 208 | 3 | 5 | 3,500 | GOULDS (XYLEM) - 15SV3FGAF60 | ALL |
| RCP-2 | WATER HEATER ROOM | INLINE CENTRIFUGAL | 80 | 168 | 208 | 3 | 5 | 3,500 | GOULDS (XYLEM) - 15SV3FGAF60 | ALL |

PUMP SCHEDULE

| TAG | FLOW (GPM) | HEAD (FT) | FLUID TYPE | IMPELLER DIAMETER | EFFICIENCY | ELECTRICAL VOLTS | PH | HP | RPM | BASIS OF DESIGN MFG. AND MODEL | REMARKS |
|-------|------------|-----------|------------|-------------------|------------|------------------|----|-----|------|--------------------------------|---------|
| FWP-1 | 52 | 377 | WATER | 4.13 | 67.7 | 208 | 3 | 10 | 3500 | GRUNDFOSS CR10-10K | ALL |
| FWP-2 | 52 | 396 | WATER | 4.13 | 67.7 | 208 | 3 | 10 | 3500 | GRUNDFOSS CR10-10K | ALL |
| FWP-3 | 52 | 377 | WATER | 4.13 | 67.7 | 208 | 3 | 10 | 3500 | GRUNDFOSS CR10-10K | ALL |
| TP-1 | 96 | 135 | WATER | 4.13 | 61.1 | 208 | 3 | 7.5 | 3500 | GRUNDFOSS CR20-2K | ALL |
| TP-2 | 96 | 135 | WATER | 4.13 | 61.1 | 208 | 3 | 7.5 | 3500 | GRUNDFOSS CR20-2K | ALL |

CONDENSATE PUMP / RECEIVER SET SCHEDULE

1. PROVIDE WITH SELF ACTING REGULATOR AND STEAM TRAP ON MOTIVE STEAM INLET PIPING PER DETAIL.

| TAG | TYPE | MOTIVE STEAM PRESSURE (PSIG) | TOTAL PUMP DISCHARGE CAPACITY AT 12" FILLING HEAD (LBS/HR) | BACKPRESSURE (PSIG) | RECEIVER SIZE (DIAMETER X LENGTH) | STEAM CONSUMPTION (LBS/HR) | VENT OUTLET (IN.) | BASIS OF DESIGN MFG. AND MODEL | REMARKS |
|-------|------------------------|------------------------------|--|---------------------|-----------------------------------|----------------------------|-------------------|--------------------------------|---------|
| CRU-1 | STEAM PRESSURE POWERED | 80 | 10,000 | 10 | 8" DIAMETER X 36" LONG | 14 | 2 | SPIRAX SARCO 2"X2" PTC | ALL |
| CRU-2 | STEAM PRESSURE POWERED | 80 | 10,000 | 10 | 8" DIAMETER X 36" LONG | 29 | 3 | SPIRAX SARCO 2"X2" PTC | ALL |

STEAM UNIT HEATER SCHEDULE

1. PROVIDE WITH LINE VOLTAGE THERMOSTAT AND MANUAL MOTOR STARTER

| TAG | LOCATION | TYPE | CAPACITY (BTU/HR) | AIRFLOW (CFM) | EAT (DEG F) | LAT (DEG F) | STEAM PRESSURE (PSIG) | CONDENSATE (LBS/HR) | HP | ELECTRICAL VOLTS | PHASE | WEIGHT (LBS) | BASIS OF DESIGN MFG. AND MODEL | REMARKS |
|------|-------------------|-------------------------|-------------------|---------------|-------------|-------------|-----------------------|---------------------|------|------------------|-------|--------------|--------------------------------|---------|
| UH-1 | VESTIBULE | HORIZONTAL AIR DELIVERY | 18000 | 340 | 60 | 93 | 15 | 19 | 1/60 | 120 V | 1 | 16 | MODINE HSB18 | ALL |
| UH-2 | WATER HEATER ROOM | HORIZONTAL AIR DELIVERY | 33000 | 630 | 60 | 91 | 15 | 34 | 1/25 | 120 V | 1 | 34 | MODINE HSB33 | ALL |
| UH-3 | WATER HEATER ROOM | HORIZONTAL AIR DELIVERY | 33000 | 630 | 60 | 91 | 15 | 34 | 1/25 | 120 V | 1 | 34 | MODINE HSB33 | ALL |
| UH-4 | WATER HEATER ROOM | HORIZONTAL AIR DELIVERY | 33000 | 630 | 60 | 91 | 15 | 34 | 1/25 | 120 V | 1 | 34 | MODINE HSB33 | ALL |
| UH-5 | ENGINE ROOM | HORIZONTAL AIR DELIVERY | 33000 | 630 | 60 | 91 | 15 | 34 | 1/25 | 120 V | 1 | 34 | MODINE HSB33 | ALL |

BOILER / BURNER SCHEDULE

1. GAS NOX EMISSIONS LEVEL: 30 PPM. GAS CO EMISSIONS LEVEL: 50 PPM.
2. OIL NOX EMISSIONS LEVEL 90 PPM. OIL CO EMISSIONS LEVEL: 50 PPM.
3. DESIGN PRESSURE: 200 LB ST. OPERATING PRESSURE: 100 PSIG.
4. HAWK CONTROL PACKAGE WITH 15 INCH TOUCHSCREEN. HAWK STACK LIGHT PACKAGE WITH 5 PORT ETHERNET HUB OR EQUAL.
5. SINGLE LADDER AND ACCESS PLATFORM (MOUNTED LEFT HAND SIDE OF BOILER)
6. 5" NONRETURN VALVE. 300 LB FLANGES WITH 8"x8" SPOOL PIECE.
7. 8" STEAM STOP VALVE. 300 LB FLANGES WITH 5"x8"x14.625" SPOOL PIECE.
8. PARALLEL POSITIONING PRIMARY FUEL ACTUATOR, PARALLEL POSITIONING SECONDARY FUEL ACTUATOR, PARALLEL POSITIONING AIR ACTUATOR AND PARALLEL POSITIONING FOR ACTUATOR.
9. MODULATING CONTROL TRANSMITTER.
10. OPERATING PRESSURE LIMIT CONTROL.
11. HIGH LIMIT CONTROL.
12. O2 TRIM BY FACTORY.
13. PLC UNINTERRUPTIBLE POWER SUPPLY.
14. INTEGRATED DRAFT CONTROL WITH MODULATING DRAFT DAMPER ASSEMBLY.
15. REMOTE FIRING RATE SIGNAL, WATER LEVEL DISPLAY, NATURAL GAS FLOWMETER, STEAM FLOWMETER AND EXPANDED ANNUNCIATION.
16. CONTROL CIRCUIT TRANSFORMER, SIDE MOUNTED CONTROL, BURNER PANEL ENCLOSURE, J-BOX PANELS FOR COMPLETE BOILER (NEMA 12)
17. CONTROL PANEL LABEL (UL508a) ENTRANCE PANEL LABEL (UL508a)
18. AUDIBLE ALARM, ELECTRONIC SOUNDER WITH COMMON ALARM FUNCTION.
19. CONTACT FOR REMOTE ANNUNCIATOR POINT IN CONJUNCTION WITH BOILER MOUNTED ALARM.
20. REMOTE BOILER STATUS RELAY.
21. PROVIDE THE FOLLOWING FACTORY SUBMITTALS: ASME DATA REPORT, DIMENSIONAL DIAGRAM, TEST FIRE REPORT, WIRING DIAGRAM.

