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CECIL COUNTY PUBLIC SCHOOLS
PURCHASING DEPARTMENT

GEORGE WASHINGTON CARVER EDUCATION LEADERSHIP CENTER
201 BOOTH STREET • ELKTON, MD 21921
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Jeffrey A. Lawson, Ed.D.
Superintendent of Schools

Diana B. Hawley
President, Board of Education

November 30, 2023

CCPS RFP # 24-06 – Cecil County School of Technology
Chiller Replacement Project

ADDENDUM #2

This addendum is to answer questions asked via email throughout the question period, which ended November 22, 2023. Proposers and related parties will be responsible to have read and understand all documents, the scope of work, addenda and all related solicitation documents issued. These documents will become attached to and part of the solicitation and award of bid contract.

PROJECT MANUAL & SPECIFICATION REVISIONS & ADDITIONS:

ITEM No. 1 **REVISED BID FORM – TO INCLUDE ALTERNATE**

ITEM No. 2 **ADD – Specification Section 230600 – 2.1.N. to read:**

"Chiller shall be Aquaforce model as manufactured by Carrier, York/JCI, Trane, or approved equal"

ITEM No. 3 **DELETE – Specifications Table of Contents, Section 23 13 13 Underground Fuel Oil Storage Tanks**

DRAWINGS:

ITEM No. 1 **REVISE:** DRAWING M0.0 MECHANICAL LEGEND, SCHEDULES & ABBREVIATIONS

- Pump schedule note 3 for pumps P-4, P-5, & P-6 included in Alternate no. 1.
- Updated Voltages on Air Cooled Chiller schedule to 480V.

ITEM No. 2 **REVISE:** DRAWING M1.2 COURTYARD PART PLAN – DEMOLITION

- Revised note for demolition of concrete pier.

ITEM No. 3 **REVISE:** DRAWING M2.1 COURTYARD PART PLAN – NEW WORK

- Revised Drawing 1 to reflect correct title "Courtyard Part Plan – New Work".

ITEM No. 4 **REVISE:** DRAWING M2.2 MECHANICAL ROOM PART PLAN – NEW WORK

- Revised Drawing 1 to clarify pumps under Alternate no. 1.

ITEM No. 5 **REVISE:** DRAWING M4.1 MECHANICAL DETAILS

- Revised Detail 1 note to include pumps under alternate.

ITEM No. 6 **REVISE:** DRAWING M5.1 CHILLED WATER SYSTEM CONTROL DIAGRAM

- Revised Chilled Water System Control Diagram to add note that pumps are included under alternate.

ITEM No. 7 **REVISE:** DRAWING E1.1 MECHANICAL ROOM PART PLAN – ELECTRICAL DEMOLITION

- Add Note indicating pumps P-4, P-5, & P-6 are included in Alternate no. 1.

ITEM No. 8 **REVISE:** DRAWING E2.1 MECHANICAL ROOM PART PLAN – ELECTRICAL NEW WORK

- Add Note indicating pumps P-4, P-5, & P-6 are included in Alternate no. 1.

ITEM No. 9 **REVISE:** DRAWING E5.1 MECHANICAL EQUIPMENT CONNECTION AND PANELBOARD SCHEDULES

- Add Note In MCC Schedule indicating work associated with pumps P-4, P-5, & P-6 are included in Alternate no. 1.

QUESTION 1: Please confirm Drawing [M2.2] should be labeled New Work and not Demolition.
ANSWER 1: Should be labeled New Work.

QUESTION 2: Please clarify. Specifications [012300] does not list any alternates, but Drawing [M4.1 detail 1] notes 'Chilled water pumps are to be replaced under alternate'. Is this alternate solely the replacement of P-4, P-5, and P-6?
ANSWER 2: Primary chilled water pumps are to be replaced under Alternate No. 1.

QUESTION 3: Specifications [232113 – 5] Are Grooved ends and fittings an acceptable alternative to butt-weld?
ANSWER 3: No, grooved ends and fittings are not acceptable.

QUESTION 4: Is a lift plan required?
ANSWER 4: No, this is the sole responsibility of the contractor.

QUESTION 5: Please confirm chiller housekeeping pad remain.
ANSWER 5: Chiller housekeeping pads are existing to remain.

QUESTION 6: Please confirm housekeeping pad where pumps 1,2 and 3 get demoed is to remain.
ANSWER 6: See answer to Question #5.

QUESTION 7: On M1.2 it states "Remove concrete to below grade to allow for new concrete pads". On M2.2 it states "concrete pillars even with grade". Is the intent to remove and cover up with gravel as not to see them? The one existing pillar near chiller no. 2 appears to be very close to where the turndown would be for the slab and may need to be removed. Please clarify.
ANSWER 7: The concrete pillars are to be demolished to a point where they don't cause any conflict with new chiller concrete pads.

QUESTION 8: Drawing Ref: M1.1 - Does the Pad with Pumps P-1 – 3 get removed? Does the Pad with P-4 through 6 get removed and replaced?
ANSWER 8: Both pads are existing to remain.

QUESTION 9: Is there glycol in the system? If not, are we to use heat trace on all the exterior pipe?
ANSWER 9: There is no glycol in the system. CCPS drains chillers so heat trace is not required for exterior piping.

QUESTION 10: Is there a preferred control contractor? If so, please provide contact information.
ANSWER 10: CCPS sole sources JCI.

QUESTION 11: On drawing M4.1 it states to provide alternate pricing for the chill water pumps. The bid form did not have any alternates listed. Are we to provide the pumps as an Alternate? Are there any other alternates?
ANSWER 11: Replacing the chilled water pumps is included under Alternate No. 1.

QUESTION 12: Is there a spec section for the chillers?
ANSWER 12: 230600 Heating, Ventilating, and Air Conditioning

QUESTION 13: Are there any acceptable alternative manufacturers for the pumps?
ANSWER 13: See Spec Section 230600-2.2.K.

QUESTION 14: Are there any alternative manufacturers for the chillers?
ANSWER 14: JCI/York, Trane, Carrier.

QUESTION 15: Spec Vol 2 table of contents, Division 23, section 23 1313 Underground fuel-oil storage tanks (Alt.1). Is this a legitimate section and if so where is the alternate indicated on the drawings?
ANSWER 15: Oil Storage Tank specification does not apply to this project.

QUESTION 16: Prevailing Wages- Paragraph 2.01 – Item C states that the prevailing wages dated Oct 26, 2023 attached are to be used for each school. I did not see these attached in the documents?
ANSWER 16: The paragraph you are referring to is on page 68 of the project manual volume 1, the prevailing wages dated October 26, 2023 are pages 69-73.

QUESTION 17: The specs state the water treatment is to be by the current vendor servicing the building, however that contractor is not listed. Who has the current water treatment for this building and what is their contact information?
ANSWER 17: The existing chiller plant has two separate water systems. The first is condenser water, which will be removed and not replaced as part of this project. The second is chilled water, which we maintain with our in-house techs. So no contractors for water treatment.

Authorized Signature/Date: _____

Printed Name/Title: _____

Contractor Name: _____

Address: _____

***Note: Bidder must sign and submit Addenda with the proposal submission. The same person signing the Addenda acknowledgement(s) must sign the Bid Form.**

SECTION 00 41 00 – BID FORM

DATE: _____

TO: CECIL COUNTY BOARD OF EDUCATION
201 BOOTH STREET
ELKTON, MARYLAND 21921

I/We _____ of _____
Name of Contractor Name of Company

The undersigned, having carefully examined the Contract Documents, having visited the site and examined all conditions affecting the work, and having received clarification of all items of doubt, and all addendums listed below, uncertainty or possible conflict, the undersigned hereby agrees to furnish all plant, labor, materials, supplies, equipment, tools, transportation, permits, services and other facilities necessary for the **Cecil County School of Technology Chiller Replacement Project** as required in strict accordance with the contract documents and all applicable local, state and federal regulations as follows:

BASE BID
All labor, materials, bonds, fees, permits, sales taxes, and equipment required to complete the work as specified in project specifications and drawings for the **Cecil County School of Technology Chiller Replacement Project.**

_____ Dollars ($_____)

ALTERNATE
Replacement of chilled water pumps.

_____ Dollars ($_____)

TOTAL WITH ALTERNATE

_____ Dollars ($_____)

ADDENDA(S)
I/We acknowledge receipt of Addenda Nos. ___, ___, ___, ___,____ and ___.

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL STATE, COUNTY AND LOCAL CODES, REGULATIONS AND ORDINANCES. MATERIAL, EQUIPMENT, INSTALLATION, AND PROCEDURES SHALL BE IN STRICT ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE LATEST CURRENT EDITION OF THE REFERENCED DOCUMENTATION.

