### SAFETY NOTES:

- 1. SPECIAL PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR SO THAT EQUIPMENT ON THE APPLICATION AND ITS INSTALLATION WILL NOT AFFECT THE FOLLOWING:
- EGRESS TO AND FROM THE BUILDING FIRE SAFETY OR CREATE A FIRE HAZARD
- STRUCTURAL SAFETY OF THE BUILDING.
   ACCUMULATION OF DUST AND DEBRIS. THE CONTRACTOR SHALL LEAVE THE SITE BROOM CLEAN EACH DAY.
- 2. ASBESTOS MUST FIRST BE INVESTIGATED AND VERIFIED IN FIELD BEFORE ANY DEMOLITION OR CONSTRUCTION WORK TO BE PERFORMED. ASBESTOS FREE MUST BE CERTIFIED FOR ALL HVAC EQUIPMENT, DUCTWORK, AND ALL PIPING INSULATION.
- 3. CONSTRUCTION WORK SHALL BE CONFINED TO WORK AREAS NOTED ON THE DRAWINGS AND SHALL INVOLVE TEMPORARY INTERRUPTION OF HEATING, WATER AND ELECTRIC SERVICES TO THE BUILDING SYSTEMS ONLY AS SCHEDULED WITH NEW YORK CITY.
- 4. FIRE SAFETY: ALL BUILDING MATERIALS STORED IN CONSTRUCTION AREA, AND/OR IN ANY AREA OF THE BUILDING ARE TO BE SECURED IN A LOCKED AREA. ACCESS TO SUCH AREAS TO BE CONTROLLED BY THE FACILITY AND/OR GENERAL CONTRACTOR.
- CONTRACTOR SHALL PROVIDE BARRICADES AROUND WORK AREAS AS REQUIRED TO PREVENT UNAUTHORIZED PERSONS FROM ENTERING THEREIN.
- 6. THE CONTRACTOR SHALL SUBMIT SAFETY PLAN FOR CONSTRUCTION MANAGER'S APPROVAL.
- 7. CONFINED SPACES: ALL WORK WITHIN CONFINED SPACES SHALL BE CONDUCTED IN ACCORDANCE WITH OSHA REGULATIONS.

#### SUMMARY OF WORK:

THE WORK OF THIS PROJECT INCLUDES BOILER REPLACEMENT AT NORTH ROCKLAND HIGH SCHOOL EXTENSION. PROVIDE MATERIALS AND SERVICES AS FOLLOWS. THE FOLLOWING IS NOT INTENDED TO BE A COMPLETE DESCRIPTION OF THE WORK; PERFORM THE WORK AS HEREINAFTER DESCRIBED IN THESE CONTRACT DOCUMENTS.

- A. REMOVE EXISTING ABANDONED CHILLED WATER PUMPS AND
- ASSOCIATED PIPING AND SUPPORTS.
- B. REMOVE EXISTING OIL TANK, DAY TANK AND UNDERGROUND FUEL OIL TANK AND ASSOCIATED PIPING.
  C. REMOVE EXISTING DUAL FUEL CAST IRON BOILERS AND REPLACE WITH TWO(2) NEW GAS-FIRED CONDENSING BOILERS. REPLACE ASSOCIATED PIPING, VALVES, AND CONTROLS SERVING THE
- EXPANSION TANKS FOR HOT WATER LOOP.

  D. EXISTING HOT WATER PUMPS AND DOMESTIC WATER PUMPS ARE TO

PERIMETER RADIATORS. REPLACE GLYCOL FEED SYSTEM AND

- E. REMOVE EXISTING DOMESTIC HOT WATER TANK AND SUPPORTS.
  F. REMOVE EXISTING GAS FIRED WATER HEATER AND DISCONNECT
- PIPING.
  G. PROVIDE NEW INDIRECT HOT WATER HEATER FOR DOMESTIC WATER
- USE. RELOCATE EXISTING DOMESTIC WATER PUMPS.
- H. PERFORM ALL REQUIRED CLEANING, TESTING AND BALANCING OF THE NEW EQUIPMENT.
- I. PERFORM COMMISSIONING OF THE NEW EQUIPMENT.J. ALTERNATE #1, REPLACE THE HYDRONIC END SUCTION WATER
- PUMPS WITH NEW IN KIND.

### **CALCULATIONS**

COMBUSTION AIR INTAKE REQUIREMENTS FOR THE BOILERS.

1. DESIGN COMPLIES WITH THE MANUFACTURER'S INSTRUCTIONS AS PER NYS FGC 304.1

### **HVAC DESIGN CRITERIA**

- A. SITE (BASED ON NEAREST AVAILABLE DATA: ASHRAE 2021 HANDBOOK CLIMATIC DESIGN INFORMATION, WESTCHESTER CO, NY):
- 1. 41.07°N, 73.71°W
- ELEVATION: 397 FT
   CLIMATE ZONE 5A.
- B. OUTSIDE DESIGN CONDITIONS (BASED ON NEAREST AVAILABLE DATA: ASHRAE 2013 CLIMATIC DESIGN INFORMATION, WESTCHESTER CO, NY):
   1. HEATING DB (99.6%): 8.7°F DB
- 2. COOLING DB/MCWB (1%): 86.4°F DB, 71.9°F WB
- C. INSIDE DESIGN CONDITIONS (PER NYSED MANUAL OF PLANNING STANDARDS S602-6 B. AND 2015 ASHRAE HANDBOOK CH 7 TABLE 6):
   1. HEATING INDOOR SETPOINT: 72°F
- 2. COOLING INDOOR SETPOINT: 78°F, 60% RH

### **SEQUENCE OF OPERATIONS**

SEE SPECIFICATION SECTION 230993 AND DRAWING M401.

### **MECHANICAL DEMOLITION NOTES:**

- 1. DEMOLITION/RELOCATIONS: CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND RELOCATION'S OF SERVICES, EQUIPMENT AND MATERIAL RELATING TO HIS/HER RESPECTIVE TRADE. INCLUDE IN BID THE COST TO PROVIDE DEMOLITION OF ALL ELECTRICAL EQUIPMENT AND SYSTEMS ASSOCIATED WITH THE RENOVATION WORK. ALL DEMOLITION WORK SHALL COORDINATE WITH OWNER.
- 2. WHERE EXISTING WALLS, FLOORS OR CEILINGS ARE REMOVED OR PENETRATED, AND WHERE EXISTING END WALLS OF THE BUILDING ARE POINTS OF CONNECTION OF ADDITIONS, ALL SERVICES, PIPING, CONDUIT, CONTROL AND/OR SWITCH DEVICES, LIGHTS, OR OTHER HVAC, PLUMBING, FIRE PROTECTION OR ELECTRICAL EQUIPMENT SHALL BE REMOVED (AND/OR RELOCATED WHERE THEY MUST REMAIN IN SERVICE, OR SERVE, AREAS BEYOND THE IMMEDIATE WORK) CONTRACTOR SHALL FIELD VERIFY CONDITIONS AT THE SITE.
- 3. PRIOR TO DEMOLITION CONTRACTOR SHALL REVIEW WITH OWNER ALL MATERIALS TO BE REMOVED. SHOULD THE OWNER OPT TO KEEP ANY MATERIALS THE CONTRACTOR SHALL REMOVE AND DELIVER THE PARTS TO THE OWNER ON THE SITE WHERE SO DIRECTED. OTHERWISE ALL DEMOLISHED OR REMOVED MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND BE DISPOSED OF IN A LEGAL MANNER.
- 4. DEMOLITION SHALL INCLUDE REMOVAL OF ALL PARTS AND PIECES IN THEIR ENTIRETY BACK TO POINTS INDICATED OR IF NOT INDICATED BACK TO THEIR POINT OF SOURCE. REMOVE CONDUCTORS FROM REMAINING CONDUITS WHERE IT IS INDICATED. WHERE CONDUCTORS REMAINED IN CONDUITS-DISCONNECT, ISOLATE AND CAPPED THEM TO ENSURE SAFETY AND PROTECTION. WHERE CONDITIONS PROHIBIT TOTAL REMOVAL OF THE WORK, THE REMAINING PORTION SHALL BE CUT FLUSH WITH THE SURROUNDING SURFACE AND BE CAPPED, PLUGGED OR SEALED AND THE SURROUNDING SURFACE SHALL BE REFINISHED IN AN APPROVED MANNER.
- 5. MAINTAIN EXISTING UTILITIES INDICATED OR REQUIRED TO REMAIN, KEEP IN SERVICE, AND PROTECT AGAINST DAMAGE DURING DEMOLITION OPERATIONS. DO NOT INTERRUPT EXISTING UTILITIES SERVING OCCUPIED OR USED FACILITIES, EXCEPT WHEN SCHEDULED WITH THE OWNER.
- 6. DO NOT REMOVE EXISTING STRUCTURAL WORK. DO NOT REMOVE OPERATIONAL ELEMENTS AND SAFETY-RELATED COMPONENTS IN A MANNER RESULTING IN A REDUCTION OF CAPACITIES TO PERFORM IN THE MANNER INTENDED OR RESULTING IN DECREASED OPERATIONAL LIFE, INCREASED MAINTENANCE, OR DECREASED SAFETY.
- 7. REMOVALS, DISCONNECTIONS, AND RELOCATIONS SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE INVOLVED AND SHALL BE EMPLOYED BY A CONTRACTOR LICENSED IN THE TRADE INVOLVED. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ACCEPTED TRADE PRACTICES.
- 8. PROVIDE ADEQUATE TEMPORARY SUPPORT FOR WORK TO REMAIN, TO PREVENT FAILURE. DO NOT ENDANGER OTHER WORK.
- 9. PROTECTION: PROVIDE ADEQUATE PROTECTION WHERE REQUIRED FOR THE PRESENT BUILDING AND ITS CONTENTS. TEMPORARY DUSTPROOF BARRIERS AND BARRICADES SHALL BE ERECTED WHERE REQUIRED FOR PROTECTION OF PERSONNEL, PROTECTION FROM DUST AND DIRT, FOR SECURITY, FIRE AND WEATHER PROTECTIVE REASONS. CONTRACTOR SHALL TAKE EVERY PRECAUTION AGAINST FIRE BY EMPLOYING FIRE DEPARTMENT TYPE HOSES AND PORTABLE FIRE EXTINGUISHERS AS REQUIRED BY OSHA AND/OR THE OWNER'S INSURANCE UNDERWRITER.
- 10. USE TEMPORARY ENCLOSURES, OR OTHER SUITABLE METHODS TO LIMIT DUST AND DIRT RISING AND SCATTERING TO LOWEST PRACTICAL LEVEL. COMPLY WITH GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
- 11. ALL EXISTING EQUIPMENT REQUIRED TO BE REUSED SHALL BE CLEANED, RECONDITIONED, CALIBRATED AND ADJUSTED. IN ALL INSTANCES WHERE CONTRACTOR FINDS THAT EXISTING EQUIPMENT IS DEFECTIVE TO THE POINT WHERE IT CANNOT BE PROPERLY RESTORED AND WILL NOT OPERATE PROPERLY, HE SHALL REPORT THE SPECIFIC INSTRUMENTS OR EQUIPMENT TO THE OWNER/ENGINEER FOR DIRECTIONS.
- 12. TEMPORARY SHUTDOWNS OF SERVICE OF EXISTING ELECTRICAL, HEATING, AIR CONDITIONING, AND VENTILATION SYSTEMS SHALL BE PERFORMED WITH A MINIMUM OF DISRUPTION OF SERVICE, HELD TO AN ABSOLUTE MINIMUM DURATION OF TIME, AND ONLY AFTER HAVING NOTIFIED THE BUILDING OPERATIONS MANAGEMENT AT LEAST TWO WEEKS IN ADVANCE AND HAVING RECEIVED THEIR PERMISSION IN WRITING, AT LEAST TWO WEEKS PRIOR TO THE SCHEDULED SHUTDOWN. COMMUNICATIONS SHALL BE RELAYED THROUGH THE CONSTRUCTION MANAGER.
- 13. ELECTRICAL CONTRACTOR SHALL RING OUT AND IDENTIFY ALL CIRCUITS REMAINING IN CONTRACT AREA, AFTER DEMOLITION. REMOVE ALL CIRCUITS BACK TO POINT OF SOURCE. MARK PANEL CIRCUITS NO LONGER IN USE "SPARE".

### **HVAC NOTES:**

- THE WORK SHALL COMPLY WITH THE 2020 BUILDING CODE OF NYS. IN ADDITIONS, THE WORK SHALL COMPLY WITH ALL OTHER RELEVANT CODES, RULES AND ORDINANCES OF THIS STATE OF NEW YORK, ALL LOCAL, STATE AND FEDERAL AUTHORITIES HAVING JURISDICTION.
- 2. CONTRACTOR SHALL PAY ALL FEES AND TAXES, OBTAIN ALL PERMITS AND APPROVALS, FILE THE REQUIRED DOCUMENTS AND CAUSE ALL INSPECTIONS.
- 3. CONTRACTOR SHALL PROVIDE ALL WORK, EQUIPMENT, LABOR AND MATERIAL REQUIRED FOR A COMPLETE AND TROUBLE FREE INSTALLATION.
- . ALL DUCTWORK ELBOWS SHALL BE EITHER LONG RADIUS OR SQUARE WITH TURNING VANES.
- 5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL EQUIPMENT, PIPING, CONTROLS, DUCTWORK, REGISTERS, SUPPORTS, DAMPERS, AND ACCESSORIES PRIOR TO FABRICATION AND INSTALLATION. SUBMIT ALL REPORTS FOR REVIEW SUCH AS TESTING, ADJUSTING, AND BALANCING, AND COMMISSIONING.
- 6. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS AND NOTIFY OWNER OF ANY DISCREPANCIES BEFORE COMMENCING WORK.
- PROVIDE AN AIR BALANCE REPORT FOR THE EQUIPMENT SHOWN ON THE DRAWINGS.
- ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER TO THE SATISFACTION OF THE OWNER.
- 9. EXCEPT AS NOTED, ALL MATERIAL AND EQUIPMENT SHALL BE NEW AND IN GOOD CONDITION. WHERE APPLICABLE BY CODE AND/OR THESE SPECIFICATIONS, EQUIPMENT AND MATERIALS SHALL BE LABELED BY THE REQUISITE GOVERNING AGENCY.
- 10. SURVEY THE INSTALLATION SITE PRIOR TO BID. DETERMINE THE CONSTRAINTS OF THE EXISTING AVAILABLE SPACE PERTAINING TO EQUIPMENT SIZE AND CONFIGURATION AND EXAMINE THE CONDITIONS UNDER WHICH THE EQUIPMENT WILL BE INSTALLED. VERIFY ALL MEASUREMENTS AT THE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DIMENSIONAL COMPATIBILITY OF THE DUCTWORK AND EQUIPMENT WITH THE SPACE.
- 11. SHIP AND DELIVER EQUIPMENT KNOCKED DOWN AS NECESSARY TO FIT THROUGH EXISTING BUILDING OPENINGS. VERIFY IN FIELD THE CONSTRAINTS OF THE EXISTING BUILDING PRIOR TO FABRICATION OF EQUIPMENTS. INCLUDE IN THE BID ALL COSTS ASSOCIATED WITH RIGGING AND DELIVERY OF EQUIPMENT AS REQUIRED BY THE EXISTING BUILDING CONDITIONS.
- 12. SCHEDULE AND NOTIFY THE OWNER AND BUILDING MANAGEMENT IN ADVANCE PRIOR TO SHUTDOWN OF ANY SERVICES.
- 13. UPON COMPLETION OF THE PROJECT, PROVIDE AS-BUILT DRAWINGS TO THE OWNER. FOR QUANTITY OF COPIES, REFER TO GENERAL SPECIFICATIONS OR AS DIRECTED BY ARCHITECT.
- 14. IT IS THE INTENT OF THESE CONTRACT DOCUMENTS TO CALL FOR AN INSTALLATION THAT IS COMPLETE IN EVERY RESPECT. IF AN ITEM OF WORK IS SHOWN ON THE DRAWINGS, IT SHALL BE CONSIDERED SUFFICIENT FOR INCLUSION IN THE CONTRACT. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT USUALLY FURNISHED OR NEEDED TO MAKE A COMPLETE INSTALLATION, WHETHER SPECIFICALLY MENTIONED OR NOT.
- 15. RENDER FULL COOPERATION TO OTHER TRADES AND COORDINATE THE WORK WITH OTHER TRADES. THIS CONTRACTOR SHALL ASSIST IN WORKING OUT SPACE CONDITIONS.
- 16. PERFORM ALL CUTTING AND PATCHING NECESSARY FOR THE PROPER INSTALLATION OF THIS WORK. REPAIR ANY DAMAGE DONE BY THIS WORK AND REPAIR ANY DAMAGE CAUSED.
- 17. ON ACCEPTANCE OF CONTRACT, CONTRACTOR AGREES TO GUARANTEE THE WORK AND EQUIPMENT FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM DATE OF INITIAL OPERATION. MANUFACTURED EQUIPMENT SHALL CARRY FULL PERIOD OF MANUFACTURER'S GUARANTEE, AND SHALL NOT BE LESS THAN ONE (1) YEAR. COMPRESSORS SHALL CARRY AN EXTENDED WARRANTY OF FIVE YEARS.

