

GENERAL NOTES

1. THE MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE AND ARE BASED ON ONE MANUFACTURER'S EQUIPMENT. THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION, THE EXACT DIMENSIONS, OR ALL OF THE DETAILS FOR THE EQUIPMENT. THE MECHANICAL CONTRACTOR SHALL VERIFY THE ACTUAL DIMENSIONS OF THE EQUIPMENT AND ENSURE THAT IT WILL FIT IN THE AVAILABLE SPACE.
2. MECHANICAL CONTRACTOR RESPONSIBLE FOR INSTALLATION OF COMPLETED AND OPERATIONAL SYSTEMS WITH DUE RESPECT TO ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.
3. IT IS THE CONTRACTOR RESPONSIBILITY TO FIELD VERIFY ALL CONNECTION POINTS PRIOR TO INSTALL. NOT ALL CONNECTION SIZES ARE SHOWN, BUT THOSE THAT ARE APPROXIMATE AND TAKEN FROM EXISTING AS-BUILTS AND FIELD OBSERVATIONS.
4. COORDINATE PIPE ROUTING WITH DUCTWORK, SPRINKLER PIPING AND ELECTRICAL POWER/LIGHTING CIRCUITING AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
5. CONTRACTORS TO VERIFY ALL GRADES, DIMENSIONS AND EXISTING CONDITIONS AT THE SITE BEFORE PROCEEDING WITH WORK. NOTIFY PRIME CONSULTANT OF ANY DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL CONDITIONS BEFORE INSTALLATION.
6. EQUIPMENT AND SYSTEMS SHALL COMPLY WITH THE WASHINGTON STATE ENERGY AND MECHANICAL CODES.
7. COORDINATE INSTALLATION OF PIPING AND DUCTWORK WITH ELECTRICAL CONTRACTOR AND OTHER TRADES.
8. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS NEEDED TO CONSTRUCT WORK SHOULD IN THE CONSTRUCTION DOCUMENTS AND ACCOMPANYING SPECIFICATIONS.
9. IF THERE IS A CONFLICT BETWEEN THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, THE MOST STRINGENT WILL APPLY.
10. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURERS. CONTRACTOR TO PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
11. BUILDING IS UNHEATED AND SHALL BE CLASSIFIED AS A LOW ENERGY BUILDING PER C4021.1.1.
12. SYSTEMS ADHERE TO SECTION C403.3.2 HVAC EQUIPMENT PERFORMANCE REQUIREMENTS. EQUIPMENT SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C403.3.2(1) THROUGH C403.3.2(12) WHEN TESTED AND RATED IN ACCORDANCE WITH THE APPLICABLE TEST PROCEDURE.
13. SYSTEMS ADHERE TO C405.8 ELECTRIC MOTOR EFFICIENCY:
 - A. ALL ELECTRIC MOTORS, FRACTIONAL OR OTHERWISE, SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C405.8(1) THROUGH C405.8(4) WHEN TESTED IN ACCORDANCE WITH DOE 10 CFR UNLESS OTHER EXCEPTIONS ARE QUALIFIED AND MET BY THIS SECTION.
 - B. FRACTIONAL HP FAN MOTORS THAT ARE 1/2 HP OR GREATER AND LESS THAN 1 HP (BASED ON THE OUTPUT POWER) WHICH ARE NOT COVERED IN TABLES C405.8(3) AND C405.8(4) SHALL BE ELECTRONICALLY COMMUTATED MOTORS OR SHALL HAVE A MINIMUM MOTOR EFFICIENCY OF 70 PERCENT WHEN RATED IN ACCORDANCE WITH DOE 10 CFR 431.
14. PENETRATIONS OF DUCTS, PIPES, CONDUITS, ETC IN WALLS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED. FIRE STOP MATERIAL SHALL BE A UL/ULC LISTED ASSEMBLY APPROPRIATE FOR FIRE OR SMOKE PENETRATIONS AS APPLICABLE AND AS APPROVED BY THE FIRE MARSHAL.
15. THE MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL FIRE, SMOKE, OR COMBINATION SMOKE/FIRE DAMPERS AND ACCESS PANELS COMMENSURATE WITH THE RATING OF THE WALL. IN ALL DUCTWORK THAT PENETRATES FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITION IN ALL DUCTWORK THAT PENETRATES A HORIZONTAL OR VERTICAL FIRE PARTITION, OR AS OTHERWISE SHOWN ON THE DRAWINGS.
16. ALL BRANCH DUCTS SHALL HAVE VOLUME DAMPERS.
17. WHERE FLOW EXCEEDS 150 CFM, THE CONTRACTOR SHALL USE SMOOTH RADIUS ELBOWS OR TURNING VANES.
18. ALL DUCT JOINTS SHALL BE SEALED IN ACCORDANCE WITH SMACNA STANDARDS.
19. ALL DUCT DIMENSIONS ARE NET INSIDE VALUES. DIMENSIONS MAY BE CHANGED PROVIDED THAT THE NET FREE AREA IS MAINTAINED.
20. ALL CONCEALED DUCTWORK SHALL BE INSULATED WITH 1" FIBERGLASS INSULATING BLANKET WITH ALUMINUM FOIL FACING.
21. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE LOCAL REGULATIONS AND PROCEDURES DETAILED IN THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. (SMACNA).
22. ALL DUCTWORK SHALL BE CONSTRUCTED AND SEALED PER IMC.
23. DUCTWORK SHALL MEET THE AIR LEAKAGE REQUIREMENTS OF 2021 WSEC C402.5 AND VAPOR RETARDER REQUIREMENTS PER THE IBC.
24. ALL PIPE SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN A NEAT AND WORKMANLIKE MANNER. THE USE OF WIRE OR METAL STRAPS TO SUPPORT PIPES WILL NOT BE PERMITTED. REFER TO SPECIFICATIONS FOR MINIMUM SPACING OF PIPE SUPPORTS.
25. ALL EQUIPMENT TO BE INSTALLED ON MIN 6" THICK CONCRETE HOUSEKEEPING PADS.
26. ALL EQUIPMENT, DUCTS PIPING, AND OTHER DEVICES AND MATERIALS INSTALLED OUTSIDE OF THE BUILDING OR OTHERWISE EXPOSED TO THE WEATHER SHALL BE COMPLETELY WEATHERPROOFED.
27. MECHANICAL EQUIPMENT, DUCTS AND PIPING ARE TO BE COORDINATED WITH STRUCTURAL JOISTS AND CROSS BRACING.
28. ALL EXPOSED PIPING IN OCCUPIED SPACES SUBJECT TO ARCHITECTURAL APPROVAL PRIOR TO INSTALLATION.
29. ALL DUCTWORK SHALL BE CONSTRUCTED AND SEALED PER IMC.
30. THE HVAC SYSTEMS SHALL BE TESTED AND BALANCED BY AN INDEPENDENT AGENCY, UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER PRIOR TO COMMISSIONING. A SEALED TYPE WRITTEN REPORT SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER.
31. A BUILDING COMMISSIONING PROCESS AND FUNCTIONAL TESTING OF MECHANICAL SYSTEMS SHALL BE CARRIED OUT BY A CERTIFIED COMMISSIONING PROFESSIONAL IN ACCORDANCE WITH 2021 WSEC SECTION C408. THE MECHANICAL, ELECTRICAL, PLUMBING, AND CONTROL CONTRACTORS ARE REQUIRED TO PERFORM FUNCTIONAL PERFORMANCE TESTING OF ALL EQUIPMENT PRIOR TO TESTING BY THE COMMISSIONING AGENT. CONTRACTORS SHALL PROVIDE THE NECESSARY ASSISTANCE TO THE COMMISSIONING AGENT TO PERFORM COMMISSIONING DUTIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING CORRECTIVE ACTION IF ANY DEFICIENCIES ARE FOUND DURING COMMISSIONING.
32. SYSTEMS ADHERE TO 2021 WSEC SECTION C408 SYSTEM COMMISSIONING:
 - A. A CERTIFIED COMMISSIONING PROFESSIONAL (CCP) SHALL LEAD THE COMMISSIONING PROCESS. A CCP IS AN INDIVIDUAL WHO IS CERTIFIED BY AN ANSI/ISO/IEC 17024:2012 ACCREDITED ORGANIZATION TO LEAD, PLAN, COORDINATE, AND MANAGE COMMISSIONING TEAMS AND IMPLEMENT THE COMMISSIONING PROCESS.
 - a. A CERTIFIED COMMISSIONING PROFESSIONAL SHALL PERFORM THE FOLLOWING:
 - a. DEVELOP A COMMISSIONING PLAN.
 - b. REVIEW BUILDING DOCUMENTATION AND CLOSE-OUT SUBMITTALS.
 - c. PROVIDE A COMMISSIONING REPORT.
 - d. LIST SPECIFIC EQUIPMENT, APPLIANCES AND SYSTEMS COMMISSIONED.
 - C. FUNCTIONAL TESTING SHALL BE COMPLETED FOR THE FOLLOWING SYSTEMS AND THEIR ASSOCIATED CONTROL SYSTEMS:
 - a. MECHANICAL SYSTEMS
 - b. SERVICE WATER HEATING SYSTEMS
 - c. CONTROLLED RECEPTACLE AND LIGHTING SYSTEMS
 - d. EQUIPMENT APPLIANCE AND SYSTEMS
 - e. ENERGY METERING
 - f. REFRIGERATION SYSTEMS
 - D. A COMMISSIONING REPORT SHALL BE DELIVERED TO THE BUILDING OWNER AND INCLUDE:
 - a. RESULTS OF THE FUNCTIONAL PERFORMANCE TESTS
 - b. LIST OF DEFICIENCIES AND CORRECTIVE MEASURES IMPLEMENTED OR PROPOSED.
 - c. FUNCTIONAL PERFORMANCE TEST PROCEDURES.
 - d. COMMISSIONING PLAN.
 - e. TAB REPORT.
33. TESTING AND BALANCING: ALL HVAC SYSTEMS SHALL BE BALANCED BY A LICENSED CONTRACTOR IN ACCORDANCE WITH ACCEPTED ENGINEERING STANDARDS AND SPECIFICATIONS PRIOR TO COMMISSIONING.
34. OWNER TRAINING BY CONTRACTORS FOR EACH PIECE OF EQUIPMENT OR SYSTEM SHALL INCLUDE: SYSTEM/EQUIPMENT OVERVIEW (WHAT IT IS, WHAT IT DOES, AND WHICH OTHER SYSTEMS OR EQUIPMENT DOES IT INTERFACE WITH), REVIEW OF THE AVAILABLE O&M MATERIALS, REVIEW OF THE RECORD DRAWINGS ON THE SUBJECT SYSTEM/EQUIPMENT, HANDS-ON DEMONSTRATION OF ALL NORMAL MAINTENANCE PROCEDURES, NORMAL OPERATING MODES, AND ALL EMERGENCY SHUTDOWN AND START-UP PROCEDURES.



