

Checklist for Oil Burner Position Switch (OBPS)

Item	Make
OBPS	

*If no switch is present this test is not required and test is complete.

- Retract the gun enough to disengage the switch. Attempt to start the boiler. The boiler controls should not allow the purge process to begin. IF BOILER BEGINS TO MOVE TO THE PURGE POSITION SHUT THE BOILER DOWN IMMEDIATELY. IN THIS CASE THE OBPS SWITCH IS DEFECTIVE.

Result	Y/N
Did the switch work correctly?	

Comment:

September 2008

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Checklist for Water Treatment

Sample	TDS ()	Sulfite (ppm)	Phosphate (ppm)	()-Alk (ppm)	Hardness (ppm)	pH
Boiler						
Feedwater						
Condensate						
Makeup						

$$\% \text{Makeup} = \frac{\text{Conductivity}_{\text{of_Feedwater}} - \text{Conductivity}_{\text{of_Condensate}}}{\text{Conductivity}_{\text{of_MU}} - \text{Conductivity}_{\text{of_Condensate}}} * 100$$

$$\% \text{Blowdown} = \frac{\text{Conductivity}_{\text{of_Feedwater}}}{\text{Conductivity}_{\text{of_Boiler}} - \text{Conductivity}_{\text{of_Feedwater}}} * 100$$

September 2008

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Checklist for General Plant Safety & Reliability

Item	Present Y/N
Deaerator Tank Bypass.	
Condensate Tank Bypass.	
Softener Bypass.	
Auxiliary makeup to Deaerator.	
Emergency water to Boilers.	
High Oil Alarm on Oil Tanks.	
High Gas Pressure Cutout on Main Gas Line Coming into plant.	
Emergency Kill Switch (Oil and Gas) in Office and ALL Points of Egress.	

September 2008

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100% DESIGN
APPROVED FOR CONSTRUCTION

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AKEA Project No. 128-16

Drawing Title
SAFETY DEVICE TESTING PROCEDURES

Approved: Project Director

Project Title
**DESIGN TO REPLACE BOILERS,
BLDG 100 ENERGY CENTER**

Location
BAY PINES, FLORIDA

Date
MAY 15, 2017

Checked
JSN

Drawn
RWD

Project Number
516-15-107

Building Number
100

Drawing Number
MP509
48 OF 78

Office of
Construction
and Facilities
Management



GENERAL NOTES:
 1. ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE RESIDENT ENGINEER FOR RESOLUTION. FAILURE OF THE CONTRACTOR TO RESOLVE, OR POINT OUT ANY ISSUES WILL RESULT IN THE CONTRACTOR CORRECTING AT NO ADDITIONAL COST TO THE GOVERNMENT.

CONDENSATE SURGE TANK AND TRANSFER PUMPS SCHEDULE																	
TANK DESIG.	TANK TYPE	DESIGN OPERATING PRESSURE (PSIG)	TANK CAPACITY AT OVERFLOW (GAL)	TANK DIMENSIONS (DIA x L)	PUMP DESIG.	PUMP TYPE	TOTAL FLOW (GPM) (Σ)	HEAD (FEET H ₀)	SUCTION / DISCHARGE	MOTOR				MINIMUM PUMP EFFICIENCY (%)	NEMA TYPE	BASIS OF DESIGN	
										HP	RPM	ELECTRICAL	DUTY				VSD
100-CST-1	HORIZONTAL	25	2,000	6' x 14'	CTP-1	VERTICAL SINGLE STAGE	145	70	2-1/2" x 2-1/2"	5.0	3,500	480 / 3 / 60	CONTINUOUS	NO	80.0	TEFC	AURORA PUMPS, PVM (X) 33-1
					CTP-2	VERTICAL SINGLE STAGE	145	70	2-1/2" x 2-1/2"	5.0	3,500	480 / 3 / 60	CONTINUOUS	NO	80.0	TEFC	AURORA PUMPS, PVM (X) 33-1

NOTES:
 1. TANK INTERIOR SHALL BE EPOXY COATED PER 235011 PARAGRAPH 2.1.H.
 2. TOTAL FLOW INCLUDES 97 GPM (PLANT FLOW) + 35 GPM (MANUFACTURE'S RECOMMENDED MIN REICRO) + 13 GPM (10%).

SCOTCH MARINE FIRETUBE BOILER SCHEDULE																
DESIG	SERVICE	TYPE	CAPACITY		MBTU'S PER HOUR	EXHAUST GAS TEMPERATURE (GAS/OIL)(°F)	DESIGN PRESSURE (PSIG)	OPERATING PRESSURE (PSIG)	MIN HEATING SURFACE (SQ.FT.)	MIN BOILER EFFICIENCY (GAS/OIL)(%)	SKID MOUNTED AIR COMPRESSOR (HP)	ELECTRICAL	TOTAL APPROXIMATE OPERATING WEIGHT (LBS)	APPROXIMATE OVERALL DIMENSIONS (LxWxH)	BASIS OF DESIGN	
			POUNDS PER HOUR (PPH)	HORSEPOWER (HP)												
100-B-1	STEAM	-	24,150	700	23,433	375 / 383	200	100	2,400	84 / 87	7.5	480 / 3 / 60	65,000	25' x 10.5' x 12'	CLEAVER BROOKS, CBEX ELITE	
100-B-2	STEAM	-	24,150	700	23,433	375 / 383	200	100	2,400	84 / 87	7.5	480 / 3 / 60	65,000	25' x 10.5' x 12'	CLEAVER BROOKS, CBEX ELITE	
100-B-3	STEAM	-	24,150	700	23,433	375 / 383	200	100	2,400	84 / 87	7.5	480 / 3 / 60	65,000	25' x 10.5' x 12'	CLEAVER BROOKS, CBEX ELITE	

NOTES:
 1. ALTITUDE: 100 FEET ABOVE SEA LEVEL.
 2. REFER TO LOW NOx BURNER SCHEDULE FOR ADDITIONAL INFORMATION.
 3. REFER TO STEAM NOZZLE LOADS AND MOMENTS DETAIL.
 4. BOILER MUST BE STAMPED 200 PSIG.
 5. BOILER B-3 IS DEDUCT ALTERNATE #5.

LOW NOx BURNER SCHEDULE																		
BOILER No	COMBUSTION AIR TEMPERATURE (°F)	HUMIDITY (%)	EXCESS AIR (%) (GAS/OIL)	NATURAL GAS			FUEL OIL No 2			FORCED DRAFT FAN			HP	RPM	ELECTRICAL	DUTY	VSD	BASIS OF DESIGN
				TURNDOWN	TRAIN INLET PRESSURE (PSIG)	Nox (PPM)	CO (PPM)	TURNDOWN	TRAIN INLET PRESSURE (PSIG)	Nox (PPM)	CO (PPM)							
1	80	50	15 / 22.5	10:1	10	30	50	8:1	120	90	50	50	3,500	480 / 3 / 60	INVERTER	YES	PROVIDED BY BOILER MANUFACTURER	
2	80	50	15 / 22.5	10:1	10	30	50	8:1	120	90	50	50	3,500	480 / 3 / 60	INVERTER	YES	PROVIDED BY BOILER MANUFACTURER	
3	80	50	15 / 22.5	10:1	10	30	50	8:1	120	90	50	50	3,500	480 / 3 / 60	INVERTER	YES	PROVIDED BY BOILER MANUFACTURER	

NOTES:
 1. NO COMBUSTION AIR PRE-HEAT.
 2. GAS SPUDS SHALL BE STAINLESS STEEL.
 3. FORCED DRAFT FAN INLET SHALL BE SCREENED.
 4. EMISSIONS PARTS PER MILLION (PPM) ARE BASED ON 3% OXYGEN (O₂).
 5. BOILER B-3 IS DEDUCT ALTERNATE #5.

FAN SCHEDULE (DEDUCT ALTERNATE #3)																
DESIG.	SERVICE	TYPE	CFM	ESP (IN. WC)	APPROX RPM	BHP	WHEEL DIA. (IN.)	MOTOR			DRIVE	AMCA CONSTRUCTION CLASS	APPROXIMATE WEIGHT (LBS)	NOTES	BASIS OF DESIGN MFR/MODEL NO.	
								HP	ELECTRICAL							
100-SF-1	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	(1)(2)(3)	GREENHECK, RSPF-200-50		
100-SF-2	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	(1)(2)(3)	GREENHECK, RSPF-200-50		
100-SF-3	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	(1)(2)(3)	GREENHECK, RSPF-200-50		
100-SF-4	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	(1)(2)(3)	GREENHECK, RSPF-200-50		
100-SF-5	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	(1)(2)(3)	GREENHECK, RSPF-200-50		
100-SF-6	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	(1)(2)(3)	GREENHECK, RSPF-200-50		
100-SF-7	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	(1)(2)(4)	GREENHECK, RSPF-200-50		
100-SF-8	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	(1)(2)(4)	GREENHECK, RSPF-200-50		

NOTES:
 (1) PROVIDE UNIT MOUNTED FACTORY DISCONNECT SWITCH.
 (2) FAN SHALL BE THIRD CERTIFIED FOR HIGH WINDS UP TO 150 MPH.
 (3) PROVIDE WITH PITCHED ROOF CURB, COORDINATE WITH ROOF SLOPE ABOVE SKY-LIGHTS.
 (4) PROVIDE WITH ROOF CURB.

WATER SOFTENER SCHEDULE (DEDUCT ALTERNATE #4)																
DESIG	AREA SERVED	TYPE	WATER HARDNESS INLET (PPM)	WATER HARDNESS OUTLET (PPM)	GRAIN CAPACITY PER TANK (GRAINS)	DESIGN FLOW RATE/PO (GPM/PSID)	CONTINUOUS FLOW RATE/PO (GPM/PSID)	PEAK FLOW RATE/PO (GPM/PSID)	VESSEL SIZE (EACH TANK) (DIA x H)	VESSEL PRESSURE RATING (PSI)	MAXIMUM REGENERATION TIME (MINUTES)	MAXIMUM BACKWASH FLOW (GPM)	BRINE TANK		ELECTRICAL	BASIS OF DESIGN
													CAPACITY (GAL)	DIMENSIONS (DIA x H)		
100-WSF-1	HOSPITAL (NP)	TWIN ALTERNATING	250	0	1,500,000	130/6.5	235/15	325/25	63' x 86"	100	75	110	500	64' x 74"	120 / 1 / 60	MARLO MRG-1500-3

NOTE: REGENERATION ONCE PER DAY MAX.

DEALKALIZER SCHEDULE (DEDUCT ALTERNATE #4)																		
DESIG	AREA SERVED	TYPE	ALKALINITY INLET (PPM)	ALKALINITY REDUCTION	GRAIN CAPACITY PER TANK (GRAINS)	DESIGN FLOW RATE/PO (GPM/PSID)	CONTINUOUS FLOW RATE/PO (GPM/PSID)	PEAK FLOW RATE/PO (GPM/PSID)	VESSEL SIZE (EACH TANK) (DIA x H)	VESSEL PRESSURE RATING (PSI)	MAXIMUM REGENERATION TIME (MINUTES)	MAXIMUM BACKWASH FLOW (GPM)	BRINE TANK		CAUSTIC TANK		ELECTRICAL	BASIS OF DESIGN
													CAPACITY (GAL)	DIMENSIONS (DIA x H)	CAPACITY (GAL)	DIMENSIONS (DIA x H)		
100-DEA-1	BOILER MAKE-UP (NP)	TWIN ALTERNATING	72	90%	350,000	-	87.5/15	175/25	48' x 72"	100	75	-	500	30' x 30"	55	-	120 / 1 / 60	MARLO MGD-350-3

NOTE: TRIPLEX SEQUENTIAL: ONE TANK OPERATIONAL, ONE TANK REGENERATION, ONE TANK STAND-BY.

STEAM TRAP SCHEDULE																
DESIG	GENERAL LOCATION	TYPE	TRAP SIZE	PRESSURE (PSIG)		DIFF PRESS (PSIG)		FLOW RATE (LB/HR)			STEAM TEMP (°F)		BASIS OF DESIGN			
				OPER	MAX	OPER	MAX	OPER FLOW	SAFETY FACTOR	DESIGN FLOW	OPER	MAX				
T-07	100S TO MPS PRV	INVERTED BUCKET	1/2"	100	140	80	112	17	3	51	338	361	-			
T-08	60S FROM MPS PRV	INVERTED BUCKET	1/2"	60	80	48	64	17	3	51	293	312	-			
T-09	60S FROM MPS PRV	INVERTED BUCKET	1/2"	60	80	48	64	17	3	51	293	312	-			
T-21	MOBILE BOILER HPS	INVERTED BUCKET	1/2"	100	140	80	112	17	3	51	338	361	-			

BLOWDOWN SEPARATOR SCHEDULE						
DESIG	TANK HEIGHT (INCHES)	INLET (INCHES)	VENT (INCHES)	DRAIN (INCHES)	COOLING WATER TEMP (°F)	BASIS OF DESIGN
100-BDS-1	34	2	5	5	70	PENN SEPARATOR, A34

NOTE: PROVIDE FLANGED VENT AND DRAIN CONNECTIONS

STEAM PRESSURE REDUCING VALVE SCHEDULE						
DESIG	LOCATION	REQUIRED CAPACITY (PPH)	MAXIMUM FLOW WIDE OPEN VALVE (PPH)	PRESSURE (PSIG)		REMARKS
				IN	OUT	
PRV-1B	MPS REDUCING STATION	1,350	1,350	100	62	SEE GENERAL NOTES
PRV-1A	MPS REDUCING STATION	2,700	2,700	100	60	SEE GENERAL NOTES

AIR DEVICE SCHEDULE (DEDUCT ALTERNATE #3)					
No.	DUTY	CFM	DUCT NECK SIZE	MAX DP (IN W.G.)	BASIS OF DESIGN MFR/MODEL NO.
M1	DRUM LOUVER	3000	70"x15"	0.04	TITUS/DL

PRESSURE SAFETY VALVE SCHEDULE							
VA NOMENCLATURE	DESIG	LOCATION	SERVICE	TEMP (°F)	MINIMUM CAPACITY	SET PRESSURE (PSIG)	REMARKS
SVB1	PSV-6104	BOILER No 1	STEAM	356	PPH	130	STAINLESS STEEL TRIM
SVB2	PSV-6105	BOILER No 1	STEAM	358	PPH	135	STAINLESS STEEL TRIM
SVB1	PSV-6204	BOILER No 2	STEAM	356	PPH	130	STAINLESS STEEL TRIM
SVB2	PSV-6205	BOILER No 2	STEAM	358	PPH	135	STAINLESS STEEL TRIM
SVB1	PSV-6304	BOILER No 3	STEAM	356	PPH	130	STAINLESS STEEL TRIM
SVB2	PSV-6305	BOILER No 3	STEAM	358	PPH	135	STAINLESS STEEL TRIM
-	PSV-6612	REDUCING STATION	STEAM	303	4,050 PPH	70	STAINLESS STEEL TRIM
-	PSV-8102	BOILER No 1	ATOMIZING AIR	-	SCFM	-	STAINLESS STEEL TRIM
-	PSV-8202	BOILER No 2	ATOMIZING AIR	-	SCFM	-	STAINLESS STEEL TRIM
-	PSV-8302	BOILER No 3	ATOMIZING AIR	-	SCFM	-	STAINLESS STEEL TRIM

NOTE: SVB1 AND SVB2 PROVIDED BY BOILER MANUFACTURER.

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Revisions:		Date		Approved: Project Director		Location BAY PINES, FLORIDA		Drawing Number MP601		Date MAY 15, 2017		Checked JSN		Drawn RWD		49 OF 78			

three inches = one foot
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MISCELLANEOUS SYSTEMS - DEVICE SCHEDULE

Table with columns: VA Nomenclature, Device Label, Device Type, System, Function, Mounting / Location, Line Size, Range / Setpoint, Point Type, Signal, Signal To/From, Annunciation Location, Annunciation Type, Remarks, Notes. Includes various sensors and transmitters for water, gas, and steam systems.

ABBREVIATIONS:
BAS - Building Automation System
BBC - Boiler Blowdown Controller
BMS - Burner Management System - (Flame Safeguard Control)
CCS - Combustion Control System
CGP - Combustible Gas Detection Panel
CHP-1 - CHP-1 Field Panel Miscellaneous Process Points
CST-PLC - Condensate Surge Tank PLC
LCP - Local Control Panel
MPCP - Plant Master Control Panel
WSF-PLC - Water Softener PLC

CONDENSATE SURGE TANK - DEVICE SCHEDULE

Table with columns: VA Nomenclature, Device Label, Device Type, System, Function, Mounting / Location, Line Size, Range / Setpoint, Point Type, Signal, Signal To/From, Annunciation Location, Annunciation Type, Remarks, Notes. Focuses on devices for the Condensate Surge Tank.