### **GENERAL NOTES**

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THE 2020 NYS BUILDING CODE, 2020 NYS MECHANICAL CODE, AND 2020 NYS ENERGY CONSERVATION CODE, AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
- PROVIDE A COMPLETE OPERABLE SYSTEM IN A WORKMANLIKE MANNER. OUTLINE
  DESCRIPTION AND EQUIPMENT; DO NOT LIMIT CONTRACTOR'S LIABILITY FOR THE INSTALLATION
  OF A COMPLETE OPERABLE SYSTEM
- 3. THE CONTRACTOR SHALL FIELD VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND NOTIFY THE OWNER OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN IN THESE DOCUMENTS. ALL DIMENSIONS AND EQUIPMENT ARE SHOWN DIAGRAMMATICALLY, COORDINATE WITH ACTUAL FIELD CONDITION.
- 4. BEFORE COMMENCING WORK, THE CONTRACTOR SHALL FILE ALL REQUIRED CERTIFICATES OF INSURANCE WITH THE BUILDING DEPARTMENT. OBTAIN ALL REQUIRED PERMITS AND PAY ALL FEES REQUIRED.
- 5. COORDINATION OF ALL WORK UNDER THIS CONTRACT SHALL BE MAINTAINED TO ENSURE THE QUALITY AND TIMELY COMPLETION OF THE WORK/PROJECT.
- 6. THE CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING REQUIRED TO COMPLETE THE WORK OR TO MAKE ITS PARTS FIT TOGETHER PROPERLY WITHOUT COMPROMISING THE QUALITY OF THE WORK. RESTORE WALLS AND CEILINGS TO MATCH EXISTING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGE, BREAKAGE, COLLAPSE, DISTORTIONS, AND OFF ALIGNMENTS ACCORDING TO CODES AND STANDARDS OF GOOD PRACTICE.
- 8. THE TERM "FINISH FLOOR" SHALL MEAN THE NORMAL FINISHED SURFACE OF THE FLOOR LEVEL. ALL ELEVATIONS GIVEN FOR EXISTING BUILDINGS ARE TO FINISHED FLOOR. THE CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS FOR EXISTING STRUCTURES PRIOR TO THE COMMENCEMENT OF WORK.
- 9. THE CONTRACTOR SHALL PATCH AND REPAIR ALL FLOORS, WALLS CEILINGS, ETC. DAMAGED OR EXPOSED DUE TO WORK OR REMOVALS AND FINISH TO MATCH ADJOINING SURFACES.
- 10. ALL NEWLY INSTALLED, PATCHED WORK AND ALL AFFECTED AREAS SHALL BE PAINTED, ALL PAINTING WORK SHALL BE PERFORMED TO COVER THE ENTIRE HORIZONTAL OR VERTICAL SURFACE TO THE CLOSEST CORNER IN ALL FOUR DIRECTIONS. COLOR TO MATCH EXISTING CONDITIONS.
- 1. WORK NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE OWNER, SHALL BE INCLUDED IN THE WORK THE SAME AS IF HEREIN SPECIFIED OR INDICATED.
- 12. DURING CONSTRUCTION, TEMPORARY BAFFLES TO SEAL OPENINGS TO PREVENT DUST AND DIRT FROM FILTERING INTO OCCUPIED AREAS ARE TO BE PROVIDED BY CONTRACTOR.
- 13. ALL WORK SHALL BE INSTALLED SO THAT ALL PARTS REQUIRED ARE READILY ACCESSIBLE FOR INSPECTION, OPERATION, MAINTENANCE AND REPAIR.
- 14. CONTRACTOR SHALL MAINTAIN FREE AND UNOBSTRUCTED ACCESS FROM ALL FLOORS AND ADJACENT SPACES INTO THE EXISTING FIRE STAIRS TO OUTSIDE OF THE BUILDING AT ALL TIMES.
- 15. CONTRACTOR SHALL MAINTAIN FREE FROM DEBRIS AND ACCUMULATED REFUSE, AND SHALL HAVE SOLE RESPONSIBILITY FOR PROTECTING ALL DANGEROUS AREAS FROM ENTRY BY UNAUTHORIZED PARTIES. SITE WILL BE LEFT BROOM CLEAN AT THE END OF EACH WORKING DAY.
- 16. PROVIDE BARRICADES AROUND WORK AREAS AS REQUIRED TO PREVENT BUILDING OCCUPANTS AND OTHER UNAUTHORIZED PERSONS FROM ENTERING THEREIN.
- 17. CONTRACTOR IS TO NOTIFY IMMEDIATELY THE OWNER OF ANY HAZARDOUS MATERIALS ENCOUNTERED IN ENCLOSED SPACES. ANY SUCH MATERIALS SHALL BE PROMPTLY TESTED AND REMOVED BY A QUALIFIED CONSULTANT AS PER D.O.B. STANDARDS & THE LAW.
- 18. CONTRACTOR SHALL RELOCATE AND PATCH ANY EXISTING ITEMS INTERFERING WITH THE INSTALLATION OF NEW WORK WHETHER SHOWN OR NOT ON THE DRAWINGS AT NO COST TO OWNER.
- 19. THERE WILL BE NO CHANGE IN USE, EGRESS OR OCCUPANCY BECAUSE OF THE WORK OF THIS
- 20. THE MECHANICAL CONTRACTOR SHALL PROVIDE POWER SUPPLIES, ELECTRICAL WIRING AND CONDUIT FOR POWER AND CONTROL TO PNEUMATIC DAMPER AND VALVE OPERATORS, THERMOSTATS, AUTOMATIC CONTROL INSTRUMENTATION. COORDINATE WITH THE ELECTRICAL CONTRACTOR TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.
- 21. FOR POWERED EQUIPMENT INTENDED FOR DEMOLITION, COORDINATE WITH THE ELECTRICAL TRADE TO ENSURE THAT POWER SUPPLIES AND DISCONNECT SWITCHES ASSOCIATED WITH THE EQUIPMENT ARE SHUT-OFF AND DISCONNECTED.
- 22. TEMPORARY SHUTDOWNS OF SERVICE OF EXISTING ELECTRICAL, STEAM, HEATING, AIR CONDITIONING AND VENTILATION SYSTEMS SHALL BE PERFORMED WITH A MINIMUM OF DISRUPTION OF SERVICE, HELD TO AN ABSOLUTE MINIMUM DURATION OF TIME, AND ONLY AFTER HAVING NOTIFIED THE BUILDING OPERATIONS MANAGEMENT AT LEAST TWO WEEKS IN ADVANCE AND HAVING RECEIVED THEIR PERMISSION IN WRITING, AT LEAST TWO WEEKS PRIOR TO THE SCHEDULED SHUTDOWN. COMMUNICATIONS SHALL BE RELAYED THROUGH THE COSNTRUCTION MANAGER.
- 23. PROVIDE EQUIPMENT MAINTENANCE MANUALS AND REQUIRED EQUIPMENT LABELS FOR ALL MECHANICAL, ELECTRICAL AND SERVICE HOT WATER HEATING EQUIPMENT. TO THE OWNER WITHIN 90 DAYS AFTER SYSTEM ACCEPTANCE.
- 24. WHERE MANUFACTURERS NAMES AND PRODUCT NUMBERS ARE INDICATED ON THE DRAWINGS IT SHALL BE CONSTRUED TO MEAN THE ESTABLISHING OF QUALITY AND PERFORMANCE STANDARDS OF SUCH ITEMS. ALL OTHER PRODUCTS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE THEY SHALL BE DEEMED EQUAL.
- 25. ALL WORK ON THESE DRAWINGS SHALL BE CONSIDERED NEW WORK WHETHER STATED OR NOT EXCEPT WHERE SPECIFICALLY NOTED AS "EXISTING TO REMAIN".
- 26. DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER, SHALL BE INCLUDED IN THE WORK THE SAME AS IF HEREIN SPECIFIED OR INDICATED.
- 27. THE WORD "PROVIDE" USED ON DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT MEANS "FURNISH AND INSTALL". WHEN ONLY ONE PART OF ACTION IS REQUIRED, EITHER "FURNISH" OR "INSTALL" WILL BE USED ACCORDINGLY (TYP., U.O.W.N.).
- 28. ALL DISCONNECT SWITCHES, STARTERS, AND VARIABLE FREQUENCY DRIVES SHALL BE FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR.
- 29. DESIGN LOADS ASSOCIATED WITH HEATING, VENTILATING, AND AIR CONDITIONING HAVE BEEN DETERMINED IN ACCORDANCE WITH ANSI/ASHRAE/ACCA STANDARD 183.

07/18/24 ADDENDUM NO. 1 06/18/24 REVISIONS 05/31/24 BIDDING DOCUMENTS

REG. EXP DATE: 10-31-26

Checked by
PC
Project No.
44023
Scale
AS SHOWN

Mechanical & Electrical PEDERSEN, INC 2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Structural Engineer:

NORTH ROCKLAND HIGH
HOOL EXTENSION BOILER
REPLACEMENT
SCHOOL EXT SED# 05-02-01-06-0-007-016



GENERAL NOTES

Drawing No.

	WATER PUMP SCHEE	DULE
	UNIT NUMBER	P-1, P-2
	LOCATION	MECHANICAL RM
	SYSTEM SERVICE	BOILER B-1, B-2
	TYPE	BASE MOUNTED END SUCTION
	IMPELLER DIA. (IN)	9.5
	SUCTION CONN. (IN)	2.5
	DISCHARGE CONN. (IN)	2
PUMP DATA	CAPACITY (GPM)	150
	TOTAL HD (FT.)	70
	WORKING FLUID	WATER - 30% PG
	FLUID TEMP °F	160
	TYPE	NEMA PREMIUM, VFD READY
	H.P.	7.5
	RATED R.P.M.	1800
MOTOR	DUTY POINT R.P.M.	1538
	ENCL. TYPE	ODP
	V/PH/HZ	208/3/60
	DUTY POINT BHP	3.56
	DUTY POINT EFF. (%)	72.8
Ol	PERATING WEIGHT (LB)	350
PUMP B	ASE DIMENSIONS (L x W) (IN)	35 x 15
BASIS OF DESIGN	MANUFACTURER	BELL & GOSSETT
BAGIO OI DEGICIN	MODEL	e-1510-2BD-SS-213T

PROVIDE OPERATIONS AND MAINTENANCE MANUALS.
 PROVIDE NEW 6" TALL EQUIPMENT PAD, EXTEND 6" BEYOND EQUIPMENT BASE IN ALL DIRECTIONS.

5. ELECTRICAL MOTORS SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C405.8(1) THOUGH C405.8(4) WHEN TESTED AND RATED IN ACCORDANCE WITH THE DOE 10 CFR 431.

PIPE INSULATION S	SCHED	ULE
FLUID	THICKNES S	OPERATING TEMP RANGE, °F
MAKE-UP WATER (ALL SIZES)	0.5"	40-60
HWS&R (LESS THAN 1-1/2")	1.5"	141-200
HWS&R (1-1/2" AND GREATER)	2.0"	141-200

PIPE SIZE SCHEDULE								
PIPE SIZE	FLOW RANGE							
3/4"	0-4 GPM							
1"	5-7.5 GPM							
1-1/4"	8-16 GPM							
1-1/2"	17-24 GPM							
2"	25-48 GPM							
2-1/2"	49-77 GPM							
3"	78-140 GPM							
4"	141-280 GPM							
5"	281-500 GPM							
6"	501-800 GPM							
MINIMUM	PIPE SIZES SHALL BE PROVIDED AS							
SCHEDULED	ABOVE. WHERE PIPE SIZES INDICATED							

ELSEWHERE WITHIN DRAWINGS CONFLICT WITH SCHEDULED FLOW, THE LARGER SIZE PIPE SHALL BE PROVIDED. MINIMUM PIPE SIZE 3/4".

