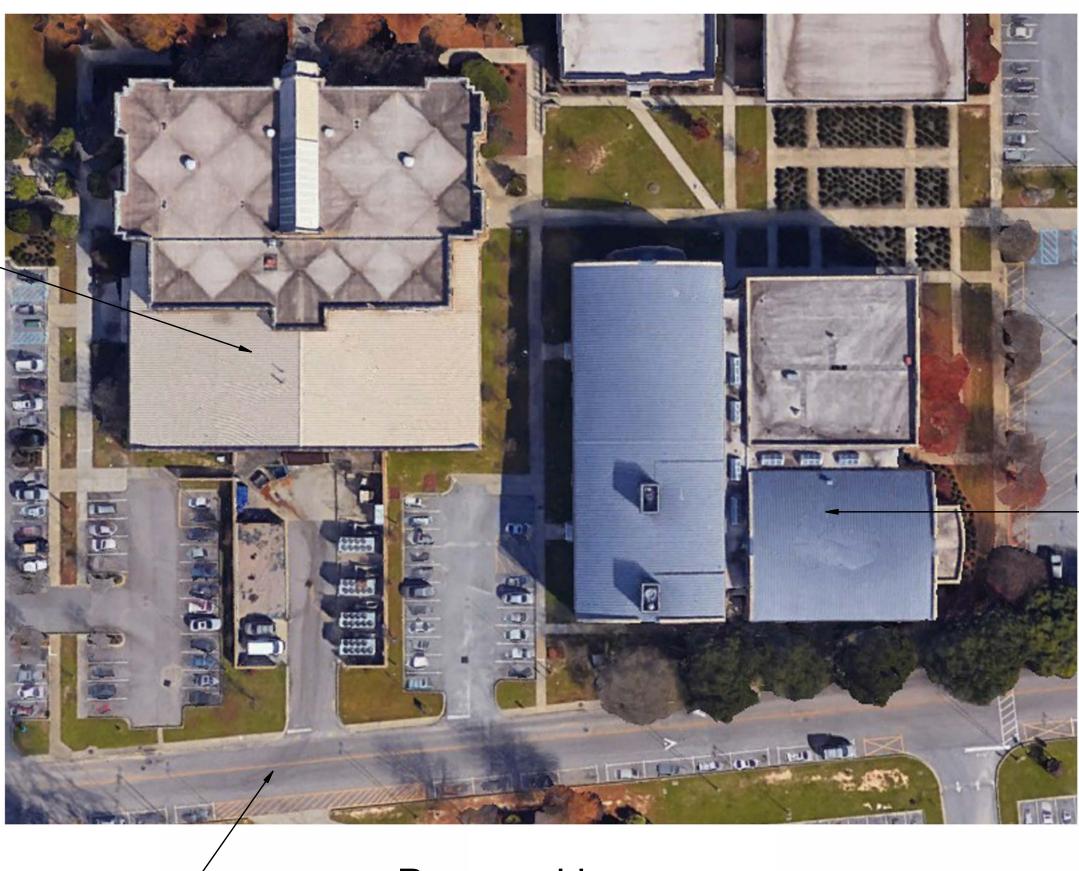
MIDLANDS TECHNICAL COLLEGE 1070 SOUTH LAKE DRIVE LEXINGTON, SC 29073 MTC - STUDENT CENTER CHILLER REPLACEMENT AIRPORT CAMPUS



STUDENT CENTER

KENTUCKY AVENUE ——

H59-N192-LC

A/E Project Number: 23025.01 AUGUST 1, 2023 ISSUED FOR CONSTRUCTION

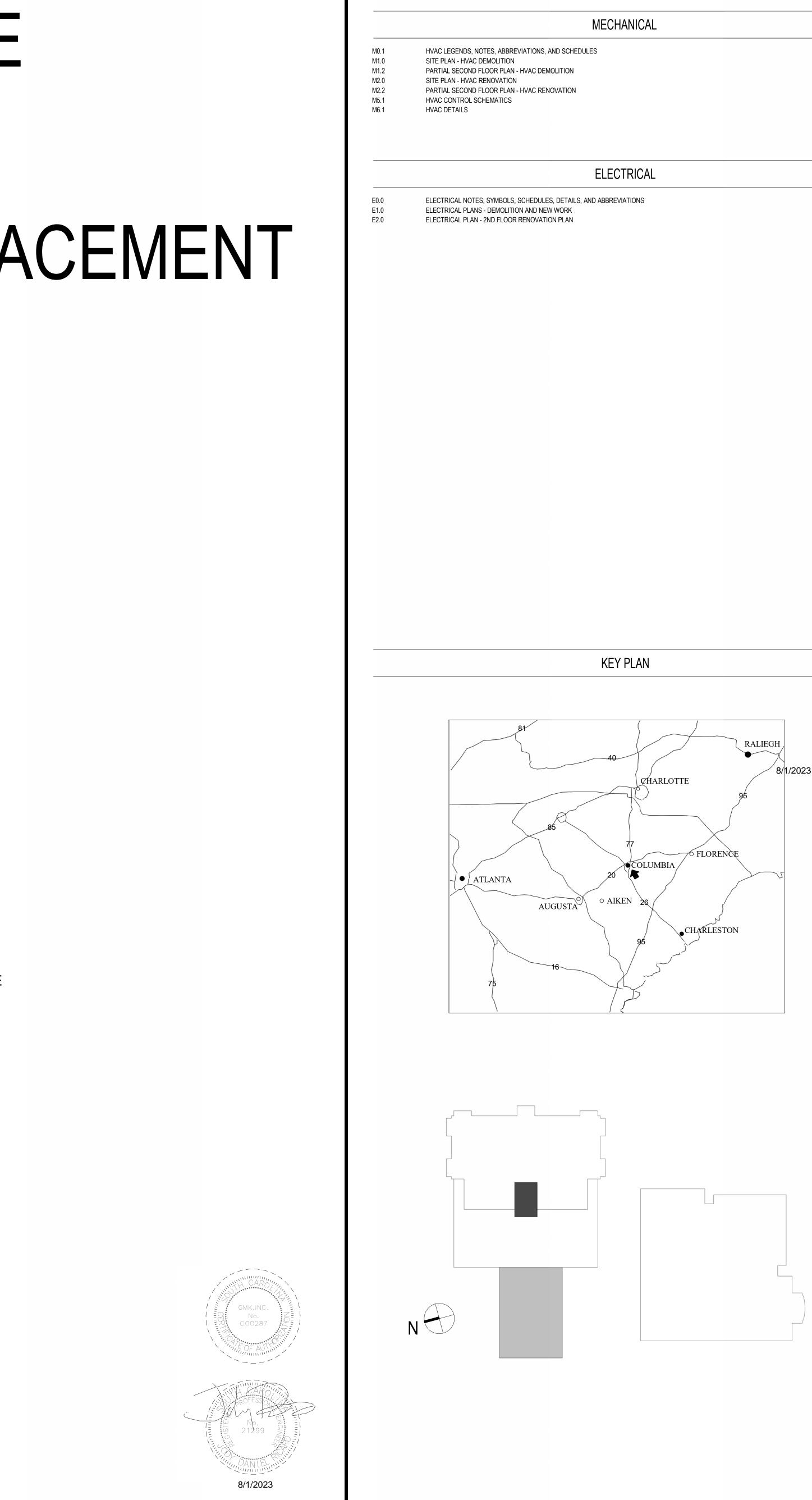
> HEALTH SCIENCE BUILDING

Prepared by:



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DRAWING INDEX



MECHANICAL SYSTEMS SEISMIC AND WIND REQUIREMENTS PER IBC-2018/ASCE 7-16

- PER THE 2018 INTERNATIONAL BUILDING CODE, MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT AND COMPONENTS, INCLUDING THEIR Δ SUPPORTS AND ATTACHMENTS, SHALL BE DESIGNED FOR SEISMIC FORCES IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7-16.
- EXTERIOR EQUIPMENT (INCLUDING ROOF CURBS, RAILS, SUPPORTS) EXPOSED TO WIND SHALL BE DESIGNED AND INSTALLED TO RESIST THE WIND PRESSURES DETERMINED IN ACCORDANCE WITH CHAPTER 26 TO 29 OF ASCE 7-16.
- WHERE DESIGN FOR SEISMIC AND WIND LOADS IS REQUIRED, THE MORE DEMANDING FORCE MUST BE USED. C.
- D. REFERENCE THE STRUCTURAL DRAWINGS FOR SITE SPECIFIC INFORMATION ON SEISMIC DESIGN CATEGORY, WIND SPEEDS, ETC.
- E. USE THE TABLE BELOW TO DETERMINE SEISMIC RESTRAINT REQUIREMENTS FOR EACH COMPONENT.
- FOR ALL COMPONENTS REQUIRING SEISMIC RESTRAINT, THE COMPONENT SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL REGISTERED IN THE STATE THE JOB IS LOCATED. SUBMITTALS MUST INCLUDE STAMPED AND SIGNED DRAWINGS AND CALCULATIONS.
- WHERE SEISMIC RESTRAINT IS REQUIRED, HOUSEKEEPING PADS NEEDED FOR THE INSTALLATION OF EQUIPMENT UNDER THIS CONTRACT MUST BE DESIGNED BY THE SEISMIC ENGINEER. DO NOT POUR ANY HOUSEKEEPING PADS PRIOR TO THE RECEIPT OF THE APPROVED SEISMIC SUBMITTAL.
- SEISMIC RESTRAINTS FOR DUCTWORK, PIPING, CONDUIT, CABLE TRAYS AND BUS DUCT MUST BE SHOWN ON LAYOUT DRAWINGS SHOWING SPECIFIC RESTRAINT LOCATIONS ALONG WITH ACCOMPANYING DETAILS AND CALCULATIONS.

MECHANICAL COMPONENT IMPORTANCE FACTOR (Ip) DESIGNATION

	Ip=1.0				lp=1.5							
ALL HVAC CC	OMPONENTS											
			SEISMIC DESIGN CATEGORIES D,E,F									
		COMPONENT IMPORTANCE FACTOR (Ip)										
		lp=1.0			lp=1.5							
COMPONENT I	DENTIFICATION	SEISMIC RESTRAINT REQUIREMEI	NT	NOTES	SEISMIC RESTRAINT REQUIREMENT	NOTES						
ROOF MOUNTE	D	RESTRAIN ALL		1	RESTRAIN ALL	-						
FLOOR MOUNT	ED	RESTRAIN ALL		1,2	RESTRAIN ALL	-						
WALL MOUNTE	D	RESTRAIN ALL		1,2	RESTRAIN ALL	-						
COMPONENT SUPPORTS		RESTRAIN ALL		1	RESTRAIN ALL	-						
SUSPENDED	INLINE WITH DUCT	RESTRAIN IF >75 LBS PROVIDE FLEX.	CONN.	3	RESTRAIN IF >75 LBS PROVIDE FLEX. CONN.	3						
EQUIPMENT NOT INLINE WITH DUCT/PIPE		RESTRAIN ALL		1	RESTRAIN ALL	-						
SUSPENDED DUCTILE PIPING (STEEL, ALUMINUM, COPPER, ETC.)		>3"		4	>1"	4						
	ON DUCTILE PIPING ASTIC, CERAMIC)	RESTRAIN ALL		4	RESTRAIN ALL	4						
SUSPENDED PIPE ON TRAPEZE		RESTRAIN IF ANY PIPE ON TRAPEZE RESTRAIN IF TOTAL WEIGHT OF PIPE ON TRAPEZE > 10 LBS/FT		4	RESTRAIN IF ANY PIPE ON TRAPEZE > 1" RESTRAIN IF TOTAL WEIGHT OF PIPES ON TRAPEZE > 10 LBS/FT	4						
DUCTWORK		6 SQ.FT. AND LARGER AND > 17 LBS/F	-T	4,5	6 SQ.FT. AND LARGER AND > 17 LBS/FT	4,5						
MULTIPLE DUC	TS ON TRAPEZE	RESTRAIN IF TOTAL WEIGHT OF DUCTS ON TRAPEZE > 10 LBS/FT		4,5	RESTRAIN IF TOTAL WEIGHT OF DUCTS ON TRAPEZE > 10 LBS/FT	3,4						
COMPONENT C	ERTIFICATION	NOT REQUIRED		-	REQUIRED	6						

NOTES: EQUIPMENT 20 LBS. OR LESS IS EXEMPT IF THE COMPONENT IS POSITIVELY ATTACHED TO THE STRUCTURE AND FLEXIBLE CONNECTIONS ARE 1 PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.

- RESTRAINTS ARE NOT REQUIRED IF THE COMPONENT WEIGHS 400 LBS. OR LESS, IS MOUNTED WITH THE CENTER OF MASS LOCATED AT 4 FT. OR LESS ABOVE A FLOOR, IS POSITIVELY ATTACHED TO THE STRUCTURE AND HAS FLEXIBLE CONNECTIONS BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.
- FLEXIBLE CONNECTIONS REQUIRED FOR PIPE CONNECTIONS ONLY.

RESTRAINT IS NOT REQUIRED IF THE PIPING / DUCTWORK IS SUPPORTED BY HANGERS AND EACH HANGER IN THE PIPING RUN IS 12 IN. OR LESS IN LENGTH FROM THE TOP OF THE PIPE TO THE SUPPORTING STRUCTURE. WHERE PIPES ARE SUPPORTED ON A TRAPEZE, THE TRAPEZE SHALL BE SUPPORTED BY HANGERS HAVING A LENGTH OF 12 IN. OR LESS. WHERE ROD HANGERS ARE USED, THEY SHALL BE EQUIPPED WITH SWIVELS, EYE NUTS OR OTHER DEVICES TO PREVENT BENDING IN THE ROD.