   A. REGULATIONS OF LOCAL AUTHORITIES HAVING JURISDICTION.
   B. NFPA-NATIONAL FIRE PROTECTION ASSOCIATION.
   C. SMACNA - SHEET METAL AND AIR CONDITIONING NATIONAL ASSOCIATION.
   D. ASME - AMERICAN SOCIETY OF MECHANICAL ENGINEERS.
   E. ASTM - AMERICAN SOCIETY OF TESTING AND MATERIALS.
   F. ASHRAE - AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS, INC. LATEST EDITION OF STANDARD 15.
   L. INTERNATIONAL EXISTING BUILDING CODE - 2021.
   M. INTERNATIONAL BUILDING CODE - 2021.
   N. INTERNATIONAL ENERGY CONSERVATION CODE - 2021.
   O. INTERNATIONAL MECHANICAL CODE - 2021.
   P. INTERNATIONAL PLUMBING CODE - 2021.
   Q. SMACNA - SHEET METAL AND AIR CONDITIONING NATION ASSOCIATION.
   R. DGS PROCEDURE MANUAL FOR PROFESSIONAL SERVICES, REV. 2019.

2. CONTRACTORS SHALL BE RESPONSIBLE TO VERIFY AND FAMILIARIZE THEMSELVES WITH ACTUAL FIELD CONDITIONS ASSOCIATED WITH WORK UNDER THIS CONTRACT PRIOR TO SUBMITTING THEIR BID.

3. ELEVATIONS NOTED ARE TO CENTER LINES OF PIPES FOR ALL PRESSURE LINES AND TO INVERT FOR ALL GRAVITY FLOW LINES.

4. PROVIDE ISOLATION VALVES AS INDICATED ON THE DRAWINGS, DETAILS AND AS REQUIRED SO THAT EQUIPMENT AND INSTRUMENTS IN THE SYSTEM CAN BE ISOLATED FOR SERVICE AND MAINTENANCE.

5. PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN THE CHILLED WATER SYSTEM.

6. UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD, TIGHT TO UNDERSIDE OF SLAB AND STRUCTURE, WITH SPACE FOR INSULATION, IF REQUIRED.

7. INSTALL PIPING SO THAT ALL VALVES AND DAMPERS ARE ACCESSIBLE.

8. MAINTAIN MINIMUM 6'-8" CLEARANCE TO UNDERSIDE OF PIPES, DUCTS, CONDUIT, SUSPENDED EQUIPMENT, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL AND ELECTRICAL ROOMS.

9. CERTAIN ITEMS SUCH AS CLEAN-OUTS, ACCESS DOORS, RISES AND DROPS IN DUCTWORK AND PIPING, ETC., ARE INDICATED ON THE DRAWINGS FOR CLARITY OR A SPECIFIC LOCATION REQUIREMENT AND SHALL NOT BE INTERPRETED AS THE EXTENT OF THE REQUIREMENTS FOR THOSE ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THESE ITEMS AS REQUIRED ELSEWHERE IN THE CONTRACT DOCUMENTS.

10. EQUIPMENT CONNECTION SIZES MAY DIFFER FROM INDICATED PIPE SIZES. PROVIDE APPROPRIATE TRANSITIONS WHERE REQUIRED.

11. THE DRAWINGS ARE DIAGRAMMATIC AND ALL OFFSETS, FITTINGS, TRANSITIONS AND ACCESSORIES ARE NOT NECESSARILY SHOWN. COORDINATE THE INSTALLATION OF ALL PIPING, EQUIPMENT AND OTHER WORK WITH ALL OTHER TRADES.

12. IT IS THE INTENT THAT ALL WORK SHALL BE COMPLETE IN EVERY RESPECT AND THAT MATERIAL OR WORK SPECIFICALLY NOT INDICATED ON THE DRAWINGS, BUT NECESSARY TO COMPLETE THE WORK, SHALL BE PROVIDED.

13. ALL AUTOMATIC TEMPERATURE CONTROL SETPOINTS SHALL BE ADJUSTABLE.

14. PROVIDE A MINIMUM OF 36-INCHES OF CLEARANCE TO ALL EQUIPMENT AT THE ELECTRICAL COMPONENT LOCATIONS.

15. CONTRACTOR IS PROHIBITED FROM ATTACHING TO THE ROOF DECK AND LOWER CHORD OF JOISTS AS A SUPPORT SYSTEM FOR DEVICES AND BUILDING SYSTEMS.

16. CONTRACTOR SHALL REPAIR ALL PENETRATION HOLES IN WALLS, FLOORS, CEILINGS AND ROOF AS A RESULT OF DEMOLITION WORK. REPAIRS SHALL MATCH ADJACENT CONSTRUCTION.

17. PROVIDE ALL NECESSARY COMPONENTS FOR U.L. LISTED THROUGH PENETRATION SYSTEM AT RATED WALL PENETRATIONS IN ORDER TO MAINTAIN THE REQUIRED ASSEMBLY RATING. REFER TO ARCHITECTURAL DRAWINGS FOR RATED ASSEMBLY LOCATIONS AND CONSTRUCTION.

18. MECHANICAL CONTRACTOR SHALL PROVIDE P/T PORTS ADJACENT TO ALL TEMPERATURE SENSORS FOR VERIFICATION TESTING. COORDINATE WITH THE ATC CONTRACTOR FOR LOCATIONS.

19. REFRIGERANTS SHALL BE RECOVERED FROM ALL REFRIGERATION EQUIPMENT IN ACCORDANCE WITH ARI AND SPA STANDARDS. RECOVERED REFRIGERANT SHALL BE PLACED IN APPROVED CONTAINERS LABELED IN ACCORDANCE WITH ARI AND EPA STANDARDS AND TURNED OVER TO THE OWNER.

GENERAL MECHANICAL LEGEND

SYMBOL	DEFINITION
Ø	DIAMETER
	CONNECT TO EXISTING
	DEMOLITION ENDS HERE
	DRAWING NOTE DESIGNATION
	FLAT OVAL

MECHANICAL PIPING LEGEND

SYMBOL	DEFINITION
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
CW	COLD WATER
HS	HEATING SUPPLY
HR	HEATING RETURN
	PIPE-TURN DOWN
	PIPE-TURN UP
	PIPE DROP INTO
	PIPE TAP INTO BOTTOM
	2-LINE PIPE DOWN
	2-LINE PIPE UP
	SOLENOID VALVE
	END CAP
	BLIND FLANGE
	DIRECTION OF FLOW
	GATE VALVE
	GLOBE VALVE
	BALL VALVE
	BALANCING VALVE
	MULTI-PURPOSE VALVE
	CHECK VALVE
	BUTTERFLY VALVE
	3-WAY MODULATING VALVE (ATC)
	2-WAY MODULATING VALVE (ATC)
	PRESSURE REDUCING VALVE
	NEEDLE VALVE
	PRESSURE RELIEF OR SAFETY VALVE
	HOSE END DRAIN VALVE
	STRAINER W/HOSE END DRAIN VALVE & CAP
	AUTOMATIC AIR VENT
	FLOW METER FITTING
	COMBINATION SHUT-OFF/BALANCING VALVE
	UNION
	FLANGE
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	FLEXIBLE CONNECTION (PIPING)
	MANUAL AIR VENT
	THERMOMETER
	PRESSURE GAUGE W/NEEDLE VALVE
	AUTOMATIC FLOW CONTROL VALVE
DPT	DIFFERENTIAL PRESSURE TRANSMITTER

