

MAINE BUREAU OF REAL ESTATE MANAGEMENT (BREM)

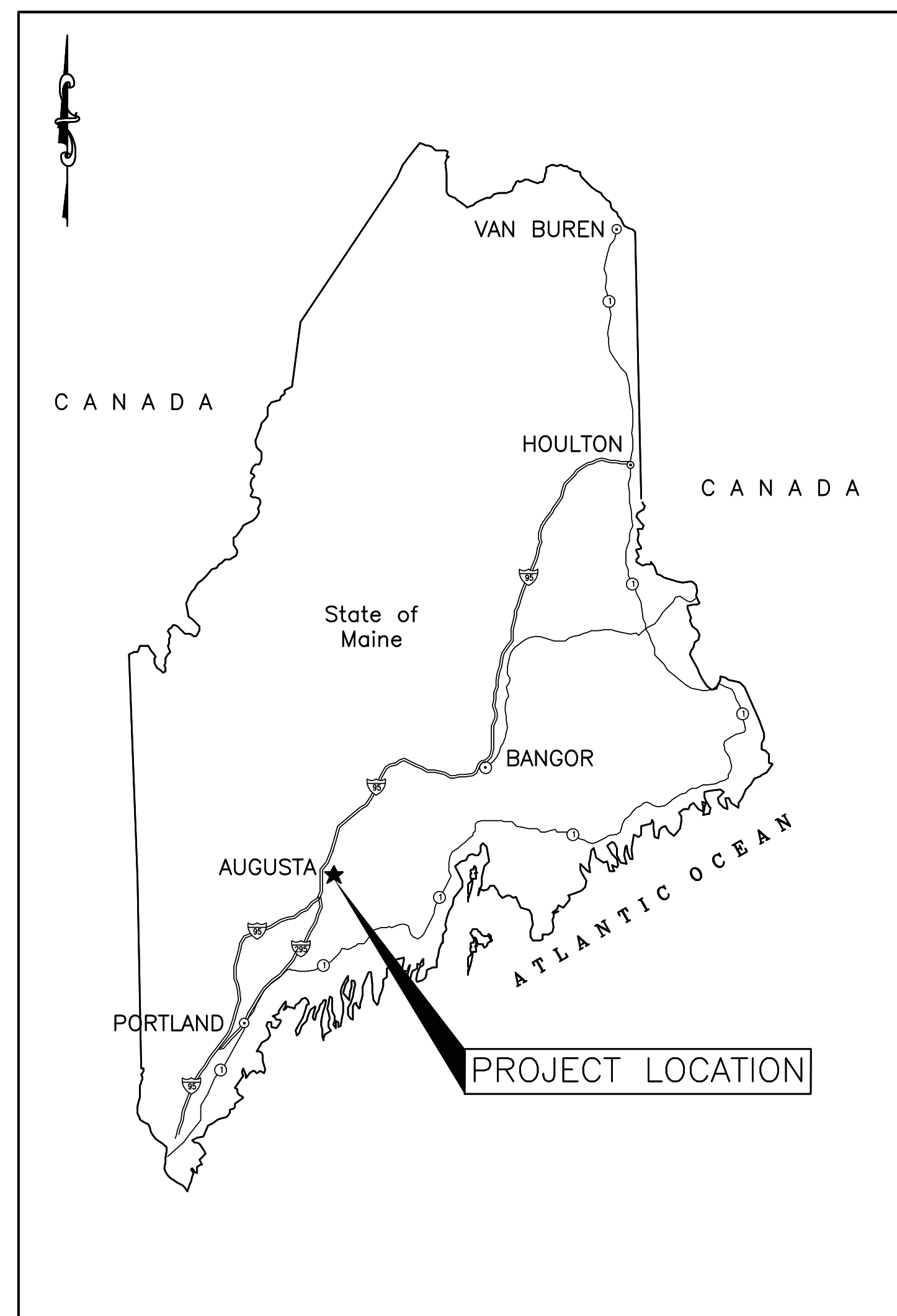
AUGUSTA, MAINE

EAST CAMPUS STEAM PLANT REPLACEMENT

AUGUSTA, MAINE

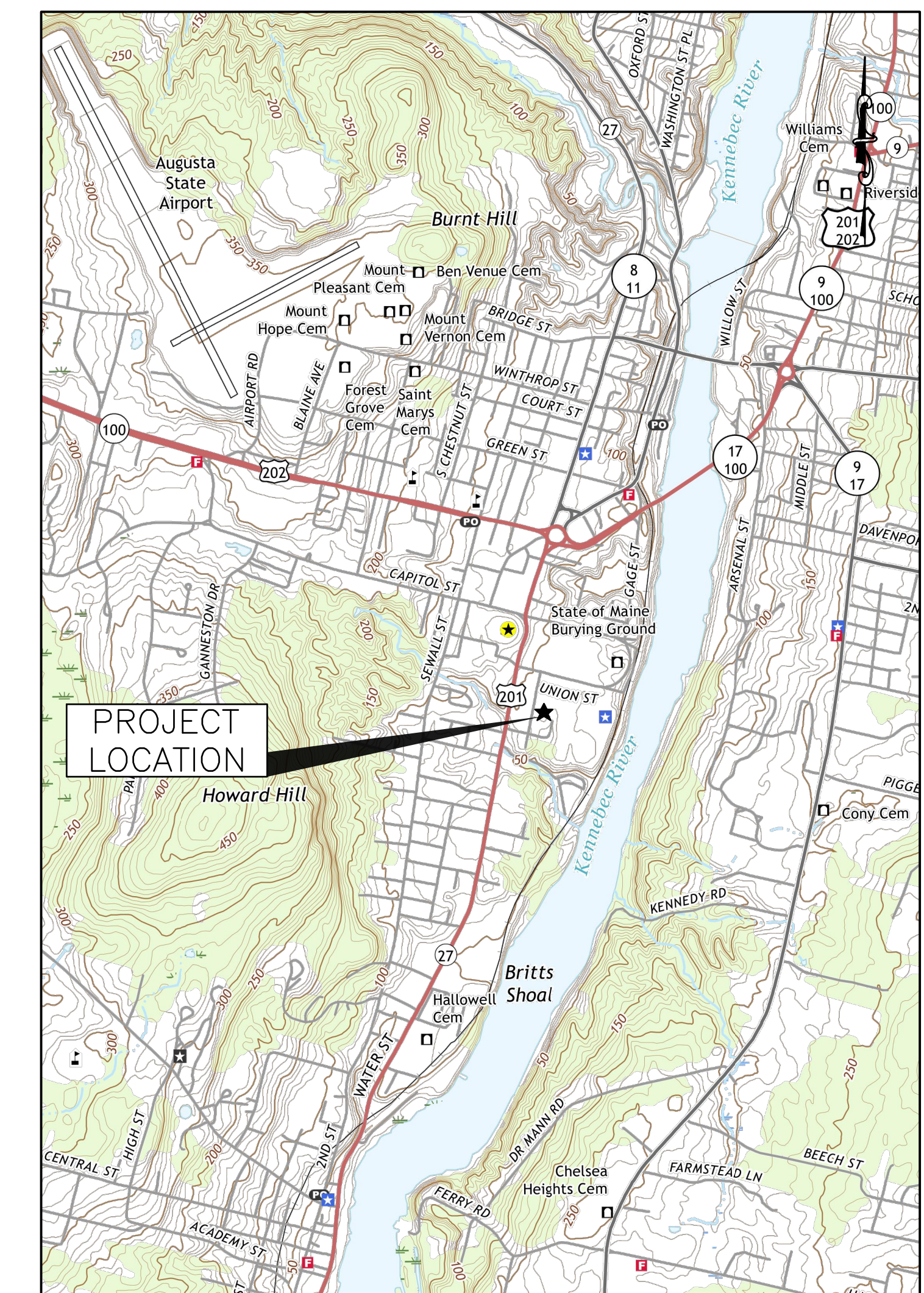
ISSUED FOR REVIEW

MAY 22, 2019




VICINITY MAP
SCALE: NTS

DRAWING INDEX		
SHEET NUMBER	TITLE	DRAWING
1	COVER SHEET	G-001
2	PHASING PLAN	PH-101
3	STRUCTURAL FRAMING PLAN	S-401
4	STRUCTURAL SECTIONS AND DETAILS	S-501
5	MECHANICAL NOTES ABBREVIATIONS, AND LEGEND	M-001
6	BOILER FUELS PIPING DEMOLITION PLAN	MD-101
7	BOILER STEAM AND FEED WATER PIPING DEMOLITION PLAN	MD-102
8	MECHANICAL PLAN	M-101
9	BOILER STEAM TIE-IN SECTION - SOUTH	M-201
10	BOILER BREECH SECTION - EAST	M-202
11	BOILER AND PUMP ROOMS PART PLAN	M-401
12	MECHANICAL DETAILS	M-501
13	MECHANICAL SCHEDULES	M-601
14	BOILER STEAM AND WATER PROCESS DIAGRAM	M-701
15	BOILER FUEL PIPING PROCESS DIAGRAM	M-702
16	PHOTO DEMOLITION	M-901
17	ELECTRICAL LEGEND, GENERAL NOTES AND ABBREVIATIONS	E-001
18	ELECTRICAL DEMOLITION FLOOR PLAN	ED-101
19	ELECTRICAL POWER PLAN	E-101
20	PANEL SCHEDULES	E-601



LOCUS MAP
SCALE: 1"=1,500'

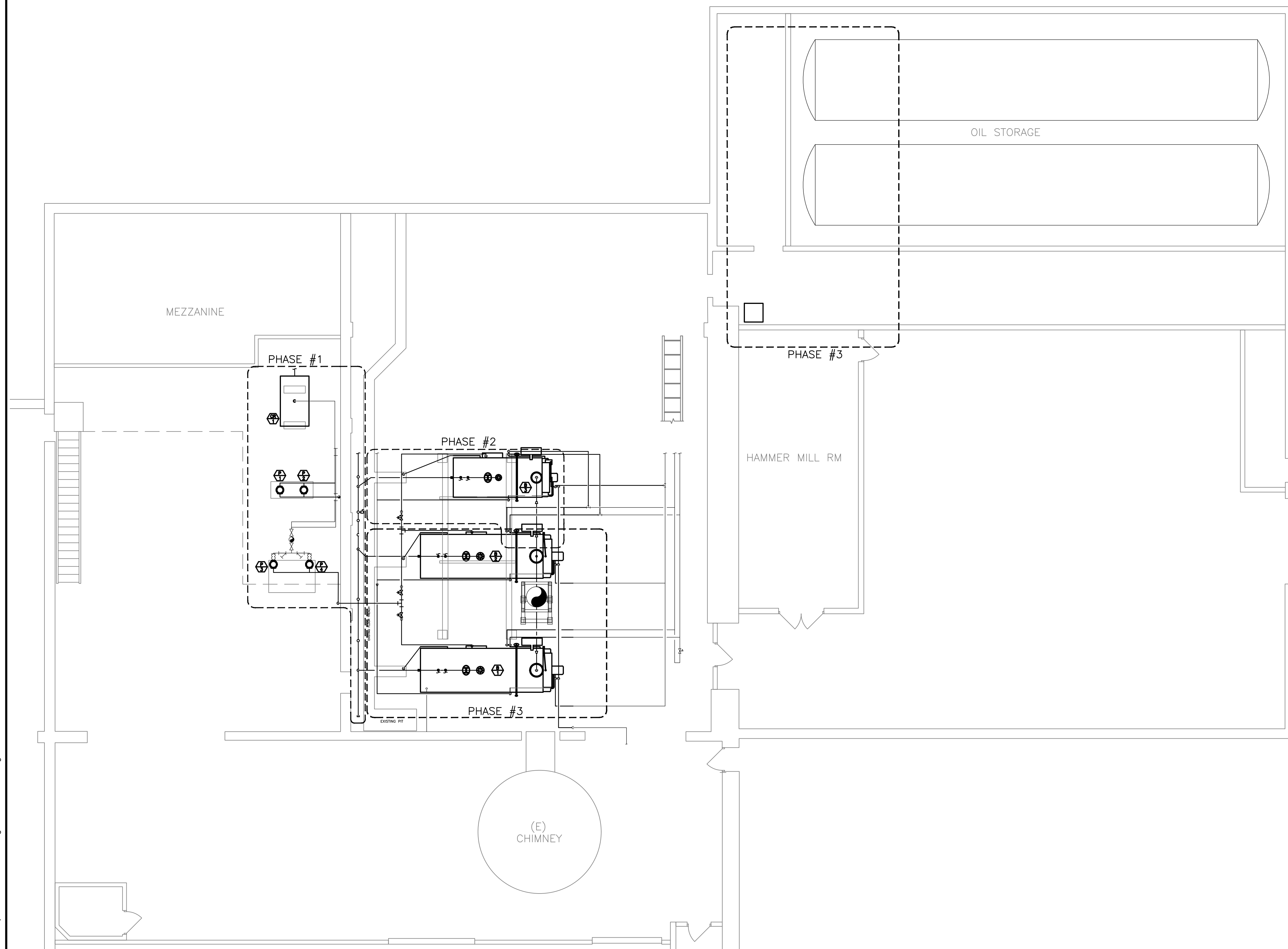
 47A York St Portland, ME 04101 207.553.7753	0 ISSUED FOR BID REV DESCRIPTION PML RLM 05/22/19 DWN APP DATE	BREM 77 STATE HOUSE STATION - AUGUSTA, MAINE EAST CAMPUS STEAM PLANT REPLACEMENT COVER SHEET
	SIZE: ANSI D DATE: 03/27/2019 DES BY: RLM DWN BY: PML CKD BY: EAF	PROJECT NO. 163.002.005 SHEET 1 OF 20

PHASING PLAN

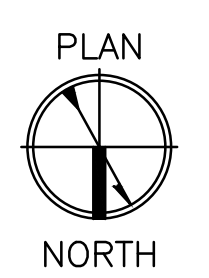
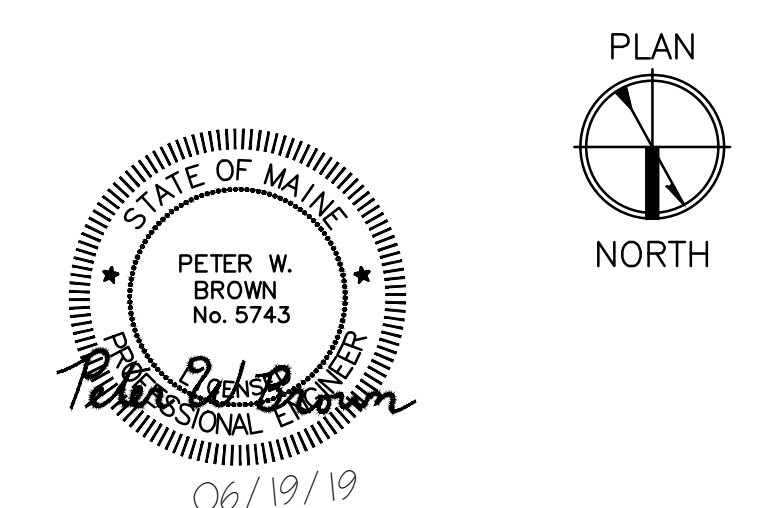
PHASE I: DEMO THE EXISTING CONDENSATE TANK, CONDENSATE PUMPS AND BOILER FEED PUMPS, SEE MD102. REMOVED PUMPS SHALL BE TAGGED AND RETURNED ON A PALLET TO BREM. INSTALL SCHEDULED CONDENSATE RECEIVER AND PUMPS, SEE M-601. INSTALL STEAM HEADER ISOLATION VALVES FOR B-1, B-2 AND B-3. REWORK BOILER BREECHING FOR ALL THREE BOILERS WITH B-1 EXISTING TO REMAIN CONNECTED TO NEW BREECHING HEADER AND STACK UNTIL PHASE II IS COMPLETE AND NEW BOILER B-2 AND B-3 ARE OPERATIONAL. ALL PHASE I WORK MUST BE COMPLETED BY 9/30/2019 FOR START OF THE HEATING SEASON.


PHASE II: INSTALL BOILERS B-2 AND B-3, COMMISSION NEW BOILERS AND PLACE IN SERVICE.

PHASE III: DEMO EXISTING BOILER B-1, INSTALL NEW BOILER B-1, COMPLETE REMAINING SCOPE DELINEATED IN THE DRAWINGS AND SPECIFICATIONS.

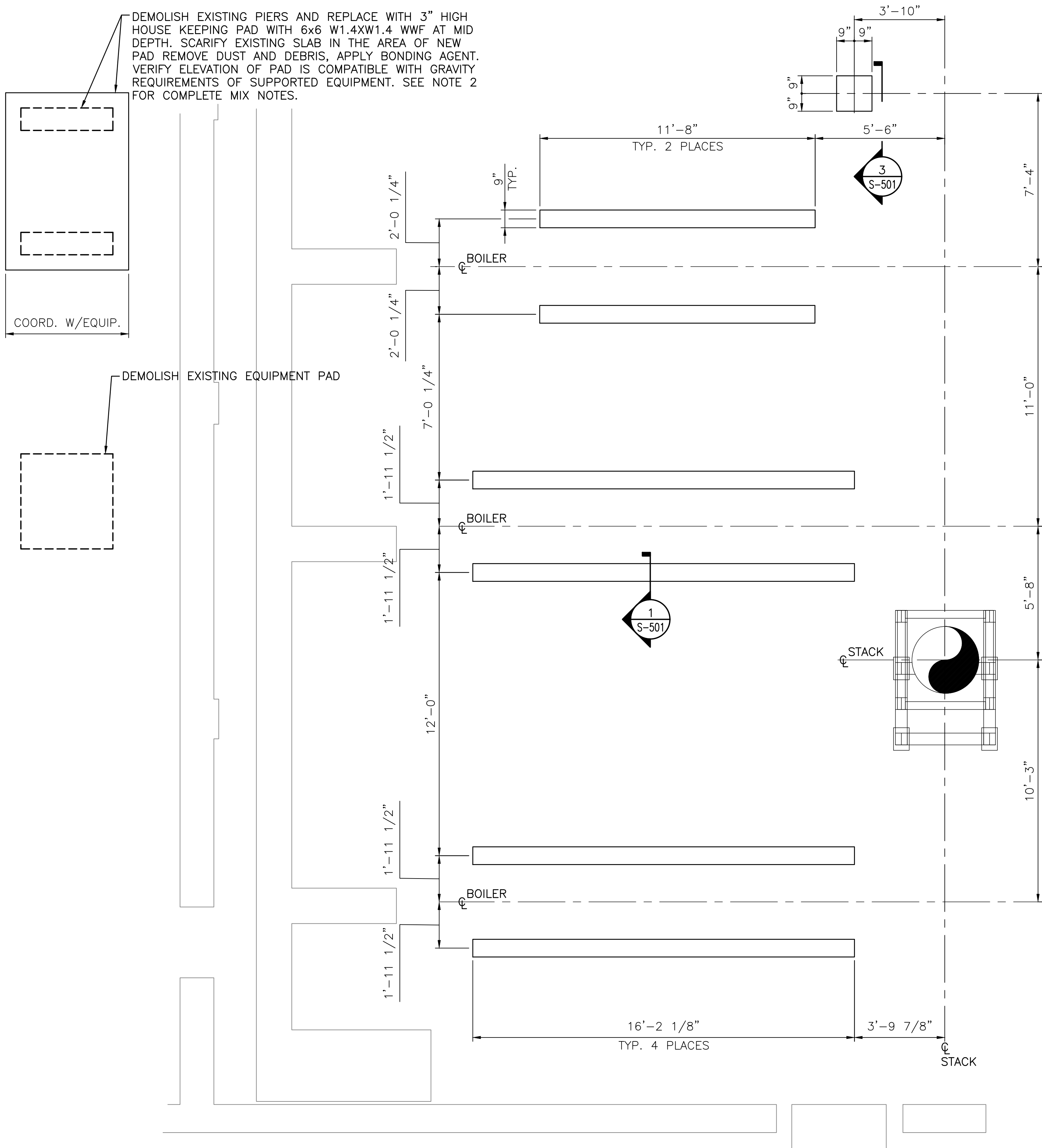


PHASING PLAN
SCALE: 1/8" = 1'-0"



 <p>47A York St Portland, ME 04101 207.553.7753</p>					<p>BREM 77 STATE HOUSE STATION - AUGUSTA, MAINE</p>	
					<p>EAST CAMPUS STEAM PLANT REPLACEMENT</p>	
					<p>PHASING PLAN</p>	
<p>1 ISSUED FOR BID GENERAL REVISION</p>	PML	PWB	6/19/19			
<p>0 ISSUED FOR BID</p>	PML	PWB	05/22/19			
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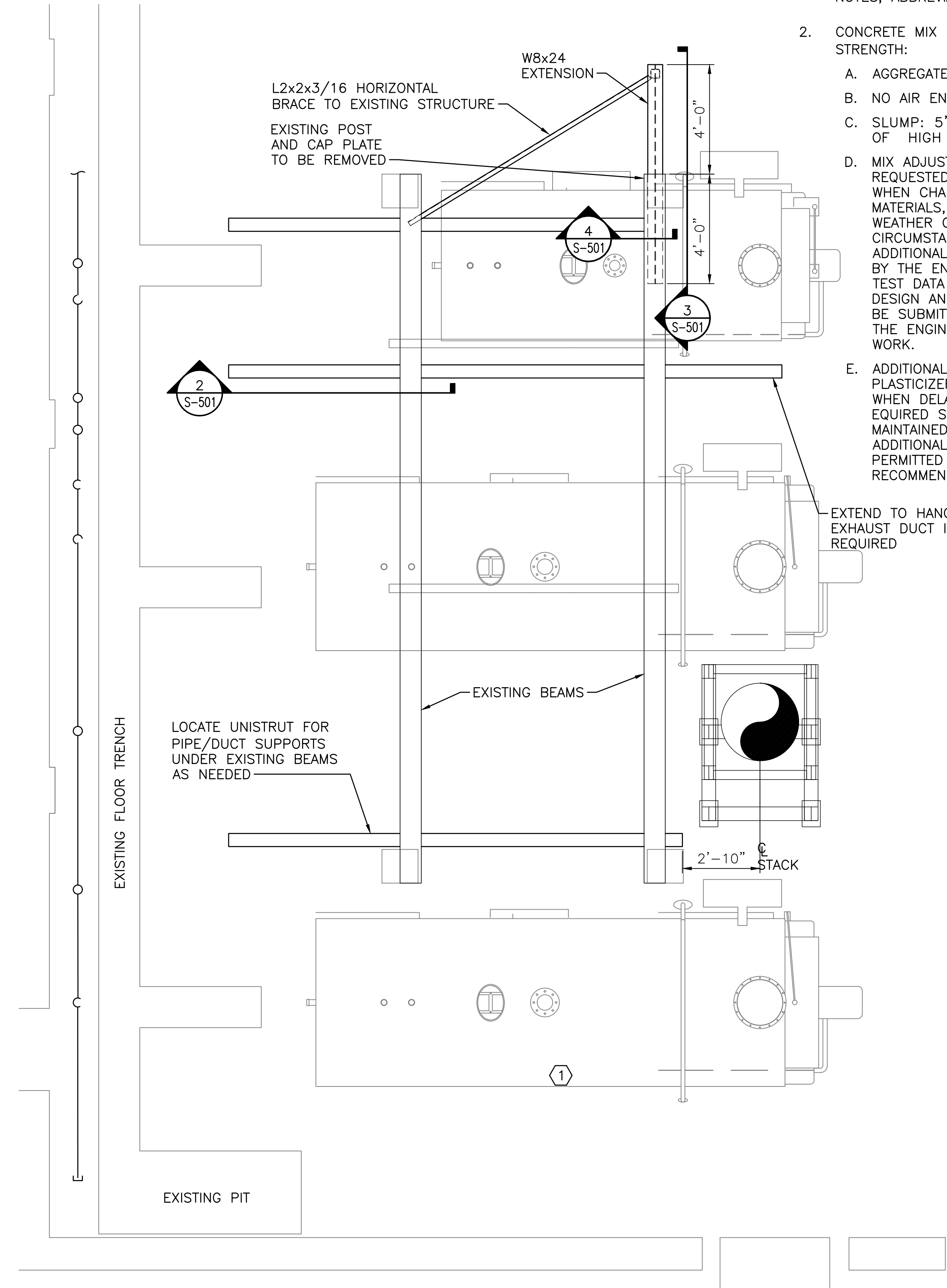
DEMOLISH EXISTING PIERS AND REPLACE WITH 3" HIGH HOUSE KEEPING PAD WITH 6x6 W1.4XW1.4 WWF AT MID DEPTH. SCARIFY EXISTING SLAB IN THE AREA OF NEW PAD REMOVE DUST AND DEBRIS, APPLY BONDING AGENT. VERIFY ELEVATION OF PAD IS COMPATIBLE WITH GRAVITY REQUIREMENTS OF SUPPORTED EQUIPMENT. SEE NOTE 2 FOR COMPLETE MIX NOTES.