- ALL DUCTWORK , REGARDLESS OF SIZE, DESIGNED TO CARRY TOXIC, HIGHLY TOXIC, OR EXPLOSIVE GASES OR USED FOR SMOKE CONTROL MUST BE RESTRAINED.
- COMPONENT CERTIFICATION MUST BE SUPPLIED BY THE EQUIPMENT MANUFACTURER AT TIME OF SUBMITTAL FOR REVIEW BY ENGINEER OF RECORD.

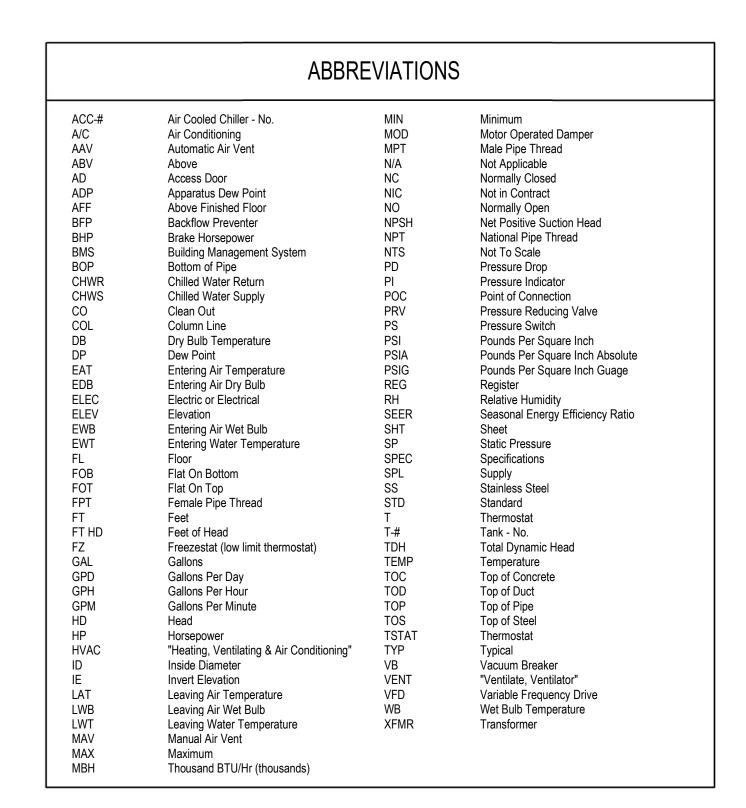
VIBRATION ISOLATION SCHEDULE										
		MOUNTING		ON GRADE		ABOVE GRADE				
EQUIPMENT	HP		BASE TYPE	ASHRAE TYPE	ISOLATOR DEFLECTION	BASE TYPE	ASHRAE TYPE	ISOLATOR DEFLECTION		
AIR COOLED CHILLERS		GRADE	А	4	1.0" (25)					
PUMPS	<40 HP		А	4	0.75" (19)					

			HVAC LEGEND		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
' HWS	HOT WATER SUPPLY		UNION		BUTTERFLY VALVE
/ HWR	HOT WATER RETURN	+5+	STRAINER		GATE VALVE
" CHWS	CHILLED WATER SUPPLY		STRAINER WITH BLOW OFF		ANGLE VALVE
" CHWR	CHILLED WATER RETURN		THERMOMETER		GLOBE VALVE
	SUCTION DIFFUSER WTIH STRAINER	[S]	CIRCUIT SETTER		CONTROL VALVE, THREE WAY
	PUMP SYMBOL		PRESSURE INDICATOR		CONTROL VALVE, TWO WAY
	CONCENTRIC REDUCER		TRIPLE DUTY VALVE		PRESSURE REDUCING VALVE
	ECCENTRIC REDUCER FLAT ON BOTTOM		BALANCING VALVE		AUTOMATIC FLOW CONTROL VALVE
	ECCENTRIC REDUCER FLAT ON TOP	<u> </u>	AUTOMATIC AIR VALVE		CHECK VALVE
	ELBOW TURNED DOWN	M	MANUAL AIR VALVE WITH DICHARGE TUBE		NEEDLE VALVE
	ELBOW TURNED UP		TEE]	END CAP
	TEE OUTLET UP		PLUG VALVE		BLIND FLANGED
2 3	EXISTING PIPING TO REMAIN		BALL VALVE	FMS	FLOW METER STATION
14/-/-/-X/	PIPING TO BE DEMOLISHED		TEE OUTLET DOWN		
e	EXISTING PIPING BELOW GRADE	•	CONNECT TO EXISTING		

						AIR	COOLEI) CHILLE	ER SCHE	DULE					
					ELECTRICAL				MEC	MODEL	NOTEO				
EQUIPMENT TAG	TONS	REFRIGERANT	EER	IPLV -	WPD (FT)	EWT	LWT	GPM	MCA (A)	MOCP (A)	VOLTAGE	Phase	– MFG	MODEL	NOTES
C-1	96.0	R410A	9.675	17.06	6.38	55	43	191	225	250	460	3	Johnson Controls, Inc.	YLAA0100SE	1,2,3,4
C-4	96.0	R410A	9.675	17.06	6.38	6.38 55 43 191 225 250 460 3 Johnson Controls, Inc. Y						YLAA0100SE	1,2,3,4		
NOTES: 1. UNIT SHORT C	C-4 96.0 R410A 9.675 17.06 6.38 55 43 191 225 250 460 3 Johnson Controls, Inc. YLAA0100SE 1,2,3,4														

	PUMP SCHEDULE										
EQUIPMENT	GPM	PUMP HEAD	Pump		MOTOR		Voltage	Phase	MANUFACTURER	MODEL	REMARKS
TAG	UT III	(FT)	Efficiency	HP	RPM	TYPE	Voltage				
P-1	191	40	80.20%	3.0	1800	TEFC	460 V	3	Bell & Gossett	2.5 AC	2
P-4	191	40	80.20%	3.0	1800	TEFC	460 V	3	Bell & Gossett	2.5 AC	2
P-7	185	53	71.30%	5.0	1800	TEFC	460 V	3	Bell & Gossett	2.5 BB	1
P-8	185	53	71.30%	5.0	1800	TEFC	460 V	3	Bell & Gossett	2.5 BB	1

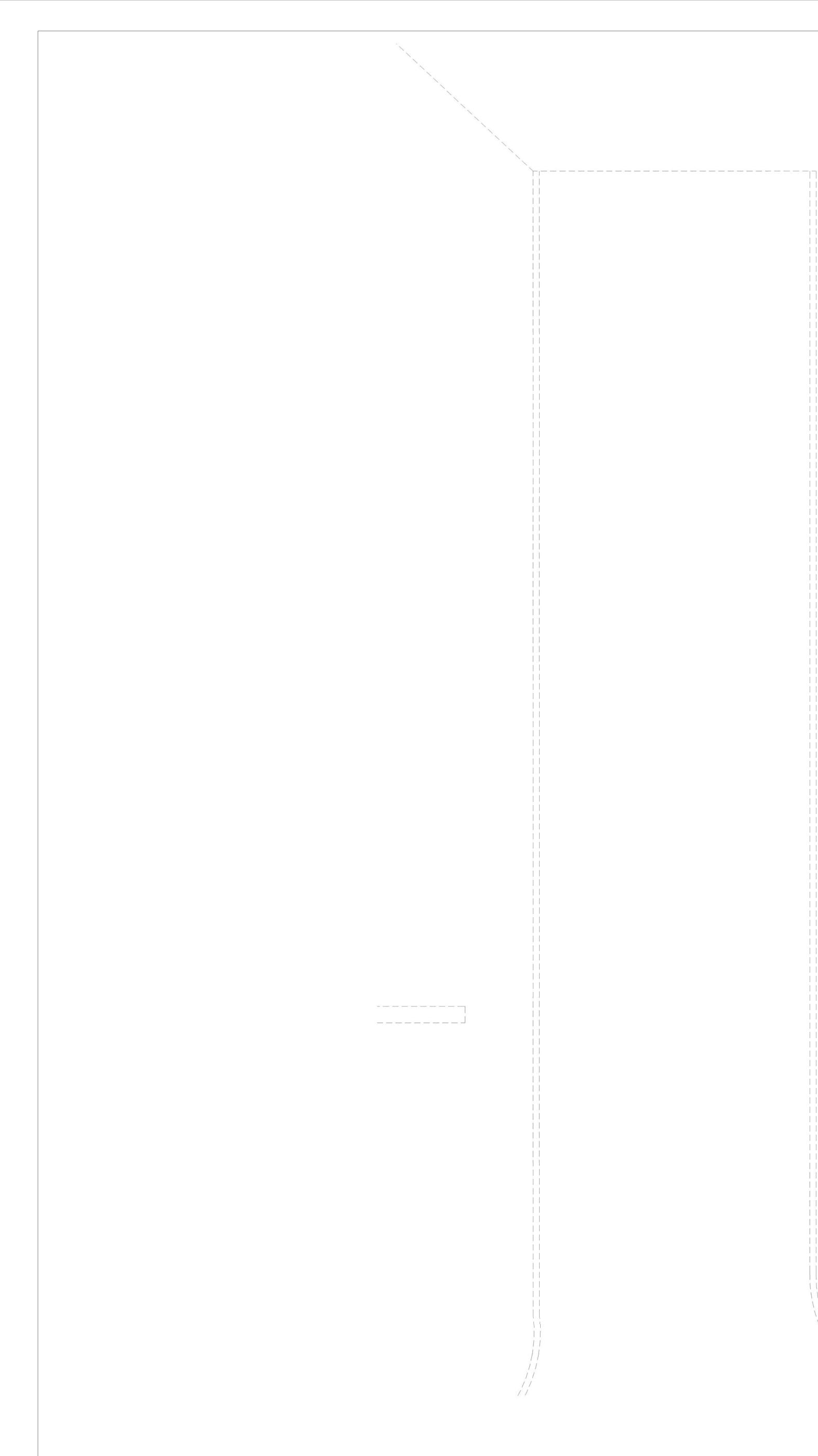
NOTES: 1. VARIABLE FREQUENCY DRIVE. 2. STARTER

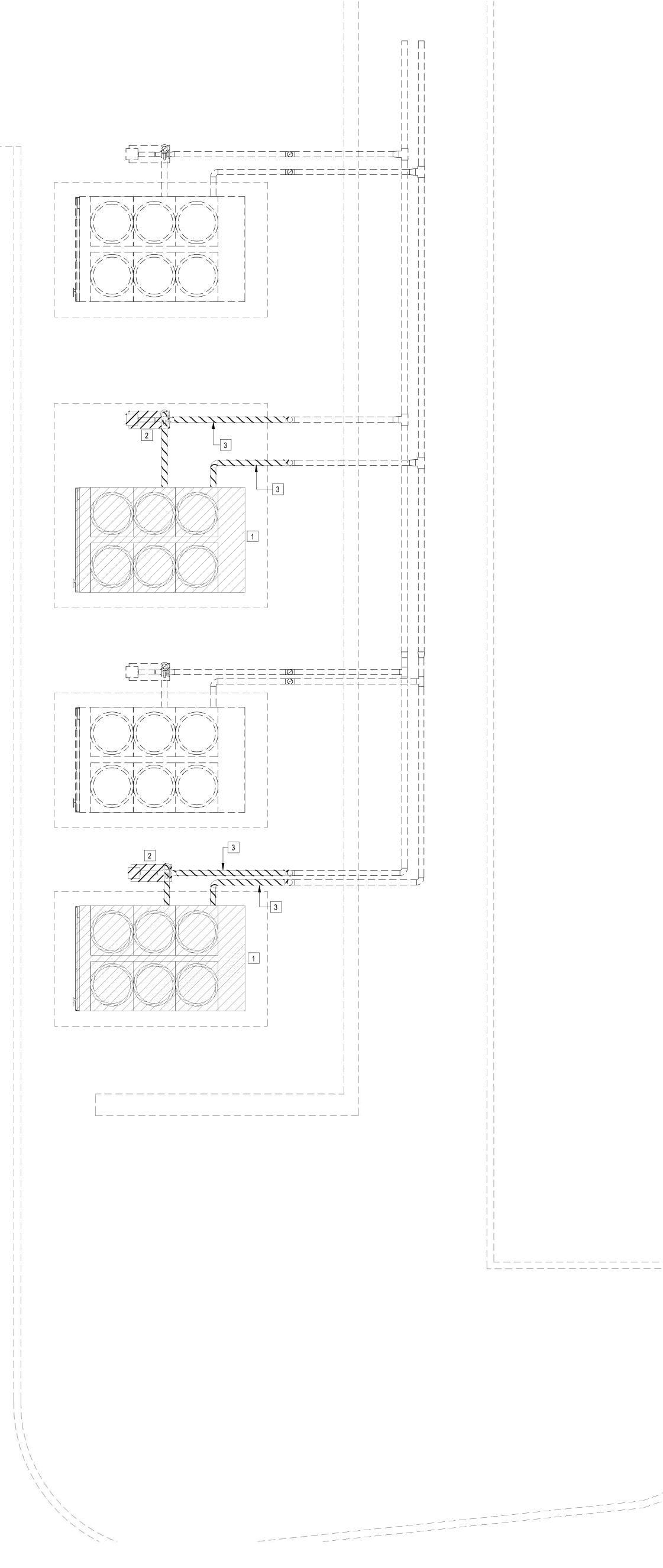


	MECHANICAL GENERAL NOTES
1.	DO NOT SCALE DRAWINGS; SEE ARCHITECTURAL DRAWINGS AND
	REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC.
2.	USE ECCENTRIC REDUCERS ON AUTOMATIC VALVES WHERE REQUIRED.
3.	EXTEND ALL DRAIN LINES TO NEAREST FLOOR DRAIN OR AS
	INDICATED. ROUTE TO AVOID INTERFERENCE WITH PASSAGEWAYS CONDENSATE DRAINS SHALL BE TRAPPED. SLOPE DRAIN LINES 1/8' PER FOOT.
4.	ALL PIPING SHALL PITCH DOWN IN DIRECTION OF FLOW OR AS INDICATED ON DRAWINGS: 1" PER 40 FEET WITH MANUAL AIR VENT
5.	AT ALL HIGH POINTS, AND 3/4" DRAIN VALVES AT ALL LOW POINTS. ALL PIPING AND DUCTWORK INSULATION SHALL BE RUN
0.	CONTINUOUSLY THROUGH FLOORS, ROOFS AND PARTITIONS EXCEPT WHERE PROHIBITED BY FIRE CODES.
6.	EXTEND DRAIN LINES FROM RELIEF VALVES TO 2" ABOVE NEAREST FLOOR DRAIN OR AS INDICATED.
7.	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.
8.	ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATION TO AVOID INTERFERENCE.
9.	CORRECT SETTINGS ON ALL BALANCING FITTINGS SHALL BE PERMANENTLY MARKED.
10.	RUNOUTS SHALL PITCH DOWN IN DIRECTION OF FLOW A MINIMUM OF 1" IN 30 FEET.
11.	ALL PIPING, DUCTS, VENTS, ETC. EXTENDING THRU EXTERIOR WALLS AND ROOFS SHALL BE FLASHED AND COUNTERFLASHED.
12.	COORDINATE ORIENTATION OF SUPPLY AND RETURN PIPING BEFORE FABRICATION.
13.	PROVIDE DIELECTRIC FITTINGS AT ALL LOCATIONS WHERE DISSIMILAR METALS ARE JOINED IN PIPING AND DUCT SYSTEMS.