NOTES:
1 Set below 2/3 of tank height and at least 4" below overflow.
2 Set above 1/3 of tank height.
3 Setpoint at least 4" below top of tank.

BLOWDOWN SYSTEMS - DEVICE SCHEDULE

Table with columns: Device Label, Device Type, System, Function, Mounting / Location, Line Size, Range / Setpoint, Point Type, Signal, Signal To/From, Annunciation Location, Annunciation Type, Remarks, Notes. Lists devices for Blowdown Systems.

ABBREVIATIONS:
BBC - Boiler Blowdown Controller
BMS - Burner Management System - (Flame Safeguard Control)
CCS - Combustion Control System
CGP - Combustible Gas Detection Panel
CHP-1 - CHP-1 Field Panel Miscellaneous Process Points
FO-PLC - Fuel Oil System PLC
LCP - Local Control Panel
MPCP - Plant Master Control Panel
WSF-PLC - Water Softener PLC

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Project information block including: CONSULTANTS: AEI Affiliated Engineers; ARCHITECT/ENGINEERS: AKEA Design, Inc.; Drawing Title: MECHANICAL SCHEDULES; Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER; Project Number: 516-15-107; Building Number: 100; Location: BAY PINES, FLORIDA; Date: MAY 15, 2017; Checked: JSN; Drawn: RWD; Drawing Number: MP602; 50 OF 78; Office of Construction and Facilities Management; Department of Veterans Affairs.

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BOILER - DEVICE SCHEDULE

Table with columns: VA Nomenclature, Boiler No 1 Device Label, Boiler No 2 Device Label, Boiler No 3 Device Label, Device Type, System, Function, Mounting / Location, Line Size, Range / Setpoint, Point Type, Signal, Signal To/From, Annunciation Location, Annunciation Type, Remarks, Notes. Contains detailed schedule for various boiler devices like shunt switches, pressure transmitters, and safety valves.

NOTES:

- 1 Wiring for POC - AFGSOV shall be easily accessible. Wiring is accessed during switch testing.
2 FGR damper switch as required by manufacturer. If manufacturer states in writing to the facility that the position of the damper does not matter to achieve proper purge, then no switch is required.
3 Ensure oil valves are mounted in such a way that there is easy access to the proof of closure switch wiring.

ABBREVIATIONS:

- BAS - Building Automation System
BBC - Boiler Blowdown Controller
BMS - Burner Management System - (Flame Safeguard Control)
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GDP - Combustible Gas Detection Panel
CHP-1 - CHP-1 Field Panel Miscellaneous Process Points
DA-PLC - Deaerator and Condensate Surge Tank PLC
LCP - Local Control Panel
PMCP - Plant Master Control Panel
WSF-PLC - Water Softener PLC

Revisions table with columns: Revisions, Date

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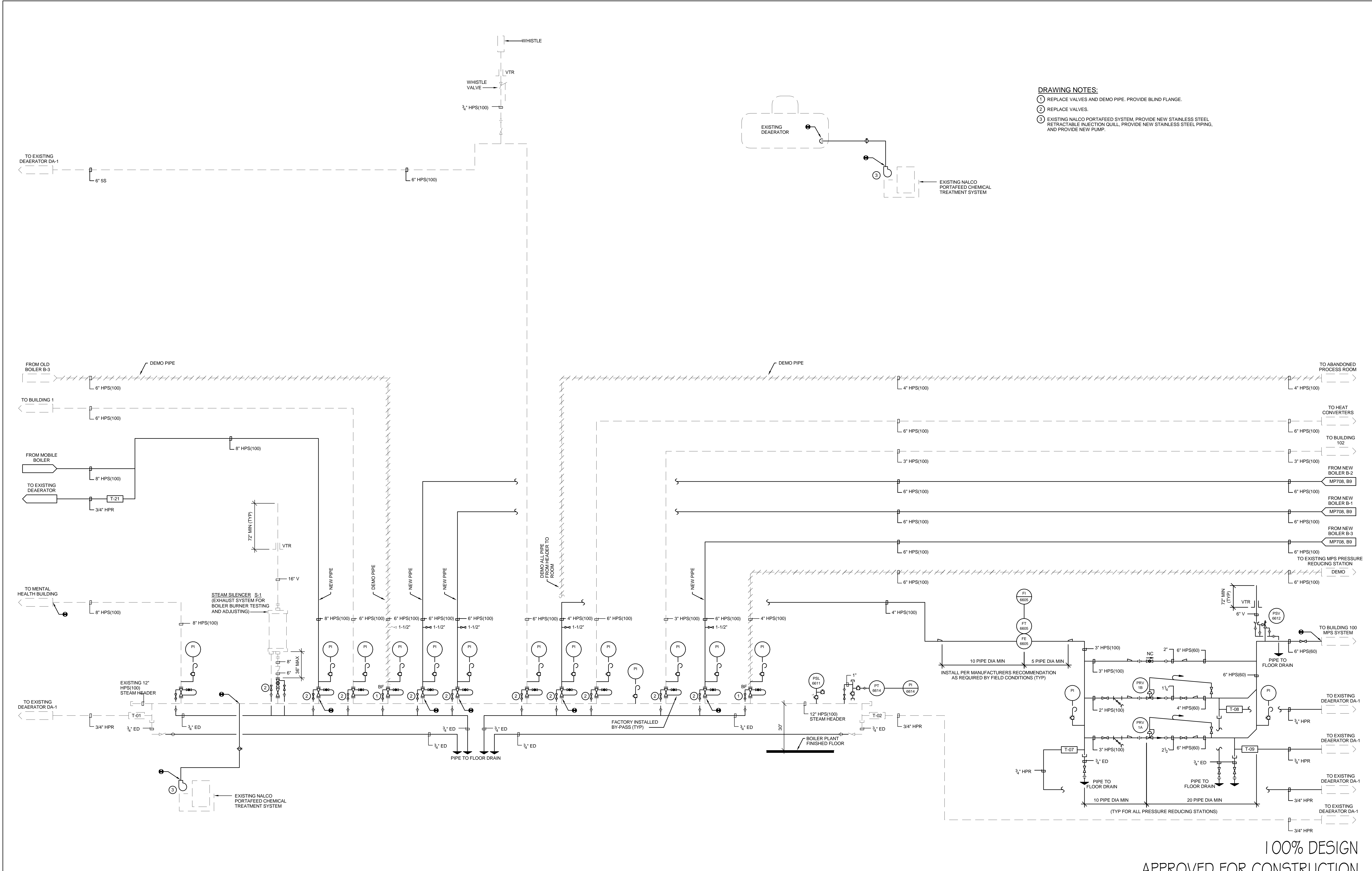
Drawing Title: MECHANICAL SCHEDULES. Approved: Project Director

Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER. Project Number: 516-15-107. Building Number: 100. Drawing Number: MP603. Date: MAY 15, 2017. Checked: JSN. Drawn: RWD. 51 OF 78

Office of Construction and Facilities Management. Department of Veterans Affairs

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- DRAWING NOTES:**
- ① REPLACE VALVES AND DEMO PIPE. PROVIDE BLIND FLANGE.
 - ② REPLACE VALVES.
 - ③ EXISTING NALCO PORTAFEED SYSTEM. PROVIDE NEW STAINLESS STEEL RETRACTABLE INJECTION QUILL, PROVIDE NEW STAINLESS STEEL PIPING, AND PROVIDE NEW PUMP.

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Revisions:	Date

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 AKEA Project No. 128-16

Drawing Title	Project Title
STEAM SYSTEM SCHEMATIC	DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER
Approved: Project Director	Location BAY PINES, FLORIDA
Date MAY 15, 2017	Checked JSN
Drawn RWD	Drawing Number MP701
	52 OF 78

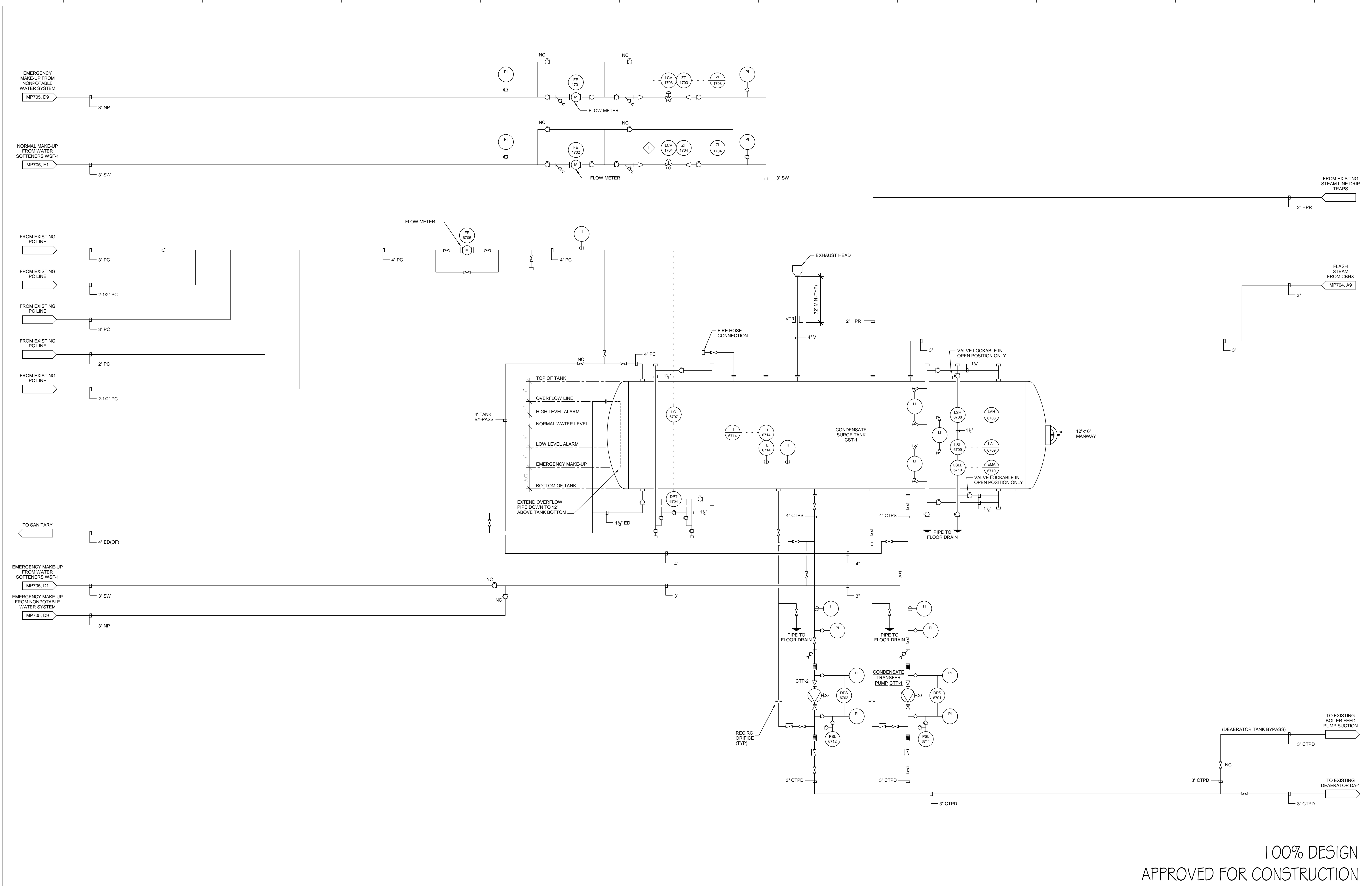
Project Number
516-15-107

Building Number
100

Office of Construction and Facilities Management

Department of Veterans Affairs

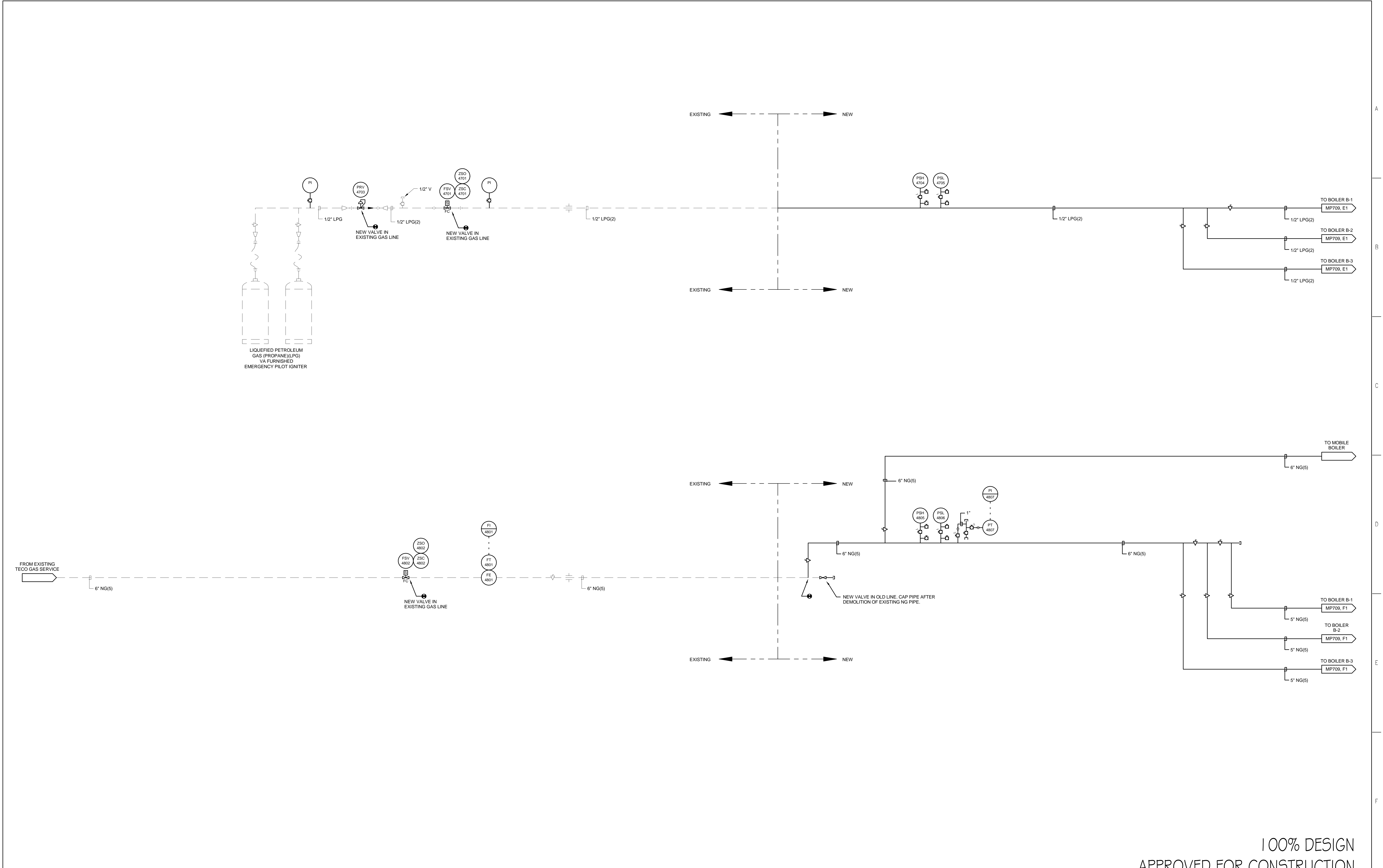
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	Approved: Project Director	Location: BAY PINES, FLORIDA	Drawing Number: MP702 53 OF 78				

