

UNIVERSITY OF
SOUTH CAROLINA
 AIKEN

CP00338212
CRF DM - USCA B&E
CHILLER REPLACEMENT CONSTRUCTION

ISSUED FOR CONSTRUCTION
A/E Project #11023.01
DECEMBER 1, 2011

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DRAWING INDEX

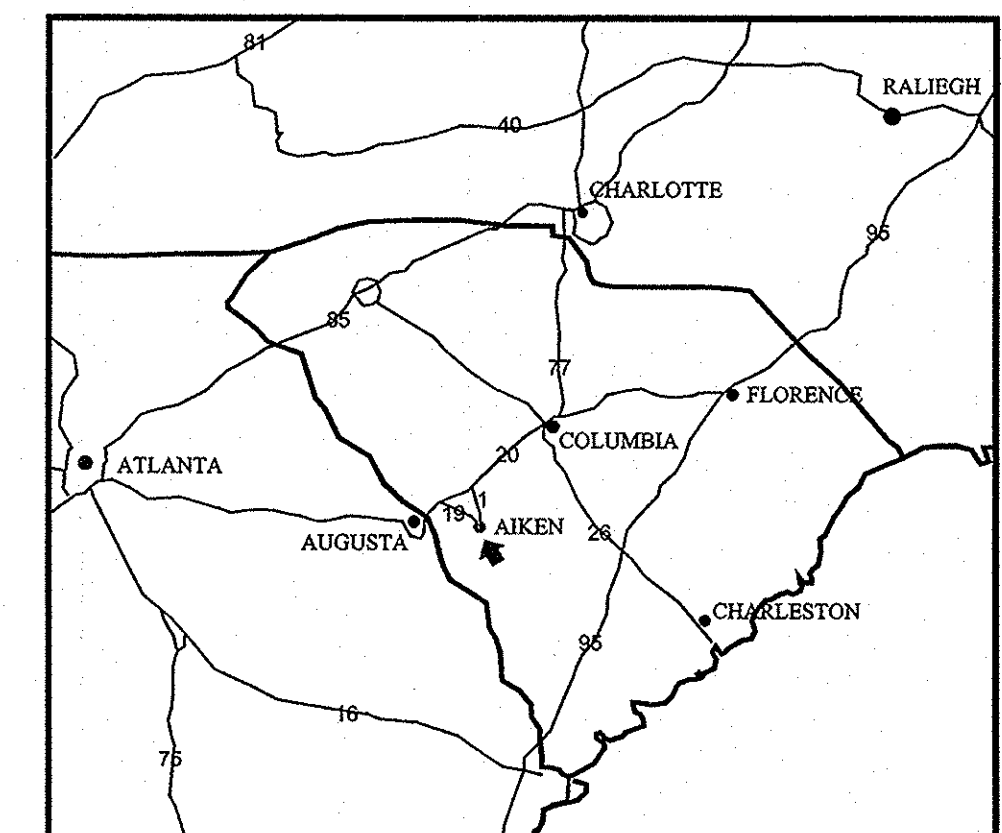
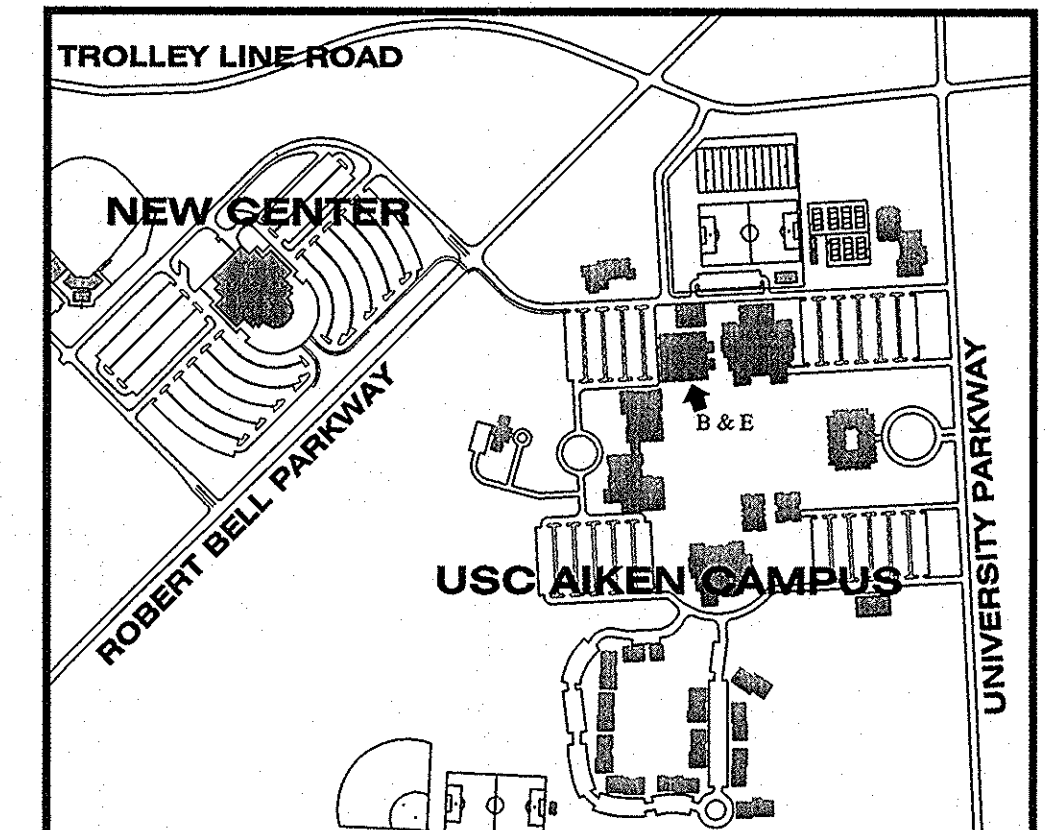
MECHANICAL

M2.0 BASEMENT MECHANICAL ROOM DEMO AND RENOVATION PLAN
 M6.1 HVAC SCHEDULES AND DETAILS

ELECTRICAL

E1.1 ELECTRICAL PLANS, NOTES, SCHEDULES AND DETAILS

LOCATOR MAPS



SET NO. _____

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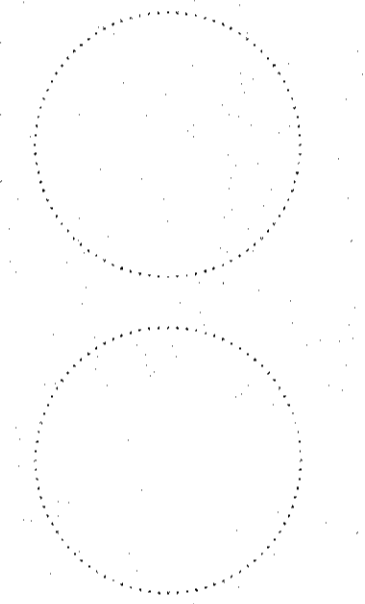
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number	item	date