PRE-DEMOLITION NOTES:
CONTRACTOR SHALL MEASURE AND DOCUMENT FLOW AND PRESSURE AT EACH AIR HANDLER AND ROOFTOP IN THE HEALTH SCIENCE BUILDING (HSB) AND STUDENT CENTER (SC). THE CHILLED WATER SYSTEM HAS THE FOLLOWING EQUIPMENT CONNECTED TO THE CHILLED WATER LOOP. THE CHILLED WATER VALUES BELOW ARE DESIGN FLOWS TAKEN FROM THE
ORIGINAL DRAWINGS:
1. HSB - AHU-1 - 130 GPM
2. HSB - AHU-2 - 30 GPM
3. HSB - AHU-3 - 114 GPM
4. HSB - AHU-4 - 90 GPM
5. SC - AHU-1 - 124 GPM
6. SC - AHU-2 - 105 GPM
7. SC - AHU-3 - 141 GPM
DOCUMENT MEASURED FLOW COMPARED TO DESIGN FLOW
AND SUBMIT REPORT TO ENGINEER FOR REVIEW PRIOR TO
DEMOLITION ANY OF THE CHILLED WATER SYSTEM.

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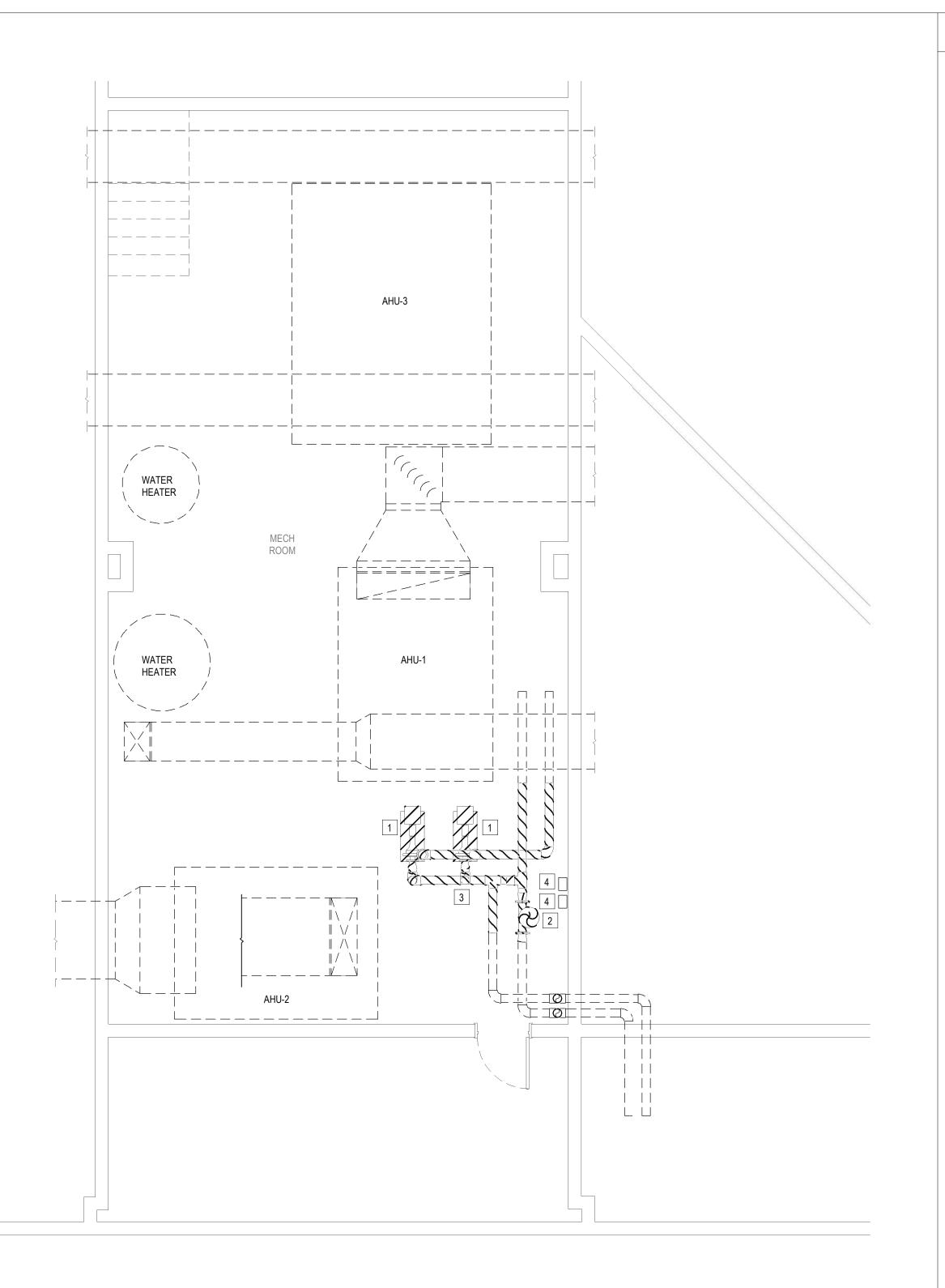




 $1 \frac{\text{SITE PLAN - HVAC DEMOLITION}}{1/4" = 1'-0"}$

KEYED NOTES: 1 REMOVE AIR COOLED CHILLER, PIPING, AND CONTROLS AS HATCHED. 2 REMOVE CHILLED WATER PUMP AS INDICATED. 3 REMOVE PIPING AS INDICATED. L_____ _____

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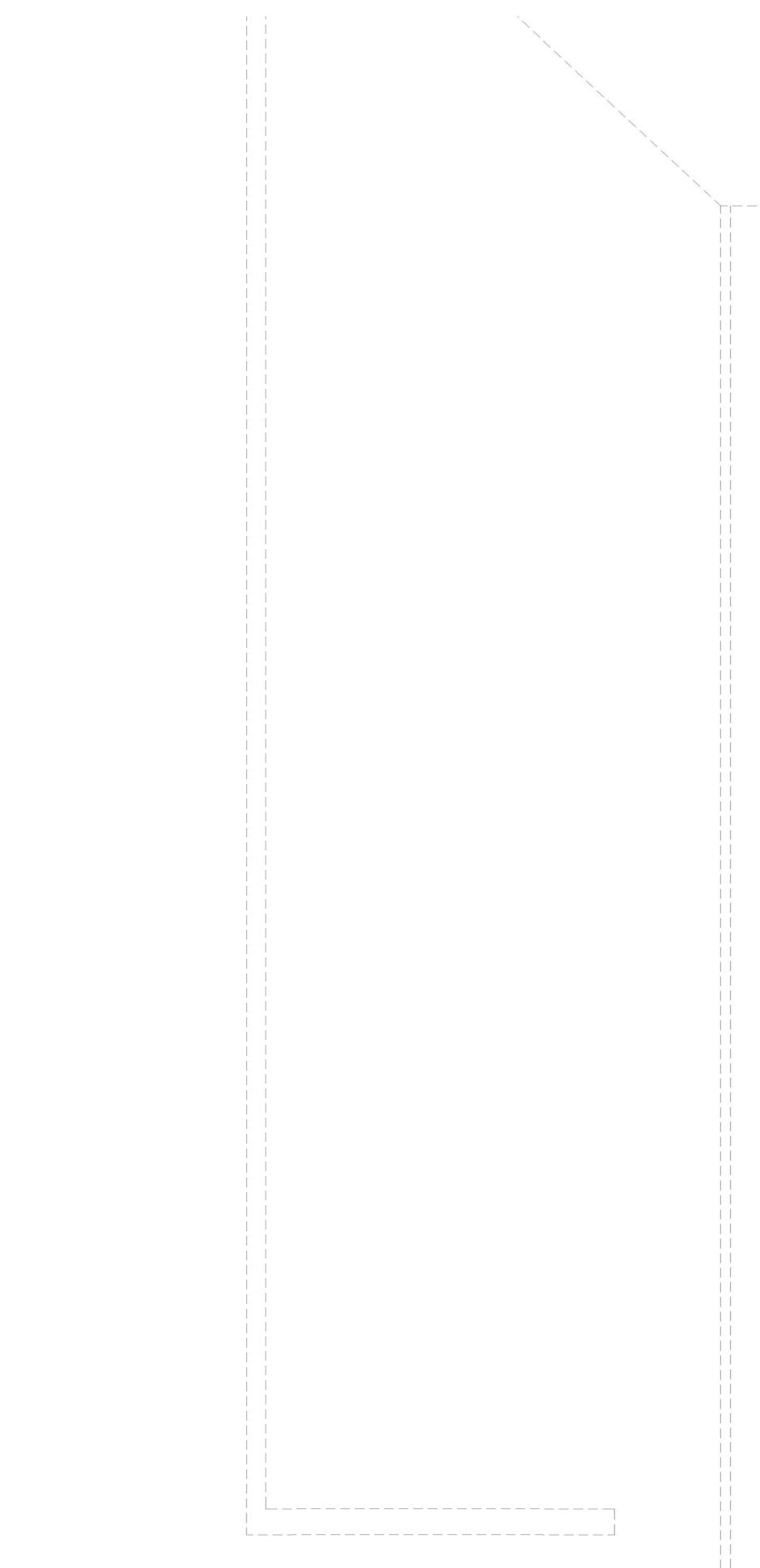


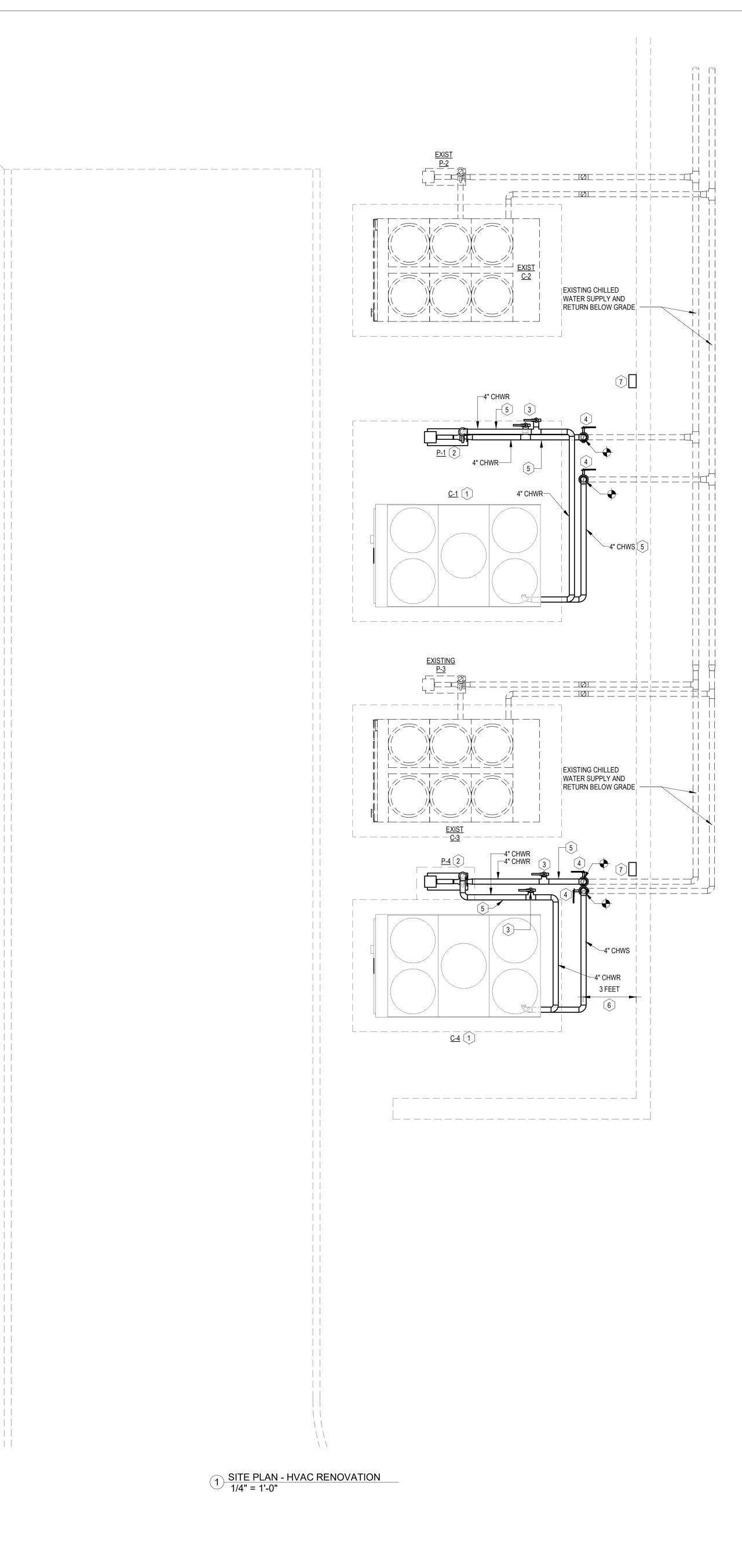
1 PARTIAL SECOND FLOOR PLAN - HVAC DEMOLITION 1/4" = 1'-0"

KEYED NOTES:

- 1 REMOVE EXISTING CHILLED WATER PUMP AND ASSOCIATED CONTROLS AS HATCHED.
- 2 REMOVE AIR SEPARATOR, EXPANSION TANK, AND CHEMICAL POT FEEDER.
- 3 REMOVE PIPING AS INDICATED. 4 REMOVE PUMP STARTER AS INDICATED.