| TAG | BOILER TYPE | SERVICE | CAPACITY (BHP) | CAPACITY (LBS/HR) | VENT DIAMETER | FUEL TYPE | HEATING SURFACE (SQ. FT.) | NO.2 FUEL OIL INPUT (GPH) | NATURAL GAS INPUT (CFH) | TURNDOWN (NATURAL GAS) | NATURAL GAS PRESSURE AVAILABLE | TURNDOWN (#2 FUEL OIL) | #2 FUEL OIL PRESSURE | EFFICIENCY NATURAL GAS / FUEL OIL | BLOWER MOTOR (HP) | AIR COMPRESSOR (HP) | WEIGHT (LBS) | BASIS OF DESIGN MFG. AND MODEL | REMARKS |
|-----|-------------------------------|------------------------|----------------|-------------------|---------------|----------------------|---------------------------|---------------------------|-------------------------|------------------------|--------------------------------|------------------------|----------------------|-----------------------------------|-------------------|---------------------|--------------|--------------------------------------|---------|
| B-3 | FIRETUBE WITH INTEGRAL BURNER | FACILITY STEAM SERVICE | 600 | 20,700 | 24 in | NATURAL GAS/FUEL OIL | 3,000 | 175 | 24,494 | 10:1 | 2.71 PSIG | 8:1 | 10 - 20 PSIG | 83.5 / 86.8 | 25 | 7.5 | 45,025 | CLEAVER BROOKS CBLE-4D-200-600-200ST | |

STARTERS AND DISCONNECT SCHEDULE

1. OEM - FURNISHED BY MANUFACTURER WITH EQUIPMENT AS PART OF H-CONTRACT.
2. ALL MOTOR CONTROLLER FURNISHED BY H-CONTRACT ARE INSTALLED BY E-CONTRACT.

| TAG(S) | EQUIPMENT | POWER | MOTOR CONTROLLER TYPE | FURNISHED BY | DISCONNECT TYPE | FURNISHED BY | NOTES / INTERFACE |
|-----------------------------------|---------------------------------|----------------|---|--------------|-----------------|--------------|--|
| MAU-1, MAU-2 | MAKE-UP AIR UNITS | 208V, 3Ø | FACTORY VARIABLE SPEED MOTOR CONTROLLER | OEM | | | SINGLE-POINT POWER: SPEED CONTROL INTERNAL TO OEM PANEL |
| CFP-1 THRU CFP-5 | CHEMICAL FEED PUMPS | 120V, 3Ø | N/A (R/LIG-CONNECTED) | H-CONTRACT | | | CORD & PLUG TO WATER TREATMENT CONTROL PANEL, NO HARDWIRING |
| WH-1, WH-2, WH-3 | WATER HEATER (CONTROL PANEL) | 120V, 3Ø | FACTORY CONTROLLER | OEM | | | SINGLE-POINT POWER, INTERNAL ENCLOSE MANUAL CONTROLLER PER SPEC. |
| TP-1 | TRANSFER PUMP | 208V, 3Ø | FACTORY VARIABLE SPEED MOTOR CONTROLLER | OEM | | | SINGLE-POINT 480V POWER TO PUMP |
| TP-2 | TRANSFER PUMP | 208V, 3Ø | FACTORY VARIABLE SPEED MOTOR CONTROLLER | OEM | | | OEM PRIMARY DISCONNECT ON MAIN EQUIPMENT STAND |
| FWP-1 | BOILER FEEDWATER PUMP | 208V, 3Ø | FACTORY VARIABLE SPEED MOTOR CONTROLLER | OEM | | | SINGLE-POINT 480V POWER TO PUMP |
| FWP-2 | BOILER FEEDWATER PUMP | 208V, 3Ø | FACTORY VARIABLE SPEED MOTOR CONTROLLER | OEM | | | OEM PRIMARY DISCONNECT ON MAIN EQUIPMENT STAND |
| FWP-3 | BOILER FEEDWATER PUMP | 208V, 3Ø | FACTORY VARIABLE SPEED MOTOR CONTROLLER | OEM | | | SINGLE-POINT 480V POWER TO PUMP |
| DEAERATOR / SURGE TANK CONTROLLER | PACKAGED DEAERATOR / SURGE TANK | 208V, 3Ø | FACTORY CONTROLLER | OEM | | | SINGLE-POINT 480V POWER TO PUMP. |
| BOILER BURNER (EACH BOILER) | BURNER & FAN | 208V, 3Ø | FACTORY CONTROLLER | OEM | | | OEM PRIMARY DISCONNECT ON MAIN EQUIPMENT STAND |
| B-2 AIR COMPRESSOR | | 208V, 3Ø, 5 HP | COMBINATION FULL-VOLTAGE MAGNETIC MOTOR CONTROLLER (ACROSS-THE-LINE) (26913.03) | H-CONTRACT | | | SINGLE-POINT POWER, INCLUDES CONTROL POWER AND BURNER FAN. |
| SP-1, SP-2 | SUMP PUMPS | 208V, 3Ø | COMBINATION FULL-VOLTAGE MAGNETIC MOTOR CONTROLLER (ACROSS-THE-LINE) (26913.03) | H-CONTRACT | | | <varies> |
| RCP-1, RCP-2 | RECIRCULATION PUMPS | 208V, 3Ø | VARIABLE SPEED MOTOR CONTROLLER | H-CONTRACT | | | <varies> |
| UH-1 THRU UH-5 | STEAM UNIT HEATERS | 120V, 3Ø | ENCLOSED MANUAL MOTOR CONTROLLER (26913.03) | H-CONTRACT | | | IN ENCLOSED MANUAL CONTROLLER |