MECHANICAL ABBREVIATIONS

ABBREV	DESCRIPTION
A	AMPS
AAV	AUTOMATIC AIR VENT
ABR	ABOVE FINISHED ROOF
ACCH	AIR-COOLED CHILLER
ACU	AIR CONDITIONING UNIT
ACV	AUTOMATIC CONTROL VALVE
AD	ACCESS DOOR
ADJ	ADJACENT/ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AMS	AIR FLOW MEASURING STATION
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ANC	ANCHOR
APD	AIR PRESSURE DROP
APG	AIR PRESSURE GAUGE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
AS	AIRFLOW SENSOR/AIR SEPARATOR
ATC	AUTOMATIC TEMPERATURE CONTROLS
AV	ACID VENT/AIR VENT
AVG	AVERAGE
AW	ACID WASTE
BAS	BUILDING AUTOMATION SYSTEM
BFP	BACKFLOW PREVENTOR
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BWF	BYPASS WATERFILTER
BWV	BACK WATER VALVE
CAP	CAPACITY
CC	COOLING COIL
CD	CONDENSATE DRAIN
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CIP	CAST IRON PIPE
CIRC	CIRCULATING
CL	CENTERLINE
CLG	CEILING/COOLING
CO	CLEANOUT/CARBON MONOXIDE SENSOR
CO_2	CARBON DIOXIDE SENSOR
COMB	COMBUSTION
COMP	COMPRESSOR
COND	CONDENSATE/CONDENSER/CONDENSING
COP	COEFFICIENT OF PERFORMANCE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CONDENSER WATER RETURN
CS	CONDENSER WATER SUPPLY/CURRENT SENSOR
CV	CONSTANT VOLUME
CW	COLD WATER
D	DAMPER/DEEP/DIA/DROP
DB	DECIBEL/DRY BULB
DEG	DEGREES
DESIG	DESIGNATION
DIA	DIAMETER
DN	DOWN
DOAS	DEDICATED OUTSIDE AIR SYSTEM
DP	DEW POINT/DIFFERENTIAL PRESSURE
DPS	DIFFERENTIAL PRESSURE SWITCH/SENSOR
DSHP	DUCTLESS SPLIT HEAT PUMP
DSS	DUCTLESS SPLIT SYSTEM
DWG	DRAWING
DWGS	DRAWINGS
DWH	DOMESTIC WATER HEATER
E	EAST/ELECTRICAL
EA	EACH/EXHAUST AIR
EAF	EXHAUST AIR FAN
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EFF	EFFICIENCY
EFT	ENTERING FLUID TEMPERATURE
EL	ELEVATION
ELEC	ELECTRIC/ELECTRICAL
ELEV	ELEVATION/ELEVATOR
EMER	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EMERGENCY STATION
ESP	EXTERNAL STATIC PRESSURE
ESS	EMERGENCY SHUTDOWN SWITCH
ET	EXPANSION TANK
ETR	EXISTING TO REMAIN
EVAP	EVAPORATOR
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
EXH	EXHAUST
EXP	EXPANSION
EXT	EXTERIOR
F	FAHRENHEIT/FAN/FIRE/FIRE LINE/FREEZESTAT
FA	FACE AREA/FREE AREA
FC	FLEXIBLE CONNECTION
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FIRE DAMPER/FLOOR DRAIN
FDV	FIRE DEPARTMENT VALVE
FF	FINISHED FLOOR
FLA	FULL LOAD AMPS
FLR	FLOOR
FM	FLOW METER/FACTORY MUTUAL GLOBAL
FOB	FLAT ON BOTTOM
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FPD	FLUID PRESSURE DROP
FPM	FEET PER MINUTE
FS	FLOW SWITCH
FT	FEET/FOOT
FV	FACE VELOCITY
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRADE
H	HEIGHT/HIGH/HUMIDITY SENSOR
HC	HEATING COIL
HD	HEAD
HOA	HAND-OFF-AUTOMATIC SWITCH
HP	HIGH PRESSURE/HORSEPOWER
HR	HEATING RETURN/HOUR
HS	HEATING SUPPLY/HIGH SCHOOL
HTG	HEATING
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
HW	HOT WATER
HWG	HOT WATER GENERATOR
HWR	HOT WATER RETURN
HZ	HERTZ

MECHANICAL ABBREVIATIONS

ABBREV	DESCRIPTION
IN	INCH/INCHES
INSUL	INSULATION/INSULATED
INT	INTERIOR
INV	INVERT
IPLV	INTEGRATED PART LOAD VALUE
IPS	IRON PIPE SIZE
IT	INFORMATION TECHNOLOGY
IW	INDIRECT WASTE
KW	KILOWATT
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LFT	LEAVING FLUID TEMPERATURE
LRA	LOCKED ROTOR AMPS
LWT	LEAVING WATER TEMPERATURE
M	MECHANICAL
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MER	MECHANICAL EQUIPMENT ROOM
MIN	MINIMUM
MISC	MISCELLANEOUS
MOCP	MAXIMUM OVERCURRENT PROTECTION
MOD	MOTOR-OPERATED DAMPER
MTD	MOUNTED
MTG	MOUNTING
MV	MIXING VALVE
N	NORTH
N/A	NOT APPLICIBLE
NC	NOISE CRITERIA/NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN/NUMBER
NOM	NOMINAL
NPLV	NON-STANDARD PART LOAD VALUE
NPSH	NET POSITIVE SUCTION HEAD
NPSHA	NET POSITIVE SUCTION HEAD AVAILABLE
NPSHR	NET POSITIVE SUCTION HEAD REQUIRED
NPW	NON-POTABLE WATER
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OC	ON CENTER
OED	OPEN-END DUCT
OH	OVERHEAD
OPER	OPERATING/OPERATOR
OPP	OPPOSITE
P	PIPE/PLUMBING FIXTURE TYPE/PRESSURE
PD	PRESSURE DROP/PUMP DISCHARGE
PH	PHASE
PHC	PREHEAT COIL
PL	PLATE/PILOT LIGHT
PPM	PARTS PER MILLION
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	PRESSURE-POUNDS PER SQUARE INCH
PSIG	PRESSURE-POUNDS PER SQUARE INCH, GAGE
PVC	POLYVINYL CHLORIDE
R	REGISTER/RISE
RA	RETURN AIR
RAD	RADIUS
RAF	RETURN AIR FAN
REFRIG	REFRIGERANT/REFRIGERATION
REG	REGISTER/REGULATOR
REQD	REQUIRED
RET	RETURN
RH	REHEAT/RELATIVE HUMIDITY
RHC	REHEAT COIL
RL	REFRIGERANT LIQUID
RLA	RUNNING LOAD AMPS
RM	ROOM
ROCP	RECOMMENDED OVERCURRENT PROTECTION
RPBP	REDUCED PRESSURE BACKFLOW PREVENTOR
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SENSOR/REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
RV	RELIEF VALVE
RX	REMOVE EXISTING
S	SOUTH/SWITCH/SUCTION
SA	SOUND ATTENUATOR/SUPPLY AIR
SAN	SANITARY
SD	SMOKE DAMPER/SMOKE DETECTOR
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SENS	SENSIBLE COOLING
SF	SQUARE FEET/SQUARE FOOT
SH	SHOWER
SHGC	SOLAR HEAT GAIN COEFFICIENT
SHR	SENSIBLE HEAT RATIO
SP	SPRINKLER PIPING/STATIC PRESSURE SENSOR
SQ	SQUARE
SS	SERVICE SINK/STAINLESS STEEL
SST	SATURATION SUCTION TEMPERATURE
STD	STANDARD
STL	STEEL
SW	STORM WATER
T	TEMPERATURE SENSOR
TAO	TRANSFER AIR OPENING
TEMP	TEMPERATURE/TEMPORARY
TOT	TOTAL
TP	TOTAL PRESSURE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UH	UNIT HEATER
UTE	UNEQUAL THROAT ELBOW
UV	ULTRA VIOLET/UNIT VENTILATOR
V	VACUUM/VALVE/VENT/VOLTS
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VEL	VELOCITY
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VSD	VARIABLE SPEED DRIVE
WB	WET BULB
WH	WATER HEATER

PUMP SCHEDULE

UNIT P-X	AREA SERVED	GPM	FT OF HEAD	MOTOR HP	MOTOR RPM	MOTOR V/ø/Hz	EFFICIENCY %	SIZE (SxD)	REMARKS	BASED ON (TACO)
P-4	PRIMARY CHILLED WATER	875	40	20	1760	460/3/60	82	5x6x9.5	SPLIT CASE	TACO TA1224
P-5	PRIMARY CHILLED WATER (SB)	875	40	20	1760	460/3/60	82	5x6x9.5	SPLIT CASE	TACO TA1224
P-6	PRIMARY CHILLED WATER	875	40	20	1760	460/3/60	82	5x6x9.5	SPLIT CASE	TACO TA1224
P-7	SECONDARY CHILLED WATER	870	110	40	1760	460/3/60	78	5x6x12	SPLIT CASE	TACO TA1230
P-8	SECONDARY CHILLED WATER	870	110	40	1760	460/3/60	78	5x6x12	SPLIT CASE	TACO TA1230

NOTES:
1. PROVIDE VARIABLE SPEED DRIVES AND INVERTED DUTY MOTORS FOR PUMPS.
2. SB = STANDBY SERVICE.
3. PUMPS P-4, P-5, & P-6 TO BE REPLACED UNDER ALTERNATE NO. 1. (1)

AIR-COOLED CHILLER SCHEDULE

CHILLER Nº	TONS	MAX KW	No. OF COMP.	REFRIG. TYPE	FLUID	EFT (°F)	LFT (°F)	GPM	No. oF PASSES	MAX. FPD	EAT (°F)	PERFORMANCE EER (FL)	PERFORMANCE MAX IPLV (BTU/Wh)	SINGLE POINT ELECTRICAL RLA	LRA	MCA	MOCP	V	PH	Hz	REMARKS	BASIS OF DESIGN
1	400	468	2	R-513A	WATER	53	42	899.1	2	18.4	95.0	10.3	18.9	-	-	842	1000	480	3	60	1, 2, 3, 4	Carrier 30XV450S
2	400	468	2	R-513A	WATER	53	42	899.1	2	18.4	95.0	10.3	18.9	-	-	842	1000	480	3	60	1, 2, 3, 4	Carrier 30XV450S

(1)

NOTES:
1. COMP 1: 14.7A RLA; COMP 2: 14.7A RLA; COMP 3: 165A RLA.
2. EACH CONDENSER FAN: 2.8A FLA.
3. UNIT STARTERS SHALL BE VSD & LOCATED ON CHILLERS.
4. CHILLER WEIGHT: 27500 LBS
5. REPLACE FACTORY PROVIDED AUTOMATED ISOLATION VALVES WITH REFRIDGERATION CHECK & ISOLATION VALVES

REVISIONS

NO.	DATE	DESCRIPTION
1	11.28.23	ADDENDUM NO. 2

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 35222, EXPIRATION DATE: 01/05/2024.