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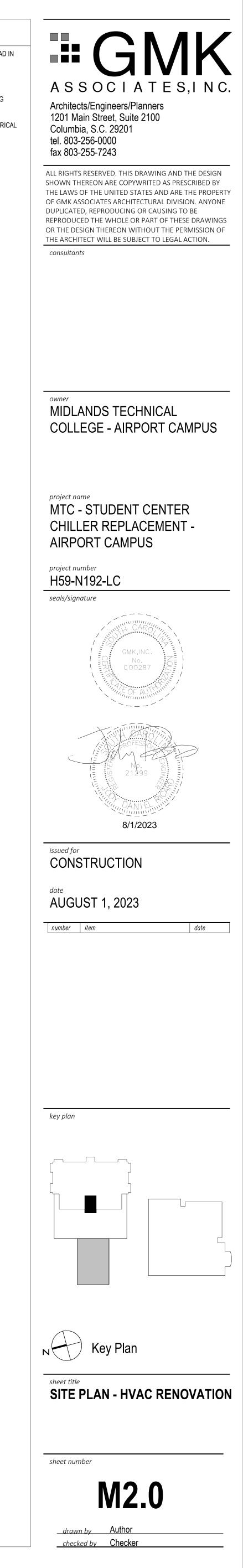
KEYED NOTES:

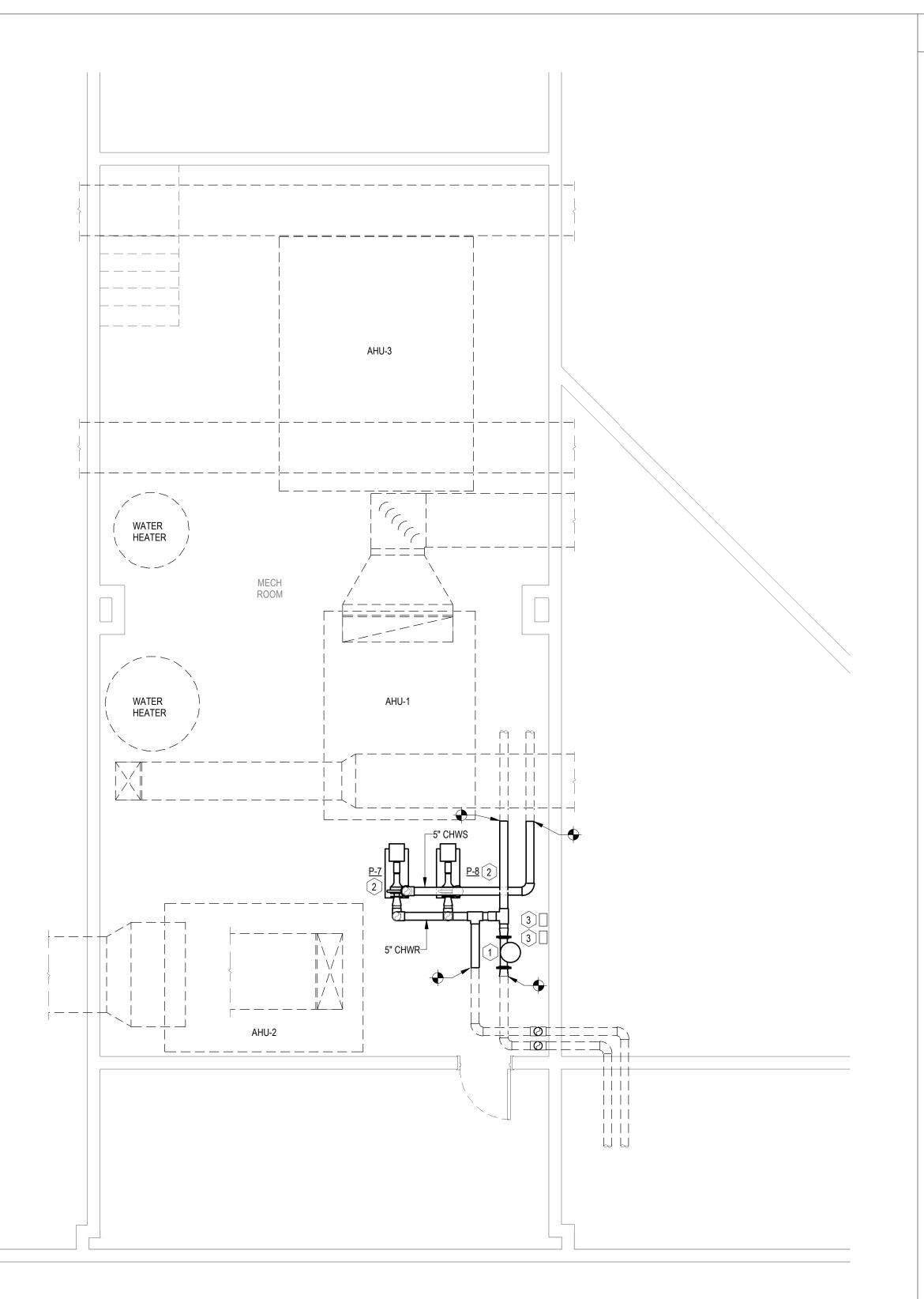
1 INSTALL NEW CHILLER ON EXISTING HOUSEKEEPING PAD. ANCHOR TO PAD IN

- ACCORDANCE WITH SEISMIC REQUIREMENTS. 2 INSTALL PUMP ON EXISTING HOUSEKEEPING PAD.
- 3 FUTURE CHILLER CONNECTIONS. 4 PROVIDE NEW BUTTERFLY VALVES. VALVE INSTALLATION SHALL BE COORDINATED WITH THE OWNER AND INSTALLED PRIOR TO DEMOLISHING CHILLERS AND ASSOCIATED PUMPS TO ISOLATE THE CHILLER FROM THE

- CHILLED WATER LOOP.
- 5 HEAT TRACE ALL CHILLED WATER PIPING LOCATED OUTSIDE. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 6 MAINTAIN A MINIMUM OF 3'-0" CLEARANCE BETWEEN PIPING AND WALL. 7 PROVIDE NEW STARTER/DISCONNECT FOR CHILLED WATER PUMP. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

______ L______

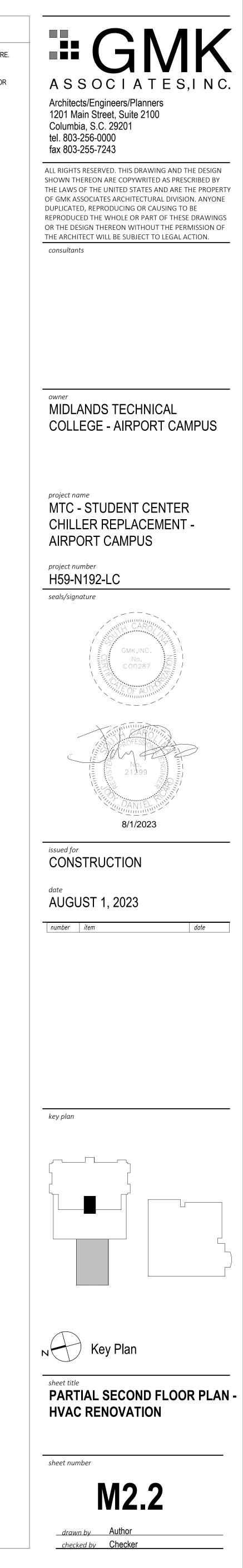


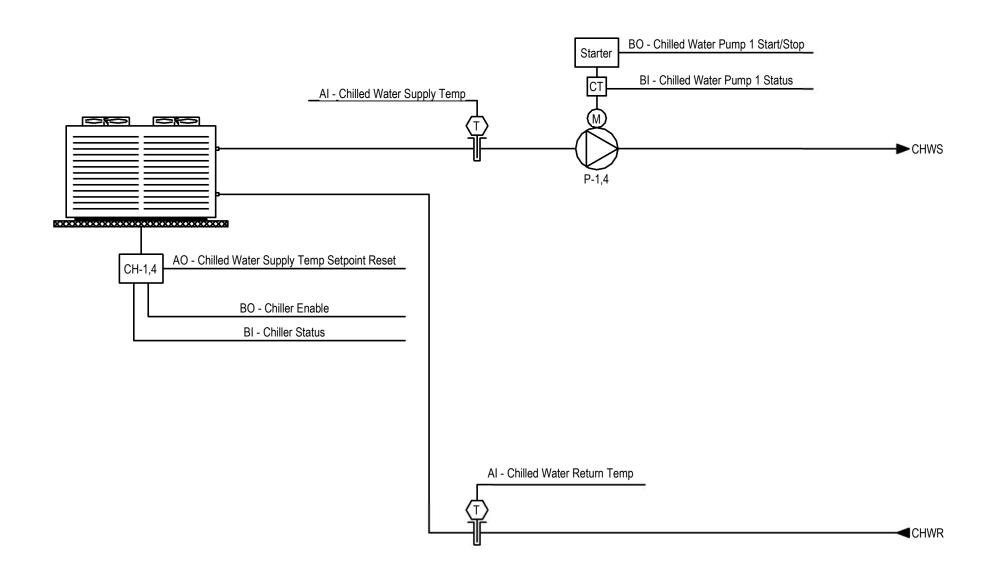


 $1 \frac{\text{PARTIAL SECOND FLOOR PLAN - HVAC RENOVATION}}{1/4" = 1'-0"}$

KEYED NOTES:

- 1 PROVIDE NEW AIR/SEDIMENT SEPARATOR AND SUSPEND FROM STRUCTURE. SEE DETAIL AND SCHEDULE FOR ADDITIONAL INFORMATION.
- 2 INSTALL PUMP ON EXISTING HOUSEKEEPING PAD. 3 PROVIDE NEW VFD FOR CHILLED WATER PUMPS. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.





CH-1,4

Chiller - Run Conditions: The chiller shall be enabled to run whenever: A definable number of chilled water coils need cooling • AND the outside air temperature is greater than 54°F (adj.).

To prevent short cycling, the chiller shall run for and be off for minimum adjustable times (both user definable), unless shutdown on safeties or outside air conditions. The chiller shall run subject to its own internal safeties and controls.

Alarms shall be provided as follows: Chilled Water Pump 1

start-up, shutdown and sequencing.

Chiller:

• Failure: Commanded on, but the status is off. • Running in Hand: Commanded off, but the status is on.

The chiller shall be enabled a user adjustable time after pump statuses are proven

The delay time shall be set appropriately to allow for orderly chilled water system

on. The chiller shall therefore have a user adjustable delay on start.

Alarms shall be provided as follows: Chiller Failure: Commanded on, but the status is off. Chiller Running in Hand: Commanded off, but the status is

definable limit.

Chilled Water Supply Temperature Setpoint: The chilled water supply temperature setpoint shall reset based on outside air temperature.

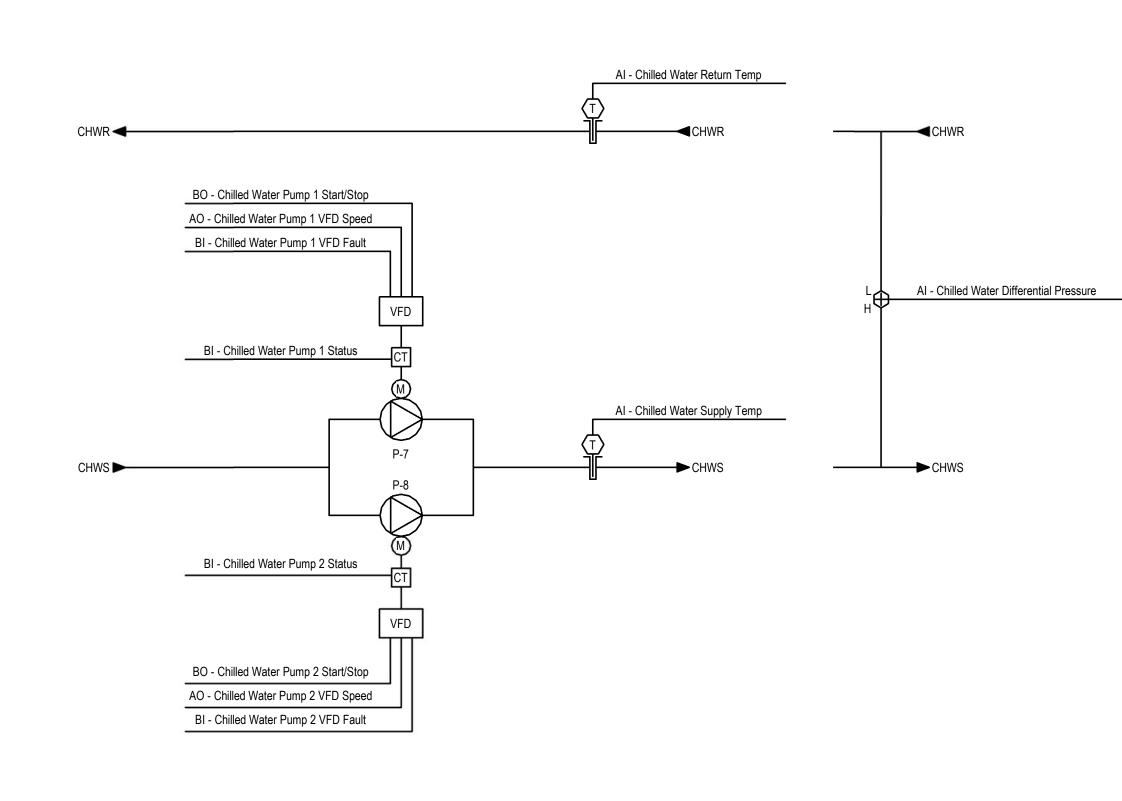
supply temperature setpoint shall reset upwards by adding from 0°F (adj.) to 10°F (adj.) to the current setpoint.