key plan

sheet title
ELECTRICAL PLANS, NOTES SCHEDULES AND DETAILS

sheet number

E1.1

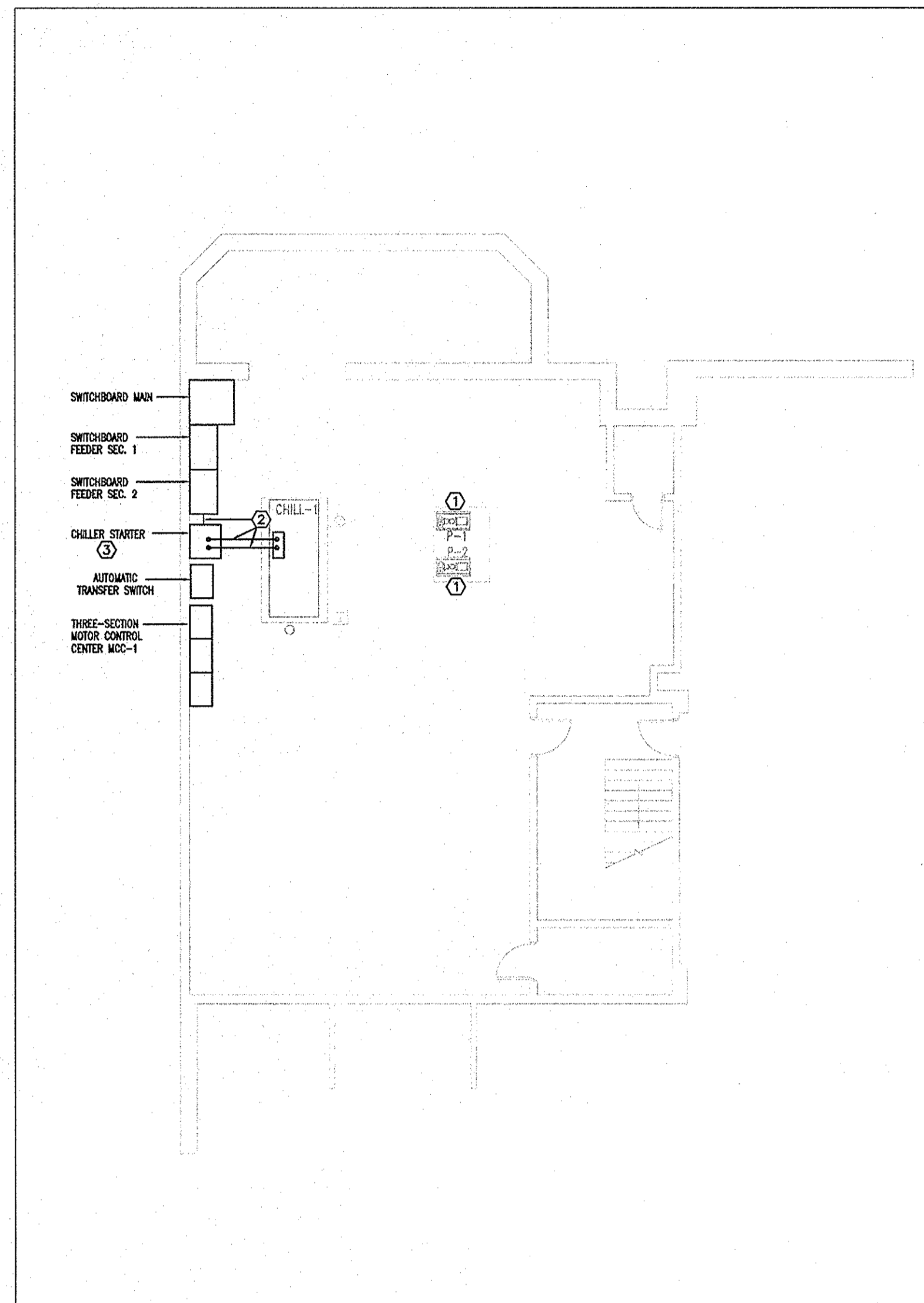
drawn by HNB
checked by JBF

ELECTRICAL SYMBOL SCHEDULE	
SYMBOL	DESCRIPTION
	BRANCH CIRCUIT RACEWAY, RUN CONCEALED IN CEILING, WALLS OR OTHER BUILDING ELEMENTS. ARROWHEAD DENOTES HOMERUN TO PANEL. INSTALL GROUND WIRE IN ALL RACEWAYS. UNLESS OTHERWISE NOTED INSTALL #12 WIRING FOR THE NUMBER OF CIRCUITS INDICATED. WHERE A CIRCUIT BREAKER IS SHOWN FOR THE EQUIPMENT, WIRING SHALL MATCH CIRCUIT BREAKER RATING AS A MINIMUM AND MEET APPLICABLE CODES.
	DUPLEX RECEPTACLE, 120 VOLT, 20 AMP, WALL MOUNTED, 18" AFF. UNLESS OTHERWISE NOTED. THE NUMBER DENOTES CIRCUIT NUMBER.
	ELECTRICAL CIRCUIT BREAKER PANELBOARDS. SEE PANEL SPECIFICATIONS AND SCHEDULES.
	SURFACE MOUNTED HEAVY DUTY DISCONNECT SWITCH.
	FULL VOLTAGE NON-REVERSING STARTER.
	VARIABLE FREQUENCY DRIVE PROVIDED BY MECHANICAL CONTRACTOR.

MECHANICAL EQUIPMENT SCHEDULE						
CIRCUIT I.D.	EQUIPMENT I.D.	SOURCE	FEEDER	SWITCH/BREAKER	DISCONNECT	NOTES
①	CH-1	SWB	1-3" C., 3-350 MCM & #3 G.	600A/480V/3P	SW2	1
②	P-1	MCC1	EXISTING	35A/460V/3P	30A3PNF	2
③	P-2	MCC1	EXISTING	35A/460V/3P	30A3PNF	2

MECHANICAL UNIT SCHEDULE NOTES:

- EXISTING FUSIBLE SWITCH IN SWITCHBOARD TO BE REUSED FOR FEEDER OVERCURRENT PROTECTION AND DISCONNECT FOR NEW CHILLER. PROVIDE THE NEW FEEDER SWIM.
- REUSE THIS CIRCUIT BREAKER IN THE EXISTING STARTER AS THE SHORT CIRCUIT PROTECTION FOR THE NEW PUMP MOTORS AND INSTALL A NEW DISCONNECT AHEAD OF THE VFD AT THE PUMP AS A SAFETY DISCONNECT. SET EXISTING STARTERS TO MANUAL MODE AND INSTALL NEW VFD'S PROVIDED BY DIVISION 15 TO CONTROL THE MOTORS.



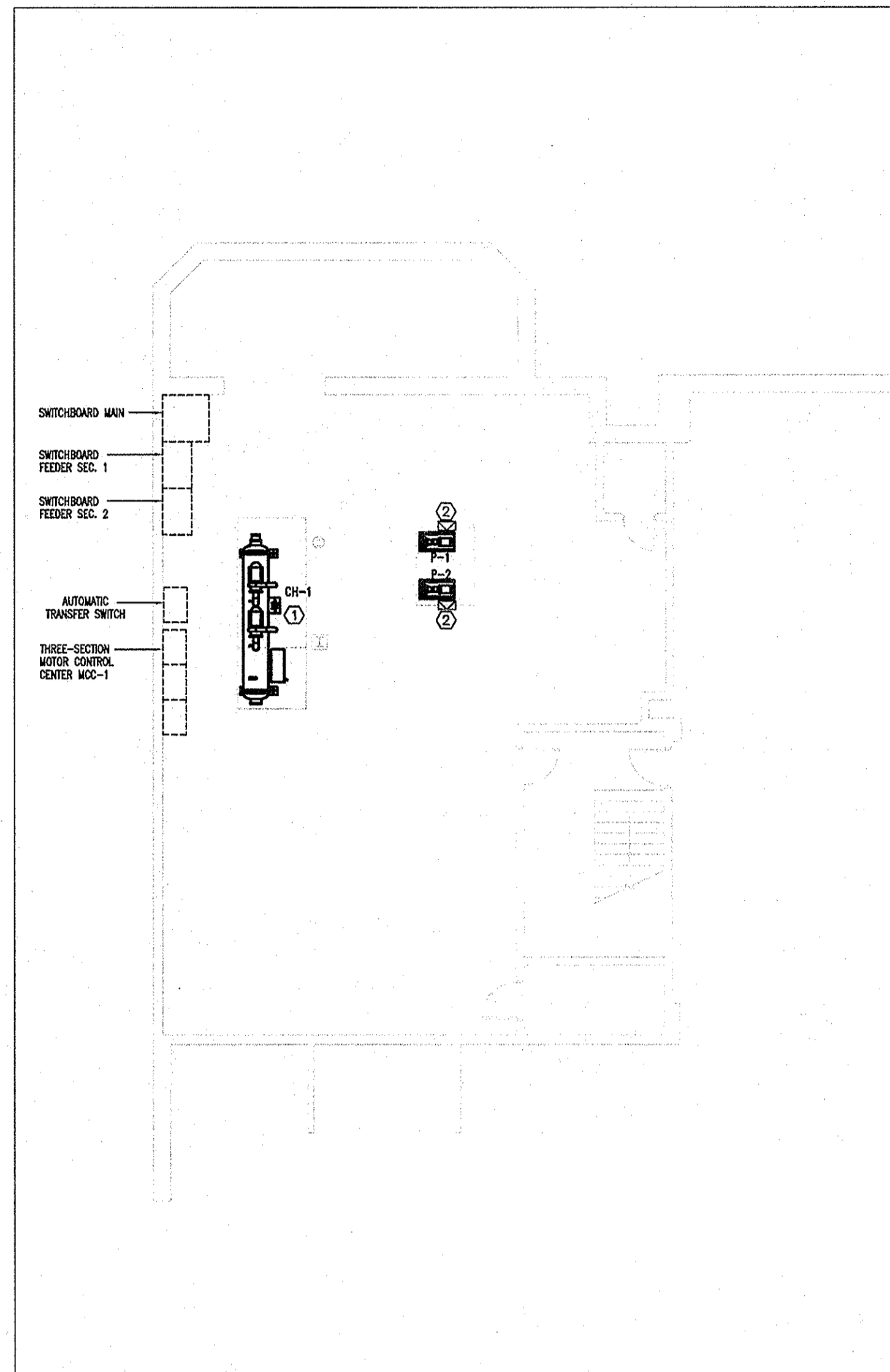
① ELECTRICAL DEMOLITION PLAN - BASE BID
1/8" = 1'-0"