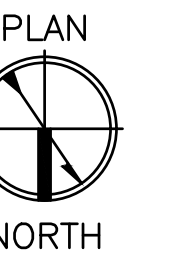
1 BOILER ROOM BASE PART PLAN
S-401 SCALE: 3/8" = 1'-0"

NOTES:

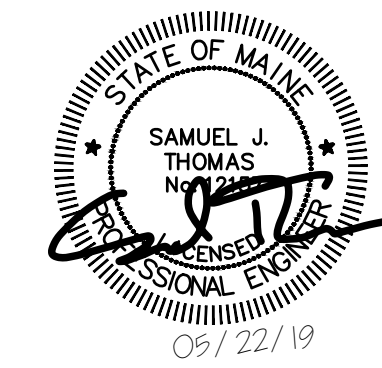
- SEE DRAWING S-001 FOR STRUCTURAL NOTES, ABBREVIATIONS.
- CONCRETE MIX DESIGN:
STRENGTH: $f'_c=4000$ PSI
 - AGGREGATE: 3/4" ϕ MIN.
 - NO AIR ENTRAINING ADMIX
 - SLUMP: 5" (± 1 ") BEFORE ADDITION OF HIGH RANGE WATER REDUCER
 - MIX ADJUSTMENTS MAY BE REQUESTED BY THE CONTRACTOR, WHEN CHARACTERISTICS OF THE MATERIALS, JOB CONDITIONS, WEATHER OR OTHER CIRCUMSTANCES WARRANT, AT NO ADDITIONAL COST AND AS ACCEPTED BY THE ENGINEER. LABORATORY TEST DATA FOR THE REVISED MIX DESIGN AND STRENGTH DATA MUST BE SUBMITTED AND ACCEPTED BY THE ENGINEER BEFORE USING IN WORK.
 - ADDITIONAL DOSES OF SUPER PLASTICIZER SHOULD BE USED WHEN DELAYS OCCUR AND REQUIRED SLUMP HAS NOT BEEN MAINTAINED. A MAXIMUM OF TWO ADDITIONAL DOSAGES ARE PERMITTED PER ACI 212.3R RECOMMENDATIONS.



1 BOILER ROOM FRAMING PART PLAN
S-401 SCALE: 3/8" = 1'-0"



X:\163 Maine Bureau of Real Estate Management\163.002.005 - East Campus Steam Boilers\Drawings\Sheets\S-401.dwg - 5/23/2019 1:02 PM - PETER LINDSEY



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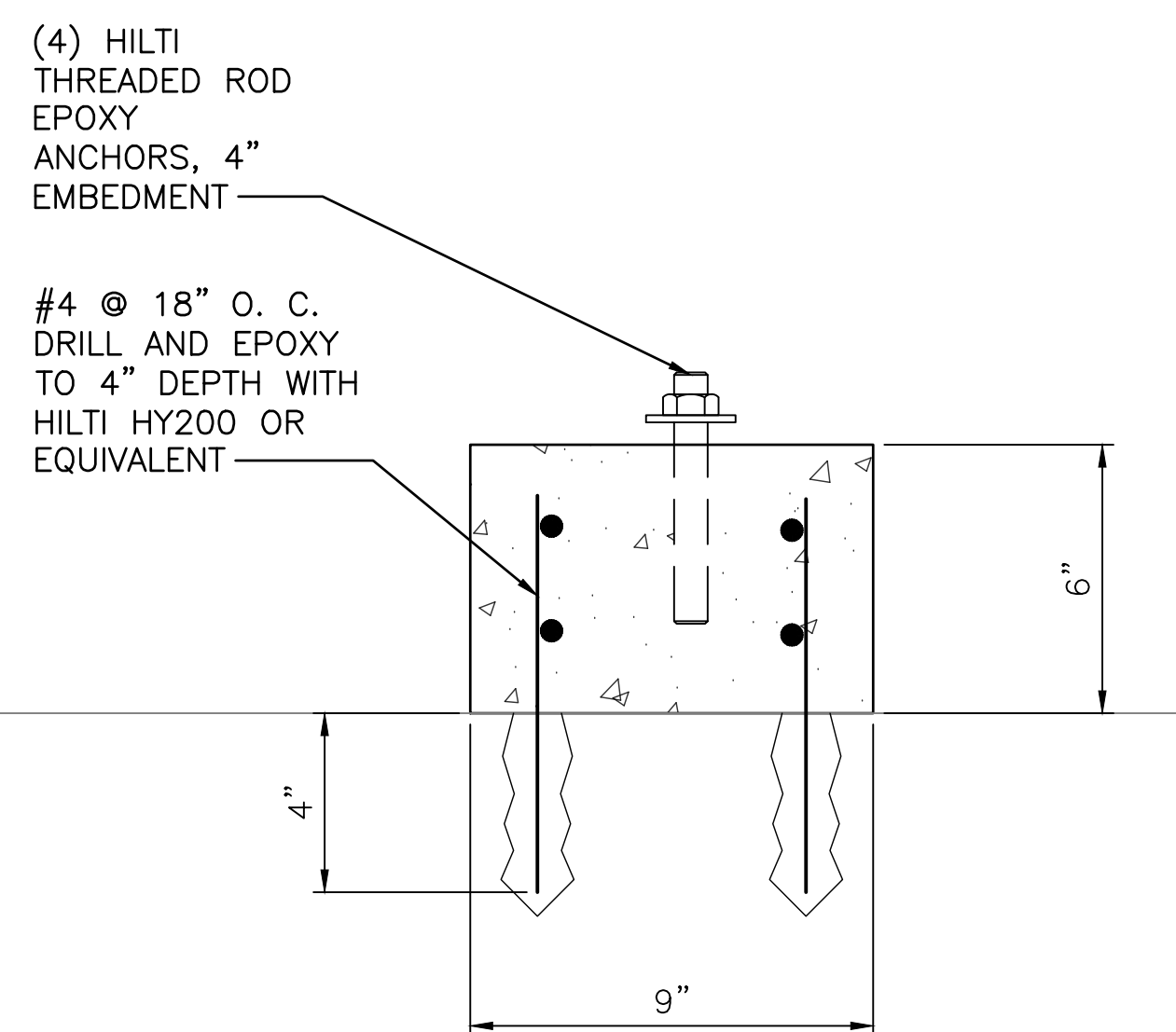
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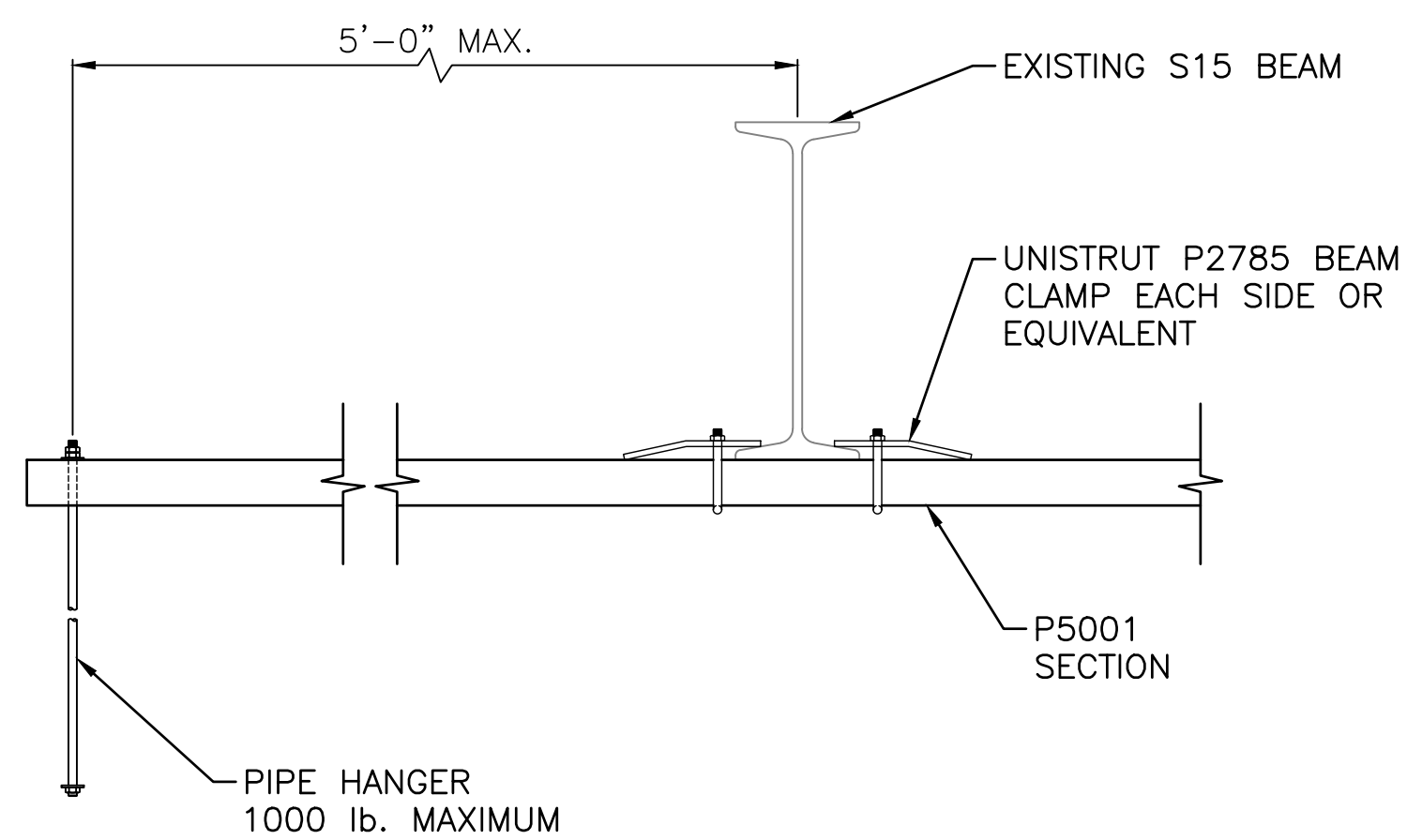
BREM 77 STATE HOUSE STATION - AUGUSTA, MAINE	
EAST CAMPUS STEAM PLANT REPLACEMENT	
STRUCTURAL FRAMING PLAN	
PROJECT NO. 163.002.005	DRAWING NO. S-401
SHEET 3 OF 20	

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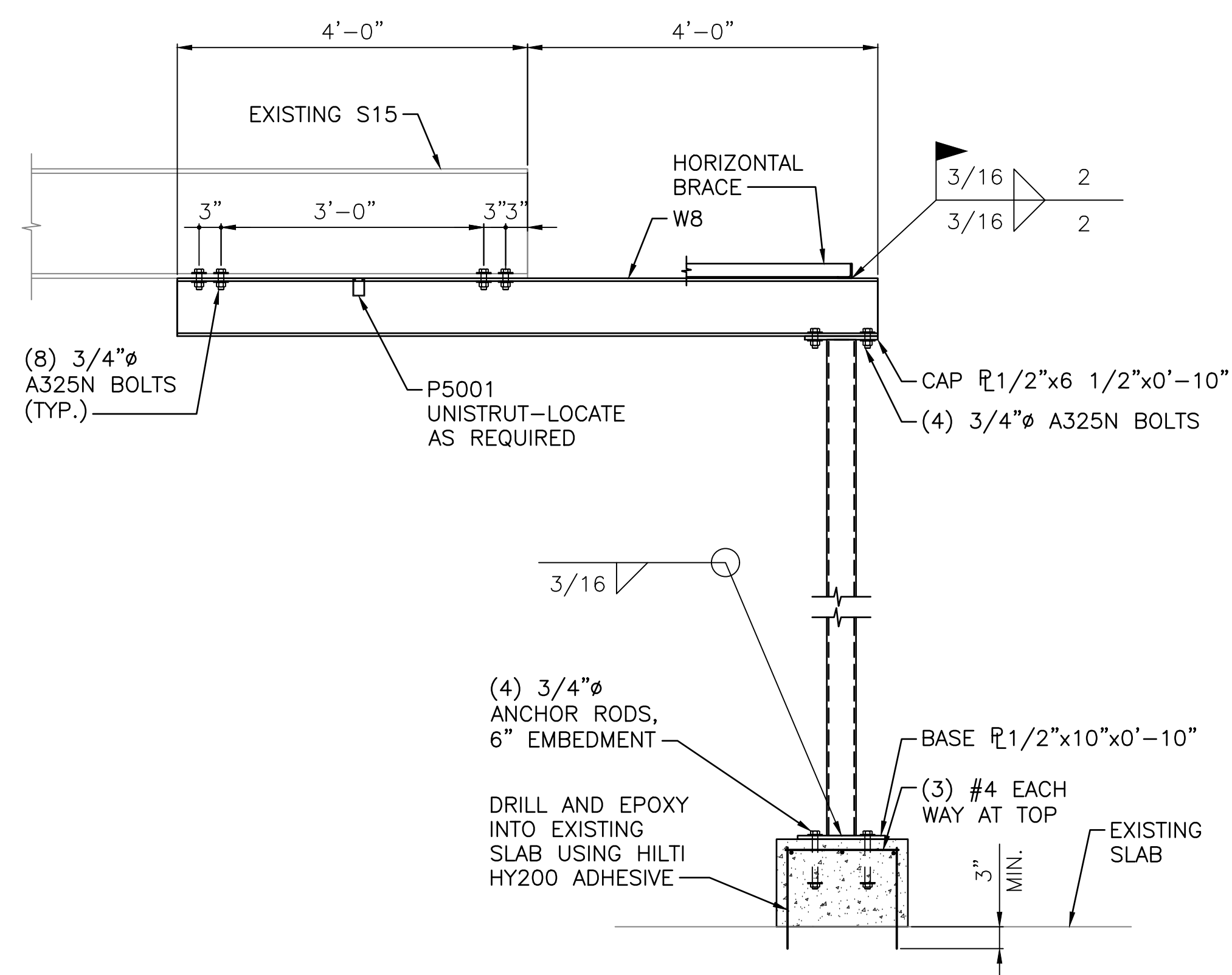
- SEE DRAWING S-001 FOR STRUCTURAL NOTES, ABBREVIATIONS.



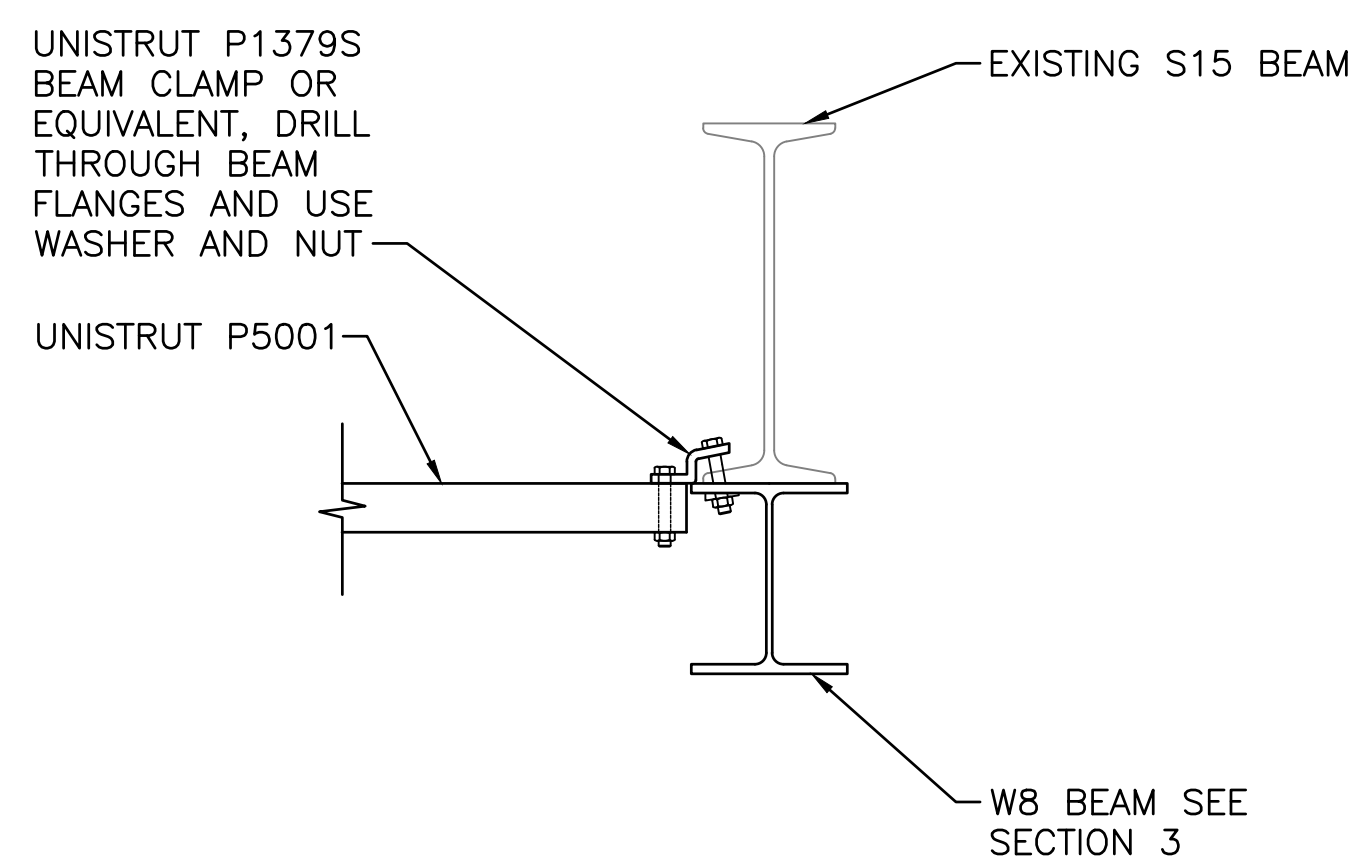
1 SECTION
S-501 SCALE: 3" = 1'-0" S-401



2 SECTION
S-501 SCALE: 1 1/2" = 1'-0" S-401



3 SECTION
S-501 SCALE: 3/4" = 1'-0" S-401

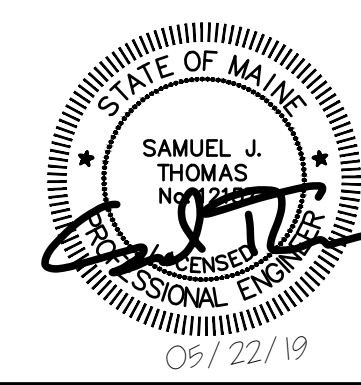


4 SECTION
S-501 SCALE: 1 1/2" = 1'-0" S-401

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				77 STATE HOUSE STATION - AUGUSTA, MAINE			
				EAST CAMPUS STEAM PLANT REPLACEMENT			
				STRUCTURAL SECTIONS AND DETAILS			
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				DATE: 03/27/2019	SHEET 4 OF 20		
				DES BY: SJT			
				DWN BY: BCH			
				CKD BY: SJT			

