

## DRAWING LIST

### GENERAL

COVER SHEET

### CIVIL

C100 EXISTING FUEL TANK REMOVAL  
C101 PROPOSED FUEL TANK INSTALLATION  
C102 PROPOSED FUEL TANK SITE RESTORATION DETAILS - ADD#2

ARCHITECTURAL NOT APPLICABLE TO PHASE 1

FIRE PROTECTION NOT APPLICABLE TO PHASE 1

### MECHANICAL

M001 MECHANICAL LEGENDS AND GENERAL NOTES  
M100.0 MECHANICAL BASEMENT LEVEL NORTH BUILDING  
EXISTING/DEMOLITION PARTIAL FLOOR PLAN  
M100.1 MECHANICAL BASEMENT LEVEL NORTH BUILDING PARTIAL FLOOR  
PLAN  
M200.0 MECHANICAL FUEL OIL DETAILS  
M300.0 MECHANICAL FUEL OIL SYSTEM ONELINE AND SCHEDULES

### ELECTRICAL

E001 ELECTRICAL LEGENDS AND GENERAL NOTES  
E100.0 ELECTRICAL BASEMENT LEVEL EXISTING/DEMOLITION OVERALL  
FLOOR PLAN  
E100.1 ELECTRICAL BASEMENT LEVEL NEW WORK OVERALL FLOOR PLAN  
E100.2 ELECTRICAL BASEMENT LEVEL NORTH BUILDING PARTIAL FLOOR  
PLANS AND DETAILS  
E300.0 ELECTRICAL SCHEDULES

# GRIFFIN HOSPITAL

130 DIVISION STREET  
DERBY, CONNECTICUT



## PHASE 1 - FUEL TANK REPLACEMENT FOR EMERGENCY GENERATOR AND DISTRIBUTION UPGRADES

FEBRUARY 3, 2024

VANZELM PROJECT # 2021144.01

**VANZELM**  
ENGINEERS  
VAN ZELM HEYWOOD & SHADFORD, INC.

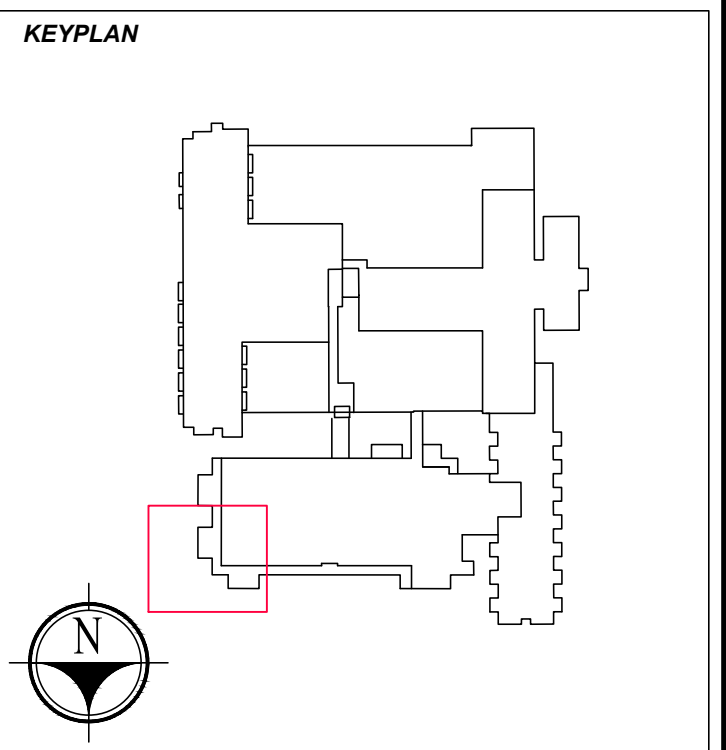
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Connecticut | Massachusetts | North Carolina



**HALEY WARD**  
ENGINEERING | ENVIRONMENTAL | SURVEYING  
2210 Main St.  
Glastonbury, Connecticut 06033  
860.659.3100



**PROJECT NAME:**  
**GRIFFIN HOSPITAL-PHASE 1**  
**FUEL TANK REPLACEMENT for EMERGENCY**  
**GENERATOR and DISTRIBUTION UPGRADES**  
130 DIVISION STREET, DERBY, CT

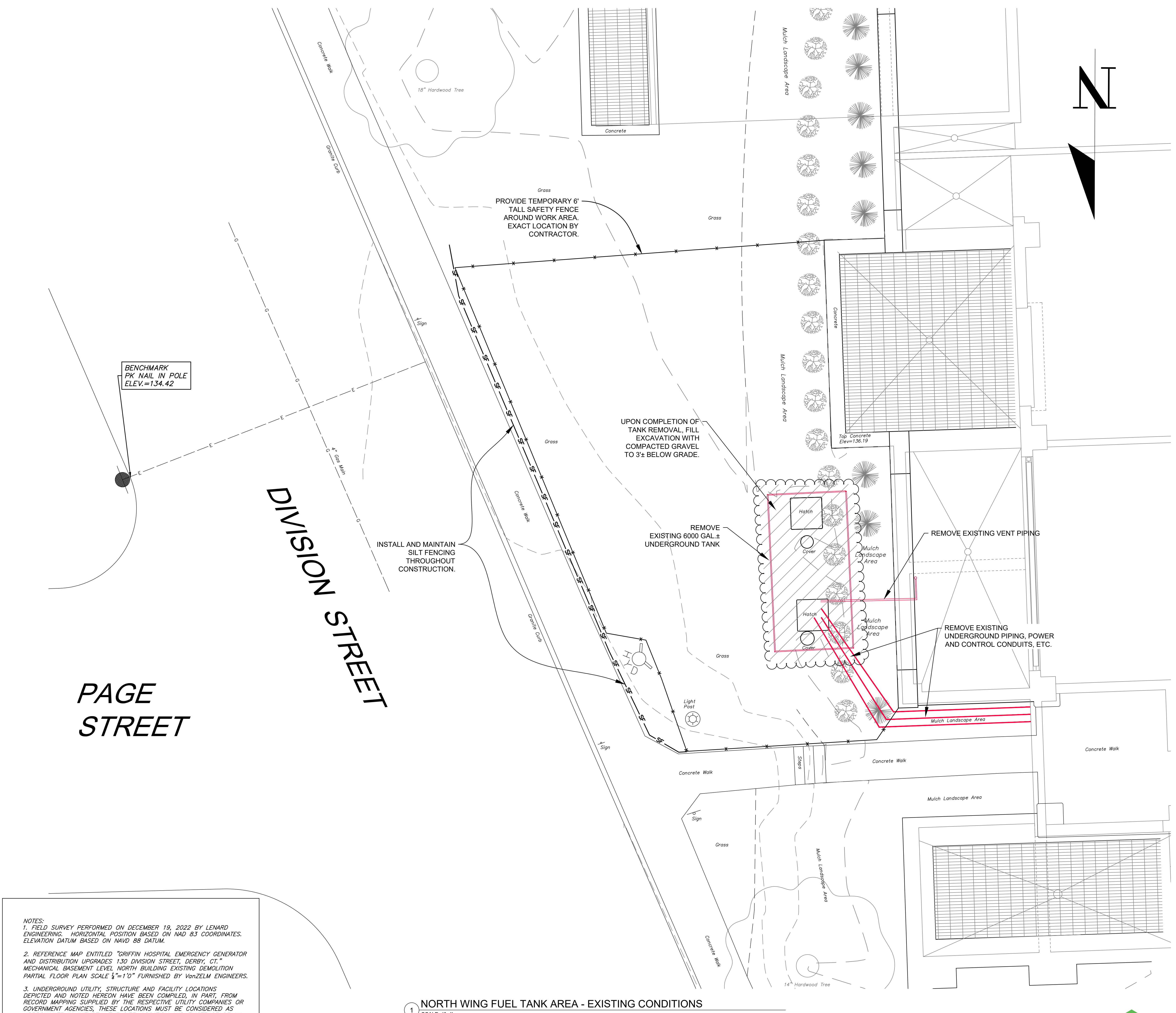


**REVISIONS**

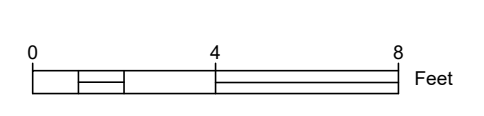
REV. NO.	DATE	DESCRIPTION

**DRAWING TITLE:**  
**EXISTING FUEL TANK REMOVAL**

**DATE:** 02.03.2024  
**DRAWN BY:** KLD  
**CHECKED BY:** JEE  
**SCALE:** 1"=4'  
**PRJ#:** 2021144.00  
**DRAWING NUMBER:**  
**C100**



**1 NORTH WING FUEL TANK AREA - EXISTING CONDITIONS**  
SCALE: 1"=4'



**HALEY WARD**  
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**NOTES:**  
1. FIELD SURVEY PERFORMED ON DECEMBER 19, 2022 BY LENARD ENGINEERING. HORIZONTAL POSITION BASED ON NAD 83 COORDINATES. ELEVATION DATUM BASED ON NAVD 88 DATUM.  
2. REFERENCE MAP ENTITLED "GRIFFIN HOSPITAL EMERGENCY GENERATOR AND DISTRIBUTION UPGRADES 130 DIVISION STREET, DERBY, CT," MECHANICAL BASEMENT LEVEL NORTH BUILDING EXISTING DEMOLITION PARTIAL FLOOR PLAN SCALE 1/4"=1'-0" FURNISHED BY VANZELM ENGINEERS.  
3. UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENT AGENCIES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG 1-800-922-4455.  
4. EXTERIOR BUILDING LINES AS LOCATED REPRESENT FACADE OF BUILDING. EXACT RELATIONSHIP TO STRUCTURAL ELEMENTS AND FOUNDATION ARE NOT ESTABLISHED.

**PAGE STREET**

**DIVISION STREET**







**GRIFFIN HOSPITAL- PHASE 1**  
FUEL TANK REPLACEMENT for EMERGENCY  
GENERATOR and DISTRIBUTION UPGRADES  
130 DIVISION STREET, DERBY, CT

PROJECT NAME:

KEYPLAN

REVISIONS		
REV.	DATE	DESCRIPTION

DRAWING TITLE:  
**MECHANICAL LEGENDS AND GENERAL NOTES**

DATE: FEB 3, 2024  
DRAWN BY: JKC  
CHECKED BY: SEP  
SCALE: NTS  
PROJ #: 2021144.01  
DRAWING NUMBER:  
**M001**

MECHANICAL GENERAL NOTES	
A.	ALL MATERIALS, METHODS AND EQUIPMENT INSTALLED UNDER THIS CONTRACT SHALL BE IN COMPLIANCE WITH ALL APPLICABLE CODES AND REGULATIONS.
B.	COORDINATE EXACT LOCATIONS, MOUNTING HEIGHTS, AND FINISHES WITH THE ARCHITECTURAL DRAWINGS.
C.	ALL EQUIPMENT SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS. IN THE INSTANCE WHERE EQUIPMENT MUST BE INSTALLED BEHIND A WALL OR ABOVE AN INACCESSIBLE CEILING, AN APPROPRIATELY SIZED ACCESS DOOR SHALL BE PROVIDED. REFER TO ARCHITECTURAL PLANS FOR ACCESS DOOR LOCATIONS IN WALLS, CEILINGS AND FLOORS.
D.	IN THE EVENT OF A CONFLICT BETWEEN DOCUMENTS, ARCHITECT SHALL BE NOTIFIED AND THE LARGER QUANTITY AND/OR MORE EXPENSIVE ITEMS SHALL BE CARRIED AS PART OF THE BID.
E.	THERMOSTAT AND SWITCH LOCATIONS SHALL BE GENERALLY AS SHOWN. ACTUAL LOCATIONS SHALL BE COORDINATED WITH ARCHITECTURAL ELEVATIONS.
F.	ALL FLOOR MOUNTED AIR HANDLING UNITS SHALL BE INSTALLED ON A 6" CONCRETE HOUSEKEEPING PAD AND ALL OTHER FLOOR MOUNTED EQUIPMENT SHALL BE INSTALLED ON A 4" CONCRETE HOUSEKEEPING PAD, UNLESS OTHERWISE NOTED.
G.	THESE PLANS ARE DIAGRAMMATIC IN NATURE. EVERY ELBOW, FITTING, ETC. ARE NOT SHOWN. PROVIDE SUCH COMPONENTS AS REQUIRED FOR COMPLETE INSTALLATION, PROPERLY COORDINATED WITH ALL TRADES.
H.	THE HVAC SYSTEMS FOR THIS BUILDING HAVE BEEN DESIGNED AND MODELED FOR LOW TRANSPORT ENERGY (LOW VELOCITY AND LOW PRESSURE DROP). WHEN OFFSETTING THE DUCTWORK AND PIPING IS REQUIRED, THE CONTRACTOR SHALL MAKE EVERY EFFORT TO MINIMIZE THE NUMBER OF FITTINGS AND TRANSITIONS AND TO PROVIDE FITTING TYPES WITH THE LEAST POSSIBLE PRESSURE DROP.
I.	ANY DUCTWORK AND PIPING NOT SERVING STAIRWELLS, SHAFTS, ELEVATOR MACHINE ROOMS OR EMERGENCY ELECTRICAL ROOMS SHALL NOT PENETRATE THOSE WALLS.
J.	DUCTWORK AND/OR PIPING SHALL NOT BE INSTALLED OVER ELECTRICAL PANELS.
K.	COORDINATE NEW DUCTWORK AND PIPING WITH OTHER TRADES. CONTRACTOR SHALL FIELD VERIFY AVAILABLE CEILING CLEARANCE PRIOR TO BID.
L.	PROVIDE VOLUME DAMPERS IN ALL SUPPLY, RETURN, OUTSIDE AIR AND EXHAUST BRANCH DUCTS NEAR THE MAIN DUCT TAKE-OFF AS REQUIRED TO PROPERLY BALANCE THE ENTIRE AIR SYSTEM. PROVIDE REMOTELY OPERATED (CABLE) DAMPERS WHEN DAMPERS ARE INACCESSIBLE. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLANS.
M.	DUCT SIZING SHOWN INDICATES CLEAR INSIDE DIMENSIONS OF DUCT AND INSULATION.
N.	PROVIDE NEW DUCTWORK, DIFFUSERS AND GRILLES WHERE SHOWN, SEE SPECIFICATIONS. COORDINATE NEW DIFFUSER LOCATIONS WITH ARCHITECT'S REFLECTED CEILING PLAN.
O.	ALL FLEXIBLE DUCT SHALL BE A MAXIMUM OF 3 FEET LONG WITH NO BENDS GREATER THAN 45 DEGREES.
P.	SUPPORT ALL PIPING FROM STRUCTURE ABOVE. WHEN PIPE RUNS ARE PERPENDICULAR TO BEAMS, INSTALL PIPING TIGHT TO BOTTOM OF BEAM TO MAXIMIZE SPACE. WHEN PIPE RUNS ARE PARALLEL TO BEAMS, INSTALL PIPING TIGHT TO FLOOR SLAB. PROVIDE ALL NECESSARY TRANSITIONS AND FITTINGS.
Q.	PROVIDE EXPANSION COMPENSATORS, LOOPS, ANCHORS AND GUIDES FOR ALL PIPING SYSTEMS OPERATING ABOVE AMBIENT CONDITIONS AND INSTALL AS DICTATED BY CODE AND INDUSTRY STANDARDS. EQUIPMENT AND INSTALLATION DETAILS SHALL BE SUBMITTED FOR APPROVAL. THE CONTRACTOR SHALL HIRE AN ENGINEER TO REVIEW DETAILS AND PREPARE COMPLETE DESIGN FOR EXPANSION COMPENSATION SYSTEMS.
R.	AIR VENTS SHALL BE PROVIDED AT ALL HIGH POINTS AND DRAINS SHALL BE PROVIDED AT ALL LOW POINTS FOR HYDRONIC SYSTEMS.
S.	ALL SUPPLY AND RETURN BRANCH PIPING SHALL BE MINIMUM 3/4" UNLESS OTHERWISE NOTED.
T.	PROVIDE BRANCH ISOLATION VALVES OFF OF ALL BUILDING PIPING MAINS ON EACH FLOOR.

LEGEND NOTE	
THESE ARE THE GENERAL LEGENDS OF SYMBOLS AND ABBREVIATIONS. AND SHALL BE USED AS A REFERENCE TO DEFINE ITEMS INDICATED ON DRAWINGS. NOT ALL SYMBOLS OR ABBREVIATIONS DEFINED ARE NECESSARILY USED ON THIS PROJECT.	