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720 3rd Avenue Suite 1500
Seattle Washington 98104-1878
(206) 467-0555

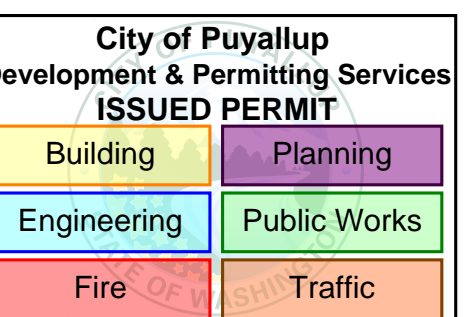
MECHANICAL DRAWINGS

CENTERS
VOLTAGE PARK UPS
1019 39th AVENUE SE
PUYALLUP, WA 98374



2024-07-23

Revision No.	Description	Date
1	FUEL OIL PIPING PERMIT FUEL OIL PIPING PERMIT	5/16/2024 6/17/2024



Drawn By: JLV Checked By: BO

MECHANICAL GENERATOR FUEL GENERAL NOTES

Sheet

M401

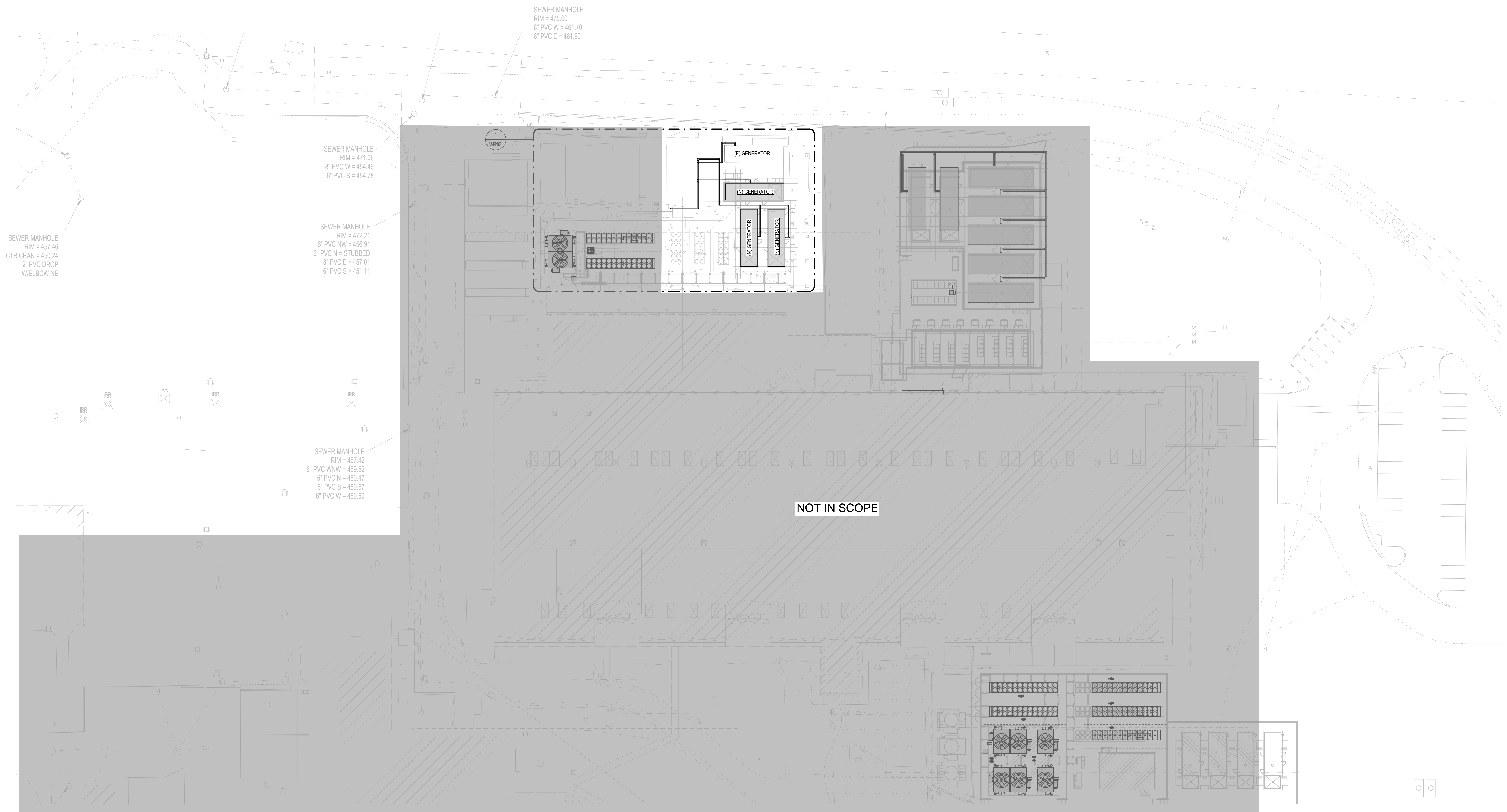
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1	FUEL OIL PIPING PERMIT	5/16/2024