ABBREVIATIONS

A	AMP
ACS	ACCESS
AFF	ABOVE FINISHED FLOOR
APD	AIR PRESSURE DROP
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BCL	BOILER CODE LIMIT
BHP	BRAKE HORSEPOWER
CA	COMPRESSED AIR
CFM	CUBIC FEET PER MINUTE
CLG	COOLING
COND	CONDENSATE
CP	CONDENSATE PUMP
CTU	CONDENSATE TRANSFER UNIT
DB	DRY BULB
DBA	DECIBELS
DEG.	DEGREE
DIA, Ø	DIAMETER
DN	DOWN
DP,DPS	DIFFERENTIAL-PRESSURE SENSOR
(E)	EXISTING
EA	EACH, EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EWT	ENTERING WATER TEMPERATURE
F	FAN, FAHRENHEIT
FA	FREE AREA
FLA	FULL LOAD AMPS
FT	FEET
GA	GAUGE
GPM	GALLONS PER MINUTE
HLA	HIGH LEVEL ALARM
HP	HEAT PUMP, HORSEPOWER
HPS	HIGH PRESSURE STEAM
HR	HOUR
HX	HEAT EXCHANGER
HZ	HERTZ
IN	INCHES
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LCP	LOCAL CONTROL PANEL
LD	LEAK DETECTION
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM - (150 PSI)
LT	LEVEL TRANSMITTER
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	1000 BTU PER HOUR
MCP	MAIN CONTROL PANEL
MEZZ	MEZZANINE
MIN	MINIMUM
NC	NORMALLY CLOSED
NO	NUMBER
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
PC	PUMPED CONDENSATE
PD	PRESSURE DROP
PDS	PRESSURE DIFFERENTIAL SWITCH
PH	PHASE
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PT	PRESSURE TRANSMITTER
QTY	QUANTITY
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SP	STATIC PRESSURE
SS	STAINLESS STEEL
T	TEMPERATURE SENSOR, THERMOSTAT
THK	THICK
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
VFD	VARIABLE FREQUENCY DRIVE
W/	WITH
WC	WATER COLUMN
WG	WATER GAUGE
WPD	WATER PRESSURE DROP

MECHANICAL SYMBOLS

	SECTION NUMBER
	DRAWING WHERE SECTION IS DRAWN
	SYMBOL PER ABBREVIATION LIST
	EQUIPMENT SEQUENCE NUMBER
	DIFFUSER, REGISTER OR GRILLE
	SEQUENCE NUMBER
	CFM
	UNIT HEATER
	DIRECTION OF AIR FLOW
	VOLUME DAMPER
	MOTORIZED DAMPER
	OPPOSED BLADE
	MOTORIZED DAMPER
	HAND DAMPER ACTUATOR
	FIRE DAMPER
	DIFFERENTIAL PRESSURE SENSOR
	LEVEL TRANSMITTER
	TEMPERATURE SENSOR
	CONNECT TO EXISTING
	FAN
	MANUAL DAMPER, HAND WHEEL
	THERMOSTAT
	VARIABLE-AREA FLOW METER
	SMACNA DUCT PRESSURE CLASS DESIGNATION MARKER
	WALL SWITCH
	DUCT SMOKE DETECTOR
	IMAGE NUMBER
	DRAWING WHERE IMAGE IS PLACED

PIPING SYMBOLS

	BALANCING VALVE
	COMBINATION FLOW MEASURING/BALANCING VALVE (CIRCUIT SETTER)
	BUTTERFLY VALVE
	GATE VALVE
	GATE VALVE NORMALLY CLOSED
	BALL VALVE
	BALL VALVE NORMALLY CLOSED
	GLOBE VALVE
	TWO-WAY AUTOMATIC CONTROL VALVE
	PRESSURE REDUCTION VALVE
	SAFETY RELIEF VALVE
	THREE-WAY AUTOMATIC CONTROL VALVE
	CHECK VALVE
	STRAINER W/BALL DRAIN VALVE, HOSE BIB AND CAP
	UNION OR FLANGE AS DICTATED BY PIPE SIZE
	PIPE TEE FROM TOP
	PIPE TEE FROM BOTTOM
	PIPE RISE
	PIPE DROP
	END CAP
	THERMOMETER
	TEMPERATURE/PRESSURE WELL
	METERING VALVE
	P/T PORT (PRESSURE/TEMPERATURE)
	MANUAL AIR VENT
	REDUCER (ECCENTRIC-FOB OR FOT)
	REDUCER (CONCENTRIC)
	DIRECTION OF FLOW OF PIPE
	PUMP
	BUCKET TRAP
	PRESSURE GAUGE
	BACK FLOW PREVENTER
	FLANGE CONNECTION
	FLEXIBLE CONNECTION
	VENT TO ATMOSPHERE
	VIBRATION ISOLATOR
	DUPLEX STRAINER
	DRAIN
	AUTOMATIC AIR VENT
	VACUUM BREAKER
	RECIRCULATING ORIFICE

MECHANICAL LINE TYPE LEGEND

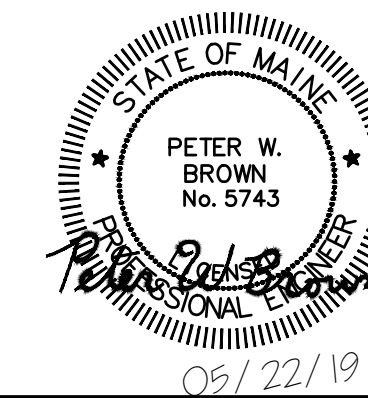
	EXISTING ITEMS TO REMAIN
	ITEMS TO BE REMOVED
	ITEMS TO BE PROVIDED
	HIDDEN ITEMS
	CONTROL WIRING

APPLICABLE CODES AND STANDARDS

- ASME BOILER AND PRESSURE VESSEL CODE.
- ASME B31.9 BUILDING SERVICES PIPING.
- NFPA 54 NATIONAL FUEL GAS CODE.
- NFPA 58 LIQUEFIED PETROLEUM GAS CODE.
- NFPA 211 STANDARD FOR CHIMNEYS, FIRE PLACES, VENTS, AND SOLID FUEL BURNING APPLIANCES.
- ASHRAE 90.1 ENERGY STANDARD.
- SMACNA RECTANGULAR INDUSTRIAL DUCT CONSTRUCTION STANDARDS.
- SMACNA ROUND INDUSTRIAL DUCT CONSTRUCTION STANDARDS.

GENERAL NOTES

1. GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO DRAWINGS MARKED M-#.
2. DRAWINGS ARE DIAGRAMMATIC; DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
3. WORK SHALL BE COORDINATED WITH TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
4. VERIFY EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
5. INSTALL EQUIPMENT, PIPING AND DUCTWORK AS REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION AND TO FACILITATE EQUIPMENT ACCESS AS REQUIRED BY EQUIPMENT MANUFACTURER.
6. INTERNAL AIR FLOW DIMENSIONS ARE SHOWN FOR DUCTS.
7. PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.
8. PROVIDE VENTS AT HIGH POINTS IN PIPING SYSTEMS AND DRAIN VALVES AT LOW POINTS. THIS INCLUDES LOW POINTS IN COMPRESSED AIR SYSTEM PIPING TO ACCOMMODATE DRAINING MOISTURE IN LINES.
9. PROVIDE AT LEAST THREE-ELBOW SWINGS FOR PIPE TAKE-OFFS.
10. ALL MANUALLY OPERABLE EQUIPMENT SHALL BE ACCESSIBLE FOR OPERATION WITHOUT REQUIRING SPECIAL EQUIPMENT.
11. PROVIDE ADEQUATE CLEARANCE FOR ACCESS TO HARDWARE AND DUCT FLANGES.
12. ACCESS PANELS SHALL BE PROVIDED, WHERE REQUIRED, TO SERVICE FIRE DAMPERS, VOLUME DAMPERS, VALVES AND ALL CONCEALED MECHANICAL EQUIPMENT.



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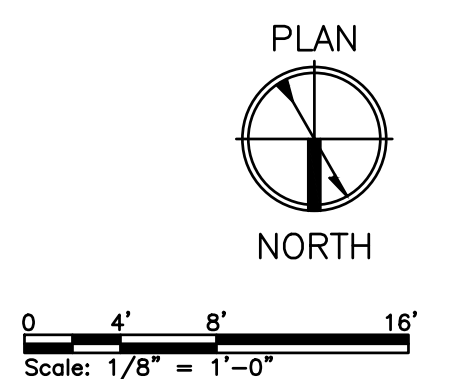
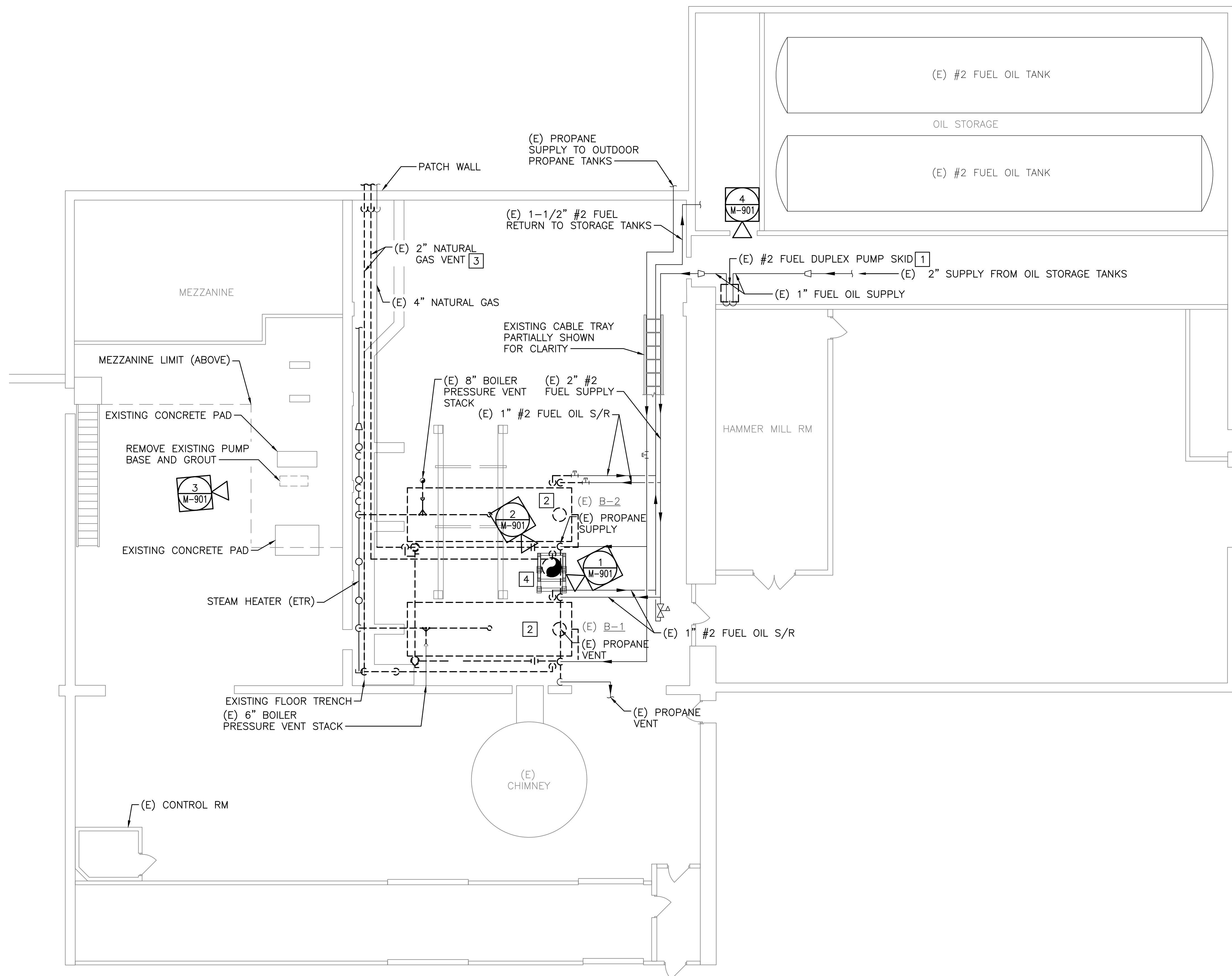
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				DATE: 03/27/2019	SHEET 5 OF 20		
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				DWN BY: PML			
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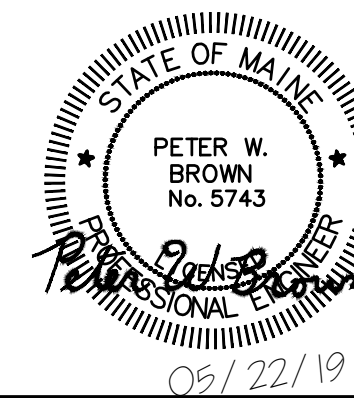
1. SEE DRAWING M-001 FOR MECHANICAL NOTES, ABBREVIATIONS, AND LEGEND.
2. REFER TO PHOTOS ON DRAWING M-901.

DEMOLITION KEYED NOTES:

- 1 REMOVE PUMP SKID AND PREPARE LINES FOR NEW PUMP SKID.
- 2 REMOVE ALL BOILER FUEL CONNECTIONS, INCLUDING, PROPANE, NATURAL GAS SUPPLY AND VENT, FUEL OIL SUPPLY AND RETURN. PREPARE ALL CONNECTIONS FOR NEW BOILER INSTALLATION.
- 3 REMOVE NATURAL GAS VENT PIPING. NEW SYSTEM WILL BE VENTLESS.
- 4 REMOVE ENTIRE EXISTING BOILER BREECH STACK BOTH INDOOR AND OUTDOOR DUCTWORK.



BOILER FUELS PIPING DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



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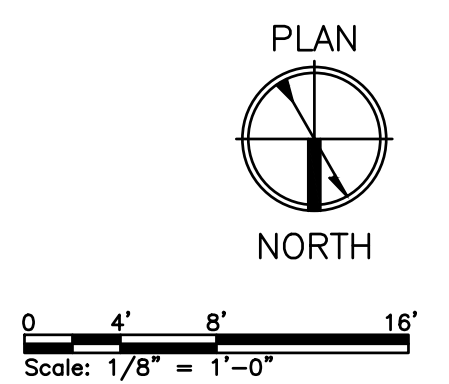
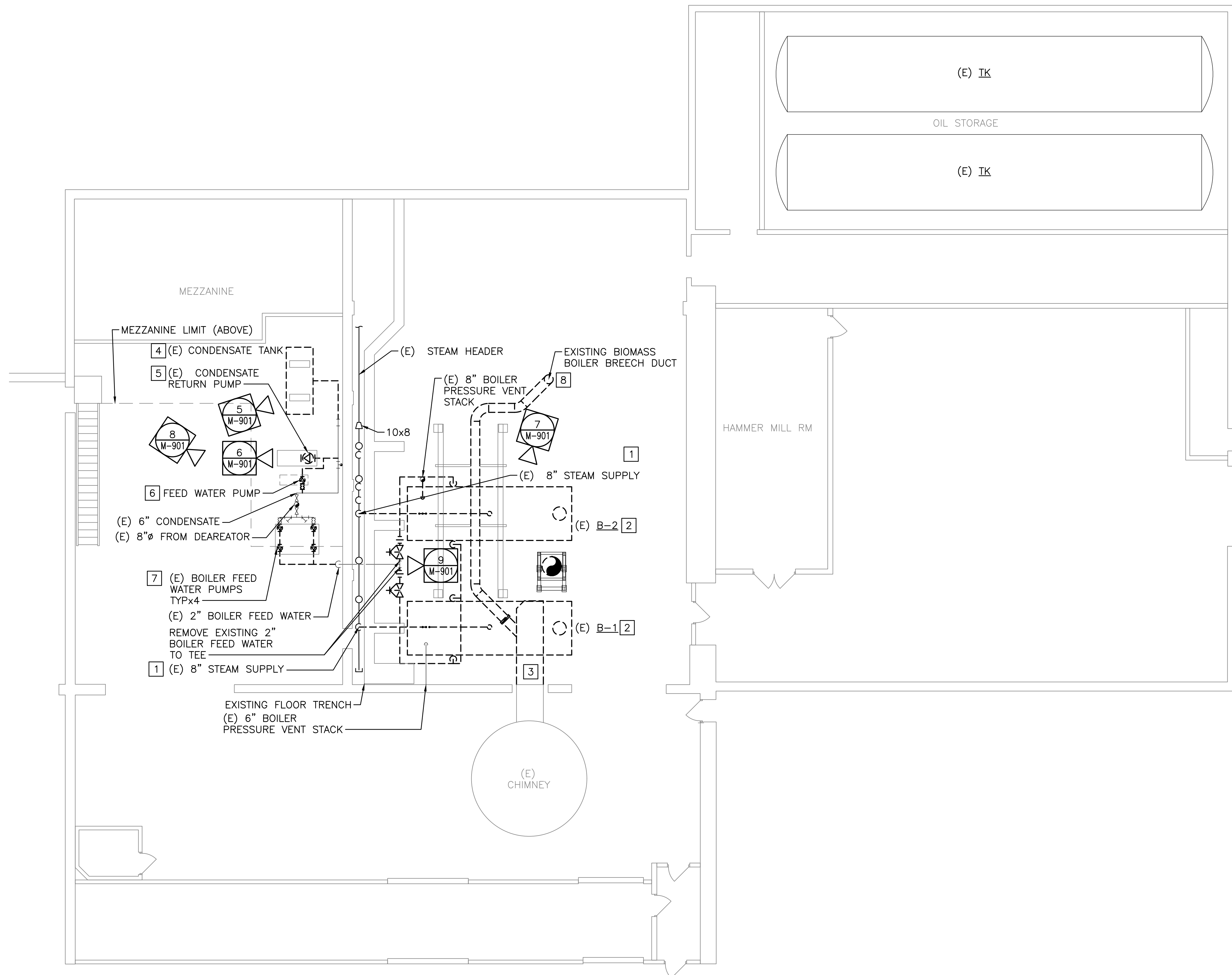
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CKD BY: EAF	SHEET 6	OF 20	

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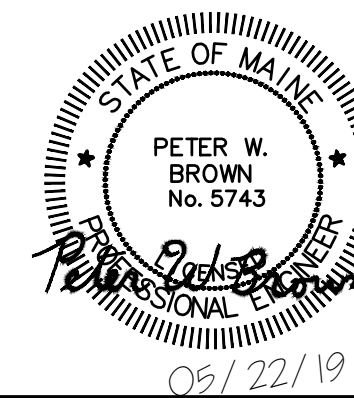
1. SEE DRAWING M-001 FOR MECHANICAL NOTES, ABBREVIATIONS, AND LEGEND.
2. REFER TO PHOTOS ON DRAWING M-901.

DEMOLITION KEYED NOTES:

- 1 REMOVE EXISTING 8-INCH GATE VALVE ON STEAM HEADER.
- 2 REMOVE EXISTING BOILER, CONTINUOUS BLOWDOWN, AND INTERMITTENT BLOW DOWN TO FLOOR TRENCH.
- 3 REMOVE BOILER ROOM PORTION OF EXISTING BREECH. PROVIDE AIR TIGHT SEAL OF REMAINING BREECH OPENING, WITH 18GA GALVANIZED SHEET METAL, REINFORCED PER SMACNA.
- 4 REMOVE CONDENSATE TANK AND INLETS AND OUTLETS. PREPARE CONNECTIONS FOR INSTALLATION OF NEW CONDENSATE TANK.
- 5 REMOVE CONDENSATE PUMP AND DISPOSE.
- 6 REMOVE BOILER FEED WATER PUMP AND DISPOSE.
- 7 REMOVE AND SALVAGE (4) BIOMASS BOILER PUMPS. SET & BAND PUMPS TO PALLET STORED IN SECURE AREA FOR OWNER.
- 8 REMOVE EXISTING BIOMASS BOILER BREECH DUCT.