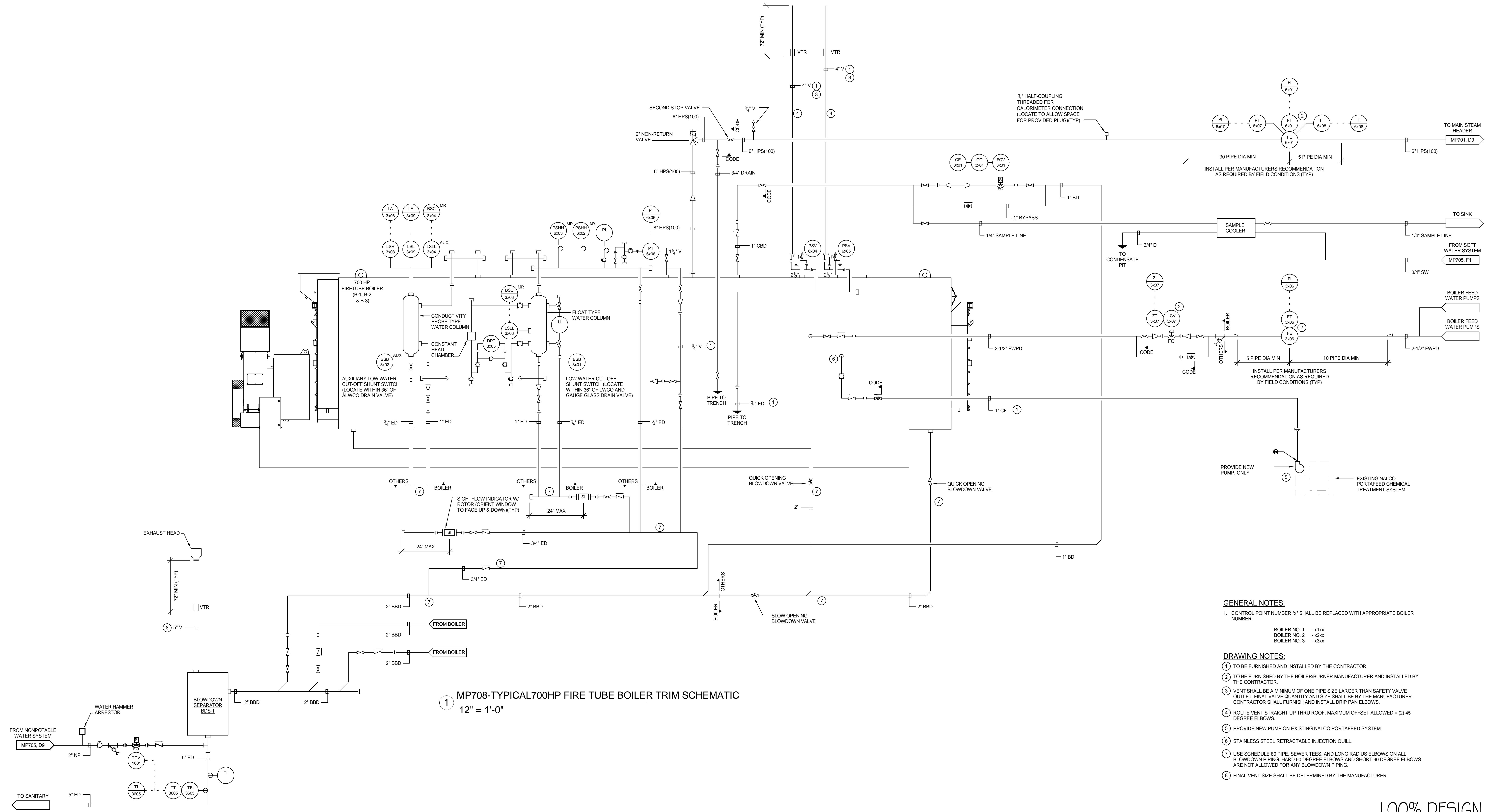
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APPROVED FOR CONSTRUCTION

Revisions: Date	CONSULTANTS: Affiliated Engineers Affiliated Engineers SE, Inc. Tioga Town Center 12921 SW 1st Road Ste 205 Gainesville, Florida 32669 Tel 352.376.5500 Fax 352.375.3479 CA-5140	ENGINEER-OF-RECORD JACK S. NEALE FL. P.E. NO. 42878	ARCHITECT/ENGINEERS: Design, Inc. 3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578 AKEA Project No. 128-16	Drawing Title NATURAL GAS SYSTEM SCHEMATIC	Project Title DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER	Project Number 516-15-107 Building Number 100	Office of Construction and Facilities Management Department of Veterans Affairs
	Approved: Project Director	Location BAY PINES, FLORIDA	Drawing Number MP706 55 OF 78				

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
 three eighths inch = one foot
 one quarter inch = one foot
 one eighth inch = one foot



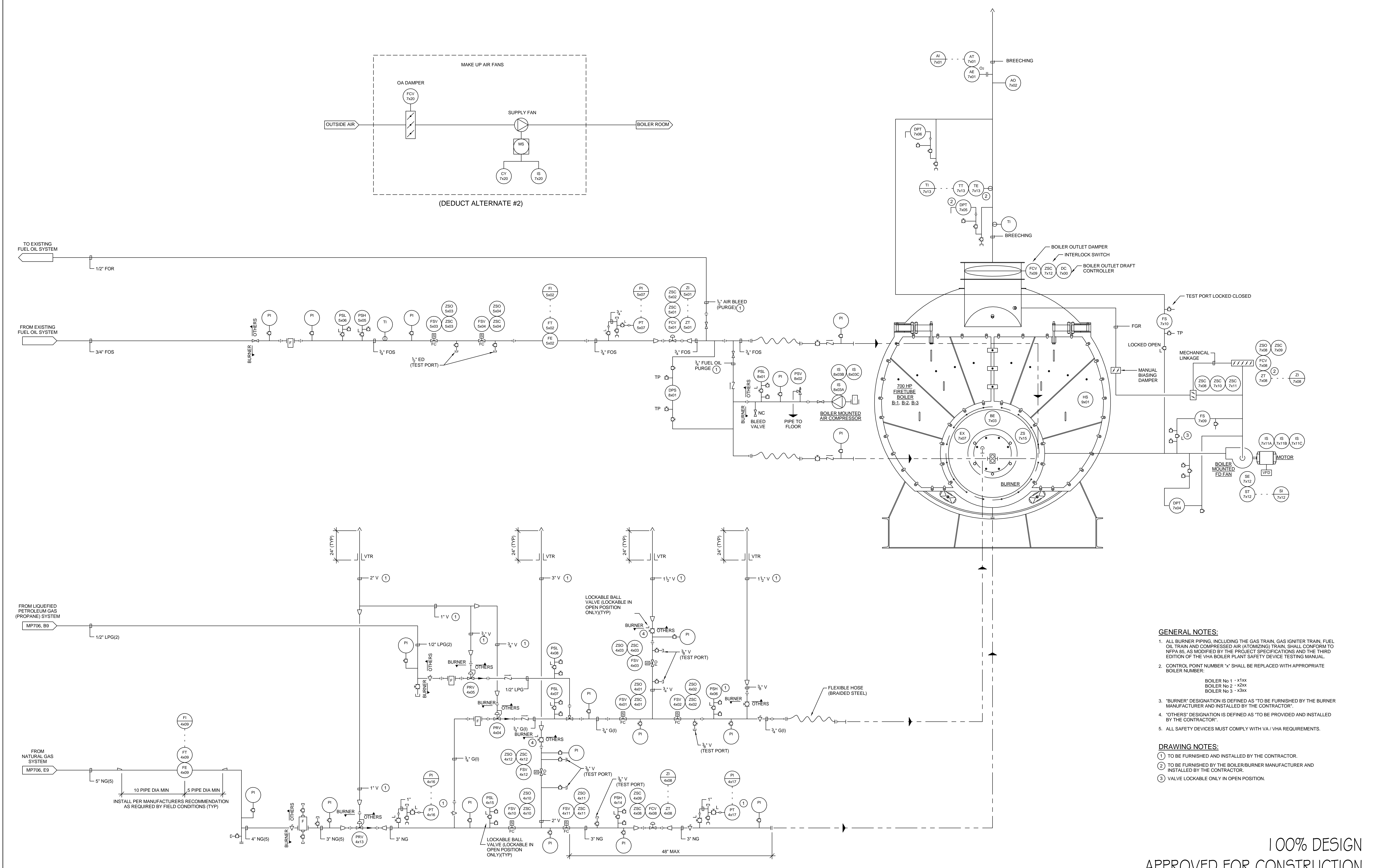
1 MP708-TYPICAL 700HP FIRE TUBE BOILER TRIM SCHEMATIC
 12" = 1'-0"

- GENERAL NOTES:**
- CONTROL POINT NUMBER "X" SHALL BE REPLACED WITH APPROPRIATE BOILER NUMBER.
 - BOILER NO. 1 - x1xx
 - BOILER NO. 2 - x2xx
 - BOILER NO. 3 - x3xx
- DRAWING NOTES:**
- TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
 - TO BE FURNISHED BY THE BOILER/BURNER MANUFACTURER AND INSTALLED BY THE CONTRACTOR.
 - VENT SHALL BE A MINIMUM OF ONE PIPE SIZE LARGER THAN SAFETY VALVE OUTLET. FINAL VALVE QUANTITY AND SIZE SHALL BE BY THE MANUFACTURER. CONTRACTOR SHALL FURNISH AND INSTALL DRIP PAN ELBOWS.
 - ROUTE VENT STRAIGHT UP THRU ROOF. MAXIMUM OFFSET ALLOWED = (2) 45 DEGREE ELBOWS.
 - PROVIDE NEW PUMP ON EXISTING NALCO PORTAFEEED SYSTEM.
 - STAINLESS STEEL RETRACTABLE INJECTION QUILL.
 - USE SCHEDULE 80 PIPE, SEWER TEES, AND LONG RADIUS ELBOWS ON ALL BLOWDOWN PIPING. HARD 90 DEGREE ELBOWS AND SHORT 90 DEGREE ELBOWS ARE NOT ALLOWED FOR ANY BLOWDOWN PIPING.
 - FINAL VENT SIZE SHALL BE DETERMINED BY THE MANUFACTURER.

100% DESIGN
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Revisions: _____ Date _____				Approved: Project Director		Location BAY PINES, FLORIDA		Building Number 100		Drawing Number MP708			
						Date MAY 15, 2017		Checked JSN		Drawn RWD			56 OF 78

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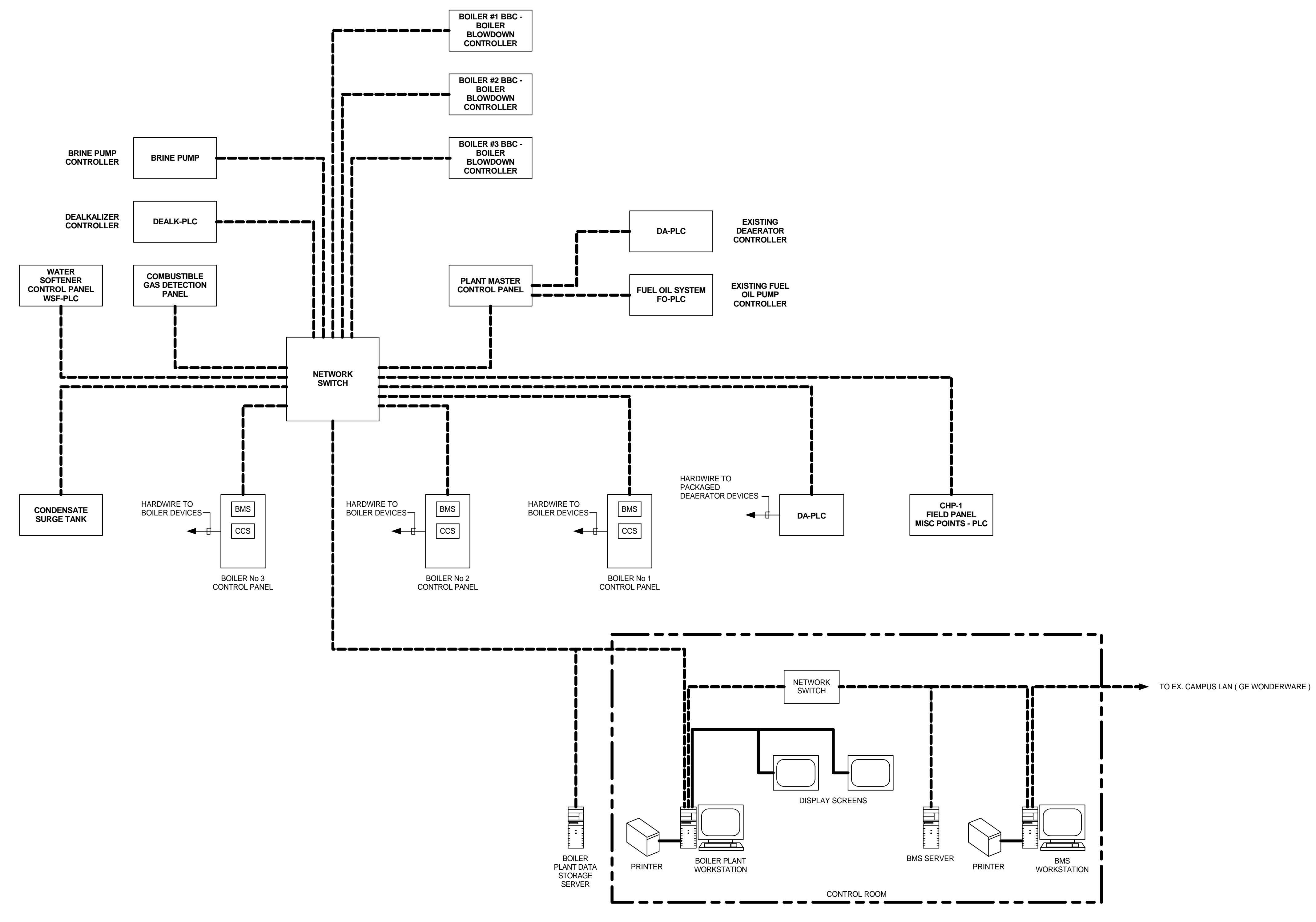


- GENERAL NOTES:**
- ALL BURNER PIPING, INCLUDING THE GAS TRAIN, GAS IGNITER TRAIN, FUEL OIL TRAIN AND COMPRESSED AIR (ATOMIZING) TRAIN, SHALL CONFORM TO NFPA 85, AS MODIFIED BY THE PROJECT SPECIFICATIONS AND THE THIRD EDITION OF THE VHA BOILER PLANT SAFETY DEVICE TESTING MANUAL.
 - CONTROL POINT NUMBER "X" SHALL BE REPLACED WITH APPROPRIATE BOILER NUMBER.
 BOILER No 1 - X3xx
 BOILER No 2 - X2xx
 BOILER No 3 - X3xx
 - "BURNER" DESIGNATION IS DEFINED AS "TO BE FURNISHED BY THE BURNER MANUFACTURER AND INSTALLED BY THE CONTRACTOR".
 - "OTHERS" DESIGNATION IS DEFINED AS "TO BE PROVIDED AND INSTALLED BY THE CONTRACTOR".
 - ALL SAFETY DEVICES MUST COMPLY WITH VA/VHA REQUIREMENTS.
- DRAWING NOTES:**
- TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
 - TO BE FURNISHED BY THE BOILER/BURNER MANUFACTURER AND INSTALLED BY THE CONTRACTOR.
 - VALVE LOCKABLE ONLY IN OPEN POSITION.