GENERAL DEMOLITION NOTES:

- ITEMS TO BE PART OF DEMOLITION WORK SHALL BE SPECIFICALLY NOTED.
- EXISTING ELECTRICAL DEVICES, LIGHT FIXTURES, MATERIALS AND EQUIPMENT ARE SHOWN USING STANDARD SYMBOLS ON THE DEMOLITION PLAN. ELECTRICAL SYMBOLS, MATERIALS AND EQUIPMENT THAT ARE TO REMAIN ARE SHOWN DASHED ON THE RESPECTIVE LIGHTING, POWER OR OTHER PLAN AT THE EXISTING LOCATION IN ADDITION TO BEING SHOWN ON THE DEMOLITION PLAN.
- SOME ITEMS SHOWN TO BE REMOVED MAY BE RELOCATED AND REUSED. THESE ITEMS ARE ALSO SHOWN DASHED ON THE RESPECTIVE LIGHTING, POWER OR OTHER PLAN AND WHERE NOT OBVIOUS WILL BE IDENTIFIED AS RELOCATED.
- SEE THE "ELECTRICAL DEMOLITION" SPECIFICATIONS IN THE PROJECT MANUAL FOR ADDITIONAL REQUIREMENTS AND INSTRUCTIONS.
- BLANK OFF OR PLUG ALL HOLES IN THE SWITCHBOARD OR OTHER EQUIPMENT, ELECTRICAL BOXES OR ELECTRICAL PANELS THAT ARE CREATED AS A RESULT OF THE DEMOLITION WORK.

NOTES KEYED TO DEMOLITION PLAN:

- THE EXISTING PUMPS ARE FED THROUGH THE EXISTING MOTOR CONTROL CENTER AND SHALL BE REPLACED ALONG WITH THE ASSOCIATED STARTERS. SECURE THE EXISTING CIRCUITS TO REFLECT THE NEW PUMPS. THE EXISTING STARTERS SHALL BE SET TO MANUAL MODE AND SECURE THE CIRCUIT BREAKERS FOR PUMP CIRCUITS. FEED NEW MOTORS THROUGH NEW VARIABLE FREQUENCY DRIVES. INSTALL THE DRIVES PROVIDED BY THE MECHANICAL CONTRACTOR.
- CONDUITS FOR EXISTING CHILLER FEEDERS, 2-3" O.D., 3-350 MCM & # 2 G. EACH. REMOVE FEEDER AND CONDUIT IN ITS ENTIRETY AND INSTALL THE NEW FEEDER INDICATED.
- REMOVE EXISTING CHILLER STARTER.



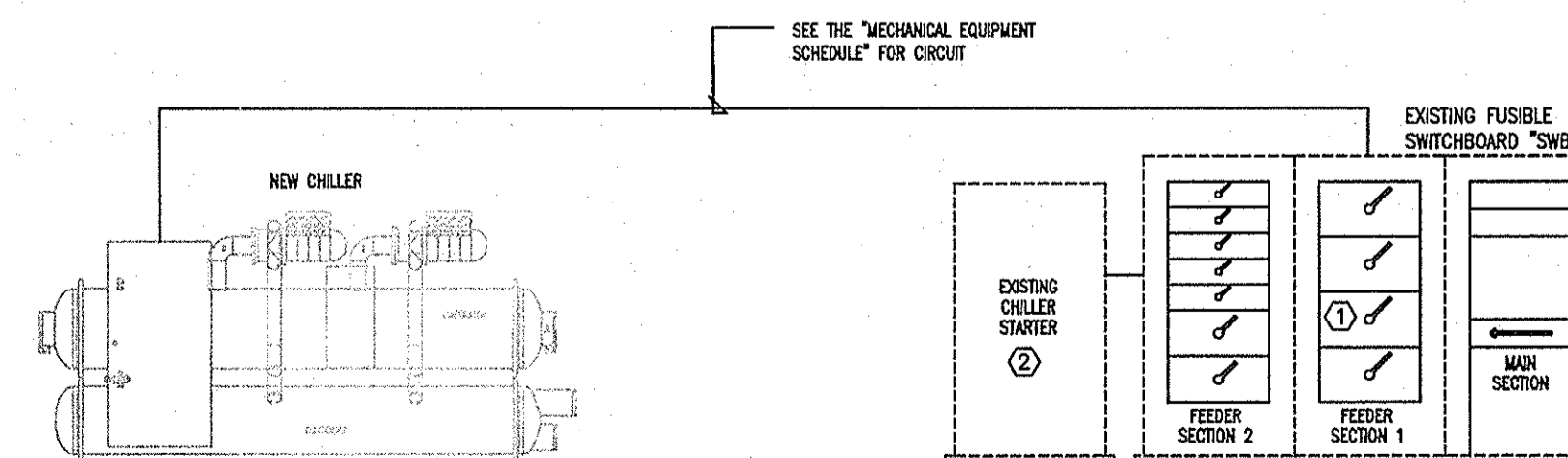
② ELECTRICAL RENOVATION PLAN - BASE BID
1/8" = 1'-0"

NOTES KEYED TO ELECTRICAL RENOVATION PLAN:

- NEW CHILLER POWER AND CONTROL PANEL.
- INSTALL NEW VFD'S PROVIDED BY THE MECHANICAL CONTRACTOR AND WIRE THE EXISTING PUMP CIRCUITS THROUGH THE VFD'S TO THE NEW MOTORS. PROVIDE A CHANNEL, ANGLE IRON OR OTHER STEEL SUPPORT STRUCTURE MINIMUM 48" HIGH SECURED TO THE FLOOR BY A FLOOR PLATE TO PROVIDE MOUNTING AND SUPPORT FOR THE VFD'S.

GENERAL RENOVATION PLAN NOTES:

- BLANK OFF OR COVER ALL HOLES IN THE SWITCHBOARD AND OTHER EXISTING EQUIPMENT THAT OCCUR AS A RESULT OF REMOVING AND MODIFYING EXISTING CONDUIT FOR THE WORK.



③ ELECTRICAL POWER RISER
NS

NOTES KEYED TO ELECTRICAL POWER RISER:

- 800 AMP FUSIBLE SWITCH FOR EXISTING CHILLER FEEDER TO BE REUSED TO FEED NEW CHILLER. REMOVE EXISTING FUSES AND INSTALL NEW 350 AMP FUSES FOR NEW CHILLER.
- REMOVE THE EXISTING STARTER IN ITS ENTIRETY INCLUDING FEEDER CONDUIT AND CONDUCTORS FROM THE SWITCHBOARD THROUGH TO THE CHILLER. INSTALL A NEW FEEDER FOR THE NEW CHILLER AND CONNECT TO EXISTING FUSIBLE SWITCH.

number	item	date

MECHANICAL KEYNOTES:

- ① CONNECT NEW CONDENSER WATER SUPPLY AND RETURN TO EXISTING 8" PIPE. SEE CONNECTION DETAIL FOR MORE INFORMATION.
- ② CONNECT CHILLED WATER RETURN TO EXISTING 6" CHILLED WATER RETURN PIPE.
- ③ CONNECT CHILLED WATER SUPPLY TO EXISTING 6" CHILLED WATER SUPPLY PIPE.
- ④ CONNECT THE RELIEF FROM OWNER PROVIDED CHILLER TO THE EXISTING VENT PIPE. COORDINATE SIZES AND CONNECTIONS WITH MANUFACTURER'S RECOMMENDATIONS.
- ⑤ EXTEND EXISTING CHILLER PAD FOR OWNER PROVIDED CHILLER. MATCH EXISTING PAD HEIGHT. ALLOW AT LEAST 6" BETWEEN EDGE OF PAD AND CHILLER.
- ⑥ INSTALL OWNER PROVIDED CHILLER ON EXISTING AND NEW CONCRETE PAD. FIELD VERIFY EXISTING CONDITIONS. MAINTAIN MANUFACTURER'S CLEARANCE REQUIREMENTS AND INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
- ⑦ CONNECT EXISTING EXHAUST FAN TO OWNER PROVIDED REFRIGERANT MONITORING SYSTEM. EXHAUST FAN SHALL BE ENERGIZED UPON ALARM.
- ⑧ NEW CHEMICAL TREATMENT SYSTEM. SEE DETAIL AND SPECIFICATIONS FOR MORE INFORMATION.
- ⑨ CONNECT OWNER PROVIDED REFRIGERANT MONITOR TO EXISTING CONTROL POWER. CONTRACTOR TO VERIFY CONTROL POWER SERVICE LOCATION.
- ⑩ CONNECT CHILLED WATER SUPPLY TO EXISTING 6" CHILLED WATER SUPPLY PIPE.
- ⑪ INSTALL NEW AIR SEPARATOR AND FILL VALVE ASSEMBLY. HANG FROM CEILING. COORDINATE LOCATION WITH EXISTING PIPING AND DUCTWORK.
- ⑫ REPLACE EXISTING PUMP WITH OWNER PROVIDED PUMP AND RECONNECT PIPING. REPLACE VALVES, THERMOMETERS, AND GAUGES. SEE PUMP DETAIL FOR MORE INFORMATION. GROUT PUMP BASES AND LASER ALIGN PUMPS. SEE DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.
- ⑬ CHILLER AND PUMPS PROVIDED BY OWNER. CONTRACTOR SHALL COORDINATE WITH THE OWNER PROVIDED EQUIPMENT AND PROVIDE ALL OTHER EQUIPMENT AND ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM AS INDICATED IN THE SPECIFICATIONS AND DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR MOVING OWNER PROVIDED EQUIPMENT FROM OWNER PROVIDED HOLDING AREA TO JOB LOCATION FOR INSTALLATION.
- ⑭ DISASSEMBLE CHILLER AS REQUIRED FOR INSTALLATION.
- ⑮ LOCATE BREATHING APPARATUS OUTSIDE OF MECHANICAL ROOM AS INDICATED BY OWNER.
- ⑯ PROVIDE TEE FOR TEMP CHILLER CONNECTION.
- ⑰ ALTERNATE #1 - PROVIDE 180 TON TEMPORARY CHILLER FOR 30 DAYS. PROVIDE TEMPORARY POWER AND TEMPORARY CHILLED WATER CONNECTIONS TO SYSTEM. LOCATE TEMPORARY CHILLER PER OWNER'S REQUIREMENTS AND COORDINATE WITH EXISTING CONDITIONS AND EXISTING CHILLER REMOVAL.

MECHANICAL DEMO KEY NOTES:

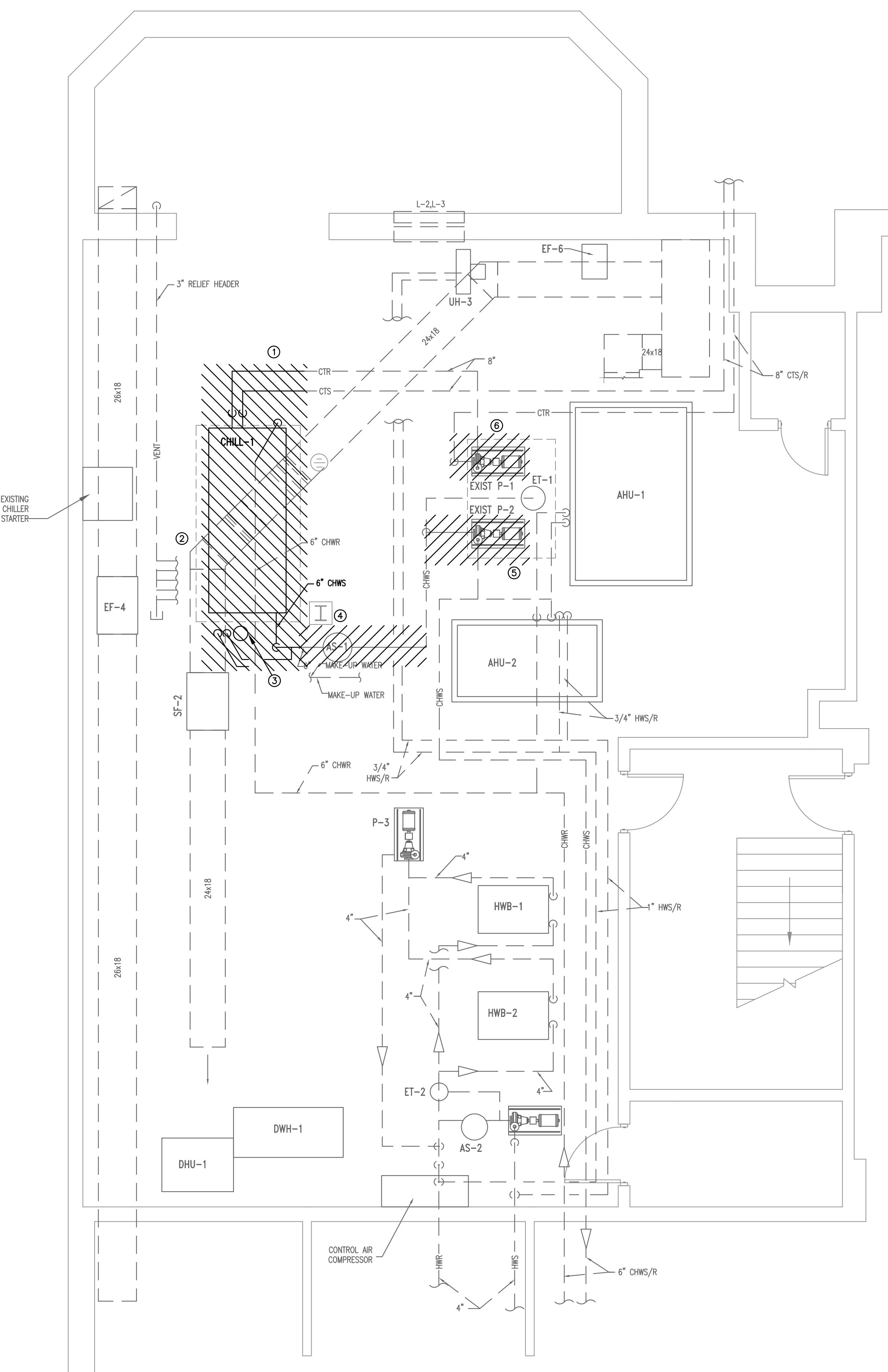
- ① DEMO EXISTING CHILLER AND CONDENSER WATER PIPING IN ORDER TO INSTALL NEW CHILLER.
- ② DEMO EXISTING RELIEF VALVE CONNECTIONS UNLESS REUSED FOR NEW CHILLER.
- ③ DEMO EXISTING CHEMICAL FEED SYSTEM.
- ④ DEMO EXISTING AIR SEPARATOR.
- ⑤ DEMO EXISTING PUMP P-2 AND PIPING IN ORDER TO INSTALL NEW PUMP.
- ⑥ DEMO EXISTING PUMP P-1 AND PIPING TO INSTALL NEW PUMP.