STEAM AND BOILER FEED WATER PIPING AND BOILER DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



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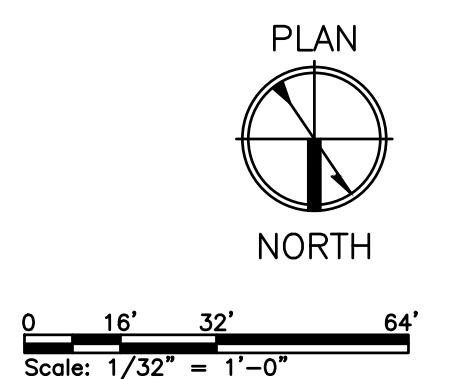
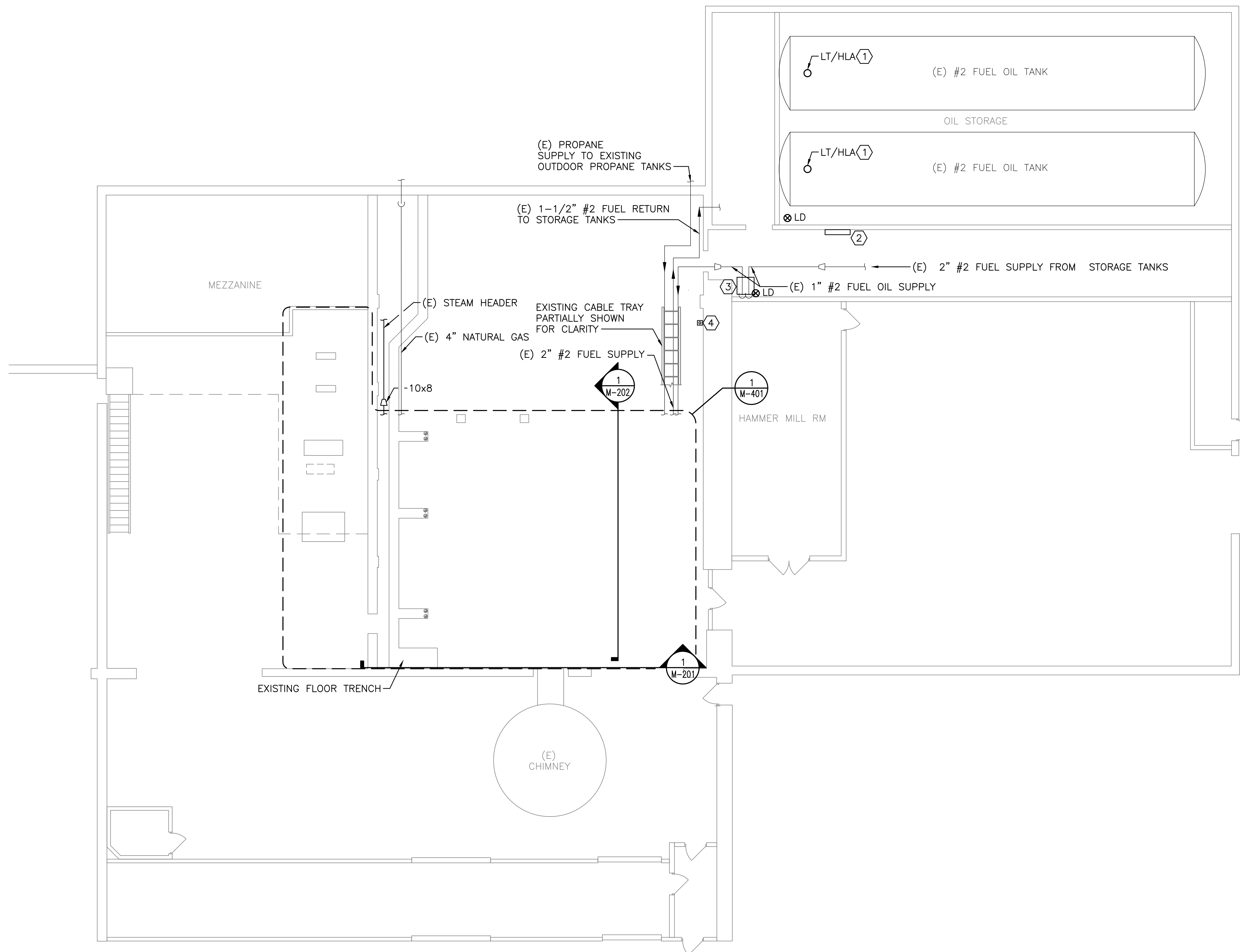
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				CKD BY: EAF			

NOTES:

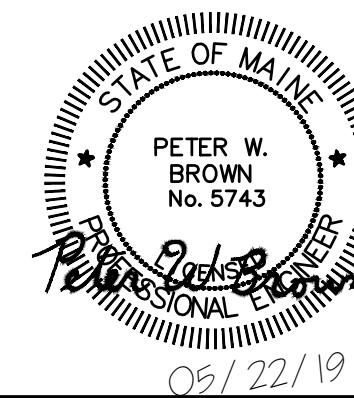
1. SEE DRAWING M-001 FOR MECHANICAL NOTES, ABBREVIATIONS, AND LEGEND.

KEYED NOTES:

- ① COORDINATE NEW #2 FUEL OIL TANK LEAK DETECTION WITH FUEL SYSTEM DIAGRAM DRAWING M-702. COORDINATE LOCATION OF LT/HLA WITH EXISTING LEVEL TRANSMITTER.
- ② TANK MONITOR PANEL.
- ③ # 2 FUEL DUPLEX PUMP SKID.
- ④ REMOTE HIGH LEVEL ALARM.



MECHANICAL PLAN - STEAM PIPING
SCALE: 1/8" = 1'-0"



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				BREM 77 STATE HOUSE STATION - AUGUSTA, MAINE			
				EAST CAMPUS STEAM PLANT REPLACEMENT			
				MECHANICAL PLAN			
0	ISSUED FOR BID	PML	PWB	05/22/19			
REV	DESCRIPTION	DWN	APP	DATE			
				ANSI D	PROJECT NO.	DRAWING NO.	
				DATE: 03/27/2019	163.002.005	M-101	
				DES BY: PWB	SHEET		
				DWN BY: PML	8 OF 20		
				CKD BY: EAF			

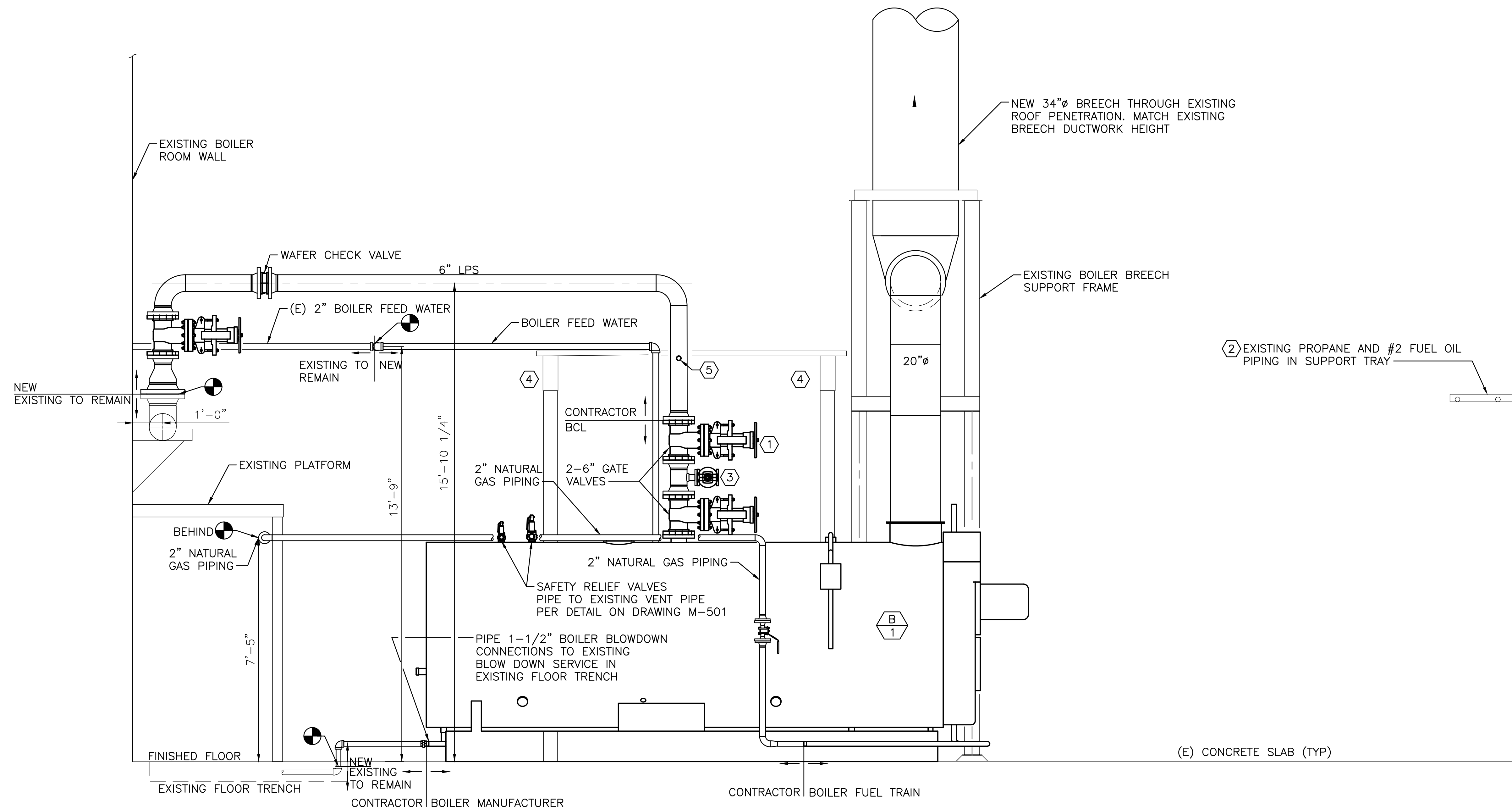
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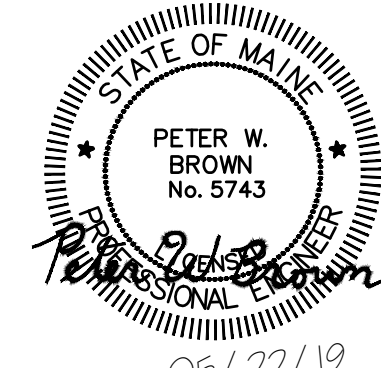
- SEE DRAWING M-001 FOR MECHANICAL NOTES, ABBREVIATIONS, AND LEGEND.

KEYED NOTES:

- OFFSET BOILER SIDE VALVE WHEELS TWO BOLT HOLES DISTANCE AWAY FROM EACH OTHER AND FOR EASIEST OPERATOR ACCESS. (VALVES DEPICTED ON SINGLE PLANE FOR CLARITY).
- PROPANE AND #2 FUEL OIL PIPING ROUTE NOT SHOWN. SEE DRAWING M-401 FOR PIPING ROUTES.
- FREE BLOW VALVE.
- EXISTING PIPE SUPPORT STEEL STRUCTURE.
- 3/4" CHEMICAL FEED BOSS (SEE M-501 DETAIL) TYPICAL ON (3) BOILERS.



1 BOILER STEAM TIE-IN SECTION - SOUTH
 M-201 SCALE: 1/2" = 1'-0" M-101



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EAST CAMPUS STEAM PLANT REPLACEMENT	
BOILER STEAM TIE-IN SECTION - SOUTH	
PROJECT NO. 163.002.005	DRAWING NO. M-201
SHEET 9 OF 20	

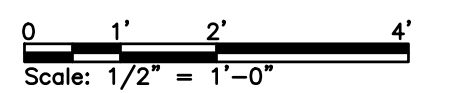
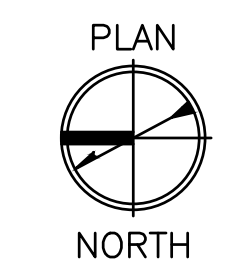
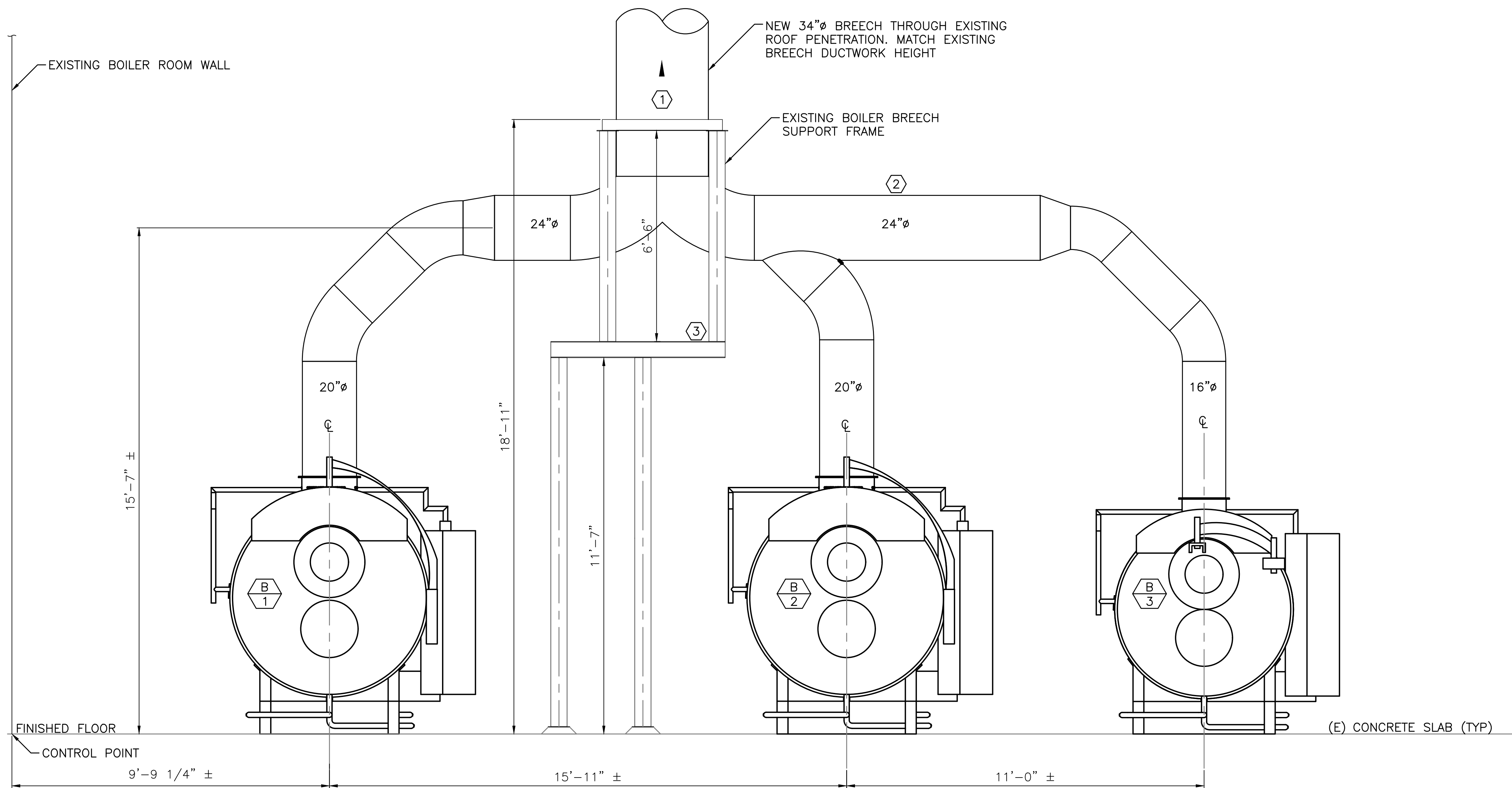
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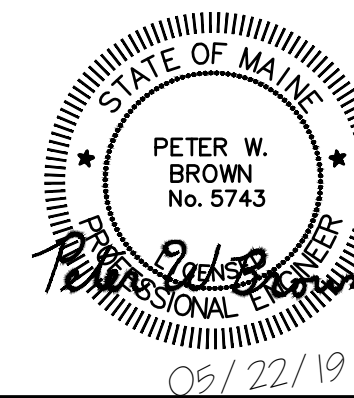
- SEE DRAWING M-001 FOR MECHANICAL NOTES, ABBREVIATIONS, AND LEGEND.

KEYED NOTES:

- NEW BREECH TO COMPLY WITH SPECIFICATION: 23 51 00.
- SEE STRUCTURAL DRAWINGS FOR BREECHING SUPPORT DETAILS.
- CONTRACTOR TO COORDINATE BREECHING WITH EXISTING SUPPORT FRAME.



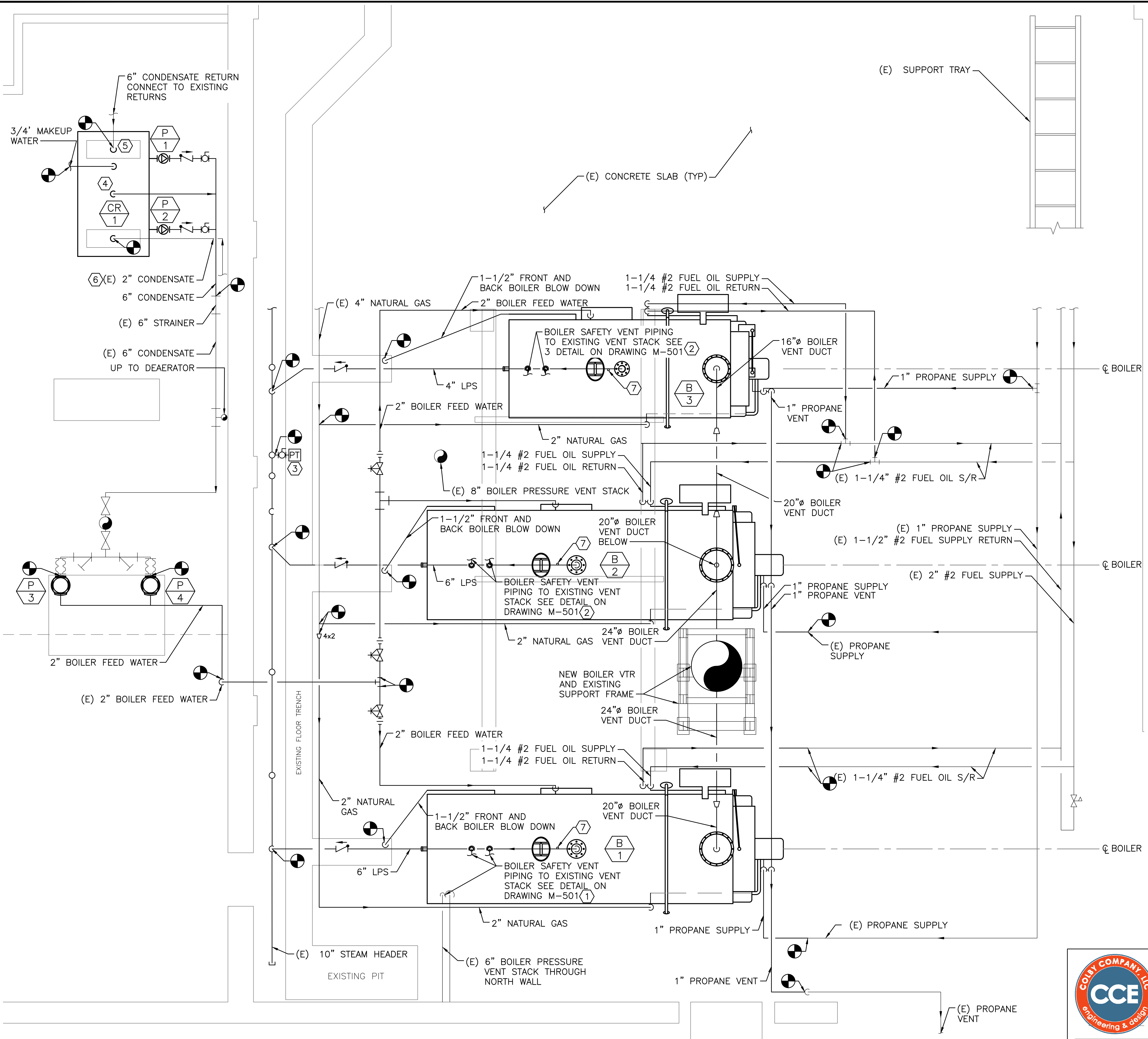
2 BOILER BREECH SECTION - EAST
M-202 SCALE: X" = 1'-0" M-101



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						BREM	
						77 STATE HOUSE STATION - AUGUSTA, MAINE	
						EAST CAMPUS STEAM PLANT REPLACEMENT	
						BOILER BREECH SECTION - EAST	
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		DATE:	03/27/2019		163.002.005		
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		DWN BY:	PML		10	OF 20	
		CKD BY:	EAF		M-202		

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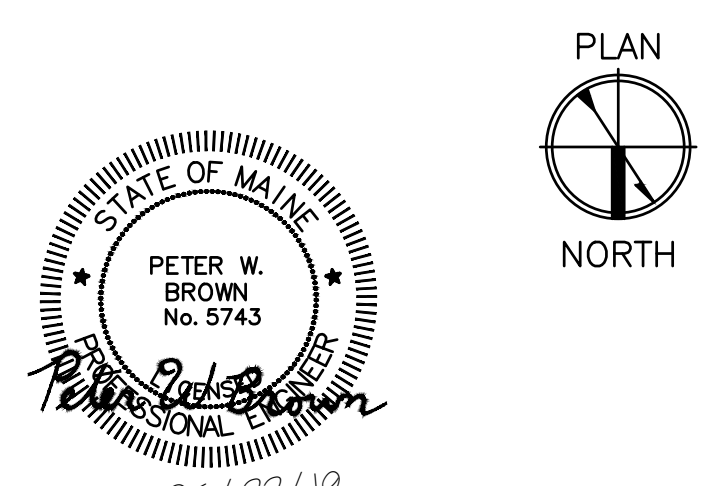
NOTES:

1. SEE DRAWING M-001 FOR MECHANICAL NOTES, ABBREVIATIONS, AND LEGEND.

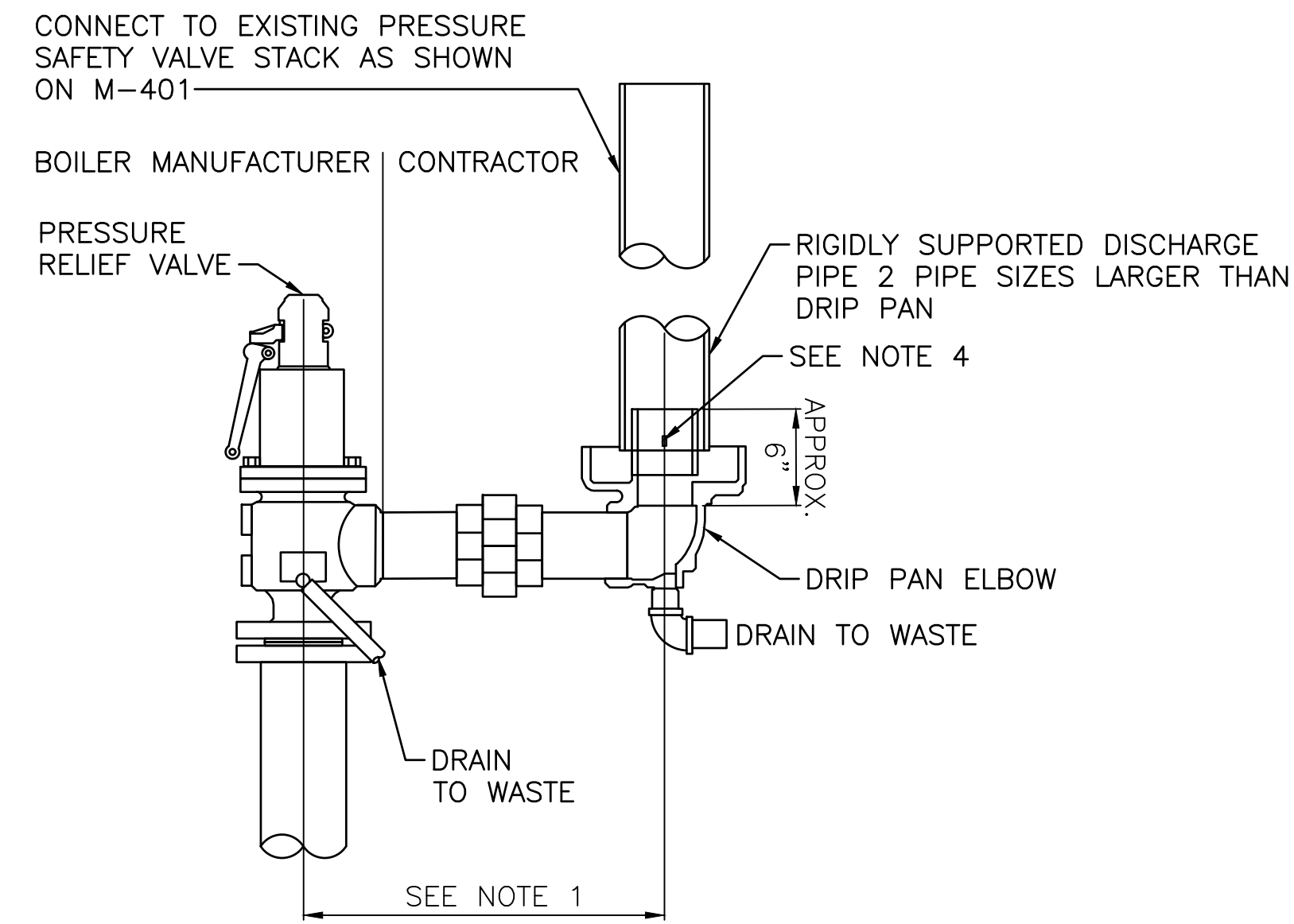
KEYED NOTES:

- 1 CONNECT BOILER PRESSURE SAFETY VALVES TO EXISTING 6" VENT STACK.
- 2 CONNECT BOILER PRESSURE SAFETY VALVES TO EXISTING 8" VENT STACK.
- 3 PRESSURE TRANSMITTER LOCATION FOR BOILER PRESSURE CONTROL. SEE M-701 FOR COORDINATION WITH BOILER CONTROLS.
- 4 CONNECT NEW CONDENSATE RECEIVER 6-INCH BOTTOM DISCHARGE PORT TO EXISTING 6-INCH CONDENSATE LINE TO CONDENSATE PUMPS.
- 5 CONNECT MULTIPLE EXISTING CONDENSATE RETURN LINES TO THE NEW CONDENSATE RECEIVER TOP INLET. MODIFY EXISTING PIPING AS NEEDED TO ACCOMMODATE THE NEW CONDENSATE RECEIVER.
- 6 REFIT 2-INCH CONDENSATE RETURN TO CONDENSATE RECEIVER.
- 7 3/4" CHEMICAL FEED CONNECTION.