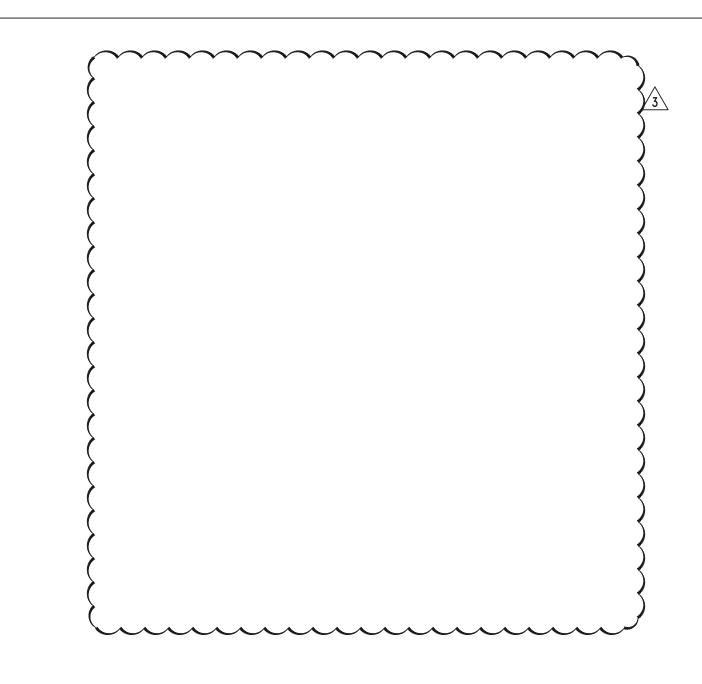
### - ALTERNATE #1

### **EXISTING CIRCULATOR PUMP**

P-3: BELL & GOSSETT, SERIES 60 IN-LINE, MODEL #601, APPROX. 150 GPM P-4: TACO, SERIES 1600 IN-LINE, MODEL# 1641C354, APPROX. 150 GPM

	UNIT NUMBER	P-5, P-6
	LOCATION	MECHANICAL RM
	SYSTEM SERVICE	BOILER B-1, B-2
	TYPE	IN-LINE CIRCULATOR
	IMPELLER DIA. (IN)	N/A
	SUCTION CONN. (IN)	N/A
	DISCHARGE CONN. (IN)	N/A
PUMP DATA	CAPACITY (GPM)	150
	TOTAL HD (FT.)	20
	WORKING FLUID	WATER - 30% PG
	FLUID TEMP °F	160
	TYPE	NEMA
	H.P.	2
	RATED R.P.M.	N/A
MOTOR	DUTY POINT R.P.M.	2526
	ENCL. TYPE	ODP
	V/PH/HZ	208/1/60
	DUTY POINT BHP	1.21
	DUTY POINT EFF. (%)	N/A
OPI	ERATING WEIGHT (LB)	50
PUMP BA	SE DIMENSIONS (L x W) (IN)	NA - SUPPORTED FROM FLOO
DACIC OF DECICAL	MANUFACTURER	BELL & GOSSETT
BASIS OF DESIGN	MODEL	ECOCIRC XL 40-275

3. CIRCULATOR PUMPS SHALL BE CONTROLLED BY BOILER CONTROL PANEL.



COMBUSTION AIR DAMPER SCHEDULE										
MARK	SERVICE SIZE (Ø, IN) BASIS OF DESIG									
<u>D-1</u>	COMBUSTION AIR	20	RUSKIN CD50							

	UNIT NO	B-1, B-2
	MECHANICAL ROOM	
	TYPE	CONDENSING
	GROSS I.B.R. OUTPUT (BTU/HR)	1,900,000
	MIN OVERALL BOILER EFFICIENCY (%)	94.6
RATING	NET I.B.R. OUTPUT (WATER) @ 100% (BTU/H)	NA
	TURNDOWN RATIO	20:1
DESIGN HO	T WATER SUPPLY TEMPERATURE (°F)	180
DESIGN HO	T WATER RETURN TEMPERATURE (°F)	160
SY	STEM DESIGN PRESSURE (PSI)	12
MAX ALLO	30	
FLUE C	OUTLET / AIR INTAKE SIZE (INCHES)	8 / 8
S	4	
F	RETURN INLET SIZE (INCHES)	4
	GAS CONNECTION, NPT (IN)	2
FUEL DATA	GAS FIRING RATE (CFH)	2000
	INLET PRESSURE RANGE (IN. WC)	4.0 - 14
	VOLTS/PH/HZ	120/1/60
ELECTRICAL DATA	POWER, FLA	16
	OPERATING AMPS, MCA	-
OVERALL DIMENSION	ONS WITHOUT CONTROLS (L X W X H) (INCHES)	58 X 28 X 78
HOUSE KEEPII	NG CONCRETE PAD DIMENSIONS (INCHES)	-
	OPERATING WEIGHT (LBS)	1654
DACIC OF DECICAL	BOILER MANUFACTURER & MODEL NO.	AERCO
BASIS OF DESIGN	BURNER MANUFACTURER & MODEL NO.	BENCHMARK 2000

//ARKS			
PR	OVIDE	OPERA	TIO

- PROVIDE OPERATIONS AND MAINTENANCE MANUALS, CONTRACTOR TO INSTALL UNIT PER MFGR'S
- IOM MANUAL.
- SHIP BOILER PACKAGED AND SHOULD FIT THROUGH STANDARD 3 FOOT DOOR WIDTH.
   VERIFY IN FIELD CONNECTION LOCATIONS AND CLEARANCES FOR BOILERS, REFER TO
- MANUFACTURER'S DOCUMENTS. 4. PROVIDE CONTROL PANEL.
- NEW YORK STATE EDUCATION DEPARTMENT CONTROL COMPLIANCE, WIRING, AND OTHER
- EQUIPMENT AS NECESSARY TO SATISFY THE SEQUENCE OF OPERATION. VENTLESS GAS TRAIN
- BOILER SHALL UTILIZE NON-METALLIC VENT.
- CONTROLLER SHALL DISPLAY AN ALERT WHEN O2 LEVEL IS ABOVE OR BELOW CRITICAL VALUES.
- COMBUSTION O2 LEVELS SHALL NOTE EXCEED 7% THROUGHOUT ENTIRE FIRING RANGE.
   BOILER MANUFACTURER TO PROVIDE AND CONTROL FIELD INSTALLED, MOTORIZED ISOLATION VALVES ON EACH BOILER.
- 11. PROVIDE BOILER SEQUENCING WITH HW RESET.
- 12. BOILER SHALL BE EQUIPPED WITH COMBUSTION AIR TEMPERATUER COMPENSATION TO AUTOMATICALLY COMPENSATE FOR AIR DENSITY CHANGES BY ADJUSTING OXYGEN AND OPTIMIZE THE COMBUSTION EFFICIENCY UNDER ALL SEASONAL TEMPERATURE CHANGES. 13. BOILER STAGING POINT NOT TO EXCEED 40%
- 14. BOILER MANUFACTURER TO PROVIDE 10 YEAR NON-PRORATED HEAT EXCHANGER WARRANTY.
- BOILER MANUFACTURER TO PROVIDE 2 YEAR NON-PRORATED CONTROLLER WARRANTY.
   BOILER MANUFACTURER TO PROVIDE LETTER OF GUARANTEE FOR AS BUILT FLUE AND
- COMBUSTION AIR INSTALLATION. 17. PROVIDE CONDENSATE NEUTRALIZER FOR EACH BOILER AND COMMON FLUE DRAINS.

EXPAN	ISION	TANK	SCHE	DULE	
SYSTEM TEMP	INITIAL				

				XI / XI	101011	17 (141 (	COLIE				
UNIT #	SERVICE	LOCATION	SYSTEM TEMP RANGE				ACCEPT VOLUME		WEIGHT (LBS)	BASIS OF D	DESIGN
#			MIN °F	MAX °F	PSIG	GAL	GAL	TOTANK	(LDO)	MANUFACTURER	MODEL#
ET-1	HOT WATER	BOILER RM	140	190	12	50	34.56	1-1/2	651	BELL & GOSSETT	B-200

EXPANSION TANK SCHEDULE NOTES:

1. PROVIDE HORIZONTAL (CEILING MOUNTED), ASME BLADDER EXPANSION TANK FULLY CHARGED TO MEET THE REQUIREMENTS OF THIS SCHEDULE.

2. PROVIDE SIGHT GLASS AND PROPER SUPPORTS FOR INSTALLATION FROM CEILING.

3. MAINTAIN REQUIRED SERVICE CLEARANCES AS DIRECTED BY MANUFACTURER.

		AIR SEPAF	RATOR SCHED	JLE	

	AIR SEPARATOR SCHEDULE												
			AIR	SEPARA	TOR	OPERATING	BASIS OF DESIGN						
UNIT #	SERVICE	LOCATION	TYPE	SIZE (IN)	FLOW (GPM)	PRESS. DROP (FT H20)	WEIGHT (LBS)	MANUFACTURER	MODEL #				
AS-1	HOT WATER	MECHANICAL RM	COALESCING AIR & DIRT	6	480	0.3	499	BELL & GOSSETT	CRS-6F				

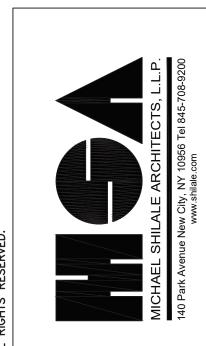
	CHEMICAL SHOT FEEDER SCHEDULE												
UNIT #	SERVICE	LOCATION	TYPE	SIZE MAX. PRESS.		WEIGHT	BASIS OF D	DESIGN					
#				(GAL)	(PSIG)	(LBS)	MANUFACTURER	MODEL#					
CF-1	HOT WATER	BOILER RM	VERTICAL BY-PASS	5	300	38	NEPTUNE	DBF-5HP					

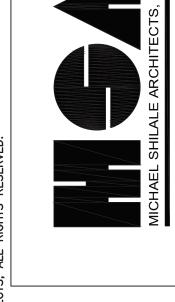
DOMESTIC INDIRECT HOT WATER HEATER SCHEDULE								
UNIT#	SERVICE	LOCATION	CAPACITY (GAL)	WATER TEMP RANGE		BASIS OF DESIGN		
				INLET °F	OUTLET °F	MANUFACTURER	MODEL#	
IWH-1	HOT WATER	BOILER RM	250	40	140	AO SMTIH	HW6V250ASW660	
$\sqrt{3}$								

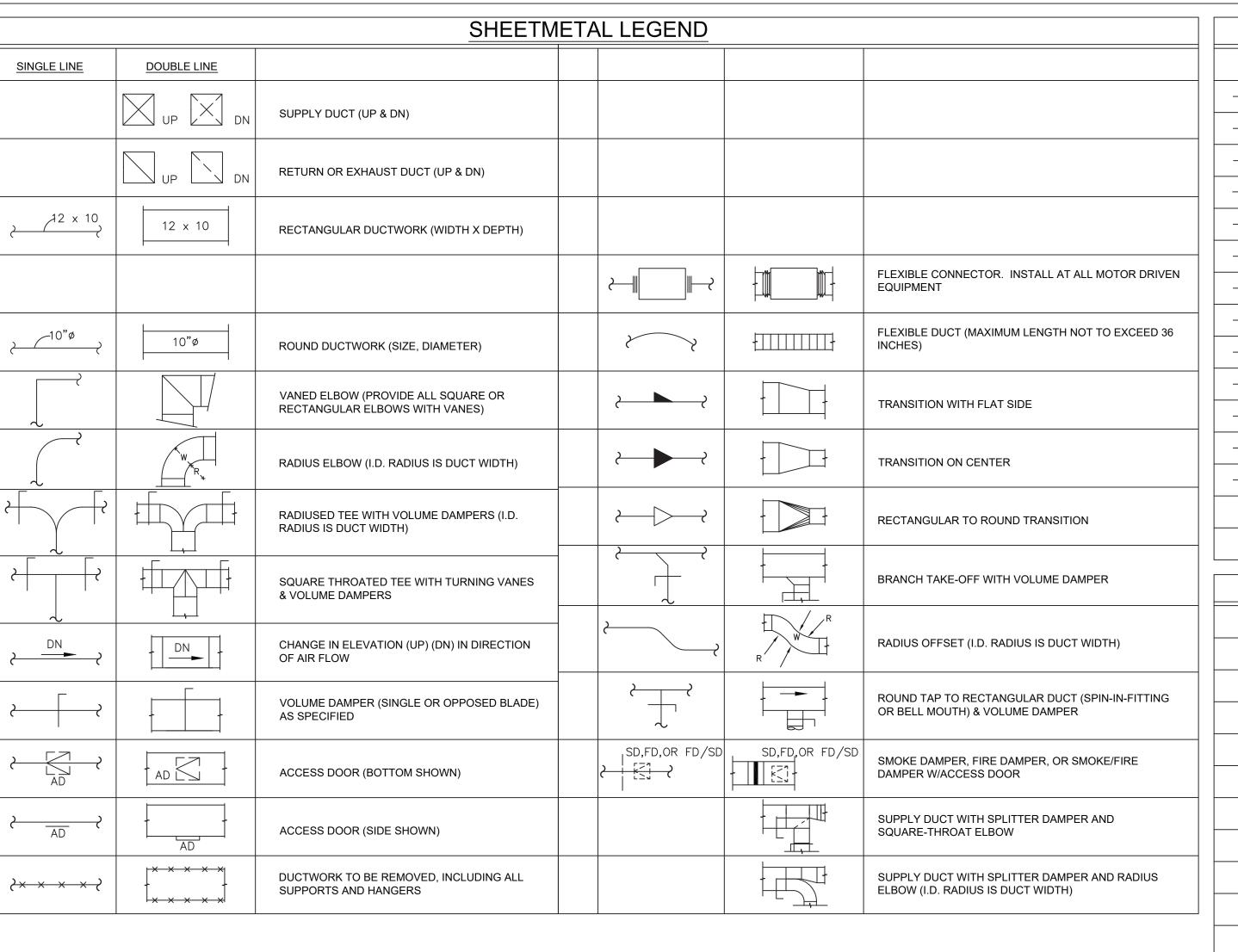
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Mechanical & Electrical Engineer:	Structural Engineer:	

HIGE BOIL







PIPING LEGEND					
CWS	CHILLED WATER SUPPLY				
— - CWR - —	CHILLED WATER RETURN				
<del></del>	CONDENSER WATER SUPPLY TO TOWER				
<del></del>	CONDENSER WATER RETURN FROM TOWER				
—— CD ——	CONDENSATE DRAIN				
HWS	HOT WATER SUPPLY				
— - HWR - —	HOT WATER RETURN				
MUW	MAKE UP WATER				
—— GS ——	GLYCOL SUPPLY				
— — GR — —	GLYCOL RETURN				
— — ATV — —	ATMOSPHERIC VENT				
	EXISTING TO REMAIN				
X	EXISTING TO BE REMOVED				
•	POINT OF CONNECTION				
•	POINT OF DISCONNECTION				

SPECIALTY LEGEND					
P	AUTOMATIC AIR VENT				
	MANUAL AIR VENT				
	AIR SEPARATOR				
	FLEXIBLE CONNECTOR				
$\square$	VENTURI FLOWMETER				
-	FLOWLIMITING FITTING				
<u> </u>	PRESSURE GAUGE W/NEEDLE VALVE				
Д	THERMOMETER				
	THERMOMETER WELL				
FS	FLOW SWITCH				
PS	PRESSURE SWITCH				
<del></del>	Y-LINE STRAINER				
	Y-LINE STRAINER W/VALVE				
T	THERMOSTAT (48" AFF) (ELECTRIC) (REFER TO SPECIFICATION)				