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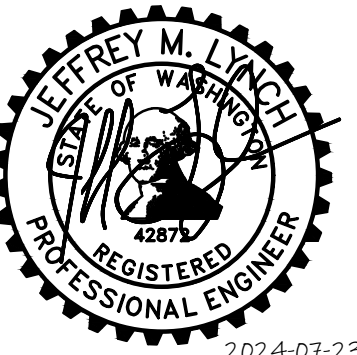
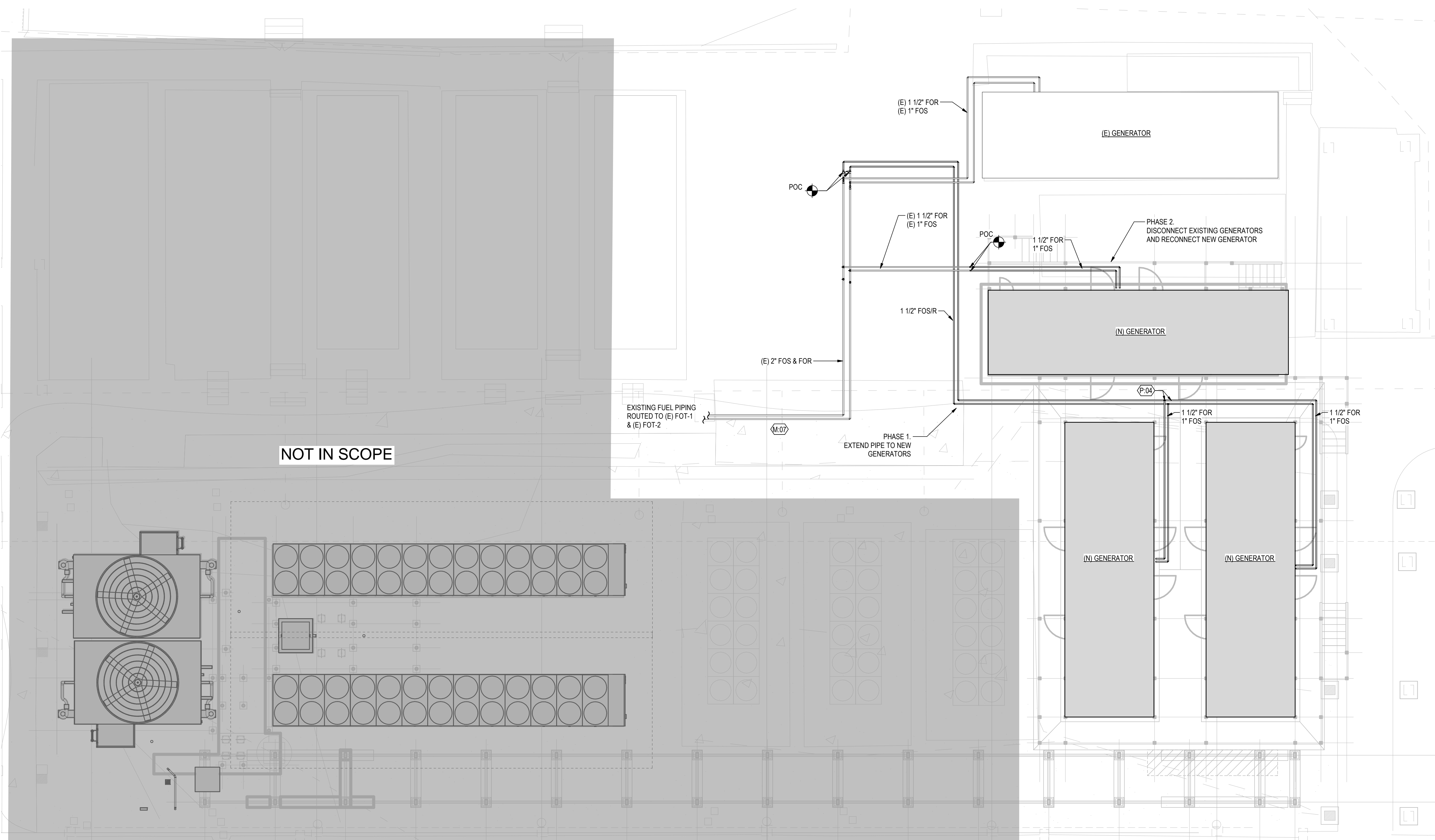
Building	Planning
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MECHANICAL
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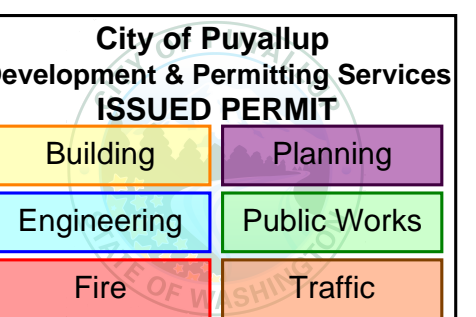
KEY NOTES

M07
P04
EXISTING FUEL PUMPS AND FUEL CONTROL PANELS PRIOR TO CONSTRUCTION. THE GENERAL CONTRACTOR SHALL VERIFY THE LOCATION AND CONDITION OF ALL EXISTING UTILITIES, INCLUDING STORM DRAINAGE, SEWER LINES, WATER LINES, AND ELECTRICAL CONDUIT IN THE VICINITY OF THE PROJECT FOOTPRINT. THE GENERAL CONTRACTOR/CIVIL CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING OR RELOCATING THE STORM DRAIN AS NECESSARY AND AS DESIGNED UNDER THE APPROVED CIVIL PLANS FILED UNDER PERMIT PROJ20240183 AND SHALL MAINTAIN UTILITY SEPARATION FROM ALL OTHER EXISTING AND PROPOSED UTILITIES PRIOR TO POURING FOUNDATIONS AND EQUIPMENT PADS AND PRIOR TO INSTALLATION OF FLUID COOLERS OR OTHER MECHANICAL EQUIPMENT. ANY CONFLICTS BETWEEN THE PROPOSED PLANS AND THE APPROVED CIVIL PLANS MUST BE COORDINATED AND MITIGATED AS NECESSARY PRIOR TO CONSTRUCTION.