1 BOILER ROOM PART PLAN
 M-401 SCALE: 3/8" = 1'-0" M-101



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		DATE: 03/27/2019	SHEET 11 OF 20	
		DES BY: PWB		
		DWN BY: PML		
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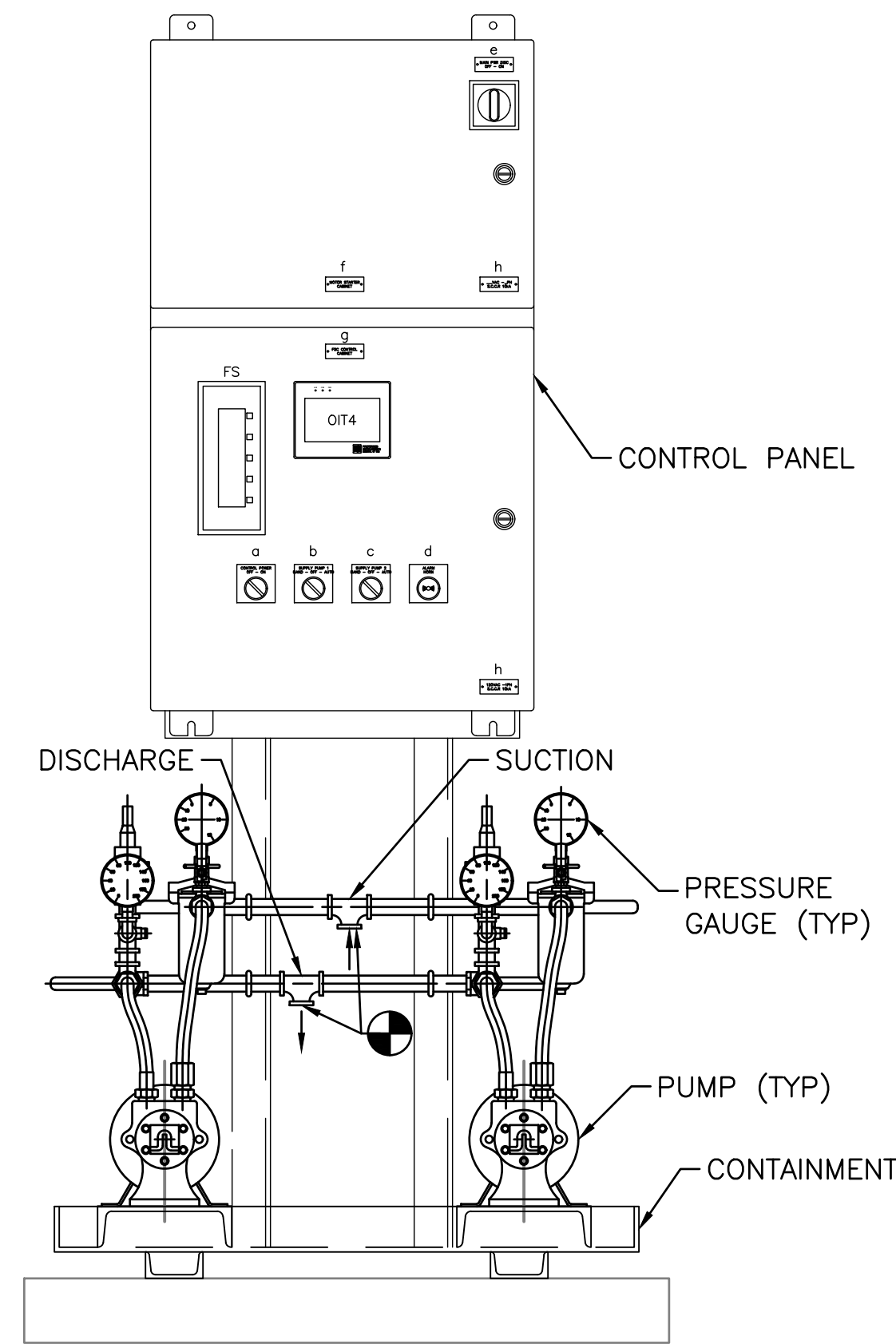


NOTES:

1. DIMENSIONS BETWEEN VALVE AND DRIP PAN ELBOW SHALL BE AS SHORT AS POSSIBLE.
2. DISCHARGE PIPING MUST BE INDEPENDENTLY SUPPORTED TO ELIMINATE STRAIN ON VALVE BODY.
3. ALL DRAIN LINE SHALL BE INDEPENDENTLY SUPPORTED AND PROPER EXPANSION PROVISIONS MADE TO ELIMINATE STRAIN ON VALVE BODY.
4. PROVIDE 3 OR 4 EQUALLY POSITIONED SPACERS TO CENTER DISCHARGE PIPE. ONE PIPE MUST BE FREE TO ALLOW FOR EXPANSION.

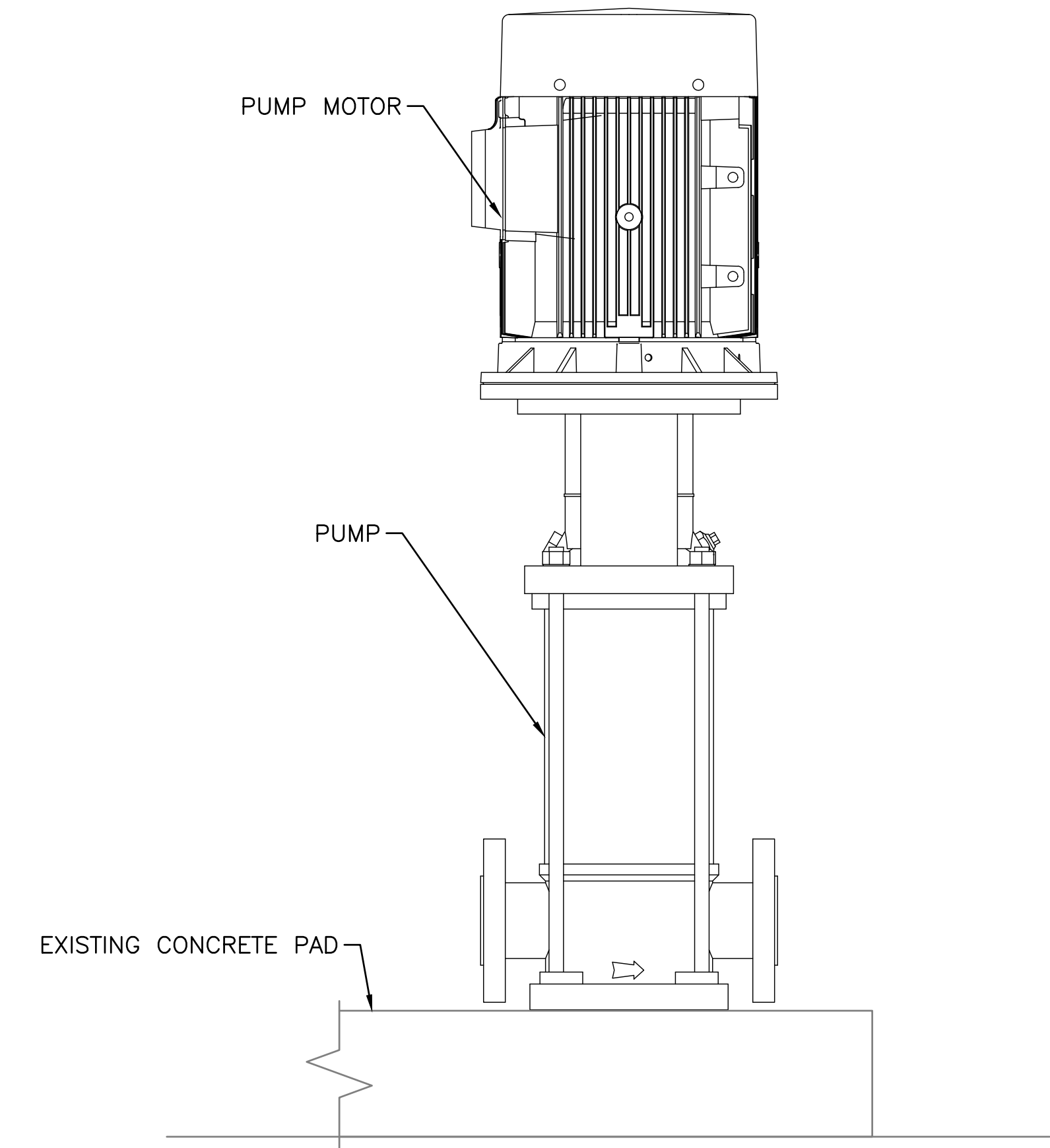
DRIP PAN ELBOW DETAIL

SCALE: NTS



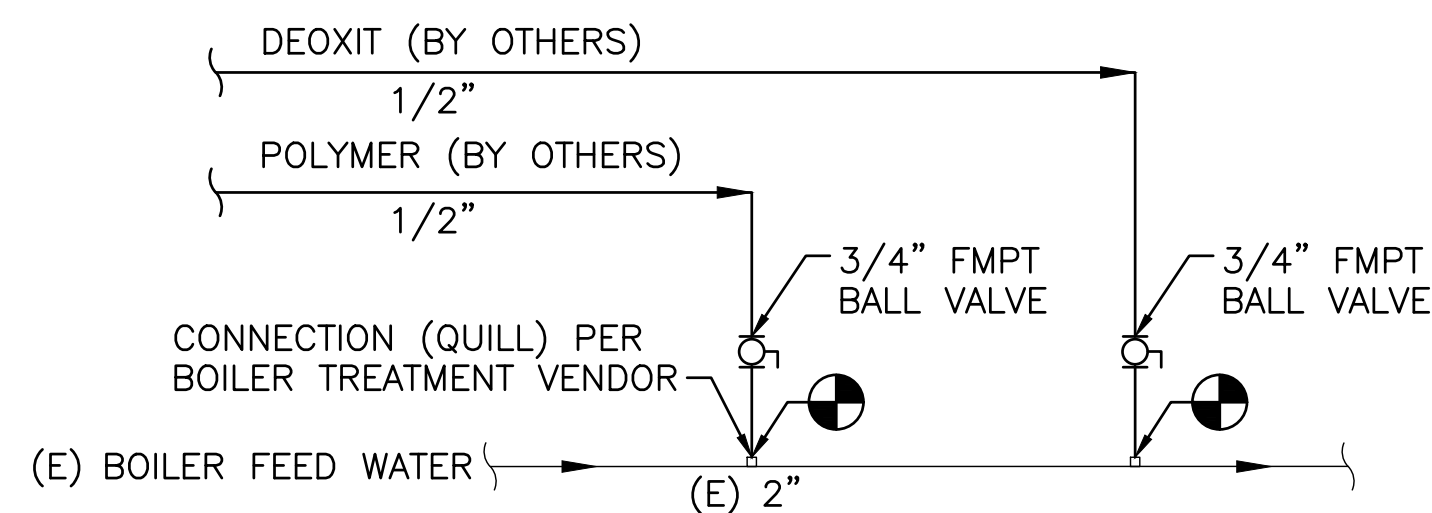
DUPLEX FUEL PUMP SKID DETAIL

SCALE: NTS



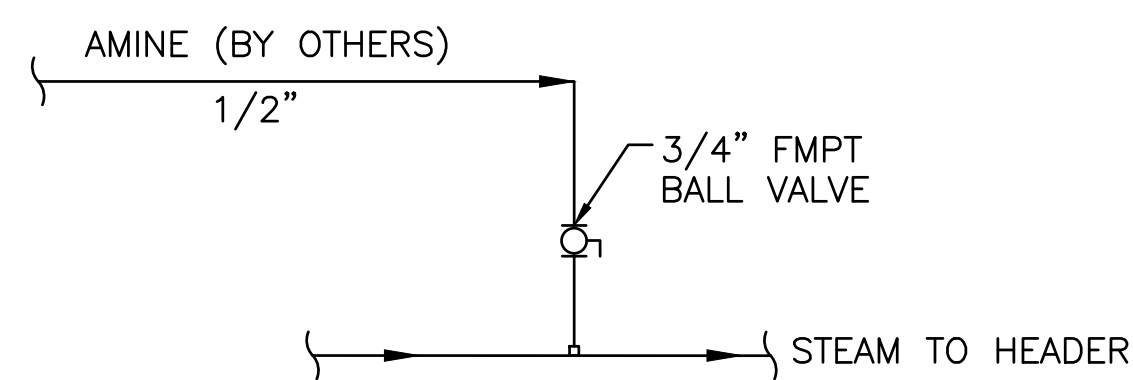
TYPICAL BOILER FEED PUMP DETAIL

SCALE: NTS



BOILER OXYGEN SCAVENGER & POLYMER CONNECTION DETAIL

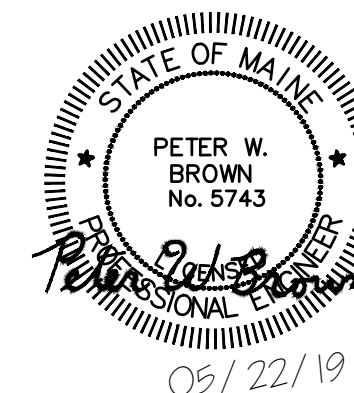
SCALE: NTS



BOILER AMINE CONNECTION DETAIL

SCALE: NTS

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				MECHANICAL DETAILS			
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BOILER SCHEDULE

UNIT NO	LOCATION	SERVES	BOILER TYPE	FUEL TYPE (#2 FUEL/NATURAL GAS)	BOILER HORSEPOWER (HP)	INPUT (MBH)	OUTPUT (MBH)	TURNDOWN RATIO	GAS PRESSURE (PSI)	GAS CFH (1000 BTU GAS)	LIGHT OIL GPH (140,000 BTU/GAL)	HEATING SURFACE S.F. (FIRESIDE)	VENT (IN.)	FEEDWATER INLET (IN.)	SURFACE BLOWOFF (IN.)	STEAM NOZZLE (300 # ANSI FLANGE)	BLOWDOWN FRONT AND REAR (IN.)	NORMAL WATER WEIGHT (LB)	SHIPPING WEIGHT (LB)	ELECTRICAL	MANUFACTURER AND MODEL ①	NOTES
																				VOLTAGE V/PH/HZ		
B-1	BOILER RM	HEATING	STEAM	DUAL	300	12,248	10,043	10:1	2	12,247	87.0	922	20	2	1	6	1.5	12,190	18,540	480/3/60	CLEAVER BROOKS, CBEX ELITE, 300	1-4
B-2	BOILER RM	HEATING	STEAM	DUAL	300	12248	10043	10:1	2	12,247	87.0	922	20	2	1	6	1.5	12,190	18,540	480/3/60	CLEAVER BROOKS, CBEX ELITE, 300	1-4
B-3	BOILER RM	HEATING	STEAM	DUAL	150	6,123	5,021	10:1	2	6,123	43.7	563	16	1.0	1	4	1.5	8010	12,520	480/3/60	CLEAVER BROOKS, CBEX ELITE, 150	1-4

- GENERAL NOTES:**
- HORIZONTAL FIRETUBE BOILER.
 - MAXIMUM WORKING PRESSURE 150 PSIG. PROVIDE PRESSURE RELIEF VALVES.
 - NOMINAL OUTPUT EFFICIENCY OF 82.0 PERCENT.
 - PROVIDE THE SERVICES OF THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE TO PERFORM BOILER START-UP SERVICES AND COMMISSIONING. SUBMIT BOUND REPORT TO OWNER.

PUMP SCHEDULE

UNIT NO	LOCATION	SERVES	TYPE	FLUID	GPM	HEAD (PSIG)	HP	ELECTRICAL			MANUFACTURER AND MODEL ①	NOTES
								VOLTS	PHASE	HZ		
P-1	PUMP ROOM	CONDENSATE	VERTICAL	WATER	60	40	3	480	3	60	SHIPCO 113-D	1,2,3
P-2	PUMP ROOM	CONDENSATE	VERTICAL	WATER	60	40	3	480	3	60	SHIPCO 113-D	1,2,3
P-3	PUMP ROOM	BOILER FEEDWATER	VERTICAL	WATER	87	153	15	480	3	60	GRUNDFOS CRE 20-6	1,4
P-4	PUMP ROOM	BOILER FEEDWATER	VERTICAL	WATER	87	153	15	480	3	60	GRUNDFOS CRE 20-6	1,4

- NOTES:**
- PROVIDE VARIABLE FREQUENCY DRIVE FOR EACH PUMP.
 - PROVIDED WITH CR-1.
 - SINGLE STAGE CAST IRON BRONZE FITTED CENTRIFUGAL PUMP.
 - MULTIPLE STAGE 316 STAINLESS STEEL VERTICAL CENTRIFUGAL PUMP.
 - PUMPS WILL ALTERNATE SERVICE DAILY TO EVEN RUN TIME ON PUMPS.

CONDENSATE RECEIVER SCHEDULE

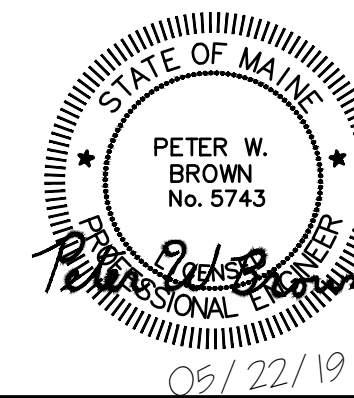
TAG	LOCATION	RECEIVER CAPACITY (GAL)	NOMINAL TANK DIAMETER (IN.)	NOMINAL TANK LENGTH (IN.)	RECEIVER INLET FLANGE DIAMETER (IN.)	RECEIVER DISCHARGE FLANGE DIA. (IN.)	HEAD AND SHELL THICKNESS (IN.)	MANUFACTURER AND MODEL ①	NOTES
CR-1	PUMP ROOM	614	48	84	6	1 1/2	3/16	SHIPCO CS / SURGE DUPLEX	1-16

- NOTES:**
- CARBON STEEL HORIZONTAL CYLINDER FLOOR-MOUNTED TANK WITH DISHED HEADS.
 - PROVIDE BACNET CONTROL WITH 6 INCH COLOR SCREEN.
 - AUTO-OFF-CONTINUOUS SELECTOR SWITCHES WITH TEST BUTTONS.
 - ALARM BELL / RELAY, EXTERNAL SWITCH FOR LOW WATER CUT-OFF, WITH BACKUP LOW WATER CUT-OFF.
 - HIGH & LOW POINTS.
 - FAULT SIGNAL ON ALL PUMPS.
 - FEEDWATER HEADER TRANSMITTER.
 - 2-1/2" DIAL THERMOMETER, GAUGE GLASS ASSEMBLY, TEMPERATURE & LEVEL TRANSMITTERS.
 - MANHOLE 12" X 16".
 - MAGNESIUM ANODE.
 - SOLENOID VALVE WITH STRAINER AND 3 VALVE BYPASS.
 - SINGLE POINT OF POWER, FUSED DISCONNECT SWITCHES, FUSED 115V CONTROL TRANSFORMER.
 - PROVIDE TWO-INCH THERMAL INSULATION AND ALUMINUM JACKET.
 - PROVIDE PUMP SUCTION & DISCHARGE ISOLATION VALVE AND DISCHARGE CHECK VALVE ON EACH PUMP. EACH PUMP WILL HAVE 3/4' DRAIN VALVES INSIDE THE PUMP ISOLATION VALVES.
 - THE CONDENSATE RECEIVER WILL BE EQUIPPED WITH (2) 6-INCH FLANGED INLETS AND AND (2) 1-INCH DRAIN VALVE PORTS.
 - PROVIDE 1-INCH MAKEUP WATER CONNECTION IN RECEIVER.