FITTING LEGEND					
<del></del>	ELBOW TURNED UP				
<del>C+</del>	ELBOW TURNED DOWN				
	TEE TURNED UP				
	TEE TURNED DOWN				
++	TEE (SIDE)				
—— <del>+C+</del>	RISE OR DROP IN PIPE				
——————————————————————————————————————	UNION				
——————————————————————————————————————	FLANGE				
	PIPE CAP				
——— þ	CLEANOUT W/ PLUG				
	CONCENTRIC REDUCER				
	ECCENTRIC REDUCER				
>UP	PIPE PITCH UP				
DN	PIPE PITCH DOWN				

VALVE LEGEND					
— 151—	BALL VALVE				
——Г——	BUTTERFLY VALVE				
$-\!$	GATE VALVE				
	GLOBE VALVE				
	CALIBRATED BALANCING VALVE				
	PUMP TRIPLE DUTY VALVE				
——I <del>V</del> I——	LUBRICATED PLUG VALVE				
<u> </u>	ANGLE VALVE				
	CHECK VALVE				
	RELIEF VALVE				
——————————————————————————————————————	HOSE END DRAIN VALVE				
	MODULATING TWO WAY VALVE				
	MODULATING THREE WAY VALVE				
P	ELECTRIC MOTOR ACTUATOR				
9	SOLENOID ACTUATOR				

FITTIN	ABE	
		AD AF
—-ю	ELBOW TURNED UP	AFF APD ARCH
<del></del>	ELBOW TURNED DOWN	AV AMP
	TEE TURNED UP	BHP BOIL. BTUH
	TEE TURNED DOWN	CAI CD
<del></del>	TEE (SIDE)	CFM CO
— <del></del>	RISE OR DROP IN PIPE	CONT. CW DEG, °
——	UNION	dB DB
——————————————————————————————————————	FLANGE	DDC DIA, Ø DWG
——	PIPE CAP	EAT ET
———— þ	CLEANOUT W/ PLUG	EWT EX, EXIS FD
$\longrightarrow \triangleright$	CONCENTRIC REDUCER	FD/SD FL
	ECCENTRIC REDUCER	FLA FLD FOS
>UP	PIPE PITCH UP	FOR FPM
		l FT

<b>\</b>	ENTERING AIR TEMPERATURE
	EXPANSION TANK
VT	ENTERING WATER TEMPERATURE
K, EXIST.	EXISTING
)	FIRE DAMPER
)/SD	COMBINATION FIRE/SMOKE DAMPER
	FLOOR
Α.	FULL LOAD AMPS
.D	FLOOR DRAIN
)S	FUEL OIL SUPPLY
)R	FUEL OIL RETURN
PM	FEET PER MINUTE
•	FEET
	NATURAL GAS
AL	GALLONS
?	GENERAL CONTRACTOR
PM	GALLONS PER MINUTE
3	GLYCOL SUPPLY
3 7	GLYCOL RETURN
	HEATING COIL
) <u>=</u>	HEAT EXCHANGER
- GT	HEIGHT
) )	HORSEPOWER
VB	HOT WATER BOILER
VS VR	HOT WATER RETURN
	HOT WATER RETURN
7	HERTZ
۸,	INCH
<u>٧</u>	KILOWATT
T C/UD	LEAVING AIR TEMPERATURE
SS/HR	POUNDS PER HOUR
	LINEAR FOOT
, . <del></del>	LOW PRESSURE
VT	LEAVING WATER TEMPERATURE
WxH	LENGTH BY WIDTH BY HEIGHT
ΑX	MAXIMUM
3H	ONE THOUSAND BRITISH THERMAL UNITS PER HOUR
CA	MINIMUM CIRCUIT AMPACITY
)	MOTORIZED DAMPER
N	MINIMUM
С	NOT IN CONTRACT
MC	NOMINAL
4	OUTSIDE AIR
	PUMP
)	PRESSURE DROP
۲V	PRESSURE REDUCING VALVE
SIG	POUNDS PER SQUARE INCH GAUGE
EQD	REQUIRED
Л	ROOM
PM	REVOLUTIONS PER MINUTE
3	SPECIFIC GRAVITY
)	STATIC PRESSURE
ENS	SENSIBLE
=	SQUARE FEET
PEC	SPECIFICATION
Q	SQUARE
3	STAINLESS STEEL
EMP	TEMPERATURE
łK	THICK

**ABBREVIATIONS** 

AIR FILTER

AMPERE

BOILER

CLEAN OUT

CONTINUED COLD WATER

DEGREES

DECIBELS

DRY BULB

DIAMETER

DRAWING

TYPICAL

WG WMS WPD

UNLESS NOTED OTHERWISE
UP TO ROOF
VENT, VOLTS, OR VOLUME
VENTILATION AIR
VARIABLE AIR VOLUME

VOLUME DAMPER (MANUAL)
VARIABLE INLET VANE
VARIABLE FREQUENCY DRIVE

WATTO, WIDTH
WET BULB TEMPERATURE (°F)
WATER COLUMN
WATER GAUGE
WIRE MESH SCREEN

WATER PRESSURE DROP

VERIFY IN FIELD WATTS, WIDTH

ACCESS DOOR

ARCHITECTURAL

ABOVE FINISHED FLOOR

AIR PRESSURE DROP

AUTOMATIC AIR VENT

BRAKE HORSEPOWER

COMBUSTION AIR INTAKE

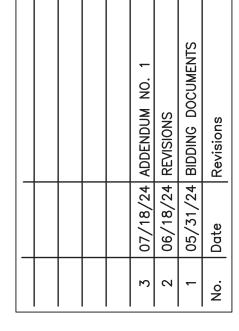
CUBIC FEET PER MINUTE

DIRECT DIGITAL CONTROL

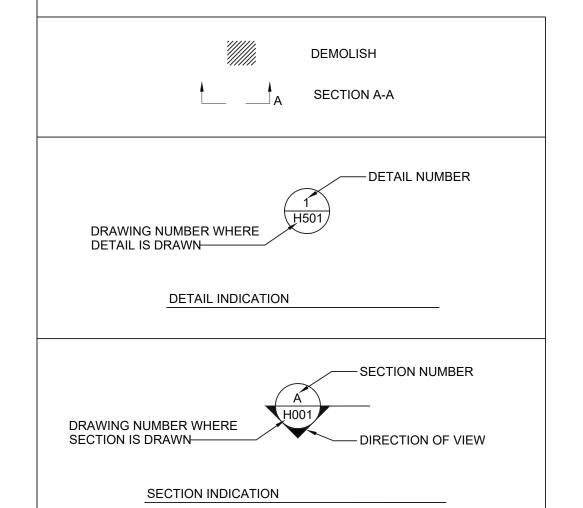
ENTERING AIR TEMPERATURE

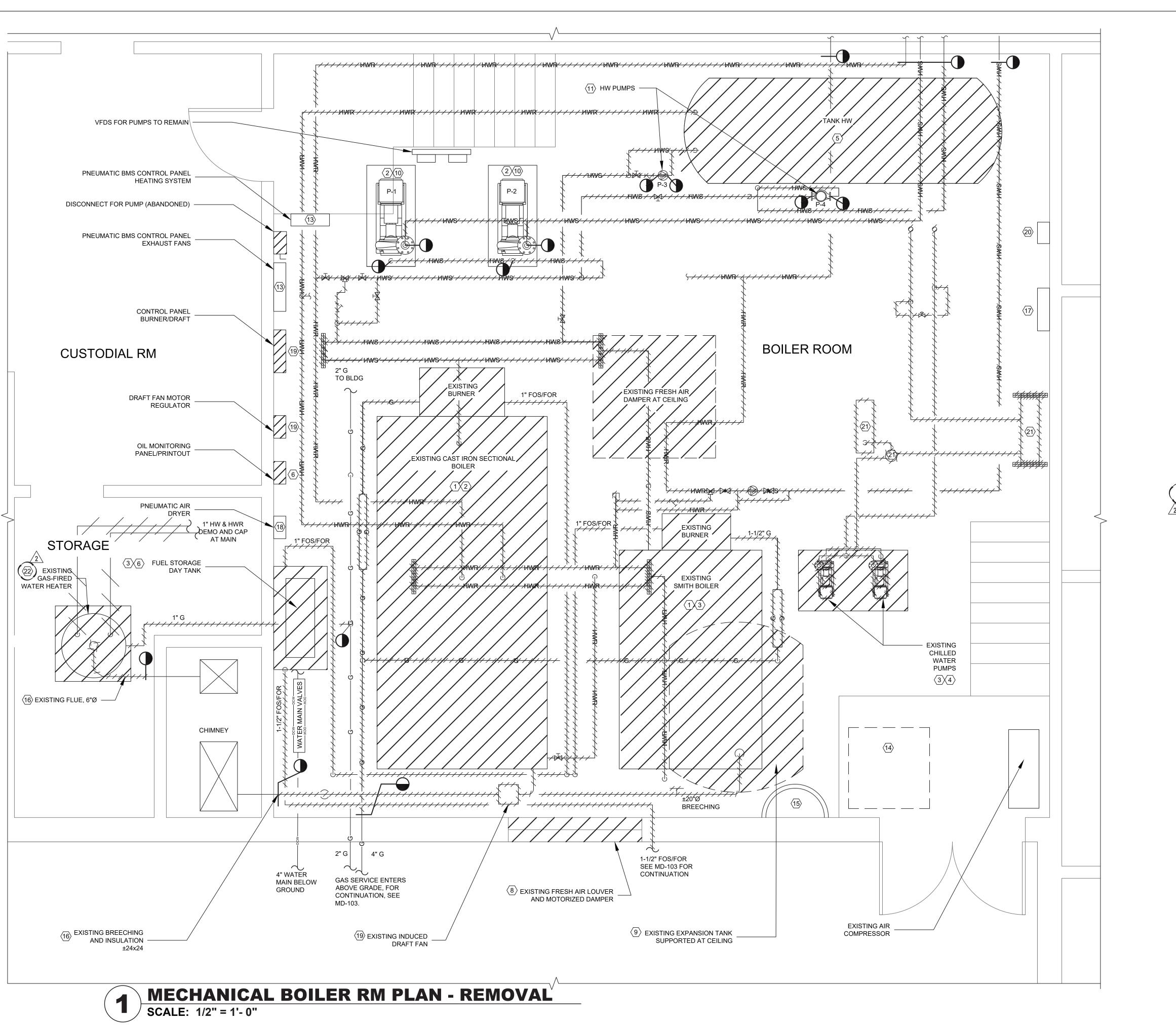
CONDENSATE DRAIN

BRITISH THERMAL UNITS PER HOUR



NORTH ROCKLAND HIGH SCHOOL EXTENSION BOIL REPLACEMENT





### **KEYED NOTES**

- DISCONNECT, REMOVE AND DISPOSE OF EXISTING HOT WATER BOILER, BURNER AND ASSOCIATED PIPING.
- (2) EXISTING HOUSEKEEPING PAD TO REMAIN.
- (3) REMOVE EXISTING HOUSEKEEPING PAD, REFER TO ARCHITECTURAL
- 4 DISCONNECT, REMOVE AND DISPOSE OF ABANDONED CHILLED WATER PUMPS, ASSOCIATED INSULATED PIPING AND SUPPORTS.
- (5) DISCONNECT, REMOVE AND DISPOSE OF DOMESTIC HOT WATER TANK AND ASSOCIATED SUPPORTS.
- 6 DISCONNECT, REMOVE AND DISPOSE OF EXISTING OIL STORAGE DAY TANK, ASSOCIATED PIPING AND FUEL MONITORING SYSTEM.
- $\langle 7 \rangle$  DISCONNECT, REMOVE AND DISPOSE OF EXISTING UNDERGROUND FUEL OIL STORAGE TANK, ASSOCIATED WITH PIPING AND FUEL MONITORING SYSTEM.
- (8) DISCONNECT, REMOVE AND DISPOSE OF EXISTING FRESH AIR DAMPER AT CEILING AND WALL. EXISTING LOUVER AT WALL TO REMAIN.
- 9 DISCONNECT, REMOVE AND DISPOSE OF EXISTING CEILING SUSPENSION EXPANSION TANK, ASSOCIATED SUPPORTS AND PIPING.
- 10) EXISTING PAD-MOUNTED HOT WATER PUMPS ARE TO REMAIN. REPLACE P-1 AND P-2 AS ALTERNATE 2
- (11) DISCONNECT EXISTING HOT WATER CIRCULATING PUMP. EXISTING PUMP TO BE RE-UTILIZED. CONTRACTOR RESPONSIBLE TO PROTECT PUMP FOR REINSTALLATION.
- 12 DISCONNECT, REMOVE AND DISPOSE OF EXISTING HOT WATER STORAGE TANK AND ASSOCIATED SUPPORTS.
- (13) EXISTING PNEUMATIC BMS CONTROL PANEL TO REMAIN.
- (14) EXISTING SUMP PUMP AT FLOOR TO REMAIN.
- (15) EXISTING WALL MOUNTED SINK TO REMAIN.
- (16) DISCONNECT, REMOVE AND DISPOSE OF EXISTING BREECHING AND INSULATION, CAP AND SEAL AT CHIMNEY.
- (17) EXISTING SIEMENS BMS PANEL TO REMAIN.
- (18) EXISTING AIR DRYER FOR PNEUMATIC SYSTEM TO REMAIN.
- 19 DISCONNECT, REMOVE AND DISPOSE EXISTING DRAFT SYSTEM CONTROLS.
- 20 VFD FOR DOMESTIC HOT WATER PUMP TO REMAIN.
- 21 DISCONNECT, REMOVE AND DISPOSE OF EXISTING AIR SEPARATOR, EXPANSION TANK AND HEADER FOR CHILLED WATER SYSTEM.
- 22 REMOVE EXISTING WATER HEATER. REMOVE GAS LINE BACK TO MAIN.

