

Drawing = M:\2016\16085\Design\HVAC\16085\_TITLE SHEET.dwg Tab = G1-1 Username = spavlik Date = Apr 19, 2017 - 1:53pm

A

B

C

D

E

F

A

B

C

D

E

F

three inches = one foot

one and one half inches = one foot

one inch = one foot

three quarters inch = one foot

one half inch = one foot

one quarter inch = one foot

one eighth inch = one foot

one sixteenth inch = one foot

one thirty second inch = one foot

one sixty fourth inch = one foot

one one hundred eighth inch = one foot

one two hundred sixteenth inch = one foot

one four hundred thirty second inch = one foot

one eight hundred sixty fourth inch = one foot

one thousand seven hundred twenty eighth inch = one foot

one three thousand five hundred sixteenth inch = one foot

one seven thousand one hundred thirty second inch = one foot

one fourteen thousand two hundred sixty fourth inch = one foot

### HVAC DEMOLITION GENERAL NOTES

1. THE GENERAL NOTES LISTED HERE APPLY TO ALL HVAC DEMOLITION DRAWINGS IN ADDITION TO ANY ADDITIONAL DEMOLITION DRAWING NOTES ON THE INDIVIDUAL DEMOLITION DRAWINGS.
2. SEE CODED NOTES ON INDIVIDUAL DRAWING SHEETS FOR SPECIFIC INSTRUCTIONAL NOTES.
3. FIELD VERIFY EXISTING CONDITIONS.
4. COORDINATE WITH GENERAL TRADES WORK, PLUMBING WORK, FIRE PROTECTION WORK, ELECTRICAL WORK AND OTHER WORK.
5. IT IS RECOGNIZED THAT DRAWINGS MAY BE PLOTTED AT DIFFERENT SCALES, SUCH THAT PLOTTED DRAWINGS MAY VARY FROM ACTUAL OR INTENDED DIMENSIONS. THEREFORE, DRAWINGS ARE DIAGRAMMATIC AND ARE NOT TO BE SCALED. SBM TAKES NO RESPONSIBILITY FOR ERRORS REGARDING DISCREPANCIES FROM THE ORIGINAL DRAWINGS DRAWN AT THE PROPER SCALE AND THOSE DRAWINGS THAT HAVE BEEN PLOTTED.
6. COORDINATE SHUT-DOWN OF ANY UTILITY IN ADVANCE WITH THE OWNER. ACCOMPLISH DRAIN DOWN AND RE-FILL OF PIPING SYSTEMS AS REQUIRED, UNLESS OTHERWISE SPECIFICALLY INDICATED. EXISTING CHILLED WATER SYSTEMS SHALL NOT BE DISRUPTED DURING THE COOLING SEASON, AND HEATING SYSTEMS SHALL NOT BE DISRUPTED WHEN REQUIRED FOR OCCUPANT COMFORT OR BUILDING FREEZE PROTECTION.
7. DARK, DASHED LINES INDICATE PIPING, DUCTWORK AND EQUIPMENT TO BE REMOVED.
8. SEE SPECIFICATIONS FOR GENERAL CUTTING AND PATCHING REQUIREMENTS REQUIRED UNDER DEMOLITION. ALSO SEE DRAWINGS FOR MORE SPECIFIC REQUIREMENTS.
9. SEE SPECIFICATIONS FOR SALVAGE RIGHTS TO ANY EQUIPMENT OR MATERIALS BEING REMOVED.
10. REMOVE ALL HANGERS AND SUPPORTS SERVING PIPING, DUCTWORK AND EQUIPMENT BEING DEMOLISHED. PROVIDE AND/OR ADJUST EXISTING HANGERS TO SUPPORT ANY REMAINING PIPING, DUCTWORK, OR EQUIPMENT ADJACENT TO DEMOLISHED.
11. CAP ALL REMAINING ACTIVE PIPING WITH SIMILAR MATERIALS TO MATCH EXISTING WATER/TAHT. PIPE ENDS INDICATED TO BE CAPPED ARE NOT TO BE CRIMPED. INSULATED PIPING SHALL BE INSULATED AT CAP WITH MATERIALS SPECIFIED FOR NEW WORK.
12. REMOVE ALL TEMPERATURE CONTROL WIRING AND PIPING FROM DEMOLISHED EQUIPMENT BACK TO MAIN SOURCE) AND CAP CONTROL AIR PIPING AIRTIGHT. CRIMPING SHALL NOT BE CONSIDERED ADEQUATE.

### HVAC NEW WORK GENERAL NOTES

1. THE GENERAL NOTES LISTED HERE APPLY TO ALL HVAC DRAWINGS IN ADDITION TO ANY ADDITIONAL DRAWING NOTES ON THE INDIVIDUAL DRAWINGS.
2. REFER ALSO TO DUCTWORK MATERIAL SCHEDULE AND NOTES FOR ADDITIONAL GENERAL NOTES APPLICABLE TO DUCTWORK.
3. SEE CODED NOTES ON INDIVIDUAL DRAWING SHEETS FOR SPECIFIC INSTRUCTIONAL NOTES.
4. FIELD VERIFY EXISTING CONDITIONS.
5. COORDINATE WITH GENERAL TRADES WORK, PLUMBING WORK, FIRE PROTECTION WORK, ELECTRICAL WORK AND OTHER WORK.
6. IT IS RECOGNIZED THAT DRAWINGS MAY BE PLOTTED AT DIFFERENT SCALES, SUCH THAT PLOTTED DRAWINGS MAY VARY FROM ACTUAL OR INTENDED DIMENSIONS. THEREFORE, DRAWINGS ARE DIAGRAMMATIC AND ARE NOT TO BE SCALED. SBM TAKES NO RESPONSIBILITY FOR ERRORS REGARDING DISCREPANCIES FROM THE ORIGINAL DRAWINGS DRAWN AT THE PROPER SCALE AND THOSE DRAWINGS THAT HAVE BEEN PLOTTED.
7. THE MECHANICAL DESIGN DRAWINGS ARE DIAGRAMMATIC AND ARE NOT INTENDED TO SHOW EXACT LOCATION OF EQUIPMENT, PIPING AND DUCTWORK UNLESS DIMENSIONS ARE GIVEN OR OTHERWISE IMPLIED FOR CLEARANCES, ETC. PIPING, DUCTWORK AND MECHANICAL EQUIPMENT ARE TO BE INSTALLED ALONG THE GENERAL PLANS SHOWN ON THE DRAWINGS, BUT KEEPING IN MIND ACTUAL BUILDING CONDITIONS WHICH MUST BE CONFORMED WITH IN THE ACTUAL WORK. CONTRACTORS IN THEIR BIDS ARE REQUIRED TO INCLUDE ALL LABOR AND MATERIALS AND OTHER RELATED WORK NECESSARY TO PROVIDE MINOR OFFSETS IN MECHANICAL WORK AS REQUIRED TO AVOID CONFLICT WITH OTHER WORK ON THIS PROJECT, OR AS REQUIRED IN ORDER TO OBTAIN MAXIMUM HEAD ROOM OR EQUIPMENT ACCESS IN SPACES.
8. COORDINATE SHUT-DOWN OF ANY UTILITY IN ADVANCE WITH THE OWNER. ACCOMPLISH DRAIN DOWN AND RE-FILL OF PIPING SYSTEMS AS REQUIRED, UNLESS OTHERWISE SPECIFICALLY INDICATED. EXISTING CHILLED WATER SYSTEMS SHALL NOT BE DISRUPTED DURING THE COOLING SEASON, AND HEATING SYSTEMS SHALL NOT BE DISRUPTED WHEN REQUIRED FOR OCCUPANT COMFORT OR BUILDING FREEZE PROTECTION.
9. MAINTAIN REQUIRED RIGGING ACCESS CLEARANCES. COORDINATE CLEARANCE REQUIREMENTS WITH OTHER TRADES.
10. H.C. IS TO COORDINATE ALL MASONRY PENETRATION LOCATIONS AND SIZES WITH G.C.
11. COORDINATE EXACT POSITIONING OF FLOOR DRAINS WITH PLUMBING CONTRACTOR TO SERVE HVAC EQUIPMENT AS INTENDED, AND TO AVOID TRIPPING HAZARDS WITH ABOVE FLOOR DRAIN PIPING.
12. DO NOT ROUTE DUCTWORK OR PIPING OVER ELECTRICAL EQUIPMENT.
13. UNLESS OTHERWISE INDICATED, ALL PIPING TO RUN GENERALLY BELOW DUCTWORK FOR ACCESS TO VALVING, DO NOT OBSTRUCT EQUIPMENT OR ACCESS DOORS. AVOID DUCTWORK OVER LIGHTS WHEREVER POSSIBLE.
14. EQUIPMENT CONNECTION ARRANGEMENTS, FLANGES, UNIONS, VALVING, ETC. ARE NOT TYPICALLY SHOWN ON PLAN VIEWS. REFER TO DETAILS AND FLOW DIAGRAMS FOR REQUIREMENTS. INSTALL ALL VALVES AND OTHER ITEMS REQUIRING OR FACILITATING MAINTENANCE IN ACCESSIBLE LOCATIONS, AND SO AS TO NOT OBSTRUCT MAINTENANCE ON EQUIPMENT SERVED.
15. NOT ALL AIR VENTS AND DRAINS HAVE BEEN SHOWN ON PIPING AS THEIR REQUIRED LOCATION DEPENDS ON THE PIPING INSTALLATION. REFER TO SPECIFICATIONS FOR REQUIREMENTS OF PIPING AIR VENTS AND DRAINS. PROVIDE AIR VENTS IN ALL HIGH POINTS AND DRAIN VALVES AT ALL LOW POINTS IN PIPING SYSTEM.
16. SEE TEMPERATURE CONTROL DRAWINGS AND COORDINATE WITH TEMPERATURE CONTROL CONTRACTORS FOR INSTRUMENTATION DEVICES REQUIRED TO BE INSTALLED IN PIPING AND DUCTWORK, TOGETHER WITH NECESSARY CLEARANCES FOR SAME.
17. NO "BULL-HEAD" TEES ARE PERMITTED IN PIPING. FLOW IS NOT PERMITTED TO BE IN OPPOSING DIRECTIONS IN THE SAME TEE FITTING.