MECHANICAL DEMOLITION NOTES

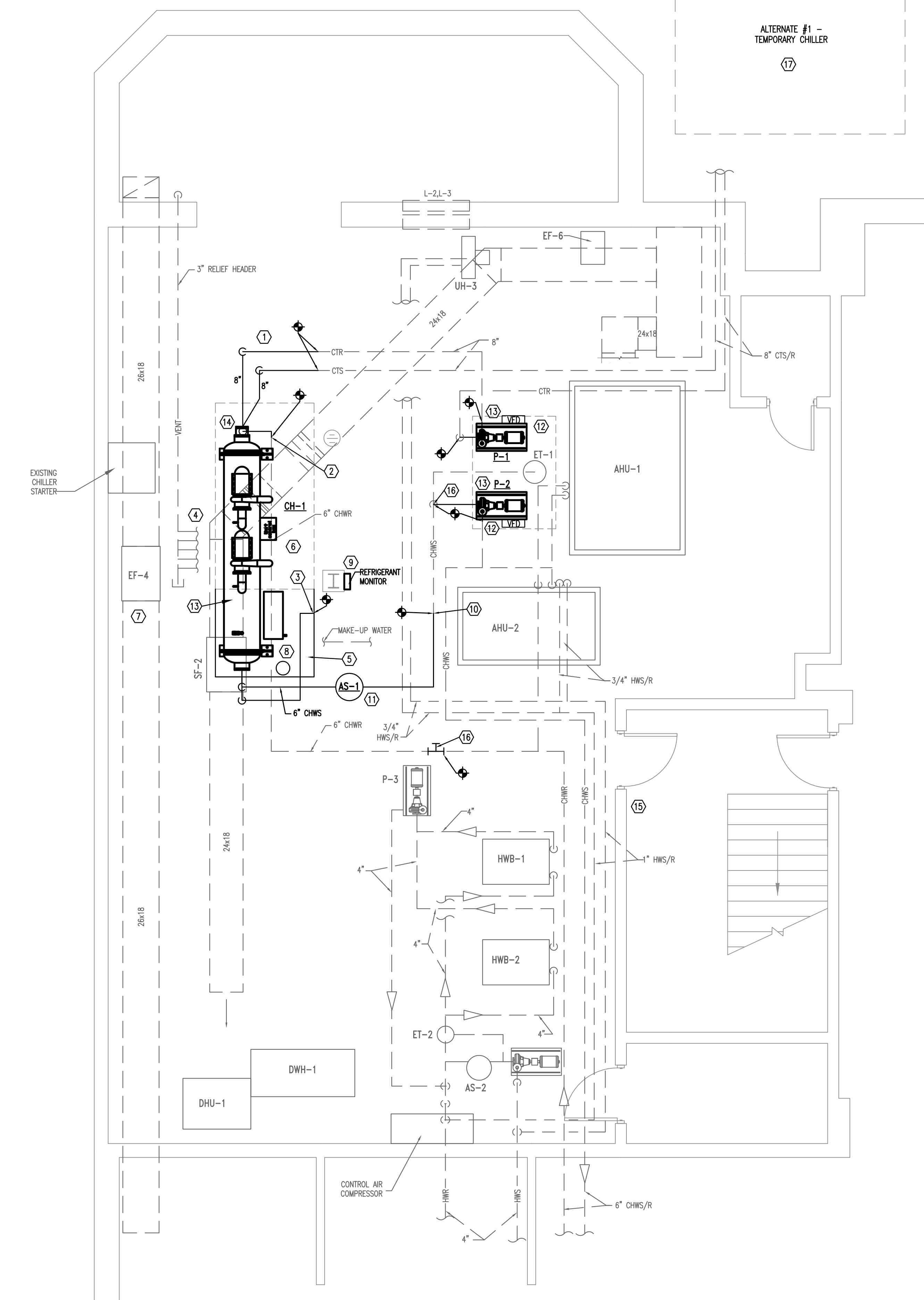
1. DRAWINGS SHOW GENERAL INTENT OF DEMOLITION. QUANTITIES, LOCATIONS, SIZES AND EQUIPMENT ARE SHOWN TO INDICATE TYPE OF SYSTEM INSTALLED AND DOES NOT NECESSARILY REPRESENT EXACT CONDITIONS. CONTRACTOR SHALL FIELD VERIFY BEFORE BIDDING.
2. DEMOLITION OF EQUIPMENT, SYSTEMS, AND COMPONENTS SHALL INCLUDE ALL SUPPORTS, PADS, HANGERS, INSULATION, CONTROLS, STARTERS, ACCESSORIES, AND APPURTENANCES NOT REQUIRED FOR THE INSTALLATION OF THE NEW SYSTEM.
3. WHEN PARTIAL DEMOLITION OF A SYSTEM IS INDICATED, THE PART OF THE SYSTEM SHOWN TO REMOVED SHALL BE REMOVED TO THE ACTIVE MAIN OR BRANCH IF NOT REQUIRED FOR THE INSTALLATION OF THE NEW SYSTEM. THE ACTIVE MAIN OR BRANCH SHALL BE REPAIRED TO MATCH NEW INSTALLATION AS MUCH AS PRACTICAL. IF SYSTEM IS INSULATED, INSULATION SHALL BE PATCHED AND FINISHED REPAIR (IE. VAPOR BARRIER, COATING, ETC.)
4. PATCHING OF BUILDING STRUCTURES AND FINISHES SHALL PERTAIN TO ALL WALLS, FLOORS, SLABS, ROOFS, STRUCTURES, AND FINISHES. PATCHES SHALL MATCH EXISTING STRUCTURE, FIRE RATINGS AND FINISH.
5. ALL OPENINGS CREATED BY THE ABANDONMENT OR REMOVAL OF EXISTING SYSTEMS SHALL BE PATCHED.
6. ALL WALLS, ROOFS, SLABS, STRUCTURES, AND FINISHES WHOSE FINISH IS IRREGULAR DUE TO THE REMOVAL OF SYSTEMS, SUPPORTS, PADS, ACCESSORIES, AND APPURTENANCES SHALL BE PATCHED.
7. ALL FINISHES SHALL MATCH EXISTING FINISH. WHEN FINISH OBVIOUSLY DOES NOT MATCH EXISTING FINISH SUCH AS SHADE OF PAINT, AGE OF FINISH, ETC., THE FINISH SHALL BE APPLIED TO THE PATCH AND THE SURFACE IN ALL DIRECTIONS UNTIL A SURFACE CHANGE OF A MINIMUM OF 45 DEGREES.
8. REMOVAL OF SYSTEMS SHALL INCLUDE COMPLETE SYSTEM WHENEVER PRACTICAL. IF NOT, SYSTEM (IE. PIPE, CONDUIT, ETC.) SHALL BE REMOVED TO 1 INCH BELOW SURFACE.

MECHANICAL GENERAL NOTES

1. DO NOT SCALE DRAWINGS; SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC.
2. ALL PIPING SHALL PITCH DOWN IN DIRECTION OF FLOW OR AS INDICATED ON DRAWINGS: 1" PER 40 FEET WITH MANUAL AIR VENTS AT ALL HIGH POINTS, AND 3/4" DRAIN VALVES AT ALL LOW POINTS.
3. ALL PIPING INSULATION SHALL BE RUN CONTINUOUSLY THROUGH FLOORS, ROOFS AND PARTITIONS EXCEPT WHERE PROHIBITED BY FIRE CODES.
4. ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE SPECIFICATIONS AND FURTHER SUPPORTS OR HANGERS SHALL BE ADJACENT TO ELBOWS TO PREVENT WEIGHT OF PIPING BEING PLACED ON THE EQUIPMENT. SUPPORT DETAILS SHALL BE SUBMITTED TO THE MECHANICAL ENGINEER.
5. ALL PIPING LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS TO AVOID INTERFERENCE.
6. CORRECT SETTINGS ON ALL BALANCING FITTINGS SHALL BE PERMANENTLY MARKED.
7. COORDINATE ORIENTATION OF SUPPLY AND RETURN PIPING BEFORE FABRICATION.
8. PROVIDE DIELECTRIC FITTINGS AT ALL LOCATIONS WHERE DISSIMILAR METALS ARE JOINED IN PIPING AND DUCT SYSTEMS.