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE				07/18/24 ADDENDUM NO. 1	REVISIONS	05/31/24 BIDDING DOCUMENTS
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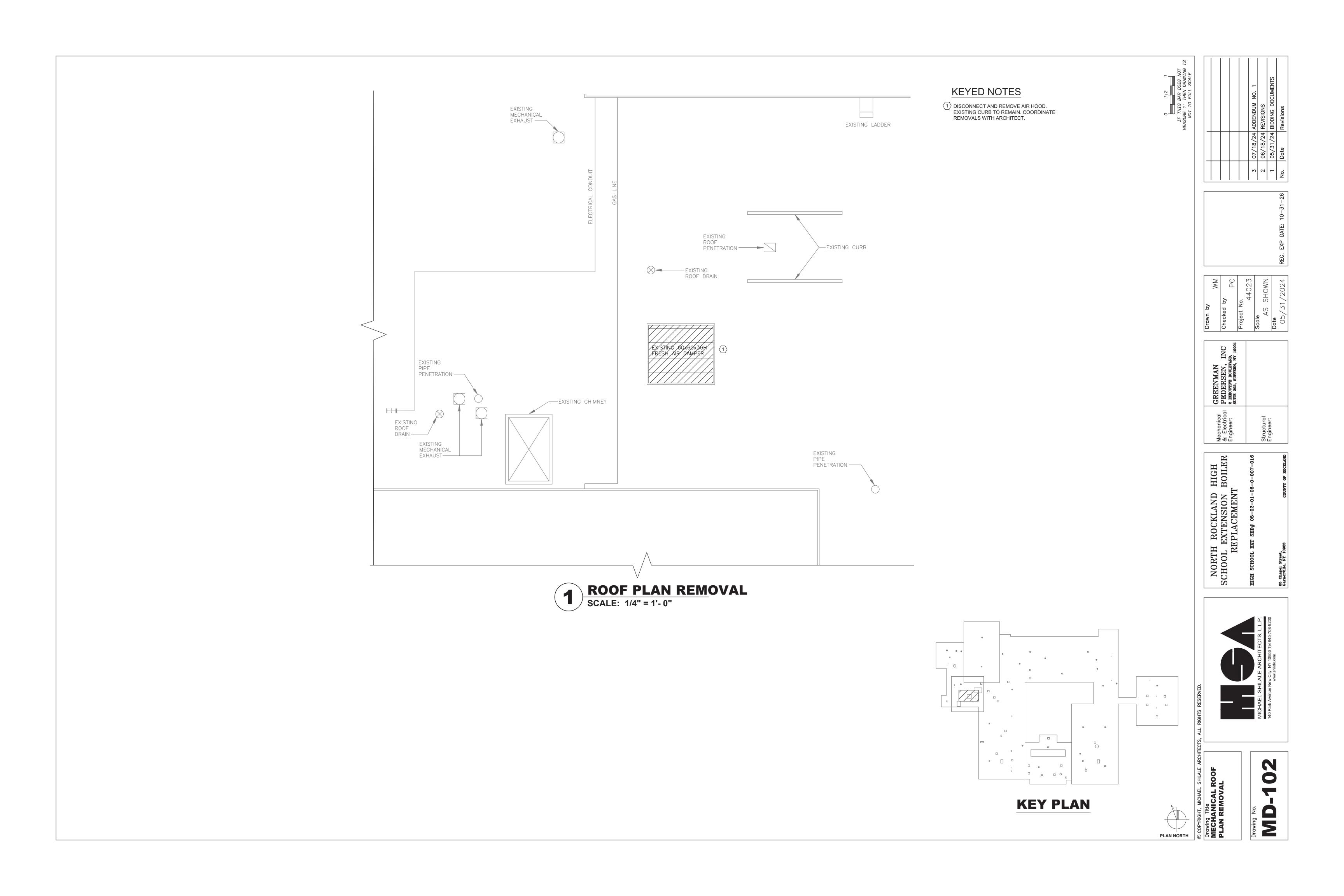
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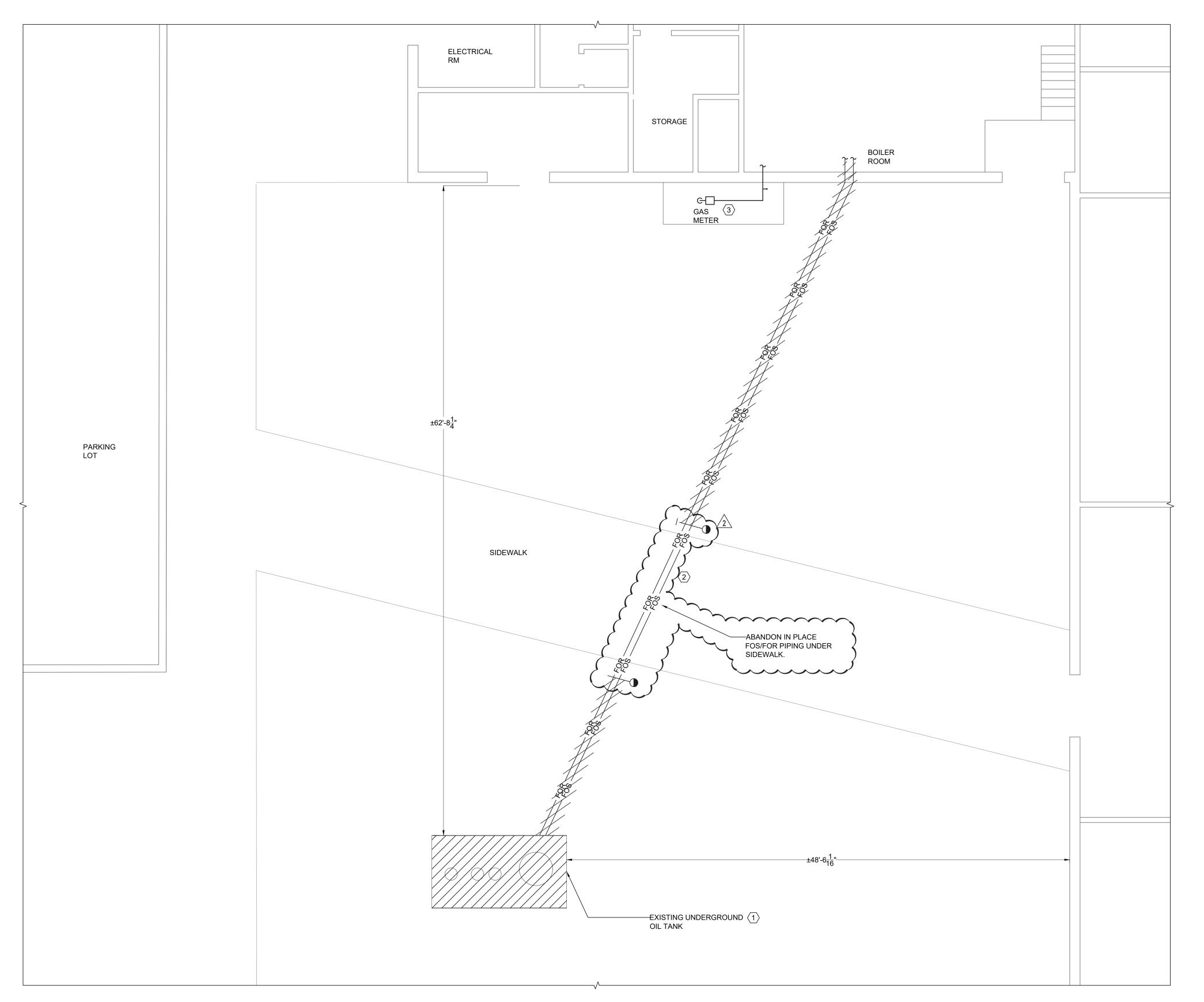
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Mechanical & Electrical Engineer:	Structural Engineer:

HIGE NORTH ROCKLAND SCHOOL EXTENSION | REPLACEMENT



**KEY PLAN** 





# 1 MECHANICAL PARTIAL SITE PLAN - REMOVAL SCALE: 3/32" = 1'- 0"

### **KEYED NOTES:**

- DISCONNECT AND REMOVE UNDERGROUND FUEL OIL TANK AND ASSOCIATED FILL/VENT PIPING, MANHOLES, ETC. CONTRACTOR TO COORDINATE REMOVAL WITH FACILITIES AND ASSOCIATED UTILITY PROVIDER. SEE GENERAL NOTES ON THIS DRAWING FOR MORE INFO.
- DISCONNECT AND REMOVE BURIED FUEL OIL SUPPLY AND RETURN PIPING FROM UNDERGROUND FUEL STORAGE TANK TO BOILER ROOM DAY TANK. COORDINATE REMOVAL WITH FACILITIES. SEE GENERAL NOTES ON THIS DRAWING FOR MORE INFO.
- $\langle \overline{3} \rangle$  EXISTING UTILITY GAS METER AND PIPING TO REMAIN.

### **GENERAL NOTES:**

- PRIOR TO REMOVAL OF FUEL OIL TANK AND FUEL OIL PIPING, CONTRACTOR
  TO EMPTY TANK FROM ITS CONTENTS AND PROPERLY DISPOSE PER EPA
  REGULATIONS.
- 2. CONTRACTOR TO PERFORM TEST OF THE EXCAVATED SOIL FOR ANY CONTAMINATES. UPON COMPLETION OF THE REMOVAL WORK, CONTRACTOR TO BACKFILL EXCAVATED AREA WITH CLEAN FILL.
- 3. COORDINATE ALL EXCAVATION AND FILL REQUIREMENTS WITH ARCHITECT AND GENERAL CONTRACTOR.



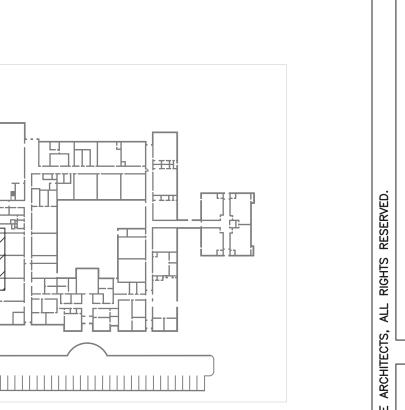
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GREENMAN PEDERSEN, INC z executive boulevard, suite 202, suffern, ny 10901	
Mechanical (& Electrical Engineer:	Structural Engineer:

NORTH ROCKLAND HIGH
SCHOOL EXTENSION BOILER
REPLACEMENT
HIGH SCHOOL EXT SED# 05-02-01-06-0-007-016

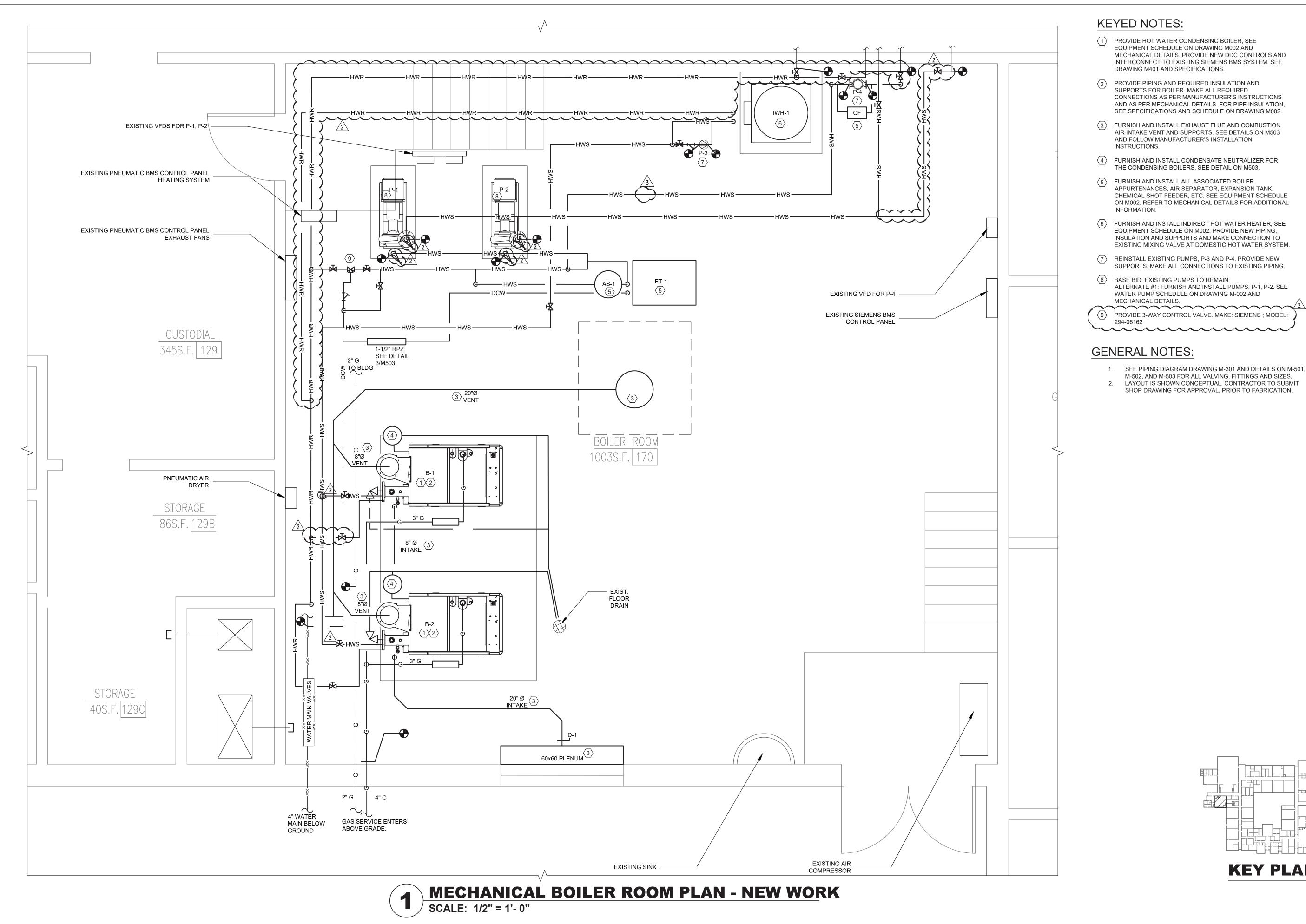


**KEY PLAN** 





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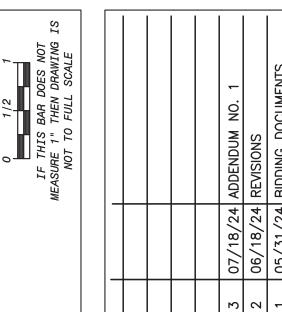


### **KEYED NOTES:**

- 1 PROVIDE HOT WATER CONDENSING BOILER, SEE EQUIPMENT SCHEDULE ON DRAWING M002 AND MECHANICAL DETAILS. PROVIDE NEW DDC CONTROLS AND INTERCONNECT TO EXISTING SIEMENS BMS SYSTEM. SEE DRAWING M401 AND SPECIFICATIONS.
- PROVIDE PIPING AND REQUIRED INSULATION AND SUPPORTS FOR BOILER. MAKE ALL REQUIRED CONNECTIONS AS PER MANUFACTURER'S INSTRUCTIONS AND AS PER MECHANICAL DETAILS. FOR PIPE INSULATION,
- (3) FURNISH AND INSTALL EXHAUST FLUE AND COMBUSTION AIR INTAKE VENT AND SUPPORTS. SEE DETAILS ON M503 AND FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- FURNISH AND INSTALL CONDENSATE NEUTRALIZER FOR THE CONDENSING BOILERS, SEE DETAIL ON M503.
- 5 FURNISH AND INSTALL ALL ASSOCIATED BOILER APPURTENANCES, AIR SEPARATOR, EXPANSION TANK, CHEMICAL SHOT FEEDER, ETC. SEE EQUIPMENT SCHEDULE ON M002. REFER TO MECHANICAL DETAILS FOR ADDITIONAL INFORMATION.
- (6) FURNISH AND INSTALL INDIRECT HOT WATER HEATER, SEE EQUIPMENT SCHEDULE ON M002. PROVIDE NEW PIPING, INSULATION AND SUPPORTS AND MAKE CONNECTION TO EXISTING MIXING VALVE AT DOMESTIC HOT WATER SYSTEM.
- 7 REINSTALL EXISTING PUMPS, P-3 AND P-4. PROVIDE NEW SUPPORTS. MAKE ALL CONNECTIONS TO EXISTING PIPING.
- 8 BASE BID: EXISTING PUMPS TO REMAIN.
  ALTERNATE #1: FURNISH AND INSTALL PUMPS, P-1, P-2. SEE WATER PUMP SCHEDULE ON DRAWING M-002 AND MECHANICAL DETAILS.
- (9) PROVIDE 3-WAY CONTROL VALVE. MAKE: SIEMENS ; MODEL: 294-06162

### **GENERAL NOTES:**

- 1. SEE PIPING DIAGRAM DRAWING M-301 AND DETAILS ON M-501, M-502, AND M-503 FOR ALL VALVING, FITTINGS AND SIZES.
- 2. LAYOUT IS SHOWN CONCEPTUAL. CONTRACTOR TO SUBMIT SHOP DRAWING FOR APPROVAL, PRIOR TO FABRICATION.