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			Approved: Project Director	Location BAY PINES, FLORIDA	Building Number 100		
Revisions: _____ Date _____			Date MAY 15, 2017	Checked JSN	Drawn RWD	Drawing Number MP709	Office of Construction and Facilities Management Department of Veterans Affairs

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SYMBOLS

- HARDWIRED
- - - MODBUS IP
- BMS
- CCS
- BURNER MANAGEMENT SYSTEM - (FLAME SAFEGUARD CONTROL)
- COMBUSTION CONTROL SYSTEM

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			Approved: Project Director	Location BAY PINES, FLORIDA	Drawing Number MP710 58 OF 78	
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DEMOLITION NOTES

- THE CONTRACTOR SHALL NOT CONSIDER DEMOLITION AND ALTERATION NOTES TO BE ALL-INCLUSIVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT AND ASSESS EACH AREA AND TO FULFILL THE INTENT OF THE DESIGN INDICATED BY THE CONTRACT DOCUMENTS. REFER TO SPECIFICATION SECTION 01 00 00 - GENERAL REQUIREMENTS AND THE VA MEDICAL CENTER FOR WORK RESTRICTIONS. CONTRACTOR SHALL COORDINATE DEMOLITION DRAWINGS AND NOTES WITH ALL DISCIPLINES INVOLVED. PATCH OR REBUILD ANY AREAS TO REMAIN THAT HAVE BEEN DAMAGED OR DISTURBED BY DEMOLITION.
- REMOVE ALL EXISTING CONSTRUCTIONS AND FINISHES NECESSARY FOR THE COMPLETION OF THE WORK AS DEPICTED ON THE DRAWINGS. INCLUDING BUT NOT LIMITED TO, ITEMS SHOWN ON THE PLANS. NECESSARY DISCONNECTS AND ALTERATIONS TO EXISTING MECHANICAL AND ELECTRICAL SYSTEMS SHALL BE INCLUDED. PATCH AS REQUIRED ALL CONSTRUCTIONS TO REMAIN IN ACCORDANCE WITH THE CONTRACT DRAWINGS. WHERE CONTRACTOR IS DESIGNATED TO MAKE REMOVALS, DISPOSITION OF MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR. VERIFY WITH VA MEDICAL CENTER, THE DISPOSITION AND REMOVAL OF ANY COMPONENTS OF SALVAGEABLE VALUE.
- THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS WITHIN THE CONTRACT LIMITS AND NOTIFY THE COR IMMEDIATELY IN WRITING OF ANY DEVIATION FROM CONTRACT DOCUMENTS NECESSITATED BY FIELD CONDITIONS OR ITEMS NOT DEPICTED ON THE DRAWINGS.
- ALL REMOVALS AND SALVAGE, UNLESS SPECIFICALLY NOTED OR REQUESTED BY THE VA MEDICAL CENTER SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
- ANY FLOOR OPENINGS SHALL BE PROTECTED AND SECURED DURING DEMOLITION AND CONSTRUCTION.
- ANY EXTERIOR WALL OPENINGS SHALL BE CLOSED IMMEDIATELY OR BE PROVIDED WITH TEMPORARY WEATHER AND SECURITY PROTECTION IN ACCORDANCE WITH SPECIFICATIONS.
- PATCH ALL FINISHES TO MATCH EXISTING, INCLUDING BUT NOT LIMITED TO, GYPSUM BOARD, PLASTER, ACOUSTIC SYSTEMS, WOOD TRIM, COVERS, BASE, PANELS, RAILS AND WAINSCOT. FOR ALL SURFACES SCHEDULED TO REMAIN, PATCH AND MATCH SURFACES DISTURBED BY DEMOLITION OR REMOVAL OF EQUIPMENT OR UTILITIES. INSTALL PATCHING TO MATCH ADJACENT WORK IN FINISH, STRUCTURAL QUALITIES, COURSING OF MASONRY, AND OTHER CHARACTERISTICS. VERIFY MATCH OF NEW FINISH MATERIALS TO EXISTING IN COLOR, TEXTURE, THICKNESS, CUT, ETC... TO SATISFACTION OF VA MEDICAL CENTER PRIOR TO INSTALLATION. PROVIDE OTHER MATERIALS TO MATCH EXISTING WHEN REQUIRED (TO BE APPROVED BY VA MEDICAL CENTER). PATCH EXISTING WALLS GYPSUM DRYWALL OR PLASTER TO MATCH EXISTING OF SUFFICIENT THICKNESS TO MAINTAIN UNIFORM WALL THICKNESS. ALL EXPOSED PORTIONS OF WALL SHALL BE FINISHED WITH THREE (3) COATS OF SPACKLING, SANDED AND LEFT IN A PAINT READY CONDITION. WHERE APPLICABLE, LEVEL ALL EXISTING FLOORS AS REQUIRED TO RECEIVE NEW FLOOR FINISHES. INSTALL REQUIRED TRANSITION PIECES BETWEEN VARIOUS FLOOR FINISHES SUITABLE FOR CONDITIONS, MEETING ADA REQUIREMENTS AND ACCEPTABLE TO THE VA MEDICAL CENTER. MATCH EXISTING WHEREVER POSSIBLE. PATCH SURFACES TO COMPLY WITH FIRE RATINGS, SMOKE-TIGHT RATINGS, ACOUSTICAL CRITERIA AND OTHER PERFORMANCE CRITERIA INDICATED.
- MAINTAIN ACCESS TO EXITS AND EXIT STAIRS AT ALL TIMES. FIRE ALARM AND SMOKE DETECTION SYSTEM SHALL REMAIN OPERATIONAL AT ALL TIMES. PROTECT SMOKE DETECTORS AS REQUIRED AND IN CONFORMANCE WITH CODES AND LOCAL AUTHORITIES HAVING JURISDICTION. REFER TO MEDICAL CENTER CONTRACTOR HANDBOOK FOR WORK RESTRICTIONS.
- ALL DEMOLITION SHALL BE PERFORMED IN A SAFE AND ACCEPTABLE MANNER TO ALL AUTHORITIES HAVING JURISDICTION AND THE VA MEDICAL CENTER. A FIRE WATCH SHALL BE PROVIDED BY THE CONTRACTOR IF ANY HAZARDOUS SITUATIONS ARE THOUGHT TO BE PRESENT OR POSSIBLE. COMPLY WITH GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION FOR POLLUTION CONTROL. THOROUGHLY CLEAN ADJACENT AREAS OF DUST, DIRT AND DEBRIS CAUSED BY DEMOLITION WORK. BEFORE NEW WORK BEGINS, RETURN ADJACENT AREAS TO CONDITION FOUND PRIOR TO START OF DEMOLITION WORK.
- ALL WORK SHALL BE DONE IN PROTECTED SPACE. NO DUST OR DIRT SHALL TRAVEL FROM CONSTRUCTION AREA TO ADJACENT AREAS. TEMPORARY DUST PROTECTION SHALL BE ERECTED PRIOR TO START OF WORK. CONTRACTORS SHALL REVIEW PROVISIONS TO CONTROL AIRBORNE DUST WITH INFECTION CONTROL DIRECTOR, FACILITIES-BUILDING MANAGER AND CONSTRUCTION MANAGER. COORDINATE ADDITIONAL FILTRATION OF EXTERIOR AIR INTAKES TO MECHANICAL SYSTEMS. CONTRACTOR SHALL ASSIGN A PERSON(S) TO CLEAN ALL CONSTRUCTION AND COMMON AREAS, USED BY THE CONTRACTOR AND STAFF, DURING THE CONSTRUCTION HOURS.
- PROVIDE TEMPORARY PARTITIONS/DUST PROTECTION (RATED AND/OR NON-RATED) AS REQUIRED. REVIEW LOCATIONS OF TEMPORARY PARTITIONS/DUST PROTECTION WITH VA MEDICAL CENTER AND COR PRIOR TO START OF WORK.
- IF HAZARDOUS MATERIAL IS ENCOUNTERED OR SUSPECTED TO BE PRESENT, CONTRACTOR SHALL STOP WORK AND INFORM VA MEDICAL CENTER IMMEDIATELY IN WRITING OF ANY HAZARDOUS MATERIAL ENCOUNTERED OR THOUGHT TO BE HAZARDOUS MATERIAL. THE VA MEDICAL CENTER, AFTER RECEIVING WRITTEN NOTICE SHALL INSTRUCT CONTRACTOR ON HOW TO PROCEED. THIS INCLUDES, BUT IS NOT LIMITED TO PAINT THAT IS SUSPECT ON PIPING, CONDUIT, DUCTWORK OR ADJACENT SURFACES.
- ITEMS INDICATED AS TO-BE-DEMOLISHED (SUCH AS EXPOSED RACEWAY, SWITCHGEAR, BOXES, AND ENCLOSURES) SHALL BE REMOVED ENTIRELY. AFTER REMOVING CONDUCTORS, UG ITEMS SHALL BE CUT FLUSH W/ FLOOR AND SMOOTHED.

ELECTRICAL & FIRE ALARM NOTES

APPLICABLE TO ALL ELECTRICAL SHEETS:

- ALL WORK SHALL COMPLY WITH NEC, NFPA, AND ALL APPLICABLE FEDERAL CODES.
- ALL RECEPTACLES SHALL HAVE THE NEMA 5-20R CONFIGURATION, UNO. EACH RECEPTACLE SHALL BE CAPABLE OF ACCEPTING BOTH 15A AND 20A PLUGS.
- ALL BRANCH CIRCUITS SHALL BE RUN WITH DEDICATED NEUTRALS: NO SHARED NEUTRALS.
- IT IS ANTICIPATED THAT ANY CRITICAL WORK (SHUTDOWNS, ETC.), AFFECTING OTHER AREAS OR AFFECTING EMERGENCY BRANCHES OF THE ELECTRICAL SYSTEM, WILL BE DONE DURING OFF HOURS (NIGHTS, WEEK-ENDS, HOLIDAYS, ETC.) AND INTERESTED CONTRACTORS SHOULD PLAN ACCORDINGLY. A TWO (2) WEEK ADVANCE NOTIFICATION IS REQUIRED. INTENSIVE PLANNING IS REQUIRED TO ALLOW SCHEDULED WORK TO BE ACCOMPLISHED DURING SCHEDULED SHUTDOWN PERIODS.
- IT IS ANTICIPATED THIS PROJECT WILL INVOLVE WORK ON OR VERY NEAR LIVE CIRCUITS. ANY SUCH WORK WILL REQUIRE A WRITTEN, TASK SPECIFIC, DETAILED PLAN OF ACTION THAT IS AGREEABLE TO BOTH THE CONTRACTOR AND COR, SIGNED BY BOTH, AND SUBMITTED TWO (2) WEEKS PRIOR TO STARTING THE TASK. ADDITIONALLY, DUE TO THE COMPLEXITY AND INHERENT EXPOSURES OF THIS TYPE WORK, ALL ELECTRICAL WORKERS SHALL MEET THE MINIMUM TRAINING/EXPERIENCE REQUIREMENTS AS DESCRIBED IN THE SPECIFICATIONS. CONTRACTOR SHALL BE TRAINED ON ARC FLASH SAFETY PROCEDURES AND SHALL POSSESS THE PROTECTIVE EQUIPMENT. CONTRACTOR SHALL COMPLY WITH THE VAMC INTERNAL PROCEDURES FOR WORKING ON ENERGIZED CIRCUITS.
- ALL CONDUITS SHALL BE CLEAN AND FREE OF DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS.
- RACEWAY ROUTING DEPICTED IN EXISTING BUILDINGS IS PROPOSED AND SHALL BE COORDINATED IN THE FIELD. EXISTING AREAS SUCH AS THE PIPE BASEMENT, THE PIPE TUNNELS, AND THE MEP BUILDING WILL REQUIRE SIGNIFICANT IN-FIELD COORDINATION. IT IS HIGHLY RECOMMENDED THAT INTERESTED CONTRACTORS VISIT THESE AREAS PRIOR TO BID.
- SPACE SHALL BE ALLOCATED FOR FUTURE EQUIPMENT, AS NOTED ON PLANS.
- PRIOR TO FINAL INSPECTION, PROVIDE NEW PANEL SCHEDULES FOR ALL PANELBOARDS AND SWITCHBOARDS THAT ARE PROVIDED OR MODIFIED BY THIS PROJECT, INDICATE ANY NEW CIRCUITS WITH ROOM NUMBERS AND LOAD TYPE.
- ALL CONDUITS SHALL BE CLEAN AND FREE OF DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS. EXISTING CONDUITS SHALL NOT BE RE-USED, U.N.O.
- CONDUCTORS FROM DIFFERENT VOLTAGE SYSTEMS (FOR EXAMPLE: 120V AND 277V) OR FROM DIFFERENT POWER BRANCHES (FOR EXAMPLE: EQUIPMENT BRANCH AND NORMAL BRANCH) SHALL NOT BE INSTALLED IN THE SAME RACEWAY OR PULLBOXES.
- IN ACCORDANCE WITH NEC 300.7, PROVIDE DUCT SEAL MATERIAL TO PREVENT THE CIRCULATION OF WARM AIR TO A COOLER SECTION OF RACEWAY IN APPLICABLE RACEWAY SECTIONS (FOR EXAMPLE: RACEWAY BETWEEN INTERIOR AND EXTERIOR LOCATIONS, RACEWAY BETWEEN AIR-CONDITIONED AND NON-AIR-CONDITIONED SPACES).
- WORK SHALL BE PLANNED SUCH THAT THERE IS NO CLIMBING OR STANDING ON ELECTRICAL EQUIPMENT. CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY SCAFFOLDING AS REQUIRED.
- ANY WORK ABOVE OR AT THE TOP OF EQUIPMENT SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS AND DROPPED PARTS FROM ENTERING THE EQUIPMENT.
- PROVISIONS IN ACCORDANCE WITH THE SPECIFICATIONS AND APPLICABLE CODES SHALL BE MADE FOR ALL RACEWAY CROSSING EXPANSION JOINTS OR EXTENDING FROM ONE BUILDING INTO ANOTHER (WHETHER THE RACEWAY IS DEPICTED ON THE PLANS OR NOT). IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW COMPLETE ROUTING FOR ALL RACEWAY.
- PRIOR TO FINAL INSPECTION, PROVIDE LABELS FOR ALL NEW EQUIPMENT IN ACCORDANCE WITH SPECIFICATIONS (INCLUDING BUT NOT LIMITED TO PANELS, TRANSFORMERS, AIR HANDLERS, MOTOR STARTERS, MOTORS, DISCONNECT SWITCHES, VFDs, PULLBOXES, AND DRAWOUT BREAKERS). SEE DETAIL. OBTAIN FINAL EQUIPMENT DESIGNATIONS FROM COR AND COORDINATE WITH MECHANICAL CONTRACTOR.
- RACEWAY ROUTING DEPICTED ON PLANS IS PROPOSED ROUTING; ALTERNATE ROUTES MAY BE USED BY CONTRACTOR, U.N.O. (PENDING APPROVAL BY COR AND ENGINEER). TYPICALLY, PULL BOXES ARE NOT SHOWN ON THE PLANS; LOCATION AND QUANTITY OF PULL-BOXES SHALL BE PROVIDED TO ACCOMPLISH PULLS AND COMPLY WITH NEC.
- A PORTION OF THIS PROJECT MAY REQUIRE THE CONTRACTOR TO REMOVE EXISTING CEILING TILES TO GAIN ACCESS ABOVE THE CEILING. TILES THAT BECOME DIRTY OR DAMAGED AS A RESULT OF THIS PROJECT SHALL BE REPLACED WITH TILES TO MATCH EXISTING SURROUNDING TILES.
- UNLESS NOTED OTHERWISE, 20A ELECTRICAL DEVICES SHALL BE FED VIA 12AWG CONDUCTORS (PHASE, NEUTRAL, AND GROUND) IN 3/4" MIN. DIAMETER CONDUIT.
- THE CONTRACTOR SHALL NOT OPERATE ANY EXISTING EQUIPMENT INCLUDING, BUT NOT LIMITED TO BREAKERS, DISCONNECT SWITCHES, ETC., WITHOUT AUTHORIZATION FROM THE VAMC ENGINEERING SERVICE, UNLESS AN EMERGENCY SITUATION EXISTS. IN GENERAL, THE OPERATING STAFF OF THE VAMC ENGINEERING SERVICE WILL OPERATE ANY EXISTING EQUIPMENT WHICH THE CONTRACTOR MAY REQUIRE.
- IF AN OBSTRUCTION SHOULD BE ENCOUNTERED THAT REQUIRES A DEVIATION FROM THE ORIGINAL PLANS, THE CONTRACTOR SHALL CONTACT THE COR AND ENGINEER FOR GUIDANCE.
- PRINTED DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALES SHOWN ON CONSTRUCTION DOCUMENTS. THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE DOES NOT WARRANT THE ACCURACY OF SCALED DIMENSIONS.
- OMISSIONS IN AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER AND COR. CONFLICTS SHALL BE RESOLVED BY THE SAME BEFORE PROCEEDING WITH ANY WORK INVOLVED.
- THE CONTRACTOR SHALL BECOME FAMILIAR WITH ALL PORTIONS OF THE CONSTRUCTION DOCUMENTS AND SHALL ENSURE THAT ALL SUBCONTRACTORS ARE FAMILIAR WITH THOSE PORTIONS PERTAINING TO THEIR AREA OF WORK. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS, DIMENSIONS, ELEVATIONS, COORDINATE ALL DOORS, WINDOWS, NON-BEARING INTERIOR AND EXTERIOR WALLS, ELEVATIONS, SLOPES, STAIRS, CURBS, DRAINS, RECESSES, DEPRESSIONS, RAILINGS, WATERPROOFING, FINISHES, CHAMFER, KERFS, AND SO FORTH, AND IMMEDIATELY NOTIFY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE REGARDING ACTUAL CONDITIONS WHICH ARE NOT IN AGREEMENT WITH THE CONSTRUCTION DOCUMENTS.