STATE OF MARYLAND · MICHAEL NOTARANGELO · No. 35222 · PROFESSIONAL ENGINEER

Gipe Associates Inc.
Consulting Engineers

1220 East Joppa Road, Suite 223, Towson, MD. 21286, Phone: 410/832-2420, Fax: 410/832-2418

8719 Brooke Drive, Suite 2-5, Easton, Maryland 21601, Phone: 410/822-8688, Fax: 410/822-6306

WO# 22082

PROJECT MANAGER: MPN

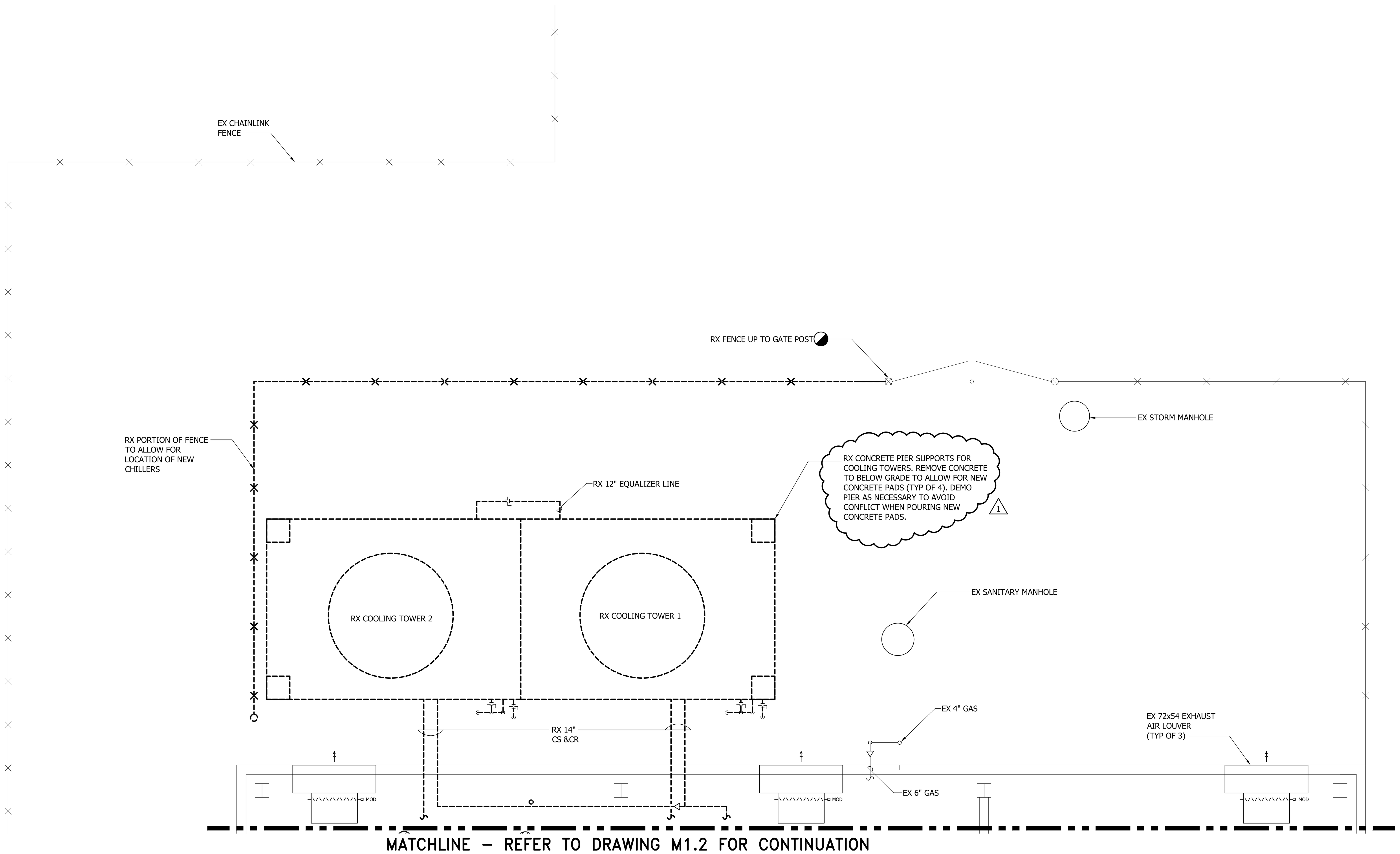
DESIGNER: PGB

PSC#: 07.042.23

MECHANICAL LEGEND, SCHEDULES & ABBREVIATIONS
CECIL SCHOOL OF TECHNOLOGY CHILLER REPLACEMENT
CECIL COUNTY PUBLIC SCHOOLS

100% IAC SUBMISSION
06/16/2023

M0.0



1
M1.2

COURTYARD PART PLAN - DEMOLITION

SCALE: 1/4" = 1'-0"

SCALE: 1/4" = 1'-0"
4 0 4 8

REVISIONS

NO.	DATE	DESCRIPTION
1	11.28.23	ADDENDUM NO. 2

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 35222, EXPIRATION DATE: 01/05/2024.

Gipe Associates Inc.
Consulting Engineers
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8719 Brooks Drive, Suite 2-5, Easton, Maryland 21601, Phone: 410/822-8688, Fax: 410/822-6306

WO# 22082

PROJECT MANAGER	MPN
DESIGNER	PGB
PSC#:	07.042.23

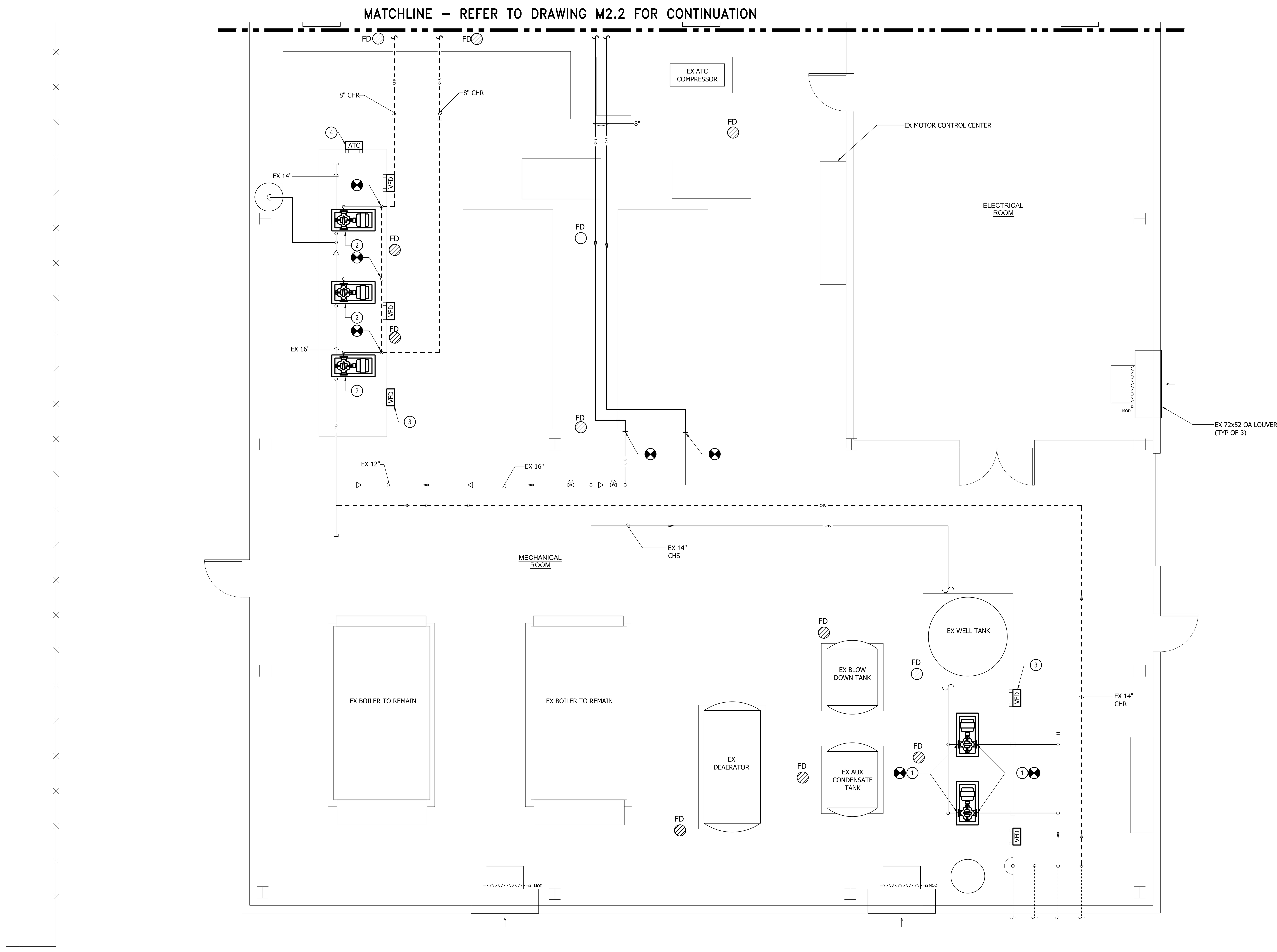
COURTYARD PART PLAN - DEMOLITION
CECIL SCHOOL OF TECHNOLOGY CHILLER REPLACEMENT
CECIL COUNTY PUBLIC SCHOOLS

100% IAC SUBMISSION 06/16/2023

M1.2

DRAWING NOTES

1. CONNECT PUMPS P-7 & P-8 TO EXISTING PIPE CONNECTION.
2. CONNECT PUMPS P-4, P-5, & P-6 TO EXISTING PIPING. REPLACEMENT OF PUMPS IS INCLUDED IN ALTERNATE 1. (Revision 1)
3. INSTALL VFDs ON KINDORF SUPPORT. TYP OF 5.
4. INSTALL ATC PANEL ON KINDORF SUPPORT.