### HVAC SYMBOL LEGEND

ABBREVIATION	SYMBOL	DESCRIPTION
LPS		LOW PRESSURE STEAM SUPPLY (15# OR LESS)
LPC		LOW PRESSURE STEAM CONDENSATE RETURN (15# OR LESS)
MPS		MEDIUM PRESSURE STEAM SUPPLY (16# TO 75#)
MPC		MEDIUM PRESSURE STEAM CONDENSATE RETURN (16# TO 75#)
HPS		HIGH PRESSURE STEAM SUPPLY (76# OR MORE)
HPC		HIGH PRESSURE STEAM CONDENSATE RETURN (76# OR MORE)
CPD		STEAM CONDENSATE PUMPED DISCHARGE
BD		BOILER BLOW DOWN
MU		MAKE-UP WATER
V		STEAM EQUIPMENT ATMOSPHERIC VENT
D		INDIRECT DRAIN
SVD		SAFETY VALVE DISCHARGE
CD		A/C CONDENSATE DRAIN
		GATE VALVE
		GLOBE VALVE
		BALL VALVE
		BALANCE VALVE (SEE SPECIFICATIONS)
		CHECK VALVE (SWING)
		PUMP DISCHARGE SILENT LIFT CHECK VALVE
SPRV		STEAM PRESSURE REGULATING VALVE
PRV		HYDRONIC PRESSURE REDUCING VALVE
		BUTTERFLY VALVE
RV		RELIEF OR SAFETY VALVE
		SOLENOID VALVE
		TWO WAY CONTROL VALVE
T		STEAM TRAP
		CONCENTRIC REDUCER/INCREASER
		STRAINER WITH BLOWDOWN
		UNION
		FLANGED UNION
		EXPANSION JOINT
		PIPE ANCHOR
		PIPE GUIDE
		PIPE SLEEVE (SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS)
		VIBRATION CONNECTION (SEE SPECIFICATIONS)
		AUTOMATIC AIR VENT WITH BALL VALVE
		COMPANION FLANGE
		THERMOMETER/TEMPERATURE GAUGE
		PRESSURE GAUGE WITH GAUGE COCK (WATER)
		PRESSURE GAUGE WITH GAUGE COCK AND SYPHON (STEAM)
		PRESSURE GAUGE WITH GATE VALVE (STEAM)
		PRESSURE GAUGE WITH BALL VALVE (WATER)
		CODED NOTE (SEE SCHEDULE)
E.C.		ELECTRICAL CONTRACTOR
F.P.C.		FIRE PROTECTION CONTRACTOR
G.C.		GENERAL CONTRACTOR
H.C.		HVAC CONTRACTOR
P.C.		PLUMBING CONTRACTOR
T.C.C.		TEMPERATURE CONTROL SUB-CONTRACTOR
A.D.		ACCESS DOOR
A.F.F.		ABOVE FINISHED FLOOR
A.L.		ACTIVE LENGTH
MFR.		MANUFACTURER
N.O.		NORMALLY OPEN
N.C.		NORMALLY CLOSED
TYP.		TYPICAL
E.A.		EXHAUST AIR
R.A.		RETURN AIR
S.A.		SUPPLY AIR
M.O.B.D.		MANUAL OPPOSED BLADE DAMPER
O.B.D.		OPPOSED BLADE DAMPER
		FLOW DIRECTION INDICATOR (LIQUID)
		INDICATES TIE INTO EXISTING
		INDICATES REMOVE TO POINT FOR RECONNECTION
		INDICATES REMOVE TO POINT AND CAP

### HEAT EXCHANGER SCHEDULE

NO.	MAKE OR EQUAL	MODEL	MAX HX LENGTH FT	HX MBH	TUBE SIDE							SHELL SIDE							REMARKS
					GPM	EWTF DEG. F	LWTF DEG. F	NO. PASS	F.F.	MAX WPD (PSI)	MAX FPS	LB/HR OR GPM	ET DEG. F	LT DEG. F	F.F.	MAX PD	MAX FPS		
HX-1	THRUSH	S06-036	4	600	25	50	98	4	0.00025	0.28	1.84	619 LB/HR	212	212	.00025	0	-	DA HEAT RECOVERY	
HX-2	THRUSH	W10-048	4	322	20	60	92.2	4	0.00025	0.15	0.98	5 GPM	227	93	.00025	0	0.04	BLOWDOWN HEAT RECOVERY	

- NOTES:
1. SEE SPECIFICATIONS FOR REQUIRED ACCESSORIES AND SPECIAL MATERIALS REQUIRED.
  2. SHELL-SIDE FLUID SHALL BE AS NOTED.
  3. SHELL SHALL BE REVERSE-PIPED.

### HYDRONIC RELIEF VALVE SCHEDULE

NO.	MAKE OR EQUAL	MODEL	SERVICE	SET PSIG	CAPACITY GPM	OUTLET SIZE	REMARKS
RV-1	WATTS	530C	HEAT RECOVERY SYSTEM	75	15	3/4"	ALL BRONZE - 50 TO 175 PSIG ADJUSTABLE

- NOTES:
1. RV-1 ASSOCIATED WITH HX-1 SHALL HAVE DISCHARGE PIPED TO DEAREATOR DRAIN PIPING.
  2. RV-1 ASSOCIATED WITH HX-2 SHALL BE PIPED TO NEAREST FLOOR DRAIN.

### HYDRONIC PUMP SCHEDULE

NO.	MAKE OR EQUAL	MODEL	TYPE	GPM	HEAD PRESS (FT) H2O	RPM	MAX BHP	MAX N/O BHP	MHP	VOLTS/ PHASE	REMARKS
P-1	TACO	0012-F4	INLINE CIRCULATOR	25	6.5	3250	0.067	-	1/8	115/1	DA HEAT RECOVERY
P-2	TACO	IL0013	INLINE CIRCULATOR	20	11.5	3250	0.167	-	1/8	115/1	BLOWDOWN HEAT RECOVERY
P-3	TACO	IL003	INLINE CIRCULATOR	4	1	3250	0.025	-	1/40	115/1	TO SETTLING TANK

- NOTES:
1. ALL PUMPS TO BE SELECTED FOR THE MAXIMUM NON-OVERLOADING (N/O) BRAKE HORSEPOWER SCHEDULED.
  2. ALL PUMP CASINGS SHALL BE CAPABLE OF ACCEPTING ONE LARGER IMPELLER SIZE.
  3. SEE VIBRATION ISOLATION SPECIFICATION FOR ISOLATION REQUIRED FOR EACH PUMP TYPE.
  4. SEE DRAWINGS FOR PUMP ROTATION.

### STEAM TRAP SCHEDULE

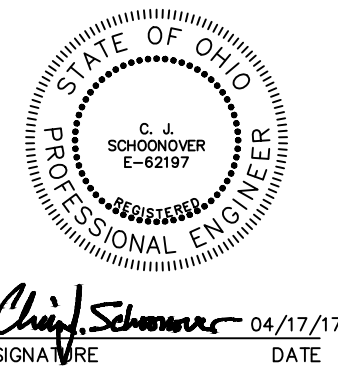
NO.	MAKE OR EQUAL	MODEL	TYPE	CAPACITY LB/HR	PRESS DIFF PSIG	MAX PRESS PSIG	CONNECTION SIZE	REMARKS
T-1	HOFFMAN	FT015H-6	FLOAT AND THERMOSTATIC	1700	1/2	15	1-1/2"	SERVES FLASH RECOVERY TANK

- NOTES:
1. SEE SPECIFICATIONS FOR REQUIRED MATERIALS AND ACCESSORIES.

### CONSULTANTS:

**MECHANICAL/ELECTRICAL/PLUMBING ENGINEERING:**  
 SCHEESER BUCKLEY MAYFIELD, LLC  
1540 CORPORATE WOODS PKWY.  
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P. 330.526.2700

**COST ESTIMATING:**  
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### ARCHITECT/ENGINEERS:

**Kaczmar**  
architects incorporated  
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P. 216.687.1555 F. 216.687.1558

### GENERAL NOTES, SYMBOL LEGEND AND SCHEDULES

Approved: Project Director

Project Title  
VETERAN AFFAIRS MEDICAL CENTER  
RENOVATE BOILER PLANT HEAT  
RECOVERY SYSTEMS

Location  
10701 EAST BLVD. CLEVELAND, OHIO

Date  
4.17.17

Checked  
CJS

Drawn  
SRP

Project Number  
541-18-203

Building Number  
1

Drawing Number

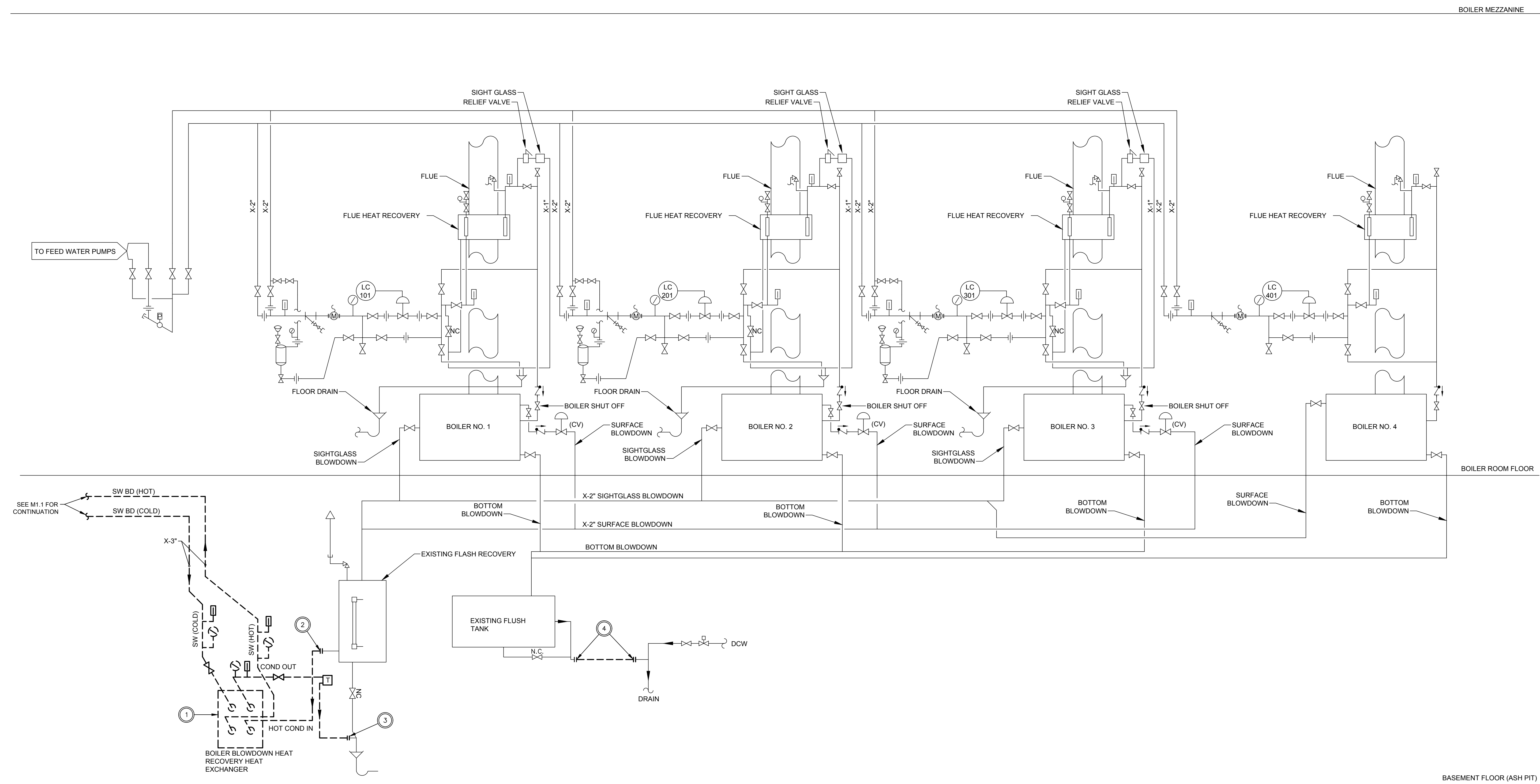
M0.1

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and Facilities  
Management



### FULLY SPRINKLERED





BOILER PLANT - DEMOLITION - FEED WATER/BLOWDOWN FLOW DIAGRAM

PLAN NOTES	
A.	ALL EXISTING PIPING, VALVING, AND EQUIPMENT TO REMAIN UNLESS NOTED OTHERWISE.
B.	SEE SHEET M0.1 FOR GENERAL NOTES, SYMBOL LEGEND, AND SCHEDULES.
C.	SEE SHEET SERIES M1 FOR DEMOLITION FLOW DIAGRAMS AND FLOOR PLANS.
D.	SEE SHEET SERIES M2 FOR NEW WORK FLOW DIAGRAMS AND FLOOR PLANS.
E.	SEE SHEET M3.1 FOR DETAILS AND TEMPERATURE CONTROLS.