MECHANICAL DEMOLITION NOTES	
A.	EXISTING MECHANICAL ITEMS THAT ARE BEING DISCONNECTED AND REMOVED SHALL BE DISPOSED OF PROPERLY.
B.	NOTIFY CONSTRUCTION MANAGER OF OPENINGS CAUSED BY REMOVAL OF EXISTING EQUIPMENT. ENSURE THE PATCHING IS COMPLETE.
C.	REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL RELATED DEMOLITION WORK.
D.	REMOVE AND PROPERLY DISPOSE OF EQUIPMENT INCLUDING ELECTRICAL CONNECTIONS BACK TO PANEL.

MECHANICAL PIPING SYSTEMS LEGEND	
	AUTOMATIC CONTROL VALVE
	BALANCE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	ISOLATION VALVE
	MULTI-PURPOSE VALVE (BALANCE, CHECK, SHUT-OFF)
	OUTSIDE SCREW & YOKE GATE VALVE (OS&Y)
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	3-WAY CONTROL VALVE
	6-WAY CONTROL VALVE
	ELBOW, TURNED DOWN
	ELBOW, TURNED UP
	BRANCH OFF TOP OF MAIN
	BRANCH OFF BOTTOM OF MAIN
	PIPE TO BE REMOVED
	CONDENSATE DRAIN LINE
	CHILLED GLYCOL RETURN
	CHILLED GLYCOL SUPPLY
	CHILLED WATER RETURN
	CHILLED WATER SUPPLY
	CONDENSATE PUMP DISCHARGE
	CONDENSER GLYCOL RETURN
	CONDENSER GLYCOL SUPPLY
	CONDENSER WATER RETURN
	CONDENSER WATER SUPPLY
	DUAL TEMPERATURE WATER RETURN
	DUAL TEMPERATURE WATER SUPPLY
	FUEL OIL RETURN
	FUEL OIL SUPPLY
	HOT GLYCOL RETURN
	HOT GLYCOL SUPPLY
	HIGH PRESSURE CONDENSATE
	HIGH PRESSURE STEAM
	HEAT RECOVERY GLYCOL RETURN
	HEAT RECOVERY GLYCOL SUPPLY
	HEAT RECOVERY WATER RETURN
	HEAT RECOVERY WATER SUPPLY
	HOT WATER RETURN
	HOT WATER SUPPLY
	LOW PRESSURE CONDENSATE
	LOW PRESSURE STEAM
	MEDIUM TEMPERATURE CHILLED WATER RETURN
	MEDIUM TEMPERATURE CHILLED WATER SUPPLY
	MEDIUM PRESSURE CONDENSATE
	MEDIUM PRESSURE STEAM
	PRE-HEAT HOT WATER RETURN
	PRE-HEAT HOT WATER SUPPLY
	REFRIGERANT HOT GAS
	REFRIGERANT LIQUID
	REFRIGERANT SUCTION
	PIPE GUIDE
	PIPE ANCHOR
	AIR VENT (MANUAL OR AUTOMATIC)
	FINNED TUBE RADIATION
	FLOAT & THERMOSTATIC TRAP ASSEMBLY
	INVERTED BUCKET TRAP ASSEMBLY
	PRESSURE GAUGE
	PUMP
	STRAINER
	THERMOMETER
	UNION
	DEMOLITION WORK: POINT OF REMOVAL
	NEW WORK: POINT OF ATTACHMENT

MECHANICAL CONTROLS LEGEND	
	CONTROL POINT, ANALOG INPUT
	CONTROL POINT, ANALOG OUTPUT
	CONTROL POINT, DIGITAL INPUT
	CONTROL POINT, DIGITAL OUTPUT
	AIRCUIITY SENSOR
	POSITIONING BLADE SWITCH
	ELECTRICAL CURRENT SWITCH
	CARBON MONOXIDE SENSOR
	CARBON DIOXIDE SENSOR
	DUCT HEAT DETECTOR
	DIFFERENTIAL PRESSURE SWITCH
	FIRE SMOKE DETECTOR
	END SWITCH
	FLOW METER
	FLOW SWITCH
	HUMIDISTAT
	HIGH TEMPERATURE THERMOSTAT
	KEY OPERATED SWITCH
	LEVEL SENSOR
	LOW TEMPERATURE THERMOSTAT (FREEZE)
	MOTOR OR ACTUATOR
	MOISTURE SENSOR
	OXYGEN SENSOR
	OVERRIDE BUTTON
	OCCUPANCY SENSOR
	PRESSURE SENSOR
	PUSH BUTTON
	PURGE PUSH BUTTON
	PRESSURE SWITCH
	RELATIVE HUMIDITY SENSOR
	RADIANT SLAB / SNOW MELT SENSOR
	WALL MOUNTED ROOM SENSOR (TEMP, RH, CO2, CO, ETC.) REFER TO ROOM BY ROOM CONTROL MATRIX FOR SPECIFIC ROOM SENSOR TYPE(S).
	TEMPERATURE SENSOR
	TIMER SWITCH
	WINDOW CONTACT SWITCH
	AIRFLOW CONTROLLER
	AUTOMATIC CONTROL VALVE, 2-WAY
	AUTOMATIC CONTROL VALVE, 3-WAY
	AUTOMATIC CONTROL VALVE, 6-WAY
	BUTTERFLY VALVE, MOTORIZED
	CHILLED BEAM, ACTIVE
	CHILLED BEAM, PASSIVE
	COIL, COOLING
	COIL, HEATING
	COIL, REHEAT
	DAMPER, GRAVITY
	DAMPER, MOTORIZED OPPOSED BLADE
	DAMPER, MOTORIZED PARALLEL BLADE
	FAN, SUPPLY, RETURN OR EXHAUST
	FILTER
	HUMIDIFIER
	LAB AIR CONTROL VALVE
	LAB AIR CONTROL VALVE, VENTURI
	PUMP
	RADIANT CEILING PANEL
	RADIANT FLOOR
	STARTER / DISCONNECT
	VARIABLE FREQUENCY DRIVE
	VARIABLE AIR VOLUME BOX
	VARIABLE AIR VOLUME BOX w/ INTEGRAL REHEAT COIL
	VISUAL INDICATOR

MECHANICAL AIR SYSTEMS LEGEND	
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	RETURN DUCT UP
	RETURN DUCT DOWN
	EXHAUST DUCT UP
	EXHAUST DUCT DOWN
	EXISTING DUCT (SINGLE LINE)
	EXISTING DUCT (DOUBLE LINE)
	NEW DUCT (SINGLE LINE)
	NEW DUCT (DOUBLE LINE)
	ACOUSTICALLY LINED DUCT (SINGLE LINE)
	ACOUSTICALLY LINED DUCT (DOUBLE LINE)
	FIRE WRAPPED DUCT (DOUBLE LINE)
	DUCT TO BE REMOVED (SINGLE LINE)
	DUCT TO BE REMOVED (DOUBLE LINE)
	FLUSH CAP, SINGLE LINE
	SUPPLY DIFFUSER
	RETURN GRILLE
	EXHAUST GRILLE
	SUPPLY AIR FLOW
	LOUVER DOOR (SIZE AS NOTED)
	UNDER CUT DOOR
	REHEAT COIL
	VAV BOX
	VAV BOX WITH INTEGRAL SOUND ATTENUATOR
	AIRFLOW CONTROLLER
	AIRFLOW CONTROLLER WITH INTEGRAL SHUTOFF DAMPER
	LABORATORY AIRFLOW CONTROL VALVE
	SOUND ATTENUATOR
	AUTOMATIC CONTROL DAMPER
	FIRE DAMPER
	GRAVITY DAMPER
	VOLUME DAMPER
	FIRE SMOKE DAMPER
	SMOKE DAMPER
	OPPOSED BLADE DAMPER
	PARALLEL BLADE DAMPER
	HUMIDIFIER
	DEMOLITION WORK: POINT OF REMOVAL
	NEW WORK: POINT OF ATTACHMENT

MECHANICAL TAGS LEGEND	
	DIFFUSER TAG
	LINEAR DIFFUSER TAG
	DISPLACEMENT DIFFUSER TAG
	VAV TAG
	FAN COIL UNIT TAG
	CABINET UNIT HEATER TAG
	RADIATION TAG
	LAB AIR CONTROL VALVE TAG
	DUCT TYPE SIZE TAGS

NOTE: ALL DIMENSIONS ARE IN INCHES (UNLESS OTHERWISE NOTED)

MECHANICAL ABBREVIATIONS LEGEND	
AC	AIR CURTAIN
ACCU	AIR COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
ACV	AIRFLOW CONTROL VALVE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AS	AIR SEPARATOR
B	BOILER
BMS	BUILDING MANAGEMENT SYSTEM
CA	COMBUSTION AIR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CP	CONDENSATE PUMP
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
DN	DOWN
DOAS	DEDICATED OUTDOOR AIR SYSTEM
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EF	EXHAUST FAN
EMH	ELECTRICAL MANHOLE
ERV	ENERGY RECOVERY VENTILATOR
ET	EXPANSION TANK
FCU	FAN COIL UNIT
FTR	FINNED TUBE RADIATION
GEN	GENERATOR
GEX	GENERAL EXHAUST
GPM	GALLONS PER MINUTE
HRU	HEAT RECOVERY UNIT
HUM	HUMIDIFIER
HWC	HOT WATER COIL
HX	HEAT EXCHANGER
LEA	LABORATORY EXHAUST AIR
LSA	LABORATORY SUPPLY AIR
M	MANIFOLD FOR RADIANT FLOOR
NLEA	NON-LAB EXHAUST AIR
NLSA	NON-LAB SUPPLY AIR
OA	OUTSIDE AIR
P	PUMP
RA	RETURN AIR
RCP	RADIANT CEILING PANEL
RHC	REHEAT COIL
SA	SUPPLY AIR
SATT	SOUND ATTENUATOR
SF	SUPPLY FAN
SMH	STEAM MANHOLE
TYP	TYPICAL
UH	UNIT HEATER
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
VRF	VARIABLE REFRIGERANT FLOW

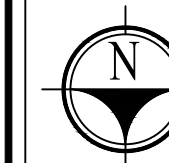
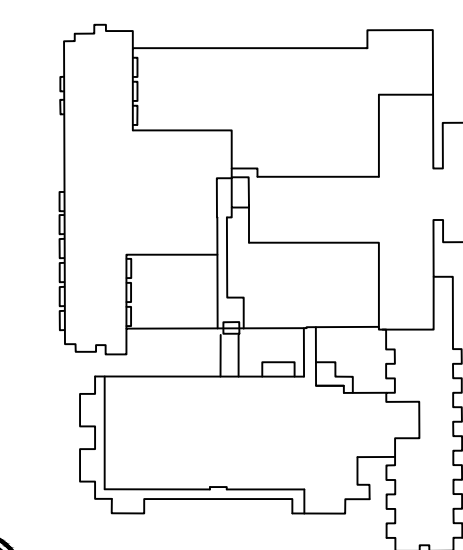


GRIFFIN HEALTH

**GRIFFIN HOSPITAL- PHASE 1**  
FUEL TANK REPLACEMENT for EMERGENCY  
GENERATOR and DISTRIBUTION UPGRADES  
130 DIVISION STREET, DERBY, CT

PROJECT NAME:

KEYPLAN



REVISIONS

REV.	DATE	DESCRIPTION

DRAWING TITLE:

**MECHANICAL BASEMENT  
LEVEL NORTH BUILDING  
EXISTING / DEMOLITION  
PARTIAL FLOOR PLAN**

DATE: FEB 3, 2024

DRAWN BY: JKC

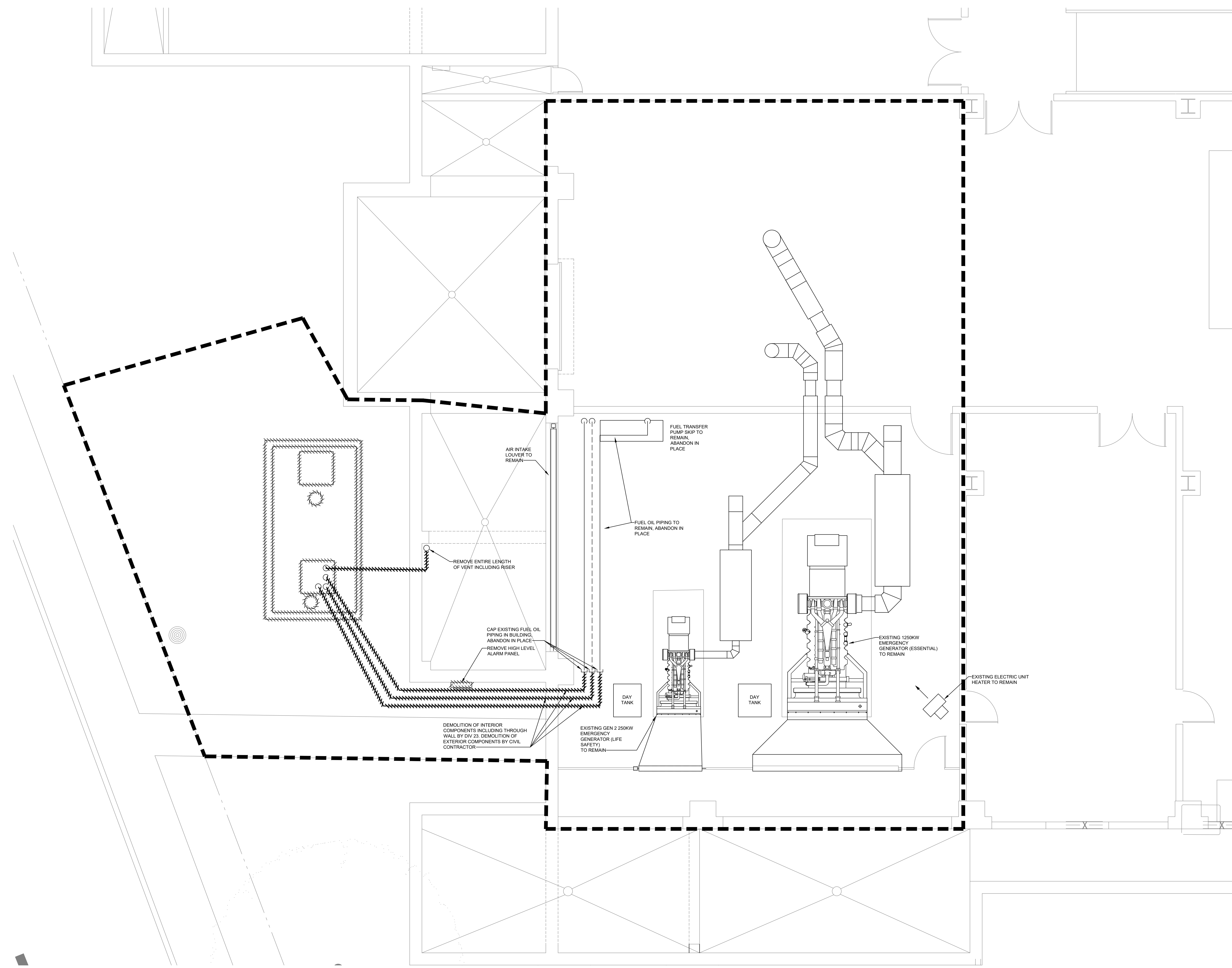
CHECKED BY: SEP

SCALE: AS NOTED

PROJ #: 2021144.01

DRAWING NUMBER:

**M100.0**



**1 NORTH BUILDING GENERATOR ROOM - DEMOLITION WORK**  
SCALE: 1/4" = 1'-0"

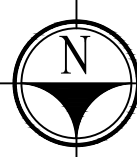
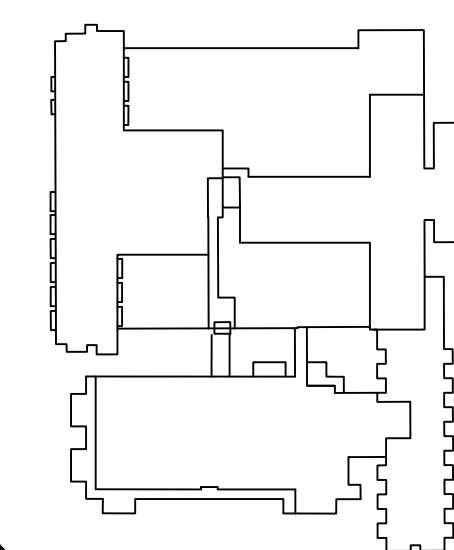