① BASEMENT MECHANICAL ROOM DEMO PLAN--BASE BID
1/8"=1'-0"



② BASEMENT MECHANICAL ROOM RENOVATION PLAN--BASE BID
1/8"=1'-0"

number	item	date

WATER COOLED CHILLER SCHEDULE (FOR REFERENCE ONLY, OWNER FURNISHED)

TAG	TONS	KW/TON					CHILLED WATER ①			CONDENSER WATER ①			MAXIMUM SIZE *					ELECTRICAL			REFRIGERANT	MANUFACTURER	MODEL	REMARKS		
		NPLY	100%	75%	50%	25%	GPM	MAX PD(g)	ENT T	LVG T	GPM	MAX PD(g)	L (ft)	W (ft)	H (ft)	WT	COMP LRA	UNIT MCA	STARTER	VOLT/PH						
CH-1	280	0.317	0.59	0.412	0.271	0.259	645	3.0	54.7	45°	860	14.5	85°	93.5	170.6	48	84	10630	2 Ø 132	250	VFD	480/3	134A	MCQUAY	WMC 2900	1, 2, 3, 4, 5, 6, 7, 8

* NOT INCL. STARTER, INCL. MARINE BOX (IF SPECIFIED) (ø) FEET
 1. .00025 SCALE FACTOR COND., .0001 SCALE FACTOR EVAP. 4. FACTORY MOUNTED VFD
 2. 1 PASS EVAPORATOR 5. FACTORY FLOW SWITCHES ON EVAPORATOR AND CONDENSER. 6. BAGNET INTERFACE MODULE
 3. 2 PASS CONDENSER 7. SINGLE POINT POWER CONNECTION WITH INDIVIDUAL DISCONNECTS FOR EACH COMPRESSOR STARTER.
 ALL WIRING FROM THE SINGLE POINT CONNECTION TERMINAL BOX SHALL BE FACTORY INSTALLED.
 8. REFRIGERANT MONITOR WITH STROBES AND HORNS. SEE SPECIFICATIONS FOR MORE INFORMATION.

PUMP SCHEDULE (FOR REFERENCE ONLY, OWNER FURNISHED)

TAG	SERVICE	TYPE	FLOW (GPM)	HEAD (FT)	EFFICIENCY (%)	MOTOR			ELECTRICAL (VOLTS/PHASE)	EMERGENCY POWER	MANUFACTURER	MODEL	NOTES
						HP	RPM	TYPE					
P-1	CONDENSER WATER	END SUCTION	860	21	76.0	10	---	ODP	480/3	NO	BELL & GOSSETT	1510-68C	1,2,3
P-2	CHILLED WATER	END SUCTION	645	50	82.1	10	---	ODP	480/3	NO	BELL & GOSSETT	1510-48C	1,3

1. FACTORY STARTER 3. VFD
2. ALTERNATIVE #1

AIR SEPARATOR

TAG	SERVICE	TANGENTIAL OPENING (INCHES)	CAPACITY FLOW (GPM)	DIMENSIONS (INCHES)	MOUNTING	MANUFACTURER	MODEL	NOTES
AS-1	CHILLED WATER	6	645	18"x44"H	VERT HUNG	BELL & GOSSETT	R-6F	1

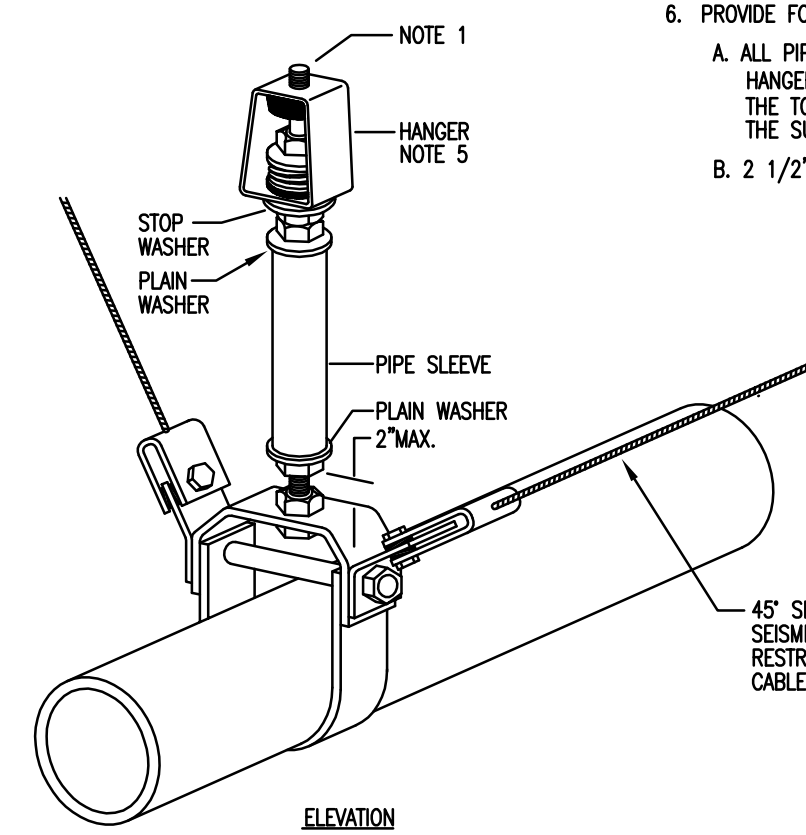
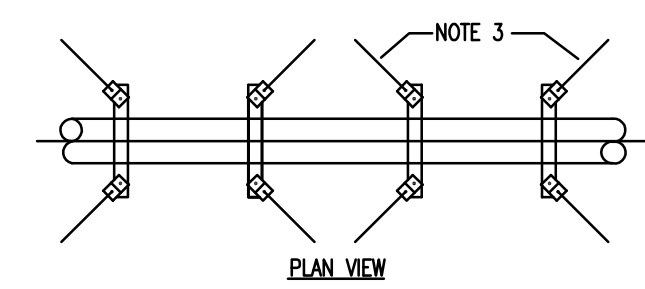
1. STRAINER

ABBREVIATIONS

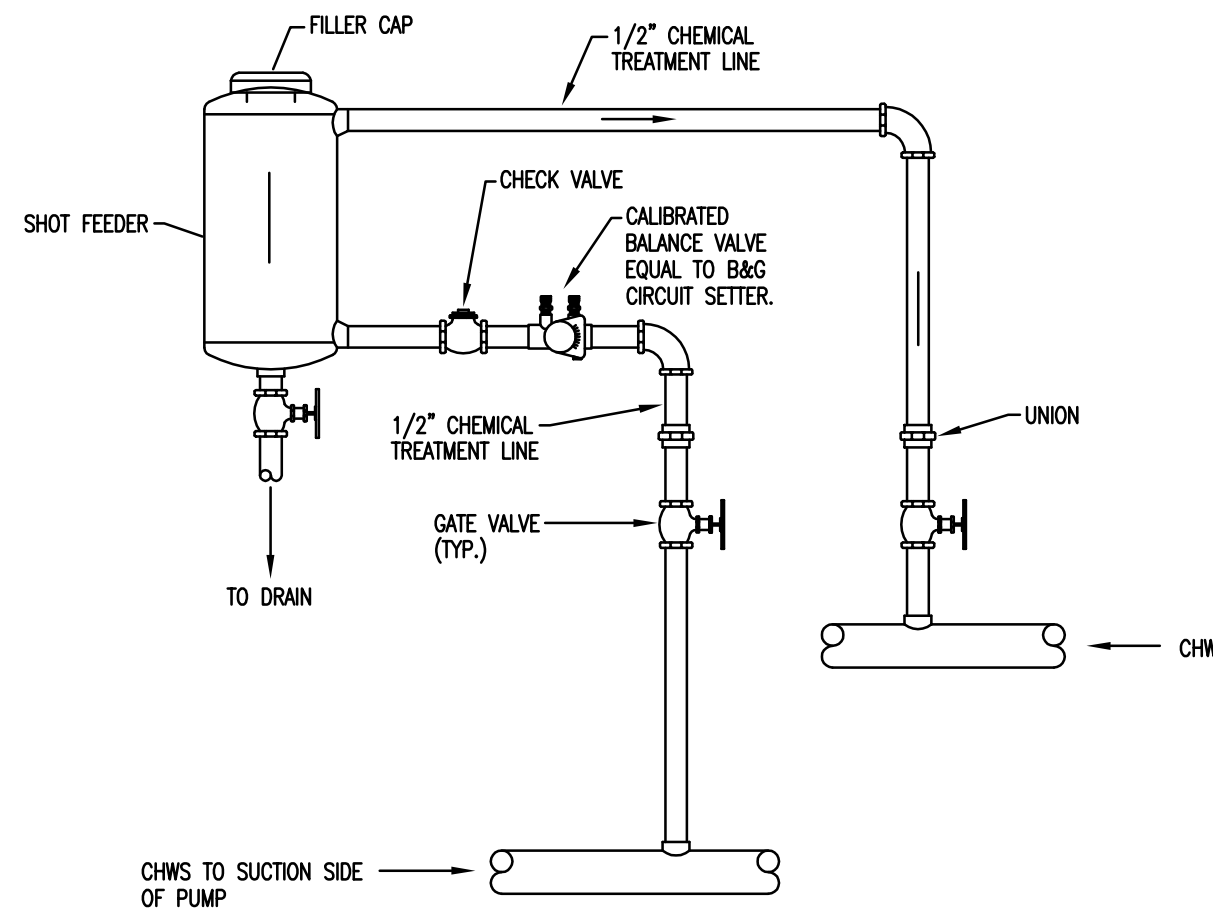
ABV	Above	MBH	Thousand BTU/Hr (thousands)
AFT	Above Finished Floor	MIN	Minimum
BHP	Brake Horsepower	N/A	Not Applicable
CFM	Cubic Feet Per Minute	NC	Not in Contract
CWS	Condenser Water Supply	NTS	Not to Scale
CHW	Condenser Water Return	PD	Pressure Drop
CHWS	Chilled Water Supply	RH	Relative Humidity
CHWR	Chilled Water Return	SA	Supply Air
CH	Duct Smoke Detector	SHT	Sheet
DE	Dry Bulb Temperature	SP	Static Pressure
DAT	Duct Air Temperature	SPEC	Specifications
ELEC	Electric or Electrical	SPL	Supply
EWB	Entering Air Wet Bulb	T	Thermometer
EWI	Entering Water Temperature	T-1	Thermometer Tank No. 1
FL	Floor	TEMP	Temperature
HWS	Hot Water Supply	TSTAT	Thermostat
HWR	Hot Water Return	TYP	Typical
HP	Horsepower	VFD	Variable Frequency Drive
LAT	Leaving Air Temperature	WB	Wet Bulb Temperature
LWB	Leaving Water Temperature	WPD	Water Pressure Drop (in. w.g.)
LWT	Leaving Water Temperature	WC-#	Water Cooled Chiller - No.
MAX	Maximum	P-#	Pump - No.