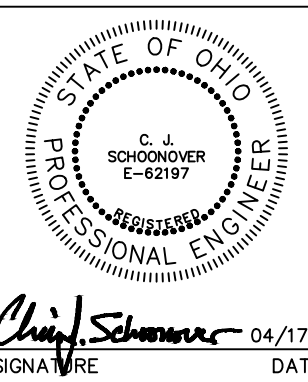
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	<ol style="list-style-type: none"> <li>1. DEMOLISH EXISTING PLATE AND FRAME HEAT EXCHANGER IN ITS ENTIRETY. DEMOLISH ASSOCIATED PIPING AS INDICATED.</li> <li>2. DEMOLISH EXISTING CONDENSATE PIPING TO BLOWDOWN HEAT EXCHANGER BACK TO POINT INDICATED FOR RECONNECTION UNDER NEW WORK. EXTENT OF DEMOLITION SHALL BE VERIFIED WITH EXISTING CONDITIONS.</li> <li>3. DEMOLISH EXISTING CONDENSATE PIPING FROM BLOWDOWN HEAT EXCHANGER BACK TO POINT INDICATED FOR RECONNECTION UNDER NEW WORK. EXTENT OF DEMOLITION SHALL BE VERIFIED WITH EXISTING CONDITIONS.</li> <li>4. DEMOLISH EXISTING FLUSH TANK DRAINAGE PIPING BETWEEN POINTS INDICATED FOR RECONNECTION UNDER NEW WORK. EXTENT OF DEMOLITION SHALL BE VERIFIED WITH EXISTING CONDITIONS.</li> </ol>	

BID ISSUE	4.17.17
100% CD's SUBMISSION	4.14.17
65% CD's SUBMISSION	2.20.17
Revisions:	Date

CONSULTANTS:

**MECHANICAL/ELECTRICAL/PLUMBING ENGINEERING:**  
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ARCHITECT/ENGINEERS:

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Drawing Title

FEED WATER/BLOWDOWN  
FLOW DIAGRAM

Approved: Project Director

Project Title	VETERAN AFFAIRS MEDICAL CENTER RENOVATE BOILER PLANT HEAT RECOVERY SYSTEMS
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Location	10701 EAST BLVD CLEVELAND OHIO
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Date	Checked	Drawn
4.17.17	CJS	SRP

Project Number
541-18-203

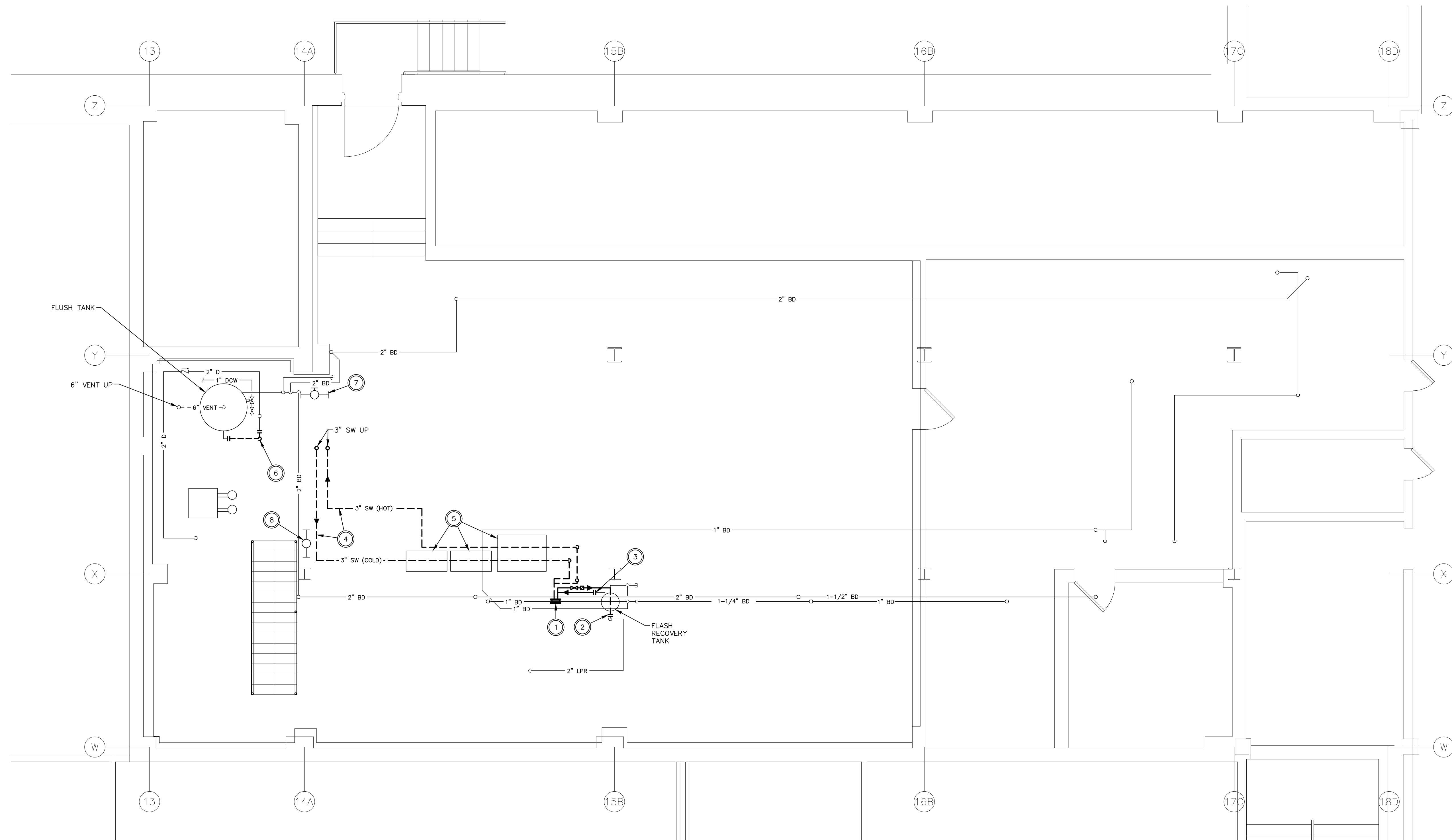
Building Number

Drawing Number

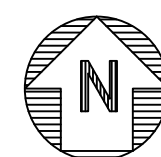
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Office of  
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Management





## ASHPIT FLOOR PLAN - DEMOLITION

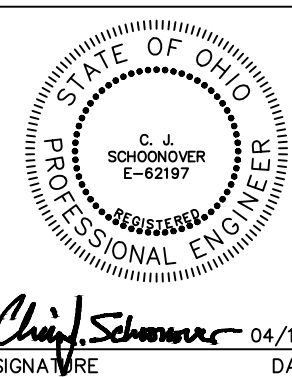


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65% CD's SUBMISSION	2.20.17
Revisions:	Date

CONSULTANTS:

**MECHANICAL/ELECTRICAL/PLUMBING ENGINEERING:**  
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ARCHITECT/ENGINEERS:

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architects incorporated  
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Drawing Title

**ASHPIT FLOOR PLAN -  
DEMOLITION**

Approved: Project Director

Project Title	VETERAN AFFAIRS MEDICAL CENTER RENOVATE BOILER PLANT HEAT RECOVERY SYSTEMS
---------------	--

Location 10701 EAST BLVD. CLEVELAND, OHIO		
Date 4.17.17	Checked CJS	Drawn SRP

FULLY SPRINKLERED

Project Number	541-18-203
Building Number	1

Drawing Number  
**M1.3**

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Construction  
and Facilities  
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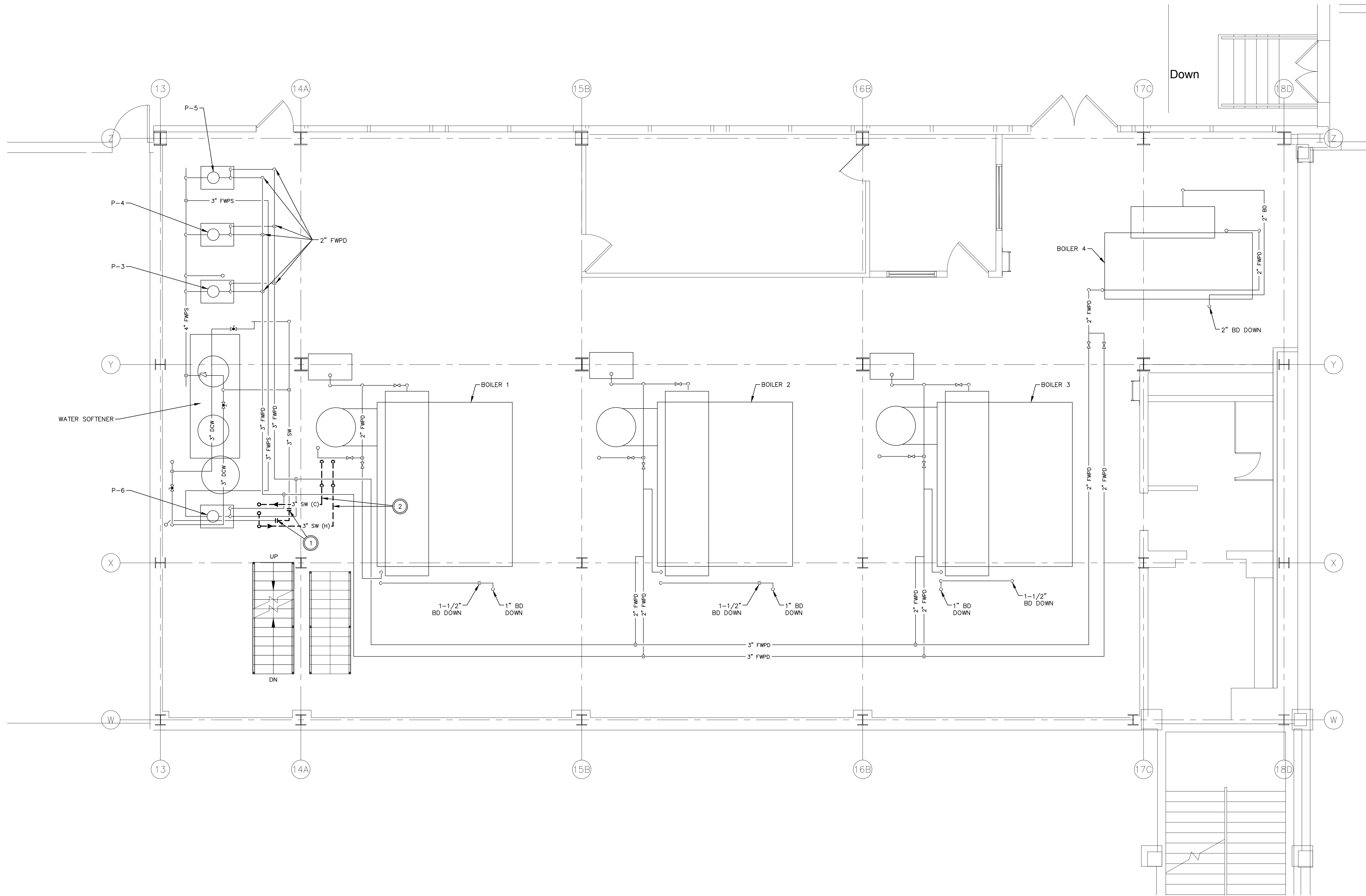
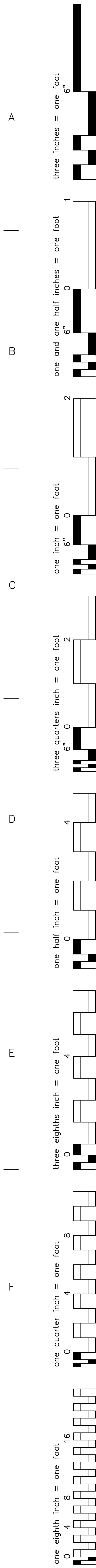


## PLAN NOTES

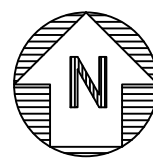
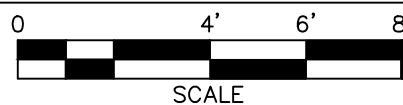
- A. ALL EXISTING PIPING, VALVING, AND EQUIPMENT TO REMAIN UNLESS NOTED OTHERWISE.
- B. SEE SHEET M0.1 FOR GENERAL NOTES, SYMBOL LEGEND, AND SCHEDULES.
- C. SEE SHEET SERIES M1 FOR DEMOLITION FLOW DIAGRAMS AND FLOOR PLANS.
- D. SEE SHEET SERIES M2 FOR NEW WORK FLOW DIAGRAMS AND FLOOR PLANS.
- E. SEE SHEET M3.1 FOR DETAILS AND TEMPERATURE CONTROLS.