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1	FUEL OIL PIPING PERMIT	5/16/2024



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GENERATOR FUEL
MECHANICAL
ENLARGED PLAN
NORTHWEST YARD

1 MECHANICAL GENERATOR FUEL ENLARGED PLAN
M402/M403 1/8" = 1'-0"

MECHANICAL DRAWINGS

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Revision No. Description Date
1 FUEL OIL PIPING PERMIT 5/14/2024
FUEL OIL PIPING PERMIT R1 7/23/2024

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GENERATOR FUEL PIPING DIAGRAM
NORTHWEST YARD

Sheet M404

LEGEND

1/4 TURN BALL VALVE	FLOW SWITCH
CHECK VALVE	DIFFERENTIAL PRESSURE SWITCH
SOLENOID VALVE	DOUBLE POPPETED FOOT VALVE
SOLENOID VALVE WITH MANUAL OVER-RIDE	FLEXIBLE CONNECTOR
LIQUID LEVEL SWITCH	ANTI SIPHON VALVE

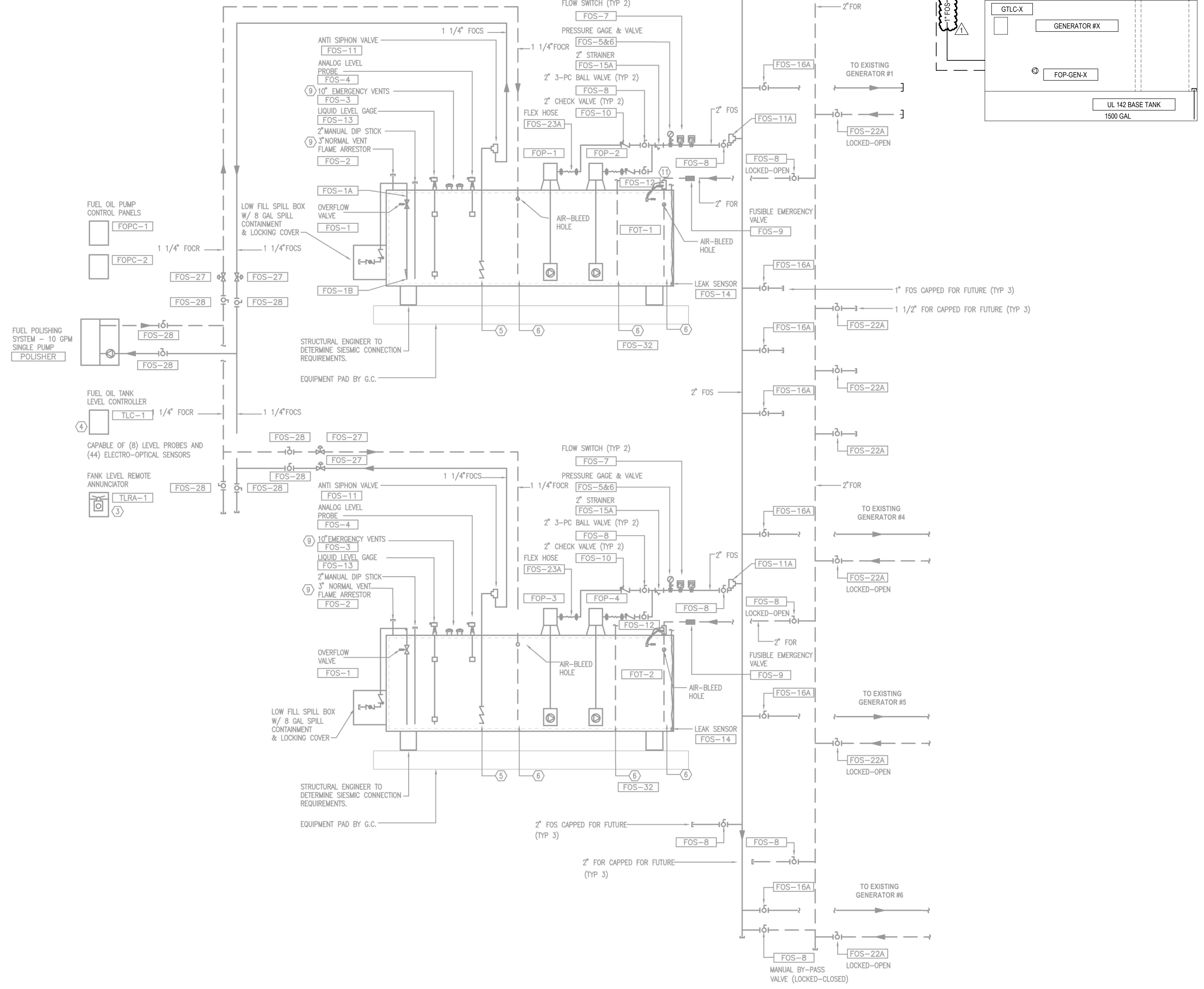
DESIGNATIONS

FOS - FUEL OIL SUPPLY
FOP - FUEL OIL FILL
FOR - FUEL OIL RETURN
FOCS - FUEL OIL CLEANING SUPPLY
FOCR - FUEL OIL CLEANING RETURN
FOV - FUEL OIL VENT