SYMBOLS

LIGHTING	POWER	SHEET SYMBOLS
2' X 4' FLUOR. LIGHT FIXTURE, A = LIGHT FIXTURE TYPE, α = SWITCHING DESIGNATION	PANELBOARD, SURFACE MOUNTED	SHEET KEYNOTE SYMBOL, SEE RIGHT BORDER FOR TEXT
1' X 4' FLUOR. LIGHT FIXTURE	DISCONNECT SWITCH	D2 / E201 DETAIL NUMBER SHEET NUMBER WHERE DETAIL CAN BE FOUND
2' X 2' LED LIGHT FIXTURE	DUPLEX RECEPTACLE, MTD. +18" UNO	
4' LINEAR LIGHT FIXTURE	DUPLEX RECEPTACLE MTD. ABOVE COUNTER, +44" UNO	
8' LINEAR LIGHT FIXTURE	GFI-TYPE DUPLEX RECEPTACLE	
TOGGLE SWITCH, α = SWITCHING DESIGNATION	DUPLEX RECEPTACLE WITH WEATHERPROOF COVER, MTD. +18", UNO	
TOGGLE SWITCH, 3-WAY	QUADPLEX RECEPTACLE, MTD. +18" UNO	
	WALL MOUNTED JUNCTION BOX	
	ELECTRICAL CONNECTION	
	CONDUIT CONCEALED IN WALL OR CLG.	
	CONDUIT UNDER FLOOR (OR ROOF)	
	FLEXIBLE CONDUIT PER SPECS	
	CONTINUATION OF CIRCUIT AS NOTED	
	DENOTES SCOPE OF DEMOLITION ON RISER AND DETAILS	
	LIGHTNING PROTECTION AIR TERMINAL	
	LIGHTNING PROTECTION CONDUCTOR	
	DRY-TYPE TRANSFORMER	

ABBREVIATIONS

A	AMPERE
AFC	AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
BKR	BREAKER
BR	BRANCH
CKT	CIRCUIT
CLG	CEILING
COORD	COORDINATE
CP	CONTROL PANEL
CRI	COLOR RENDITION INDEX
CTRL	CONTROL
DISC	DISCONNECT
EBJ	EQUIPMENT BONDING JUMPER
EGC	EQUIPMENT GROUNDING CONDUCTOR
ELEV	ELEVATOR
ENCL	ENCLOSURE
ETR	EXISTING TO REMAIN
EXIST	EXISTING
FLA	FULL LOAD AMPS
FLUOR	FLUORESCENT
FTR	FUTURE
FVNR	FULL VOLTAGE NON-REVERSING
GBB	GROUND BUS BAR
GEC	GROUNDING ELECTRODE CONDUCTOR
GFI	GROUND FAULT INTERRUPT
GWB	GYPSUM WALL BOARD
HD	HEAVY DUTY
HMI	HUMAN MACHINE INTERFACE
H-O-A	HAND-OFF-AUTO
JB	JUNCTION BOX
K	KELVIN
KA	KILO-AMPERES
KAIC	KILO-AMPERES INTERRUPTING CURRENT
KW	KILO-WATT
LED	LIGHT EMITTING DIODE
LS	LIFE SAFETY
LT	LIGHT FIXTURE
MANUF	MANUFACTURER
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MW	MICROWAVE
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NF	NON-FUSED
NTS	NOT TO SCALE
OEM	ORIGINAL EQUIPMENT MANUFACTURER
P	POLE
PH	PHASE
PNL	PANEL
POE	POWER OVER ETHERNET
PRI	PRIMARY
REC	RECEPTACLE
REF	REFRIGERATOR
SBJ	SYSTEM BONDING JUMPER
SEC	SECONDARY
SECCP	SPRINKLER FIRE CYCLE CONTROL PANEL
SPCP	SUMP PUMP CONTROL PANEL
SS	STAINLESS STEEL
SW	SWITCH
TEMP	TEMPORARY
THD	TOTAL HARMONIC DISTORTION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UC	UNDER COUNTER
UG	UNDERGROUND
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLT
VA	VOLT-AMPERES
VAC	VOLTS ALTERNATING CURRENT
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE
W	WIRE OR WATT (PER CONTEXT)
WP	WEATHERPROOF
XF, XFMR	TRANSFORMER

INVESTIGATIVE SERVICES

THIS PROJECT MAY REQUIRE NEW PENETRATIONS THROUGH EXISTING CONCRETE FLOORS. PRIOR TO LAYOUT AND INSTALLATION OF NEW CONDUIT REQUIRING NEW PENETRATIONS OF EXISTING CONCRETE FLOOR SLABS, THE CONTRACTOR SHALL SUBMIT TO THE COR THE TESTING AND INVESTIGATION SERVICE (TIS) WHICH WILL BE USED TO LOCATE THE EXISTING SLAB REINFORCEMENT FOR APPROVAL. THE TIS SHALL HAVE A MINIMUM OF 5 YEARS OF EXPERIENCE IN THE USE OF X-RAY AND GROUND PENETRATING RADAR (GPR). THE CONTRACTOR SHALL SUBMIT THE INVESTIGATIVE TESTING SERVICES WORK PLAN AND SCHEDULE FOR APPROVAL. THE TIS SHALL USE X-RAY, GPR OR OTHER SUITABLE NON-DESTRUCTIVE TESTING METHODOLOGY TO ACCURATELY IDENTIFY THE SLAB REINFORCING, FROM WHICH ADJUSTMENTS TO THE PENETRATIONS WILL BE MADE SO AS NOT TO COMPROMISE THE STRUCTURAL INTEGRITY OF THE EXISTING CONCRETE FLOOR SLABS. THE X-RAY OR GPR SHALL BE A CONTINUOUS 3-D GRID PROCESS (SCANNING GRID OF 2" ON CENTER) FOR AN AREA OF 24" BEYOND THE PROPOSED PENETRATION IN ALL DIRECTIONS. THE IDENTIFIED X-RAY OR GPR OF THE REINFORCING SHALL BE IDENTIFIED BY PENETRATION TYPE AND COLUMN GRID LINE DESIGNATION. THE AREA SHALL BE SURVEYED, MAPPED AND SUBMITTED TO THE COR FOR RECORD PURPOSES. THE REINFORCING SHALL BE MARKED ON THE CONCRETE SLAB AND USE DIFFERING COLORS FOR THE IDENTIFICATION OF TOP AND BOTTOM REINFORCING. THE CONTRACTOR SHALL GIVE THE COR 72 HOURS NOTICE PRIOR TO ANY INVESTIGATIVE TESTING WORK.

DEDUCTIVE ALTERNATES

THIS PROJECT INCLUDES MULTIPLE DEDUCTIVE ALTERNATES. CONTRACTOR SHALL REFER TO SPEC SECTION 01 00 00 FOR DETAILED DESCRIPTIONS. IN SUMMARY:

BASE BID - ALL WORK SHOWN.

DEDUCT ALTERNATE #1 - DEDUCT STEAM TRAP MONITORING.

DEDUCT ALTERNATE #2 - DEDUCT INDIVIDUAL STACKS.

DEDUCT ALTERNATE #3 - DEDUCT VENTILATION SYSTEM.

DEDUCT ALTERNATE #4 - DEDUCT WATER SOFTENER.

DEDUCT ALTERNATE #5 - DEDUCT BOILER.

CONSULTANTS:

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CHAD J. FRALICK
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AKEA Project No. 128-16

Drawing Title
ELECTRICAL LEGEND, ABBREVIATIONS, AND NOTES

Approved: Project Director

Project Title
DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER

Location
BAY PINES, FLORIDA

Date
MAY 15, 2017

Checked
CJF

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Project Number
516-15-107

Building Number
100

Drawing Number
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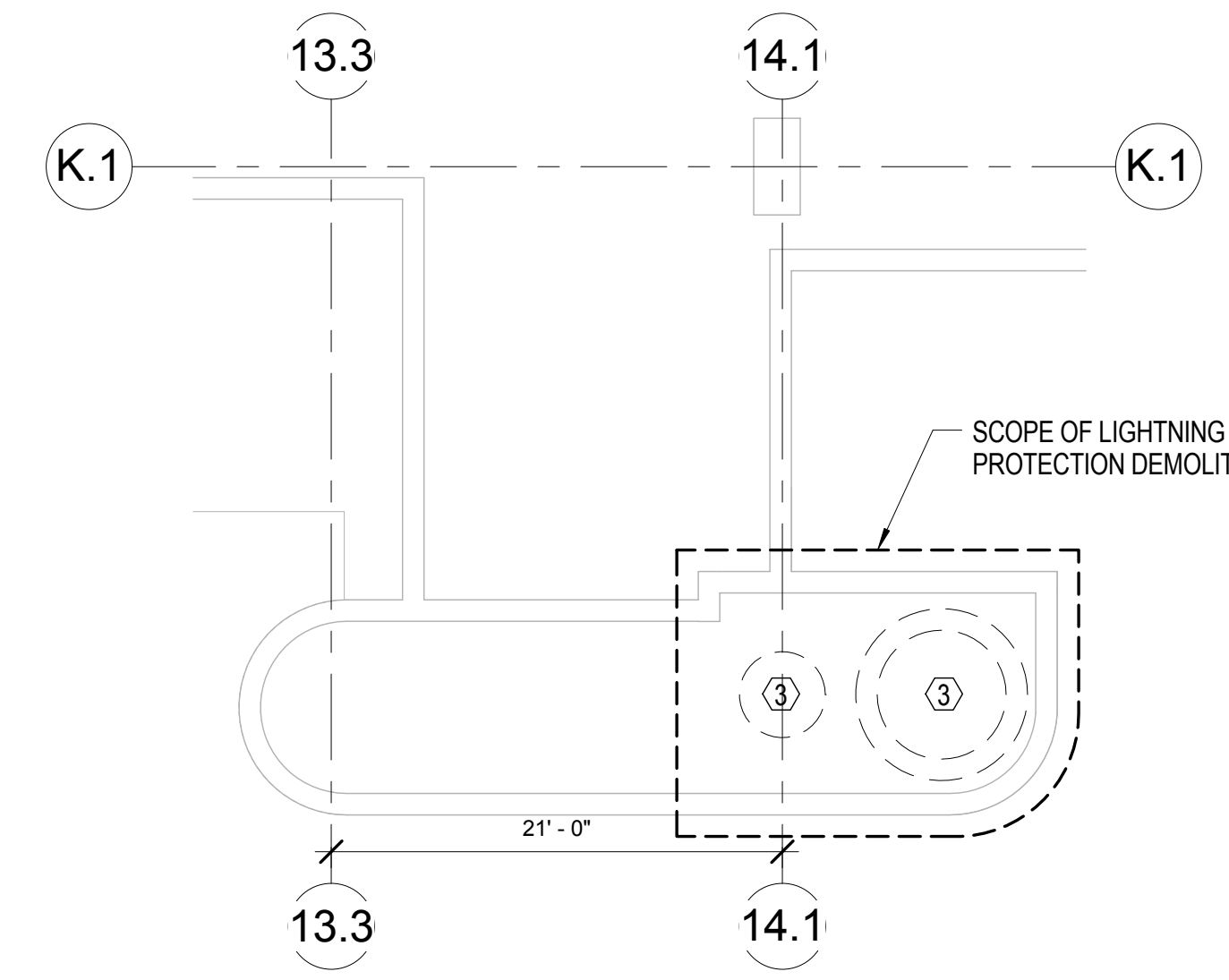
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Office of
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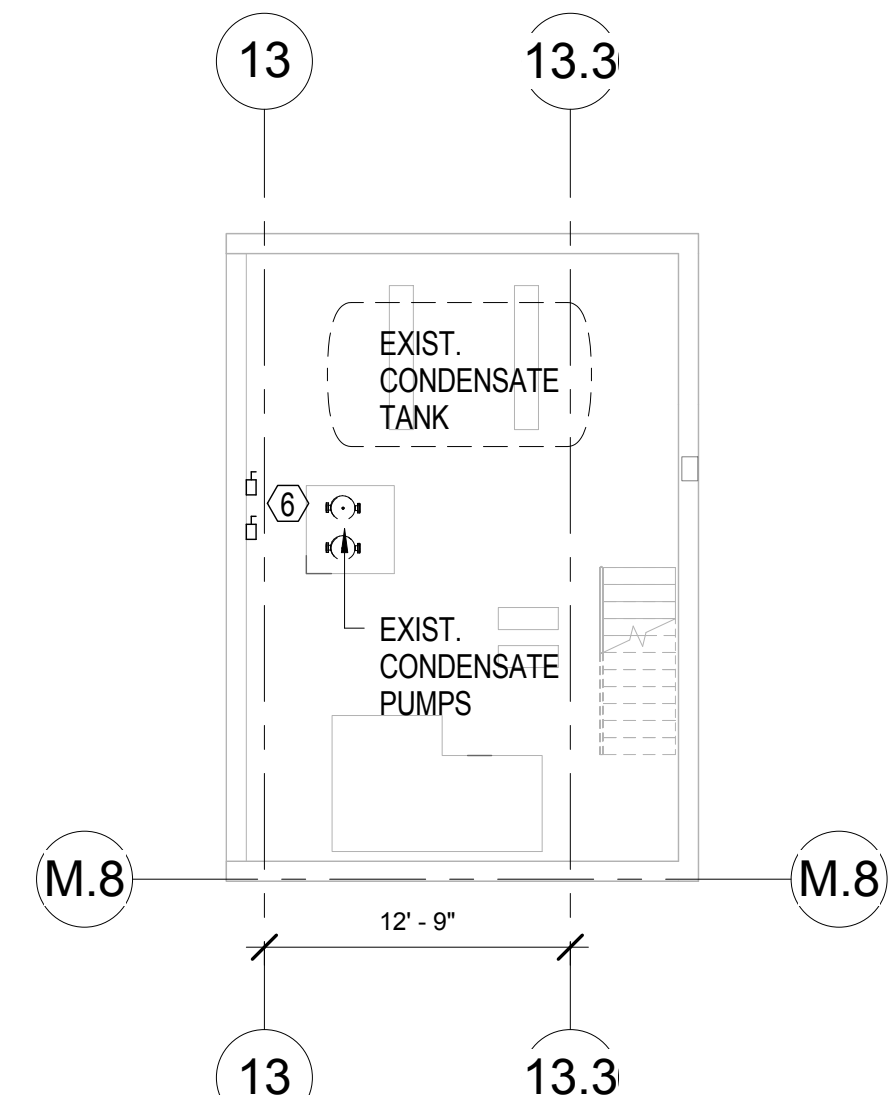