CODED NOTES

1. DEMOLISH EXISTING PLATE AND FRAME HEAT EXCHANGER IN ITS ENTIRETY. DEMOLISH PIPING AS INDICATED.
2. DEMOLISH EXISTING CONDENSATE PIPING FROM BLOWDOWN HEAT EXCHANGER BACK TO POINT INDICATED FOR RECONNECTION UNDER NEW WORK. EXTENT OF DEMOLITION SHALL BE VERIFIED WITH EXISTING CONDITIONS.
3. DEMOLISH EXISTING CONDENSATE PIPING TO BLOWDOWN HEAT EXCHANGER BACK TO POINT INDICATED FOR RECONNECTION UNDER NEW WORK. EXTENT OF DEMOLITION SHALL BE VERIFIED WITH EXISTING CONDITIONS.
4. DEMOLISH EXISTING SW BD (C) AND SW BD (H) PIPING.
5. EXISTING STORAGE CABINETS SHALL BE RELOCATED TO NEW LOCATION AS INDICATED ON NEW WORK PLAN.
6. DEMOLISH EXISTING PORTION OF FLUSH TANK DRAIN PIPING IN APPROXIMATELY THIS LOCATION FOR RECONNECTION UNDER NEW WORK. EXTENT OF DEMOLITION SHALL BE AS REQUIRED FOR INSTALLATION OF NEW PIPING AND FITTINGS.
7. APPROXIMATE LOCATION OF WALL MOUNTED LIGHT FIXTURE TO BE REMOVED AND REINSTALLED AS SHOWN ON ASHPIT FLOOR PLAN - NEW WORK. CONTRACTOR TO FIELD VERIFY EXACT LOCATION.
8. APPROXIMATE LOCATION OF PENDANT STRIP FIXTURE TO BE REMOVED AND REINSTALLED AS SHOWN ON ASHPIT FLOOR PLAN - NEW WORK. CONTRACTOR TO FIELD VERIFY EXACT LOCATION.



OPERATING FLOOR FLOOR PLAN - DEMOLITION



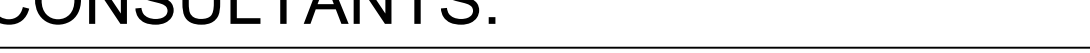
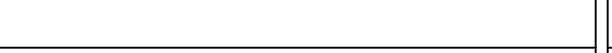
#### PLAN NOTES

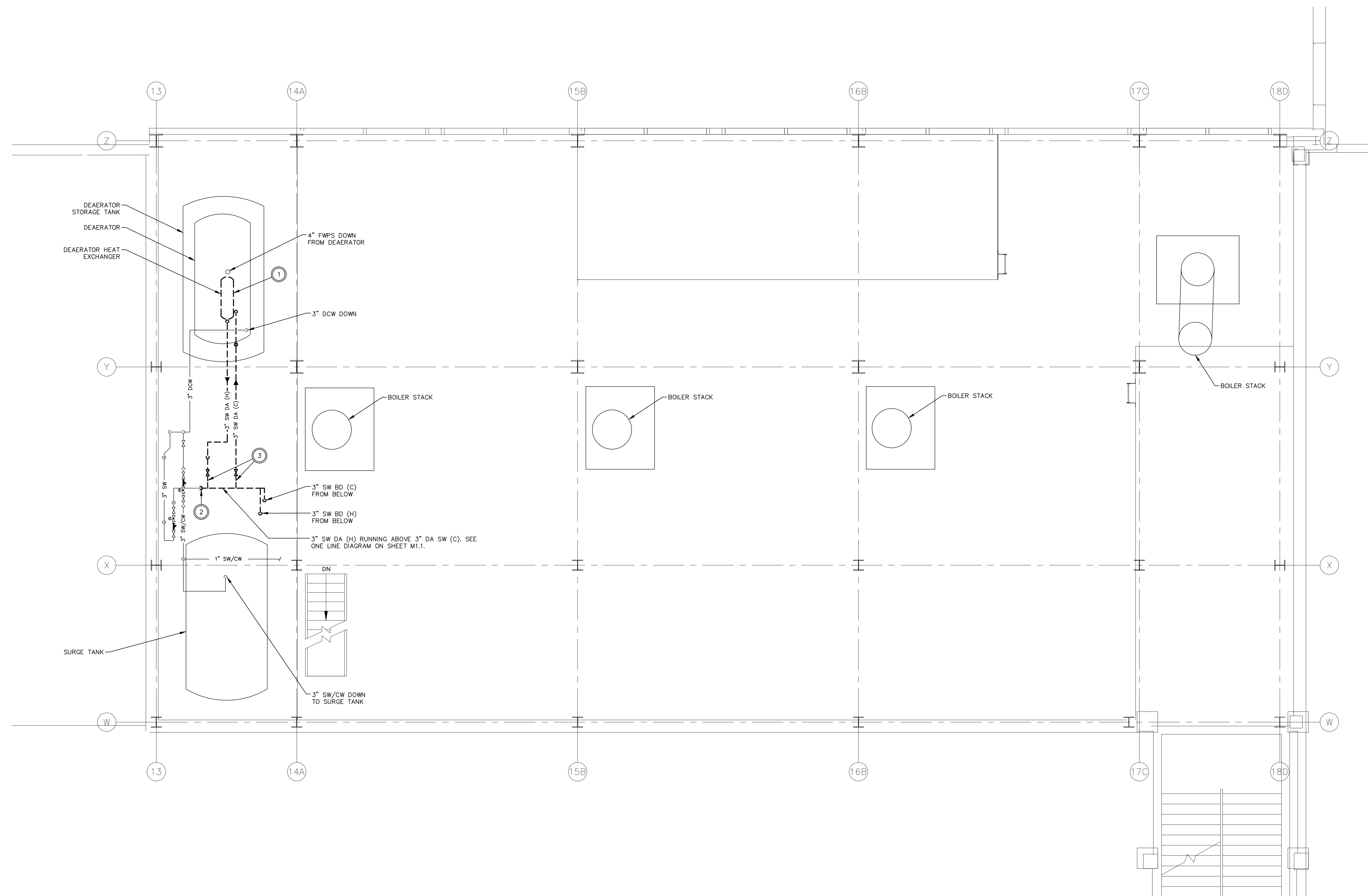
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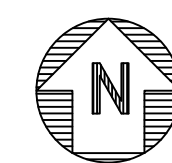
- DEMOLISH EXISTING PORTION OF SW PIPING BETWEEN POINTS INDICATED FOR RECONNECTION UNDER NEW WORK. EXTENT OF DEMOLITION SHALL BE VERIFIED WITH EXISTING CONDITIONS.
- DEMOLISH EXISTING SW BD (C) AND SW BD (H) PIPING FROM FLOOR BELOW TO FLOOR ABOVE.

FULLY SPRINKLERED

		<b>CONSULTANTS:</b>				<b>ARCHITECT/ENGINEERS:</b>		Drawing Title		Project Title		Project Number		Office of Construction and Facilities Management					
								 Kaczmar architects incorporated cleveland • ohio 1468 WEST 9TH STREET #400 CLEVELAND, OH 44113 P. 216.687.1555 F. 216.687.1558		OPERATING FLOOR FLOOR PLAN - DEMOLITION		VETERAN AFFAIRS MEDICAL CENTER RENOVATE BOILER PLANT HEAT RECOVERY SYSTEMS				541-18-203			
								Approved: Project Director		Location 10701 EAST BLVD. CLEVELAND, OHIO		Building Number 1				Drawing Number <b>M1.4</b>			
BID ISSUE		4.17.17										Date 4.17.17		Checked CJS		Drawn SRP		 Department of Veterans Affairs	
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65% CD's SUBMISSION		2.20.17																	
Revisions:		Date																	



MEZZANINE FLOOR PLAN - DEMOLITION



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65% CD's SUBMISSION	2.20.17
Revisions:	Date

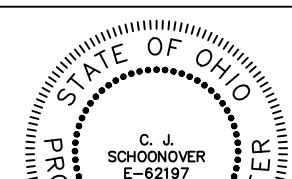
CONSULTANTS:



**MECHANICAL/ELECTRICAL/PLUMBING ENGINEERING:**  
SCHEESER BUCKLEY MAYFIELD, LLC  
1540 CORPORATE WOODS PKWY.  
UNIONTOWN, OH 44685  
P. 330.526.2700

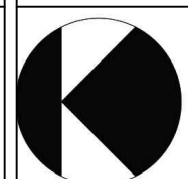


**COST ESTIMATING:**  
MCGUINNESS UNLIMITED, INC.  
15724 STILLWOOD AVE.  
CLEVELAND, OH 44111  
P. 440.667.5120



*Chaf. Schaner* 04/17/1  
SIGNATURE DATE

ARCHITECT/ENGINEERS:



**Kaczmar**  
architects incorporated  
cleveland • ohio  
1468 WEST 9TH STREET #400 CLEVELAND, OH 44113  
P. 216.687.1555 F. 216.687.1558

	Drawing Title
--	---------------

## MEZZANINE FLOOR PLAN - DEMOLITION

Approved: Project Director

	Project Title
--	---------------

VETERAN AFFAIRS MEDICAL CENTER  
RENOVATE BOILER PLANT HEAT  
RECOVERY SYSTEMS

Location	10701 EAST BLVD CLEVELAND OHIO
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Date	4.17.17
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Checked
CJS