Chilled Water Temperature Monitoring: The following temperatures shall be monitored: Chilled water supply. Chilled water return. •

Alarms shall be provided as follows: High Chilled Water Supply Temp: If the chilled water supply temperature is greater than 55°F (adj.). Low Chilled Water Supply Temp: If the chilled water supply temperature is less

than 38°F (adj.).





Chilled Water Distribution Pumps

Chilled Water Pump System - Run Conditions: The chilled water pumps shall be enabled whenever: A definable number of chilled water coils need cooling.

 AND the outside air temperature is greater than 54°F (adj.). To prevent short cycling, the chilled water pump system shall run for and be off for

minimum adjustable times (both user definable). The pumps shall run for freeze protection anytime the outside air temperature is less than 38°F (adj.).

Chilled Water Pump Lead/Lag Operation:

- The two variable speed chilled water pumps shall operate in a lead/lag fashion. The lead pump shall run first. On failure of the lead pump, the lag pump shall run and the lead pump shall turn off. On decreasing chilled water differential pressure, the lag pump shall stage on and run in unison with the lead pump to
- maintain chilled water differential pressure setpoint. The designated lead pump shall rotate upon one of the following conditions (user
- selectable): manually through a software switch
- if pump runtime (adj.) is exceeded • •
- daily weekly monthly • •

definable limit. VFD Fault. • Chilled Water Differential Pressure Control: The controller shall measure chilled water differential pressure and modulate the chilled water pump VFDs in sequence to maintain its chilled water differential pressure setpoint. The following setpoints are recommended values. All setpoints shall be field adjusted during the commissioning period to meet the requirements of actual field conditions.

• Failure: Commanded on, but the status is off.

Running in Hand: Commanded off, but the status

Runtime Exceeded: Status runtime exceeds a user

Failure: Commanded on, but the status is off.

Running in Hand: Commanded off, but the status

Runtime Exceeded: Status runtime exceeds a user

The controller shall modulate chilled water pump speeds to maintain a chilled water differential pressure of 12lbf/in2 (adj.). The VFDs minimum speed shall not drop below 20% (adj.).

On dropping chilled water differential pressure, the VFDs shall stage on and run to maintain setpoint as follows: The controller shall modulate the lead VFD to maintain setpoin If the lead VFD speed is greater than a setpoint of 90% • (adj.), the lag VFD shall stage on. The lag VFD shall ramp up to match the lead VFD speed and then run in unison with the lead VFD to maintain setpoint. On rising chilled water differential pressure, the VFDs shall stage off as follows: If the VFDs speeds then drops back to 60% (adj.) below • setpoint , the lag VFD shall stage off. The lead VFD shall continue to run to maintain setpoint. • Alarms shall be provided as follows: High Chilled Water Differential Pressure: If the chilled water • differential pressure is 25% (adj.) greater than setpoint. Low Chilled Water Differential Pressure: If the chilled water differential pressure is 25% (adj.) less than setpoint. Chilled Water Temperature Monitoring: The following temperatures shall be monitored: Chilled water supply. Chilled water return.

Alarms shall be provided as follows: High Chilled Water Supply Temp: If the chilled water supply • temperature is greater than 55°F (adj.). Low Chilled Water Supply Temp: If the chilled water supply temperature is less than 38°F (adj.).



Alarms shall be provided as follows:

Chilled Water Pump 1

Chilled Water Pump 2

is on.

definable limit.

VFD Fault.

is on.

•

•

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•

CH-1,4 POINT SCHEDULE											
	HAR	DWAF	RE PO	INTS			SOF				
POINT NAME	AI	AO	BI	BO	AV	BV	LOOP	SCHEDULE	TREND	ALARM	SHOW ON GRAPHIC
CHILLED WATER RETURN TEMP	Х								Х		Х
CHILLED WATER SUPPLY TEMP	Х								Х		Х
CHILLED WATER SUPPLY TEMP SETPOINT RESET		Х							Х		Х
P-1,4 STATUS			Х						Х		Х
CHILLER (CH-1,4) STATUS			Х						Х		Х
P-1,4 START/STOP				Х							Х
CHILLER ENABLE				Х							Х
OUTSIDE AIR TEMP					Х						Х
P-1,4 FAILURE										Х	
P-1,4 RUNNING IN HAND										Х	
CHILLER FAILURE										Х	
CHILLER RUNNING IN HAND										Х	
CHILLER RUNTIME EXCEEDED										Х	
HIGH CHILLED WATER SUPPLY TEMP										Х	
LOW CHILLED WATER SUPPLY TEMP										Х	

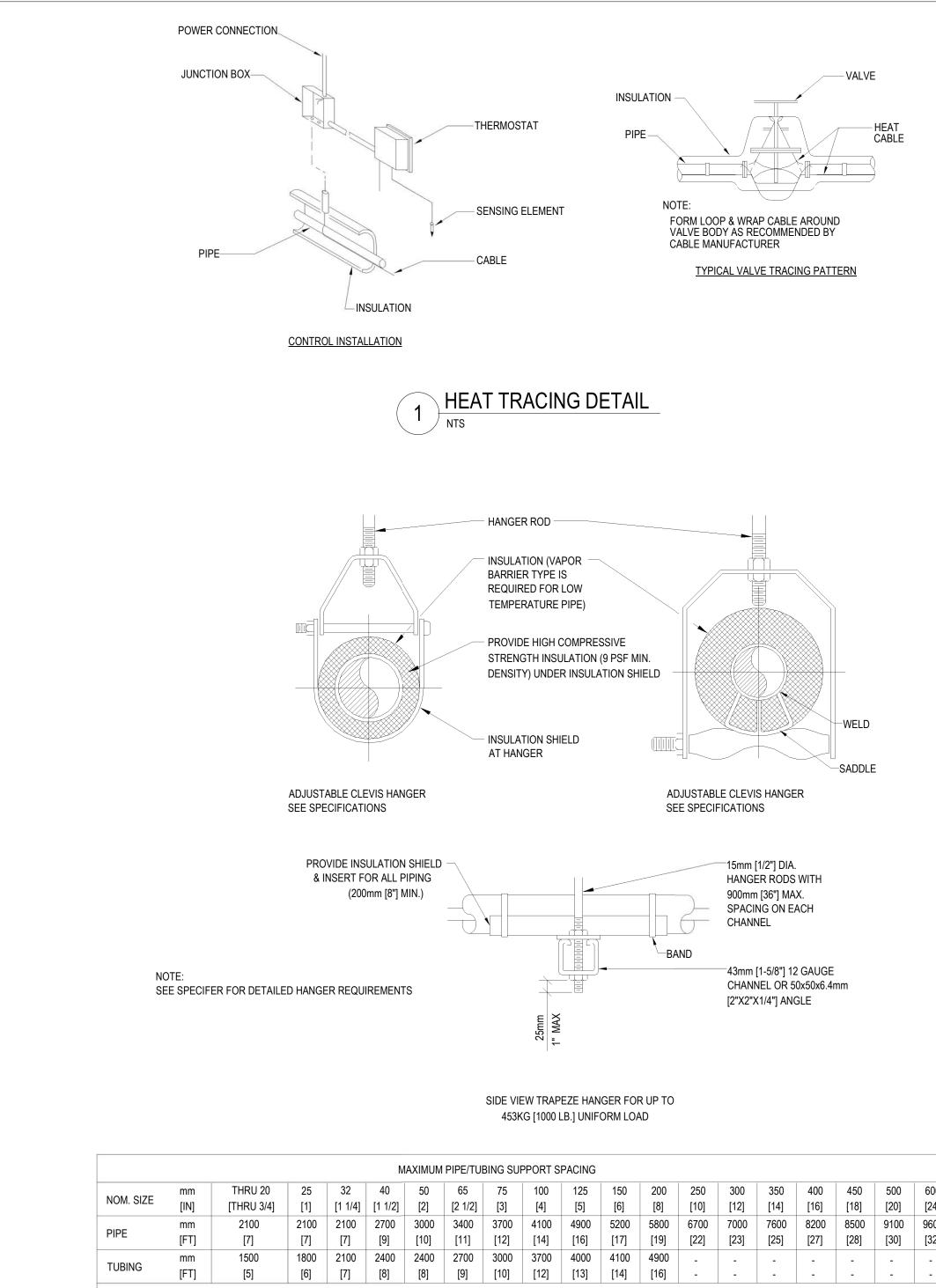
The chiller shall run subject to its own internal safeties and controls.

Chiller Runtime Exceeded: Status runtime exceeds a user

As outside air temperature drops from 75°F (adj.) to 50°F (adj.) the chilled water

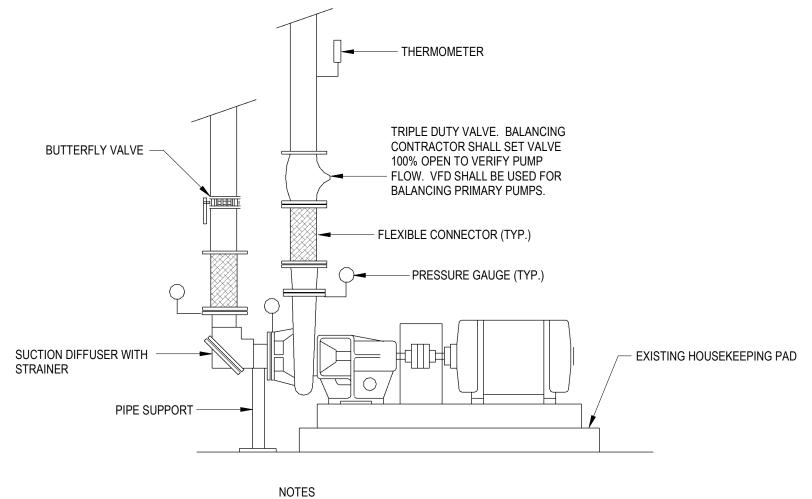
P-7,8 POINT SCHEDULE											
	HAR	DWAF	RE PO	INTS			SOF	TWARE POIN	NTS	-	
POINT NAME	AI	AO	BI	BO	AV	BV	LOOP	SCHEDULE	TREND	ALARM	SHOW ON GRAPHIC
CHILLED WATER DIFFERENTIAL PRESSURE	Х								Х		Х
CHILLED WATER RETURN TEMPERATURE	Х								Х		Х
CHILLED WATER SUPPLY TEMPERATURE	Х								Х		Х
P-7 VFD SPEED		Х							Х		Х
P-8 VFD SPEED		Х							Х		Х
P-7 STATUS			Х						Х		Х
P-7 VFD FAULT			Х							Х	Х
P-8 STATUS			Х						Х		Х
P-8 VFD FAULT			Х							Х	Х
P-7 START/STOP				Х					Х		Х
P-8 START/STOP				Х					Х		Х
CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT					Х						Х
OUTSIDE AIR TEMPERATURE					Х						Х
P-7 FAILURE										Х	
P-7 RUNNING IN HAND										Х	
P-7 RUNTIME EXCEEDED										Х	
P-8 FAILURE										Х	
P-8 RUNNING IN HAND										Х	
P-8 RUNTIME EXCEEDED										Х	
HIGH CHILLED WATER DIFFERENTIAL PRESSURE										Х	
HIGH CHILLED WATER SUPPLY TEMPERATURE										Х	
LOW CHILLED WATER DIFFERENTIAL PRESSURE										Х	
LOW CHILLED WATER SUPPLY TEMPERATURE										Х	
										Х	

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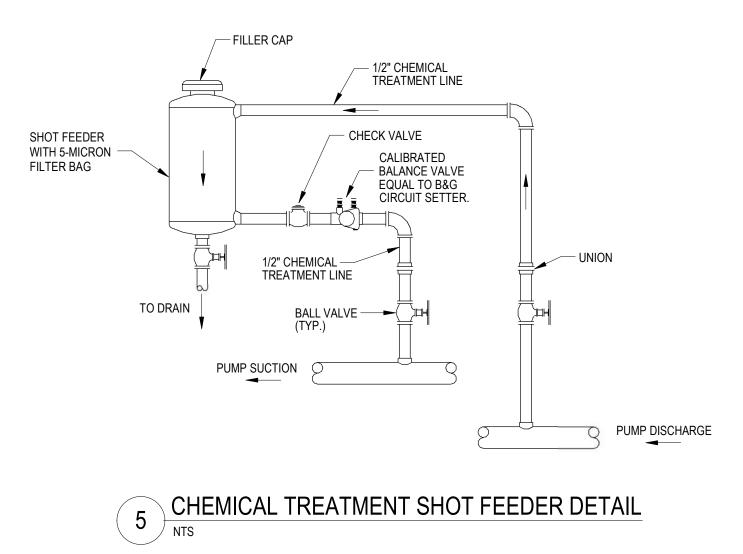
4 PIPE HANGER DETAIL