1 / M2.1 — MECHANICAL ROOM PART PLAN - NEW WORK

SCALE: 1/4" = 1'-0"

SCALE: 1/4" = 1'-0"

NO.	DATE	DESCRIPTION
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STATE OF MARYLAND — MICHAEL NOTARANGELO — No. 35222 — PROFESSIONAL ENGINEER

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WO# 22082

PROJECT MANAGER: MPN

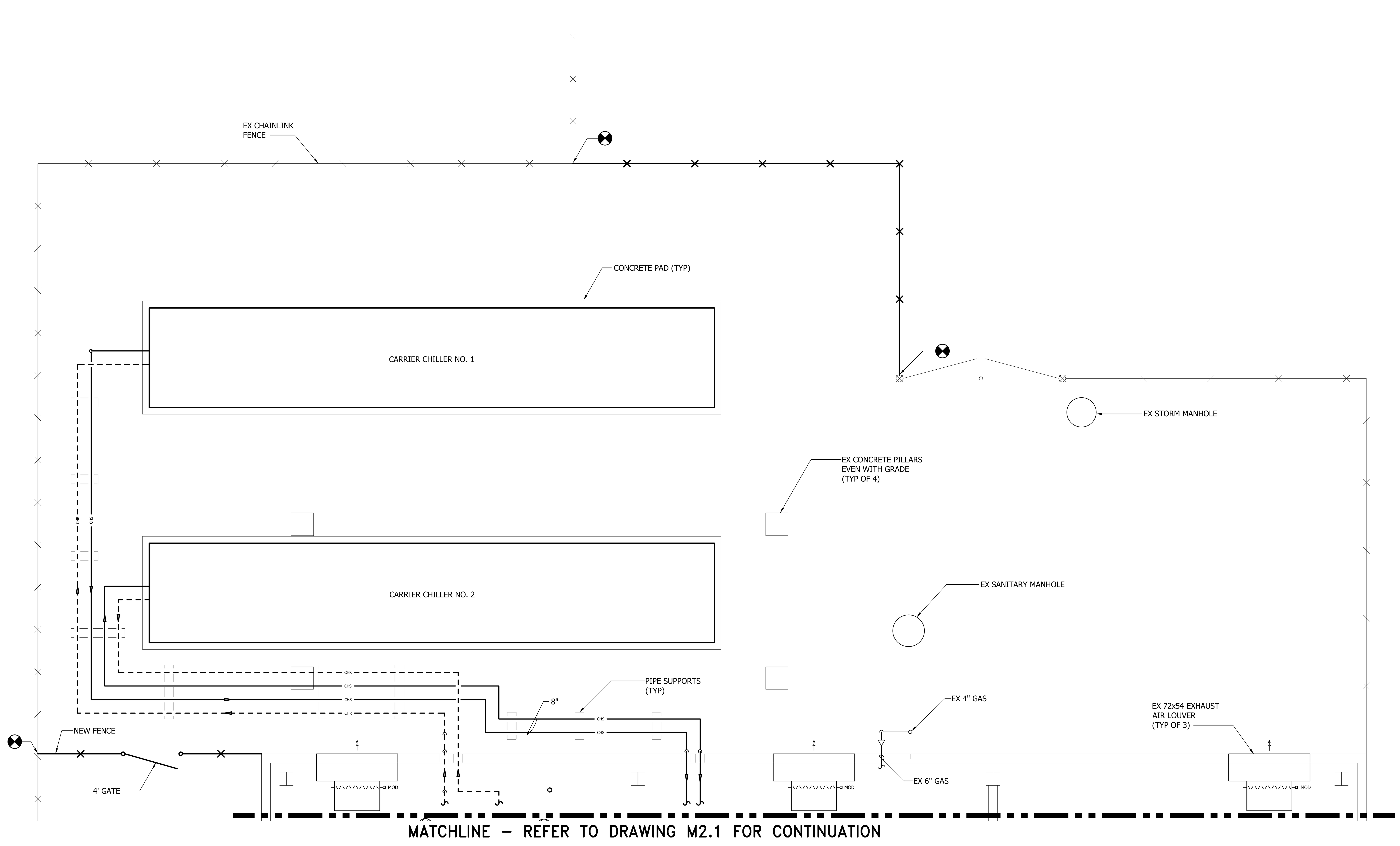
DESIGNER: PGB

PSC#: 07.042.23

MECHANICAL ROOM PART PLAN - NEW WORK
CECIL SCHOOL OF TECHNOLOGY CHILLER REPLACEMENT
CECIL COUNTY PUBLIC SCHOOLS

100% IAC SUBMISSION 06/16/2023

M2.1



1 M2.2 COURTYARD PART PLAN - NEW WORK
SCALE: 1/4" = 1'-0"

SCALE: 1/4" = 1'-0"

REVISIONS		
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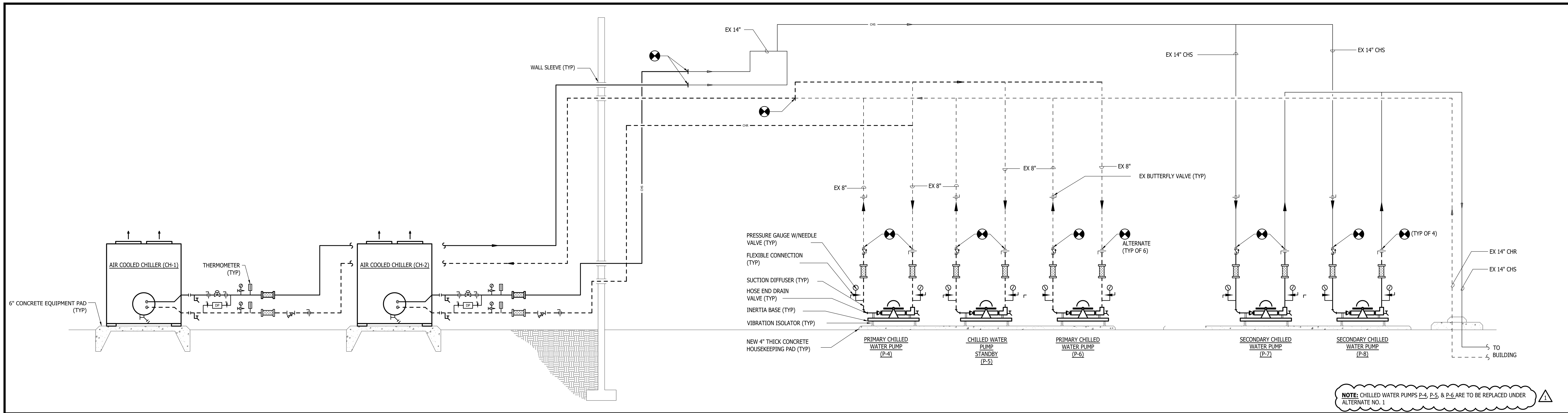
WO# 22082