KEYED NOTE:

① MANUFACTURERS NAME AND MODEL NUMBER ARE USED FOR DESCRIPTIVE PURPOSES ONLY AND ARE INTENDED TO INDICATE THE STANDARD OF MATERIAL OR ARTICLES REQUIRED. DESIGN IS PREDICATED AROUND LISTED MANUFACTURERS AS NOTED ON SCHEDULES AND IS NOT INTENDED TO LIMIT THE CONTRACTOR TO ONE MANUFACTURER UNLESS OTHERWISE NOTED.

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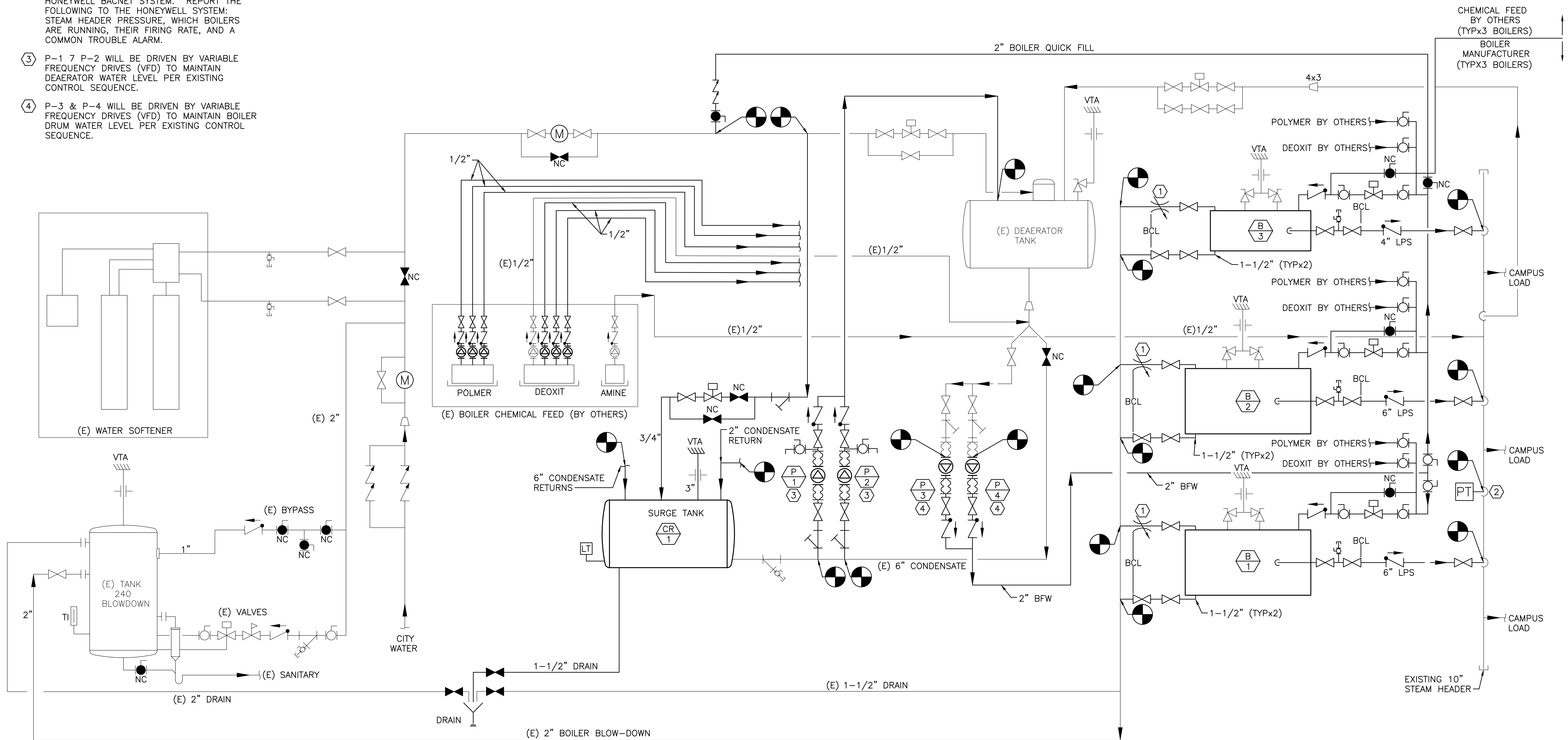
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EAST CAMPUS STEAM PLANT REPLACEMENT	
MECHANICAL SCHEDULES	
PROJECT NO. 163.002.005	DRAWING NO. M-601
SHEET 13 OF 20	

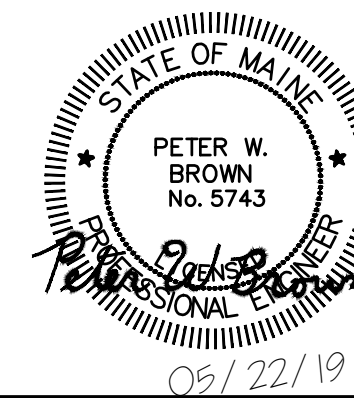
KEYED NOTES:

- ① CONTINUOUS BLOWDOWN METERING VALVE PROVIDED BY BOILER MANUFACTURER.
- ② PROVIDE STEAM PRESSURE TRANSMITTER AS PART OF THE THREE-BOILER CONTROL SYSTEM, INTEGRATED INTO THE EXISTING HONEYWELL BACNET SYSTEM. REPORT THE FOLLOWING TO THE HONEYWELL SYSTEM: STEAM HEADER PRESSURE, WHICH BOILERS ARE RUNNING, THEIR FIRING RATE, AND A COMMON TROUBLE ALARM.
- ③ P-1 & P-2 WILL BE DRIVEN BY VARIABLE FREQUENCY DRIVES (VFD) TO MAINTAIN DEAERATOR WATER LEVEL PER EXISTING CONTROL SEQUENCE.
- ④ P-3 & P-4 WILL BE DRIVEN BY VARIABLE FREQUENCY DRIVES (VFD) TO MAINTAIN BOILER DRUM WATER LEVEL PER EXISTING CONTROL SEQUENCE.



BOILER STEAM AND WATER DIAGRAM
SCALE: NTS

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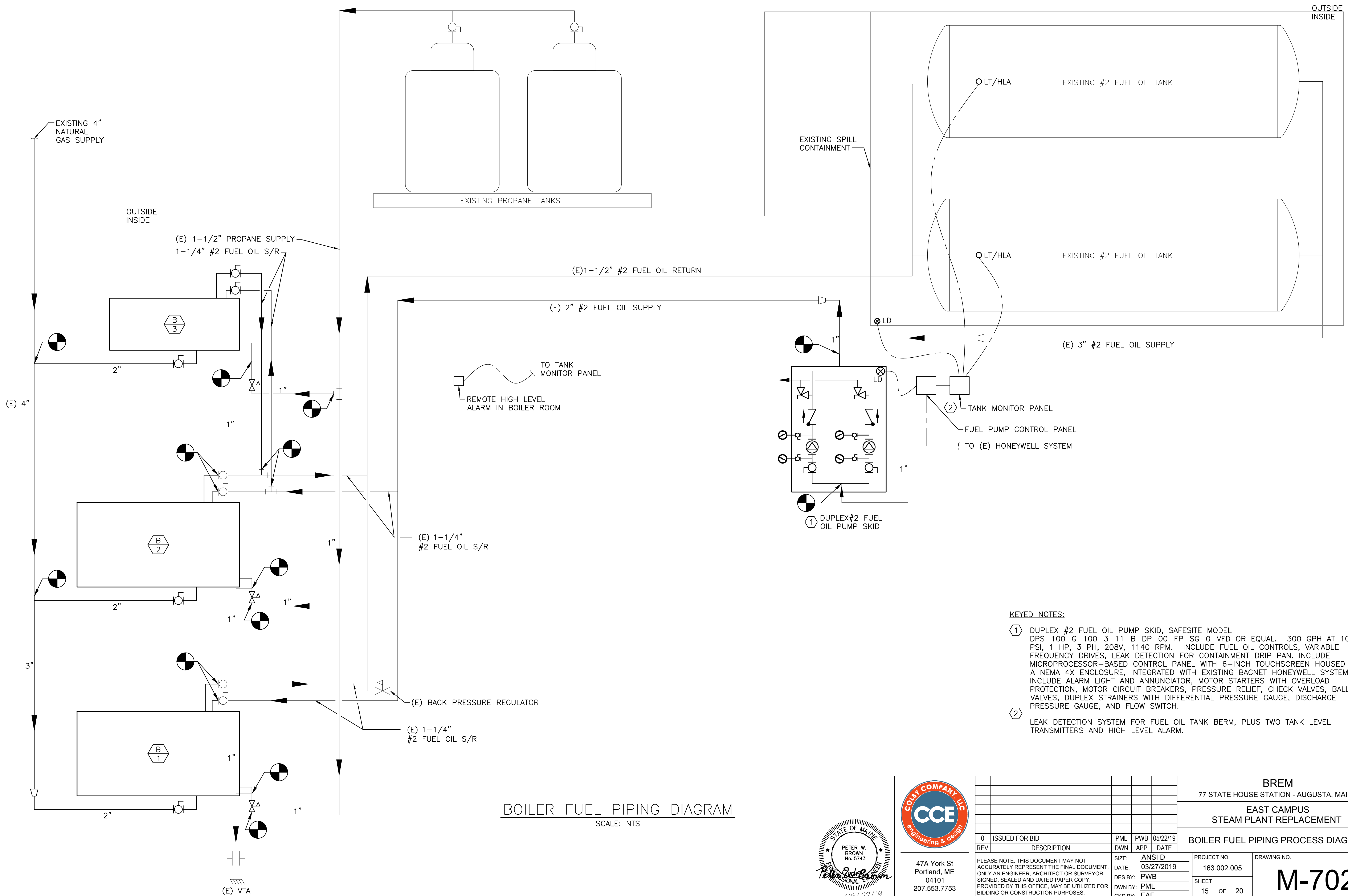
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DATE:	03/27/2019	163.002.005		M-701
DES BY:	PWB	SHEET		
DWN BY:	PML	14 OF 20		
CKD BY:	EAF			

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77 STATE HOUSE STATION - AUGUSTA, MAINE

**EAST CAMPUS
STEAM PLANT REPLACEMENT**

**BOILER STEAM AND WATER PROCESS
DIAGRAM**

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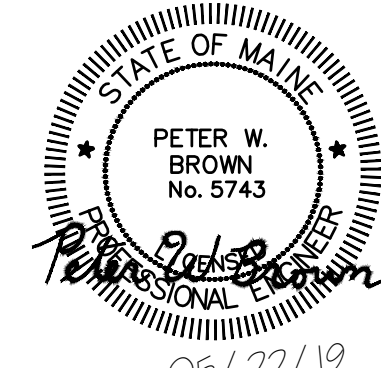
BOILER FUEL PIPING DIAGRAM
SCALE: NTS

KEYED NOTES:

- ① DUPLEX #2 FUEL OIL PUMP SKID, SAFESITE MODEL DPS-100-G-100-3-11-B-DP-00-FP-SG-0-VFD OR EQUAL. 300 GPH AT 100 PSI, 1 HP, 3 PH, 208V, 1140 RPM. INCLUDE FUEL OIL CONTROLS, VARIABLE FREQUENCY DRIVES, LEAK DETECTION FOR CONTAINMENT DRIP PAN. INCLUDE MICROPROCESSOR-BASED CONTROL PANEL WITH 6-INCH TOUCHSCREEN HOUSED IN A NEMA 4X ENCLOSURE, INTEGRATED WITH EXISTING BACNET HONEYWELL SYSTEM. INCLUDE ALARM LIGHT AND ANNUNCIATOR, MOTOR STARTERS WITH OVERLOAD PROTECTION, MOTOR CIRCUIT BREAKERS, PRESSURE RELIEF, CHECK VALVES, BALL VALVES, DUPLEX STRAINERS WITH DIFFERENTIAL PRESSURE GAUGE, DISCHARGE PRESSURE GAUGE, AND FLOW SWITCH.
- ② LEAK DETECTION SYSTEM FOR FUEL OIL TANK BERM, PLUS TWO TANK LEVEL TRANSMITTERS AND HIGH LEVEL ALARM.



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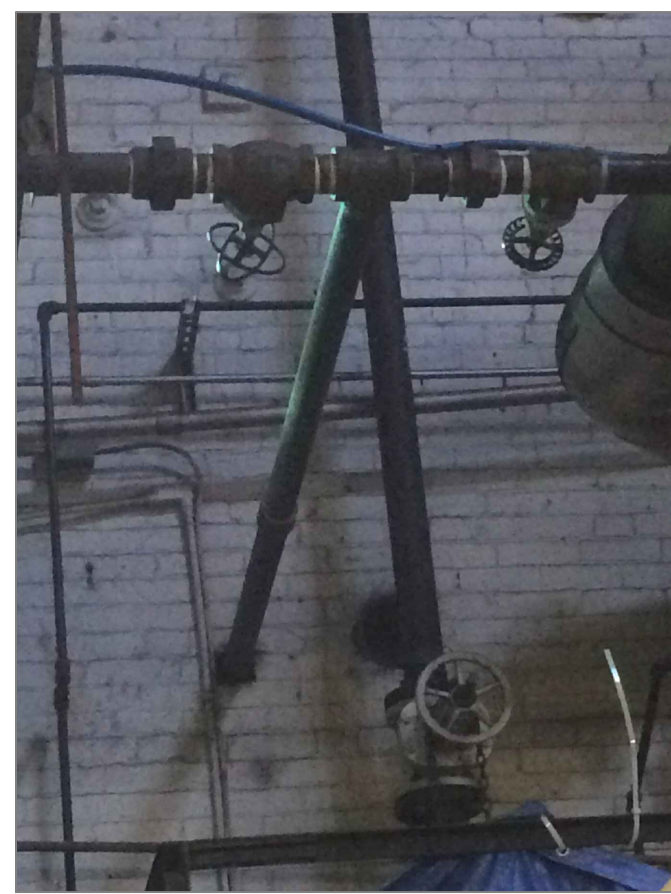
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				77 STATE HOUSE STATION - AUGUSTA, MAINE			
				EAST CAMPUS STEAM PLANT REPLACEMENT			
				BOILER FUEL PIPING PROCESS DIAGRAM			
0	ISSUED FOR BID	PML	PWB	05/22/19			
REV	DESCRIPTION	DWN	APP	DATE	PROJECT NO.	DRAWING NO.	
					163.002.005	M-702	
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				DATE: 03/27/2019	163.002.005	M-702	
				DES BY: PWB	SHEET	15 OF 20	
				DWN BY: PML			
				CKD BY: EAF			

NOTES:

- SEE DRAWING M-001 FOR MECHANICAL NOTES, ABBREVIATIONS, AND LEGEND.

DEMOLITION KEYED NOTES:

- REMOVE ENTIRE EXISTING BOILER BREECH STACK BOTH INDOOR AND OUTDOOR DUCTWORK.



EXISTING TO REMAIN
REMOVALS

BOILER FUEL PIPING
DISCONNECTION POINT

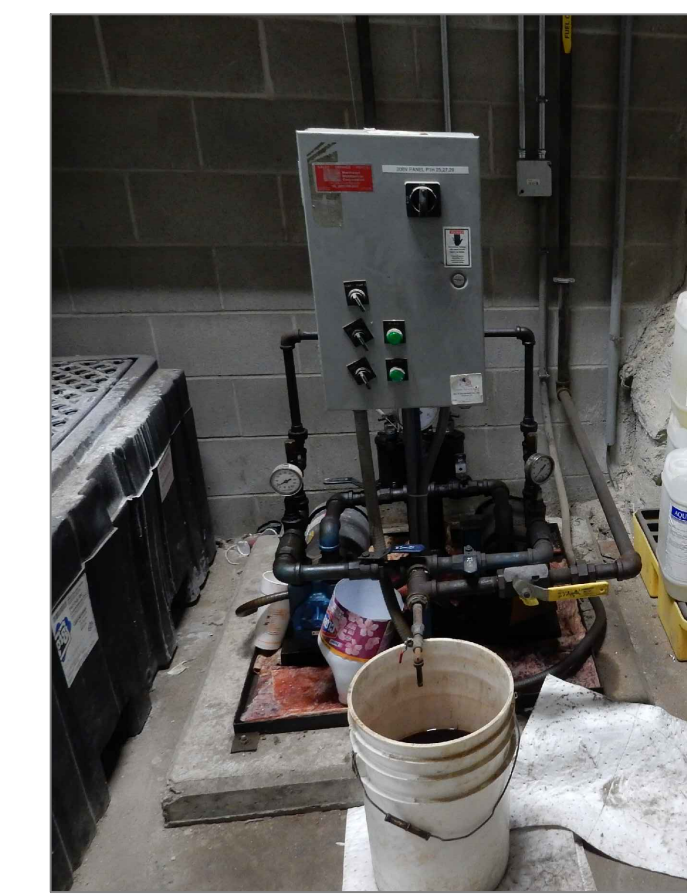
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M-901 SCALE: NTS MD-101