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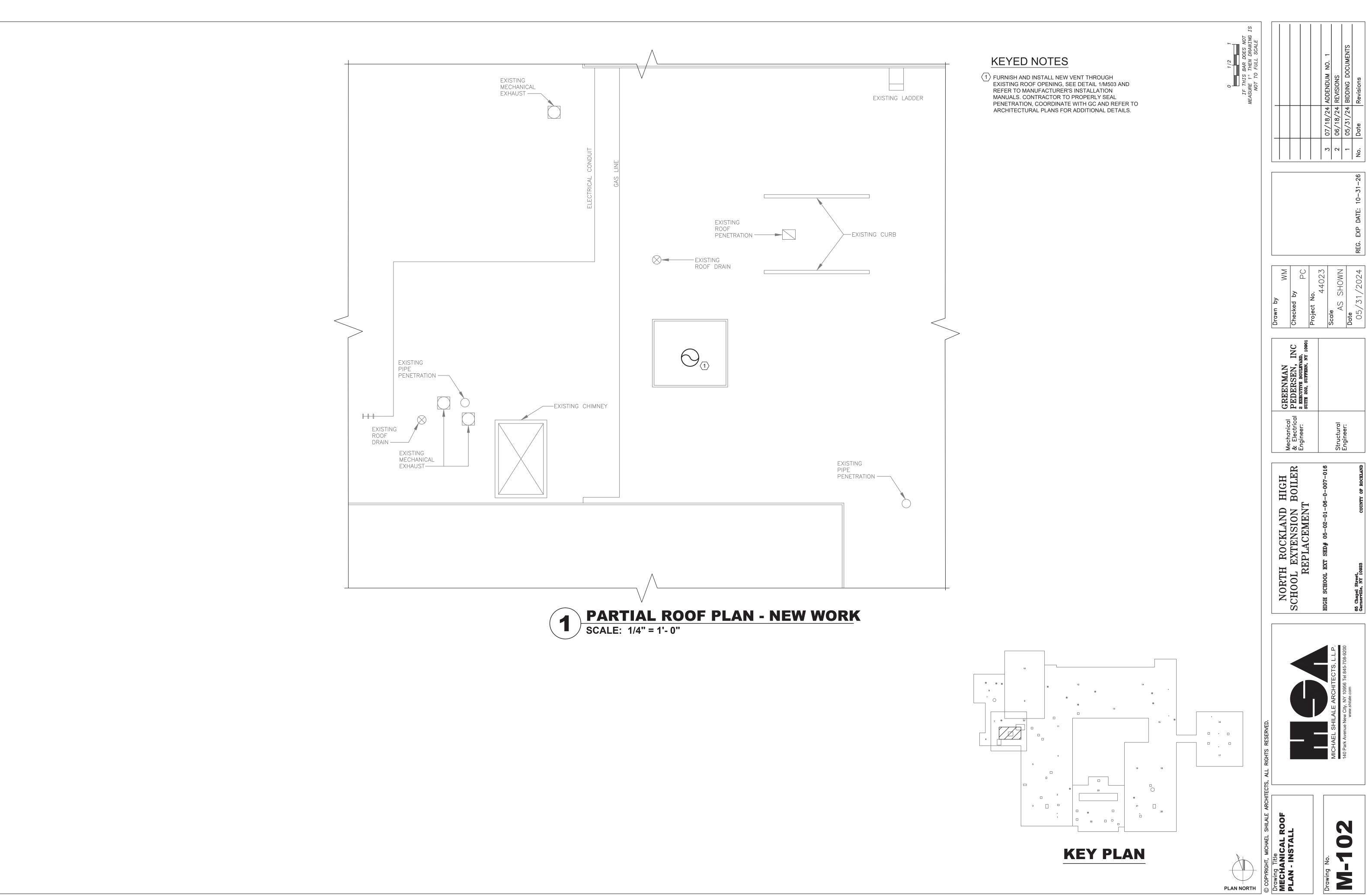
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Structural Engineer:	

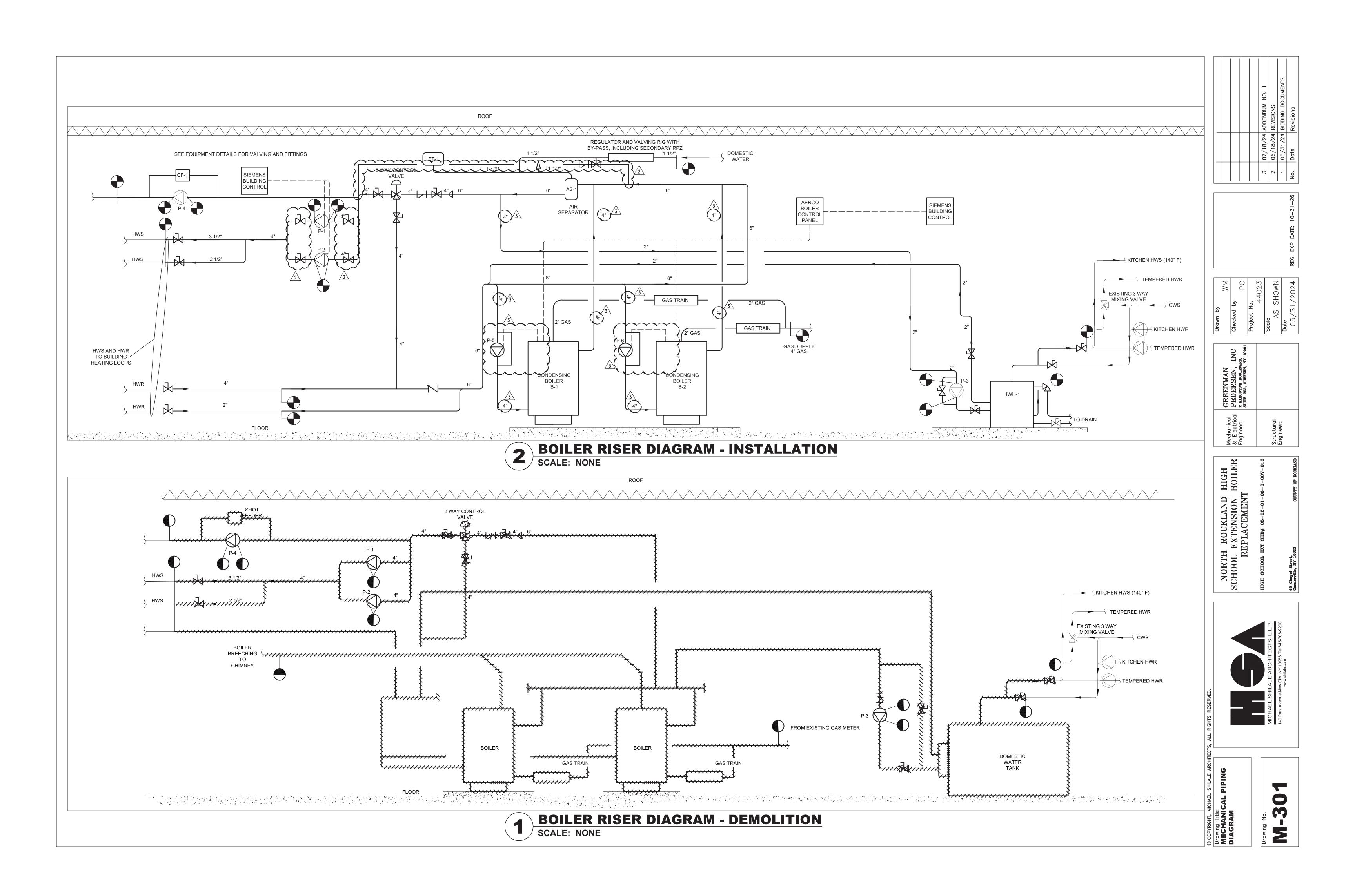
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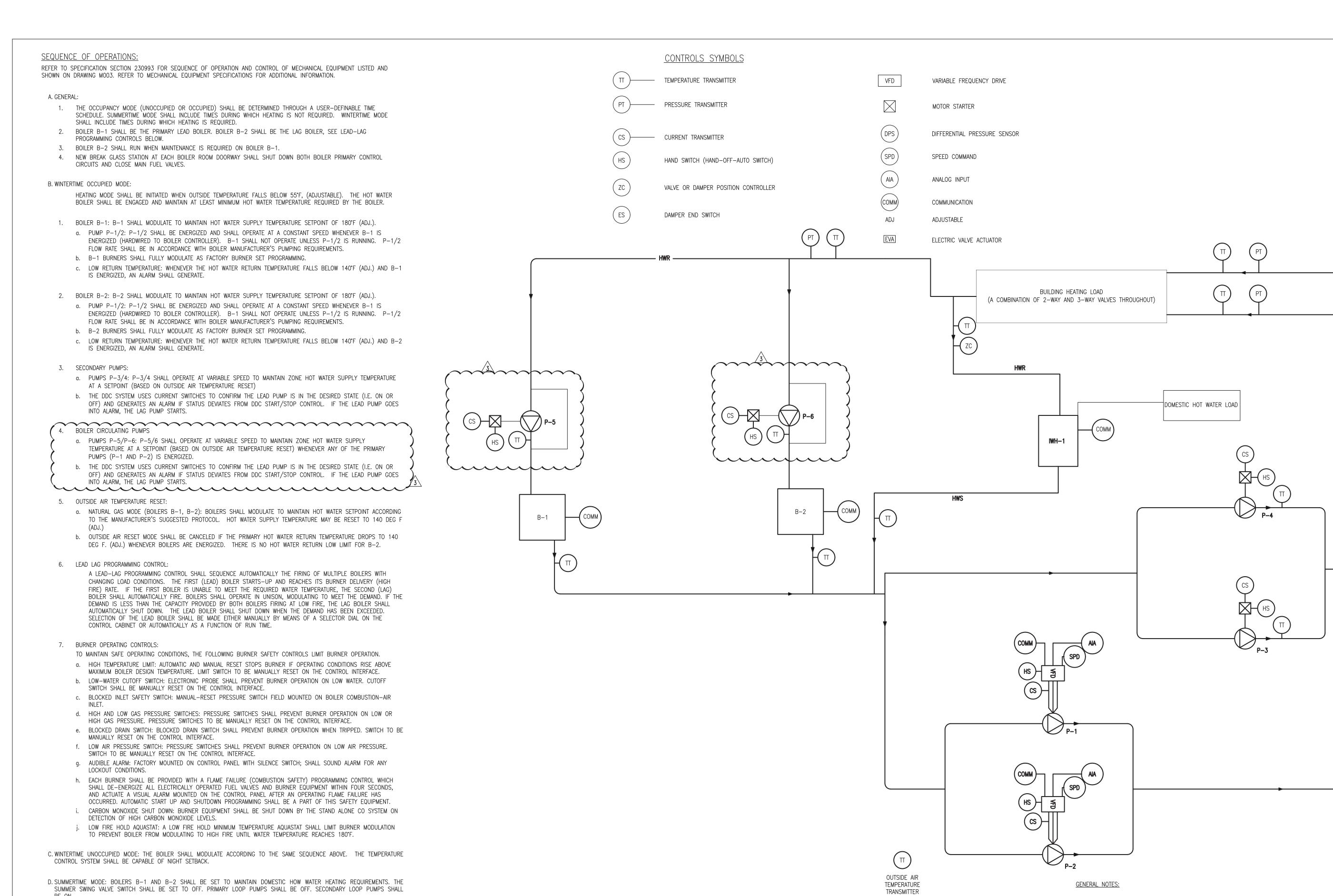


**KEY PLAN** 

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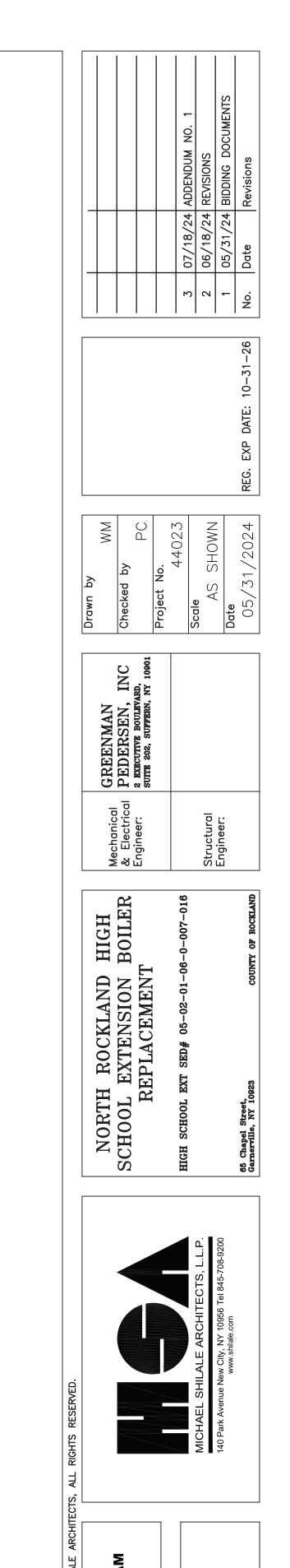


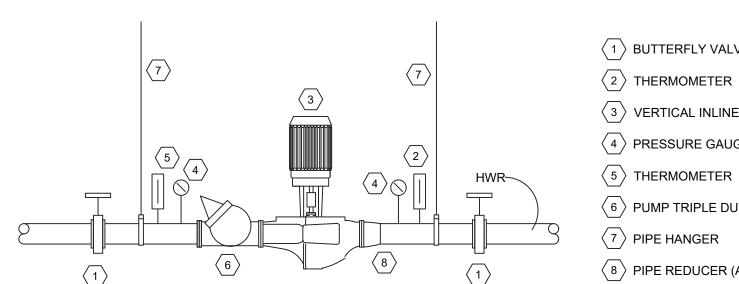




PROVIDE MATERIALS REQUIRED TO EXECUTE THE WORK SHOWN OF THIS CONTRACT AND TO SATISFY THE SEQUENCE OF OPERATIONS WHICH SHALL INCLUDE, BUT NOT BE LIMITED TO: LOW VOLTAGE WIRING, CONDUIT, MATERIALS, PROGRAMMING, SOFTWARE, HARDWARE, AND APPURTENANCES.