GRIFFIN HEALTH

**GRIFFIN HOSPITAL- PHASE 1**  
FUEL TANK REPLACEMENT for EMERGENCY  
GENERATOR and DISTRIBUTION UPGRADES  
130 DIVISION STREET, DERBY, CT

PROJECT NAME:

KEYPLAN



REVISIONS

REV.	DATE	DESCRIPTION

DRAWING TITLE:

**MECHANICAL BASEMENT  
LEVEL NORTH BUILDING  
PARTIAL FLOOR PLAN**

DATE: FEB 3, 2024

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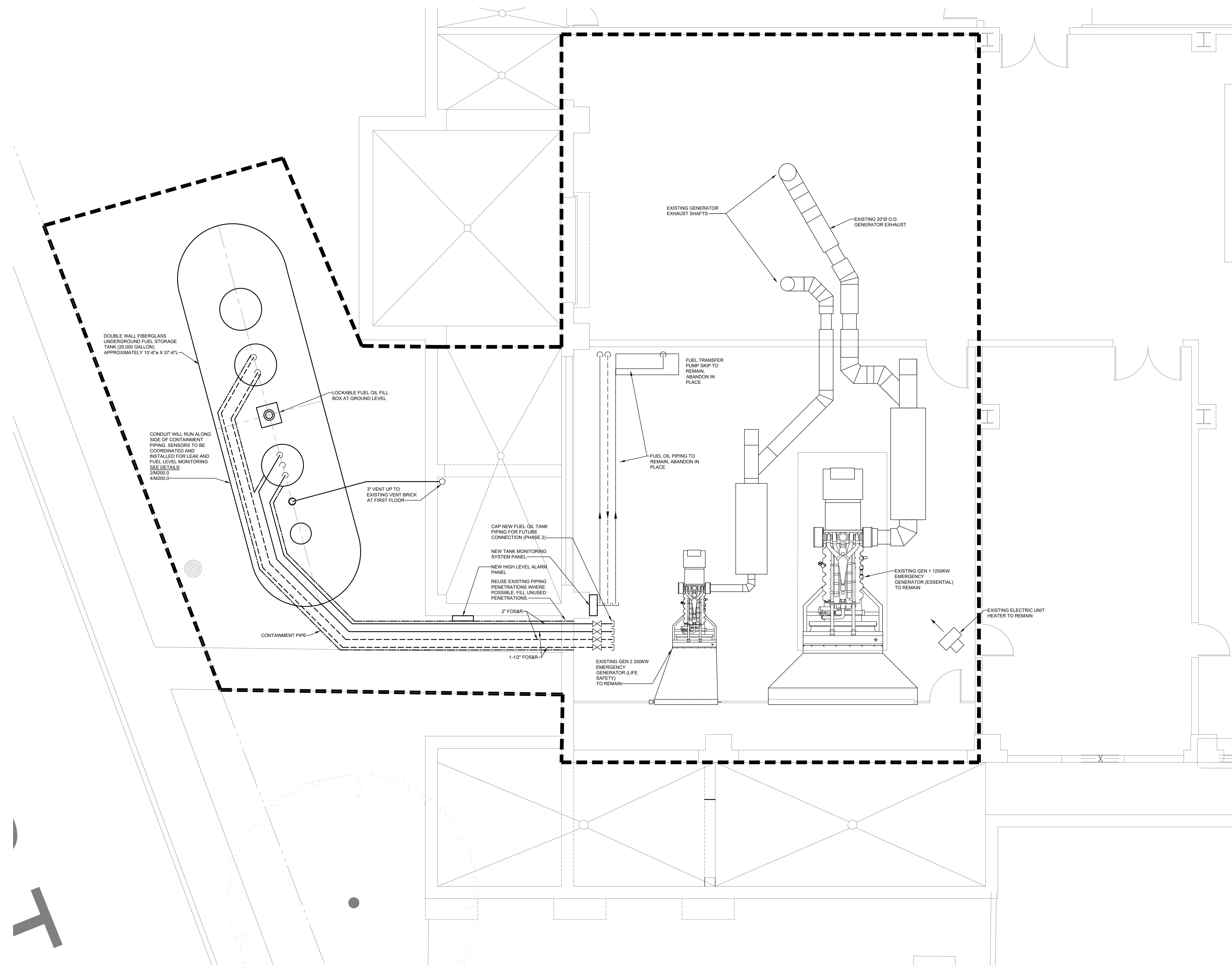
CHECKED BY: SEP

SCALE: AS NOTED

PROJ #: 2021144.01

DRAWING NUMBER:

**M100.1**



**1 NORTH BUILDING GENERATOR ROOM - NEW WORK**  
SCALE: 1/4" = 1'-0"



GRIFFIN HEALTH

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FUEL TANK REPLACEMENT for EMERGENCY  
GENERATOR and DISTRIBUTION UPGRADES  
130 DIVISION STREET, DERBY, CT

PROJECT NAME:

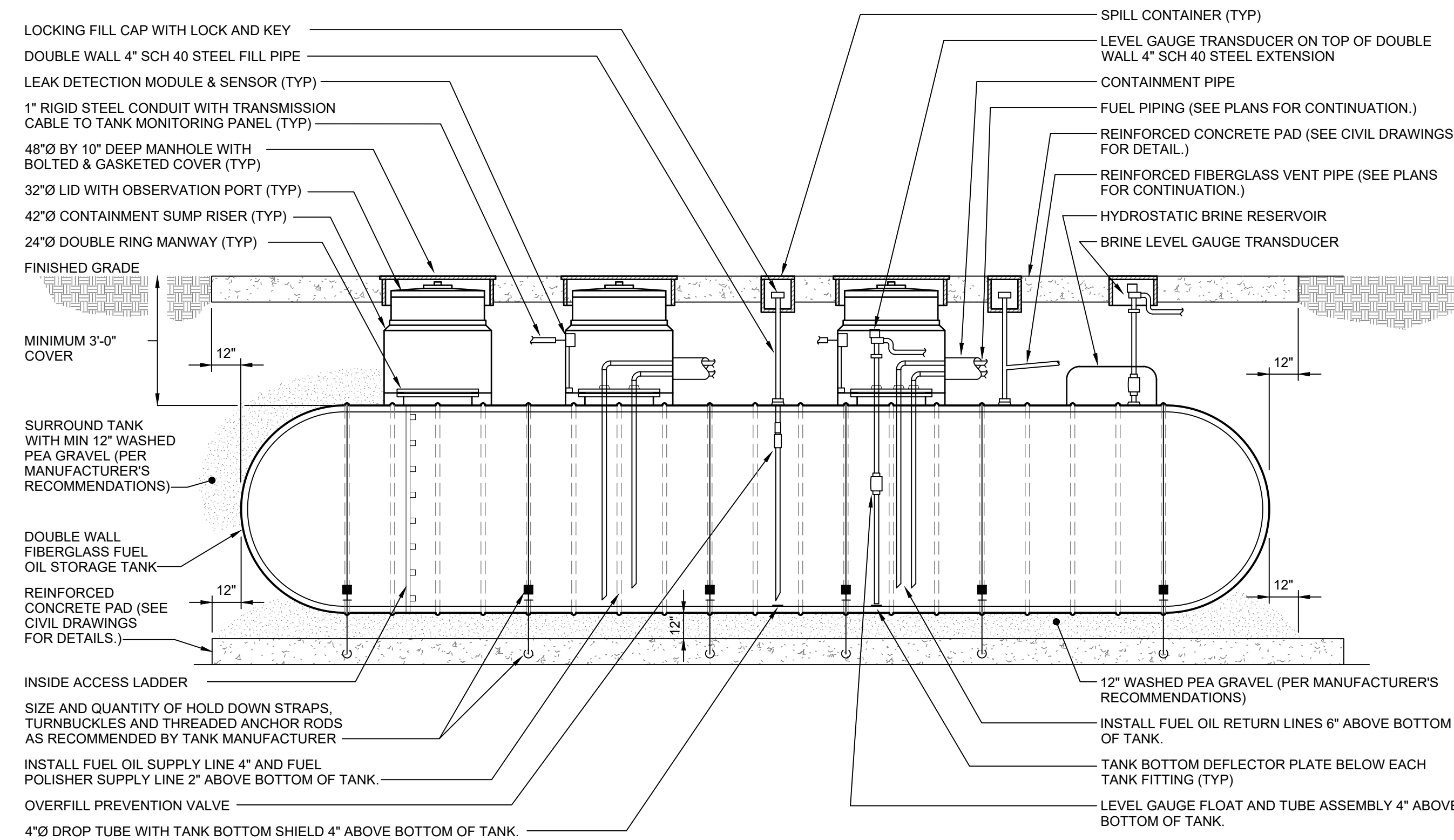
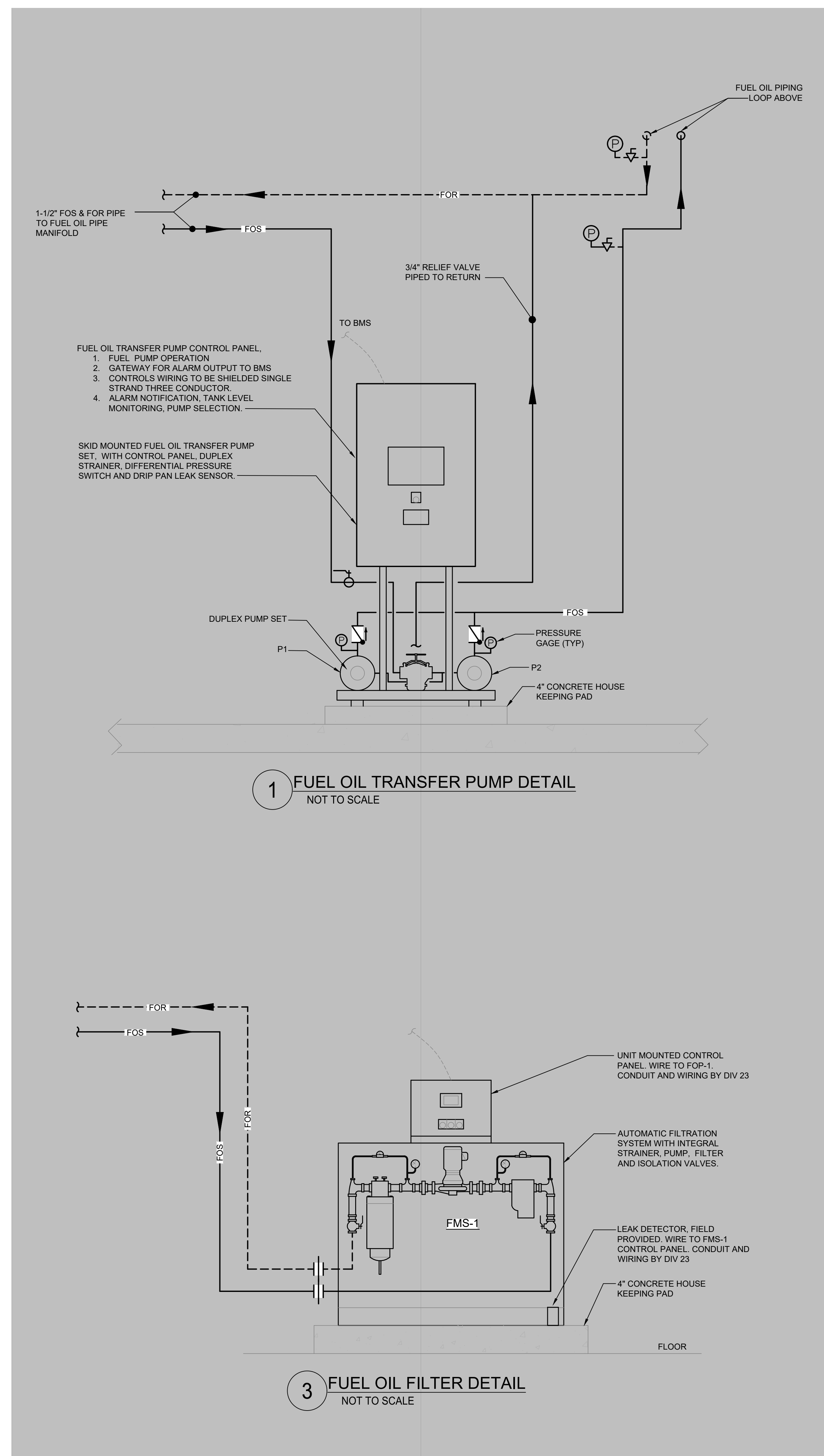
KEYPLAN