PROJECT MANAGER	MPN
DESIGNER	PGB
PSC#:	07.042.23

COURTYARD PART PLAN - NEW WORK
CECIL SCHOOL OF TECHNOLOGY CHILLER REPLACEMENT
CECIL COUNTY PUBLIC SCHOOLS

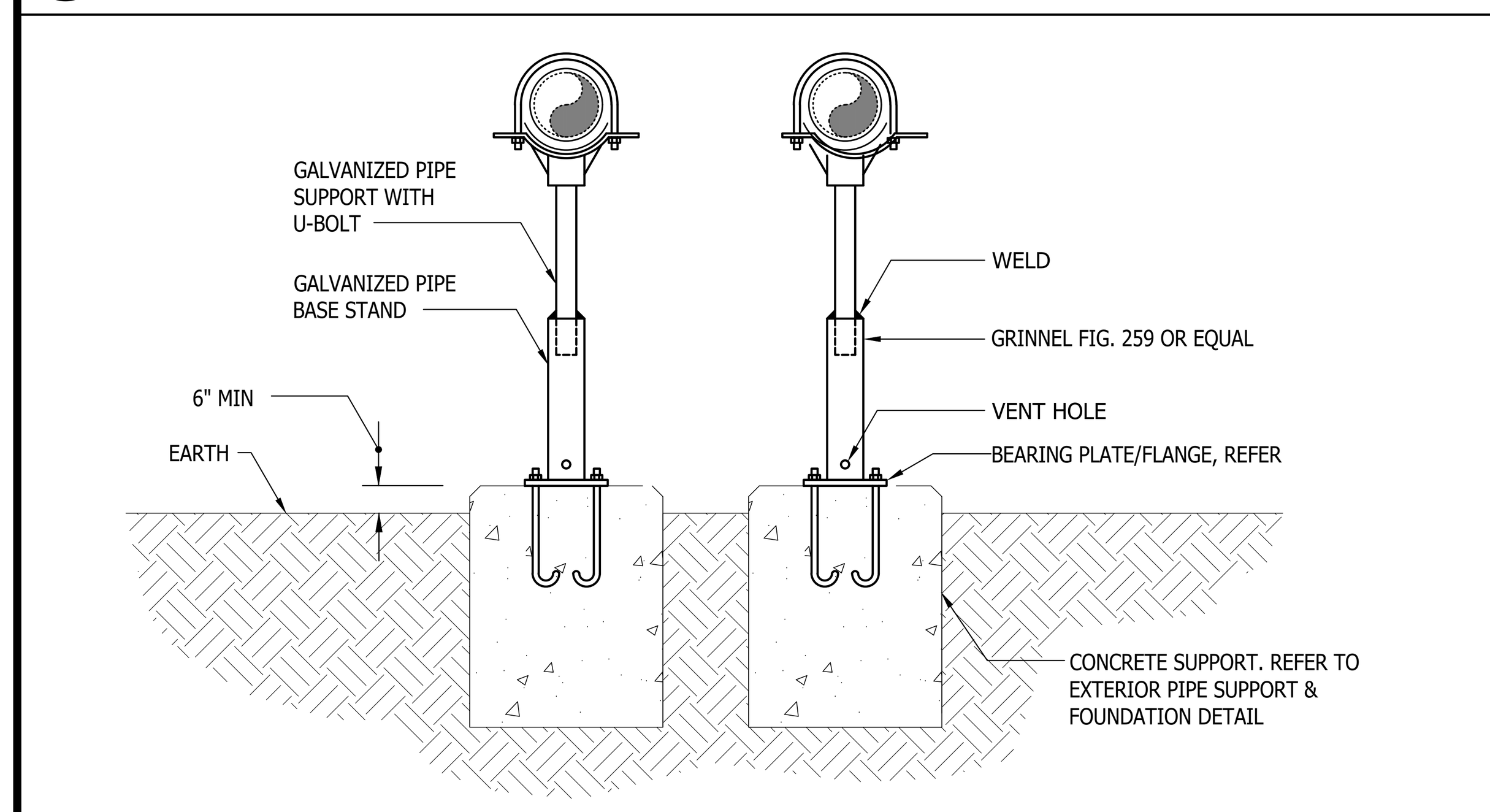
100% IAC SUBMISSION 06/16/2023

M2.2



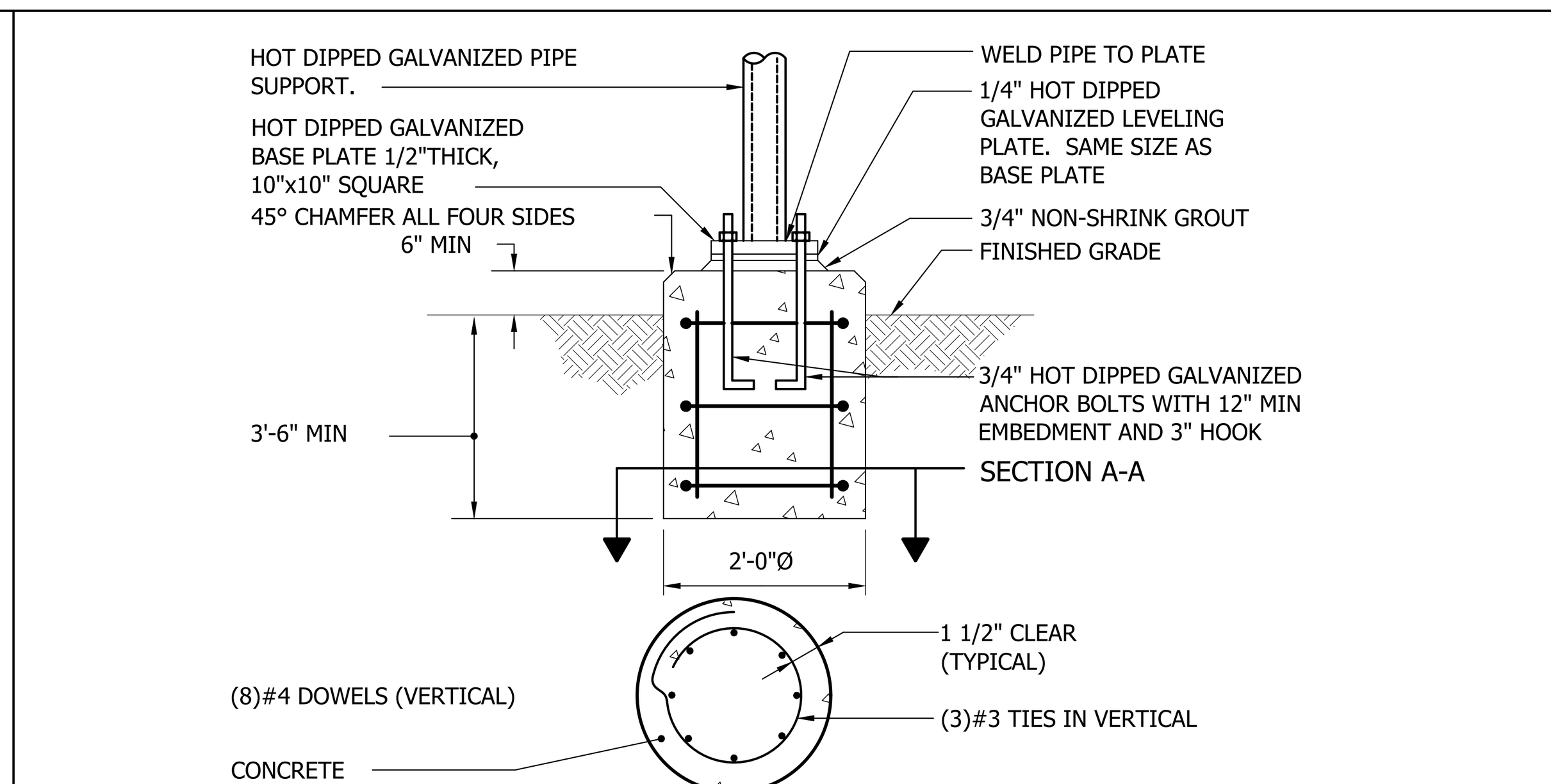