Drawn
SRP

Project Number
541-18-203

Building Number	1
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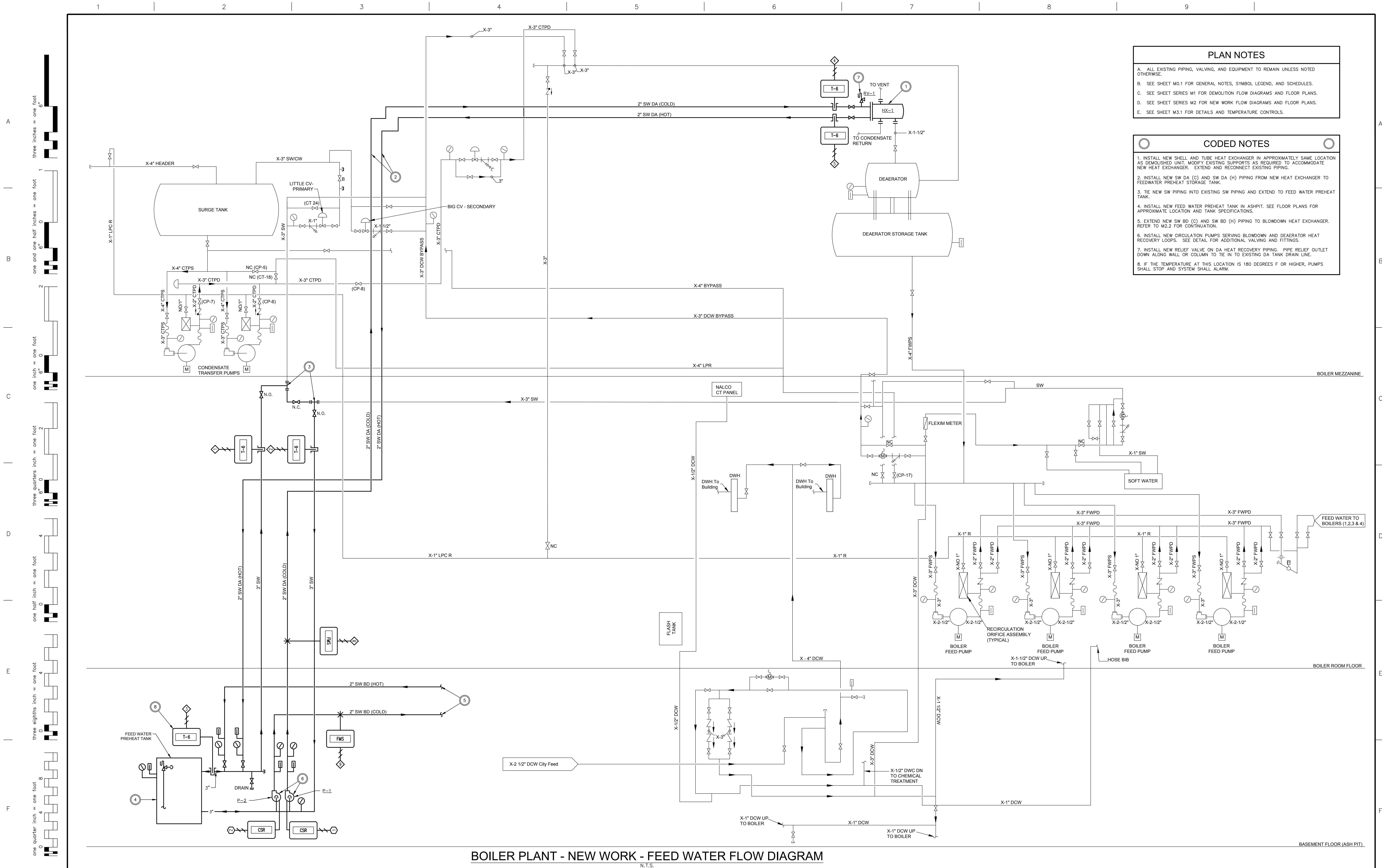
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M1.5

Office of  
Construction  
and Facilities  
Management



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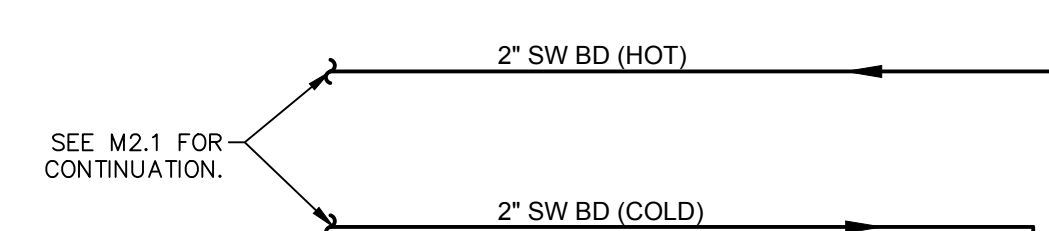


# BOILER PLANT - NEW WORK - FEED WATER FLOW DIAGRAM

[illegible]

## CODED NOTES

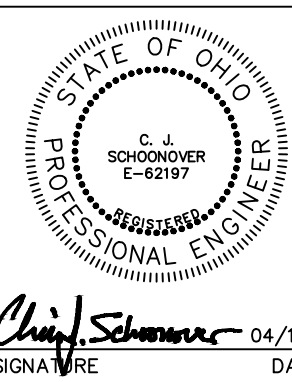
1. INSTALL NEW SHELL AND TUBE HEAT EXCHANGER IN APPROXIMATELY SAME LOCATION AS DEMOLISHED PLATE AND FRAME HEAT EXCHANGER.
2. INSTALL NEW CIRCULATION PUMP SERVING CONDENSATE LINE TO BLOWDOWN HEAT EXCHANGER.
3. THE NEW CONDENSATE PIPING INTO EXISTING CONDENSATE PIPING AND EXTEND TO EXISTING BLOWDOWN PIPING INLET IN TO THE FLUSH TANK.
4. THE NEW CONDENSATE PIPING INTO EXISTING BLOWDOWN PIPING INTO FLUSH TANK INLET.
5. INSTALL NEW SETTLING TANK. CONNECT ASSOCIATED PIPING AS NOTED. SEE FLOOR PLANS FOR TANK SPECIFICATIONS.
6. THE NEW CONDENSATE PIPING INTO EXISTING FLUSH TANK DRAIN PIPING AND EXTEND TO SETTLING TANK INLET.
7. THE NEW SETTLING TANK DRAIN PIPING IN TO EXISTING FLUSH TANK DRAIN PIPING.
8. NEW DRAIN TEMPERING VALVE. EXTEND EXISTING DOW TO VALVE AND INSTALL CHECK VALVE AND HAMMER ARRESTOR AS REQUIRED BY MANUFACTURER. DOWNSTREAM OF TEMPERING VALVE, EXTEND DRAIN PIPING AND RECONNECT TO EXISTING WASH RECIRCULATION DRAIN PIPING TO FLOOR DRAIN. TEMPERING VALVE SHALL BE COOL DRAIN FLOW, INC. MODEL NUMBER DTV20-SV OR APPROVED EQUAL.



N.T.S

VA FORM 08-6231

**COST ESTIMATING:**  
MCGUINNESS UNLIMITED, INC.  
15724 STILLWOOD AVE.  
CLEVELAND, OH 44111  
P. 440.667.5120



 **Kaczmar**  
architects incorporated  
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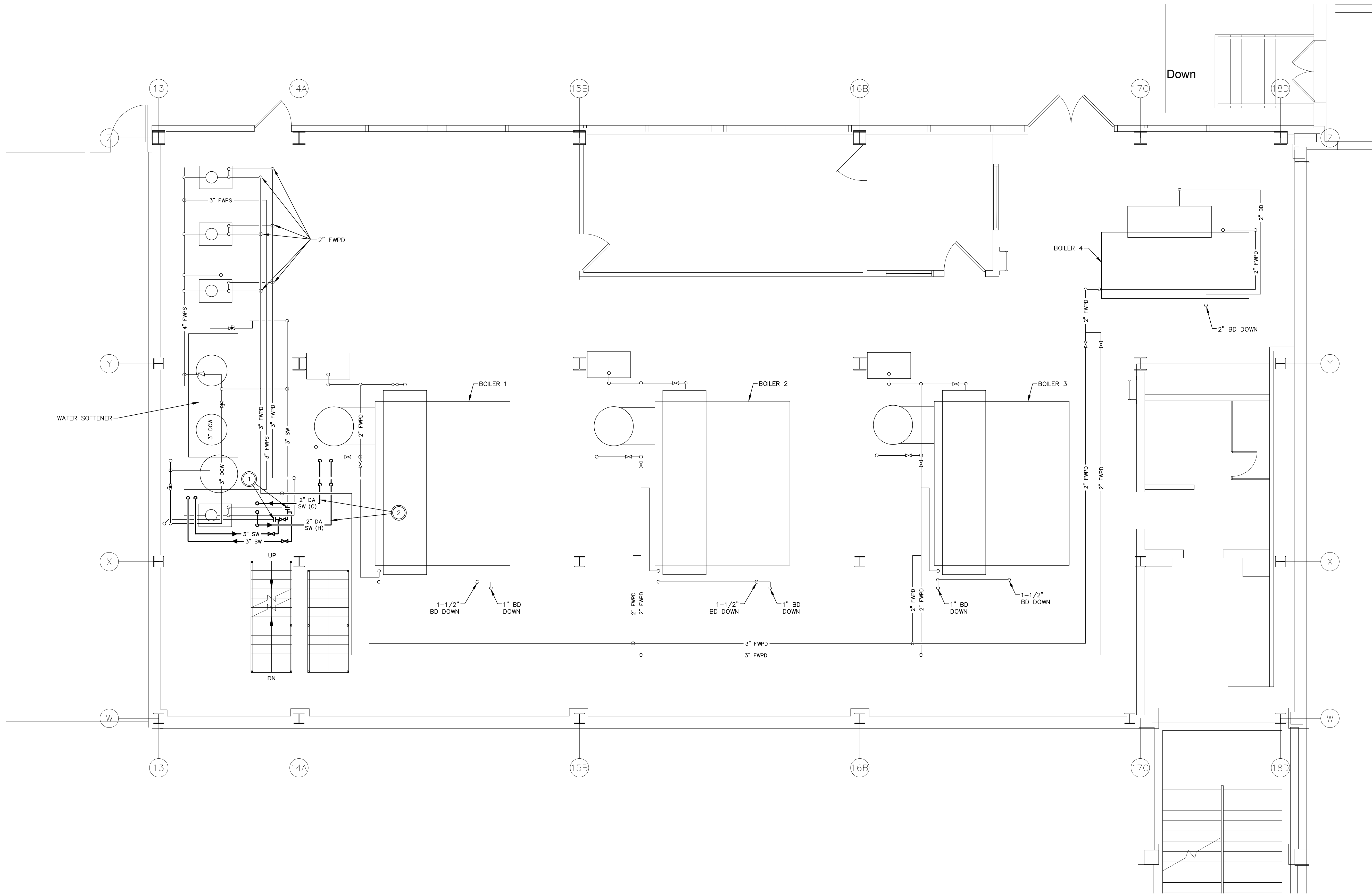
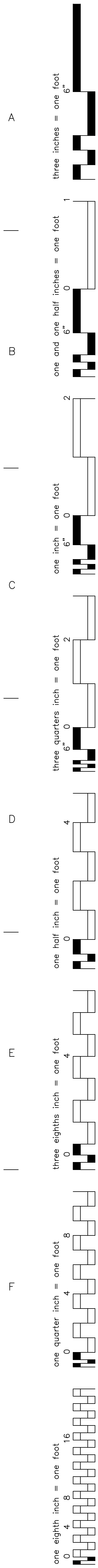
Approved: Project Director

Date	Checked	Drawn
4.17.17	CJS	SRP

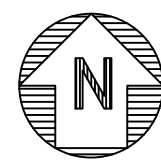
## M2.2


**Department of  
Veterans Affairs**





OPERATING FLOOR FLOOR PLAN - NEW WORK



PLAN NOTES

- A. ALL EXISTING PIPING, VALVING, AND EQUIPMENT TO REMAIN UNLESS NOTED OTHERWISE.
- B. SEE SHEET M0.1 FOR GENERAL NOTES, SYMBOL LEGEND, AND SCHEDULES.
- C. SEE SHEET SERIES M1 FOR DEMOLITION FLOW DIAGRAMS AND FLOOR PLANS.
- D. SEE SHEET SERIES M2 FOR NEW WORK FLOW DIAGRAMS AND FLOOR PLANS.
- E. SEE SHEET M3.1 FOR DETAILS AND TEMPERATURE CONTROLS.

CODED NOTES

- 1. TIE NEW SW PIPING IN TO EXISTING SW PIPING AND EXTEND TO FEED WATER PREHEAT TANK IN ASHPIT.
- 2. INSTALL NEW SW BD (C) AND SW BD (H) PIPING AND EXTEND FROM ASHPIT TO DA HEAT EXCHANGER ABOVE.