REVISIONS

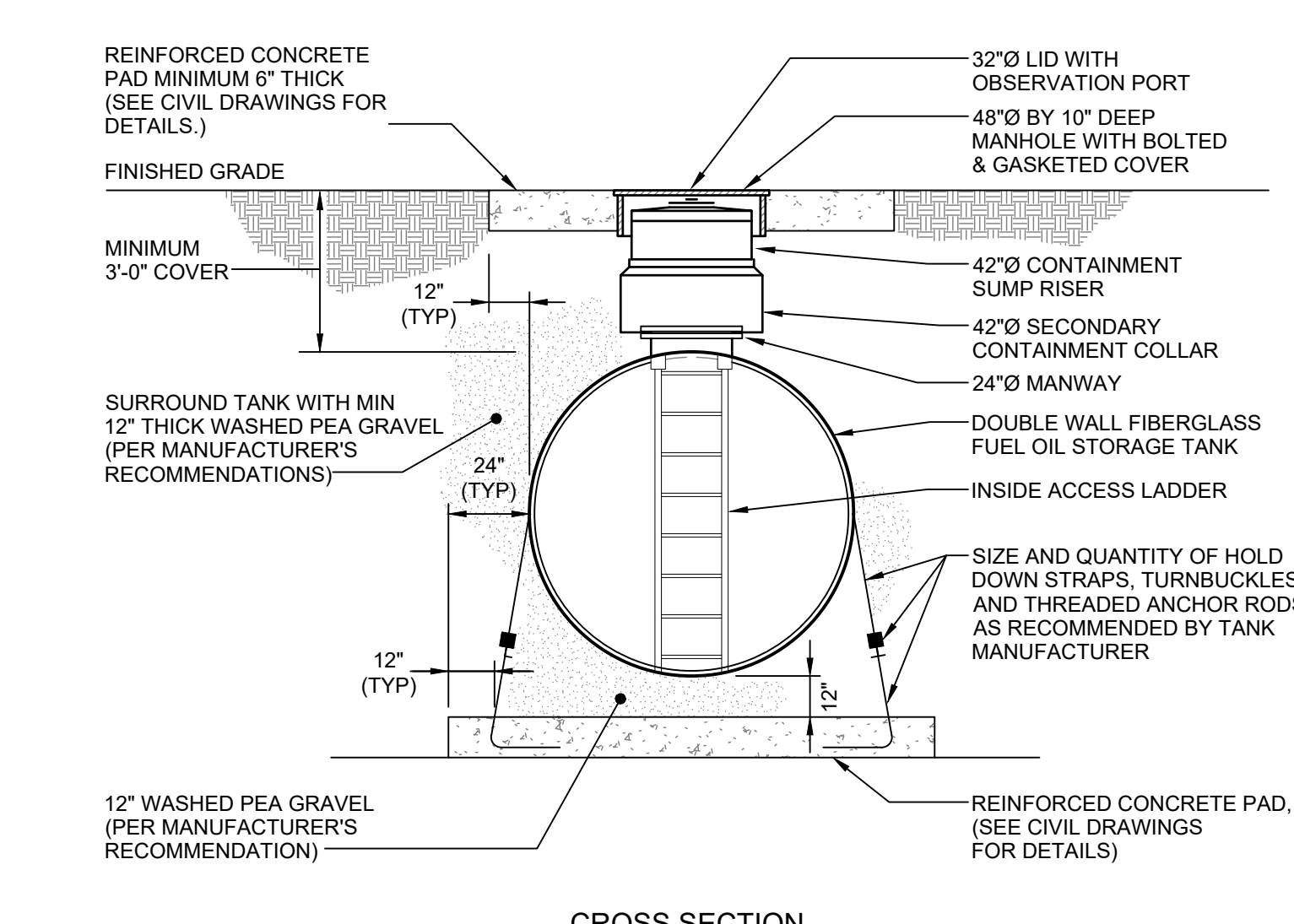
REV.	DATE	DESCRIPTION

DRAWING TITLE:  
**MECHANICAL FUEL OIL DETAILS**

DATE: FEB 3, 2024  
DRAWN BY: JKC  
CHECKED BY: SEP  
SCALE: NTS  
DRAWING NUMBER:  
**M200.0**  
PROJ #: 2021144.01

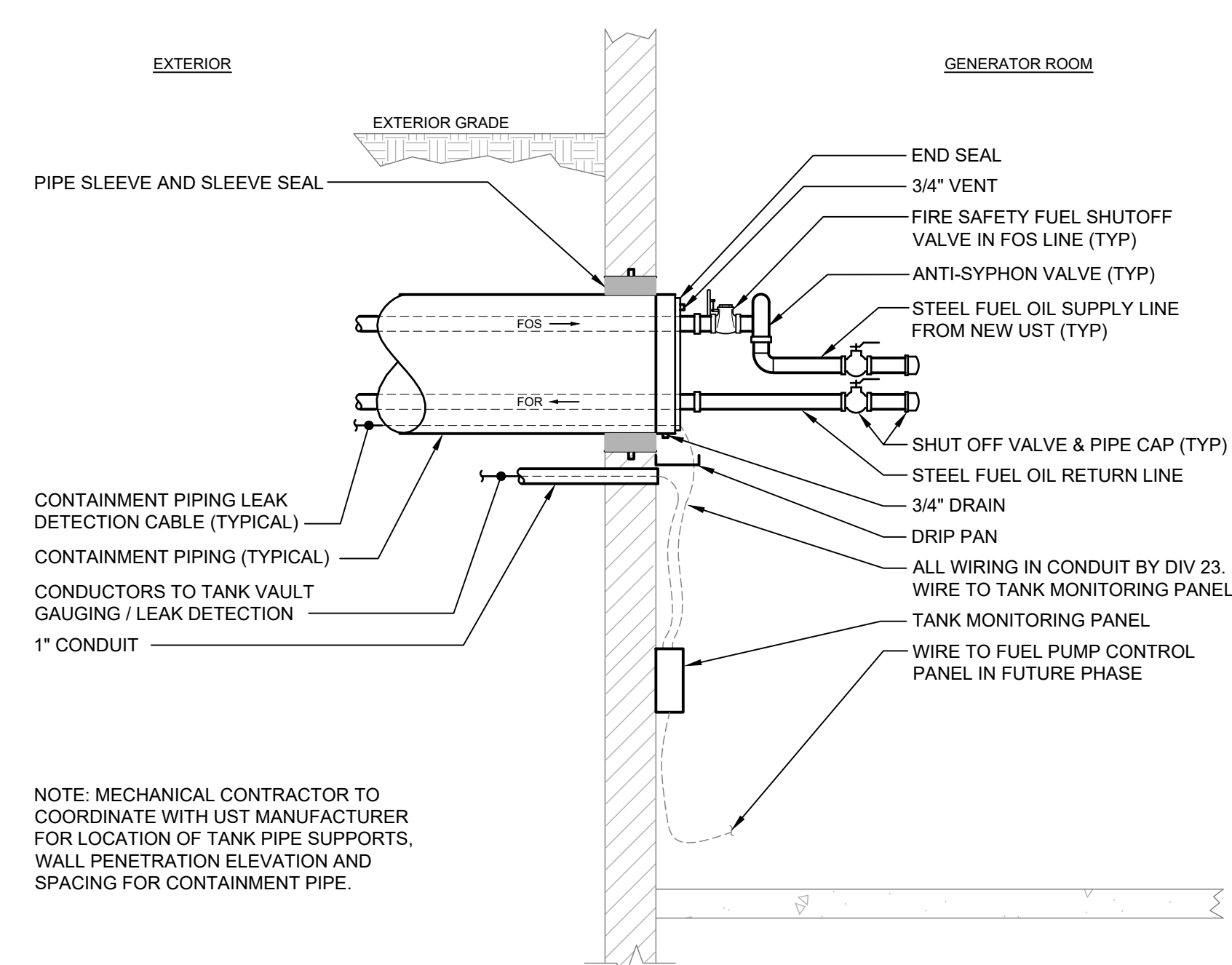


- NOTES
- PITCH STORAGE TANK DOWN IN DIRECTION OF LEAK DETECTION SENSOR PROBE.
  - PROVIDE CHECK VALVES ON ALL FUEL SUPPLY LINES.



**2 TYPICAL FUEL OIL STORAGE TANK - DOUBLE WALL FIBERGLASS WITH BRINE FILLED INTERSTITIAL SPACE DETAIL**  
SCALE: NOT TO SCALE

NOT APPLICABLE TO PHASE 1 WORK



NOTE: MECHANICAL CONTRACTOR TO COORDINATE WITH UST MANUFACTURER FOR LOCATION OF TANK PIPE SUPPORTS, WALL PENETRATION ELEVATION AND SPACING FOR CONTAINMENT PIPE.





GRIFFIN HEALTH

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FUEL TANK REPLACEMENT for EMERGENCY  
GENERATOR and DISTRIBUTION UPGRADES  
130 DIVISION STREET, DERBY, CT

PROJECT NAME:

KEYPLAN

REVISIONS

REV.	DATE	DESCRIPTION

DRAWING TITLE:

**MECHANICAL  
FUEL OIL SYSTEM  
ONLINE AND SCHEDULES**

DATE: FEB 3, 2024

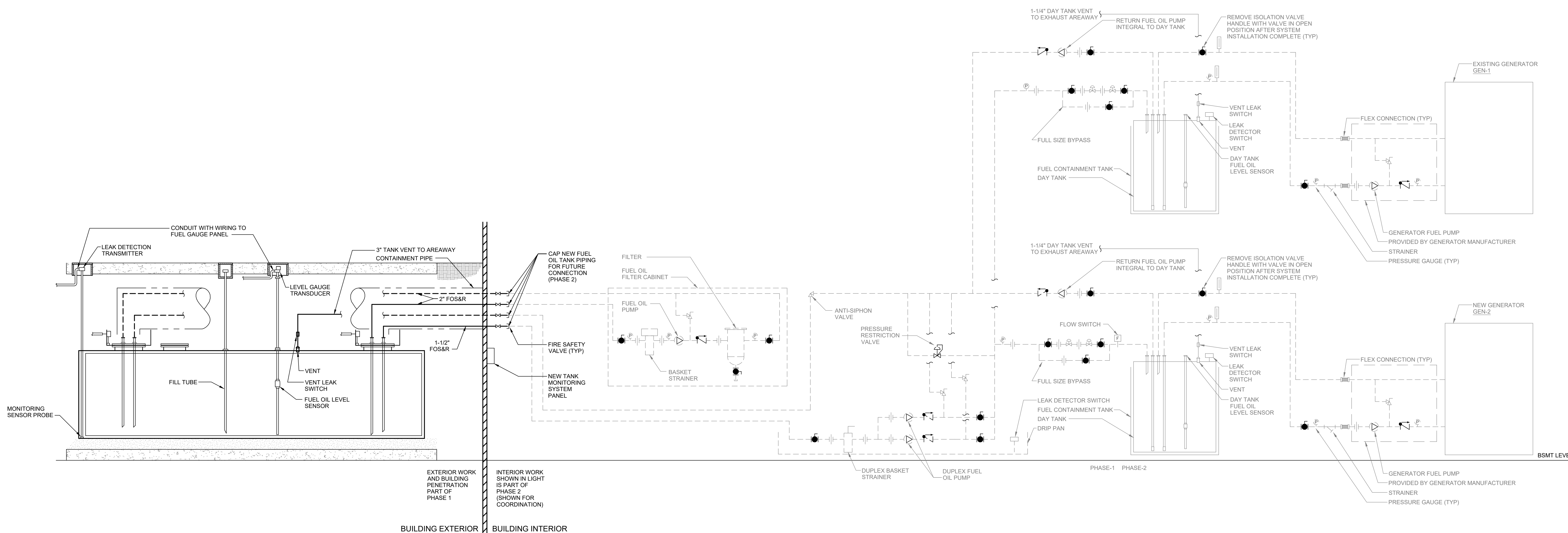
DRAWN BY: JKC

CHECKED BY: SEP

SCALE: NTS

PROJ #: 2021144.01

**M300.0**



NOT APPLICABLE TO  
PHASE 1 WORK

**FUEL OIL PUMP SCHEDULE**

UNIT NO.	LOCATION	SERVING	MANUFACTURER	MODEL & SIZE	TYPE	GPH	HEAD PSI	FLUID	RPM	ELEC. DATA			REMARKS
										MOTOR HP	VOLTS	PH	
POP-1 & 2	GENERATOR ROOM	GENERATORS	PREFERRED UTILITIES	ATPSF-201-460-1451-D-L	DUPLEX	375	50	#2 OIL	1140	1/2	460	3	CONFIGURE CONTROL PANEL AS CENTRAL FUEL SYSTEM CONTROLLER, INCLUDE BAS INTERFACE

NOTES:  
1. PROVIDE MICROPROCESSOR BASED PUMPC 'ATPSF' STYLE W/ BACNET BMS INTERFACE  
2. SKID MOUNTED PUMPS AND CONTROL PANEL, INCLUDING DUPLEX FUEL OIL STRAINER AND INTEGRAL BASIN LEAK DETECTION AND ALARM.

**FUEL MAINTENANCE SYSTEM SCHEDULE**

UNIT NO.	SERVING	GPH	DISCHARGE PRESSURE (PSIG)	RPM	PUMP QUANTITY	HP	CONNECTION SIZE	DIMENSIONS LxHxW	SERVES	OPERATION	VOLTS	PHASE	REMARKS
FMS-1	FUEL OIL TANK	1200	25	1725	1	3/4	1"	48"x12"x48"	FUEL OIL TANK	25 HOURS EVERY 2 WEEKS	120	1	PREFERRED UTILITIES PF-805-ACS

ONE-LINE	
SYMBOL	DESCRIPTION
	POTHEAD
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	FUSE
	FUSE & SWITCH
	SWITCH
	CIRCUIT BREAKER
	DRAWOUT CIRCUIT BREAKER
	GROUND
	THERMAL OVERLOAD
	PROTECTIVE RELAY
	AMMETER
	AMMETER SWITCH
	VOLTMETER
	VOLTMETER SWITCH
	SURGE PROTECTION DEVICE
	UTILITY METER
	OWNERS POWER METER
	TRANSFORMER (WITH GROUNDING ON SECONDARY SIDE)
	LIGHTNING ARRESTOR
	GENERATOR
	DELTA
	WYE
	KEY INTERLOCK (NUMBER INDICATES MATCHED PAIRS)
	AUTOMATIC TRANSFER SWITCH (A.T.S.)
	BYPASS / ISOLATION AUTOMATIC TRANSFER SWITCH
	MAIN LUG ONLY PANELBOARD
	MAIN CIRCUIT BREAKER PANELBOARD
	MAIN FUSED SWITCH PANELBOARD
	ISOLATED POWER PANELBOARD
	CIRCUIT BREAKER WITH AMP FRAME OVER AMP TRIP
	FUSE DISCONNECT SWITCH, WITH SWITCH SIZE OVER FUSE SIZE
	POINT OF CONNECTION BETWEEN EXISTING AND NEW WORK
	POINT OF CONNECTION / WIRE TAP
	TRIP UNIT ADJUSTMENT FEATURE: L = LONG TIME, LSI = LONG / SHORT / INSTANTANEOUS LSGI = LONG / SHORT / INSTANTANEOUS / GROUND FAULT

POWER DEVICES	
SYMBOL	DESCRIPTION
	ELECTRICAL PANEL 480 / 277 VOLT
	ELECTRICAL PANEL 208 / 120 VOLT
	SPECIAL-PURPOSE ELECTRICAL PANEL OR EQUIPMENT CABINET
	ELECTRICAL POWER TRANSFORMER
	MAGNETIC STARTER
	FUSED DISCONNECT SWITCH
	COMBINATION MAGNETIC STARTER AND DISCONNECT SWITCH
	ELECTRIC MOTOR
	VARIABLE FREQUENCY DRIVE
	JUNCTION BOX
	HARD-WIRED EQUIPMENT CONNECTION
	RELAY
	PULL BOX, (FEEDERS)

WIRING	
SYMBOL	DESCRIPTION
	BRANCH CIRCUIT WIRING
	BRANCH CIRCUIT SWITCHED WIRING
	CONDUIT UP
	CONDUIT DOWN
	WIRE BREAK
	POINT OF CONNECTION / WIRE TAP
	HOME RUN, 3/4" CONDUIT, 2#12 AND 1#12 GROUND, UNLESS OTHERWISE NOTED. NOTE: HOME RUN SHALL BE FROM FIRST ELECTRICAL DEVICE BACKBOX IN CIRCUIT TO ELECTRICAL PANEL

ABBREVIATIONS	
SYMBOL	DESCRIPTION
A	AMPERE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFI / AFCI	ARC FAULT INTERRUPTER
AHF	ACTIVE HARMONIC FILTER
AHU	AIR HANDLING UNIT
C	CONDUIT
CATV	CABLE TELEVISION
C/B	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CIR	CIRCUIT
CUH	CABINET UNIT HEATER
CT	CABLE TRAY
ER	EXISTING TO REMAIN
EF	EXHAUST FAN
ELTR	EXISTING LIGHTING TO REMAIN (WITHIN SPECIFIED AREA)
EM	EMERGENCY
EMT	ELECTRIC METALLIC TUBING
EPTR	EXISTING POWER TO REMAIN (WITHIN SPECIFIED AREA)
EWC	ELECTRIC WATER COOLER
EWL	ELECTRIC WATER HEATER
EXP	EXPLOSION PROOF (INTRINSICALLY SAFE)
F	FUSED
FA	FIRE ALARM
FLA	FULL LOAD AMPS
FMC	FLEXIBLE METALLIC CONDUIT
FUT	FUTURE
G / GND	GROUND
GFI / GFCI	GROUND FAULT INTERRUPTER
IG	ISOLATED GROUND
LFMC	LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT
MAU	MAKE-UP AIR UNIT
MCA	MINIMUM CIRCUIT AMPACITY
MD	MOTORIZED DAMPER
NC	NORMALLY CLOSED
NF	NON-FUSED
NE	NEW LOCATION OF EXISTING RELOCATED
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NR	NEW TO REPLACE EXISTING
P	POLE (SPACE IN PANELBOARD)
PE	PRIMARY ELECTRIC SERVICE
PVC	POLYVINYL CHLORIDE CONDUIT
RE	REMOVE EXISTING
REF	REFRIGERATOR
RL	RELOCATE EXISTING
RMC	RIGID METALLIC CONDUIT
RR	REMOVE AND REPLACE ON NEW SURFACE
RTU	ROOFTOP UNIT
SD	SMOKE DAMPER
SE	SECONDARY ELECTRIC SERVICE
ST	SHUNT STRIP
S&P	SPACE AND PROVISION
T	TELEPHONE (VOICE)
TCP	TEMPERATURE CONTROL PANEL
TV	TELEVISION
TX	TRANSFORMER
TYP	TYPICAL
UNV	UNIVERSAL
VAC	VOLTS AC
W	WIRE OR WATTS
WA OR WAP	WIRELESS ACCESS POINT
WG	WIRE GUARD
WM	SURFACE MOUNTED RACEWAY
WP	WEATHERPROOF

LEGEND NOTE	
THESE LEGENDS AND ABBREVIATIONS DEFINE ITEMS INDICATED ON DRAWINGS. NOT ALL SYMBOLS OR ABBREVIATIONS DEFINED ARE NECESSARILY USED ON THIS PROJECT.	