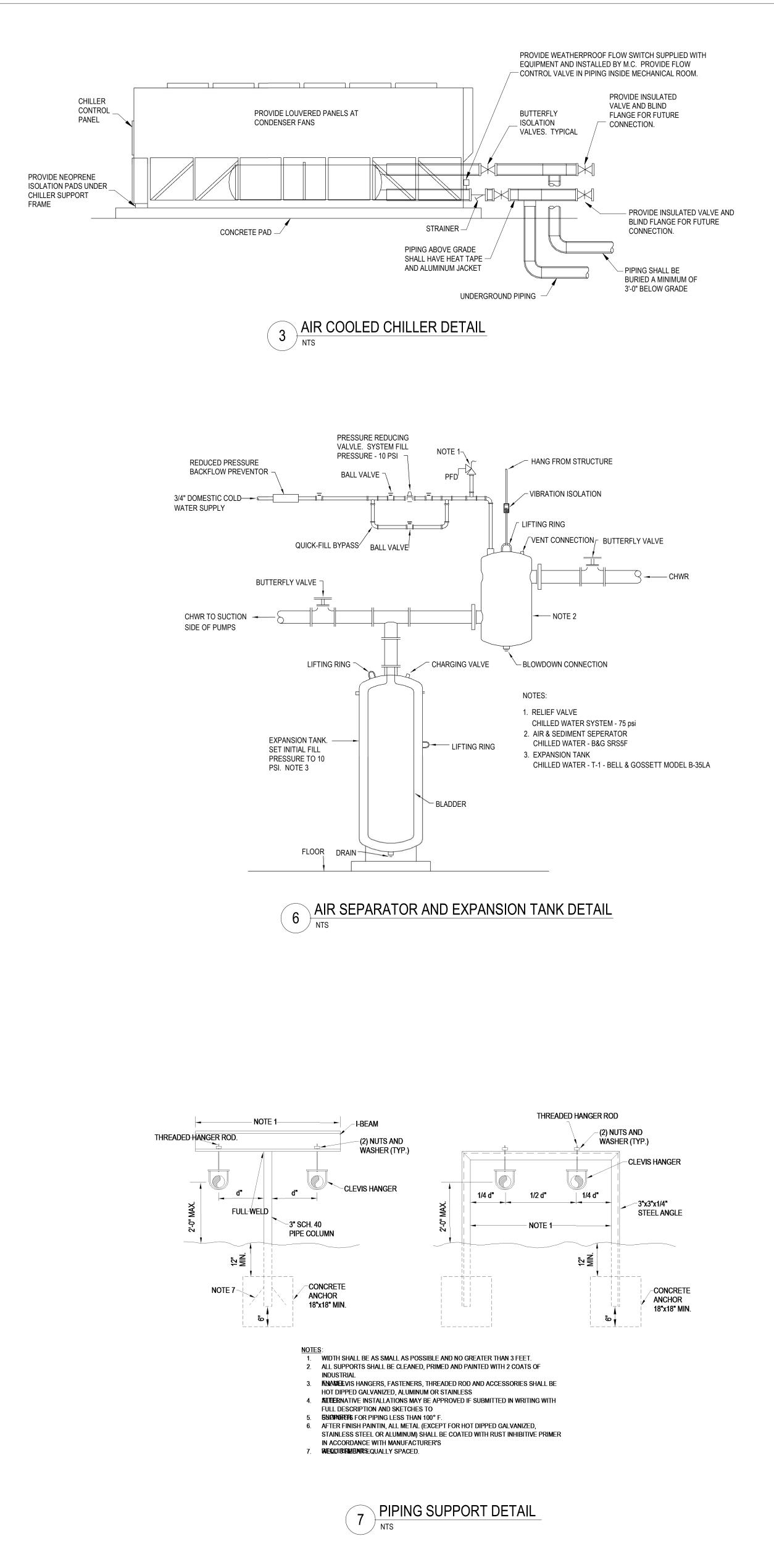
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.



1. SEE SCHEDULE FOR ADDITIONAL INFROMATION







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<u>GENEF</u>	RAL NOTES:
1.	DO NOT SCALE DRAWINGS. LOCATE OUTLETS, EQUIPMENT AND OTHER ELECTRICAL DEVICES AS INDICATED AND COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE EXACT LIGHTING FIXTURE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
2.	MINIMUM SIZE CONDUCTOR FOR POWER SHALL BE #12 AWG. PROVIDE DEDICATED NEUTRAL FOR EACH MULTI-WIRE BRANCH CIRCUIT IN COMPLIANCE WITH NEC.

- 3. ALL FUSES SHALL BE DUAL-ELEMENT TYPE, "FUSETRON" BY BUSSMAN, "ECON" BY ECONOMY, OR FERRAZ SHAWMUT. BRANCH CIRCUITS TO BE 2#12, 12GND, 3/4"C MINIMUM. 20A 120V CIRCUITS LONGER THAN 75' TO BE 2#10,
- #10GND, 3/4"C MINIMUM FOR VOLTAGE DROP. 20A, 120V CIRCUITS LONGER THAN 150' TO BE 2#8, #8GND, 3/4"C MINIMUM FOR VOLTAGE DROP. UNLESS OTHERWISE NOTED IN PANELBOARD SCHEDULES OR ON DRAWINGS. 5. ALL BRANCH CIRCUIT LOADS SHALL BE BALANCED ACROSS PANELBOARD BUSSES TO OBTAIN MINIMUM NEUTRAL CURRENT.
- 6. ALL FLEXIBLE CONDUIT SHALL CONTAIN A GREEN WIRE BONDED TO RIGID RACEWAY, BOX OR FIXTURE AT EACH END OF FLEX. SIZE GROUND PER NEC TABLE 250-122.
- 7. PROVIDE PULL STRING IN ALL EMPTY RACEWAYS.
- 8. COORDINATE WITH OTHER TRADES TO CONCEAL ELECTRICAL WORK AND PROVIDE OUTLETS IN CORRECT LOCATIONS. 9. DO NOT FLUSH MOUNT JUNCTION BOXES BACK TO BACK, STAGGER TO REDUCE SOUND TRANSMISSION BETWEEN
- ROOMS
- 10. CONCEAL OUTLETS FOR ALL EQUIPMENT IN FINISHED AREAS. OBTAIN ROUGH-IN DIAGRAMS FOR ALL EQUIPMENT AND INSTALL ELECTRICAL WORK ACCORDING TO DIAGRAMS. 11. MOUNT BRACKET TYPE LIGHTING FIXTURES AT HEIGHTS SHOWN OR SCHEDULED ON DRAWINGS OR AS DIRECTED ON
- JOB BY ARCHITECT UNLESS NOTED OTHERWISE. 12. SEAL ALL PENETRATIONS TO RATED WALLS, CEILINGS AND FLOORS WITH UL LISTED FIREPROOFING SYSTEM. THIS IS TO INCLUDE BUT IS IN NO WAY LIMITED TO CONDUCTOR, RACEWAY AND DEVICE PENETRATIONS. SUBMIT SYSTEM AND INSTALLATION DETAILS AS PART OF SHOP DRAWING SUBMITTAL.
- 13. WHERE NOT INDICATED OTHERWISE, EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED PER NEC TABLE 250-122.
- 14. ALL METAL CONDUITS 1" AND LARGER SHALL HAVE A GROUNDING BUSHING BONDING CONDUIT TO ENCLOSURE.
- 15. REMOVE DRYWALL DUST AND MUD FROM THE INTERIOR OF BOXES BEFORE INSTALLING DEVICES. 16. AT SUBSTANTIAL COMPLETION CLEAN ALL LIGHT FIXTURES AND CLEAN ALL DEVICES IN THE CONSTRUCTION AREAS. REPLACE DAMAGED DEVICES AND DEVICE PLATES AS NEEDED.
- 17. VERIFY ALL MECHANICAL EQUIPMENT LOCATIONS AND ELECTRICAL REQUIREMENTS WITH MECHANICAL PLANS. IF MECHANICAL EQUIPMENT BEING PROVIDED DOES NOT MATCH DESIGN NOTIFY ENGINEER IMMEDIATELY.
- 18. CONCEAL ALL CONDUIT AND RACEWAY. IF CONDITIONS REQUIRE CONDUIT OR RACEWAY TO BE RUN EXPOSED
- COORDINATE ROUTING WITH ARCHITECT AND PAINT AS REQUIRED BY ARCHITECT. 19. ELECTRICAL WORK SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES, REQUIREMENTS AND ORDINANCES. 20. ELECTRICAL WORK SHALL COMPLY WITH LATEST NECA 1 STANDARDS FOR GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION.
- 21. ALL BACKBOXES SHALL BE MINIMUM 4" SQUARE.
- 22. ALL EMT FITTINGS SHALL BE STEEL COMPRESSION TYPE WITH INSULATED THROAT.
- 23. PROVIDE PLASTIC ENGRAVED NAMEPLATES ON ALL ELECTRICAL DISTRIBUTION EQUIPMENT INCLUDING DISCONNECT SWITCHES. DISCONNECT SWITCHES SHALL INDICATE NAME OF EQUIPMENT BEING FED AND SOURCE CIRCUIT. ALL NAMEPLATES ON NORMAL POWER EQUIPMENT SHALL BE BLACK WITH WHITE LETTERING.
- 24. PROVIDE TYPEWRITTEN LABELS INDICATING SOURCE PANEL NAME AND CIRCUIT NUMBER FOR ALL 120V AND GREATER DEVICES INCLUDING ALL LIGHT SWITCHES AND RECEPTACLES. LABELS SHALL BE THERMAL TRANSFER TYPE, 3/8" WITH 1/4" LETTERING. WHITE BACKGROUND FOR BLACK DEVICES, CLEAR BACKGROUND OTHERWISE. LOCATE LABEL ON BACK OF FACEPLATE IN FINISHED AREAS.
- 25. PROVIDE ALL EQUIPMENT WITH 75°C OR 90°C TERMINATIONS. ALL WIRE SIZING INDICATED ON PLANS IS BASED ON 75°C TERMINATIONS. WHERE EQUIPMENT IS PROVIDED BY OTHERS AND IS NOT SPECIFICALLY LISTED AND MARKED WITH 75°C TERMINATIONS INCREASE CONDUCTOR SIZE BASED ON NEC TABLE 310.15(B)(16) 60°C COLUMN FOR CIRCUITS 100 AMPERES AND LESS IN SIZE.

LIGHT FIXTURES, ETC AT WALLS AND CEILINGS SCHEDULED FOR DEMOLITION. SYSTEM DEVICE OR EQUIPMENT.

OR EQUIPMENT ARE REMOVED.

FIXTURES IN ADJACENT AREAS WHICH ARE TO REMAIN. FIELD COORDINATE. EXISTING AND MODIFIED/NEW UPON COMPLETION OF RENOVATION WORK.

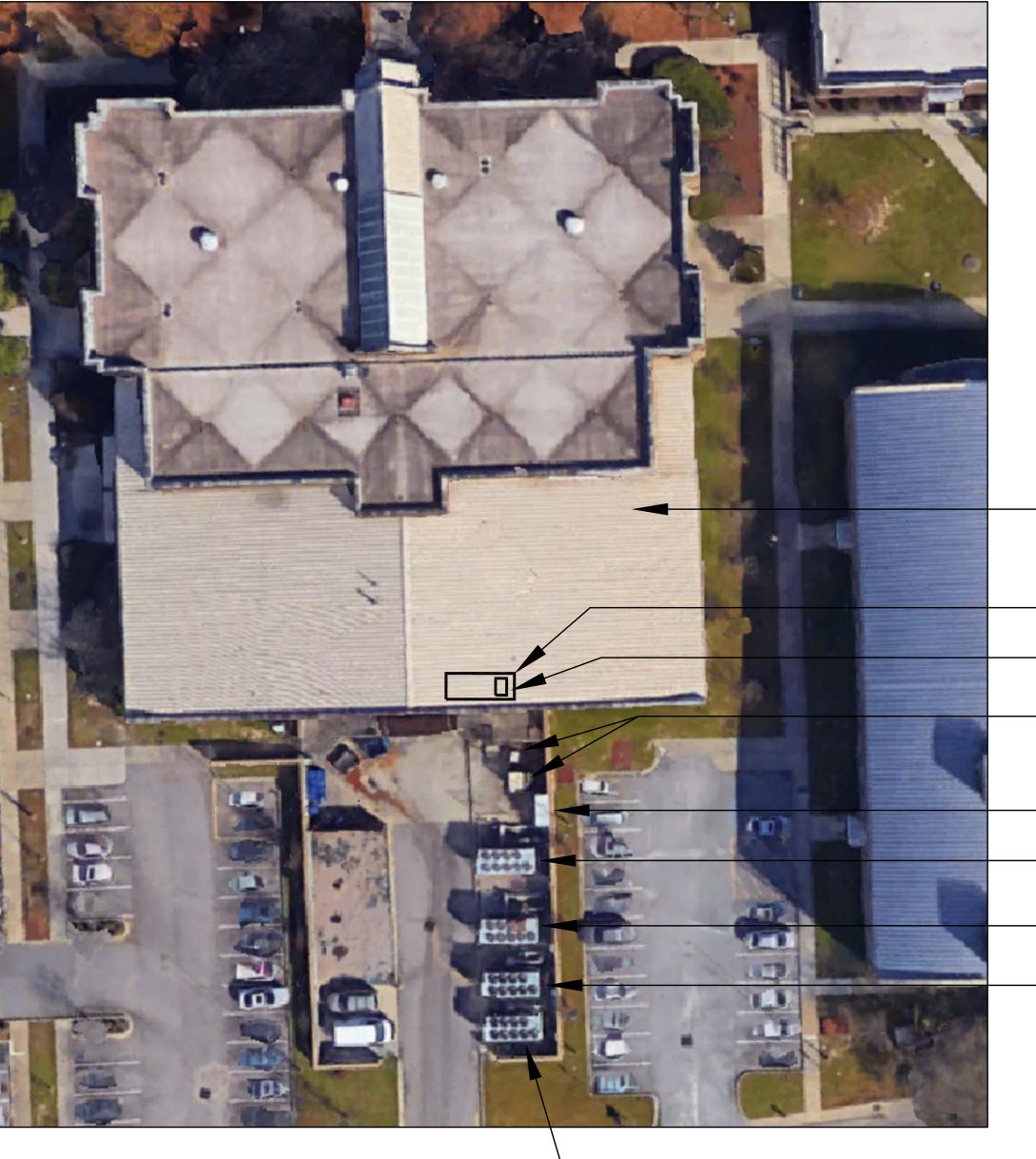
SHALL RELOCATE EXISTING DEVICES BELOW NEW CEILING LEVEL AND EXTEND WIRING/RACEWAY AS REQUIRED.