BID ISSUE	4.17.17
100% CD's SUBMISSION	4.14.17
65% CD's SUBMISSION	2.20.17
Revisions:	Date

CONSULTANTS:

**MECHANICAL/ELECTRICAL/PLUMBING ENGINEERING:**  
SCHEESER BUCKLEY MAYFIELD, LLC  
1540 CORPORATE WOODS PKWY.  
UNIONTOWN, OH 44685  
P. 330.526.2700

**COST ESTIMATING:**  
MCGUINNESS UNLIMITED, INC.  
15724 STILLWOOD AVE.  
CLEVELAND, OH 44111  
P. 440.667.5120



ARCHITECT/ENGINEERS:

**Kaczmar**  
architects incorporated  
cleveland • ohio  
1468 WEST 9TH STREET #400 CLEVELAND, OH 44113  
P. 216.687.1555 F. 216.687.1558

Drawing Title  
**OPERATING FLOOR FLOOR  
PLAN - NEW WORK**

Approved: Project Director

Project Title  
VETERAN AFFAIRS MEDICAL CENTER  
RENOVATE BOILER PLANT HEAT  
RECOVERY SYSTEMS

Location  
10701 EAST BLVD. CLEVELAND, OHIO

Date  
4.17.17

Checked  
CJS

Drawn  
SRP

Project Number  
541-18-203

Building Number  
1

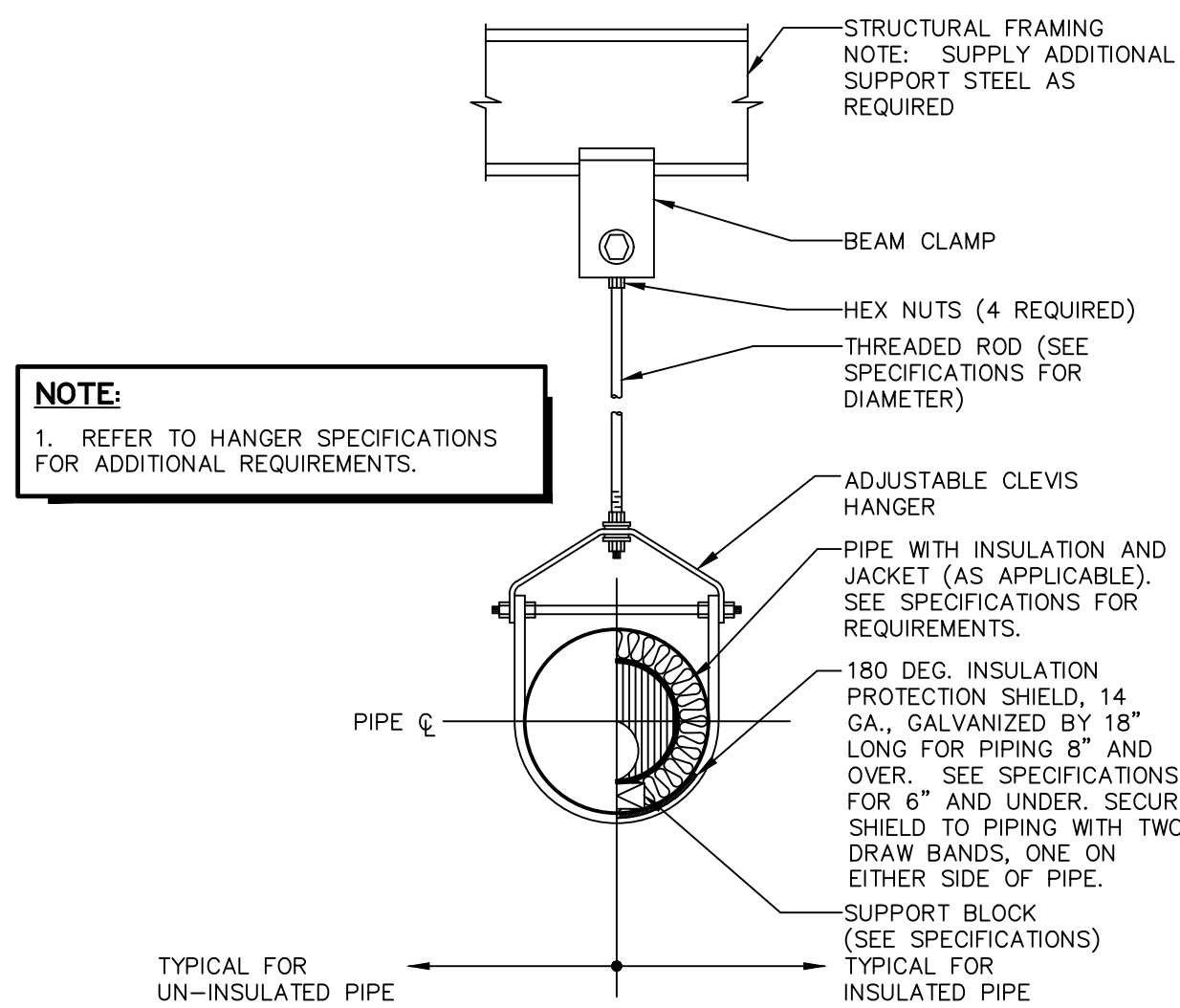
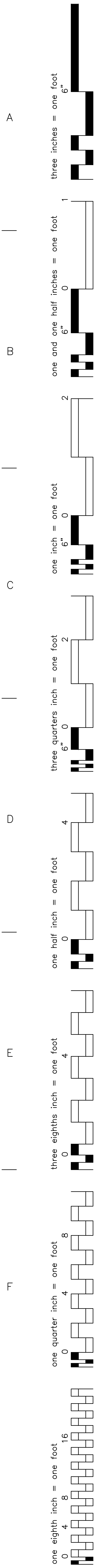
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**M2.4**

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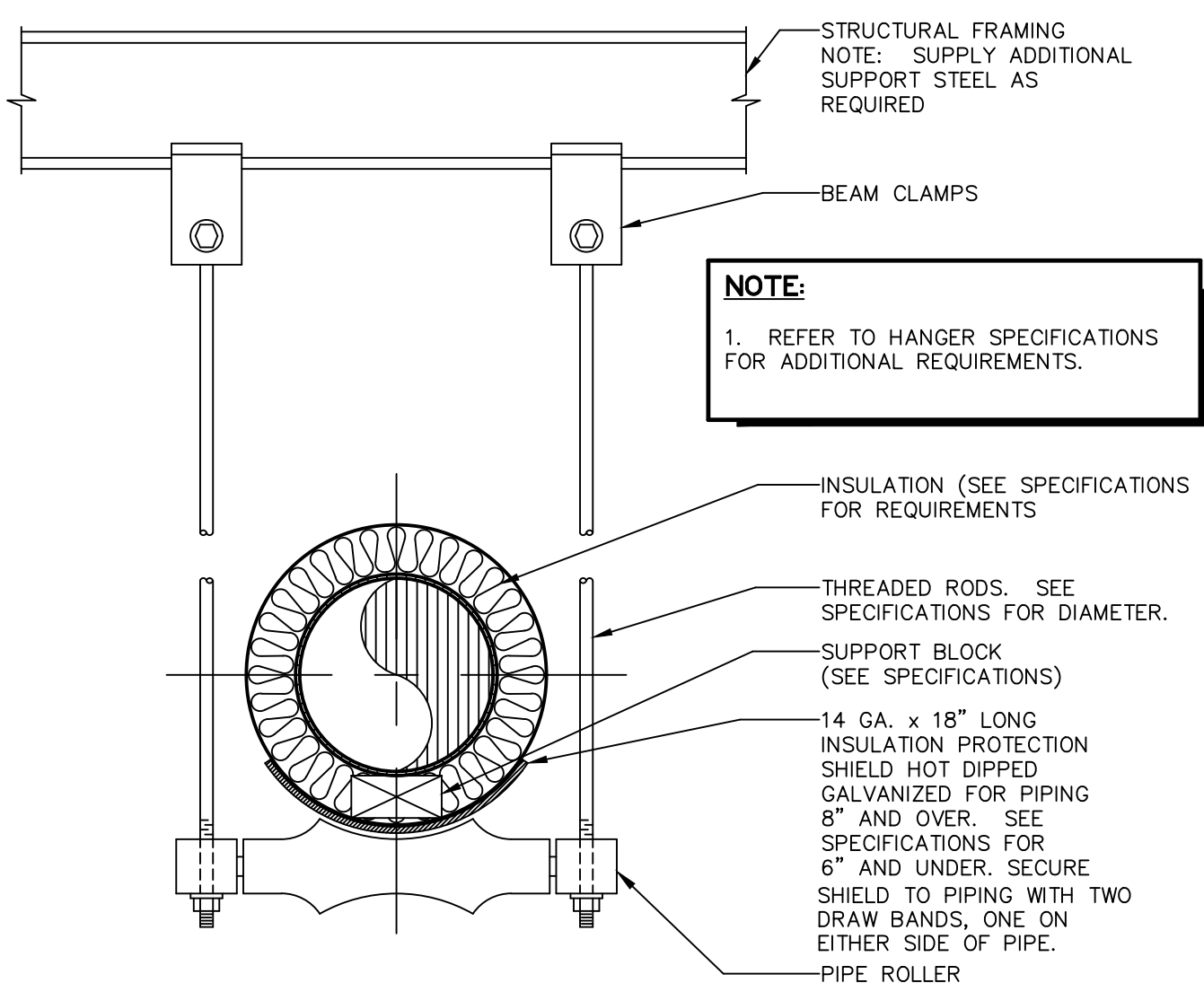
Office of  
Construction  
and Facilities  
Management