GENERAL SITE ELECTRICAL NOTES	
A.	PRIOR TO ANY EXCAVATION, CALL 811 "CALL BEFORE YOU DIG" TO NOTIFY AFFECTED UTILITIES.
B.	ALL TRENCHING AND BACKFILLING SHALL BE PROVIDED BY DIVISION 2.
C.	ALL CONCRETE PADS ARE PROVIDED BY DIVISION 3.
D.	CONTRACTOR SHALL VERIFY ALL EXISTING SERVICE LOCATIONS.
E.	THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR UTILITY COMPANY CHARGES.
F.	COORDINATE ALL SITE WORK WITH OWNER AND UTILITY COMPANIES. REFER TO SITE MEP PLANS FOR ADDITIONAL INFORMATION, DETAILS, AND EXACT LOCATION OF EQUIPMENT.
G.	THE LOCATION AND QUANTITY OF EXISTING UNDERGROUND UTILITIES ARE SHOWN APPROXIMATELY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ENGINEER. DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. PROTECT ALL EXISTING TO REMAIN UTILITIES FROM DAMAGE DURING NEW CONSTRUCTION.
H.	ANY EXISTING CONDUIT, WIRING, ETC. ROUTED IN AREAS THAT ARE DISTURBED BY CONSTRUCTION WORK OR LOCATED WHERE THE NEW CONSTRUCTION IS BEING ADDED SHALL BE RE-ROUTED AS REQUIRED TO ENSURE CONTINUITY OF EXISTING CIRCUITS.
I.	IF AREA IS BEING EXCAVATED, ABANDONED ELECTRICAL SHALL BE REMOVED. (REMOVE CONDUCTORS AND CONDUIT) IF NO SITE WORK IS BEING DONE IN THESE AREAS, REMOVE CONDUCTORS AND ABANDON CONDUIT IN PLACE AND CAP.
J.	EXISTING UTILITIES SHALL REMAIN TO SERVE EXISTING STRUCTURES UNTIL THEY ARE VACATED. PROVIDE TEMPORARY SERVICES AS REQUIRED, COORDINATE WITH UTILITIES AND OWNER.
K.	INSTALL ALL DUCTBANKS ON UNDISTURBED EARTH WHERE POSSIBLE. WHERE INSTALLED ON DISTURBED EARTH, PROVIDE COMPACTED GRAVEL FILL PER SPECIFICATION SECTION, "COMPACTED GRAVEL FILL".
L.	ALL ELECTRIC DUCTBANKS SHALL BE CONCRETE ENCASED SCHEDULE 40 PVC CONDUIT, UNLESS NOTED OTHERWISE.
M.	ALL CONDUITS SHALL BE INSTALLED WITH NYLON PULL LINES AND FOOTAGE TAPE BETWEEN EACH STRUCTURE FOR FUTURE WORK.
N.	MAINTAIN MINIMUM 30" FROM FINISHED GRADE TO TOP OF ALL DUCTBANKS AND CONDUIT RUNS UNLESS OTHERWISE NOTED.
O.	MAINTAIN MINIMUM OF 12" HORIZONTAL SEPARATION BETWEEN COMMUNICATION, PRIMARY ELECTRIC DUCTBANKS AND SECONDARY FEEDERS.
P.	MAINTAIN MINIMUM OF 60" HORIZONTAL SEPARATION BETWEEN WATER LINES AND EITHER COMMUNICATION, PRIMARY ELECTRIC DUCTBANKS OR SECONDARY FEEDERS.
Q.	MAINTAIN A MINIMUM OF 10 FEET HORIZONTAL SEPARATION BETWEEN STEAM LINES AND EITHER COMMUNICATION OR PRIMARY ELECTRIC DUCTBANKS AND SECONDARY FEEDERS. WHERE DUCTBANKS CROSS STEAM LINES, MAINTAIN A MINIMUM VERTICAL SEPARATION OF 3 FEET AND PROVIDE A MINIMUM OF 6 INCH THICK RIGID FOAM BLUEBOARD TYPE INSULATION EXTENDING AT LEAST 4 FEET IN BOTH DIRECTIONS OF CROSSING.
R.	PROVIDE TWO (2) 45° ELBOWS IN LIEU OF 90° SWEEPS FOR HORIZONTAL DUCTBANK RUNS.
S.	CONDUIT PENETRATIONS INTO VAULTS OR MANHOLES SHALL NOT ENTER AT AN ANGLE. ALL CONDUIT PENETRATIONS SHALL BE PERPENDICULAR TO THE INSIDE WALL SURFACE UNLESS OTHERWISE SPECIFIED.
T.	SEAL ALL TELECOMMUNICATION CONDUITS WITH CABLES AT THE LAST STRUCTURE PRIOR TO CONDUITS ENTERING A BUILDING AND WHERE CONDUITS ENTER A BUILDING WITH TYCO ELECTRONICS "JACKMOON" OR EQUAL QUADPLEX DUCT SEALING PLUGS. SEAL ALL SPARE TELECOMMUNICATION CONDUITS WITH BLANK DUCT PLUGS EQUAL TO TYCO ELECTRONICS "JACKMOON" OR EQUAL.
U.	SEAL ALL POWER CONDUITS WITH CABLES AT THE LAST STRUCTURE PRIOR TO CONDUITS ENTERING A BUILDING AND WHERE CONDUITS ENTER A BUILDING WITH CONDUIT SEALING BUSHINGS PER SPECIFICATIONS AND DETAILS, SEAL ALL SPARE POWER CONDUITS WITH BLANK DUCT PLUGS EQUAL TO TYCO ELECTRONICS "JACKMOON" OR EQUAL.
V.	WHERE PVC CONDUIT, WHETHER DIRECT BURIED OR IN DUCTBANK, TERMINATES WITHIN A BUILDING OR UTILITY STRUCTURE, THE PVC CONDUIT SHALL TRANSITION TO RIGID METAL CONDUIT AT LEAST 10 FEET PRIOR TO ENTERING BUILDING OR UTILITY STRUCTURE.
W.	BOND ALL METALLIC EQUIPMENT IN MANHOLE TO THE MANHOLE GROUND RING, THIS INCLUDES, BUT IS NOT LIMITED TO, COVER FRAME ASSEMBLY, RIGID METAL CONDUITS, CABLE SHIELDS, AND GROUND CONDUCTORS. PULLING EYES SHALL BE USED IN MANHOLES/HANDHOLES

GENERAL ELECTRICAL DEMOLITION NOTES	
A.	REMOVE EXISTING ELECTRICAL EQUIPMENT WITHIN DESIGNATED AREA AS NOTED, INCLUDING ASSOCIATED WIRING BACK TO SOURCE OR TO LAST ACTIVE DEVICE, CONDUIT, ETC. IN PREPARATION FOR NEW WORK. THIS WORK INCLUDES COMPLETE DEMOLITION OF ITEMS INDICATED ON DEMOLITION PLANS.
B.	REMOVE ANY EXISTING LOW VOLTAGE SYSTEMS AND EQUIPMENT WITHIN DESIGNATED AREA AS NOTED, INCLUDING OUTLETS, ETC. AND ASSOCIATED WIRING BACK TO SOURCE OR TO LAST ACTIVE DEVICE.
C.	REMOVE EXISTING FIRE ALARM SYSTEM DEVICE IN AREA DESIGNATED AS NOTED, INCLUDING BUT NOT LIMITED TO, FIRE ALARM DEVICES, WIRING, CONDUIT, BOXES, PANELS, ETC. COORDINATE REMOVAL WORK WITH INSTALLATION OF NEW FIRE ALARM SYSTEM DEVICES SUCH THAT AN OPERATIONAL FIRE ALARM SYSTEM IS MAINTAINED THROUGHOUT PERIODS OF BUILDING OCCUPATION. COORDINATE ANY SERVICE SHUT-DOWN WITH LOCAL FIRE OFFICIAL AND OWNER. PROVIDE FIRE WATCH AS REQUIRED.
D.	DISCONNECT AND REMOVE EXISTING WIRING, CONDUIT, BOXES, ETC. SERVING ALL EQUIPMENT BEING REMOVED BY MECHANICAL AND OTHER TRADES. REFER TO PLUMBING AND MECHANICAL AND DRAWINGS FOR COORDINATION OF REQUIRED WORK. REMOVALS SHALL BE BACK TO SOURCE PANEL COMPLETE.
E.	EXISTING ELECTRICAL ITEMS THAT ARE BEING DISCONNECTED AND REMOVED AND NOT BEING REUSED SHALL BE DISPOSED OF PROPERLY.
F.	ALL ABANDONED ELECTRICAL WIRING AND DEVICES SHALL BE REMOVED.
G.	IF CONTINUITY OF WIRING TO EXISTING ELECTRICAL ITEMS IS INTERRUPTED BY REMOVAL OF DEVICES, CONTRACTOR SHALL INSTALL ALL NECESSARY WIRING AND RACEWAY TO ENSURE THE CONTINUITY OF CIRCUITRY IN OTHER AREAS.
H.	WIRING FOR ITEMS BEING REMOVED SHALL BE REMOVED BACK TO POWER SOURCE OR LAST DEVICE TO REMAIN ACTIVE UNLESS NOTED OTHERWISE.
I.	NOTIFY CONSTRUCTION MANAGER OR GENERAL CONTRACTOR OF OPENINGS CAUSED BY REMOVAL OF EXISTING EQUIPMENT NOT BEING REPLACED. ENSURE THE PATCHING IS COMPLETE.
J.	INSTALL BLANK COVER PLATES ON RECESSED OUTLET BOXES ABANDONED UNDER THIS CONTRACT IN WALLS THAT ARE TO REMAIN.
K.	THE BUILDING WILL BE OCCUPIED DURING DEMOLITION. COORDINATE PHASING OF DEMOLITION WORK WITH CONSTRUCTION MANAGER OR GENERAL CONTRACTOR. EXISTING PANELS MAY NEED TEMPORARY RE-FEED. ENSURE CONTINUITY OF SERVICES.

GENERAL ELECTRICAL NOTES	
A.	ALL HOMERUNS/CIRCUITS TO BE 2#12, 1#12G, 3/4" TO A 20A-1P CIRCUIT BREAKER IN DESIGNATED PANEL, UNLESS NOTED OTHERWISE. NUMBERS SHOWN AT EACH DEVICE/HOMERUN REPRESENT BRANCH CIRCUIT NUMBER IN PANELBOARD.
B.	WIRE AND RACEWAY SIZES INDICATED ON HOMERUNS/CIRCUITS SHALL BE CONTINUOUS FOR ENTIRE LENGTH, UNLESS NOTED OTHERWISE.
C.	ALL WIRING (CONDUITS, ETC.) TO BE CONCEALED. NO SURFACE WIRING SHALL BE INSTALLED IN FINISHED AREAS. THIS CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CHANNELING AND PATCHING REQUIRED OF EXISTING WALLS AND FLOORS TO ACCOMMODATE NEW WIRING.
D.	ALL WIRING ABOVE CEILING THAT IS NOT IN CONDUIT AND IS LOCATED IN A PLENUM SPACE SHALL BE PLENUM RATED. REFER TO MECHANICAL PLANS FOR PLENUM AREAS.
E.	ELECTRICAL CONDUITS, WIRING, BOXES, ETC. SHALL NOT PENETRATE STAIR ENCLOSURE, UNLESS THEY ARE FEEDING DEVICES LOCATED WITHIN THE STAIR ENCLOSURE.
F.	PROVIDE ELECTRICAL OUTLET PLATE GASKET SEALS AT RECEPTACLES, SWITCHES AND OTHER ELECTRICAL BOXES ON EXTERIOR WALLS AND INTERIOR WALLS BETWEEN CONDITIONED AND NON-CONDITIONED SPACES.
G.	ALL INDIVIDUAL OR GENERAL PURPOSE BRANCH 120 VOLT CIRCUITS OVER 180'-0" IN CONDUCTOR LENGTH SHALL BE INCREASED ONE WIRE SIZE (i.e. FROM #12AWG TO #10AWG) AND CIRCUITS OVER 170'-0" IN CONDUCTOR LENGTH SHALL BE INCREASED TWO WIRE SIZES (i.e. FROM #12AWG TO #8AWG) UNLESS NOTED OTHERWISE.
H.	ALL INDIVIDUAL OR GENERAL PURPOSE BRANCH 277 VOLT CIRCUITS OVER 230'-0" IN CONDUCTOR LENGTH SHALL BE INCREASED ONE WIRE SIZE (i.e. FROM #12AWG TO #10AWG) AND CIRCUITS OVER 385'-0" IN CONDUCTOR LENGTH SHALL BE INCREASED TWO WIRE SIZES (i.e. FROM #12AWG TO #8AWG) UNLESS NOTED OTHERWISE.
I.	PROVIDE UNIVERSAL BLANK PLUGS ON ALL SPARE CONDUIT EQUAL TO CARLON "MAEPG" SERIES.
J.	SEAL ALL CONDUITS AT THE LAST STRUCTURE PRIOR TO CONDUITS ENTERING A BUILDING AND WHERE CONDUITS ENTER A BUILDING WITH CARLON "MAT" OR "MAG" SERIES DUCT PLUG FOR CONDUITS WITH WIRES AND CARLON "MAE" SERIES FOR SPARE CONDUITS OR EQUAL. ALL SPARE CONDUITS SHALL HAVE NYLON PULL STRING AND FOOTAGE TAPE.
K.	RACEWAY AND WIRING INDICATED ON DRAWINGS ARE RECOMMENDATIONS FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL ROUTING.
L.	ALTHOUGH ALL FEEDER AND BRANCH CIRCUIT WIRE AND CONDUIT IS NOT SPECIFICALLY SHOWN, IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE FEEDER AND BRANCH CIRCUIT WIRING SYSTEM BE INSTALLED.

GENERAL POWER NOTES	
A.	COORDINATE EXACT LOCATION OF ELECTRICAL DEVICES SUCH AS RECEPTACLES, SWITCHES, FIRE ALARM DEVICES, ETC. WITH ELECTRICAL PLANS, ELEVATIONS AND DETAILS PRIOR TO START OF WORK. REQUEST CLARIFICATIONS FROM ENGINEER PRIOR TO INSTALLATION.
B.	ANY RECEPTACLE LOCATED WITHIN 6'-0" OF A WATER SOURCE SHALL BE A GFI RECEPTACLE OR PROTECTED BY A GFI CIRCUIT BREAKER.
C.	UNLESS OTHERWISE INDICATED, REFER TO MOTOR CIRCUIT SCHEDULE FOR ELECTRICAL REQUIREMENTS OF ALL MECHANICAL (HVAC, PLUMBING, FIRE PROTECTION, ETC.) EQUIPMENT. REFER TO DRAWINGS FOR EACH TRADE FOR EXACT LOCATION OF EQUIPMENT.
D.	DO NOT INSTALL OUTLETS BACK TO BACK. PROVIDE MINIMUM 24 INCH HORIZONTAL SPACING IN FIRE RATED WALLS. MOUNT LOW VOLTAGE AND POWER OUTLETS IN DIFFERENT STUD WALL CAVITIES.
E.	WHEN THE COMBINING OF CIRCUITS OR HOMERUNS IS PERMITTED ELSEWHERE IN THE CONTRACT DOCUMENTS, RACEWAYS SHALL BE LIMITED TO SIX CURRENT CARRYING CONDUCTORS (THREE PHASE AND THREE NEUTRALS) AND GROUNDING CONDUCTOR UNLESS OTHERWISE INDICATED. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH SINGLE PHASE CIRCUIT UNLESS AN OVERSIZED NEUTRAL IS SPECIFICALLY INDICATED. CONDUCTORS MUST BE DERATED PER THE NATIONAL ELECTRICAL CODE WHEN MORE THAN THREE CURRENT CARRYING CONDUCTORS ARE RUN IN THE SAME RACEWAY.
F.	PROVIDE NYLON PULL STRING IN ALL EMPTY CONDUIT SYSTEMS FOR USE IN INSTALLING SYSTEM WIRING.
G.	COORDINATE EXACT LOCATION OF JUNCTION BOX FOR EQUIPMENT WHICH IS FURNISHED BY OWNER OR OTHERS WITH EQUIPMENT SUPPLIER PRIOR TO CONSTRUCTION. PROVIDE WIRING FROM JUNCTION BOX TO EQUIPMENT CONNECTION AS REQUIRED.
H.	WIRING INDICATED BY CIRCUIT NUMBER SYMBOL SHALL INCLUDE A NEUTRAL WHEN THE LOAD SERVED HAS PROVISIONS FOR, OR REQUIRES A NEUTRAL. TYPICALLY ALL FEEDERS AND BRANCH CIRCUITS WILL REQUIRE A NEUTRAL, EXCEPT MOST MOTOR CIRCUITS.