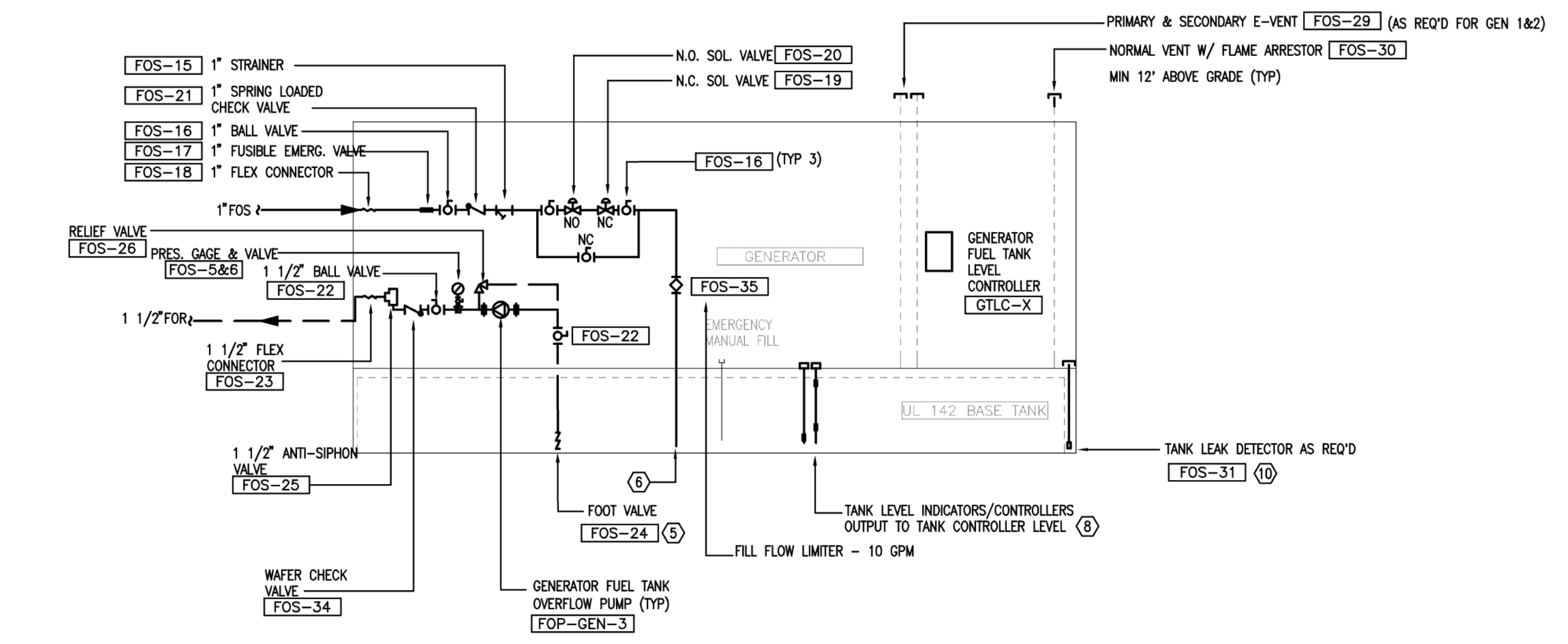
Ensure that the replacement pipe adheres to the sizing methods as specified in Section 402 of the 2021 Washington State Fuel Gas Code. Use appropriate tables (e.g., Table 402.4(1) through 402.4(4)) to verify the correct sizing based on length and load calculations.

Ensure that the materials used for the replacement comply with Section 403 of the 2021 Washington State Fuel Gas Code.

Gas piping installation must follow standards outlined in Section 404, ensuring compliance with prohibited locations and proper installation techniques.



1 FUEL OIL PIPING DIAGRAM
12" = 1'-0"



2 GENERATOR PIPING DETAIL
12" = 1'-0"

PIPING SYSTEM APPLICATION SCHEDULE

SYSTEM	PIPE SIZE (IN)	LOCATION	MATERIAL										JOINTS			NOTES		
			COPPER TYPE K	COPPER TYPE L	AS3 BS ERW SCH40	CARBON STEEL AS3 BS ERW STD	SCH 10 TYPE 316 STAINLESS STEEL	SCH 10 TYPE 304 STAINLESS STEEL	DOUBLE CONTAINED FLEXIBLE PIPING UL-RATED	HDPE	PEXA	SOLDERED	BRAZED	THREADED	WELDED		SCREWED	PRESSURE FITTINGS
FUEL OIL	2 AND LESS	CONCEALED				X								X	X			
		MECHANICAL ROOM			X									X	X			
	OUTDOOR			X									X	X				
	UNDERGROUND						X						X	X				
2-1/2-3	CONCEALED			X									X					
	MECHANICAL ROOM			X									X					
	OUTDOOR			X								X						
	UNDERGROUND						X						X					