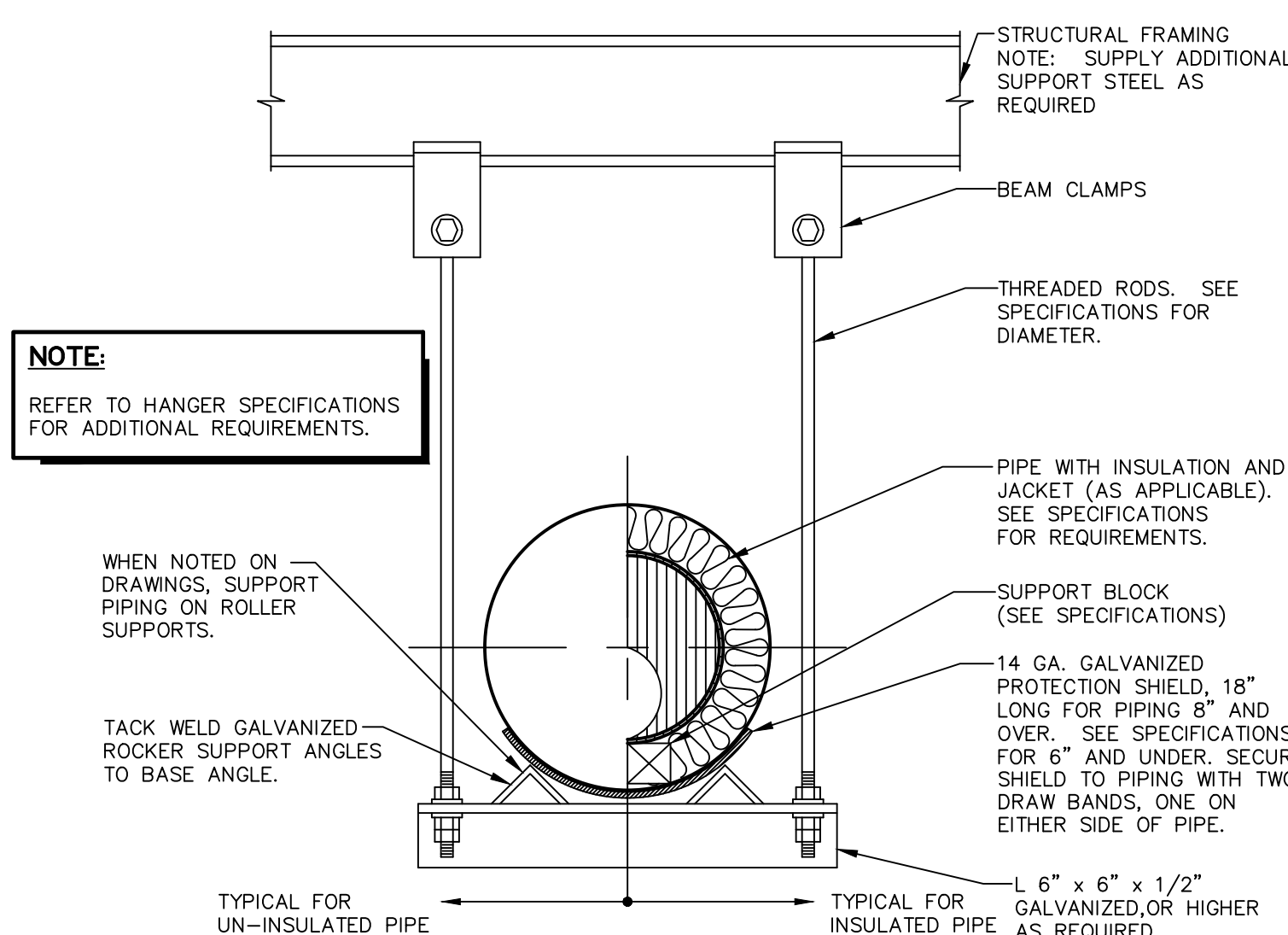




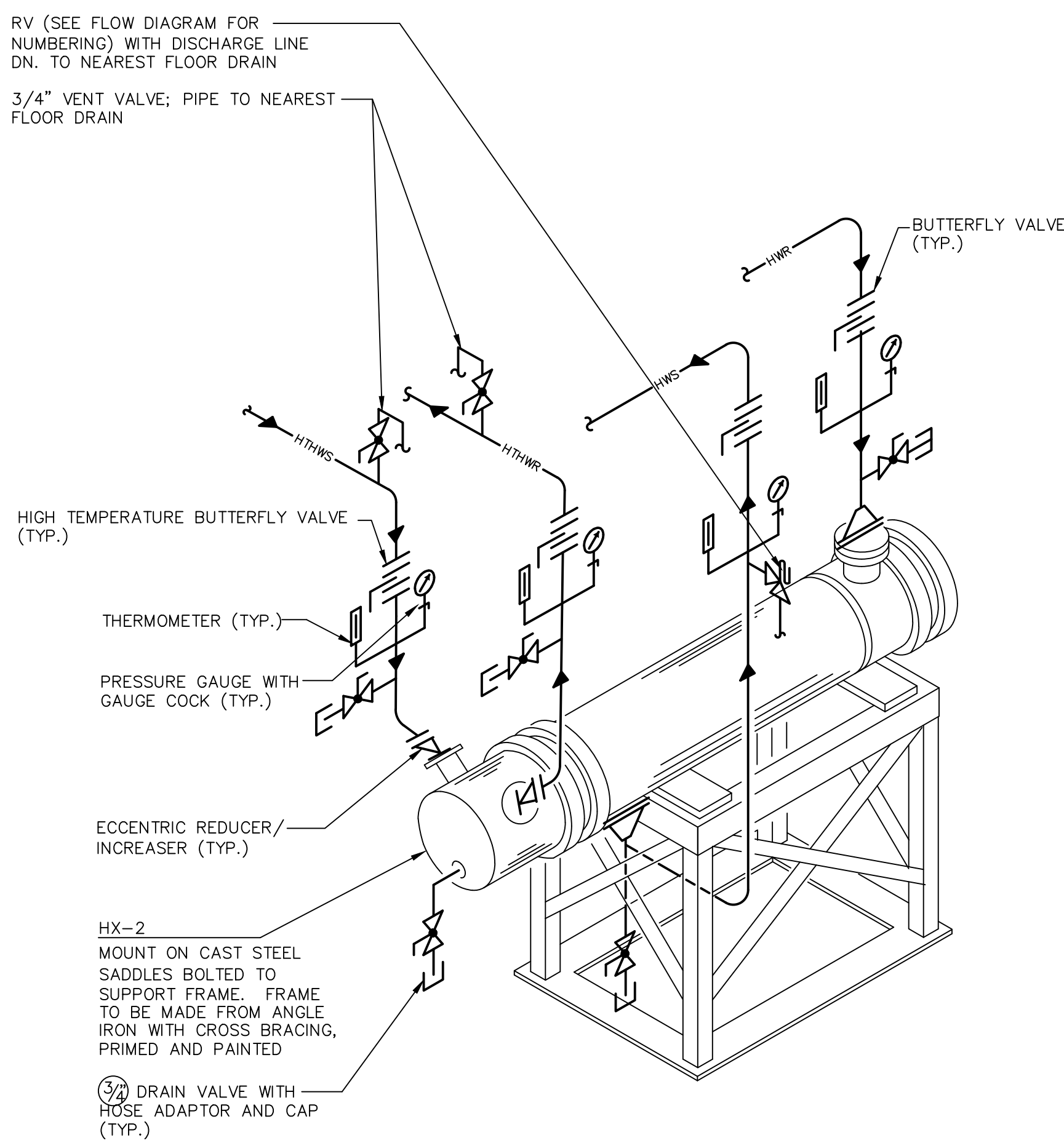
CLEVIS HANGER PIPE SUPPORT  
N.T.S.



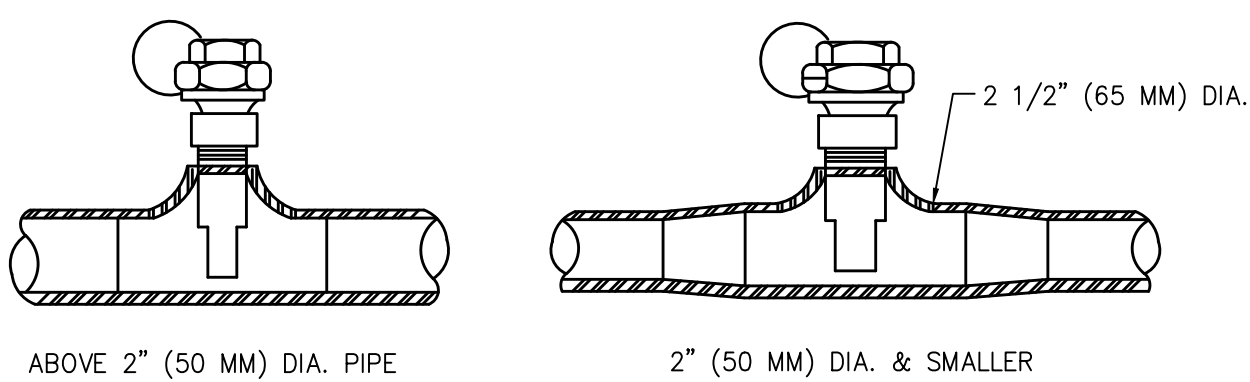
PIPE ROLLER HANGER SUPPORT  
N.T.S.



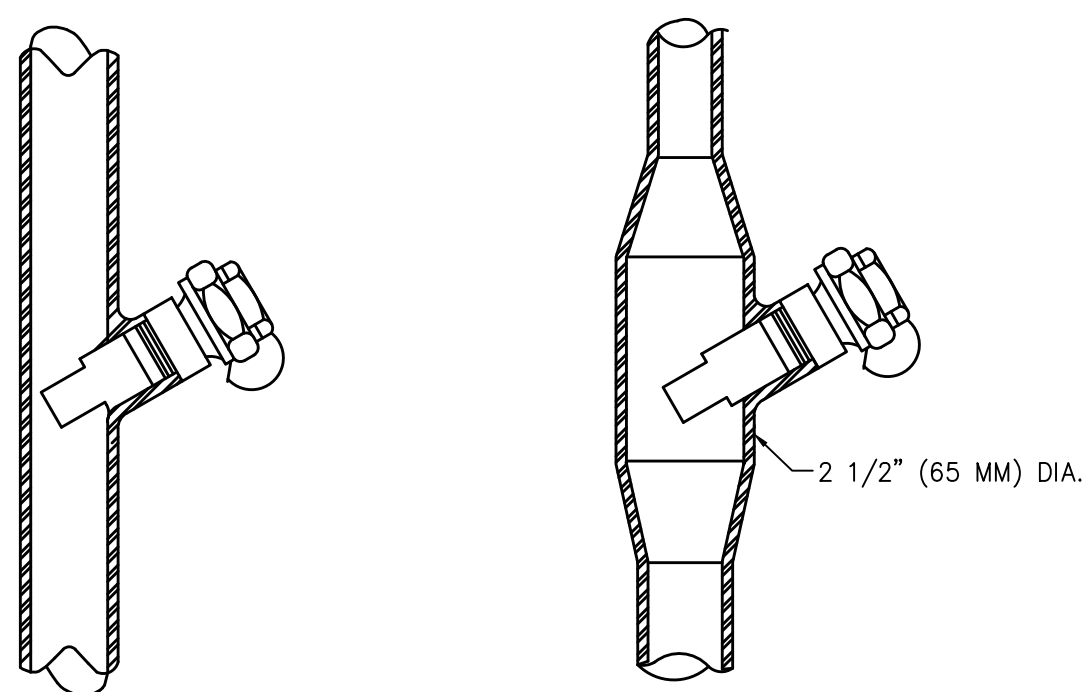
TRAPEZE HANGER PIPE SUPPORT  
N.T.S.



HEAT EXCHANGER ISOMETRIC  
N.T.S.



HORIZONTAL

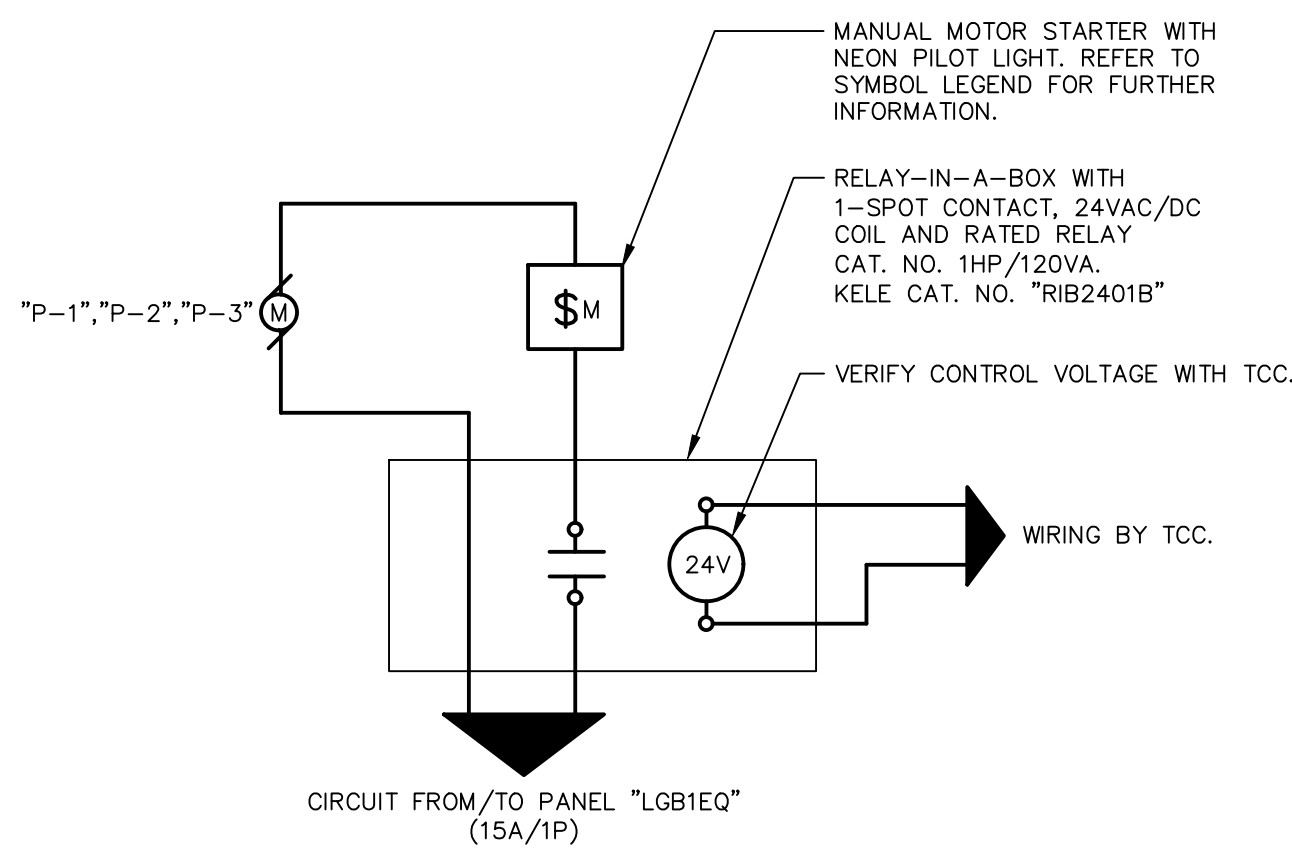


VERTICAL

INSTALLATION OF THERMOMETER WELLS

N.T.S.