**GRIFFIN HOSPITAL - PHASE 1**  
FUEL TANK REPLACEMENT FOR EMERGENCY GENERATOR and DISTRIBUTION UPGRADES  
130 DIVISION STREET, DERBY, CT

PROJECT NAME:

KEYPLAN

REVISIONS		
REV.	DATE	DESCRIPTION

DRAWING TITLE:  
**ELECTRICAL LEGENDS AND GENERAL NOTES**

DATE: FEB 3, 2024	DRAWING NUMBER:
DRAWN BY: EMG	<b>E001</b>
CHECKED BY: SEP	
SCALE: NONE	
PROJ #: 2021144.01	





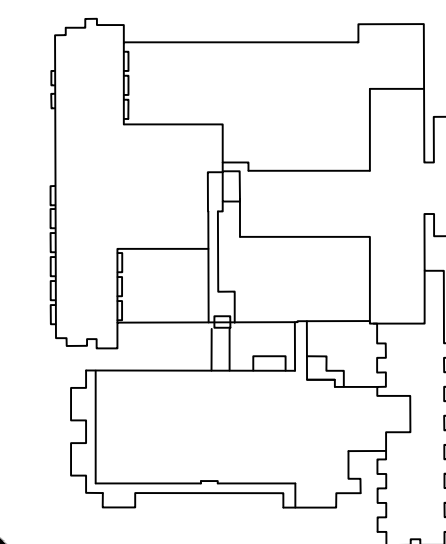


GRIFFIN HEALTH

**GRIFFIN HOSPITAL - PHASE 1**  
FUEL TANK REPLACEMENT for EMERGENCY  
GENERATOR and DISTRIBUTION UPGRADES  
130 DIVISION STREET, DERBY, CT

PROJECT NAME:

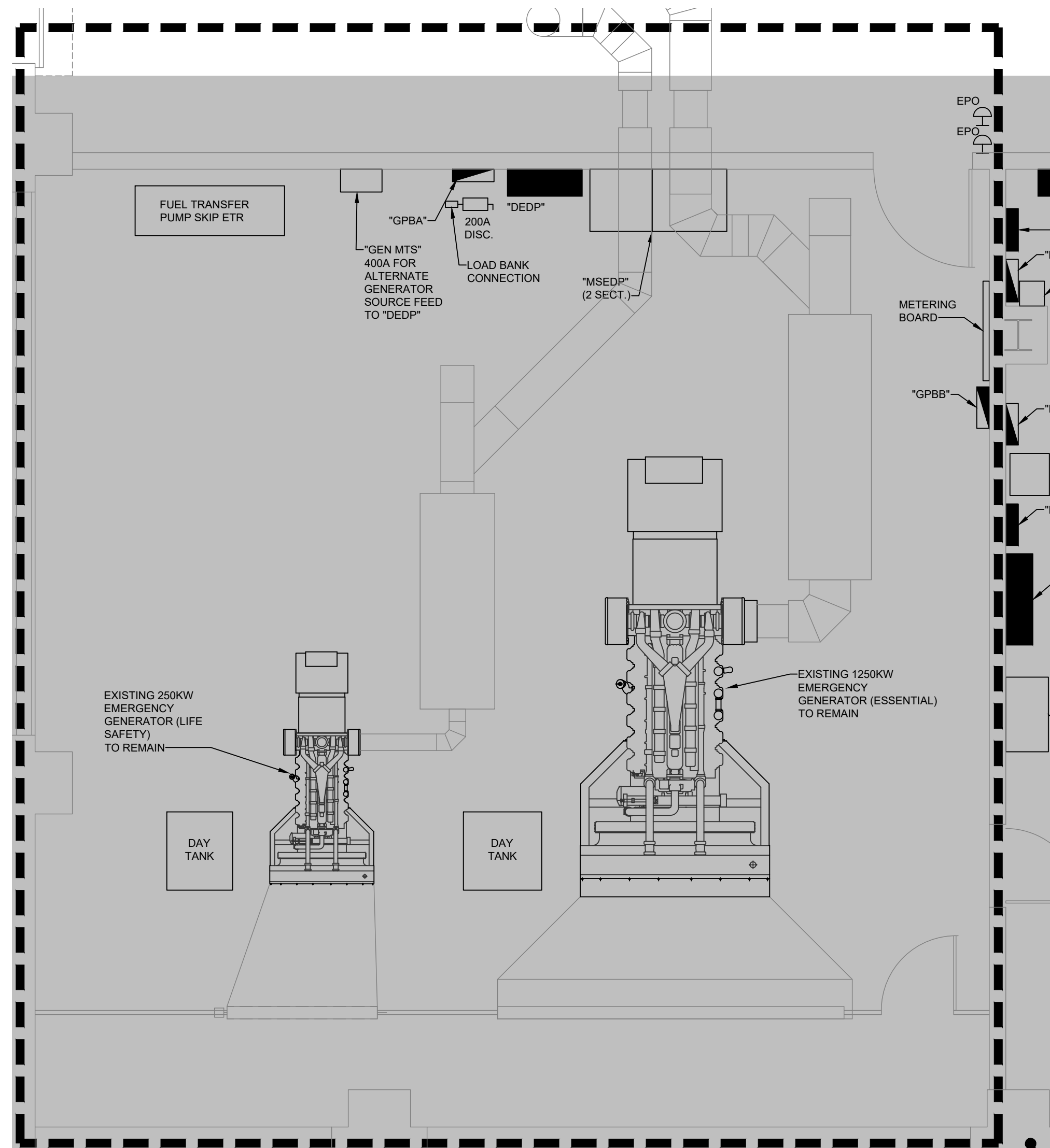
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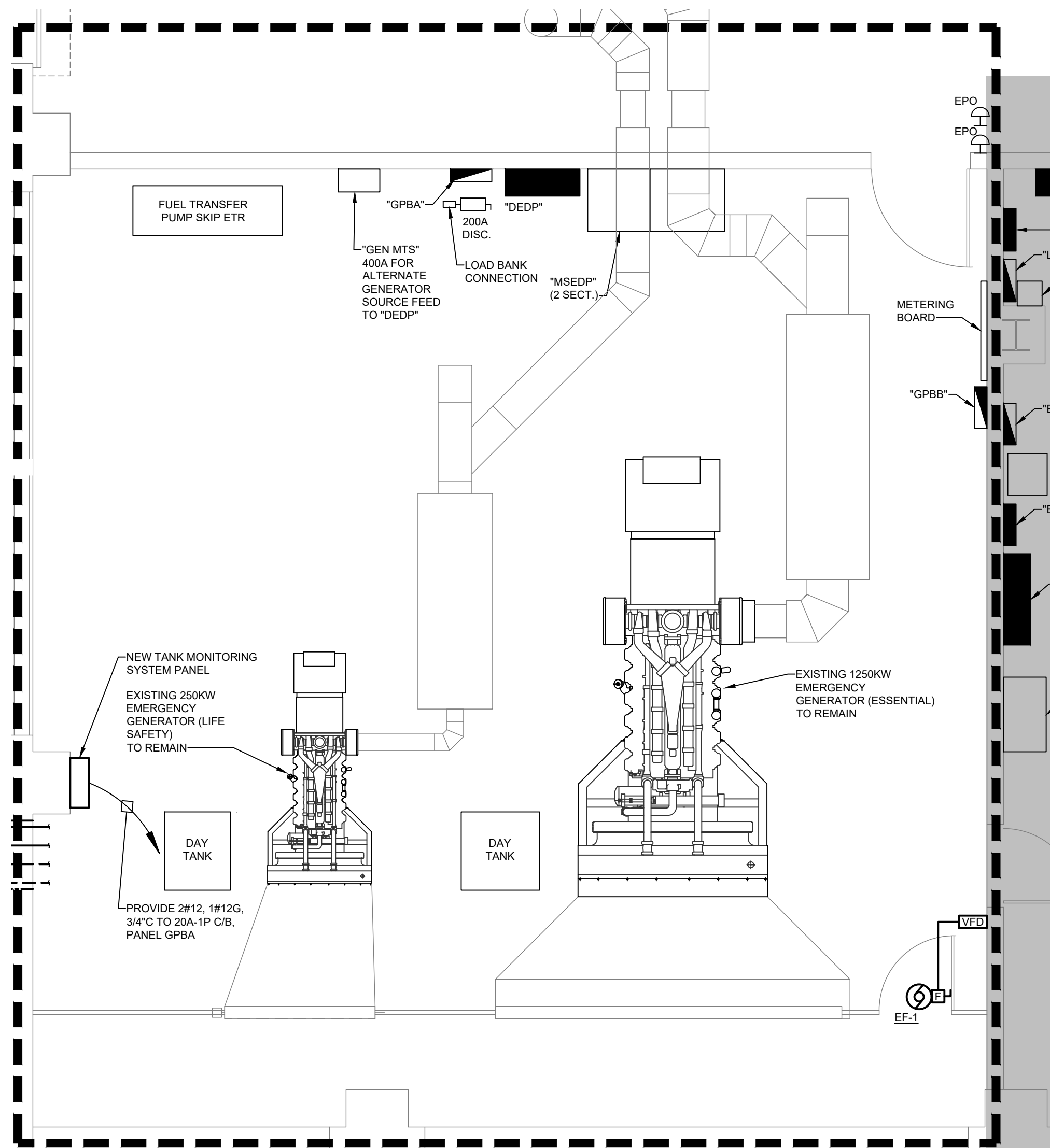
REVISIONS		
REV.	DATE	DESCRIPTION