NOTES:

FUEL OIL PUMP CONTROL PANELS
[FOPC-1]
[FOPC-2]

FUEL POLISHING SYSTEM - 10 GPM SINGLE PUMP
[FOLP-1]

FUEL OIL TANK LEVEL CONTROLLER
[TLC-1]

CAPABLE OF (8) LEVEL PROBES AND (4) ELECTRO-OPTICAL SENSORS

FANK LEVEL REMOTE ANNUNCIATOR
[TLRA-1]



1 M404
12" = 1'-0"

MECHANICAL
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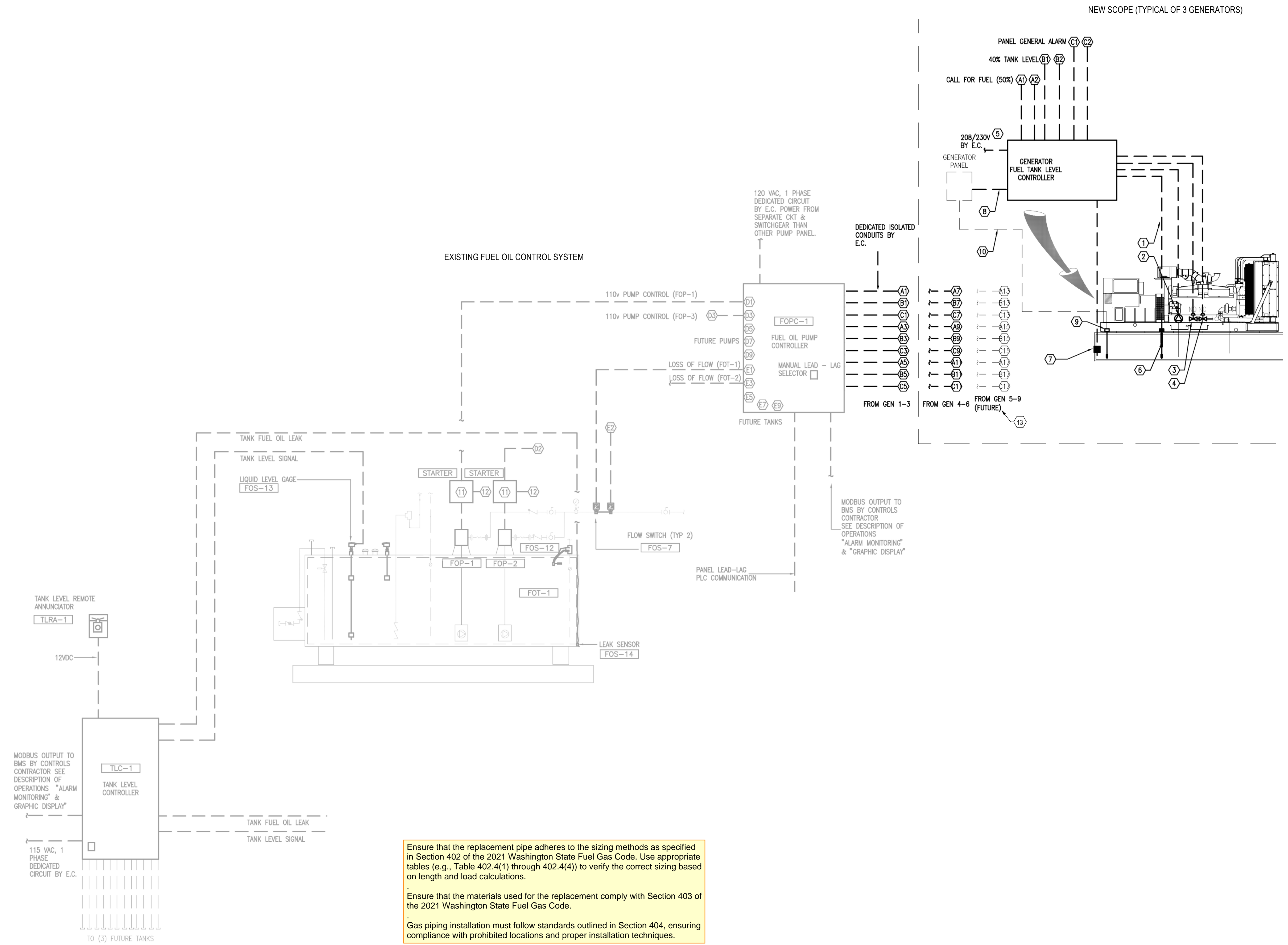