ADJACENT BUILDING AREAS.



GENERAL DEMOLITION NOTES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTION AND REMOVAL OF ANY ELECTRICAL DEVICES OR SYSTEMS AS REQUIRED FOR BUILDING ADDITION WORK. COORDINATE WITH ARCHITECTURAL DRAWINGS AND PROVIDE LABOR AND MATERIALS FOR ALL WORK REQUIRED TO DISCONNECT DEVICES, WHERE DEVICES OR FIXTURES ARE REMOVED OR OTHERWISE MODIFIED TO ACCOMMODATE NEW CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL CONNECTIONS AND WIRING TO EXISTING BRANCH CIRCUITS AND DEVICES AND EXTENDING CIRCUITS AS REQUIRED TO MAINTAIN CONNECTIVITY TO EXISTING ADJACENT DEVICES AND FIXTURES TO REMAIN. NOTIFY OWNER PRIOR TO DISCONNECTION OR REMOVAL OF ANY ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING STYLES AND FINISHES OF EXISTING DEVICES, COVER PLATES, AND FIXTURES, NEW DEVICES AND EXIT SIGNS SHALL BE FURNISHED TO CLOSELY MATCH AESTHETIC CHARACTERISTICS OF EXISTING FIXTURES AND DEVICES. WHERE DEVICES OR EQUIPMENT ARE ABANDONED OR DEMOLISHED AS PART OF THE SCOPE OF WORK, THE OWNER HAS FIRST RIGHT OF REFUSAL TO ALL EQUIPMENT, WIRING, AND MATERIALS DEMOLISHED. THE CONTRACTOR SHALL PROVIDE FOR PROPER DISPOSAL OF ALL EQUIPMENT AND MATERIALS NOT ACCEPTED BY THE OWNER. CONTRACTOR SHALL PROVIDE FOR REASONABLE TRANSPORTATION TO STORAGE FACILITY AS DIRECTED BY THE OWNER FOR ALL EQUIPMENT AND MATERIALS FOR WHICH THE OWNER CHOOSES TO RETAIN POSSESSION OF AFTER REMOVAL. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PATCHING, PAINTING, ETC AS REQUIRED TO CLOSELY MATCH ADJACENT BUILDING FINISHES WHERE DEVICES WHERE DEVICES OR FIXTURES ARE DEMOLISHED OR OTHERWISE ABANDONED AS PART OF THIS WORK, THE CONTRACTOR SHALL REMOVE ALL WIRING, RACEWAY, AND PERIPHERAL MATERIALS AND SUPPORTS TO SOURCE PANEL OR TO NEAREST JUNCTION BOX WHERE CIRCUIT SERVES OTHER DEVICES OR CONTRACTOR SHALL PROVIDE REVISED CIRCUIT DIRECTORIES IN ALL PANELBOARDS ASSOCIATED WITH AREA OF RENOVATION TO INDICATE ALL LOADS BOTH REMOVE ALL CEILING MOUNTED DEVICES FROM CEILINGS BEING DEMOLISHED OR REWORKED AND REINSTALL AT SAME LOCATION OR NEW LOCATION AS DESCRIBED ON RENOVATION DRAWINGS. WHERE ANY NEW CEILINGS ARE LOWERED AND ARE BELOW LEVEL OF EXISTING WALL MOUNTED DEVICES, CONTRACTOR CAREFULLY REVIEW ARCHITECTURAL, MECHANICAL, AND PLUMBING DEMOLITION PLANS. EXAMINE WORK TO BE DONE AND PROVIDE ALL ELECTRICAL WORK AS REQUIRED FOR DEMOLITION OF WALLS, CEILINGS, EQUIPMENT, OR SIMILAR AS DESCRIBED IN CONTRACT DOCUMENT SET. THIS INCLUDES RELOCATION, REROUTING, ETC OF ELECTRICAL CIRCUITS OR INFRASTRUCTURE WHERE REQUIRED FOR WORK UNDER OTHER TRADES WHETHER SPECIFICALLY INDICATED ON ELECTRICAL DRAWINGS OR NOT. CONTRACTOR IS REQUIRED TO VISIT THE SITE PRIOR TO PLACING BID AND INCLUDE IN BID ANY LABOR AND MATERIALS ASSOCIATED WITH RELOCATION OR MODIFICATION OF EXISTING ELECTRICAL SYSTEMS WHICH MAY BE AFFECTED BY WORK IN THE AREAS OF RENOVATION OR

	ELECTRICAL SYMBOL SCHEDULE - GENERAL		ELECTRICAL SYMBOL SCHEDULE - POWER
GENERAL		POWER	
PP1-2,4	BRANCH CIRCUIT RACEWAY. RUN CONCEALED IN CEILING OR WALLS. ARROWHEAD DENOTES HOMERUN TO PANEL. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN. INSTALL GROUND WIRE IN ALL RACEWAYS. #12 AWG MINIMUM AND AS PER CODE.	P	120V, 20A DUPLEX RECEPTACLE, NEMA 5–20R. WALL MOUNTED, REFER TO TYPICAL MOUNTING HEIGHTS DETAIL. REFER TO ADDITIONAL NOTATIONS BELOW WHERE INDICATED ON DRAWINGS.
TCB*	PLYWOOD TELECOM BACKBOARD. ELECTRICAL DISTRIBUTION OR BRANCH CIRCUIT PANELBOARD. TEXT DENOTES NAME, REFER TO DRAWINGS	₽	120V, 20A DUPLEX RECEPTACLE, NEMA 5–20R. WALL MOUNTED AT 42" AFF OR 6" ABOVE COUNTERTOP BACKSPLASH UNLESS OTHERWISE NOTED. REFER TO ADDITIONAL NOTATIONS BELOW WHERE INDICATED ON DRAWINGS.
CP	FOR LOCATION. SEE POWER RISER DIAGRAM AND PANEL SCHEDULES. SURFACE OR FLUSH MOUNTED AS INDICATED ON PANEL SCHEDULE. SIGNAL SYSTEM OR OTHER ELECTRICAL CONTROL OR COMMUNICATIONS CABINET. REFER TO DRAWINGS AND	8	120V, 20A QUADRAPLEX RECEPTACLE CONSISTING OF TWO DUPLEX RECEPTACLES IN COMMON BACKBOX, NEMA 5–20R. WALL MOUNTED, REFER TO TYPICAL MOUNTING HEIGHTS DETAIL. REFER TO ADDITIONAL NOTATIONS BELOW WHERE INDICATED ON DRAWINGS.
	SPECIFICATIONS FOR DETAILS. JUNCTION BOX, FLUSH WALL MOUNTED IN FINISHED WALLS, SURFACE MOUNTED WHERE INDICATED ON DRAWINGS. MINIMUM 4" SQUARE WITH APPROPRIATE REDUCING RING FOR DEVICE BEING INSTALLED. REFER TO TYPICAL MOUNTING HEIGHTS DETAIL WHERE MOUNTING HEIGHT IS NOT INDICATED ON DRAWINGS. SIZE		120V, 20A QUADRAPLEX RECEPTACLE CONSISTING OF TWO DUPLEX RECEPTACLES IN COMMON BACKBOX, NEMA 5–20R. WALL MOUNTED AT 42" AFF OR 6" ABOVE COUNTERTOP BACKSPLASH UNLESS OTHERWISE NOTED. REFER TO ADDITIONAL NOTATIONS BELOW WHERE INDICATED ON DRAWINGS.
Ø	PER NEC. JUNCTION BOX, CEILING MOUNTED. SIZE PER NEC.	φ .	ELECTRIC MOTOR OR EXHAUST FAN. PROVIDE LOCAL MEANS OF DISCONNECT PER NEC RATED TO SUIT LOAD WHERE NOT FACTORY EQUIPPED. CONNECT AS REQUIRED.
TYPICAL NOTATIO		=	HEAVY DUTY DISCONNECT SWITCH, SEE SCHEDULE.
			EXISTING MOTOR STARTER.
	INDICATES DEVICE, EQUIPMENT, ETC. TO BE SURFACE MOUNTED.	\$м	HEAVY DUTY DOUBLE POLE, SINGLE THROW 20A, 1HP RATED TOGGLE SWITCH. WHERE INDICATED SERVING MECHANICAL EQUIPMENT SWITCH IS TO BE INSTALLED ADJACENT TO EQUIPMENT TO SERVE AS LOCAL DISCONNECTING MEANS. FIELD COORDINATE.
	RACEWAY MATERIAL SCHEDULE	모	DOOR OPERATOR PUSH PLATE. REFER TO VENDOR INSTALLATION INSTRUCTIONS AND MOUNT AT HEIGHT AS REQUIRED BY ADA. PROVIDE APPROPRIATE BACKBOX FOR DEVICE TO BE INSTALLED AND PROVIDE WIRING TO MOTORIZED DOOR OPERATOR CONCEALED IN WALLS AS REQUIRED FOR COMPLETE INSTALLATION. COORDINATE WITH EQUIPMENT VENDOR AND ARCHITECTURAL DRAWINGS. MOTORIZED DOOR OPERATOR. VERIFY CONTROL TYPE WITH ARCHITECTURAL DOOR AND HARDWARE SCHEDULES AND EQUIPMENT BEING FURNISHED. PROVIDE RACEWAY AND WIRING AS REQUIRED TO WALL
	UTILITY		MOUNTED MANUAL PUSH PLATES OR AUTOMATIC MOTION SENSOR AS REQUIRED FOR EACH LOCATION. COORDINATE WITH HARDWARE BEING FURNISHED AND PROVIDE LABOR AND MATERIALS AS REQUIRED TO CONNECT COMPLETE.
		CR	ACCESS CONTROLLED DOOR CARD READER.
SI	ERVICEFEEDERBRANCH CIRCUIT	WIRING DEVICE T	PICAL NOTATIONS
	NTRANCE RACEWAY MATERIALS:	GF	GROUND FAULT CIRCUIT INTERRUPTER TYPE RECEPTACLE.
	FEEDERS: EMT, IMC, GRS		
	BRANCH CIRCUITS CONCEALED ABOVE CEILING/IN WALLS: EMT, IMC, GRS,		ABBREVIATIONS
	AC/MC*		A AMPERE.
	BRANCH CIRCUITS EXPOSED (INTERIOR): EMT FINAL CONNECTIONS TO MECHANICAL EQUIPMENT (3' MAX): LIQUID TIGHT FLEXIBLE METAL CONDUIT (TYPE LFMC) IN DAMP AND WET LOCATIONS, FLEXIBLE METAL CONDUIT IN DRY LOCATIONS.		AFF ABOVE FINISHED FLOOR. AFG ABOVE FINISHED GRADE. BKR BREAKER. C CONDUIT. CATV CABLE TELEVISION CIRCUIT.
	LIGHT FIXTURE WHIPS (3' MAX): AC/MC CABLE IN DRY LOCATIONS.		CKT CIRCUIT. EC ELECTRICAL CONTRACTOR, DIVISION 26 (DIV 26). EF EXHAUST FAN.
	*WHERE PERMITTED BY CODE, WITH APPROVAL OF OWNER, AND CONCEALED IN WALLS OR ABOVE FINISHED CEILINGS.		EMT ELECTRICAL METALLIC TUBING. FCU FAN COIL UNIT. GC GENERAL CONTRACTOR, DIVISION 00 THROUGH 14.



- EXISTING CHILLER NO. 4 BEING REMOVED AND REPLACED WITH NEW. SEE NEW WORK PLAN(S).

1 PARTIAL ELECTRICAL SITE PLAN - EXISTING UTILITIES SCALE: NO SCALE

A	AMPERE.
AFF	ABOVE FINISHED FLOOR.
AFG	ABOVE FINISHED GRADE.
BKR	BREAKER.
C	CONDUIT.
CATV	CABLE TELEVISION CIRCUIT.
CKT	CIRCUIT.
EC	ELECTRICAL CONTRACTOR, DIVISION 26 (DIV 26).
EF	EXHAUST FAN.
EMT	ELECTRICAL METALLIC TUBING.
FCU	FAN COIL UNIT.
GC	GENERAL CONTRACTOR, DIVISION 00 THROUGH 14.
GF	GROUND FAULT CIRCUIT INTERRUPTER.
GRS	GALVANIZED RIGID STEEL CONDUIT.
HID	HIGH INTENSITY DISCHARGE.
IG	DEVICE SHALL HAVE ISOLATED GROUND. SEE SPECIFICATIONS.
IMC	INTERMEDIATE METALLIC CONDUIT.
JB or J-BOX	JUNCTION BOX.
KVA	KILOVOLT AMPERES.
KW	KILOWATT.
MAX	MAXIMUM.
MC	MECHANICAL CONTRACTOR, DIVISION 23 (DIV 23).
MDP	MAIN DISTRIBUTION PANEL.
MIN	MINIMUM.
MFR	MANUFACTURER.
NMC	NONMETALLIC-SHEATHED CABLE.
V	VOLT.
NEC	NATIONAL ELECTRICAL CODE. (NFPA 70).
SWBD	SWITCHBOARD.
TYP	TYPICAL.
UNO	UNLESS NOTED OTHERWISE.
WC	WATER COOLER.
XFMR	TRANSFORMER.