**DRAWING TITLE:**  
ELECTRICAL  
BASEMENT LEVEL  
NORTH BUILDING  
PARTIAL FLOOR PLANS  
AND DETAILS

DATE: FEB 3, 2024	DRAWING NUMBER:
DRAWN BY: EMG	<b>E100.2</b>
CHECKED BY: SEP	
SCALE: AS NOTED	
PROJ #: 2021144.01	

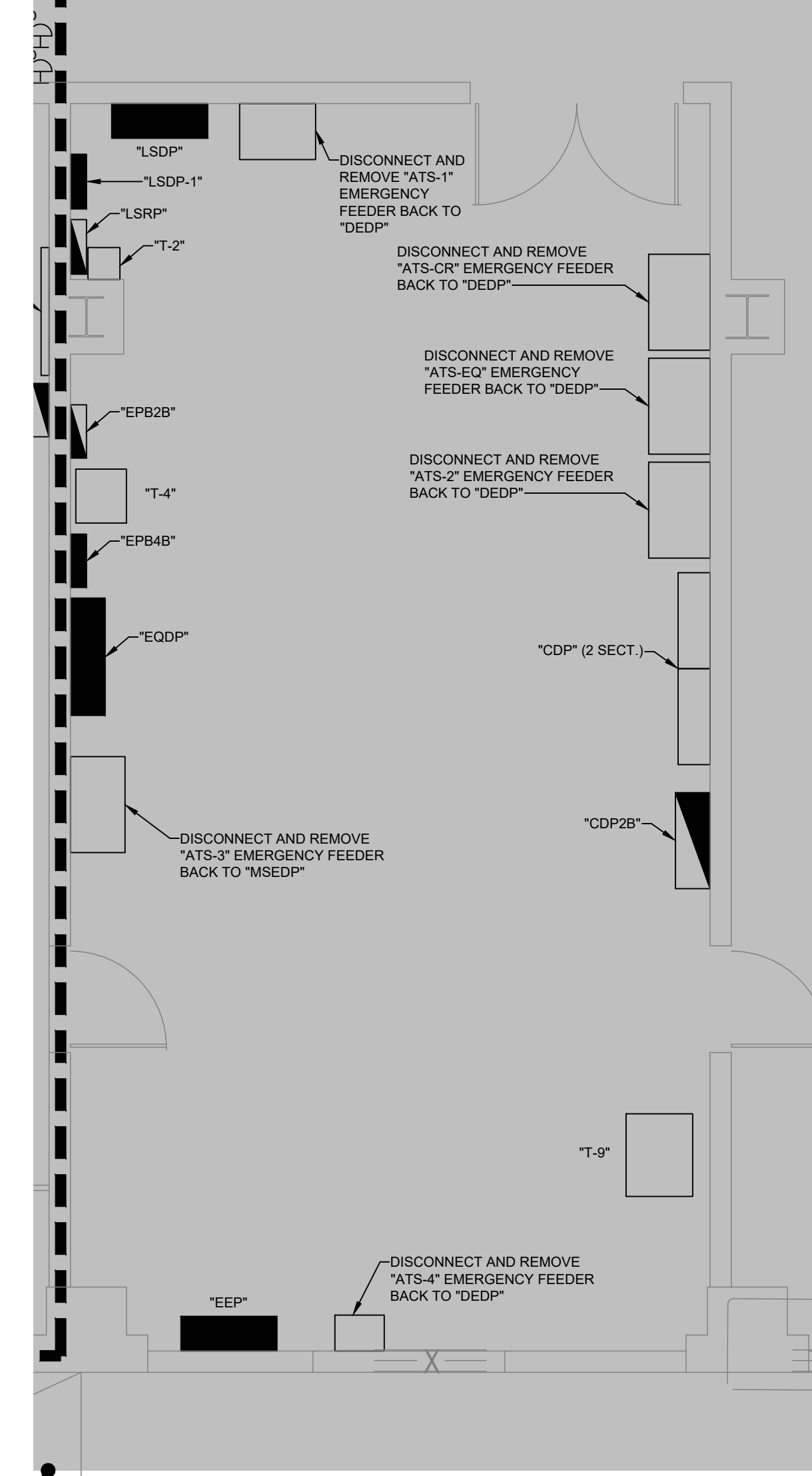


1 NORTH WING GENERATOR ROOM - DEMOLITION WORK  
SCALE: 1/4" = 1'-0"

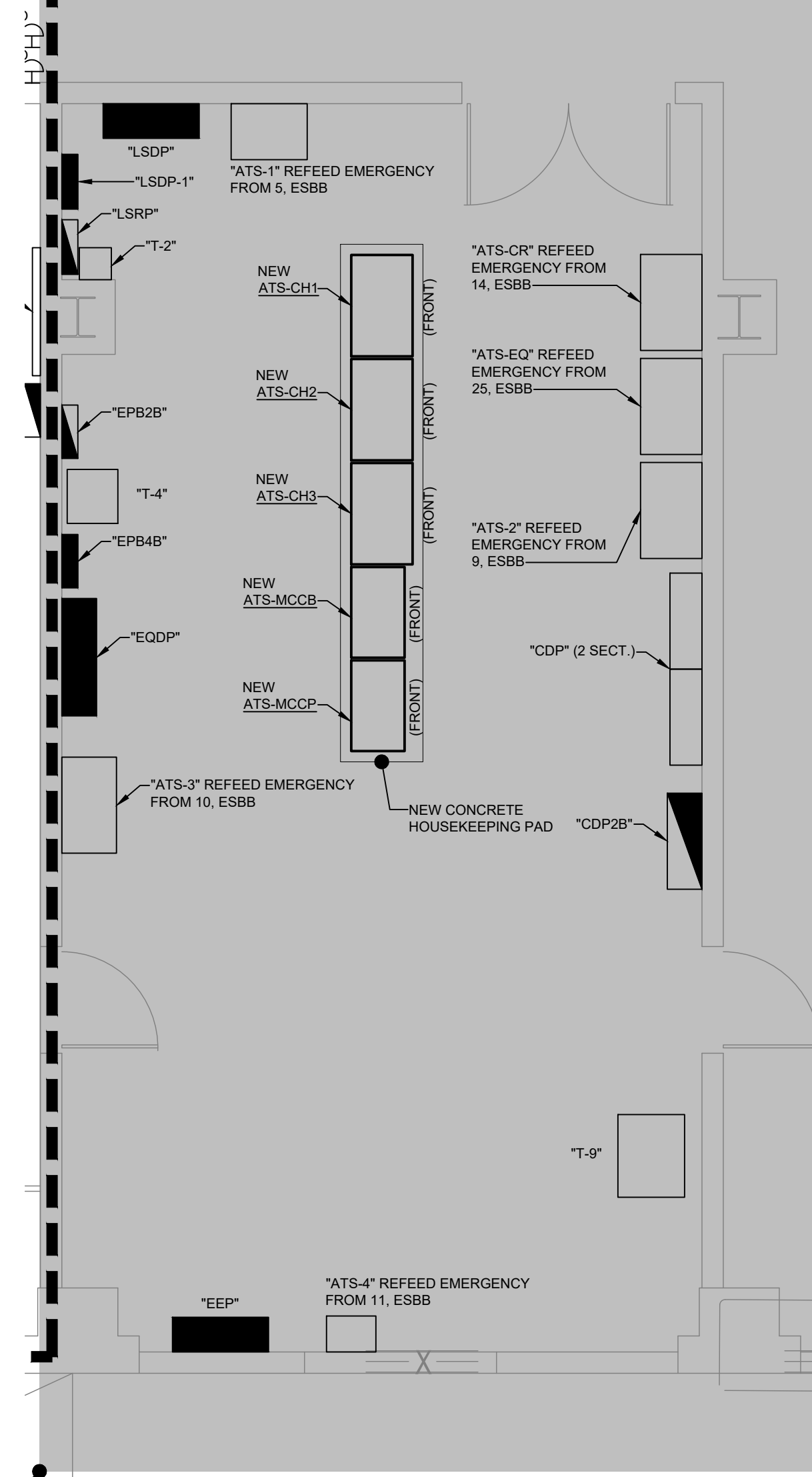


2 NORTH WING GENERATOR ROOM - NEW WORK  
SCALE: 1/4" = 1'-0"

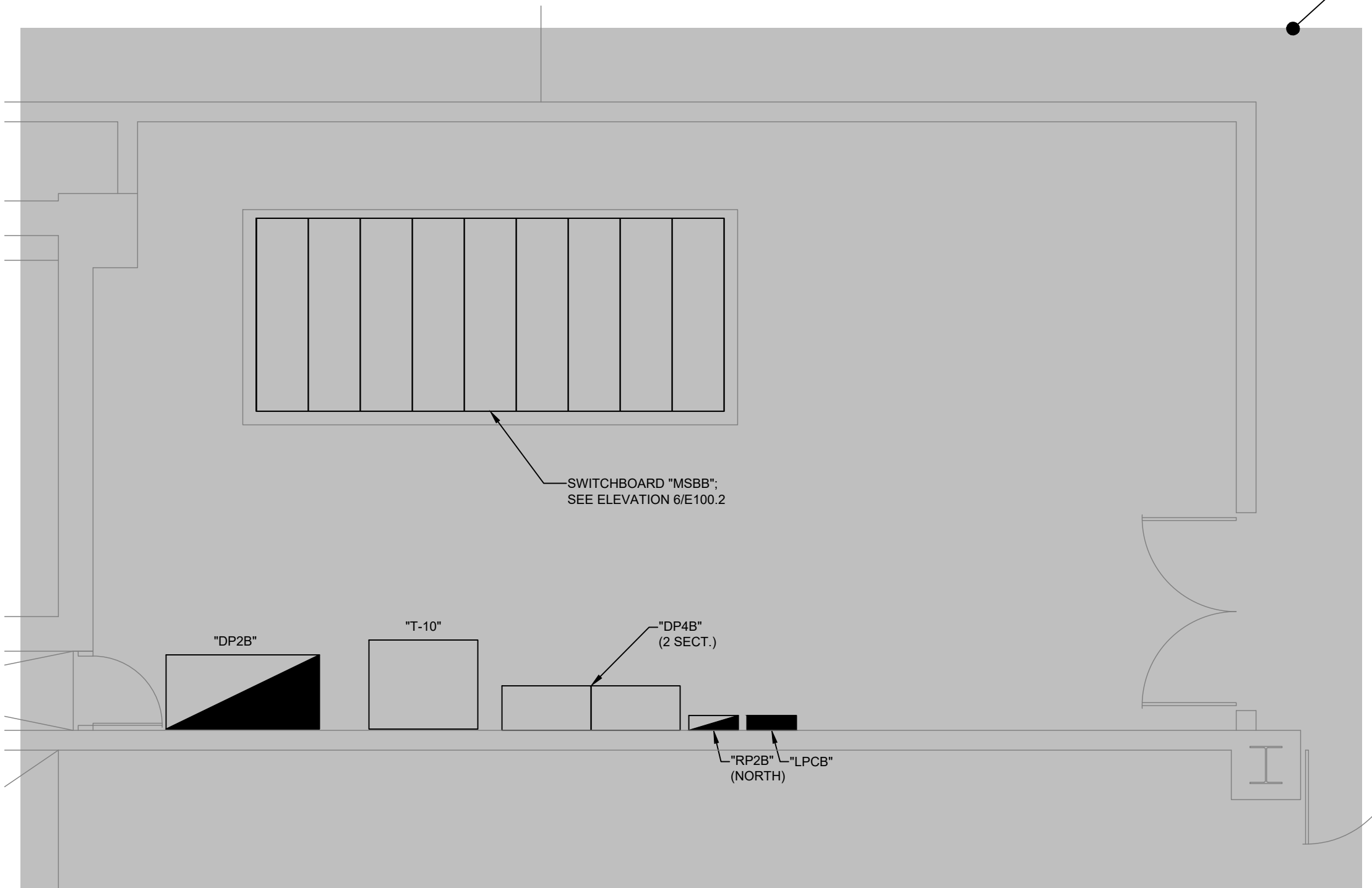
NOT APPLICABLE TO  
PHASE 1 WORK



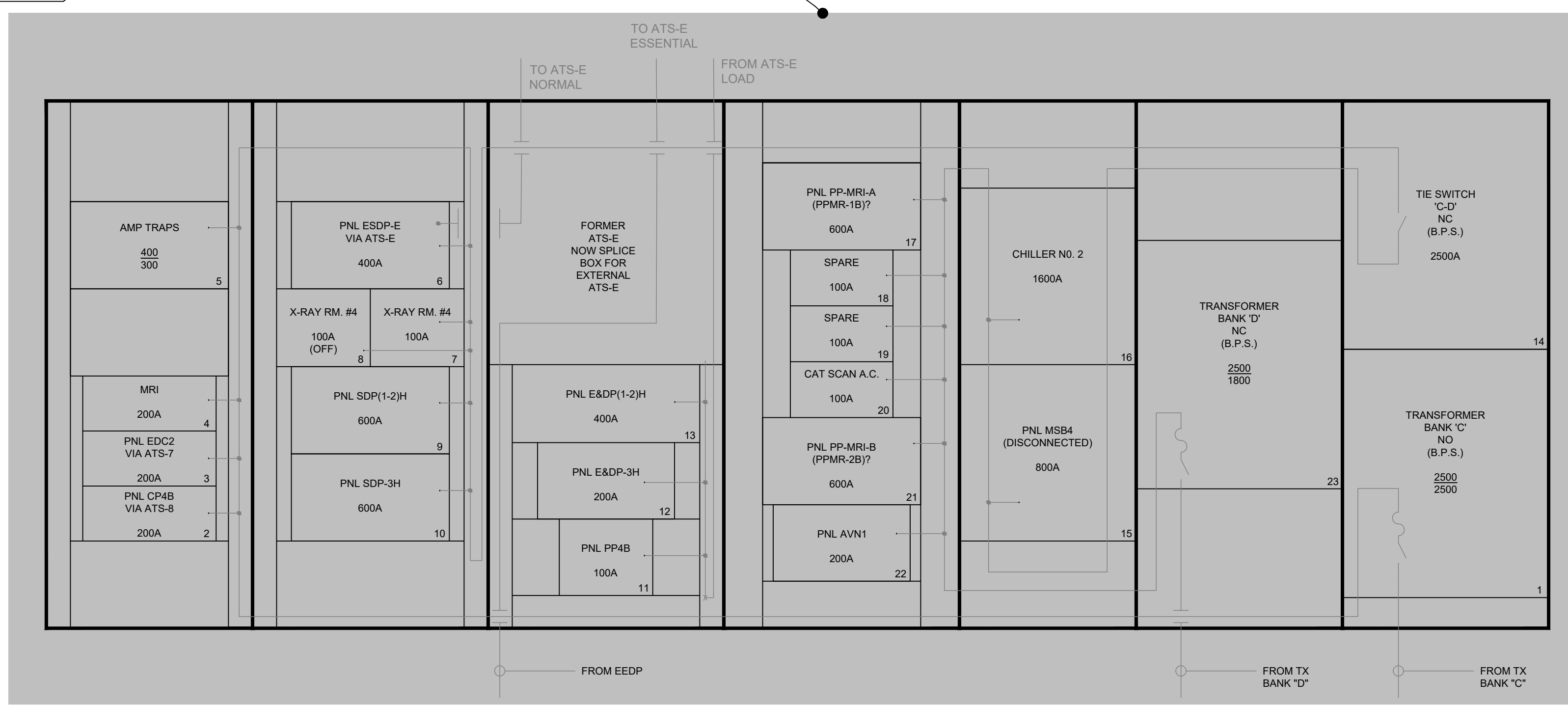
3 NORTH WING ESSENTIAL ELECTRICAL ROOM  
DEMOLITION WORK  
SCALE: 1/4" = 1'-0"



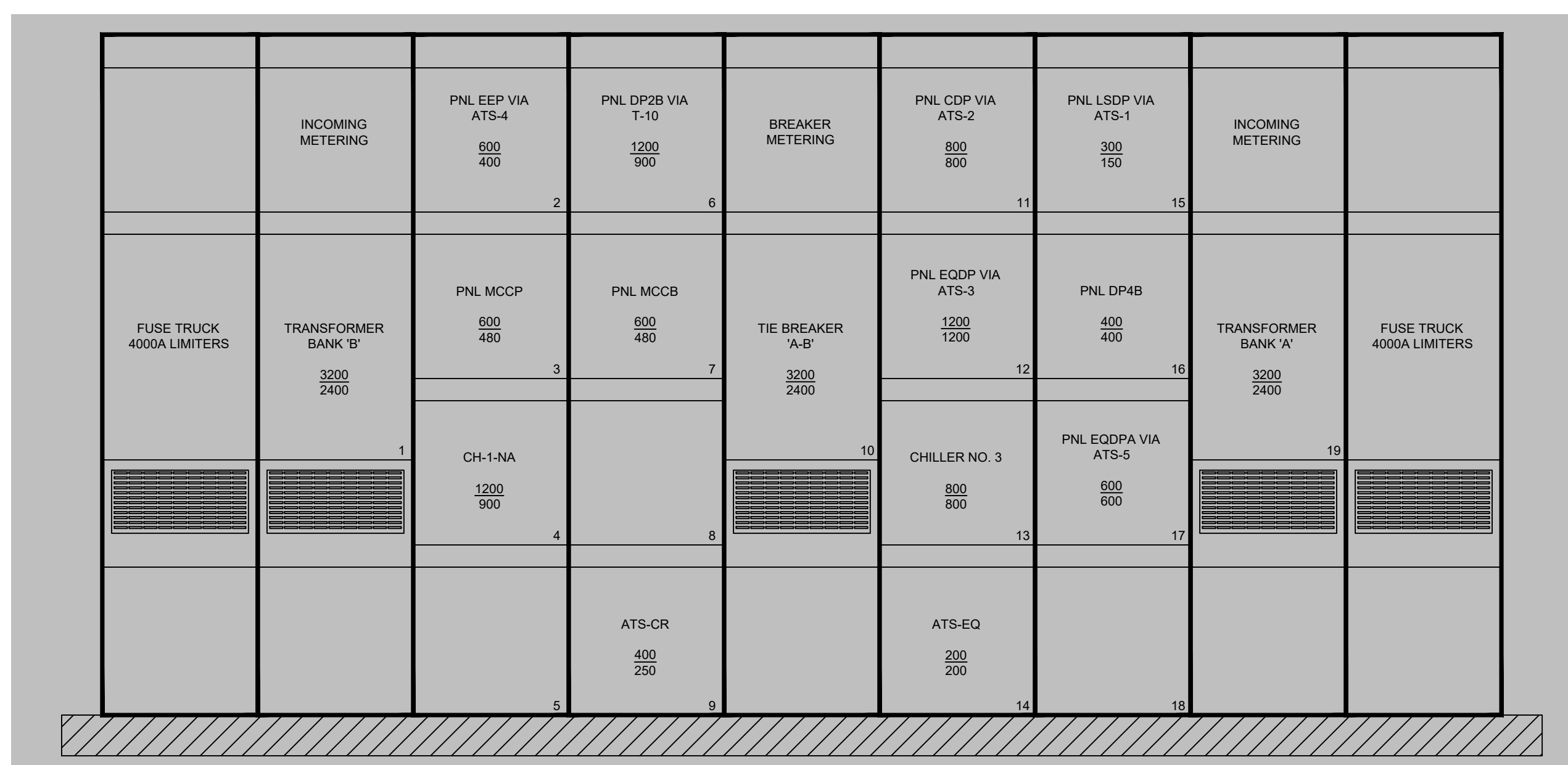
4 NORTH WING ESSENTIAL ELECTRICAL ROOM  
NEW WORK  
SCALE: 1/4" = 1'-0"



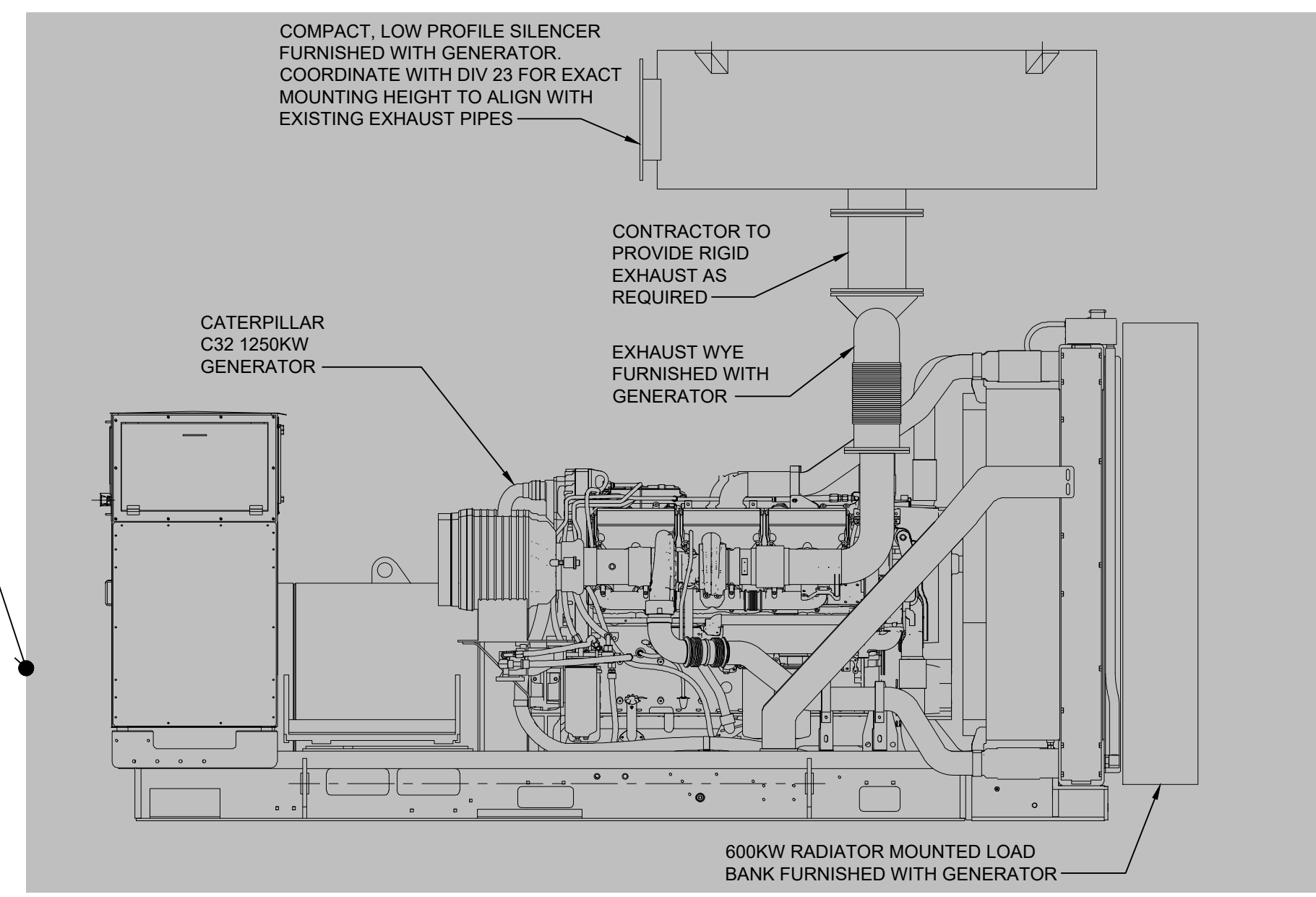
5 NORTH WING ELECTRICAL ROOM - NB028 (MSBB)  
SCALE: 1/4" = 1'-0"



7 EXISTING SWITCHBOARD NO. 1 ELEVATION (REFER TO ONE-LINE DIAGRAM ON DWG E202.0)  
SCALE: NONE



8 EXISTING MAIN SWITCHBOARD MSBB ELEVATION (REFER TO ONE-LINE DIAGRAM ON DWG E201.0)  
SCALE: NONE



8 NEW GENERATOR TYPICAL SIDE ELEVATION  
SCALE: NONE

NOT APPLICABLE TO  
PHASE 1 WORK



**PROJECT NAME:**  
**GRIFIN HOSPITAL - PHASE 1**  
**FUEL TANK REPLACEMENT for EMERGENCY**  
**GENERATOR and DISTRIBUTION UPGRADES**  
130 DIVISION STREET, DERBY, CT