2024-07-23

Revision No.	Description	Date
1	FUEL OIL PIPING PERMIT	5/16/2024

KEY NOTES

- ① LEVEL PROBE CABLE BY E.C. (MULTIPLE)
- ② PUMP CONTROL WIRING BY E.C.
- ③ N.O. SOL VALVE 110VAC. INSTALLED BY M.C., WIRING BY E.C.
- ④ N.C. SOL VALVE 110VAC. INSTALLED BY M.C., WIRING BY E.C.
- ⑤ GTLC HAS INTEGRAL DISCONNECT.
- ⑥ TANK LEVEL INDICATOR. INSTALLED BY M.C., WIRING BY E.C. (MULTIPLE)
- ⑦ TANK LEAK SENSOR. INSTALLED BY M.C., WIRING BY E.C.
- ⑧ GENERATOR GENERAL ALARM OUTPUT (DRY CONTACT) TO GENERATOR TANK LEVEL CONTROLLER.
- ⑨ GENERATOR LOW FUEL OIL SHUTDOWN TANK LEVEL INDICATOR - BY GENERATOR MFR. / E.C.
- ⑩ WIRING OF GENERATOR LOW FUEL OIL SHUTDOWN TANK LEVEL INDICATOR - BY GENERATOR MFR. / E.C.
- ⑪ PUMP STARTERS WITH DEDICATED POWER FROM DIFFERENT PANELS / SWITCHGEAR - 208/230V - WITH DRY RUN PROTECTION. PROVIDED BY M.C. INSTALLED BY E.C. LOCATE STARTERS REMOTE.
- ⑫ PUMP STARTER DISCONNECTS 208/230V BY E.C. POWER PUMP PAIRS FROM SEPARATE CIRCUIT/SWITCHGEAR TO CORRESPOND WITH PUMP PANELS.
- ⑬ FIELD CONFIRM SPACE FOR NEW GENERATOR POINTS ON CONTROLLER.



1 GENERATOR FUEL OIL CONTROL DIAGRAM
M405 12" = 1'-0"

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GENERATOR FUEL
CONTROL DIAGRAM

Sheet M405

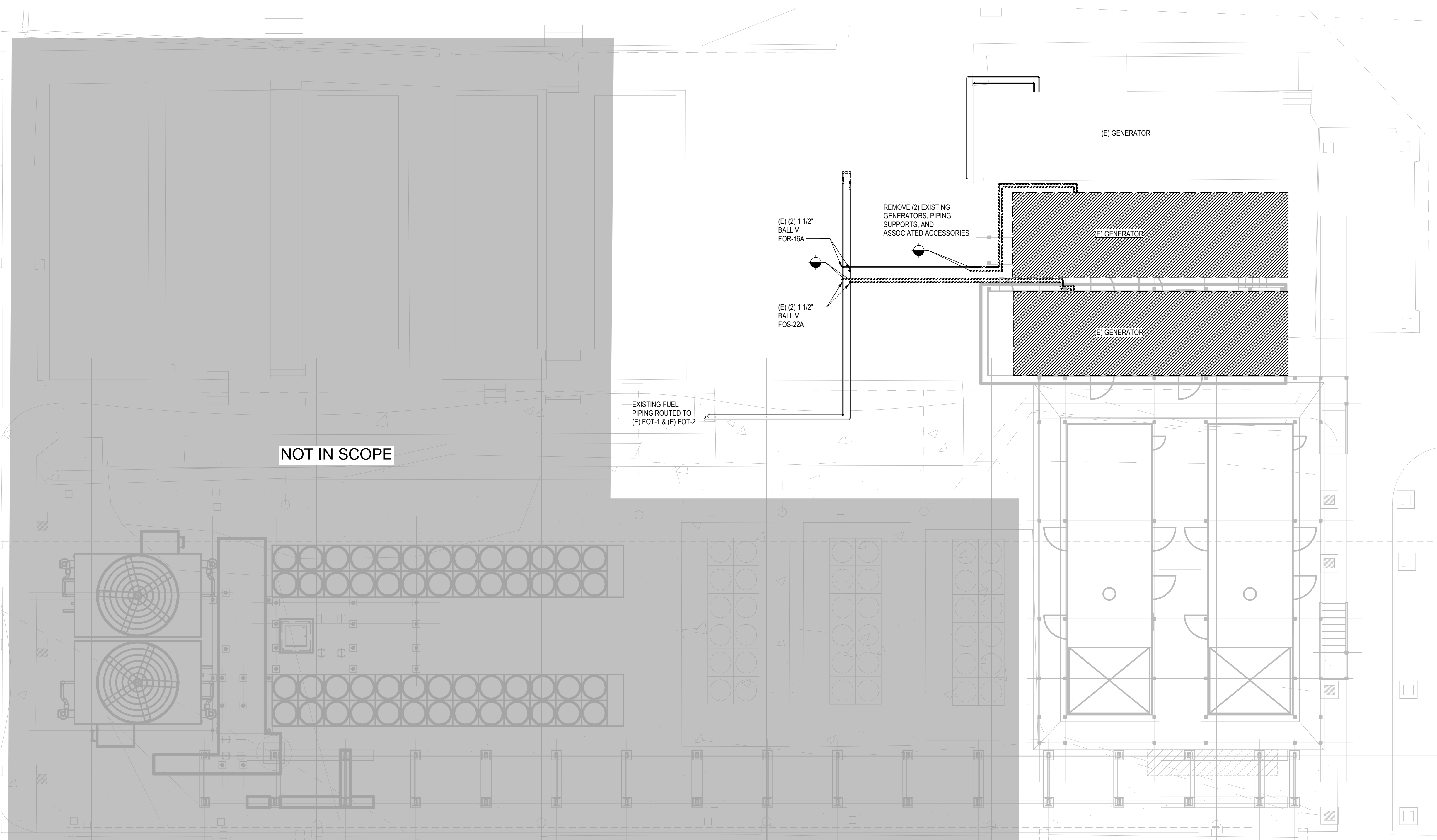
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1 MECHANICAL GENERATOR FUEL DEMO ENLARGED PLAN
MD401 1/8" = 1'-0"

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GENERATOR FUEL
MECHANICAL
ENLARGED DEMO
PLAN