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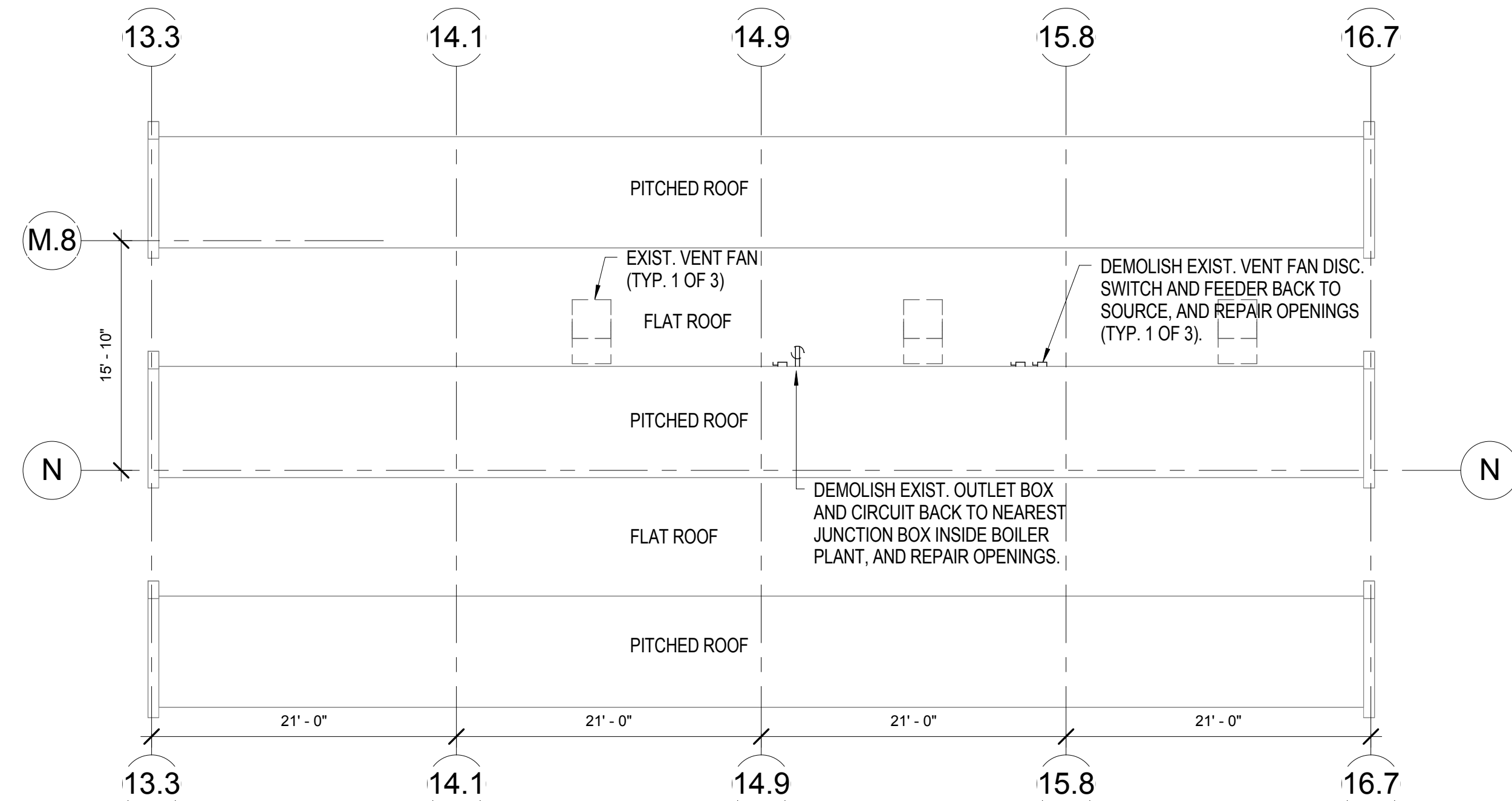
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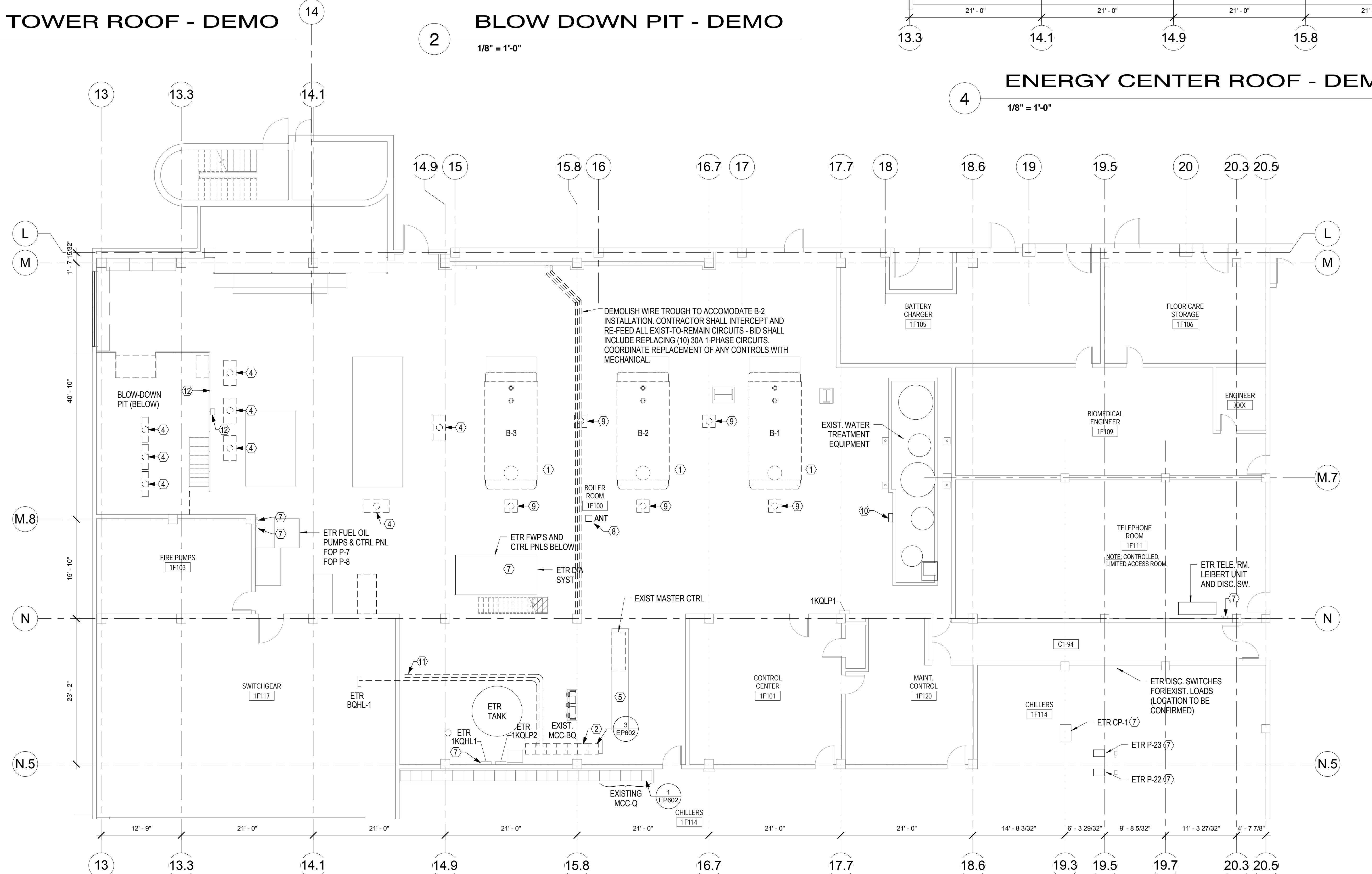
3 STAIR TOWER ROOF - DEMO
 1/8" = 1'-0"



2 BLOW DOWN PIT - DEMO
 1/8" = 1'-0"



4 ENERGY CENTER ROOF - DEMO
 1/8" = 1'-0"



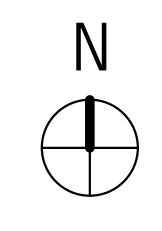
1 ENERGY CENTER - DEMO
 1/8" = 1'-0"

GENERAL SHEET NOTES

- A EXISTING MV, COMMUNICATION, CONTROL, AND LV CONDUITS TRAVERSE THE PROJECT AREA. CONTRACTOR SHALL NOT DAMAGE EXISTING TO REMAIN CONDUIT RUNS.
- B DEMOLITION SHALL BE PHASED. COORDINATE SEQUENCE OF ELECTRICAL DEMOLITION WITH MECHANICAL WORK.
- C CONTRACTOR SHALL PROVIDE APPROPRIATE FALL PREVENTION/PROTECTION FOR WORK ON ROOFS OR ELEVATED SURFACES.

SHEET KEYNOTES

- 1 DISCONNECT EXIST. BOILER CONTROL PANEL. COMPLETELY REMOVE CONDUCTORS BACK TO SOURCE (MCC-BQ). REMOVE EXPOSED CONDUIT, GRIND FLUSH WITH SLAB, AND PERMANENTLY SEAL CONDUITS.
- 2 TRANSFER LOADS, AND THEN DEMO EXIST. MCC-BQ AND PAD. SEE ONE-LINE AND DETAILS.
- 3 DISCONNECT EXISTING LIGHTNING PROTECTION COMPONENTS ATTACHED TO EXISTING EXHAUST STACK AND REMOVE. REPAIR AND RECONNECT EXISTING-TO-REMAIN ITEMS AS REQUIRED TO MAINTAIN PROTECTION SYSTEM INTEGRITY THRU-OUT CONSTRUCTION. ALSO, PROVIDE TEMPORARY AIR TERMINALS (2) MIN. TO COVER RENOVATION AREA DURING CONSTRUCTION.
- 4 DEMO LIGHT FIXTURE.
- 5 TEMPORARILY RELOCATE LOCKER AND SHELF UNITS TO ACCOMMODATE NEW MCC.
- 6 DEMO FEEDERS AND ASSOC. ELEC. TO EXIST. CONDENSATE PUMPS AND CONTROL PANELS.
- 7 EXIST. LOAD TO BE RE-FED FROM NEW MCC. DEMO EXISTING FEEDER BACK TO MCC-BQ.
- 8 TEMPORARILY DISCONNECT AND REMOVE EXISTING ANT. # 1-1-73 ACCESS POINT.
- 9 TEMPORARILY DISCONNECT AND REMOVE EXISTING LIGHTING FIXTURE TO BE RELOCATED AS NECESSARY TO ACCOMMODATE NEW WORK.
- 10 DEMO WATER TREATMENT CIRCUITS BACK TO SOURCE. (DO NOT DEMO UNDER DEDUCT ALT #4.)
- 11 DEMO PORTION OF EXISTING FEEDER TO BQHL-2.
- 12 TEMPORARILY DISCONNECT AND REMOVE EXISTING EM. SUMP PUMP CONTROLLER, CONTROL POWER TRANSFORMER, SWITCHES, BELL, RECEPTACLES AND ALL OTHER ELECTRICAL ITEMS FROM TO-BE-DEMOLISHED RAILING. ENSURE SUMP PUMPS REMAIN OPERABLE DURING CONSTRUCTION.



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CONSULTANTS: 	ENGINEER-OF-RECORD CHAD J. FRALICK FL R.E. NO. 73871	ARCHITECT/ENGINEERS: AKEA Design, Inc. 3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578 AKEA Project No. 128-16	Drawing Title ENERGY CENTER - DEMO	Project Title DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER	Project Number 516-15-107
	Approved: Project Director	Location BAY PINES, FLORIDA	Building Number 100	Date MAY 15, 2017	Checked CJF
					Drawing Number ED101
					60 OF 78



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2 LIGHT FIXTURE DETAIL - TYPE A4,A8
 SCALE: N.T.S.



3 LIGHT FIXTURE DETAIL - TYPE B
 SCALE: N.T.S.

LIGHTING FIXTURE SCHEDULE						
FIXTURE TYPE	B.O.D. MANUFACTURER	B.O.D. MODEL NO.	LIGHT SOURCE	VA	MOUNTING	DESCRIPTION
A4	CREE	LS4-40L-35K-10V-LS4AR	LED 3500K	44 VA	SUSPENDED	4' LINEAR AMBIENT LUMINAIRE WITH APERTURED REFLECTOR, 4000 LUMENS, 90 LPW, >0.9 POWER FACTOR, 90+ CRI, < 20% THD, UL DAMP LISTED.
A8	CREE	LS8-80L-35K-10V-LS8AR	LED 3500K	88 VA	SUSPENDED	8' LINEAR AMBIENT LUMINAIRE WITH APERTURED REFLECTOR, 8000 LUMENS, 91 LPW, >0.9 POWER FACTOR, 90+ CRI, < 20% THD, UL DAMP LISTED.
B	LITHONIA	IBH 12000LM SD080 MD MVOLT OZ10 35K WH IBLPMPHB	LED 3500K	109 VA	SUSPENDED	2' LED HIGH BAY LIGHTING FIXTURE, MATCH LIGHTING CHARACTERISTICS OF EXISTING TO REMAIN LIGHTING, 90 LPW, >0.95 POWER FACTOR, 90+ CRI, < 20% THD, UL DAMP LISTED.

SHEET NOTES

A COORDINATE FINAL MOUNTING LOCATIONS OF FIXTURES WITH NEW AND EXISTING SYSTEMS.

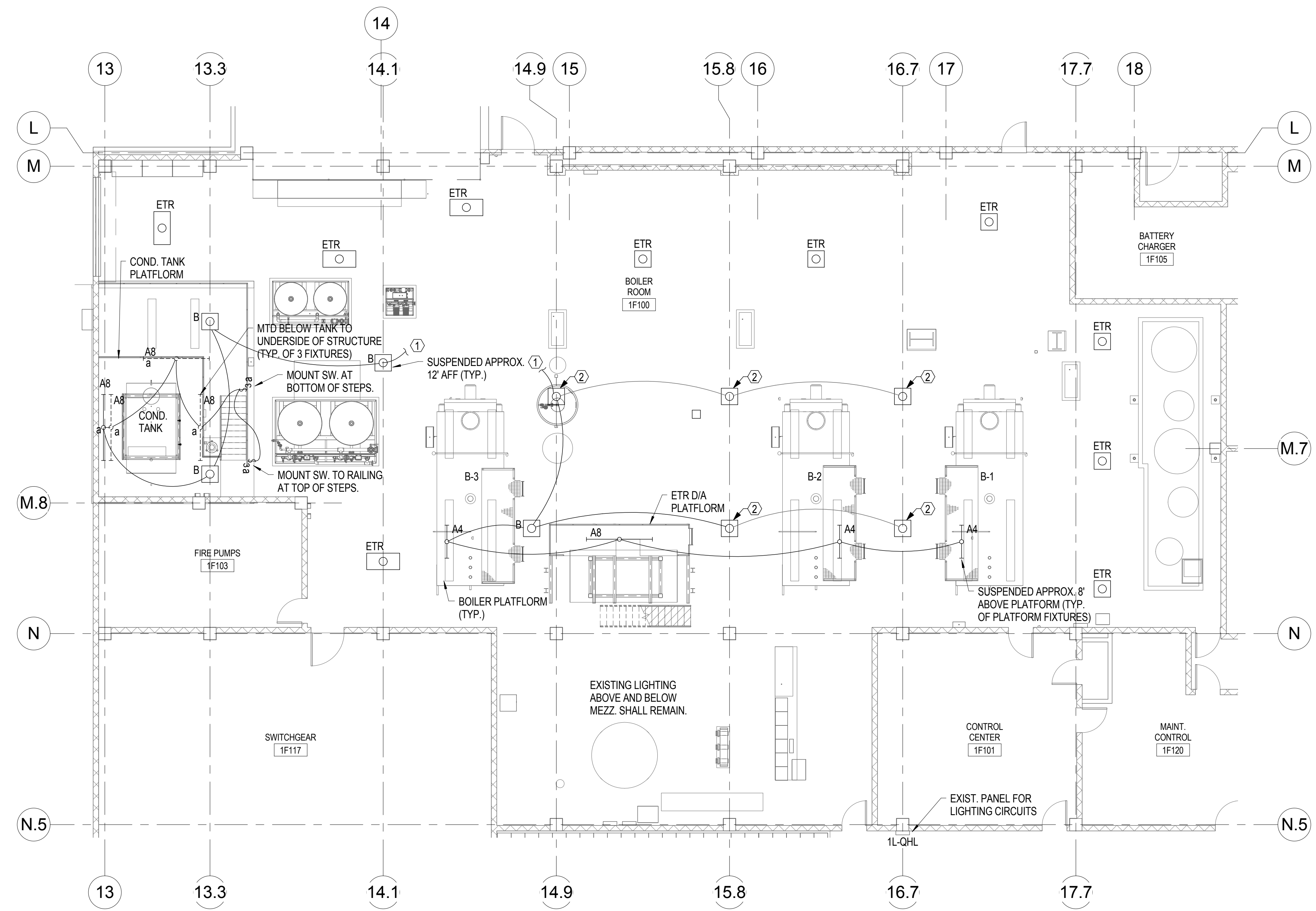
B WORK SHALL BE PHASED. COORDINATE SEQUENCE OF ELECTRICAL WORK WITH MECHANICAL WORK.

C EXISTING TO REMAIN LIGHTING ELEMENTS SHOWN WITH LIGHT LINEWEIGHTS, NEW/RELOCATED LIGHTING ELEMENTS SHOWN WITH HEAVY LINEWEIGHTS.