MAKE-UP AIR UNIT SCHEDULE

1. PROVIDE UNIT WITH VARIABLE FREQUENCY DRIVE AND DISCONNECT.
2. PROVIDE WITH FILTER BOX WITH 2" THROWAWAY FILTERS.
3. PROVIDE WITH HEATING SECTION WITH MULTIPLE ALTERNATING FINNED HEATING ELEMENTS IN FACE AND BYPASS CHANNELS.
4. BELT DRIVE FAN.
5. ELECTRIC CONTROL SYSTEM WITH DISCHARGE AIR CONTROL.
6. ELECTRIC FREEZE/STAT CONTROL FOR COIL PROTECTION.
7. VFD CONTROLLER, SHIPPED LOOSE, FIELD SUPPLIED 0-10 VDC SIGNAL.
8. FUSED DISCONNECT SWITCH, MOUNTED AND WIRED.

| TAG | LOCATION | CFM | TOTAL / EXTERNAL S.P. (IN.WC) | HP | FAN TYPE | CAPACITY (MBH) | EAT (DEG F) | LAT (DEG F) | PRESSURE DROP (IN. WC) | MEDIUM | STEAM PRESSURE (PSIG) | CONDENSATE (LBS/HR) | FACE VELOCITY (FPM) | FACE AREA (SF) | FILTER APD (IN WC) | ELECTRICAL VOLTS | PHASE | WEIGHT (LBS) | BASIS OF DESIGN MFG. AND MODEL | REMARKS |
|-------|-----------|-------|-------------------------------|----|--------------|----------------|-------------|-------------|------------------------|--------|-----------------------|---------------------|---------------------|----------------|--------------------|------------------|-------|--------------|--------------------------------|---------|
| MAU-1 | MEZZANINE | 8,000 | 0.5 | 3 | DIRECT DRIVE | 1,026 | -10 | 108 | 0.24 | STEAM | 75 | 1,148 | 879 | 9.1 | 0.5 | 208 V | 3 | 1100 | LJ WING FASU-33-HV | ALL |
| MAU-2 | MEZZANINE | 8,000 | 0.5 | 3 | DIRECT DRIVE | 1,026 | -10 | 108 | 0.24 | STEAM | 75 | 1,148 | 879 | 9.1 | 0.5 | 208 V | 3 | 1100 | LJ WING FASU-33-HV | ALL |

BLOWDOWN SEPARATOR SCHEDULE

1) PROVIDE WITH 3/16" PLATE.
2) PROVIDE WITH AUTOMATIC AFTERCooler, MODEL 18DF.
3) PROVIDE WITH MANUFACTURER'S ANGLE LEGS, WELDED TO SEPARATOR.

| TAG | PRESSURE (PSIG) | TANK SIZE | INLET SIZE | DRAIN SIZE | VENT SIZE | COLD WATER INLET SIZE | FLASH FLOW (LBS/HR) | CONDENSATE FLOW (GPM) | COLD WATER DRAIN FLOW (GPM) | TOTAL DRAIN FLOW (GPM) | BASIS OF DESIGN MFG. AND MODEL | REMARKS |
|-------|-----------------|-----------|------------|------------|-----------|-----------------------|---------------------|-----------------------|-----------------------------|------------------------|--------------------------------|---------|
| BDS-1 | 200 | 14" x 56" | 2" | 6" | 6" | 2" | 15,886 | 157.6 | 162.1 | 319.8 | CLEAVER BROOKS BDS A56-18DF | ALL |
| BDS-2 | 50 | 14" x 34" | 2" | 4" | 5" | 1-1/4" | 2,100 | 70.6 | 72.74 | 143.0 | CLEAVER BROOKS BDS A34-18DF | ALL |

DEAERATOR SCHEDULE

| TAG | CAPACITY (GAL) | CAPACITY (LBS/HR) | TOTAL BOILER CAPACITY (BHP) | TOTAL MINUTES OF STORAGE | WEIGHT (LBS) | BASIS OF DESIGN MFG. AND MODEL |
|------|----------------|-------------------|-----------------------------|--------------------------|--------------|--------------------------------|
| DA-1 | 840 | 30000 | 900 | 13.6 | 3900 | CLEAVER BROOKS SM-30-840 |

FLASH TANK SCHEDULE

1. ASME, BPV, SECTION VIII, DIV 1 STAMPED VESSEL FOR 300 PSIG STEAM MAXIMUM DESIGN PRESSURE AT 500F MAXIMUM DESIGN TEMPERATURE.
2. SEE DETAIL, 1M-502 FOR VESSEL CONFIGURATION.

| TAG | LOCATION | CONDENSATE LOAD (LBS/HR) | VESSEL MAX. CONDENSATE LOAD (LBS/HR) | FLASH LOAD (LBS/HR) | VESSEL MAX. FLASH LOAD (LBS/HR) | BASIS OF DESIGN MFG. AND MODEL | REMARKS |
|------|-------------------|--------------------------|--------------------------------------|---------------------|---------------------------------|--------------------------------|---------|
| FT-1 | WATER HEATER ROOM | - | 2,000 | - | 500 | ARMSTRONG VAFT-6 OR EQUAL | 1, 2 |

PRESSURE REDUCING VALVE SCHEDULE

1. PROVIDE THERMAL/Acoustic INSULATION COVER TO MATCH PRV SIZE.

| TAG | SERVICE | INITIAL PRESSURE (PSIG) | FINAL PRESSURE (PSIG) | DESIGN CAPACITY (LBS/HR) | VALVE RATED CAPACITY (LBS/HR) | SIZE (IN.) | REQUIRED Cv | BASIS OF DESIGN MFG. AND MODEL | REMARKS |
|--------|---------------------|-------------------------|-----------------------|--------------------------|-------------------------------|------------|-------------|--------------------------------|---------|
| PRV-1A | WATER HEATER / UH'S | 100 | 15 | 6000 | 6055 | 2 | 37 | WATSON MCDANIEL HD | ALL |
| PRV-1B | WATER HEATER / UH'S | 100 | 15 | 2000 | 2166 | 1 | 11 | WATSON MCDANIEL HD | ALL |
| PRV-2A | DEAERATOR | 100 | 30 | 2500 | 2724 | 1-1/4 | 15 | WATSON MCDANIEL HD | ALL |
| PRV-2B | DEAERATOR | 30 | 5 | 2500 | 2680 | 2 | 37 | WATSON MCDANIEL HD | ALL |
| PRV-3 | MAKEUP AIR UNIT | 100 | 75 | 2050 | 2125 | 1-1/4 | 14 | WATSON MCDANIEL HD | ALL |