1 CHILLED WATER SYSTEM PIPING SCHEMATIC

SCALE: NONE



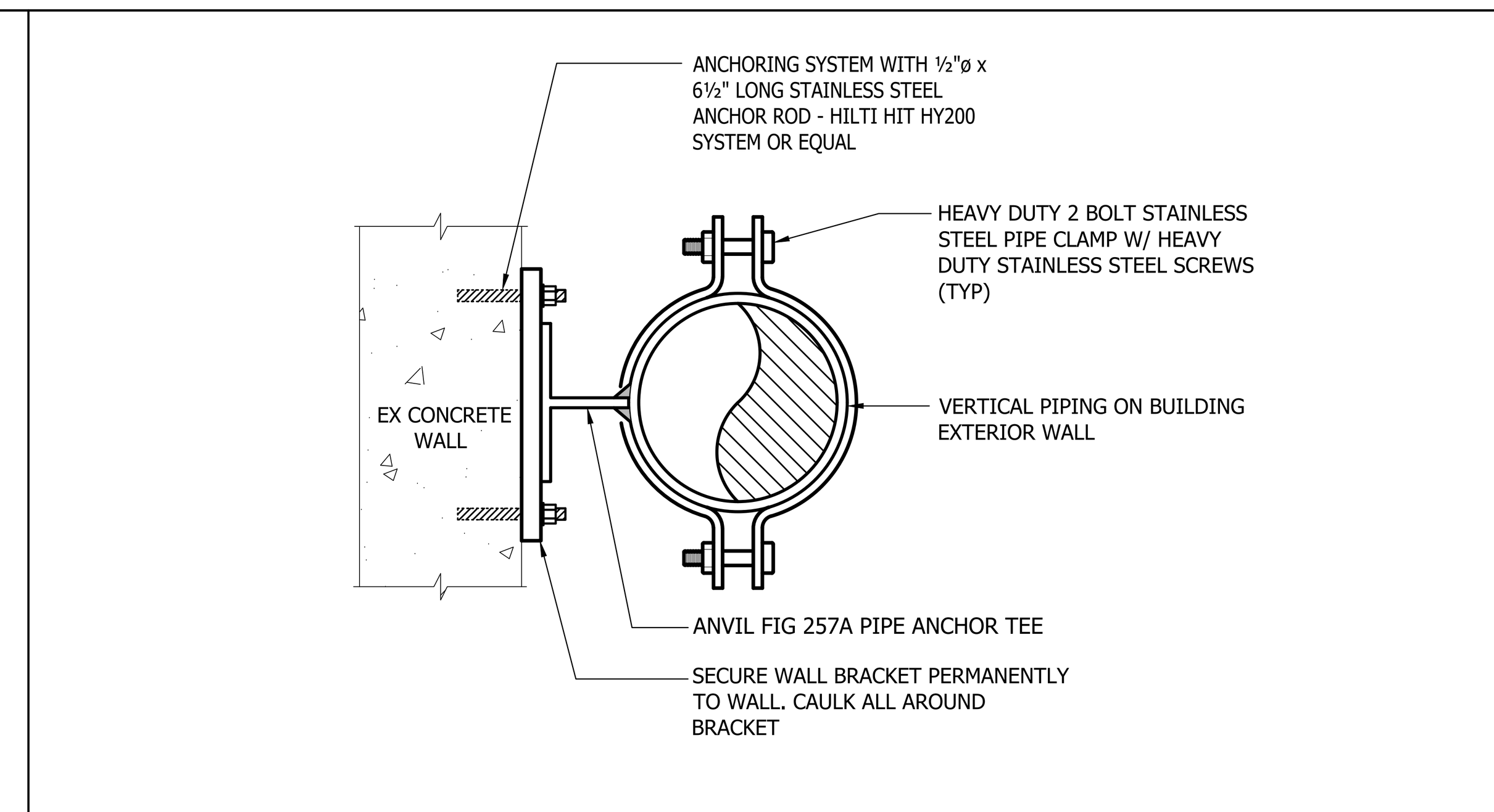
2 TYPICAL EXTERIOR PIPE SUPPORT DETAIL

SCALE: NONE



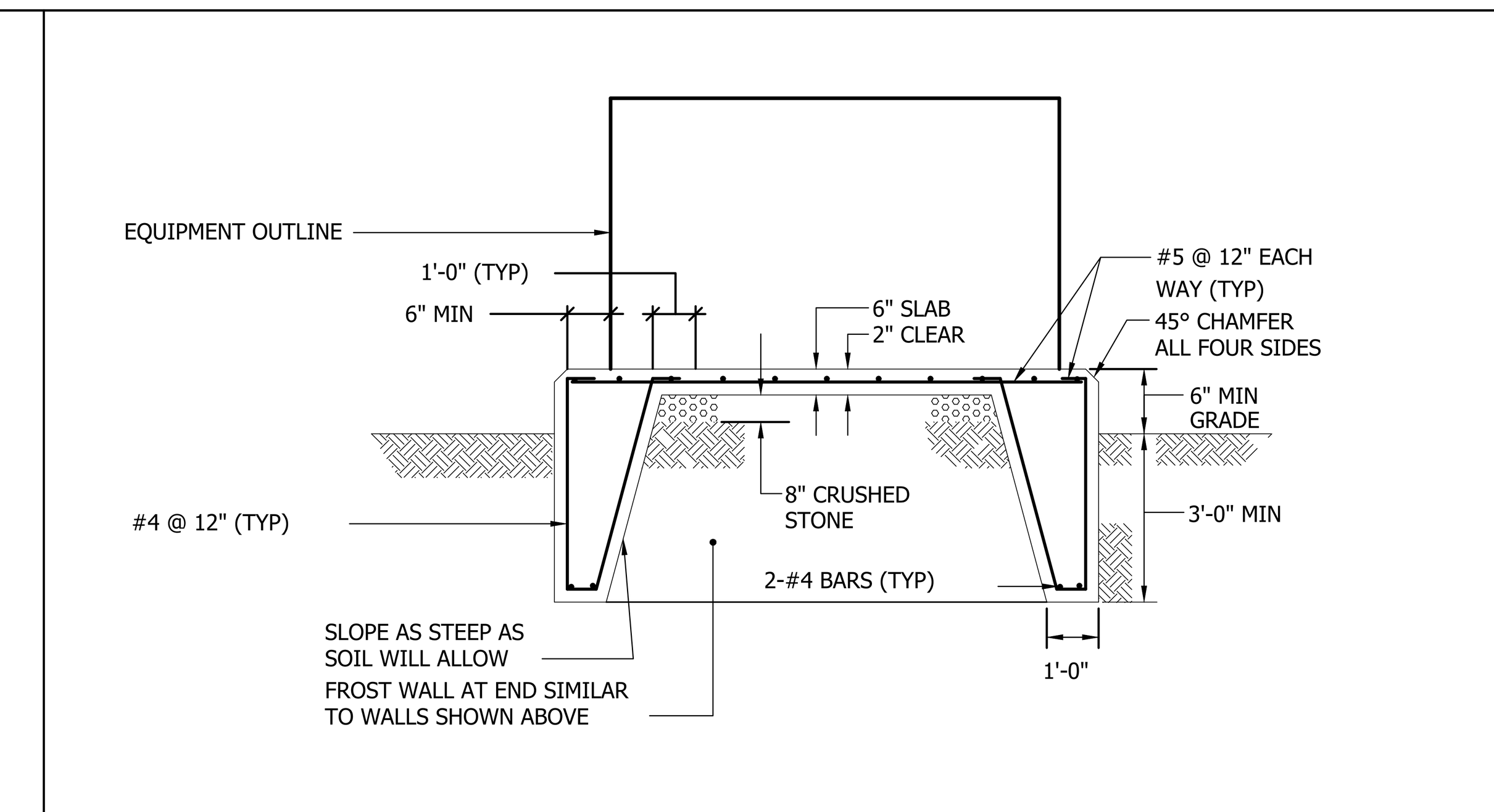
3 TYPICAL EXTERIOR PIPE SUPPORT FOUNDATION DETAIL