3 PHASE FEEDER SIZE SCHEDULE					
(COPPER CONDUCTORS)					
CIRCUIT SYMBOL	CONDUCTORS (3 PHASE, 3 WIRE) AND GROUND*	SIZE CONDUIT	CONDUCTORS (3 PHASE, 4 WIRE) AND GROUND*	SIZE CONDUIT	CIRCUIT OR OVERCURRENT RATING 3-POLE
1	3#12, 1#12G	3/4"	4#12, 1#12G	3/4"	15A
2	3#12, 1#12G	3/4"	4#12, 1#12G	3/4"	20A
25	3#10, 1#10G	3/4"	4#10, 1#10G	3/4"	25A
3	3#10, 1#10G	3/4"	4#10, 1#10G	3/4"	30A
35	3#8, 1#10G	3/4"	4#8, 1#10G	1"	35A
4	3#8, 1#10G	3/4"	4#8, 1#10G	1"	40A
45	3#6, 1#10G	1"	4#6, 1#10G	1"	45A
5	3#6, 1#10G	1"	4#6, 1#10G	1"	50A
6	3#4, 1#10G	1 1/4"	4#4, 1#10G	1 1/4"	60A
7	3#4, 1#8G	1 1/4"	4#4, 1#8G	1 1/4"	70A
8	3#3, 1#8G	1 1/4"	4#3, 1#8G	1 1/4"	80A
9	3#2, 1#8G	1 1/4"	4#2, 1#8G	1 1/2"	90A
10	3#1, 1#8G	1 1/2"	4#1, 1#8G	2"	100A
11	3#1, 1#6G	1 1/2"	4#1, 1#6G	2"	110A
12	3#1/0, 1#6G	2"	4#1/0, 1#6G	2"	125A
13	3#1/0, 1#6G	2"	4#1/0, 1#6G	2"	150A
14	3#2/0, 1#6G	2"	4#2/0, 1#6G	2"	175A
15	3#3/0, 1#6G	2"	4#3/0, 1#6G	2 1/2"	200A
16	3#4/0, 1#4G	2 1/2"	4#4/0, 1#4G	2 1/2"	225A
17	3-250KCM, 1#4G	2 1/2"	4-250KCM, 1#4G	3"	250A
18	3-350KCM, 1#4G	3"	4-350KCM, 1#4G	3"	300A
19	3-500KCM, 1#3G	3 1/2"	4-500KCM, 1#3G	4"	350A
20	3-500KCM, 1#3G	3 1/2"	4-500KCM, 1#3G	4"	400A
21	2 SETS OF 3#4/0, 1#2G	(2) 2 1/2"	2 SETS OF 4#4/0, 1#2G	(2) 2 1/2"	450A
22	2 SETS OF 3-250KCM, 1#2G	(2) 2 1/2"	2 SETS OF 4-250KCM, 1#2G	(2) 3"	500A
23	2 SETS OF 3-350KCM, 1#1G	(2) 3"	2 SETS OF 4-350KCM, 1#1G	(2) 3"	600A
24	2 SETS OF 3-500KCM, 1#1/0G	(2) 3 1/2"	2 SETS OF 4-500KCM, 1#1/0G	(2) 4"	700A
25	2 SETS OF 3-500KCM, 1#1/0G	(2) 3 1/2"	2 SETS OF 4-500KCM, 1#1/0G	(2) 4"	800A
26	3 SETS OF 3-350KCM, 1#2/0G	(3) 3"	3 SETS OF 4-350KCM, 1#2/0G	(3) 3"	900A
27	3 SETS OF 3-500KCM, 1#2/0G	(3) 3 1/2"	3 SETS OF 4-500KCM, 1#2/0G	(3) 4"	1000A
28	4 SETS OF 3-350KCM, 1#3/0G	(4) 4"	4 SETS OF 4-350KCM, 1#3/0G	(4) 4"	1200A
29	4 SETS OF 3-600KCM, 1#4/0G	(4) 4"	4 SETS OF 4-600KCM, 1#4/0G	(4) 4"	1600A
30	5 SETS OF 3-600KCM, 1-250KCM G	(5) 4"	5 SETS OF 4-600KCM, 1-250KCM G	(5) 4"	2000A
31	6 SETS OF 3-600KCM, 1-350KCM G	(6) 4"	6 SETS OF 4-600KCM, 1-350KCM G	(6) 4"	2500A
32	8 SETS OF 3-500KCM, 1-400KCM G	(8) 3 1/2"	8 SETS OF 4-500KCM, 1-400KCM G	(8) 4"	3000A
33	8 SETS OF 3-600KCM, 1-500KCM G	(8) 4"	8 SETS OF 4-600KCM, 1-500KCM G	(8) 4"	3200A
34	10 SETS OF 3-500KCM, 1-500KCM G	(10) 3 1/2"	10 SETS OF 4-500KCM, 1-500KCM G	(10) 4"	3500A
35	10 SETS OF 3-600KCM, 1-500KCM G	(10) 4"	10 SETS OF 4-600KCM, 1-500KCM G	(10) 4"	4000A
CIRCUIT SYMBOL	CONDUCTORS (3 PHASE, 5 WIRE) AND GROUND*	SIZE CONDUIT	CIRCUIT OR OVERCURRENT RATING 3-POLE	*CONDUCTORS (3 PHASE, 5 WIRE) WITH GROUNDS* CONSIST OF THREE PHASE CONDUCTORS, TWO NEUTRAL CONDUCTOR (FOR 200% RATED NEUTRALS), AN EQUIPMENT GROUND CONDUCTOR AND AN ISOLATED GROUND CONDUCTOR.	
10	3#1, 2#1N, 1#8G, 1#8IG	2"	100A	THREE PHASE, 5 WIRE FEEDERS WITH GROUNDS SHALL BE USED FOR FEEDERS SUPPLYING OR BEING FED FROM ELECTRONIC GRADE PANELBOARDS.	
11	3#1/0, 2#1/0N, 1#6G, 1#6IG	2"	125A		
12	3#1/0, 2#1/0N, 1#6G, 1#6IG	2"	150A		
13	3#2/0, 2#2/0N, 1#6G, 1#6IG	2"	175A		
14	3#3/0, 2#3/0N, 1#6G, 1#6IG	2 1/2"	200A		
15	3#4/0, 2#4/0N, 1#4G, 1#4IG	2 1/2"	225A		
16	3-250KCM, 2-250KCM N, 1#4G, 1#4IG	3"	250A		
17	3-350KCM, 2-350KCM N, 1#4G, 1#4IG	3"	300A		
18	3-500KCM, 2-500KCM N, 1#3G, 1#3IG	4"	400A		

**CIRCUIT SIZE SCHEDULE NOTES:**

- CS1 UNLESS OTHERWISE INDICATED, FEEDER SIZING SHALL MATCH THE SIZE INDICATED ABOVE FOR THE APPLICABLE OVERCURRENT DEVICE PROVIDED OR LARGER FEEDER WHERE INDICATED.
- CS2 SCHEDULE AS BASED ON THE TYPE THHN/THWN FOR CONDUCTOR SIZES SMALLER THAN #3 AWG AND TYPE XHHW FOR CONDUCTOR SIZES #3 AWG AND LARGER.
- CS3 PROVIDE 4 WIRE CIRCUIT UNLESS EQUIPMENT SERVED DOES NOT HAVE PROVISIONS FOR A NEUTRAL CONNECTION.
- CS4 MINIMUM SIZE CONDUIT UNDERGROUND IS 4 INCH EXCEPT 1 INCH FOR SITE BRANCH CIRCUIT FOR SYSTEMS, LIGHTING AND MISCELLANEOUS POWER, UNLESS SPECIFICALLY INDICATED OTHERWISE.
- CS5 REFER TO TRANSFORMER SCHEDULE FOR CONDUCTOR AND CONDUIT SIZE REQUIREMENTS FOR PRIMARY AND SECONDARY FEEDERS OF TRANSFORMERS.
- CS6 REFER TO MOTOR CIRCUIT SCHEDULE FOR CONDUCTOR AND CONDUIT SIZE REQUIREMENTS FOR EQUIPMENT LOADS.

\* CONDUCTOR SIZES ARE BASED ON 60°C TEMPERATURE RATING FOR BREAKER SIZES 100A AND SMALLER AND BASED ON 75°C TEMPERATURE RATING FOR BREAKER SIZES LARGER THAN 100A. NOT MORE THAN THREE CURRENT CARRYING CONDUCTORS SHALL BE PROVIDED IN RACEWAY, CABLE OR EARTH (DIRECT BURY), BASED ON AMBIENT TEMPERATURE OF 30°C, UNLESS OTHERWISE NOTED

THREE PHASE TRANSFORMER SCHEDULE						
KVA RATING	480V. PRIMARY (Δ) 3PH.,3W.			208/120V. SECONDARY (Y) 3PH.,4W.		GROUND ELECT/ BOND JUMP/CONDUIT
	O.C.P.D.	PRIMARY FEEDER	O.C.P.D.	SECONDARY FEEDER		
15	40A	3#8, 1#10 G., 3/4" C.	50A	3#6, 1#6 N., 1#6 G., 1-1/4" C.	1#6, 3/4" C.	
30	80A	3#3, 1#8 G., 1-1/4" C.	100A	3#1, 1#1 N., 1#6 G., 1-1/2" C.	1#6, 3/4" C.	
45	125A	3#1, 1#6 G., 1-1/2" C.	150A	3#1/0, 1#1/0 N., 1#6 G., 2" C.	1#6, 3/4" C.	
75	200A	3#3/0, 1#6 G., 2" C.	225A	3#4/0, 1#4/0 N., 1#2 G., 2-1/2" C.	1#2, 3/4" C.	
112.5	250A	3-250KCM, 1#4 G., 2" C.	400A	3-600KCM., 1-600KCM N., 1#1/0 G., 3-1/2" C.	1#1/0, 1" C.	
150	300A	3-350KCM, 1#4 G., 2-1/2" C.	500A	2 SETS OF 3-250KCM, 1-250KCM N., 1# 1/0 G., 2-1/2" C. EA	1#1/0, 1" C.	
225	400A	3-500KCM, 1#3 G., 3-1/2" C.	800A	2 SETS OF 3-600KCM, 1-600KCM N., 1# 3/0 G., 3-1/2" C. EA	1#2/0, 1" C.	
300	600A	2 SETS OF 3-350KCM, 1#1 G., 3" C. EA	1000A	3 SETS OF 3-400KCM, 1-400KCM N., 1# 3/0 G., 3-1/2" C. EA	1#3/0, 1" C.	
500	800A	2 SETS OF 3-500KCM, 1#1/0 G., 3-1/2" C. EA	1600A	4 SETS OF 3-600KCM, 1-600KCM N., 1-250KCM G., 3-1/2" C. EA	1#3/0, 1" C.	

- TRANSFORMER NOTES:**
- CONNECT GROUNDING ELECTRODE CONDUCTOR TO THE NEAREST OF THE FOLLOWING:
    - AN EFFECTIVELY GROUNDED STRUCTURAL METAL MEMBER OF THE STRUCTURE.
    - AN EFFECTIVELY GROUNDED METAL WATER PIPE WITHIN 5 FEET FROM THE POINT OF ENTRANCE INTO THE BUILDING.
  - REFER TO DISTRIBUTION TRANSFORMER GROUNDING DETAIL.
  - CONDUCTOR SIZES ARE BASED ON COPPER CONDUCTORS (TYPE THHN/THWN FOR CONDUCTOR SIZES SMALLER THAN #3 AWG AND TYPE XHHW FOR CONDUCTOR SIZES #3 AWG AND LARGER).
  - SECONDARY CONDUCTOR OVERCURRENT PROTECTIVE DEVICE SHALL BE LOCATED NO MORE THAN 25 FT FROM THE TRANSFORMER SECONDARY TERMINALS.
  - THIS SCHEDULE APPLIES TO "STANDARD" AND "HARMONIC MITIGATING" TRANSFORMER CONFIGURATIONS.

PANELBOARD SCHEDULE									
PANEL	LOCATION	PANEL DESCRIPTION				BRANCH CIRCUIT BREAKER		REMARKS	
		MAINS	VOLTAGE	POLES	MTG	A.I.C.	ACTIVE		SPARE
CRGH-1	GENERATOR ROOM	50A-3P MCB	277/480	24	S	35KAIC	1-20A-3P 1-15A-3P	2 20A-1P 1 20A-3P	X
CRGL-1	GENERATOR ROOM	40A-3P MCB	120/208	24	S	22KAIC	3-20A-1P	2 20A-1P 1 20A-3P	X

- NOTES:**  
AFT: ARC-FAULT INTERRUPTER CIRCUIT BREAKER  
GFI: GROUND-FAULT INTERRUPTER CIRCUIT BREAKER

NOT APPLICABLE TO PHASE 1 WORK

MOTOR CIRCUIT SCHEDULE												
EQUIPMENT	LOCATION	CIRCUIT / SOURCE PANEL	OCP DEVICE	FEEDER	LOCAL DISC SWITCH	MOTOR STARTER			LOAD		REMARKS	
						TYPE	SIZE	LOCATION	HP	PH		VOLT
FOP-1/FOP-2	GENERATOR ROOM	CRGH-1	20A-3P	3#12, 1#12G. IN 3/4" C.	30A/20A	-	-	CONTROL PANEL	(2) 1/2	3	480	-
FMS-1	GENERATOR ROOM	CRGL-1	20A-1P	2#12, 1#12G. IN 3/4" C.	30A/20A	-	-	ON UNIT	3/4	1	120	-
DAY TANK 1	GENERATOR ROOM	CRGL-1	20A-1P	2#12, 1#12G. IN 3/4" C.	30A/20A	-	-	ON UNIT	1/2	1	120	PHASE-2
DAY TANK 2	GENERATOR ROOM	CRGL-1	20A-1P	2#12, 1#12G. IN 3/4" C.	30A/20A	-	-	ON UNIT	1/2	1	120	PHASE-2
EF-1	GENERATOR ROOM	CRGH-1	15A-3P	3#12, 1#12G. IN 3/4" C.	30A/15	VFD	-	ON WALL	2	3	480	PHASE-2

**MOTOR CIRCUIT SCHEDULE REFERENCED NOTES:**

- REFER TO FLOOR PLANS FOR CIRCUIT/SOURCE PANEL INFORMATION.
- DISCONNECT SWITCH TO HAVE MICRO SWITCH FOR SIGNALING VFD SHUTDOWN PRIOR TO OPENING OF MOTOR FEEDER BLADES.
- VFD FURNISHED AND INSTALLED BY DIV. 23. POWER WIRING FROM SOURCE TO VFD BY DIV. 26. POWER WIRING BETWEEN VFD AND MOTORS BY DIV. 26. CONTROL WIRING BY DIVISION 23.
- VFD FURNISHED BY DIVISION 23 AND INSTALLED BY DIV. 26. POWER WIRING FROM SOURCE TO VFD BY DIV. 26. POWER WIRING BETWEEN VFD AND MOTORS BY DIV. 26. CONTROL WIRING BY DIVISION 23.
- STARTER/CONTROLLER IS PREWIRED TO MOTORS AND FURNISHED BY DIV. 23.
- LOCAL DISCONNECT SWITCH FURNISHED BY DIVISION 23 AS AN INTEGRAL COMPONENT OF THE EQUIPMENT.

**MOTOR CIRCUIT SCHEDULE GENERAL NOTES:**

- REFER TO SPECIFICATIONS FOR STANDARD FEATURES.
- ABBREVIATIONS:  
VFD - VARIABLE FREQUENCY DRIVE  
FNVR - FULL VOLTAGE, NON-REVERSING  
FHMS - FRACTIONAL HORSEPOWER MOTOR STARTER  
MAN - MANUAL STARTER (TOGGLE SWITCH WITH THERMAL OVERLOADS)
- OCP DEVICES AND LOCAL DISC SWITCHES ARE THREE POLE UNLESS OTHERWISE NOTED.
- LOCAL DISCONNECT SWITCH SIZE INDICATES SWITCH FRAME FOLLOWED BY FUSE SIZE (I.E. 30A/20A REPRESENTS 30A FRAME SWITCH WITH 20A FUSES).
- PROVIDE WEATHERPROOF FUSED DISCONNECT SWITCHES WHERE LOCATED OUTSIDE OR IN WET LOCATIONS.
- STARTERS, DISCONNECT SWITCHES, CIRCUIT BREAKERS, BRANCH CIRCUIT WIRING, ETC. INDICATED IN THE MOTOR CIRCUIT SCHEDULE SHALL BE FURNISHED AND INSTALLED BY DIVISION 26 UNLESS OTHERWISE NOTED.
- THE "OCP DEVICE" SHALL BE A CIRCUIT BREAKER UNLESS OTHERWISE NOTED.

**KEYPLAN**

REVISIONS		
REV.	DATE	DESCRIPTION
1	06/21/2023	ADDENDUM #1

**DRAWING TITLE:**  
**ELECTRICAL SCHEDULES**

**DRAWING NUMBER:**  
DATE: FEB 3, 2024  
DRAWN BY: EMG  
CHECKED BY: SEP  
SCALE: NONE  
PROJ #: 2021144.01

**E300.0**