SAFETY RELIEF VALVE SCHEDULE

| TAG | SERVICE | RELIEF VALVE SETTING (PSIG) | CAPACITY (LBS/HR) | VALVE SIZE INLET x OUTLET (IN. x IN.) | DRIP PAN SIZE INLET x OUTLET (IN. x IN.) | BASIS OF DESIGN MFG. AND MODEL | REMARKS |
|----------|-----------------|-----------------------------|-------------------|---------------------------------------|--|--------------------------------|---------|
| SRV-1 | PRV-1A / PRV-1B | 25 | 8785 | 4 X 6 | 6 X 8 | WATSON MCDANIEL SVI | ALL |
| SRV-2 | PRV-2A / PRV-2B | 20 | 2420 | 2 X 2-1/2 | 2-1/2 X 3 | WATSON MCDANIEL SVB | ALL |
| SRV-3 | PRV-3A / PRV-3B | 100 | 3125 | 1-1/4 X 1-1/2 | 1-1/2 X 2 | WATSON MCDANIEL SVB | ALL |
| SRV-B2-1 | BOILER 2 | 125 | 11,255 | 2 X 3 | REUSE EXISTING | WATSON MCDANIEL SVB | ALL |
| SRV-B2-2 | BOILER 2 | 125 | 11,255 | 2 X 3 | REUSE EXISTING | WATSON MCDANIEL SVB | ALL |
| SRV-B3-1 | BOILER 3 | 125 | 21,000 | 2-1/2 X 4 | 4 X 6 | WATSON MCDANIEL SVB | ALL |
| SRV-B3-2 | BOILER 3 | 125 | 21,000 | 2-1/2 X 4 | 4 X 6 | WATSON MCDANIEL SVB | ALL |
| SRV-B4-1 | BOILER 4 | 125 | 21,000 | 2-1/2 X 4 | REUSE EXISTING | WATSON MCDANIEL SVB | ALL |
| SRV-B4-2 | BOILER 4 | 125 | 21,000 | 2-1/2 X 4 | REUSE EXISTING | WATSON MCDANIEL SVB | ALL |
| SRV-B5-1 | BOILER 5 | 125 | 20,577 | 2-1 | | | |

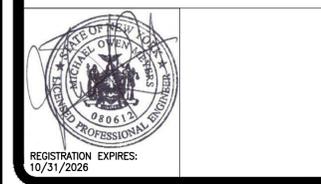


SAGE ENGINEERING ASSOCIATES, LLP

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WARNING:
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REGISTRATION EXPIRES: 10/31/2026

CONTRACT: **ELECTRICAL**

TITLE: **REPLACE BOILER, VARIOUS POWERHOUSE EQUIPMENT AND BOILER CONTROL SYSTEM**

LOCATION: **BEDFORD HILLS CORR. FACILITY
246 HARRIS ROAD
BEDFORD, NY**

CLIENT: **DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION**

| MARK | DATE | DESCRIPTION |
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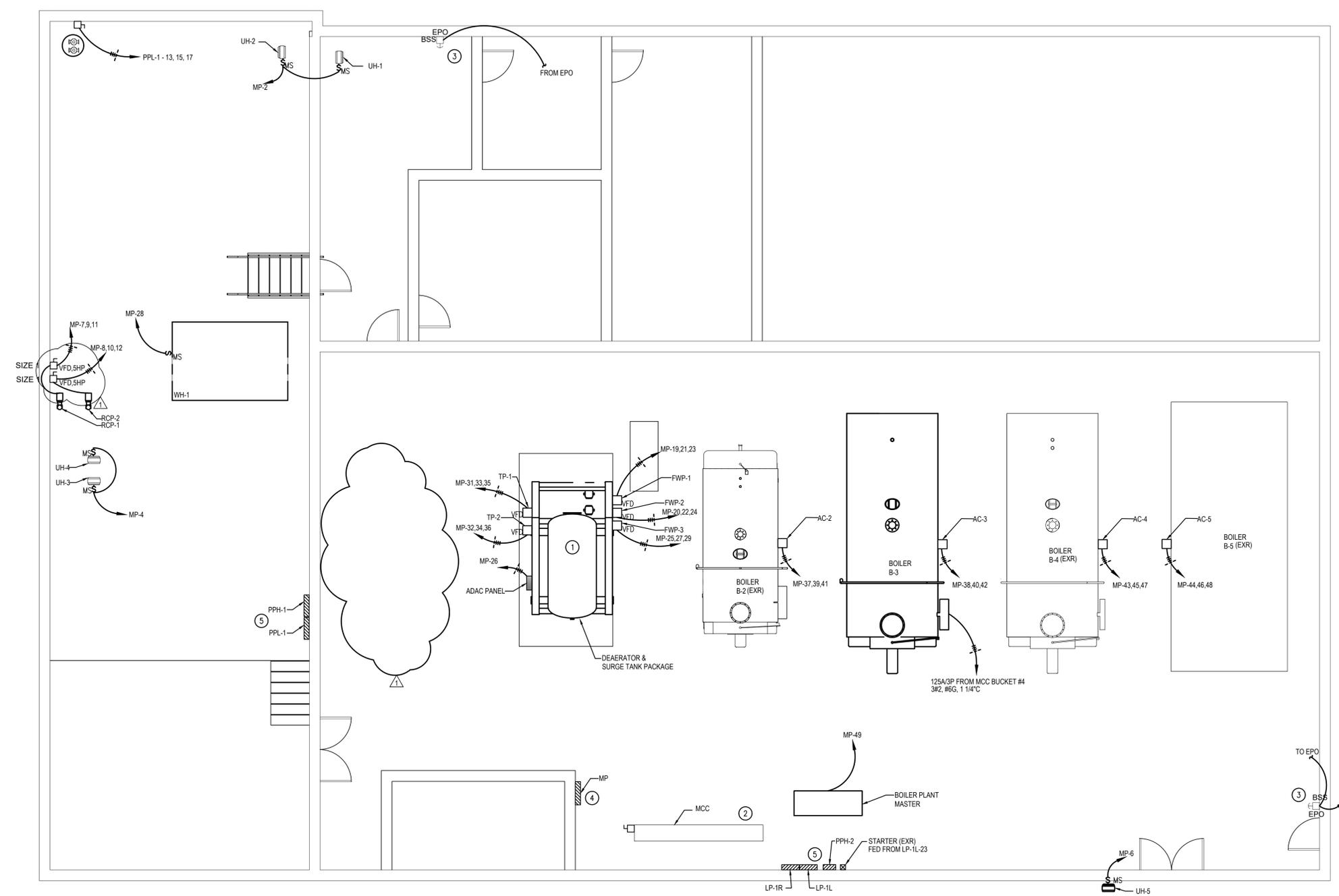
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| | 03/04/2026 | ADDENDUM NO 2 |
| | 12/02/2025 | BID DOCUMENT |
| PROJECT NUMBER: | M3207 - E | |
| DESIGNED BY: | MM | |
| DRAWN BY: | LD | |
| FIELD CHECK: | - | |
| APPROVED: | MM | |