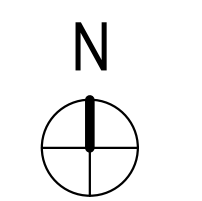
SHEET KEYNOTES

1 EXTEND CONDUIT AND WIRING AS NECESSARY TO CONNECT TO NEAREST SWITCHED EXISTING LIGHTING CIRCUIT FED FROM PANEL 1L-QHL.

2 EXTEND CONDUIT AND WIRING AS NECESSARY TO RECONNECT RELOCATED LIGHT FIXTURE.



1 ENERGY CENTER - NEW LIGHTING
 1/8" = 1'-0"

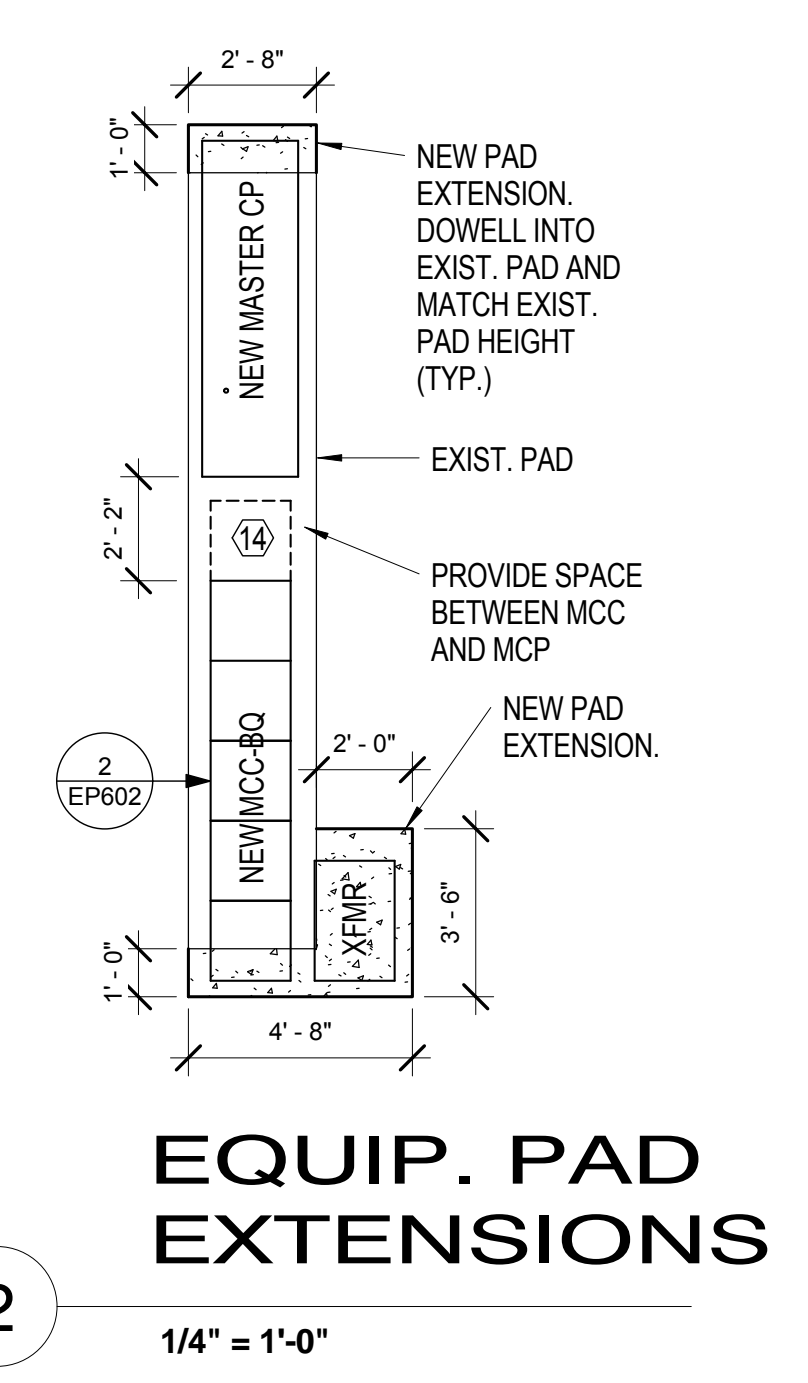
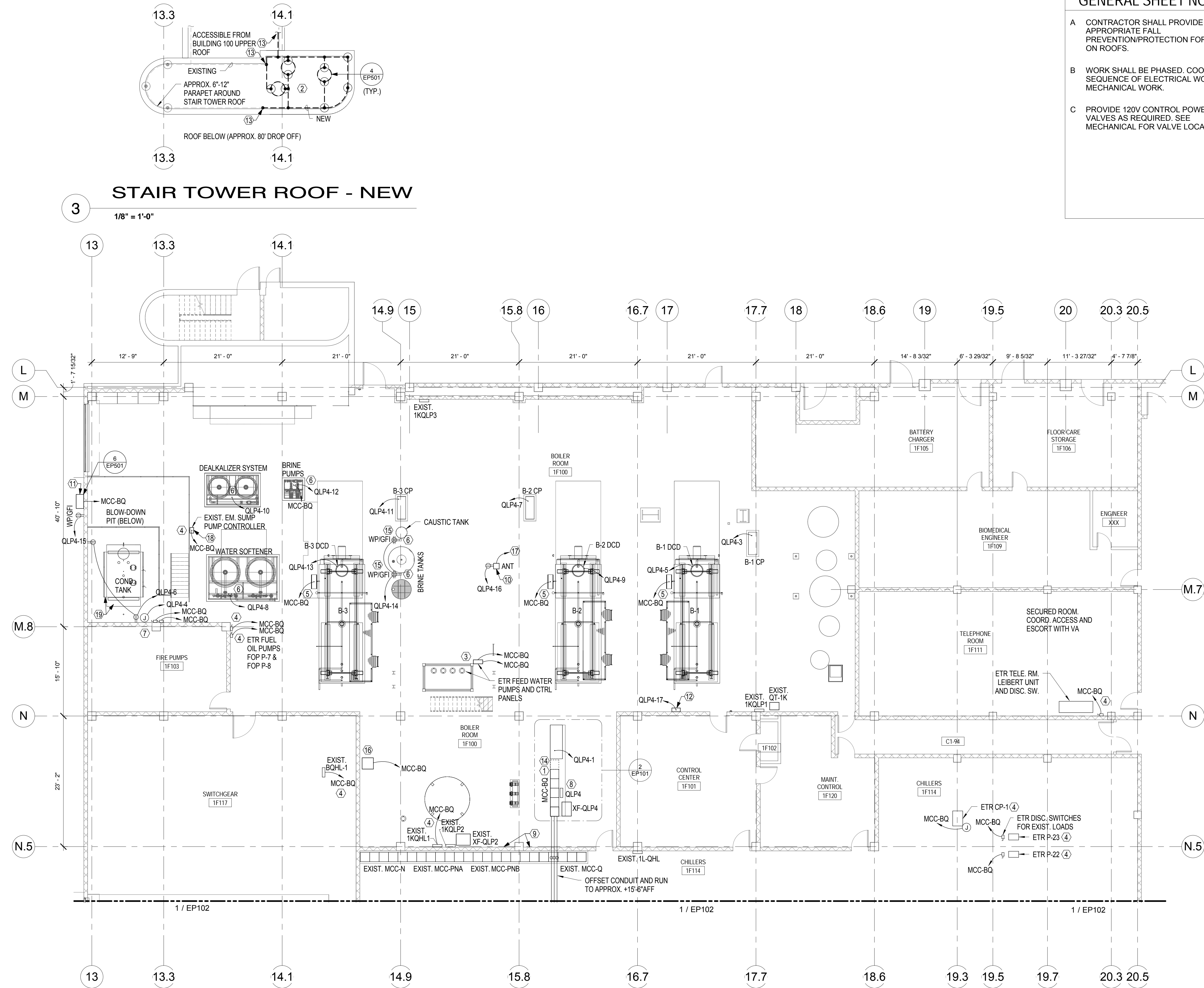


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			Approved: Project Director	Location BAY PINES, FLORIDA	Building Number 100
			Date MAY 15, 2017	Checked CJF	Drawn KLL
			Drawing Number EL101		61 OF 78

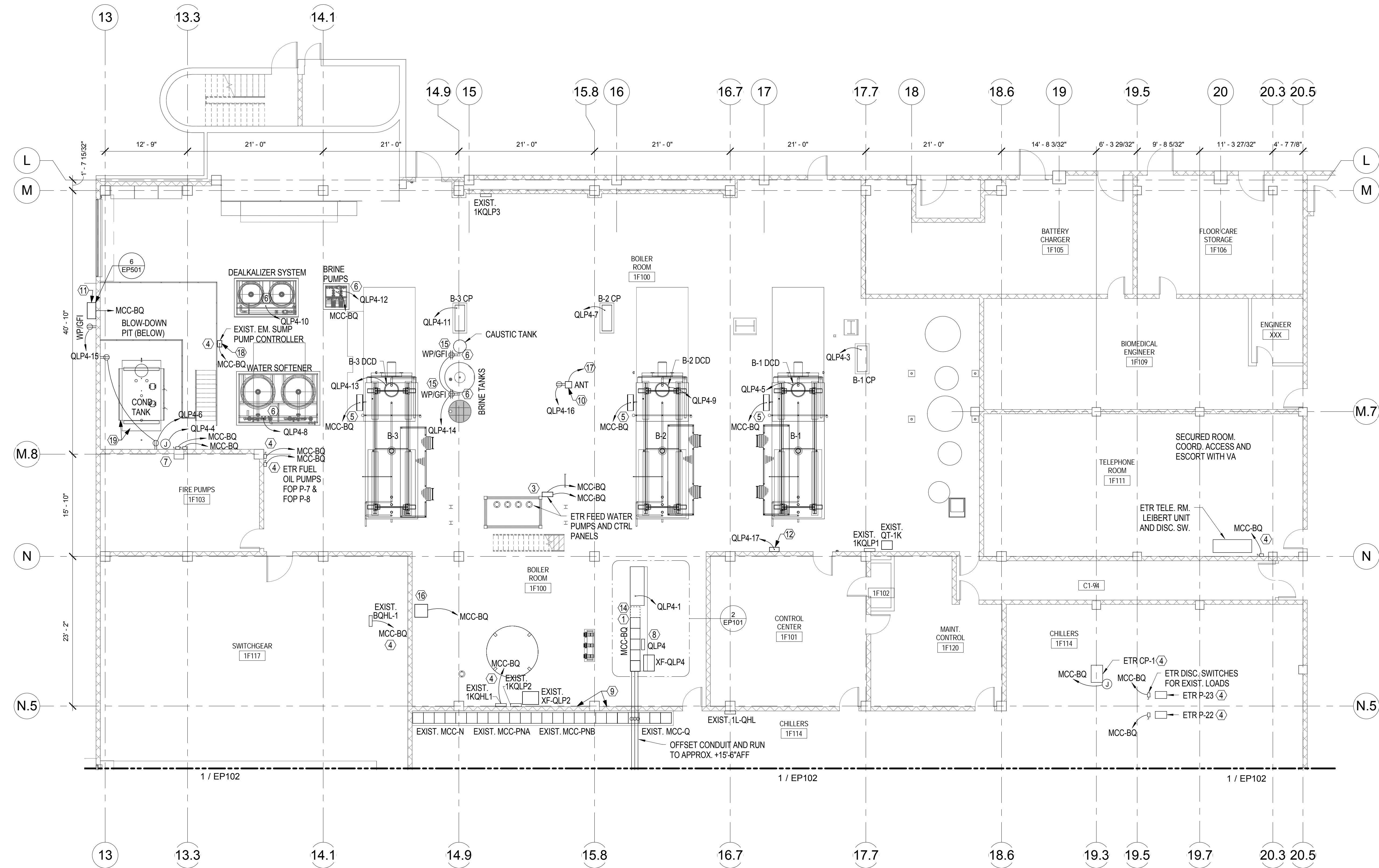


- GENERAL SHEET NOTES**
- A CONTRACTOR SHALL PROVIDE APPROPRIATE FALL PREVENTION/PROTECTION FOR WORK ON ROOFS.
 - B WORK SHALL BE PHASED. COORDINATE SEQUENCE OF ELECTRICAL WORK WITH MECHANICAL WORK.
 - C PROVIDE 120V CONTROL POWER TO VALVES AS REQUIRED. SEE MECHANICAL FOR VALVE LOCATIONS.
- SHEET KEYNOTES**
- 1 PROVIDE NEW MCC-BQ. PROVIDE DRIP GUARD OVER MCC, PANEL, AND TRANSFORMER.
 - 2 PROVIDE NEW AIR TERMINALS ON STACKS AND BOND TO EXISTING LIGHTNING PROTECTION SYSTEM. SEE MECH. FOR OUTER DIAMETER OF STACKS. BOND LOWER END OF EACH NEW GUY WIRE TO ROOF CONDUCTORS. PROVIDE CORROSION PROTECTION PER NFPA 780.
 - 3 RE-FEED FEED WATER PUMP CONTROL PANELS FROM NEW MCC.
 - 4 RE-FEED EXISTING LOAD FROM NEW MCC.
 - 5 PROVIDE NEW CIRCUIT TO BOILER-MTD CONTROL PANEL (SINGLE POINT CONNECTION) AND PROVIDE INPUT AND OUTPUT FEEDERS FROM BOILER-MTD CP TO REMOTE VFD (REFER TO MECHANICAL FOR VFD LOCATIONS). COORDINATE WITH FINAL APPROVED BOILER SHOP DRAWINGS.
 - 6 PROVIDE NEW CIRCUITS, DISCONNECTS, AND RECEPTACLES FOR WATER TREATMENT EQUIPMENT. DO NOT INCLUDE THIS ITEM UNDER DEDUCT ALT #4.
 - 7 PROVIDE NEW CIRCUITS AND DISCONNECTS FOR CONDENSATE TRANSFER PUMPS. ALSO, PROVIDE 120V POWER TO (2) CONDENSATE SURGE TANK MAKEUP WATER CONTROL VALVES.
 - 8 PROVIDE NEW TRANSFORMER AND PANEL. PROVIDE UNISTRUT SUPPORT FOR PANEL (DO NOT ATTACH PANEL SUPPORT TO MCC). SUPPORT SHALL EXTEND FROM PAD TO STRUCTURE ABOVE AND SHALL NOT SWAY.
 - 9 RE-INSTALL EXISTING LOCKER AND SHELF UNITS ALONG THIS WALL.
 - 10 PROVIDE POWER AND TELECOM TO ANTENNA ACCESS POINT. MOUNT ITEMS TO SUPPORT SUSPENDED FROM STRUCTURE.
 - 11 PROVISIONS FOR TEMPORARY BOILER CONNECTIONS 12' AFF. ADJACENT TO PIPE STUB OUTS. MOUNT ADJACENT RECEPTACLE AT SAME HEIGHT.
 - 12 PROPOSED LOCATION FOR GAS DETECTION CONTROL PANEL CIRCUIT. CONTRACTOR SHALL COORDINATE LOCATION OF CIRCUIT WITH MECHANICAL.
 - 13 BOND NEW LIGHTNING PROTECTION ELEMENTS TO EXISTING LIGHTNING PROTECTION SYSTEM.
 - 14 LEAVE SPACE TO ACCOMMODATE FUTURE INSTALLATION OF MCC SECTION.
 - 15 PROVIDED UNISTRUT SUPPORT AND MOUNT REC 48" AFF. CIRCUIT SHALL BE RUN FROM OVERHEAD.
 - 16 BQHL-2 FEEDER INTERCEPT AND SPLICE. PROVIDE 16"x16"x6" MIN. BOX OVERHEAD.
 - 17 PROVIDE 1" C. WITH (1) CAT5E CABLE TO TELECOM RM. COORDINATE TERMINATION LOCATION WITH VA.
 - 18 REMOUNT EXISTING ITEMS (CONTROLLER, CONTROL POWER TRANSFORMER, RECEPTACLES, SWITCHES, BELL, ETC.) BACK TO NEW RAILING. PROVIDE NEW CONDUIT AND WIRING AS NECESSARY.
 - 19 BOND NEW METALLIC STRUCTURE AND CONDENSATE TANK WITH #6 TO GROUND BUS BAR IN SWITCHGEAR ROOM 1F117.