- 2. PROVIDE LOW VOLTAGE WIRING IN EMT CONDUIT THROUGHOUT. PAINT TO MATCH EXISTING FINISHES.
- 3. SCHEDULE THE WORK WITH THE OWNER AND NOTIFY THE OWNER AT LEAST 48 HOURS IN ADVANCE OF PERFORMING ANY SHUTDOWNS.
- 4. PERFORM CUTTING AND PATCHING AS REQUIRED TO ACCESS THE EXISTING VENT DAMPERS OR TO OTHERWISE EXECUTE THE WORK. RESTORE FINISHES TO MATCH EXISTING TO THE SATISFACTION OF THE OWNER.





- PIPE FROM SYSTEM SEE PLAN FOR CONTINUATION

- 2" DIAL COMPOUND GAGE 0-30" HG VACUUM 0-60 PSI PRESSURE

IN-THE-LINE CIRCULATING PUMP

UNION TYPE CONNECTION, PIPE SO PUMP CAN BE REMOVED FOR SERVICE.

- 1/4" SHUT-OFF COCK. GAGE TO BE LEFT SHUT-OFF EXCEPT WHEN ACTUALLY CHECKING SYSTEM PRESSURES.

– PIPE FROM SYSTEM SEE PLAN FOR CONTINUATION

- ¼" SHUT-OFF COCK

REDUCING TEE-

REDUCING TEE-

SIDE ELEVATION

- 1 BUTTERFLY VALVE
- 2 THERMOMETER
- (3) VERTICAL INLINE PUMP
- 4 PRESSURE GAUGE
- 6 PUMP TRIPLE DUTY VALVE
- $\langle 7 \rangle$  PIPE HANGER
- $\langle 8 \rangle$  PIPE REDUCER (AS NEEDED)
  - 4" CONCRETE PAD -

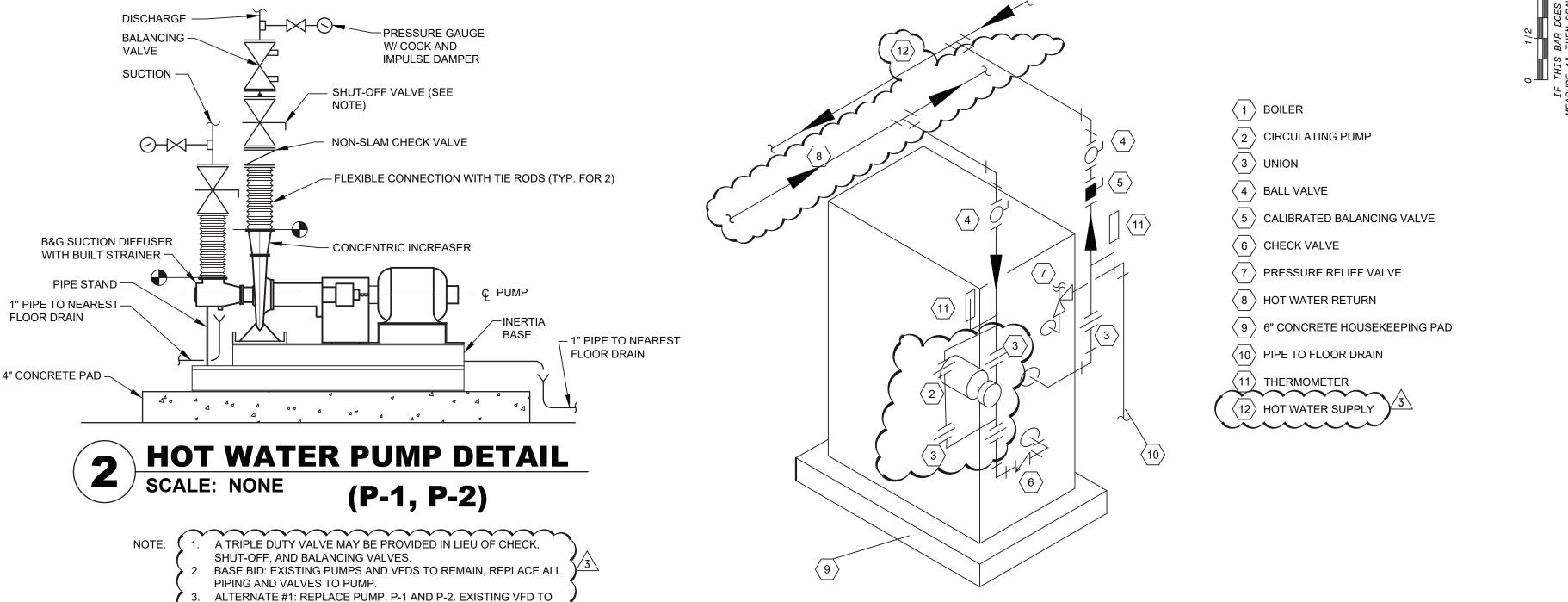
### **INSTALLATION NOTES**

- 1. THE PUMP SHALL BE INSTALLED DEAD LEVEL, AND SHALL NOT TOUCH OR REST ON ANY PART OF THE BUILDING STRUCTURE.
- 2. THE ELECTRICAL CONNECTION TO THE PUMP SHALL BE MADE THROUGH THE USE OF FLEXIBLE CONDUIT (GREENFIELD) AT LEAST 18"
- 3. THE PUMP SHALL BE INSTALLED SO THAT THE PUMP CAN BE COMPLETELY REMOVED WITHOUT THE DISMANTLING OR REMOVAL OF ANY PIPING OR VALVES.
- 4. THE MOTOR AND COUPLING SHALL BE CHECKED AND PROPERLY ALIGNED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S
- 5. THE ADJACENT PIPING SHALL BE CAREFULLY FITTED AND ERECTED SO THAT THE PUMP CAN BE INSTALLED OR REMOVED FROM THE PIPE WITHOUT FORCING OR SPRINGING.
- 6. AFTER THE SYSTEM HAS BEEN COMPLETED AND THE PUMP STARTED THE PUMP AND SYSTEM SHALL BE CHECKED FOR VIBRATION AND EXCESSIVE NOISE AND IMMEDIATELY CORRECTED.

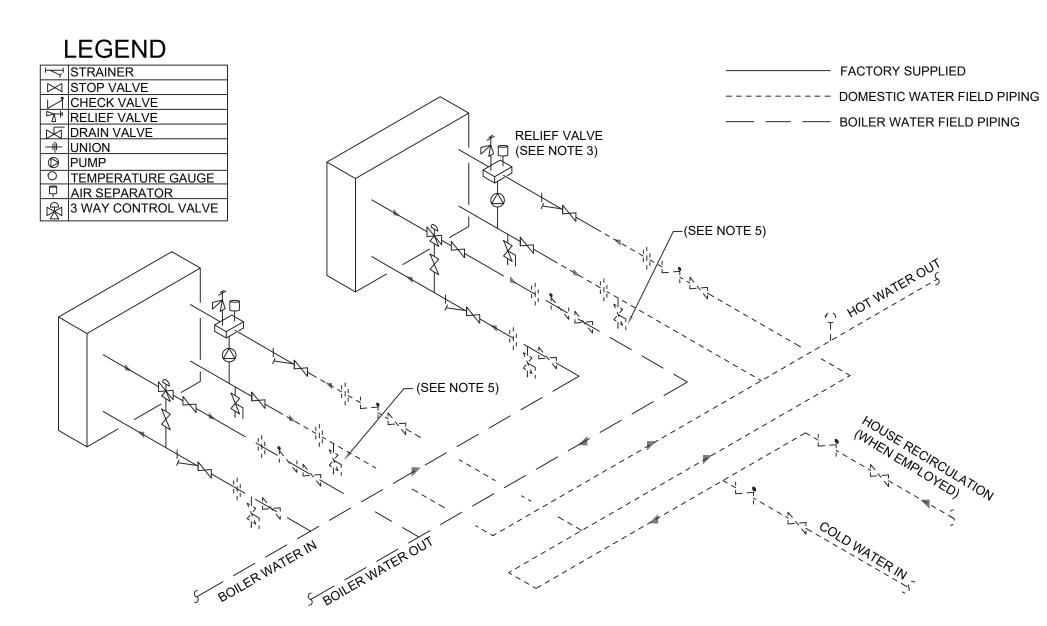
### **LUBRICATION NOTES**

- 1. AFTER COMPLETION OF THE SYSTEM AND BEFORE START-UP . THE PUMP SHALL BE LUBRICATED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- 2. A METAL INSTRUCTION PLATE SHALL BE ATTACHED TO THE PUMP IN A LOCATION WHERE IT IS CLEARLY VISIBLE. THESE INSTRUCTIONS SHALL INDICATE THE RECOMMENDED LUBRICANT, THE POINTS OF LUBRICATION, AND THE RECOMMENDED FREQUENCY OF LUBRICATION.

# INLINE CIRCULATION PUMP AT BOILER DETAIL

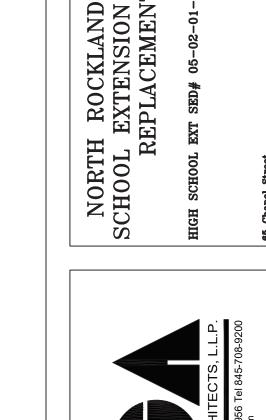




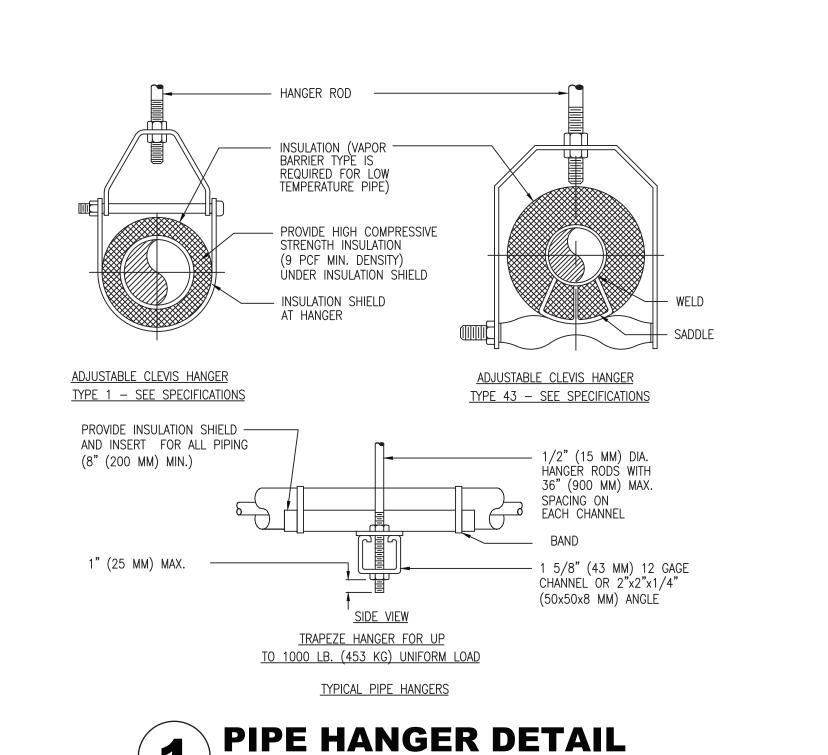


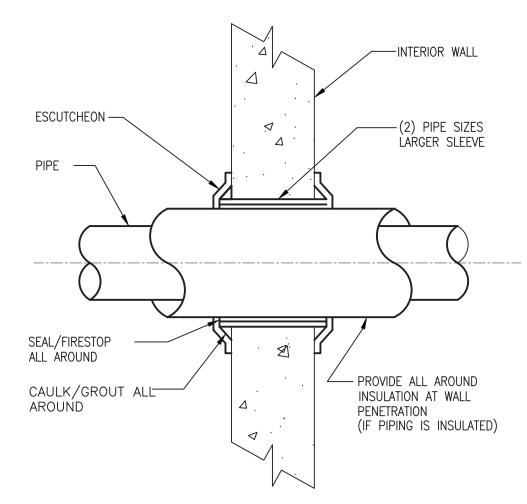
## DOMESTIC HW HEAT EXCHANGER PIPING DETAIL SCALE: NTS

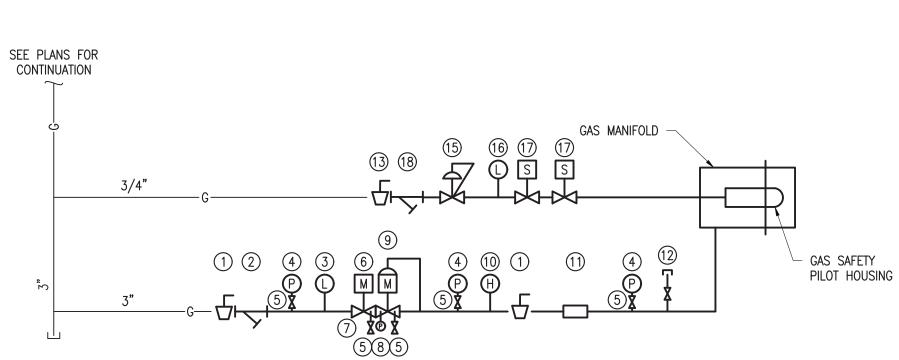
- 1. FOR ACTUAL SIZES AND LOCATIONS OF PIPING AND OTHER CONNECTIONS TO THE HEATER, SEE DIMENSIONAL
- REDUCERS, ON THE WATER INLET SIDE, SHOULD BE LOCATED ADJACENT TO THE HEATER. EXPANSION FITTINGS, ON THE WATER INLET SIDE, SHOULD BE LOCATED AS FAR AS POSSIBLE FROM THE HEATER.
- DRAIN VALVE SHOULD BE PIPED DIRECTLY TO A FLOOR DRAIN. RELIEF VALVE SHOULD BE PIPED VERTICALLY TO A HEIGHT 19" ABOVE THE FLOOR.
- 4. HEATERS SHOULD BE PIPED REVERSE RETURN OR BALANCING DEVICES ON THE OUTLETS SHOULD BE EMPLOYED. INSTALL A HOSE CONNECTION AT THE HOT WATER OUTLET.
- 6. CONTRACTOR RESPONSIBLE TO REVIEW MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ALL PIPING INSTALLATION GUIDELINES.