SHEET TITLE:
FIRST FLOOR INSTALLATION PLAN

DRAWING NUMBER:
E-101

GENERAL NOTES:
1. REFER TO SHEET E-001.

- KEYED NOTES:**
- COMBINATION VFD FURNISHED WITH DEAERATER ASSEMBLY
 - PROVIDE 300 AMP CIRCUIT BREAKER IN EXISTING MCC SECTION THAT WAS FOR FEED WATER PUMP FWP-2. PROVIDE MOUNTING HARDWARE COMPATIBLE WITH ALLEN BRADLEY MOTOR CONTROL CENTERS. PROVIDE 3-350KCMIL, 350 KCMIL N. #4S, 9' C TO FEED PANEL MP.
 - PROVIDE TWO EMERGENCY POWER-OFF (EPO) MOMENTARY PUSHBUTTON STATIONS AT THE LOCATIONS SHOWN NEAR EACH BOILER ROOM EXIT DOOR. EACH DEVICE SHALL BE A MAINTAINED-CONTACT, NORMALLY CLOSED, MUSHROOM-HEAD PUSHBUTTON AND LEGEND PLATE MARKED "EMERGENCY POWER OFF - SHUTS DOWN ALL BOILERS." MOUNT EPO STATIONS IN NEMA 1 ENCLOSURES AT 48 INCHES ABOVE FINISHED FLOOR. PROVIDE ALL CONDUIT, CONDUCTORS, AND CONNECTIONS REQUIRED TO COMPLETE A FAIL-SAFE, NORMALLY-CLOSED LOOP CIRCUIT THROUGH ALL EPO STATIONS. WIRE EPO PUSHBUTTONS IN SERIES USING 120 V AC CONTROL WIRING TO MATCH THE BOILER BURNER MANAGEMENT SYSTEM (BMS) LIMIT STRING CONTROL VOLTAGE. ROUTE CIRCUIT TO THE EACH BOILER CONTROL PANEL (TYPICAL 4) AND LAND ON THE TERMINALS DESIGNATED "REMOTE EMERGENCY SHUTDOWN," "REMOTE E-STOP," OR "EXTERNAL SAFETY LIMIT INPUT" AS IDENTIFIED IN THE APPROVED BOILER MANUFACTURER WIRING DIAGRAMS. THIS CIRCUIT SHALL BE IN SERIES WITH ALL BOILER SAFETY LIMITS SO THAT OPENING ANY EPO CONTACT INTERRUPTS THE FLAME-SAFETY LIMIT STRING, IMMEDIATELY DE-ENERGIZES FUEL SAFETY SHUTOFF VALVES, AND FORCES ALL BOILERS TO LOCKOUT UNTIL MANUAL RESET IS PERFORMED AT THE BOILER CONTROL PANEL. PROVIDE LABELED CONDUCTORS AND TAG TERMINALS AT ALL CONNECTION POINTS. TEST COMPLETE CIRCUIT TO DEMONSTRATE THAT ACTIVATION OF ANY EPO PUSHBUTTON IMMEDIATELY SHUTS DOWN ALL BOILERS, DE-ENERGIZES THE MAKE-UP AIR UNIT DRIVE, AND REQUIRES MANUAL RESET BEFORE SYSTEM RESTART. ACCEPTABLE MANUFACTURERS AND MODELS INCLUDE ALLEN-BRADLEY 800F-EM22, SCHNEIDER ELECTRIC XB4-BS8445, AND EATON M22-E-STOP-N/C OR APPROVED EQUAL. COORDINATE ALL WIRING WITH H-CONTRACT.
 - PROVIDE PANELBOARD MP
 - PROVIDE PANELBOARDS. REUSE EXISTING FEEDERS. RECONNECT EXISTING BRANCH CIRCUITS. PROVIDE UPDATED PANELBOARD SCHEDULE PER FIELD VERIFICATION DURING REMOVALS.



1 FIRST FLOOR INSTALLATION PLAN
E-101 SCALE: 3/16"=1'-0"

PANEL SCHEDULE

PANEL: MP VOLTS: 120/208 PHASE: 3 WIRE: 4
 MAIN RATING: 400 AMPS MCB: 300 AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
 MOUNTING: SURFACE OTHER: - LOCATION: BOILER ROOM