2
M-901 SCALE: NTS MD-101

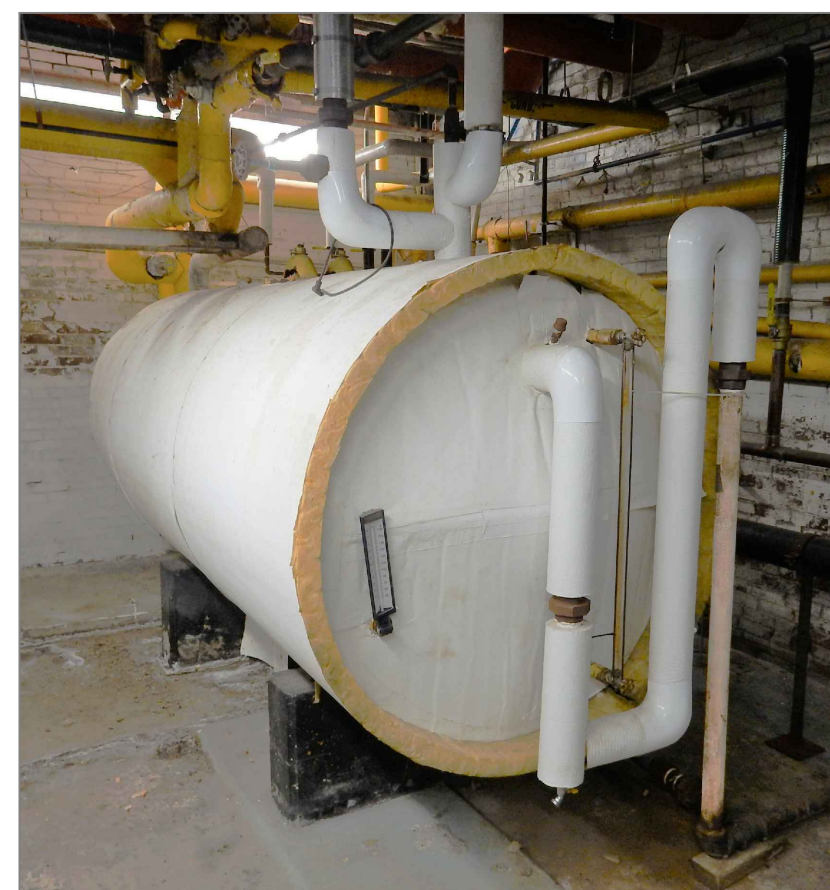


3
M-901 SCALE: NTS MD-101



DUPLEX PUMP SKID
TO BE REMOVED

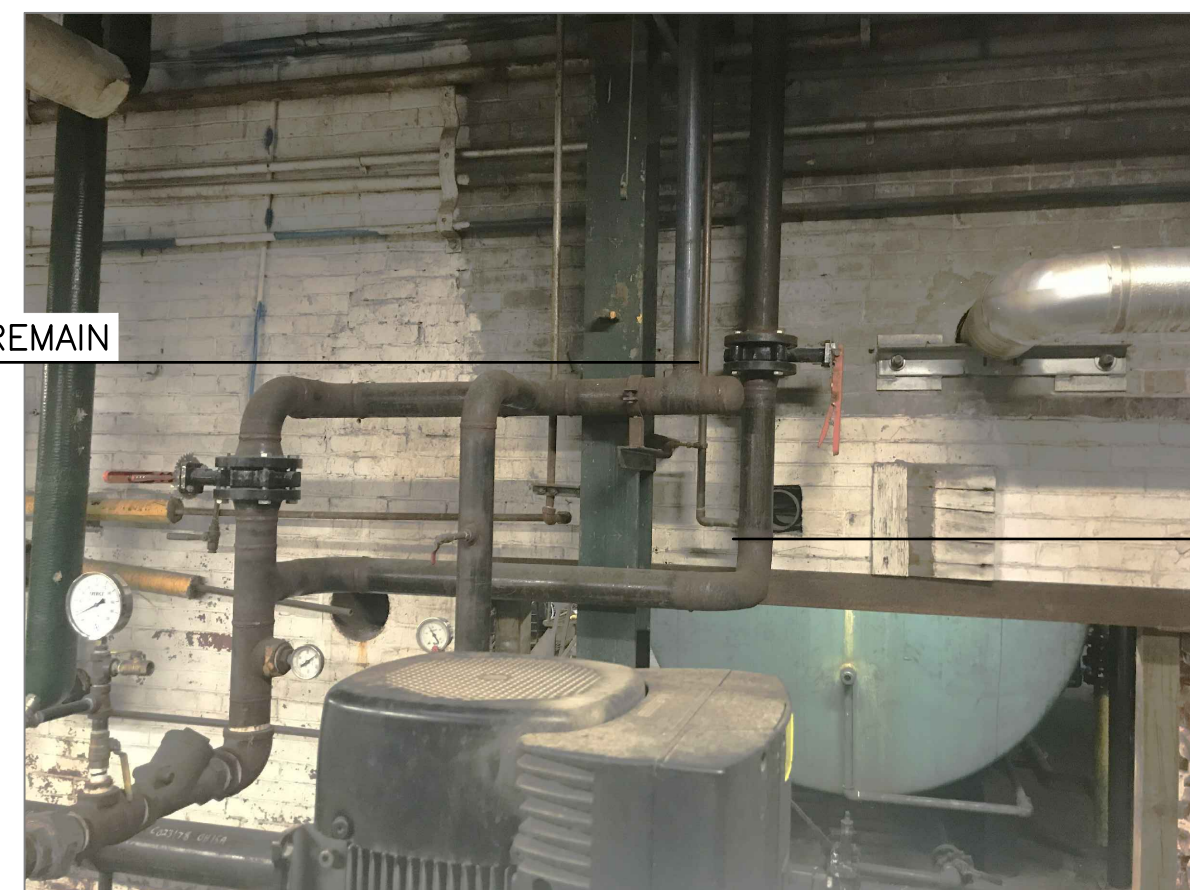
4
M-901 SCALE: NTS MD-101



EXISTING TO REMAIN
REMOVALS

CONDENSATE RECEIVER
TO BE REMOVED

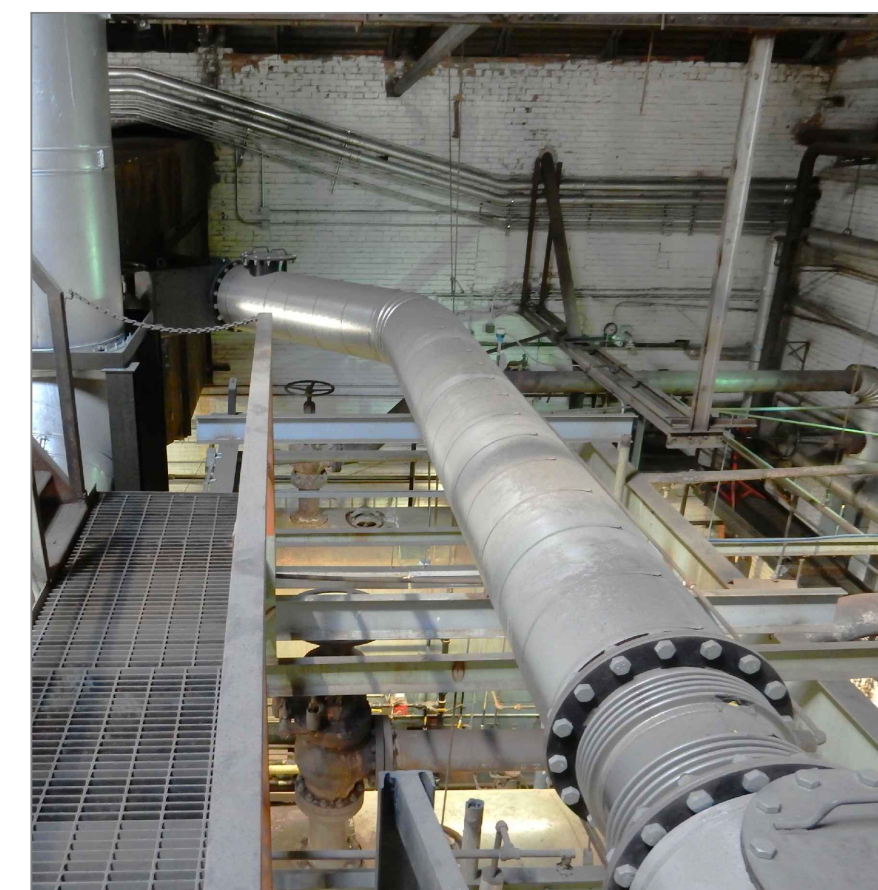
5
M-901 SCALE: NTS MD-102



EXISTING TO REMAIN
REMOVALS

FEED WATER PIPING
TO BE REMOVED

6
M-901 SCALE: NTS MD-102



BIOMASS BOILER BREECH
DUCT TO BE REMOVED

7
M-901 SCALE: NTS MD-102

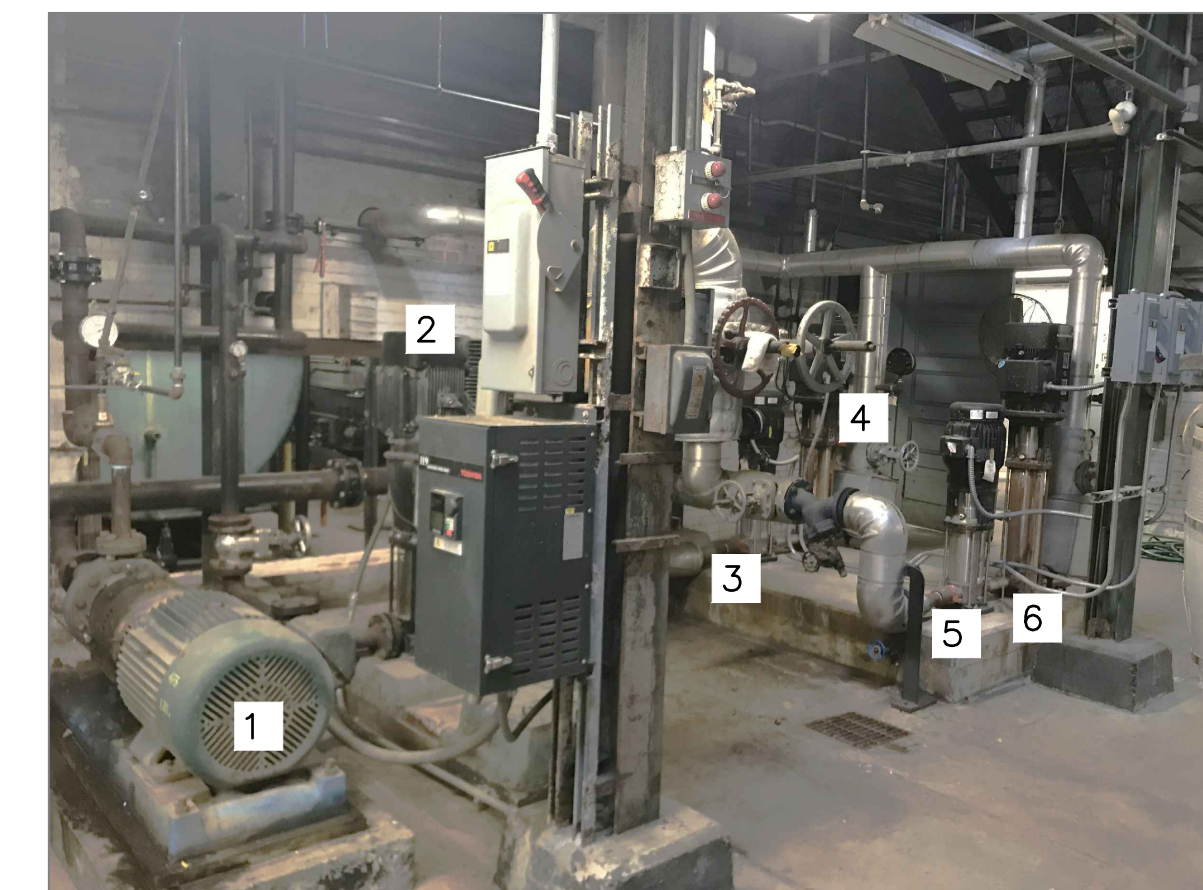
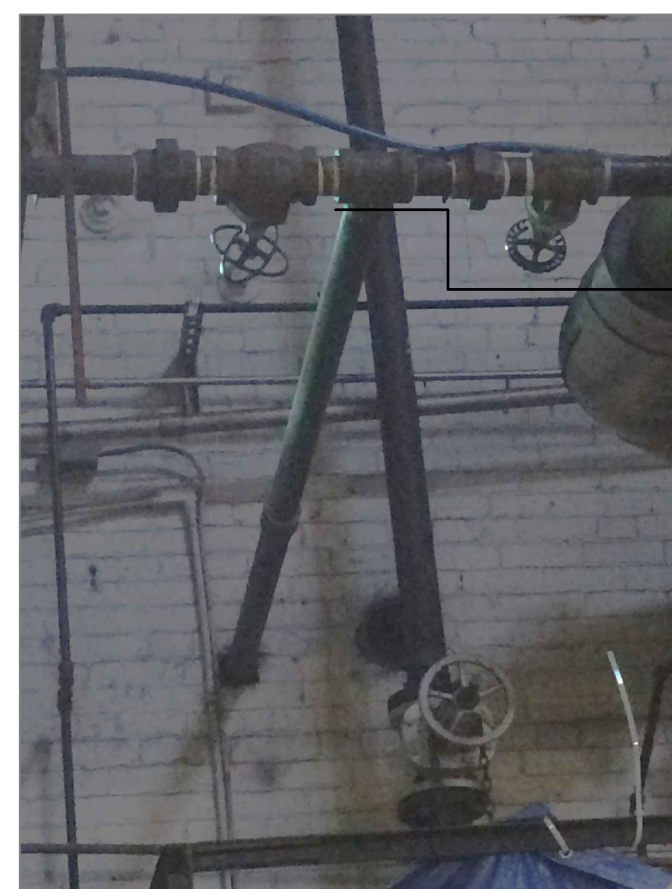


IMAGE #8 NOTES:

- CONDENSATE PUMP
- CONDENSATE PUMP
- FEEDWATER PUMP
- FEEDWATER PUMP
- FEEDWATER PUMP
- FEEDWATER PUMP

EXISTING PUMPS
TO BE REMOVED

8
M-901 SCALE: NTS MD-102

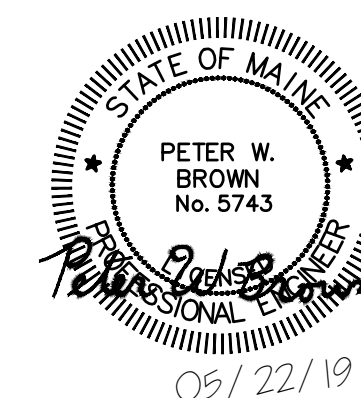


REMOVALS
EXISTING TO REMAIN

BOILER FEED WATER PIPING
DISCONNECTION POINT

9
M-901 SCALE: NTS MD-102

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REV		DESCRIPTION	PML	PWB	05/22/19	PROJECT NO.		DRAWING NO.	
0	ISSUED FOR BID		DWN	APP	DATE	163.002.005	M-901		
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						DATE: 03/27/2019	SHEET 16	OF 20	
						DES BY: PWB			
						DWN BY: PML			
						CKD BY: EAF			

POWER:

- 60 □ (4) NON-FUSED SAFETY SWITCH
NEMA ENCLOSURE
AMPERE RATING
- (4) □^{60AS}/_{40AF} FUSED SAFETY SWITCH, TOP NUMBER INDICATES SWITCH AMPERE RATING, LOWER NUMBER INDICATES FUSE RATING
NEMA ENCLOSURE
- (4) MAGNETIC MOTOR STARTER, FVNR UNLESS INDICATED OTHERWISE
NEMA ENCLOSURE
NEMA SIZE (TYP.)
- _{20/1} COMBINATION FUSED DISCONNECT/MAGNETIC MOTOR STARTER
FIRST NUMBER INDICATES CIRCUIT BREAKER AMPERE RATING
SECOND NUMBER INDICATES CIRCUIT NEMA STARTER SIZE
- _{20/1} COMBINATION FUSED DISCONNECT/MAGNETIC MOTOR STARTER
NUMBERS INDICATE DISCONNECT AMPERE RATING/FUSE RATING/NEMA STARTER SIZE
- _{20/1} NON-FUSED DISCONNECT/MAGNETIC MOTOR STARTER
FIRST NUMBER INDICATES AMPERE RATING
SECOND NUMBER INDICATES NEMA STARTER SIZE
- Ⓢ^{XP} ELECTRIC MOTOR, NUMBER INDICATES HORSEPOWER RATING
XP - EXPLOSION PROOF
- PANELBOARD, NORMAL POWER
- _{100A} ENCLOSED CIRCUIT BREAKER
AMPERE RATING
- _{H/O/A} LOCAL SELECTOR SWITCH
H/O/A - HAND/OFF/AUTO
- JUNCTION BOX
- _{OL} MANUAL MOTOR STARTER, TOGGLE OPERATED, SINGLE PHASE. 1,2 OR 3 POLE AS REQUIRED
OVERLOAD PROTECTION
- _{PB} PUSH BUTTON STATION
- _T TRANSFORMER
- _{MCB} MAIN CIRCUIT BREAKER
- _{VFD} VARIABLE FREQUENCY DRIVE
- Ⓟ DUPLEX RECEPTACLE, NEMA 5-20R
- ⤵ HOME RUN

ABBREVIATIONS:

- AMP AMPERE
- AFF ABOVE FINISHED FLOOR
- AHJ AUTHORITY HAVING JURISDICTION
- AIC AMPERE INTERRUPTING CAPACITY
- AWG AMERICAN WIRE GAUGE
- BLDG BUILDING
- C CONDUIT
- CB CIRCUIT BREAKER
- CU COPPER
- DISC DISCONNECT
- EMT ELECTRICAL METALLIC TUBING
- EQP EQUIPMENT
- EXIST EXISTING
- FBO FURNISHED BY OTHERS
- FWE FURNISHED WITH EQUIPMENT
- G GROUND
- GFCI GROUND FAULT CIRCUIT INTERRUPT
- GND GROUND
- HP HORSEPOWER
- HTR HEATER
- IG ISOLATED GROUND
- K KILO
- KCMIL THOUSAND CIRCULAR MILS
- KV KILOVOLT
- KVA KILOVOLT-AMPERE
- KVAR KILOVOLT-AMPERE REACTIVE
- KW KILOWATT
- KWH KILOWATT-HOUR
- LTG LIGHTING
- MC METAL CLAD
- MCB MAIN CIRCUIT BREAKER
- MFR MANUFACTURER
- MTD MOUNTED
- NEC NATIONAL ELECTRICAL CODE
- NTS NOT TO SCALE
- PF POWER FACTOR
- PH PHASE
- PVC POLYVINYL CHLORIDE
- QTY QUANTITY
- RSC RIGID STEEL CONDUIT
- SWBD SWITCHBOARD
- V VOLT
- VA VOLT-AMPERE
- WP WEATHER PROOF
- XFMR TRANSFORMER

EQUIPMENT TAGS:

- ⬡₃ MECHANICAL/PLUMBING SYSTEM EQUIPMENT TAG
(SEE MECHANICAL/PLUMBING SHEETS)
TOP INDICATES EQUIPMENT DESIGNATION
BOTTOM INDICATES UNIQUE IDENTIFIER

LINE TYPES:

- EXISTING
- NEW
- DEMOLITION
- MATCHLINE
- PART PLAN OUTLINE
- ELECTRICAL UNDERGROUND POWER

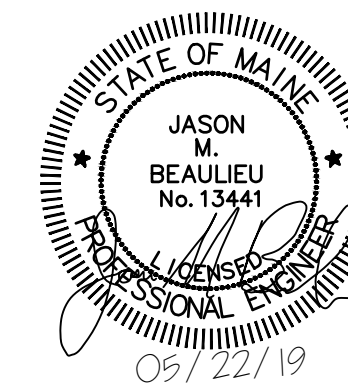
GENERAL NOTES:

1. ALL GENERAL NOTES, SYMBOL LISTS AND DETAILS ARE TO BE CONSIDERED AS APPLICABLE TO ALL ELECTRICAL DRAWINGS FOR THIS PROJECT. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND DO NOT INDICATE THEIR INCORPORATION IN THE DESIGN.
2. PERFORM ALL WORK IN ACCORDANCE WITH NFPA-70, NATIONAL ELECTRICAL CODE (NEC) 2017.
3. REMOVE ALL ELECTRICAL EQUIPMENT COMPLETELY WHERE INDICATED. REMOVE ALL CONDUIT, CIRCUIT CONDUCTORS, SWITCHES, LIGHTING FIXTURES AND MISCELLANEOUS APPLIANCES BACK TO ENERGIZING SOURCE OR JUNCTION BOX WHERE MULTIPLE EQUIPMENT IS POWERED.
4. ALL CONDUCTOR MATERIAL, INCLUDING WIRING, PANELBOARD BUSES, TRANSFORMER WINDINGS, AND GROUNDING MUST BE COPPER. ALUMINUM CONDUCTORS ARE NOT ALLOWED.
5. PROVIDE GALVANIZED STEEL WALL PLATES FOR ALL MECHANICAL SPACES WIRING DEVICES, NYLON SMOOTH WALL PLATES FOR ALL FINISHED PARTITIONED SPACES WIRING DEVICES, AND THERMOPLASTIC WALL PLATES FOR EXTERIOR WIRING DEVICES.
6. USE THHN/THWN INSULATION FOR ALL INTERIOR DISTRIBUTION AND BRANCH WIRING AND USE XHHW INSULATION FOR ALL EXTERIOR DISTRIBUTION AND BRANCH WIRING.
7. UNLESS OTHERWISE NOTED, PROVIDE TYPE EMT CONDUIT FOR ALL INTERIOR RACEWAY, TYPE RGS CONDUIT FOR ALL EXTERIOR RACEWAY, LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTIONS TO MOTORS, AND FLEXIBLE METAL CONDUIT FOR CONNECTIONS TO LIGHT FIXTURES (MAXIMUM 6FT LENGTH).
8. ALL EQUIPMENT DISCONNECTS AND MANUAL MOTOR STARTERS ARE PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED AS FURNISHED WITH EQUIPMENT (FWE). MOUNT ALL DISCONNECTS AND MOTOR STARTERS IN AN ACCESSIBLE LOCATION WITHIN SIGHT OF THE LOAD SERVED.
9. SEAL ALL PENETRATIONS THROUGH FLOORS, RATED WALLS AND PARTITIONS WITH UL APPROVED FIRE SEALANT MATERIAL TO MAINTAIN THE RATING OF SEPARATION.
10. EQUIPMENT CONNECTIONS ARE SHOWN FOR BASIS-OF-DESIGN PRODUCTS. COORDINATE ALL EQUIPMENT CONNECTIONS - INCLUDING DISCONNECTING MEANS, OVERCURRENT PROTECTION, AND WIRE SIZING - WITH SELECTED MANUFACTURER'S RECOMMENDED INSTRUCTIONS.
11. PROVIDE ALL MOUNTING HARDWARE NECESSARY FOR A COMPLETE INSTALLATION. MOUNT EQUIPMENT AND ROUTE CONDUIT SO AS NOT TO INTERFERE WITH OPERATIONS SUCH AS OVERHEAD DOORS, DOOR SWINGS, ETC.
12. MANUFACTURERS NAME AND MODEL NUMBERS ARE USED THROUGHOUT THE PROJECT FOR DESCRIPTIVE PURPOSES ONLY AND ARE INTENDED TO INDICATE THE STANDARD OF MATERIAL OR ARTICLES REQUIRED. DESIGN IS PREDICATED AROUND LISTED MANUFACTURERS AS NOTED ON SCHEDULES AND NOTES AND IS NOT INTENDED TO LIMIT THE CONTRACTOR TO ONE MANUFACTURER.
13. PROVIDE A 3-INCH HIGH REINFORCED CONCRETE PAD UNDER ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
14. SUPPLY ALL DISTRIBUTION EQUIPMENT FROM THE SAME MANUFACTURER. APPROVED MANUFACTURERS INCLUDE SQUARE D, EATON/CUTLER-HAMMER, SIEMENS, OR APPROVED EQUAL.
15. LABEL ALL NEW EQUIPMENT ENCLOSURES, SWITCHES, RECEPTACLES, AND DEVICES WITH THE SOURCE CIRCUIT AND EQUIPMENT CONTROLLED WHERE APPLICABLE. APPLY APPROPRIATE ARC-FLASH LABELS TO ALL NEW PANELBOARDS AND SWITCHBOARDS.
16. SEAL ALL PENETRATIONS THROUGH FLOORS, RATED WALLS AND PARTITIONS WITH UL APPROVED FIRE SEALANT MATERIAL TO MAINTAIN THE RATING OF SEPARATION.
17. CONTRACTOR SHALL COORDINATE FINAL DEVICE LOCATIONS WITH EQUIPMENT LAYOUT AND CONNECTION REQUIREMENTS
18. PERFORM ALL COMMUNICATIONS WORK IN ACCORDANCE WITH APPLICABLE TELECOMMUNICATIONS INDUSTRY ASSOCIATION AND ELECTRONICS INDUSTRIES ALLIANCE (TIA/EIA) STANDARDS. FOLLOW SELECTED MANUFACTURERS' RECOMMENDED INSTALLATION AND CONNECTION PROCEDURES. COORDINATE ALL TELEPHONE AND DATA INSTALLATIONS WITH OWNER'S REPRESENTATIVE.