-APPROXIMATE LOCATION OF EXISTING INTERIOR ELECTRICAL ROOM.

-EXISTING INTERIOR, 1600 AMP., 277/480V. GENERAL ELECTRIC SWITCHBOARD TO REMAIN.

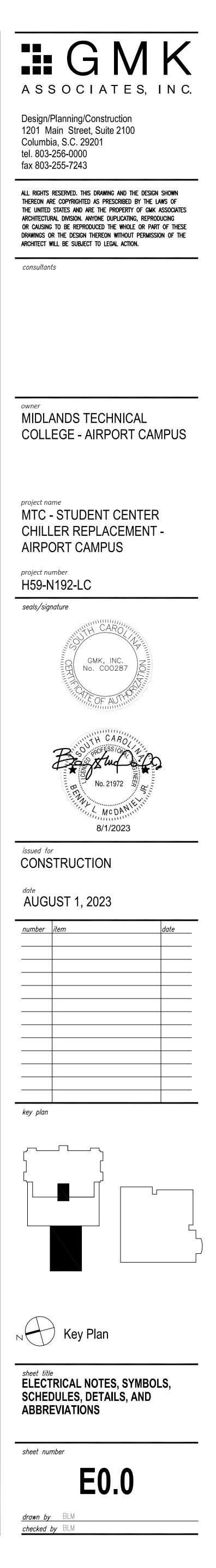
- EXISTING PAD-MOUNTED TRANSFORMER(S) TO REMAIN.

-EXISTING EXTERIOR 277/480V. GENERAL ELECTRIC SWITCHBOARD TO REMAIN, NEMA 3R.

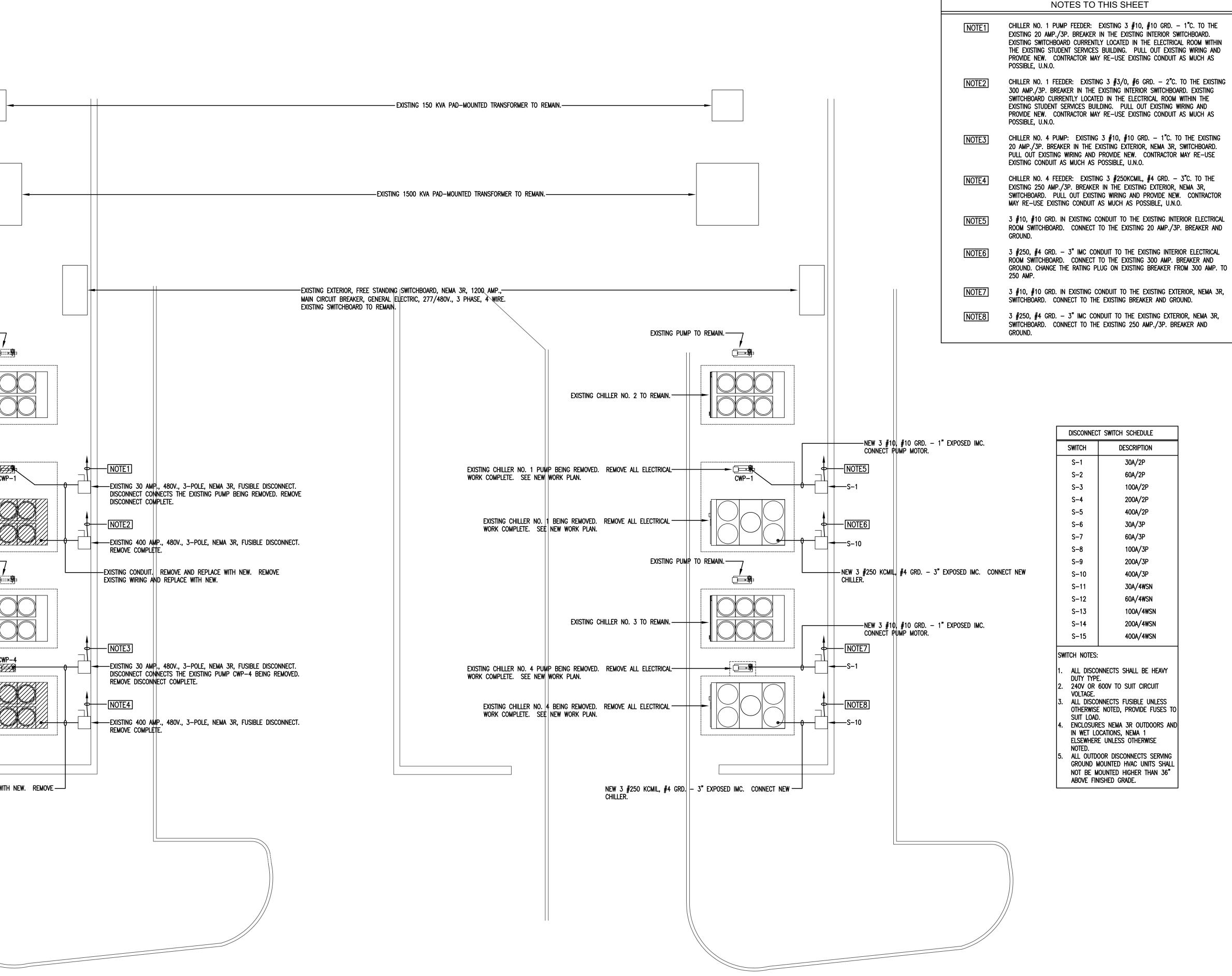
-EXISTING CHILLER NO. 2 TO REMAIN.

----EXISTING CHILLER NO. 1 BEING REMOVED AND REPLACED WITH NEW. SEE NEW WORK PLAN(S).

-EXISTING CHILLER NO. 3 TO REMAIN.



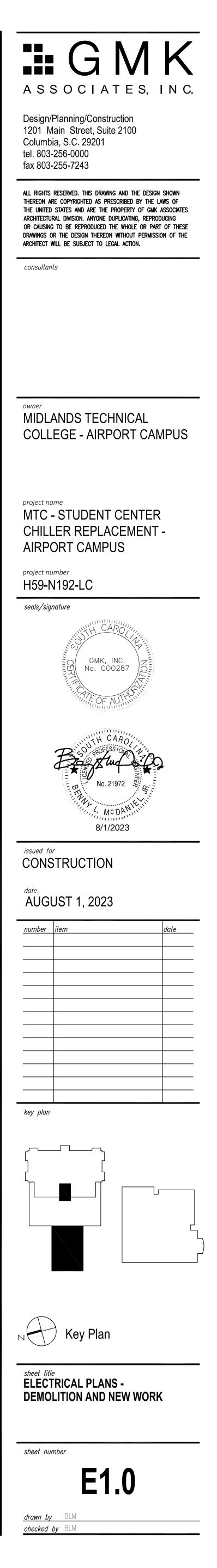
	EXISTING PUMP 1	o remain.
EXISTING CHILLER NO. 2	to remain.	
EXISTING CHILLER NO. 1 PUMP BEING REMOVED. REMOVE ALL WORK COMPLETE. SEE NEW WORK PLAN.	L ELECTRICAL	► Ø##¶ CWP-
EXISTING CHILLER NO. 1 BEING REMOVED. REMOVE ALL WORK COMPLETE. SEE NEW WORK PLAN.	ELECTRICAL	
	EXISTING PUMP 1	
EXISTING CHILLER NO. 3	to remain.	
EXISTING CHILLER NO. 4 PUMP BEING REMOVED. REMOVE ALL WORK COMPLETE. SEE NEW WORK PLAN.	L ELECTRICAL	CWP
EXISTING CHILLER NO. 4 BEING REMOVED. REMOVE ALL WORK COMPLETE. SEE NEW WORK PLAN.	ELECTRICAL	
	CONDUIT. REMOVE A	
1 PARTIAL ELE APPROXIMATE SCALE: 1,	CTRICAL /8" = 1'-0"	<u>SITE PI</u>

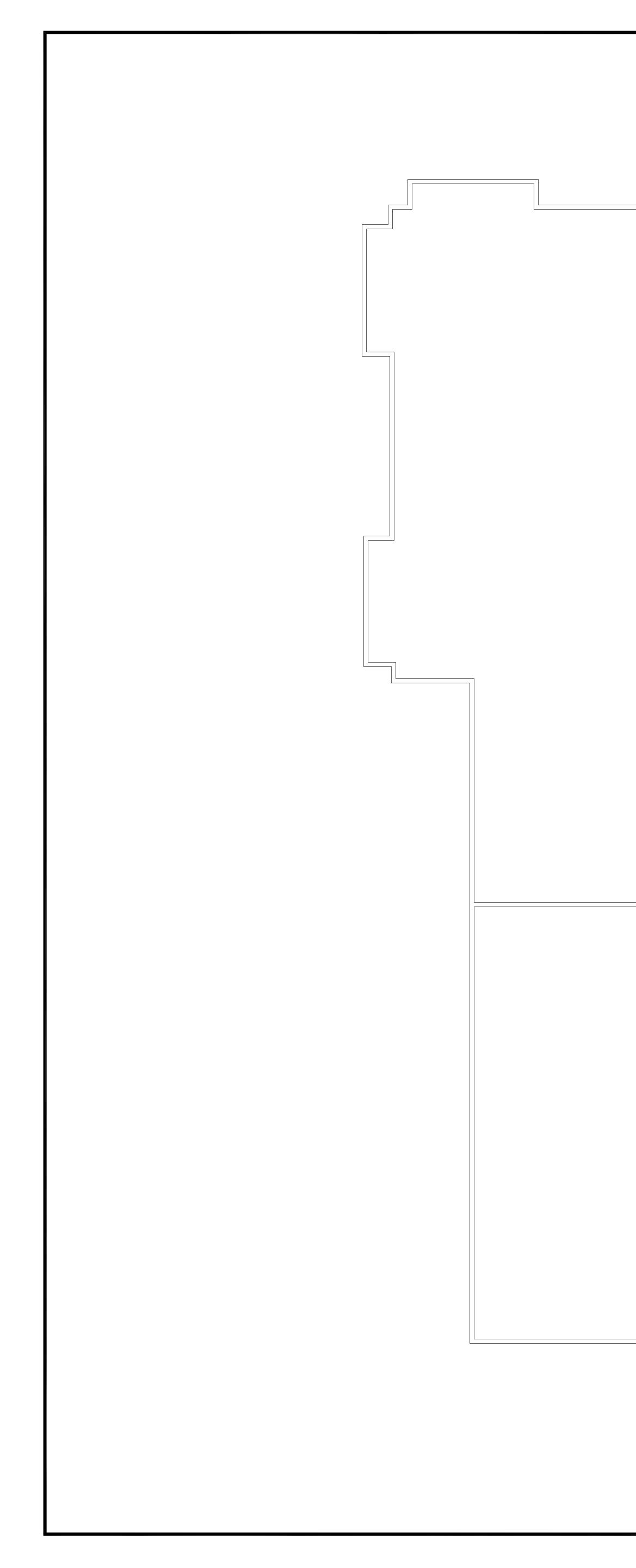


PLAN - EXISTING CONDITIONS

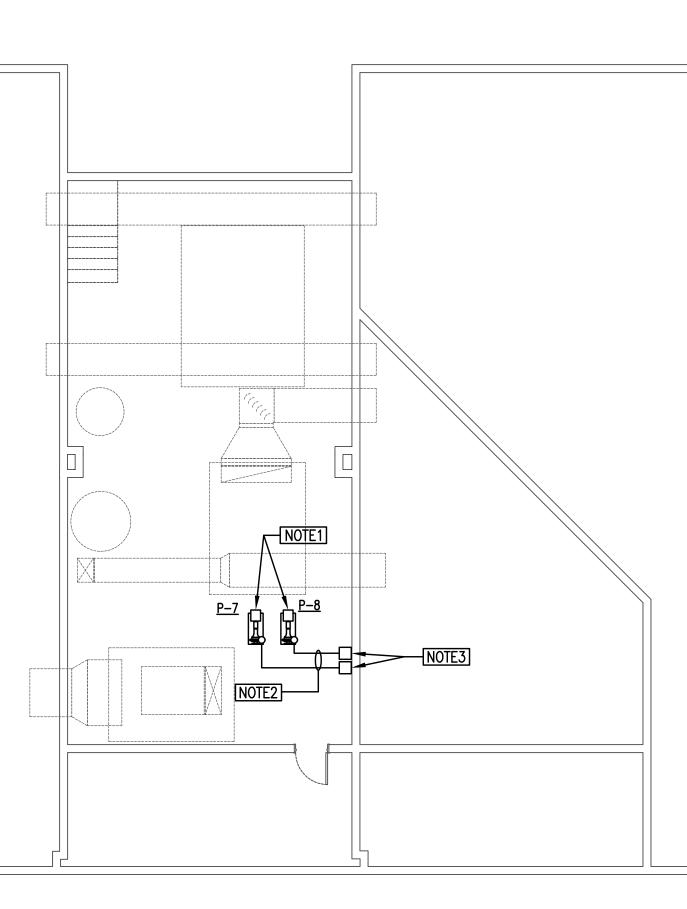


2 PARTIAL ELECTRICAL SITE PLAN - NEW WORK APPROXIMATE SCALE: 1/8" = 1'-0"





	NOTES TO THIS SHEET
NOTE1	EXISTING 5 HP PUMP MOTORS BEING REMOVED AND REPLACED WITH NEW 3 HP PUMP MOTOR.
NOTE2	RE-WORK EXISTING CIRCUIT AND ROUTE VIA NEW VFD BY OTHERS. PROVIDE NEW WIRING FROM VFD TO NEW PUMP.
NOTE3	NEW VFD BY OTHERS. RE-CONNECT TO THE EXISTING CIRCUIT.



1 ELECTRICAL PLAN – 2ND FLOOR RENOVATION PLAN SCALE: 1/8" = 1'-0"