| CKT. NO. | LOAD DESCRIPTION | LOAD | WIRE SIZE | TRIP | PHASE A B C | TRIP | WIRE SIZE | LOAD | LOAD DESCRIPTION | CKT. NO. |
|----------|---------------------------|------|-----------|------|-------------|------|-----------|--------------------------------------|------------------|----------|
| 1 | CHEMICAL FEED PUMPS | 500 | #12 | 201 | 201 | #12 | 240 | UNIT HEATER 1.2 (UH-1) | 2 | |
| 3 | SPARE | - | - | - | - | - | - | UNIT HEATER 3.4 (UH-3, UH-4) | 4 | |
| 5 | SPARE | - | - | - | - | - | - | UNIT HEATER 5 (UH-5) | 6 | |
| 7 | CIRCULATOR PUMP 1 (RCP-1) | 250 | #10 | 303 | 303 | #10 | 2000 | CIRCULATOR PUMP 2 (RCP-2) | 8 | |
| 9 | SPARE | - | - | - | - | - | - | - | 10 | |
| 11 | SPARE | - | - | - | - | - | - | - | 12 | |
| 13 | MAKE UP AIR UNIT 1 | 1272 | #12 | 201 | 201 | #12 | 1272 | MAKE UP AIR UNIT 2 | 14 | |
| 15 | SPARE | - | - | - | - | - | - | - | 16 | |
| 17 | SPARE | - | - | - | - | - | - | - | 18 | |
| 19 | FEEDWATER PUMP 1 (FWP-1) | 3696 | #8 | 503 | 503 | #8 | 3696 | FEEDWATER PUMP 2 (FWP-2) | 20 | |
| 21 | SPARE | - | - | - | - | - | - | - | 22 | |
| 23 | SPARE | - | - | - | - | - | - | - | 24 | |
| 25 | FEEDWATER PUMP 3 (FWP-3) | 3696 | #8 | 503 | 201 | #12 | 500 | DEAERATOR CONTROL PANEL (ADAC PANEL) | 26 | |
| 27 | SPARE | - | - | - | - | - | - | - | 28 | |
| 29 | SPARE | - | - | - | - | - | - | - | 30 | |
| 31 | TRANSFER PUMP 1 (TP-1) | 2904 | #10 | 353 | 353 | #10 | 2904 | TRANSFER PUMP 2 (TP-2) | 32 | |
| 33 | SPARE | - | - | - | - | - | - | - | 34 | |
| 35 | SPARE | - | - | - | - | - | - | - | 36 | |
| 37 | AC-2 | 2004 | #10 | 303 | 503 | #10 | 2904 | AC-3 | 38 | |
| 39 | SPARE | - | - | - | - | - | - | - | 40 | |
| 41 | SPARE | - | - | - | - | - | - | - | 42 | |
| 43 | AC-4 | 2904 | #10 | 503 | 503 | #10 | 2904 | AC-5 | 44 | |
| 45 | SPARE | - | - | - | - | - | - | - | 46 | |
| 47 | SPARE | - | - | - | - | - | - | - | 48 | |
| 49 | BOILER PLANT MASTER | 250 | #12 | 201 | 201 | #12 | 50 | EPO CONTROL CIRCUIT | 50 | |
| 51 | SPARE | - | - | - | - | - | - | - | 52 | |
| 53 | SPARE | - | - | - | - | - | - | - | 54 | |
| 55 | SPARE | - | - | - | - | - | - | - | 56 | |
| 57 | SPARE | - | - | - | - | - | - | - | 58 | |
| 59 | SPARE | - | - | - | - | - | - | - | 60 | |

PANEL SCHEDULE

PANEL: PPH-1 VOLTS: 120/208 PHASE: 3 WIRE: 4
 MAIN RATING: 250 AMPS MCB: 250 AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
 MOUNTING: SURFACE OTHER: - LOCATION: BOILER BACK RM

| CKT. NO. | LOAD DESCRIPTION | LOAD | WIRE SIZE | TRIP | PHASE A B C | TRIP | WIRE SIZE | LOAD | LOAD DESCRIPTION | CKT. NO. |
|----------|------------------|------|-----------|------|-------------|------|-----------|------|------------------|----------|
| 1 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 2 |
| 3 | SPARE | - | - | - | - | - | - | - | - | 4 |
| 5 | SPARE | - | - | - | - | - | - | - | - | 6 |
| 7 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 8 |
| 9 | SPARE | - | - | - | - | - | - | - | - | 10 |
| 11 | SPARE | - | - | - | - | - | - | - | - | 12 |
| 13 | EXISTING CIRCUIT | - | - | - | - | - | - | - | SPARE | 14 |
| 15 | SPARE | - | - | - | - | - | - | - | SPARE | 16 |
| 17 | SPARE | - | - | - | - | - | - | - | SPARE | 18 |
| 19 | SPARE | - | - | - | - | - | - | - | SPARE | 20 |
| 21 | SPARE | - | - | - | - | - | - | - | SPARE | 22 |
| 23 | SPARE | - | - | - | - | - | - | - | SPARE | 24 |

PANEL SCHEDULE

PANEL: PPL-1 VOLTS: 120/208 PHASE: 3 WIRE: 4
 MAIN RATING: 100 AMPS MCB: MLO AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
 MOUNTING: SURFACE OTHER: - LOCATION: BOILER BACK ROOM

| CKT. NO. | LOAD DESCRIPTION | LOAD | WIRE SIZE | TRIP | PHASE A B C | TRIP | WIRE SIZE | LOAD | LOAD DESCRIPTION | CKT. NO. |
|----------|--------------------------------|------|-----------|------|-------------|------|-----------|------|------------------|----------|
| 1 | MAIN CIRCUIT BREAKER 100AMP | - | - | - | - | - | - | - | EXTERIOR LIGHTS | 2 |
| 3 | SPARE | - | - | - | - | - | - | - | FALL STATION | 4 |
| 5 | SPARE | - | - | - | - | - | - | - | FALL STATION | 6 |
| 7 | SPARE | - | - | - | - | - | - | - | SPARE | 8 |
| 9 | TRIPLEX WATER SOFTENER | - | - | - | - | - | - | - | USD CONTROLLER | 10 |
| 11 | SPARE | - | - | - | - | - | - | - | SPARE | 12 |
| 13 | DUPLEX SUMP PUMP (SP-1 / SP-2) | 1275 | #10 | 303 | 201 | - | - | - | SPARE | 14 |
| 15 | SPARE | - | - | - | - | - | - | - | SPARE | 16 |
| 17 | SPARE | - | - | - | - | - | - | - | SPARE | 18 |
| 19 | SPARE | - | - | - | - | - | - | - | SPARE | 20 |
| 21 | SPARE | - | - | - | - | - | - | - | SPARE | 22 |
| 23 | D.HOT WATER PUMP | - | - | - | - | - | - | - | EXISTING CIRCUIT | 24 |
| 25 | SPARE | - | - | - | - | - | - | - | - | 26 |
| 27 | SPARE | - | - | - | - | - | - | - | - | 28 |
| 29 | SPARE | - | - | - | - | - | - | - | SPARE | 30 |