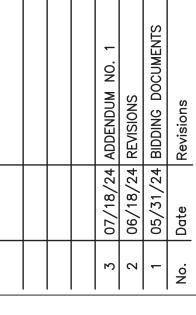
HIGE







KEYED NOTES: MANUAL BALL VALVE MAIN GAS STRAINER MAIN GAS LOW PRESSURE SWITCH GAS PRESSURE GAUGE MANUAL TEST VALVE MAIN MOTORIZED GAS VALVE WITH PROOF OF CLOSURE MAIN GAS VALVE BODY GAS LOW PRESSURE SWITCH (AUTO RESET) MAIN REGULATOR/MOTORIZED SHUTOFF GAS VALVE WITH PROOF OF 10 MAIN GAS HIGH PRESSURE SWITCH 11 FUEL FLOW CONTROL VALVE (BUTTERFLY VALVE) 12 TEST COCK WITH PLUG 13 PILOT MANUAL BALL VALVE 14 PILOT STRAINER 15 PILOT GAS PRESSURE REGULATOR 16 PILOT GAS LOW PRESSURE SWITCH (MANUAL RESET) 17 PILOT SOLENOID VALVE 18 PILOT STRAINER



HIGH BOIL NORTH ROCKLAND SCHOOL EXTENSION | REPLACEMENT

 $\geq$ 

INTERIOR WALL PENETRATION SCALE: NTS

**ELEVATION** 

THREADED PIPING

1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.

2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.

NOTES:

NOTES:

REDUCER -

TYPICAL WATER PIPING —

- REDUCER, IF REQUIRED

- 3/4" (20 MM) GATE VALVE —

ADAPTER TO 20 MM (3/4") HOSE THREAD. PROVIDE HOSE CAP NUT

**ELEVATION** 

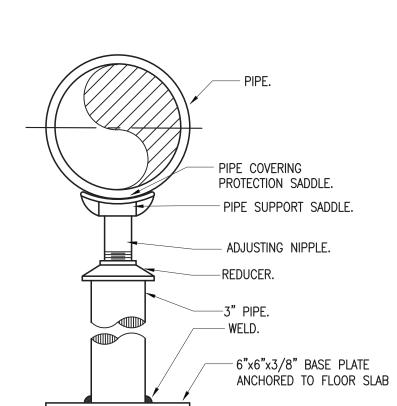
WELDED PIPING

— 1/4" (8 MM) COPPER TUBING









1. PROVIDE A LISTED, APPROVED, VENTLESS GAS TRAIN

2. SUBMIT BURNER GAS PIPING SHOP DRAWINGS FOR

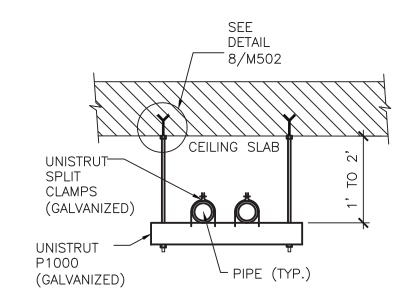
ASSEMBLY IN ACCORDANCE WITH THE

MANUFACTURER'S REQUIREMENTS AND

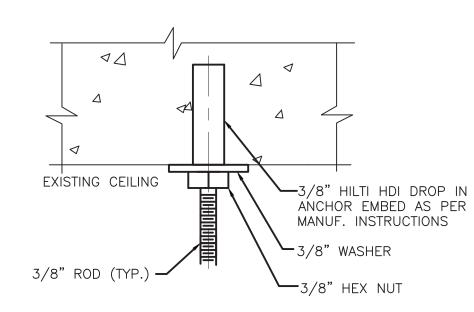
APPROVAL PRIOR TO FABRICATION.

SPECIFICATIONS.

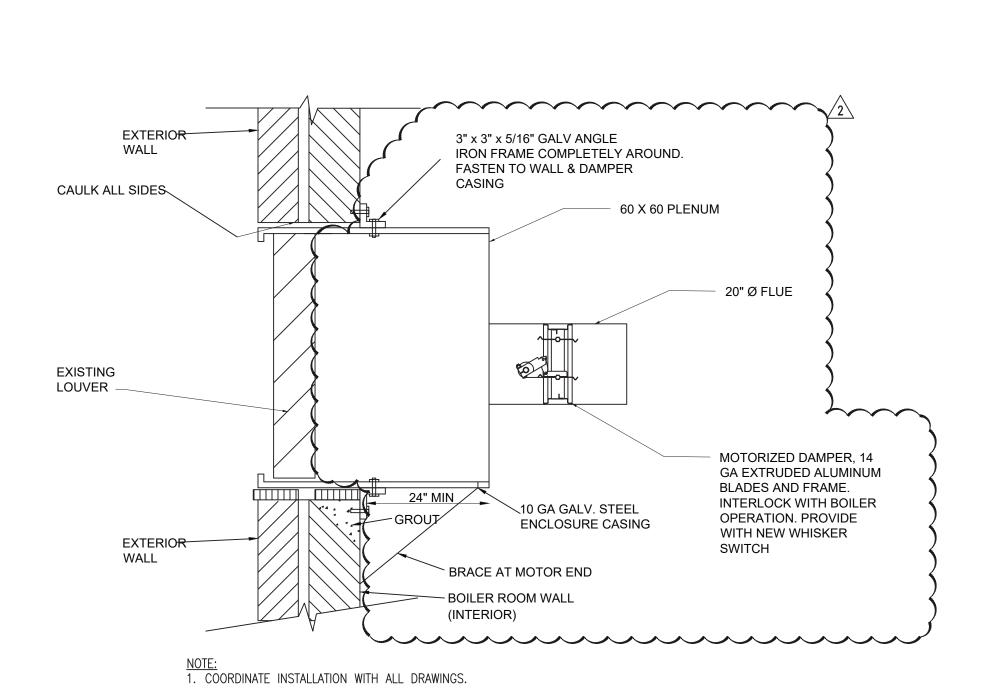
# ADJUSTABLE PIPE/EQUIPMENT SUPPORT SCALE: NTS









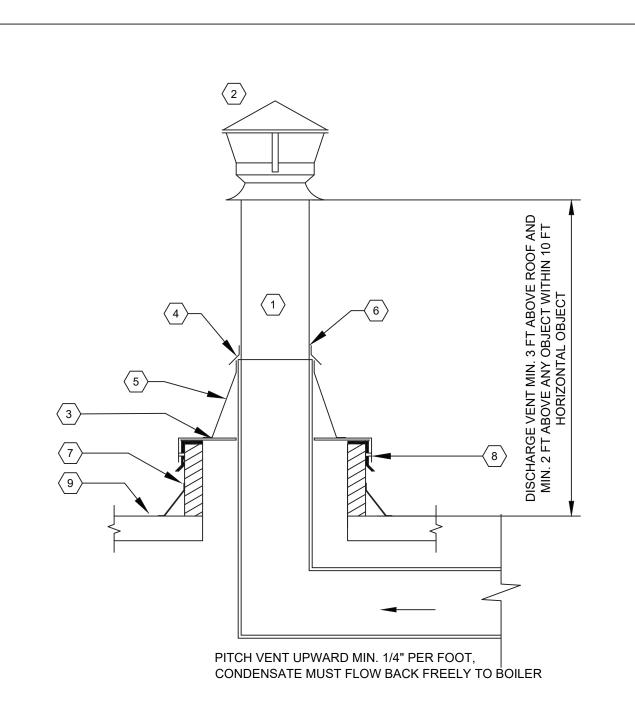


**MOTORIZED DAMPER DETAIL** SCALE: NTS

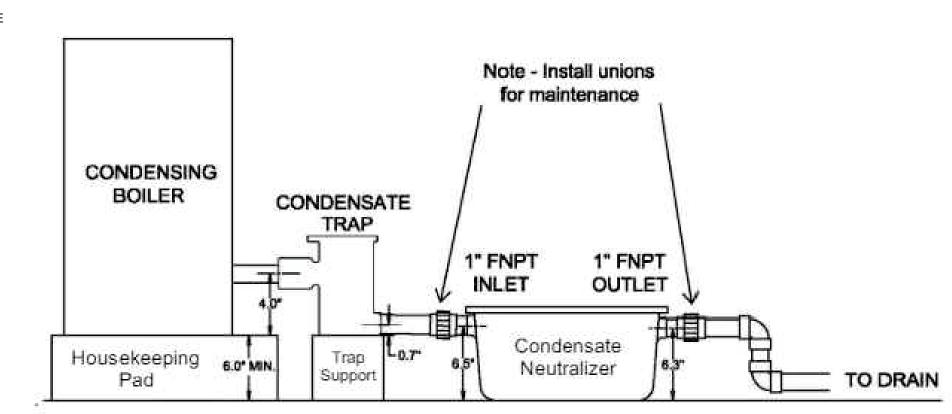
SCALE: NTS

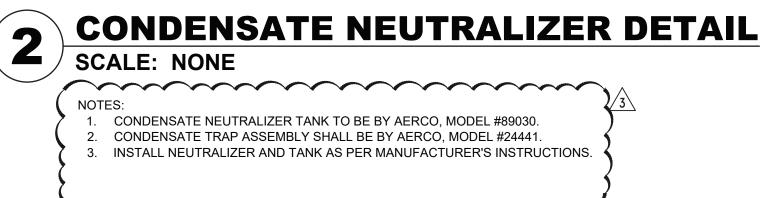
**AIR VENT AND DRAIN DETAIL** SCALE: NTS

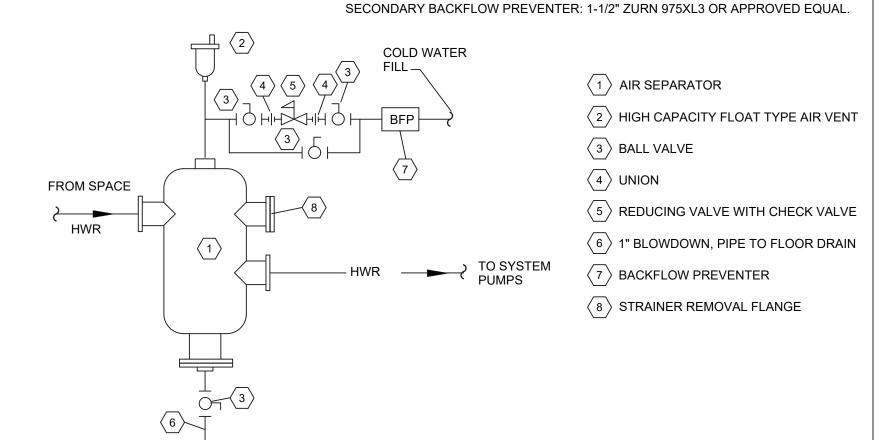
- 1/2" (15 MM) GATE VALVE - 1/2" (15 MM) x 4" (100 MM) NIPPLE CIRCULATING WATER PIPING -**ELEVATION** TYPICAL AIR VENT 1. VENT ALL HIGH POINTS INDICATED ABOVE. 2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN



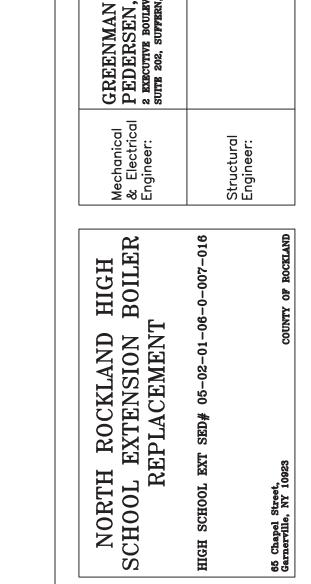
- 1 DOUBLE WALL FLUE PIPE
- 2 STACK CAP
- MODIFIED ENCLOSURE OVER ROOF OPENING, REFER TO ARCH PLANS FOR ADDITIONAL DETAILS
- 4 STORM COLLAR
- 5 TALL CONE FLASHING
- 6 SILICONE SEALANT, AS REQUIRED, COORDINATE SEALING DETAILS WITH ARCHITECT.
- (7) EXISTING ROOF CURB AND FLASHING, COORDINATE ROOFING DETAILS WITH ARCHITECT.
- 8 LAG TO CURB, COORDINATE CURB CONNECTION DETAILS WITH ARCHITECT.
- 9 EXISTING ROOF CONSTRUCTION.









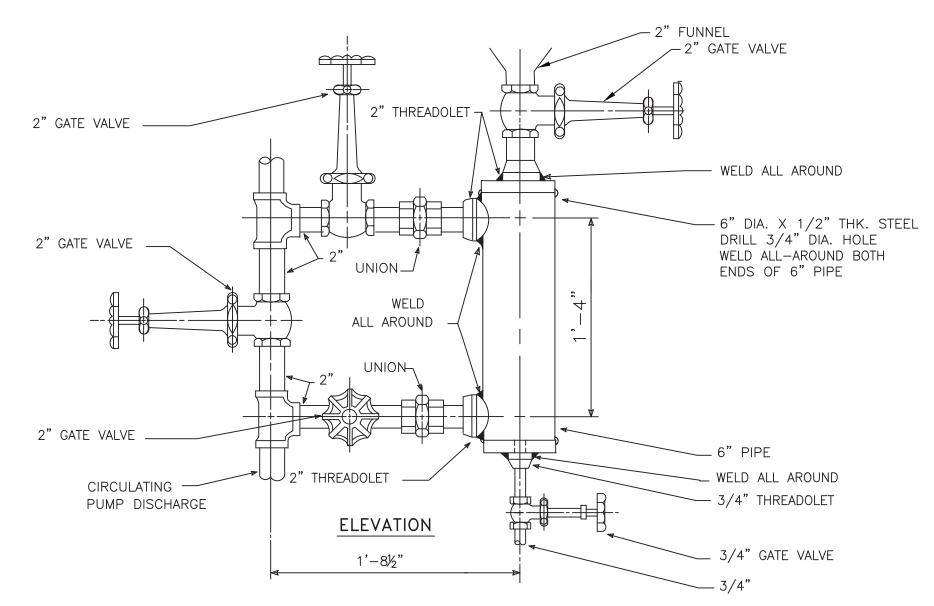




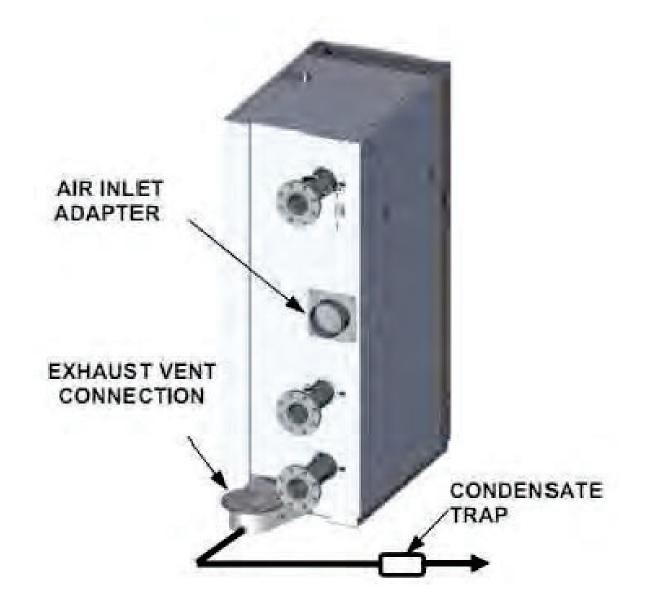












**BOILER INTAKE AND EXHAUST VENT CONNECTION** SCALE: NONE