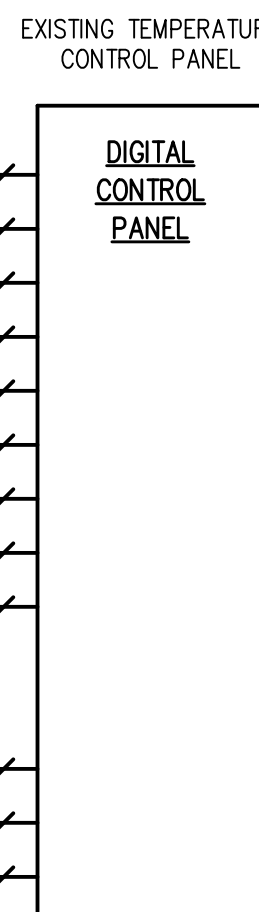
TEMPERATURE CONTROL SYMBOL LEGEND		
ABBREVIATION	DESCRIPTION	REMARKS
CSR	CURRENT SENSING RELAY	
FMS	LIQUID FLOW MEASURING STATION	LOCATE PER MANUFACTURERS RECOMMENDATIONS
E.C.	ELECTRICAL CONTRACTOR	
MFR.	MANUFACTURER	
N.C.	NORMALLY CLOSED	
N.O.	NORMALLY OPEN	
T-6	PIPE INSERTION LIQUID TEMPERATURE SENSOR	
T.C.C.	TEMPERATURE CONTROL CONTRACTOR	
V-1	NORMALLY OPEN (N.O.) PNEUMATIC MODULATING TWO-WAY HYDRONIC CONTROL VALVE	
V-5	NORMALLY CLOSED (N.C.) PNEUMATIC MODULATING TWO-WAY HYDRONIC CONTROL VALVE	



EXHAUST FAN  
RELAY-IN-A-BOX DETAIL  
N.T.S.

**ANALOG INPUTS**  
SW TO SURGE TANK TEMPERATURE  
SW TO FEEDWATER TEMPERATURE  
FEEDWATER TANK TEMPERATURE  
DA SW COLD TEMPERATURE  
DA SW HOT TEMPERATURE  
BD SW COLD TEMPERATURE  
BD SW HOT TEMPERATURE  
P-1 FLOW MEASURING STATION  
P-2 FLOW MEASURING STATION

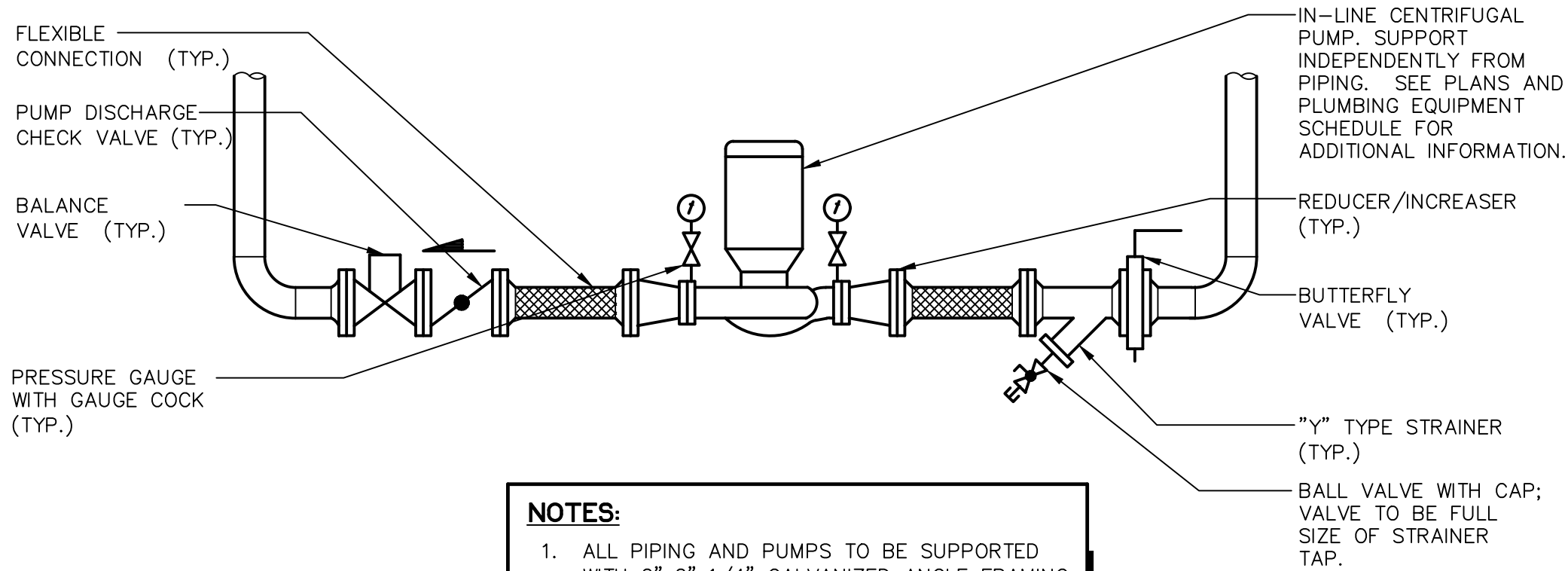
**BINARY INPUTS**  
PUMP P-1 STATUS  
PUMP P-2 STATUS  
PUMP P-3 STATUS



**BINARY OUTPUTS**  
PUMP P-1 START/STOP  
PUMP P-2 START/STOP  
PUMP P-3 START/STOP

**NOTE:**  
1. PER ALLEN-BRADLEY REP. ADDITIONAL I/O CARDS WILL BE REQUIRED FOR PROJECT. T.C.C. SHALL PROVIDE AND INSTALL AS REQUIRED.  
2. UNDER BASE BID, TEMPERATURE CONTROLS CONTRACTOR SHALL TIE ALL CONTROL POINTS IN TO EXISTING ALLEN-BRADLEY BOILER CONTROL SYSTEM AND MAP THEM TO TRIDIUM BUILDING AUTOMATION SYSTEM. T.C.C. SHALL COORDINATE WITH VENDOR TO UPDATE ALL GRAPHICS AND POINTS LISTED ABOVE. T.C.C. SHALL ALSO COORDINATE NECESSARY CHANGES WITH NALCO CHEMICAL CONTROL PANEL.  
3. UNDER DEDUCT ALTERNATE #1, CONTROLS SHALL ONLY BE TIED IN TO EXISTING ALLEN-BRADLEY BOILER CONTROL SYSTEM AND NALCO PANELS. MAPPING TO TRIDIUM BUILDING AUTOMATION SYSTEM SHALL BE OMITTED. UNDER THE ALTERNATE, CONTRACTOR SHALL PROVIDE POINTS LIST FOR FUTURE INTEGRATION IN TO TRIDIUM SYSTEM.

**SEQUENCE OF OPERATION:**  
ALL POINTS LISTED ABOVE, SHALL BE REPORTED TO EXISTING BUILDING AUTOMATION SYSTEM. FEEDWATER CIRCULATION AND BLOWDOWN PUMPS SHALL BE CONTROLLED VIA MOTOR STARTERS WITHIN THE ASHPIT. PUMP (P-1) SHALL RUN CONTINUOUSLY UNDER NORMAL OPERATION. PUMP (P-2) SHALL HAVE OPERATION INTERLOCKED WITH PUMP (P-3) OPERATION. PUMP (P-3) SHALL CYCLE ON/OFF IN CONJUNCTION WITH INTERMITTENT BOTTOM BLOWDOWN OPERATION. WHEN BOTTOM BLOWDOWN IS NOT OPERATING, PUMP (P-3) SHALL CEASE OPERATION. PUMP (P-2) SHALL THEN CEASE OPERATION AFTER 30 SECOND (ADJ.) TIME DELAY.  
UPON A RISE IN THE FEEDWATER TANK TEMPERATURE ABOVE 180 DEG. F (ADJ.), BUILDING AUTOMATION SYSTEM SHALL ALARM PLANT OPERATORS AND SHUT DOWN PUMPS (P-1), (P-2), AND (P-3). UPON A DROP IN FEEDWATER TANK TEMPERATURE BELOW 170 DEG. F (ADJ.), PUMPS (P-1), (P-2), AND (P-3) SHALL RESUME NORMAL OPERATION AND ALARM SHALL CEASE.  
THE CONTROLS SYSTEM SHALL UTILIZE THE FLOWS AND TEMPERATURES OF THE HEAT RECOVERY SYSTEMS TO ACCUMULATE AND TREND THE ENERGY SAVINGS OF EACH LOOP USING THE FOLLOWING EQUATION:  
BTU = 500 \* LOOP GPM \* (HX ENTERING WATER TEMP. - HX LEAVING WATER TEMP.)



IN-LINE PUMP INSTALLATION DETAIL  
N.T.S.

FULLY SPRINKLERED

<b>CONSULTANTS:</b> <b>MECHANICAL/ELECTRICAL/PLUMBING ENGINEERING:</b> <b>SCHAEFER BUCKLEY MAYFIELD, LLC</b> 1540 CORPORATE WOODS PKWY. CLEVELAND, OH 44685 P. 330.526.2700		<b>COST ESTIMATING:</b> <b>MCGUINNESS UNLIMITED, INC.</b> 15724 STILLWOOD AVE. CLEVELAND, OH 44111 P. 440.667.5120		<b>ARCHITECT/ENGINEERS:</b> <b>Kaczmar architects incorporated</b> cleveland ohio 1468 WEST 9TH STREET #400 CLEVELAND, OH 44113 P. 216.687.1555 F. 216.687.1558		Drawing Title <b>DETAILS &amp; TEMPERATURE CONTROLS</b>	Project Title VETERAN AFFAIRS MEDICAL CENTER RENOVATE BOILER PLANT HEAT RECOVERY SYSTEMS	Project Number 541-18-203	Office of Construction and Facilities Management 						
BID ISSUE 4.17.17 100% CD's SUBMISSION 4.14.17 65% CD's SUBMISSION 2.20.17 Revisions: Date				Approved: Project Director		Location 10701 EAST BLVD. CLEVELAND, OHIO	Date 4.17.17	Checked CJS	Drawn SRP						