PANEL SCHEDULE

PANEL: LP-1L VOLTS: 120/208 PHASE: 3 WIRE: 4
 MAIN RATING: 125 AMPS MCB: 125 AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
 MOUNTING: SURFACE OTHER: - LOCATION: BOILER ROOM

| CKT. NO. | LOAD DESCRIPTION | LOAD | WIRE SIZE | TRIP | PHASE A B C | TRIP | WIRE SIZE | LOAD | LOAD DESCRIPTION | CKT. NO. |
|----------|------------------|------|-----------|------|-------------|------|-----------|------|------------------|----------|
| 1 | EXISTING CIRCUIT | - | - | - | - | - | - | - | TEMP WELDER | 2 |
| 3 | SPARE | - | - | - | - | - | - | - | - | 4 |
| 5 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 6 |
| 7 | EXISTING CIRCUIT | - | - | - | - | - | - | - | - | 8 |
| 9 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 10 |
| 11 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 12 |
| 13 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 14 |
| 15 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 16 |
| 17 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 18 |
| 19 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 20 |
| 21 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 22 |
| 23 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 24 |
| 25 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 26 |
| 27 | STARTER | - | - | - | - | - | - | - | - | 28 |
| 29 | SPARE | - | - | - | - | - | - | - | EXISTING CIRCUIT | 30 |
| 31 | SPARE | - | - | - | - | - | - | - | - | 32 |
| 33 | DDC ROOM LIGHTS | - | - | - | - | - | - | - | EXISTING CIRCUIT | 34 |
| 35 | DDC ROOM OUTLETS | - | - | - | - | - | - | - | EXISTING CIRCUIT | 36 |

PANEL SCHEDULE

PANEL: LP-1R VOLTS: 120/208 PHASE: 3 WIRE: 4
 MAIN RATING: 125 AMPS MCB: 125 AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
 MOUNTING: SURFACE OTHER: - LOCATION: BOILER ROOM

| CKT. NO. | LOAD DESCRIPTION | LOAD | WIRE SIZE | TRIP | PHASE A B C | TRIP | WIRE SIZE | LOAD | LOAD DESCRIPTION | CKT. NO. |
|----------|---------------------------------|------|-----------|------|-------------|------|-----------|------|--|----------|
| 1 | EXISTING CIRCUIT | - | - | - | - | - | - | - | TEMP WELDER | 2 |
| 3 | SPARE | - | - | - | - | - | - | - | LEVEL ALARM FOR OIL TANK | 4 |
| 5 | EXISTING CIRCUIT | - | - | - | - | - | - | - | UNIT HEATER BOILER RM. NORTH WALL | 6 |
| 7 | RCP1 ENG. RM. | - | - | - | - | - | - | - | HEAT TRACE TAPE TANK RM. | 8 |
| 9 | RCP1 BOILER RM. | - | - | - | - | - | - | - | HEAT TRACE TAPE TANK RM. | 10 |
| 11 | OVERHEAD BOILER RM LIGHTS | - | - | - | - | - | - | - | HEAT TRACE TAPE TANK RM. | 12 |
| 13 | OVERHEAD BOILER RM LIGHTS | - | - | - | - | - | - | - | LIGHTS TANK RM. | 14 |
| 15 | BOILER RM NORTH WALL LIGHTS | - | - | - | - | - | - | - | LIGHTS TANK RM. | 16 |
| 17 | ENGINE RM LIGHTS | - | - | - | - | - | - | - | RCP1S TANK RM. | 18 |
| 19 | ENGINE RM LIGHTS | - | - | - | - | - | - | - | RCP1S TANK RM. | 20 |
| 21 | LIGHTS UNDER CATWALK | - | - | - | - | - | - | - | RCP1 WATER COOLER | 22 |
| 23 | RCP1 BATH AND LOCKER RMS | - | - | - | - | - | - | - | CONSTANT VOLTAGE TRANS DO NOT SHUT OFF | 24 |
| 25 | RCP1 OFFICE AREA | - | - | - | - | - | - | - | #2 BOILER CONTROL | 26 |
| 27 | LIGHTS ENTRY BATH LOCKER OFFICE | - | - | - | - | - | - | - | EXISTING CIRCUIT | 28 |
| 29 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 30 |
| 31 | COMBUSTION PANEL BOILER RM. | - | - | - | - | - | - | - | EXISTING CIRCUIT | 32 |
| 33 | EXISTING CIRCUIT | - | - | - | - | - | - | - | WATER TOWER TELEMETRY PANEL | 34 |
| 35 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 36 |

PANEL SCHEDULE

PANEL: PPH-2 VOLTS: 120/208 PHASE: 3 WIRE: 4
 MAIN RATING: 250 AMPS MCB: 250 AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
 MOUNTING: SURFACE OTHER: - LOCATION: BOILER ROOM

| CKT. NO. | LOAD DESCRIPTION | LOAD | WIRE SIZE | TRIP | PHASE A B C | TRIP | WIRE SIZE | LOAD | LOAD DESCRIPTION | CKT. NO. |
|----------|------------------|------|-----------|------|-------------|------|-----------|------|------------------|----------|
| 1 | OIL PUMP 1 | - | - | - | - | - | - | - | OIL PUMP 2 | 2 |
| 3 | SPARE | - | - | - | - | - | - | - | - | 4 |
| 5 | SPARE | - | - | - | - | - | - | - | - | 6 |
| 7 | NEW FO PUMP | - | - | - | - | - | - | - | OIL PUMP 3 | 8 |
| 9 | SPARE | - | - | - | - | - | - | - | - | 10 |
| 11 | SPARE | - | - | - | - | - | - | - | - | 12 |
| 13 | SPARE | - | - | - | - | - | - | - | SPARE | 14 |
| 15 | SPARE | - | - | - | - | - | - | - | SPARE | 16 |
| 17 | SPARE | - | - | - | - | - | - | - | SPARE | 18 |
| 19 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 20 |
| 21 | SPARE | - | - | - | - | - | - | - | - | 22 |
| 23 | SPARE | - | - | - | - | - | - | - | - | 24 |
| 25 | EXISTING CIRCUIT | - | - | - | - | - | - | - | EXISTING CIRCUIT | 26 |
| 27 | SPARE | - | - | - | - | - | - | - | - | 28 |
| 29 | SPARE | - | - | - | - | - | - | - | - | 30 |
| 31 | EXISTING CIRCUIT | - | - | - | - | - | - | - | SPARE | 32 |
| 33 | SPARE | - | - | - | - | - | - | - | SPARE | 34 |
| 35 | SPARE | - | - | - | - | - | - | - | SPARE | 36 |