NOTES

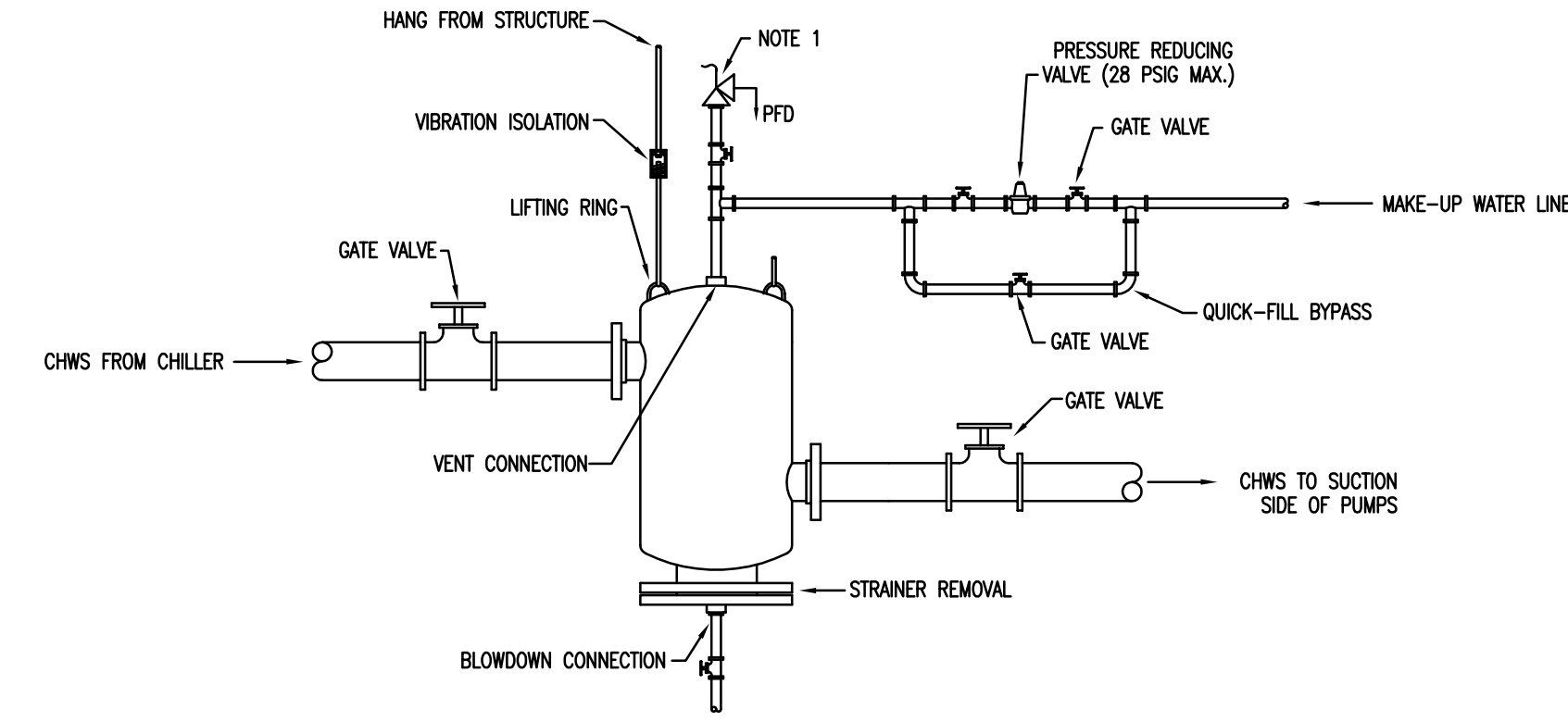
- ATTACH ROD TO STRUCTURE. PROVIDE 1/4" CLEARANCE BETWEEN STRUCTURE AND TOP OF ISOLATOR OR NUT.
- PROVIDE TWO NUTS WITH 1/8" CLEARANCE BETWEEN BOTTOM OF ISOLATOR AND WASHER.
- CABLE SHALL BE AT 45 DEGREES FROM PIPE AND CHANGE DIRECTION EVERY 45 DEGREES FROM OTHER SET OF CABLES.
- CABLE, ROD, SLEEVE, HANGER AND SPACING SHALL BE CALCULATED BY VIBRATION ISOLATOR VENDOR, BUT IN NO CASE SHALL BE LESS THAN MIN. SIZE SPECIFIED.
- PROVIDE VIBRATION ISOLATOR WHEN SPECIFIED.
- PROVIDE FOR THE FOLLOWING (NEW AND/OR EXIST. PIPING):
 A. ALL PIPING SUSPENDED BY INDIVIDUAL HANGERS MORE THAN 12' IN LENGTH FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE SUPPORT FOR THE HANGER.
 B. 2 1/2" PIPE AND GREATER.



② PIPE SEISMIC DETAIL
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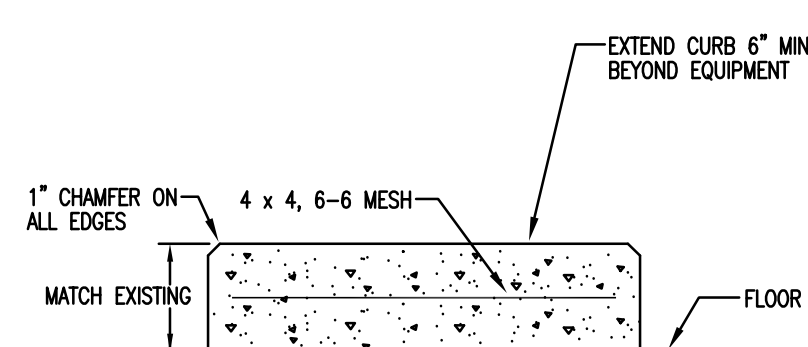