COMMUNICATIONS:

- ▽ DATA SYSTEM CONNECTION

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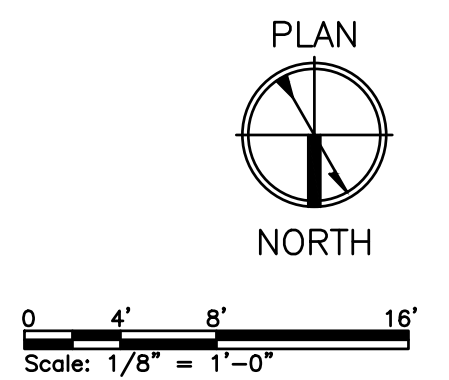
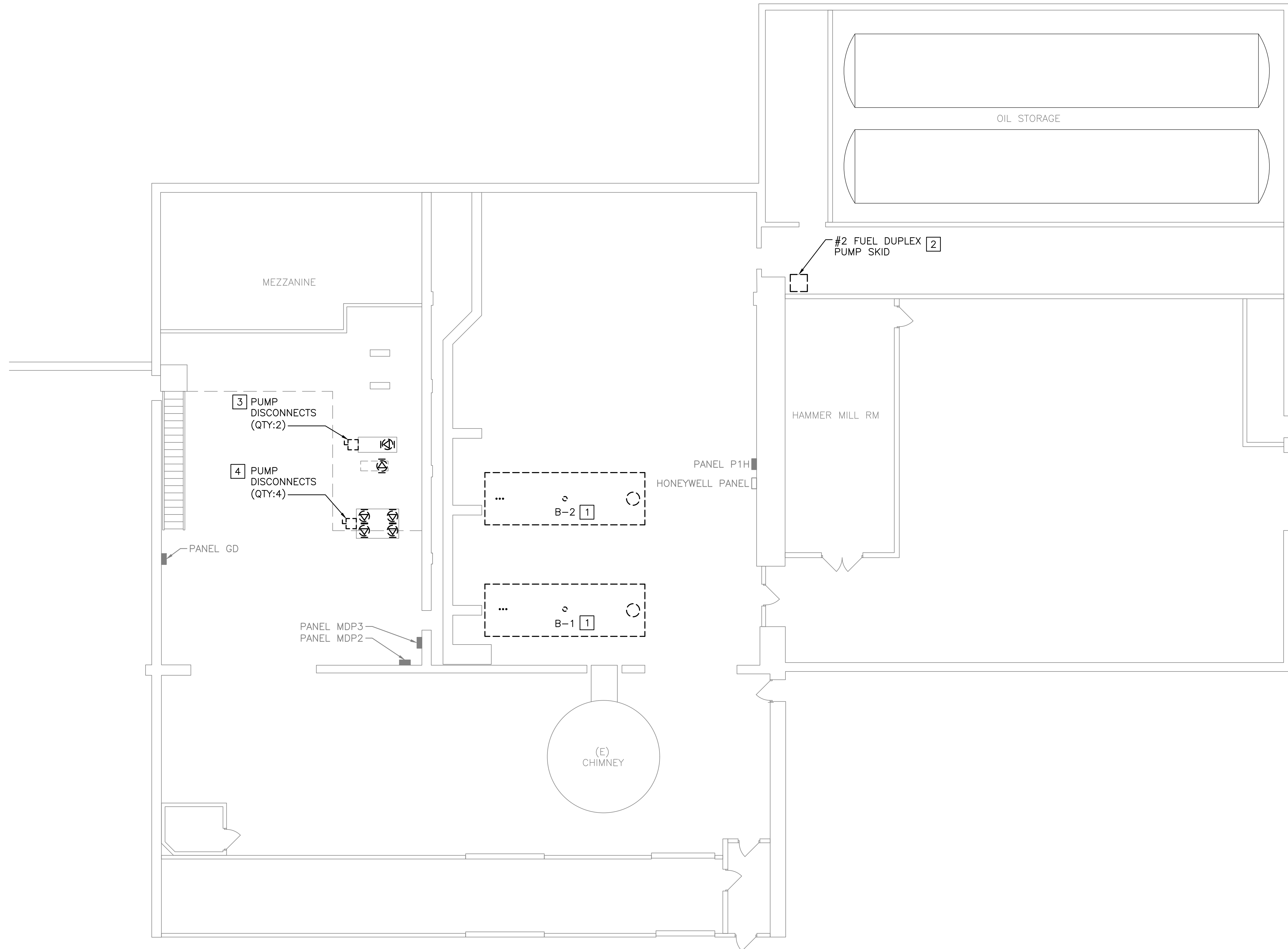
BREM			
77 STATE HOUSE STATION - AUGUSTA, MAINE			
EAST CAMPUS STEAM PLANT REPLACEMENT			
ELECTRICAL LEGEND, GENERAL NOTES AND ABBREVIATIONS			
REV	DESCRIPTION	CAW	RLM 05/22/19
0	ISSUED FOR BID		
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		DATE: 03/27/2019	DRAWING NO. E-001
		DES BY: HCG	SHEET 17 OF 20
		DWN BY: CAW	
		CKD BY: JMB	

NOTES:

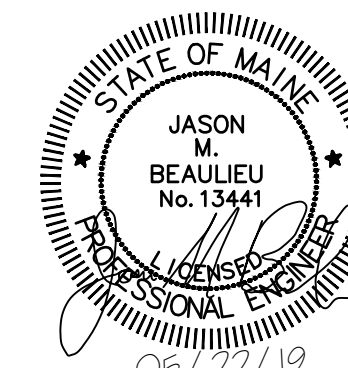
1. SEE E-001 FOR LEGEND, GENERAL NOTES AND ABBREVIATIONS.
2. SEE MD-101 & MD-102 FOR DEMOLITION COORDINATION.

DEMOLITION KEYED NOTES:

1. COMPLETELY REMOVE CONDUIT AND CONDUCTORS FOR B-1 AND B-2 BACK TO ENERGIZING SOURCES (MDP3 AND P1H). COMPLETELY REMOVE CONTROL WIRING FOR BOTH B-1 AND B-2.
2. REMOVE FUEL PUMP CONTROL UNIT. ASSOCIATED CONDUIT AND CONDUCTORS FOR POWER SHALL REMAIN FOR CONNECTION TO NEW FUEL PUMP CONTROL UNIT.
3. COMPLETELY REMOVE CONDUIT AND CONDUCTORS FOR PUMPS BACK TO ENERGIZING SOURCE MDP2.
4. COMPLETELY REMOVE CONDUIT AND CONDUCTORS FOR BOILER FEED WATER PUMPS BACK TO ENERGIZING SOURCE MDP3. REMOVE AND SALVAGE 30A DISCONNECTS (QTY: 4). SEE MECHANICAL SHEET MD-102.



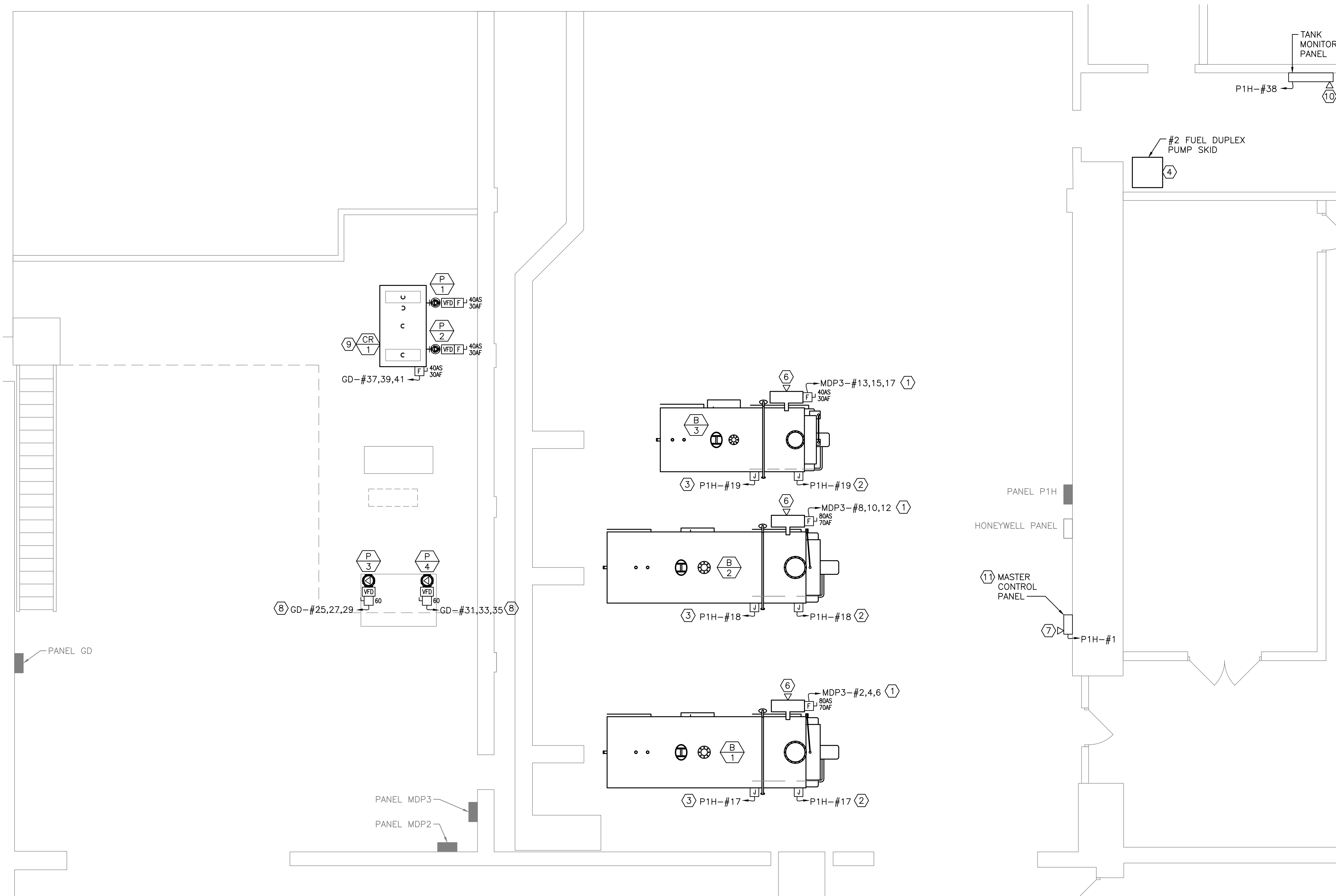
ELECTRICAL DEMOLITION FLOOR PLAN
SCALE: 1/8" = 1'-0"



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BREM				77 STATE HOUSE STATION - AUGUSTA, MAINE			
EAST CAMPUS				STEAM PLANT REPLACEMENT			
ELECTRICAL DEMOLITION FLOOR PLAN				PROJECT NO. 163.002.005			
DRAWING NO. ED-101				SHEET 18 OF 20			
0	ISSUED FOR BID	CAW	RLM	05/22/19			
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				DWN BY: CAW			
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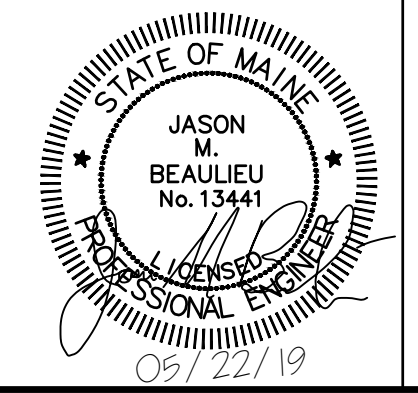
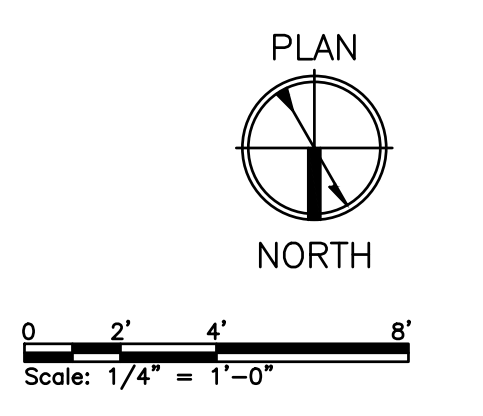
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- NOTE:**
- SEE E-001 FOR LEGEND, GENERAL NOTES AND ABBREVIATIONS.
 - SEE SHEET E-601 FOR ELECTRICAL PANEL SCHEDULES.
 - SEE M-101 & M-401 FOR COORDINATION.
 - SEE M-701 & M-702 FOR PROCESS DIAGRAM.

- KEYED NOTES:**
- BOILER SINGLE POINT POWER CONNECTION. FUSED DISCONNECT TO BE FURNISHED WITH EQUIPMENT.
 - 120V CIRCUIT FOR THERMAL CUT OUT.
 - 120V CIRCUIT FOR FEEDWATER VALVE.
 - CONNECT NEW FUEL OIL PUMP UNIT TO EXISTING ELECTRICAL CIRCUIT CONDUCTORS USED BY REMOVED UNIT.
 - FUSED DISCONNECTS FOR CONDENSATE PUMPS TO BE FURNISHED WITH EQUIPMENT.
 - PROVIDE BACNET CONNECTION FROM B-1, B-2, B-3 BACK TO MASTER CONTROL PANEL. DATA CONNECTION CONSISTS OF (1) ETHERNET CABLE, (1) SHIELDED TWISTED PAIR, AND (4) CONTROL WIRES.
 - PROVIDE BACNET CONNECTION FOR MASTER CONTROL PANEL BACK TO HONEYWELL PANEL.
 - PROVIDE DISCONNECTS FOR FEEDWATER PUMPS. MOUNT DISCONNECTS ON EXISTING SLOTTED METAL CHANNEL ASSEMBLY IN VIEW OF PUMPS.
 - FUSED DISCONNECT FOR CONDENSATE TANK AND PUMPS P-1 & P-2 TO BE FURNISHED WITH EQUIPMENT. POWER CONNECTION POINT AT TRANSFER TANK ENTRANCE PANEL.
 - PROVIDE BACNET CONNECTION FOR PANEL BACK TO HONEYWELL PANEL.
 - EXACT MOUNTING LOCATION FOR MASTER CONTROL PANEL TO BE DETERMINED BY OWNER.

ELECTRICAL POWER FLOOR PLAN
SCALE: 1/4" = 1'-0"



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DES BY: HCG
DWN BY: CAW
CKD BY: JMB

BREM 77 STATE HOUSE STATION - AUGUSTA, MAINE	
EAST CAMPUS STEAM PLANT REPLACEMENT	
ELECTRICAL POWER PLAN	
PROJECT NO. 163.002.005	DRAWING NO. E-101
SHEET 19 OF 20	

PANELBOARD NO: PANEL P-1-H SC RATING: MOUNTING: SURFACE 100 AMP MAIN LUGS
 PANELBOARD TYPE: SQUARE D VOLTAGE: 208Y/120V 3-PHASE 4-WIRE 100 AMP BUS (COPPER)
 PANEL LOCATION: MAIN BOILER ROOM
 SUPPLIED FROM: PANEL DP-BR

CKT NO.	TRIP AMPS	NO. POLES	WIRE / CONDUIT	GND WIRE	LOAD SERVED	LOAD VA	φ	LOAD VA	LOAD SERVED	WIRE / CONDUIT	GND WIRE	NO. POLES	TRIP AMPS	CKT NO.
1	20	1	2#12 / 3/4"	#12	BOILER MASTER CONTROL PANEL (1)	600	A		ITS CONTROL RM			1	20	2
3	20	1			REC SW WALL		B		REC CONTROL RM			1	20	4
5	20	1			ITS OVER DISC SW		C		UNKNOWN			1	20	6
7	20	1			REC HAMMERHILL RM		A		CHEM TOTE REC			1	20	8
9	20	1			LIGHTS		B		REC SOUTH EAST WALL			1	20	10
11	20	1			UNKNOWN		C		REC EAST WALL			1	20	12
13	20	1			LIGHTS		A		UNKNOWN			1	20	14
15	20	1			REC BELOW PANEL		B		UNKNOWN			1	20	16
17	20	1	2#12 / 3/4"	#12	BOILER 1 THERMAL CUTOUT & FEEDWATER VALVE	600	C	600	BOILER 2 THERMAL CUTOUT & FEEDWATER VALVE (1)	2#12 / 3/4"	#12	1	20	18
19	20	1	2#12 / 3/4"	#12	BOILER 3 THERMAL CUTOUT & FEEDWATER VALVE	600	A		UNKNOWN			1	20	20
21	20	1			UNKNOWN		B							22
23	20	1			REC BELOW PANEL		C		UNKNOWN			3	40	24
25						552	A							26
27	20	3	3#12 / 3/4"	#12	FUEL OIL PUMP SKID (1)	552	B		WELDER RECEP			2	50	28
29						552	C							30
31	20	1			REC		A		REC BELOW PANEL			1	20	32
33	20	1			REC SW WALL		B		UNKNOWN			1	20	34
35	20	1			REC SW WALL		C		HONEYWELL PANEL			1	15	36
37	20	1			REC SW WALL		A	300	LEAK DETECTION CONTROL PANEL (1)	2#12 / 3/4"	#12	1	20	38
39	20	1			REC SW WALL		B		SPACE					40
41	20	1			REC SW WALL		C		SPACE					42

TOTAL PHASE A LOAD = 2.1 kVA
 TOTAL PHASE B LOAD = 0.6 kVA
 TOTAL PHASE C LOAD = 1.8 kVA
 TOTAL CONNECTED LOAD = 4.4 kVA

NOTES: (1) REUSE EXISTING BREAKER

PANEL P-1-H

PANELBOARD NO: PANEL MDP 3 SC RATING: MOUNTING: SURFACE 400 AMP MAIN LUGS
 PANELBOARD TYPE: SQUARE D VOLTAGE: 480Y/277V 3-PHASE 3-WIRE 400 AMP BUS (COPPER)
 PANEL LOCATION: MAIN PUMP ROOM
 SUPPLIED FROM: PANEL MD

CKT NO.	TRIP AMPS	NO. POLES	WIRE / CONDUIT	GND WIRE	LOAD SERVED	LOAD VA	φ	LOAD VA	LOAD SERVED	WIRE / CONDUIT	GND WIRE	NO. POLES	TRIP AMPS	CKT NO.
1							A	14117						2
3	25	3			PANEL P-E-E		B	14117	BOILER #1	3#4 / 1"	#8	3	70	4
5							C	14117						6
7							A	14117						8
9	30	3			OIL HEATERS		B	14117	BOILER #2	3#4 / 1"	#8	3	70	10
11							C	14117						12
13						6159	A							14
15	30	3	3#10 / 3/4"	#10	BOILER #3 (1)	6159	B		SPARE			3	20	16
17						6159	C							18
19							A							20
21	60	3			COMPRESSORS		B		BATTERY CHARGER PACK			3	60	22
23							C							24
25							A							26
27	15	3			OIL PUMP		B		FEED PUMP			3	50	28
29							C							30
31							A							32
33	100	3			PANEL P-1-C1, P-1-C2 TRANSFORMER		B		UNKNOWN			3	90	34
35							C							36
37							A							38
39	100	3			PANEL DP-BR TRANSFORMER		B		PANEL HP-1-R			3	100	40
41							C							42

TOTAL PHASE A LOAD = 34.4 kVA
 TOTAL PHASE B LOAD = 34.4 kVA
 TOTAL PHASE C LOAD = 34.4 kVA
 TOTAL CONNECTED LOAD = 103.2 kVA

NOTES: (1) REUSE EXISTING BREAKER

PANEL MDP-3

- NOTES:
- SEE E-001 FOR LEGEND, GENERAL NOTES AND ABBREVIATIONS.
 - HIGHLIGHTED CIRCUITS INDICATE EXISTING CIRCUITS WITH UNVERIFIED LOADS.
 - UNLESS OTHERWISE NOTED PANEL SCHEDULES INDICATE NEW CIRCUIT BREAKERS TO BE PROVIDED.

PANELBOARD NO: PANEL GD SC RATING: MOUNTING: SURFACE 800 AMP MAIN LUGS
 PANELBOARD TYPE: SQUARE D VOLTAGE: 480Y/277V 3-PHASE 4-WIRE 800 AMP BUS (COPPER)
 PANEL LOCATION: MAIN PUMP ROOM
 SUPPLIED FROM: PANEL MD

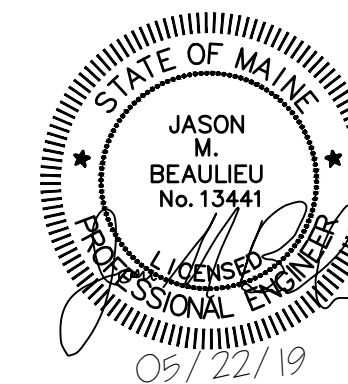
CKT NO.	TRIP AMPS	NO. POLES	WIRE / CONDUIT	GND WIRE	LOAD SERVED	LOAD VA	φ	LOAD VA	LOAD SERVED	WIRE / CONDUIT	GND WIRE	NO. POLES	TRIP AMPS	CKT NO.
1	100	3			TRANSFORMER T2A		A							
							B							
							C							
3					SPACE		A		MCC B4			3	800	2
					SPACE		B							
					SPACE		C							
5					SPACE		A							
					SPACE		B		MDP-2			3	400	4
					SPACE		C							
7					SPACE		A							
					SPACE		B							
					SPACE		C							
9	60	3	3#6 / 3/4"	#10	FEEDWATER PUMP, P-3	5813	A							
						5813	B							
						5813	C							
11	60	3	3#6 / 3/4"	#10	FEEDWATER PUMP, P-4	5813	A							
						5813	B							
						5813	C							
13	30	3	3#10 / 3/4"	#10	CONDENSATE TANK, P-1 & P-2	2989	A		SPACE					
						2989	B		SPACE					
						2989	C		SPACE					

TOTAL PHASE A LOAD = 14.6 kVA
 TOTAL PHASE B LOAD = 14.6 kVA
 TOTAL PHASE C LOAD = 14.6 kVA
 TOTAL CONNECTED LOAD = 43.8 kVA

NOTES:

PANEL GD

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				EAST CAMPUS STEAM PLANT REPLACEMENT			
				PANEL SCHEDULES			
0	ISSUED FOR BID	CAW	RLM	05/22/19			
REV	DESCRIPTION	DWN	APP	DATE			
				SIZE: ANSI D	PROJECT NO:	DRAWING NO:	
				DATE: 03/27/2019	163.002.005	E-601	
				DES BY: HCG	SHEET	20 OF 20	
				DWN BY: CAW			
				CKD BY: JMB			