STARTERS AND DISCONNECT SCHEDULE

- OEM - FURNISHED BY MANUFACTURER WITH EQUIPMENT AS PART OF H-CONTRACT
- ALL MOTOR CONTROLLER FURNISHED BY H-CONTRACT ARE INSTALLED BY E-CONTRACT

| TAG(S) | EQUIPMENT | POWER | MOTOR CONTROLLER | | DISCONNECT | | NOTES / INTERFACE |
|-----------------------------------|---------------------------------|-----------------------|---|--------------|--|--|-------------------|
| | | | TYPE | FURNISHED BY | TYPE | FURNISHED BY | |
| MAU-1, MAU-2 | MAKE-UP AIR UNITS | 208V, 3Ø | FACTORY VARIABLE SPEED MOTOR CONTROLLER | OEM | OEM | SINGLE-POINT POWER; SPEED CONTROL INTERNAL TO OEM PANEL. | |
| CFP-1 THRU CFP-5 | CHEMICAL FEED PUMPS | 120V, 3Ø | N/A (PLUG-CONNECTED) | H-CONTRACT | N/A | CORD & PLUG TO WATER TREATMENT CONTROL PANEL; NO HARDWIRING | |
| WH-1, WH-2, WH-3 | WATER HEATER (CONTROL PANEL) | 120V, 3Ø | FACTORY CONTROLLER | OEM | OEM | SINGLE-POINT POWER; INTERNAL ENCLOSE MANUAL CONTROLLER PER SPEC. | |
| TP-1 | TRANSFER PUMP | 208V, 3Ø | FACTORY VARIABLE SPEED MOTOR CONTROLLER | OEM | OEM (AT UNIT PANEL) | SINGLE-POINT 480V POWER TO PUMP. | |
| TP-2 | TRANSFER PUMP | 208V, 3Ø | FACTORY VARIABLE SPEED MOTOR CONTROLLER | OEM | OEM PRIMARY DISCONNECT ON MAIN EQUIPMENT STAND | SINGLE-POINT 480V POWER TO PUMP. | |
| FWP-1 | BOILER FEEDWATER PUMP | 208V, 3Ø | FACTORY VARIABLE SPEED MOTOR CONTROLLER | OEM | OEM PRIMARY DISCONNECT ON MAIN EQUIPMENT STAND | SINGLE-POINT 480V POWER TO PUMP. | |
| FWP-2 | BOILER FEEDWATER PUMP | 208V, 3Ø | FACTORY VARIABLE SPEED MOTOR CONTROLLER | OEM | OEM PRIMARY DISCONNECT ON MAIN EQUIPMENT STAND | SINGLE-POINT 480V POWER TO PUMP. | |
| FWP-3 | BOILER FEEDWATER PUMP | 208V, 3Ø | FACTORY VARIABLE SPEED MOTOR CONTROLLER | OEM | OEM PRIMARY DISCONNECT ON MAIN EQUIPMENT STAND | SINGLE-POINT 480V POWER TO PUMP. | |
| DEAERATOR / SURGE TANK CONTROLLER | PACKAGED DEAERATOR / SURGE TANK | 208V, 3Ø | FACTORY CONTROLLER | OEM | OEM PRIMARY DISCONNECT ON MAIN EQUIPMENT STAND | SINGLE-POINT POWER; INCLUDES CONTROL POWER AND BURNER FAN. | |
| BOILER BURNER (EACH BOILER) | BURNER & FAN | 208V, 3Ø | FACTORY CONTROLLER | OEM | OEM PRIMARY DISCONNECT ON MAIN EQUIPMENT STAND | SINGLE-POINT POWER; INCLUDES CONTROL POWER AND BURNER FAN. | |
| B-2 AIR COMPRESSOR | | 208V, 3Ø, 5 HP EACH | COMBINATION FULL-VOLTAGE MAGNETIC MOTOR CONTROLLER (ACROSS-THE-LINE) (26913.03) | H-CONTRACT | | | |
| B-3, B-4 & B-5 AIR COMPRESSOR | | 208V, 3Ø, 7.5 HP EACH | COMBINATION FULL-VOLTAGE MAGNETIC MOTOR CONTROLLER (ACROSS-THE-LINE) (26913.03) | H-CONTRACT | | | |
| RCP-1, RCP-2 | RECIRCULATION PUMPS | 208V, 3Ø | COMBINATION FULL-VOLTAGE MAGNETIC MOTOR CONTROLLER (ACROSS-THE-LINE) (26913.03) | H-CONTRACT | | | |
| UH-1 THRU UH-5 | STEAM UNIT HEATERS | 120V, 3Ø | ENCLOSED MANUAL MOTOR CONTROLLER (26913.03) | H-CONTRACT | H-CONTRACT | IN ENCLOSED MANUAL CONTROLLER | |

GENERAL NOTES:
 1. REFER TO SHEET E-001.

KEYED NOTES:
 ① RESERVED.

CONSULTANT

CERTIFICATE OF AUTHORIZATION #: 0018644



SAGE ENGINEERING ASSOCIATES, LLP

TO THE BEST OF THE REGISTERED DESIGN PROFESSIONAL'S KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND/OR SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 ENERGY CODE.

TO THE BEST OF THE REGISTERED DESIGN PROFESSIONAL'S KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND/OR SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 UNIFORM CODE.

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REGISTRATION EXPIRES: 10/31/2026

CONTRACT:

ELECTRICAL

TITLE:
 REPLACE BOILER, VARIOUS POWERHOUSE EQUIPMENT AND BOILER CONTROL SYSTEM

LOCATION:

BEDFORD HILLS CORR. FACILITY
 246 HARRIS ROAD
 BEDFORD, NY

CLIENT:

DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION

| MARK | DATE | DESCRIPTION |
|------|------------|---------------|
| △ | 03/04/2026 | ADDENDUM NO 2 |
| | 12/02/2025 | BID DOCUMENT |

PROJECT NUMBER: **M**