④ CHEMICAL TREATMENT SHOT FEEDER
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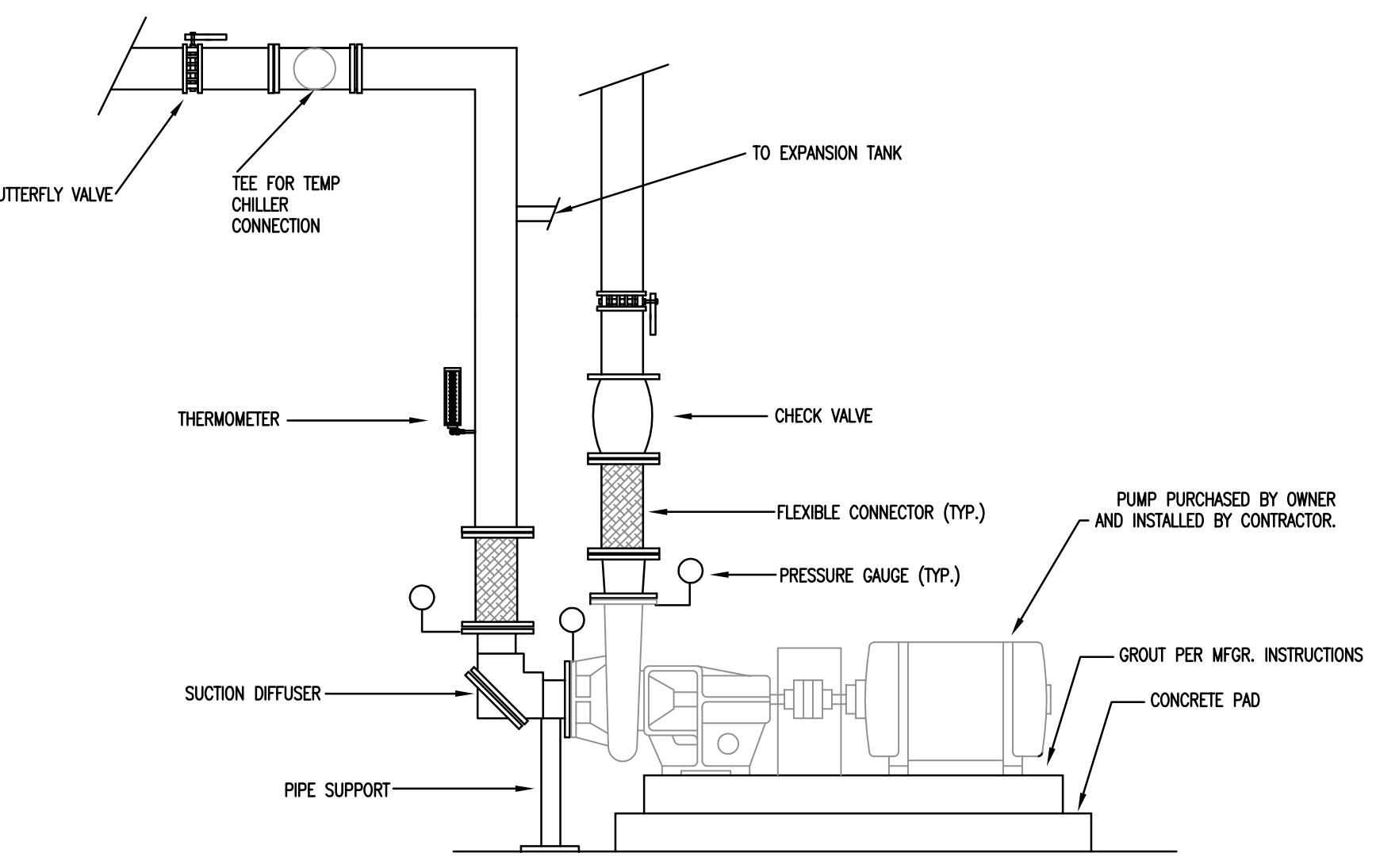


- NOTES:**
- HIGH CAPACITY AIR VENT - B&G MODEL 107A
 - SEE SCHEDULE FOR MORE INFORMATION
 - INSTALL PER MANUFACTURER'S RECOMMENDATIONS

⑤ AIR SEPARATOR DETAIL
NTS



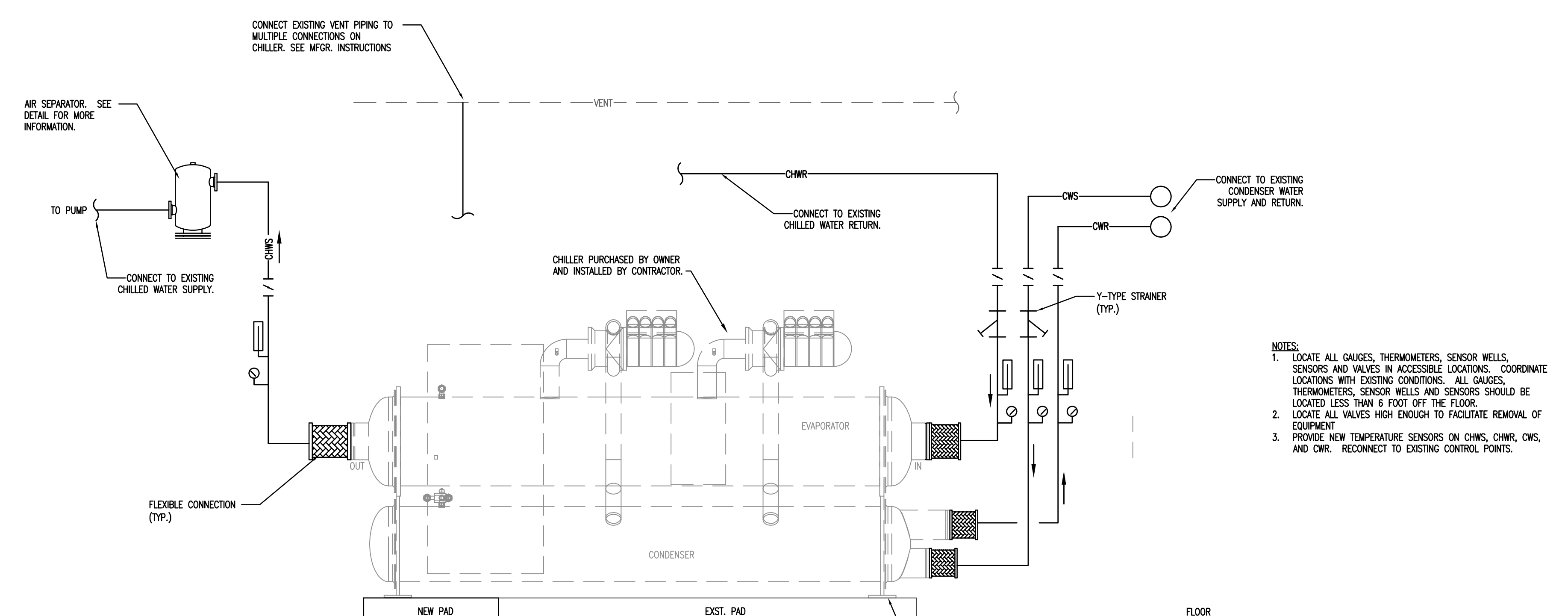
⑥ INDOOR EQUIPMENT PAD DETAIL
NTS



① BASE MOUNTED PUMP DETAIL
NTS

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
◉	CONNECT TO EXISTING	◉	ECCENTRIC REDUCER FLAT ON TOP
18x12	RECTANGULAR DUCT SIZE, FIRST FIGURE IS SIDE SHOWN	↑	TEE OUTLET UP
CHWS	CHILLED WATER SUPPLY	↓	TEE OUTLET DOWN
CHWR	CHILLED WATER RETURN	◇	GATE VALVE
CWS	CONDENSER WATER SUPPLY	◇	CONTROL VALVE, TWO WAY
CHWR	CONDENSER WATER RETURN	⌈	END CAP
(---)	EXISTING DUCT WORK TO REMAIN	⌋	ELBOW TURNED DOWN
(//)	EXISTING PIPE OR DUCT WORK TO BE REMOVED	⌉	ELBOW TURNED UP
⌋	UNION	◉	ECCENTRIC REDUCER FLAT ON BOTTOM
⌋	STRAINER	⌋	BUTTERFLY VALVE
⌋	STRAINER WITH BLOW OFF	⊘	PRESSURE INDICATOR
⌋	CONCENTRIC REDUCER	⊘	TEMPERATURE INDICATOR



③ WATER COOLED CHILLER SCHEMATIC DETAIL
NTS

- NOTES:**
- LOCATE ALL GAUGES, THERMOMETERS, SENSOR WELLS, SENSORS AND VALVES IN ACCESSIBLE LOCATIONS. COORDINATE LOCATIONS WITH EXISTING CONDITIONS. ALL GAUGES, THERMOMETERS, SENSOR WELLS AND SENSORS SHOULD BE LOCATED LESS THAN 6 FOOT OFF THE FLOOR.
 - LOCATE ALL VALVES HIGH ENOUGH TO FACILITATE REMOVAL OF EQUIPMENT.
 - PROVIDE NEW TEMPERATURE SENSORS ON CHWS, CHWR, CWS, AND CHWR. RECONNECT TO EXISTING CONTROL POINTS.