STAIR TOWER ROOF - NEW

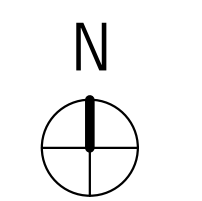
3 1/8" = 1'-0"



ENERGY CENTER - NEW POWER

1 1/8" = 1'-0"

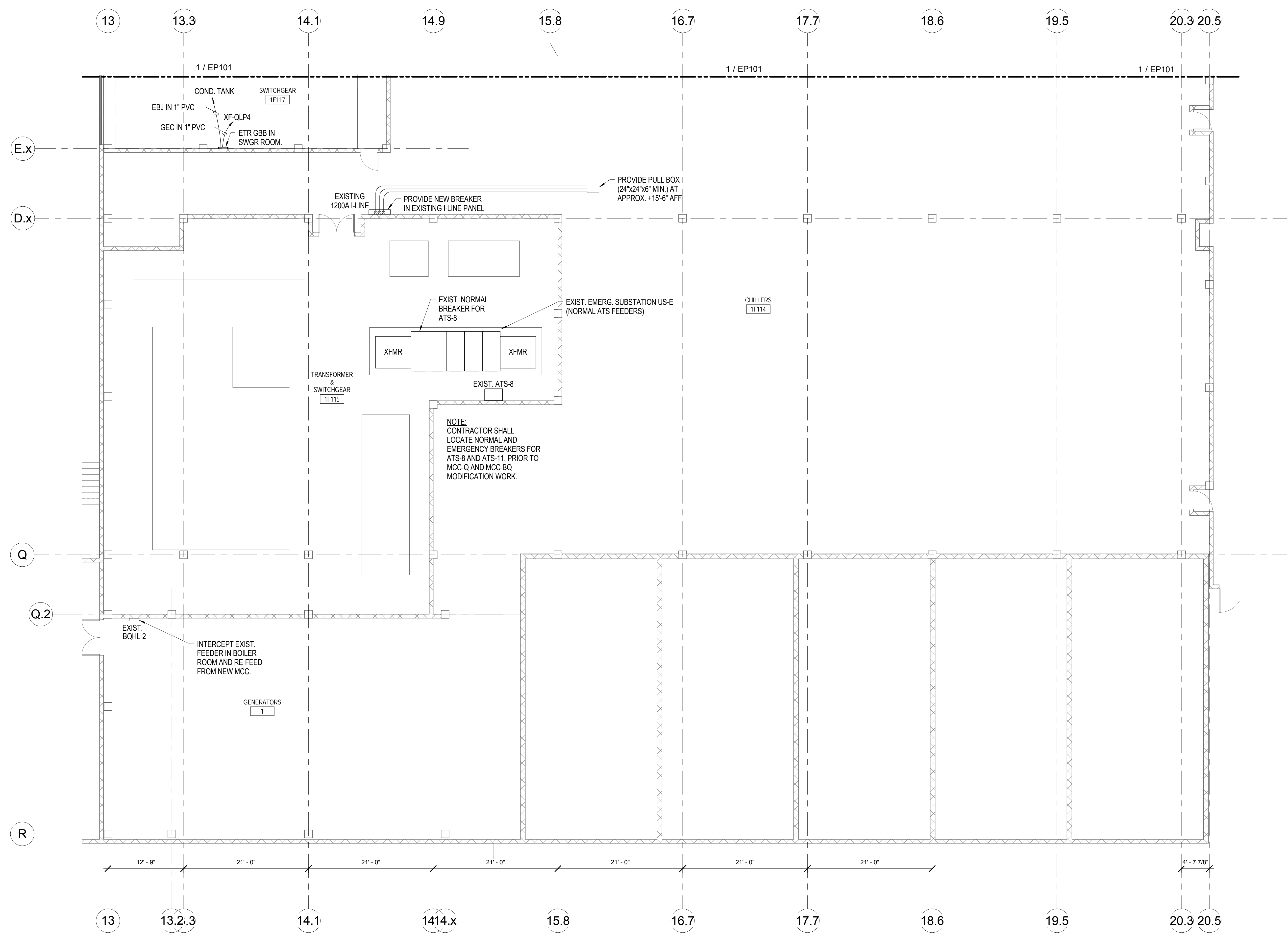
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						Approved: Project Director		Location BAY PINES, FLORIDA		Drawing Number EP101 62 OF 78			
								Date MAY 15, 2017		Checked CJF			Drawn CJF

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ENERGY CENTER - SOUTH - NEW POWER

1
 1/8" = 1'-0"

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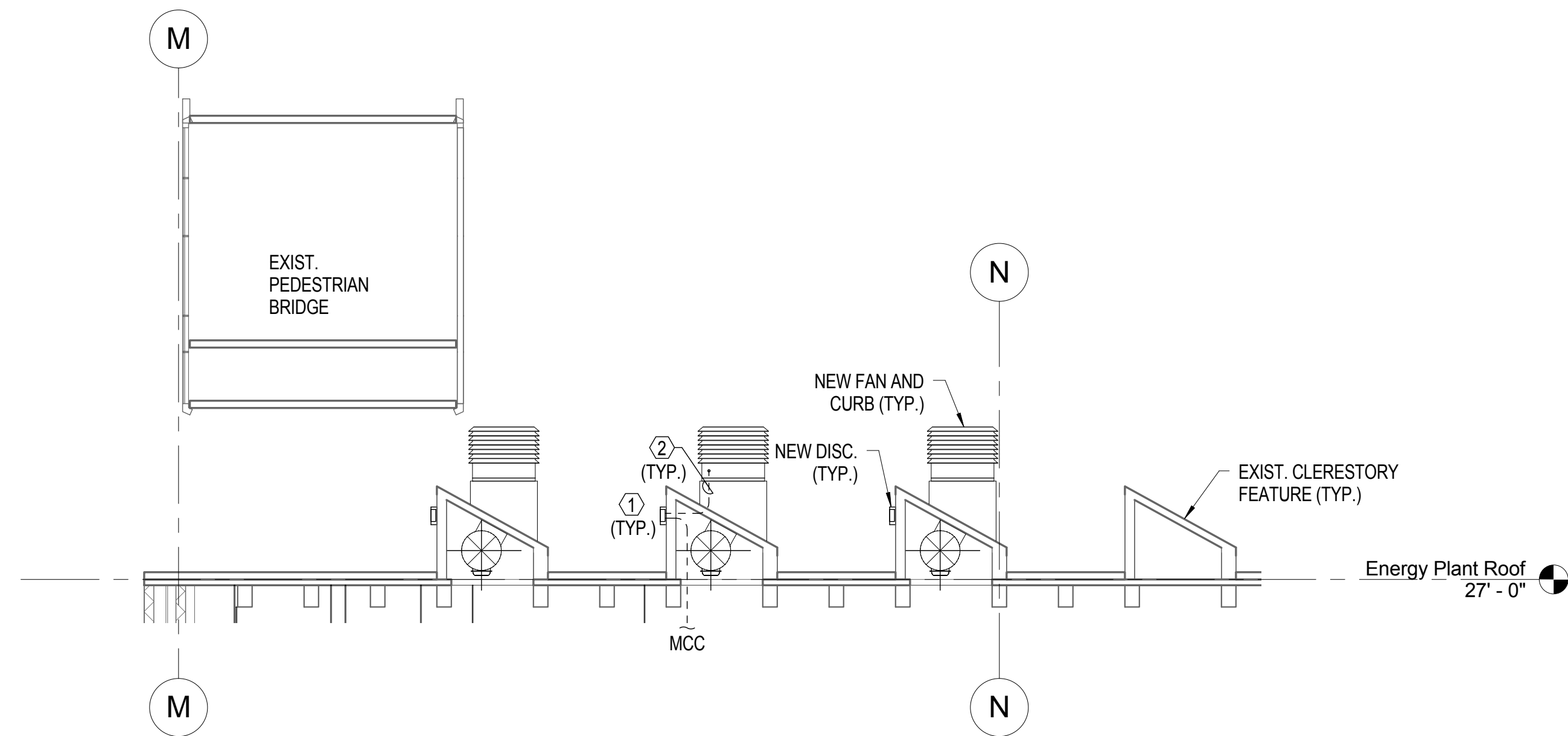
CONSULTANTS: 	ENGINEER-OF-RECORD CHAD J. FRALICK FL. R.E. NO. 73811	ARCHITECT/ENGINEERS: AKEA Design, Inc. 3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578 AKEA Project No. 128-16	Drawing Title ENERGY CENTER SOUTH - NEW POWER	Project Title DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER	Project Number 516-15-107 Building Number 100	Office of Construction and Facilities Management Department of Veterans Affairs
			Approved: Project Director	Location BAY PINES, FLORIDA	Drawing Number EP102 63 OF 78	

GENERAL SHEET NOTES

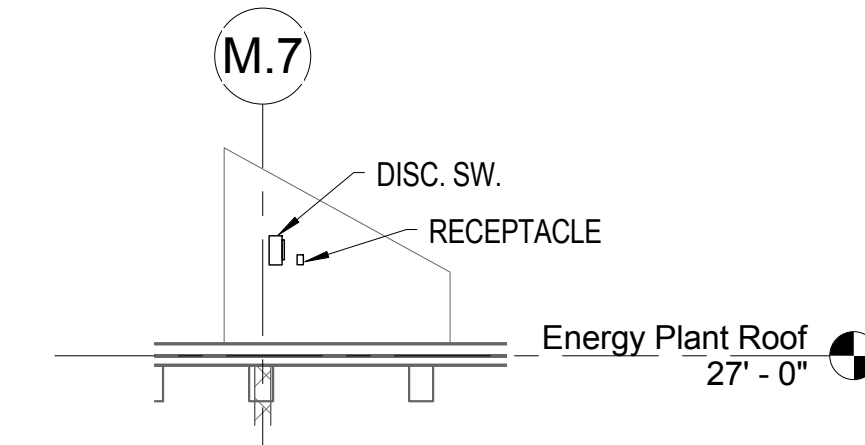
- A WORK ON THIS SHEET SHALL NOT BE INCLUDED UNDER DED. ALT. #3.
- B DO NOT PENETRATE ROOF MEMBRANE FOR ELECTRICAL CIRCUITS. PENETRATIONS SHALL BE MADE THRU VERTICAL WALLS.
- C ALL CIRCUITING SHALL BE ROUTED BELOW ROOF.

SHEET KEYNOTES

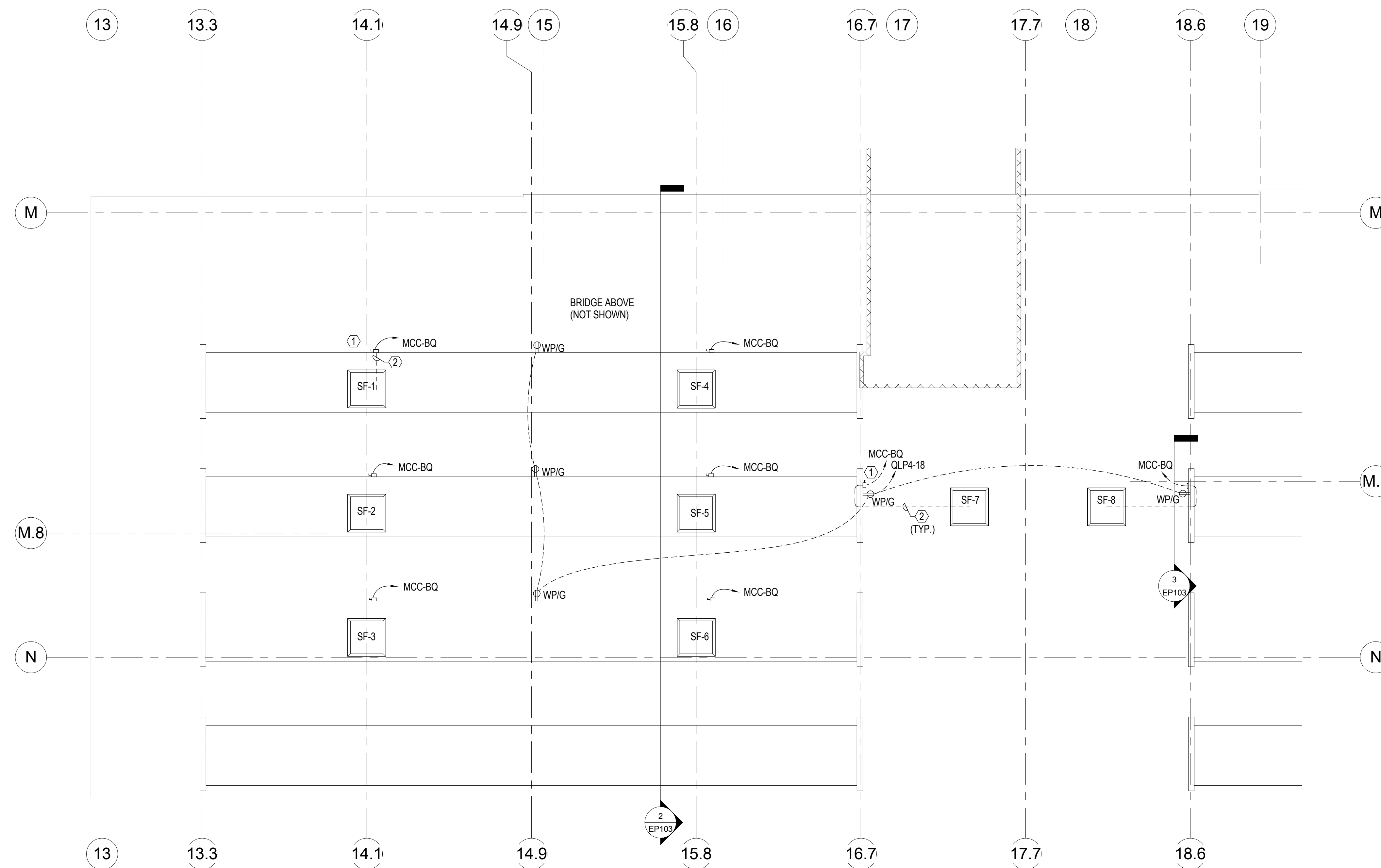
- 1 MOUNT DISCONNECT SWITCH ON VERTICAL FACE OF EXISTING WALL; PENETRATE WALL IMMEDIATELY BEHIND OR BELOW DISCONNECT SWITCH. (TYP.)
- 2 FINAL RUN SHALL BE ROUTED UNDER ROOF AND UP OPENING, THRU CURB, TO FAN. (TYP.)



2 SECTION - ROOF PROFILE A
1/8" = 1'-0"



3 SECTION - ROOF PROFILE B
1/8" = 1'-0"



1 ENERGY CENTER ROOF - NEW POWER
1/8" = 1'-0"

CONSULTANTS:

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ARCHITECT/ENGINEERS:

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Fax: (352) 533-4437
COA: FL #29578
AKEA Project No. 128-16

Drawing Title

ENERGY CENTER ROOF - NEW POWER

Approved: Project Director

Project Title

DESIGN TO REPLACE BOILERS,
BLDG 100 ENERGY CENTER

Location
BAY PINES, FLORIDA

Date
MAY 15, 2017

Checked
CJF

Drawn
CJF

Project Number
516-15-107

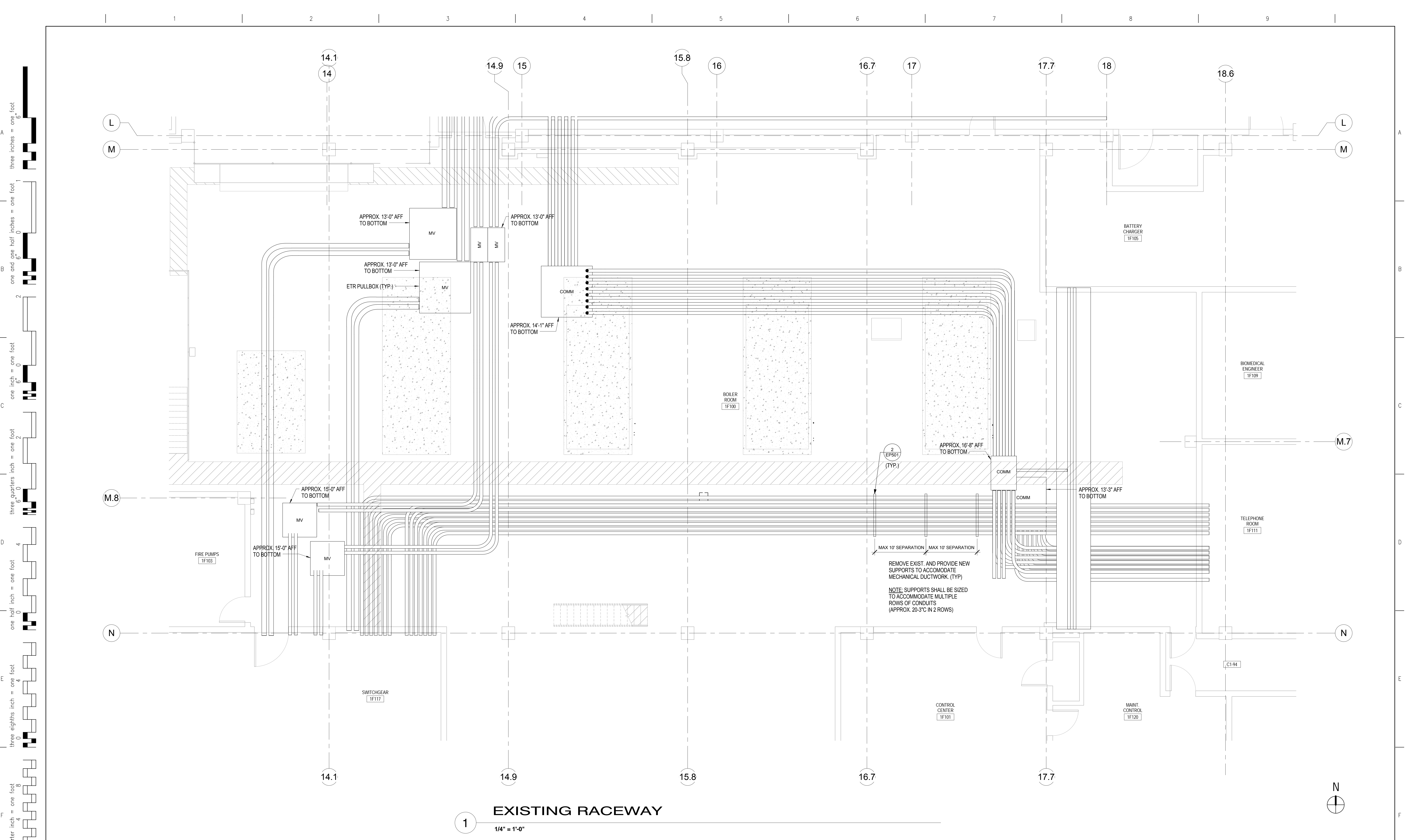
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Office of
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1 EXISTING RACEWAY
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