SCALE: NONE



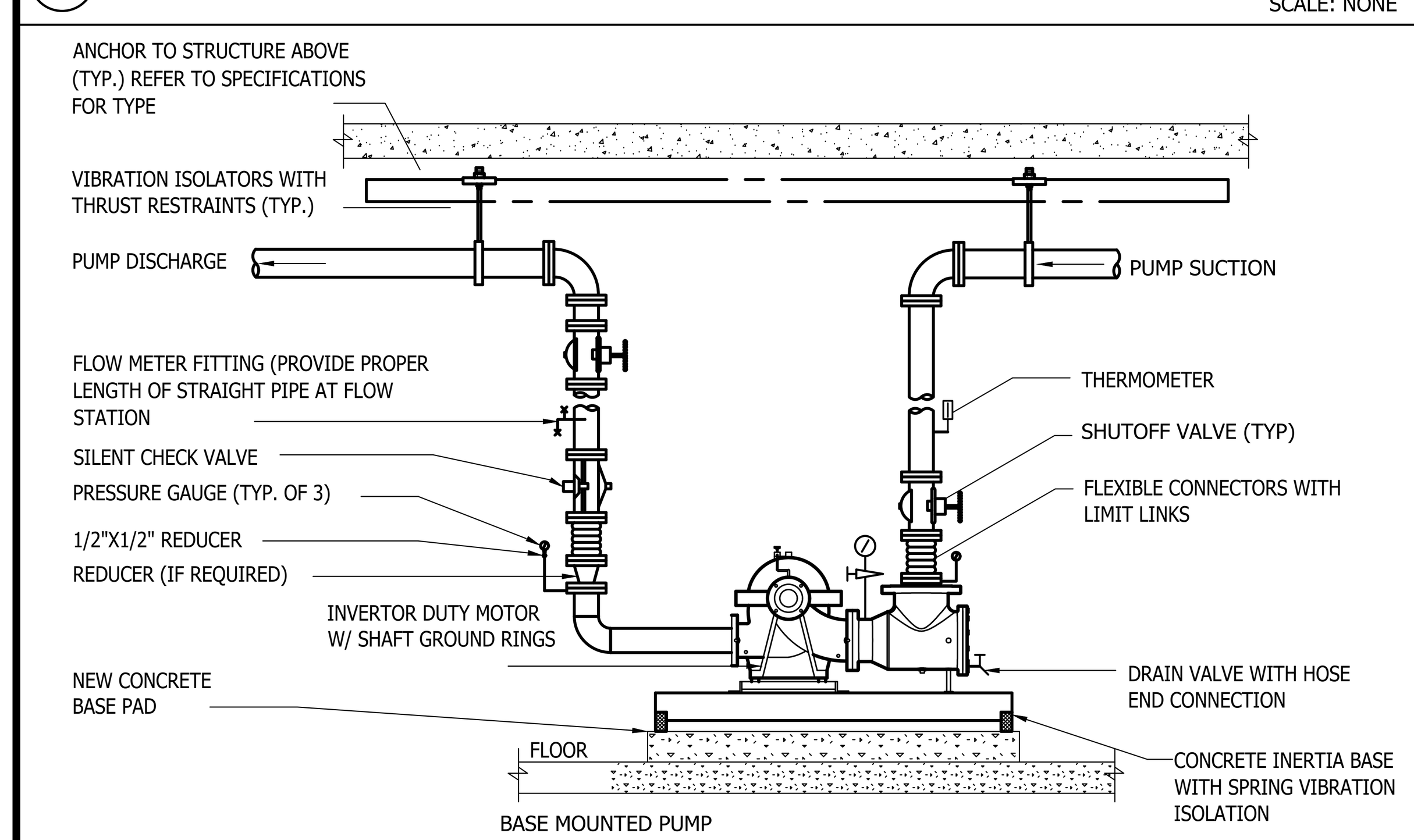
4 TYPICAL EXTERIOR VERTICAL PIPE SUPPORT FROM CONCRETE WALL DETAIL

SCALE: NONE



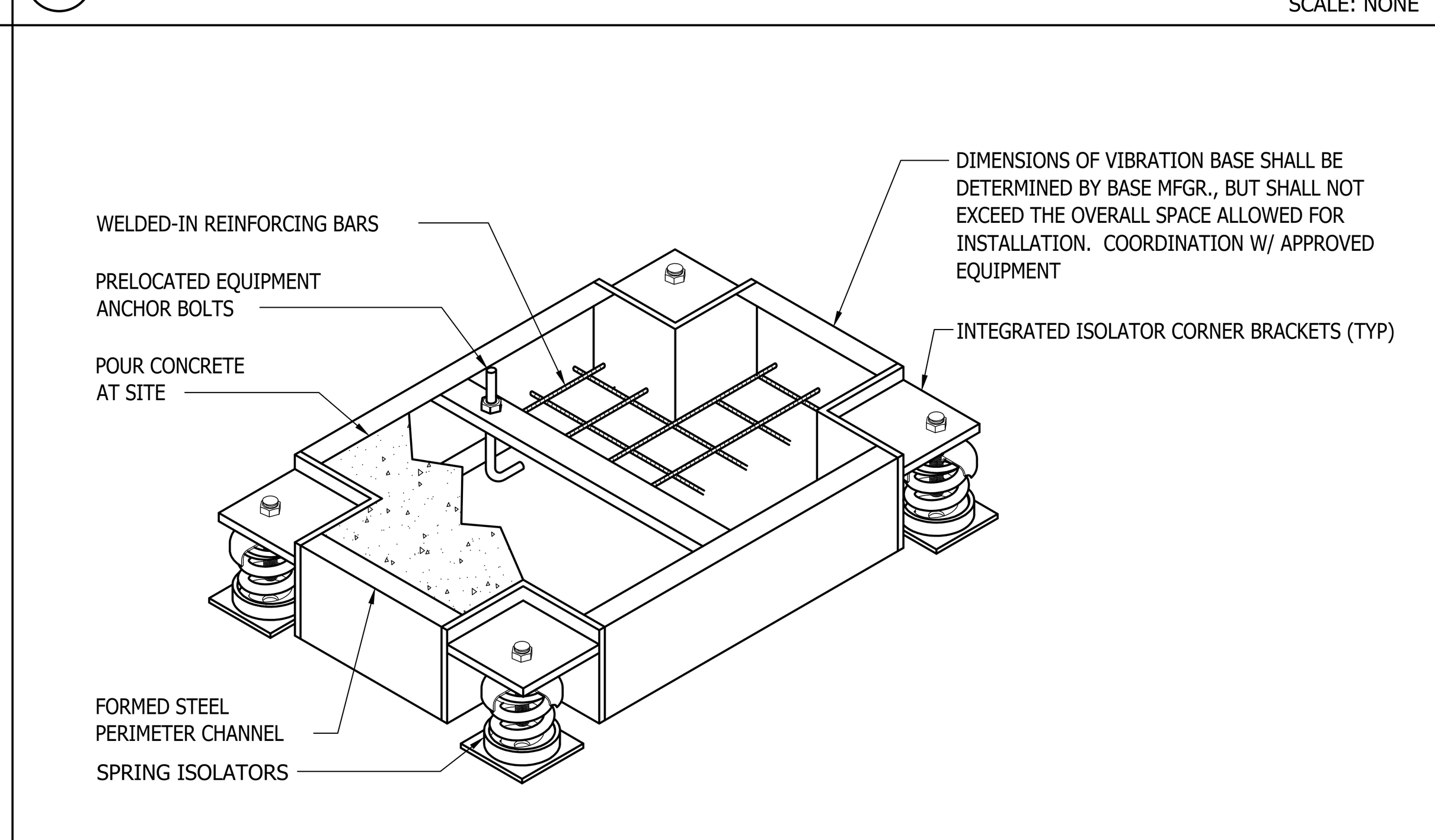
5 CONCRETE EQUIPMENT PAD DETAIL

SCALE: NONE



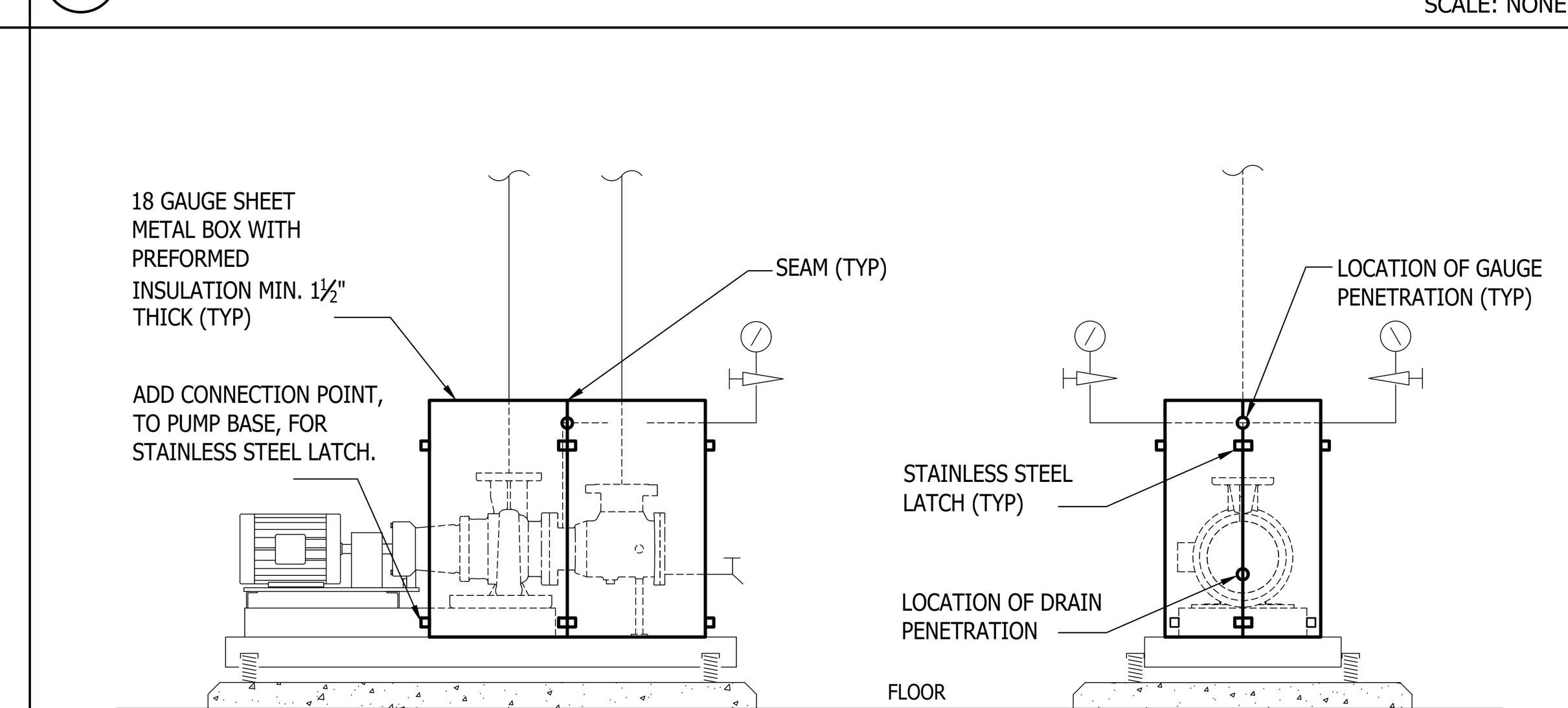
6 BASE MOUNTED VARIABLE SPEED END SUCTION PUMP DETAIL

SCALE: NONE



7 BASE MOUNTED CONSTANT SPEED END SUCTION PUMP DETAIL

SCALE: NONE

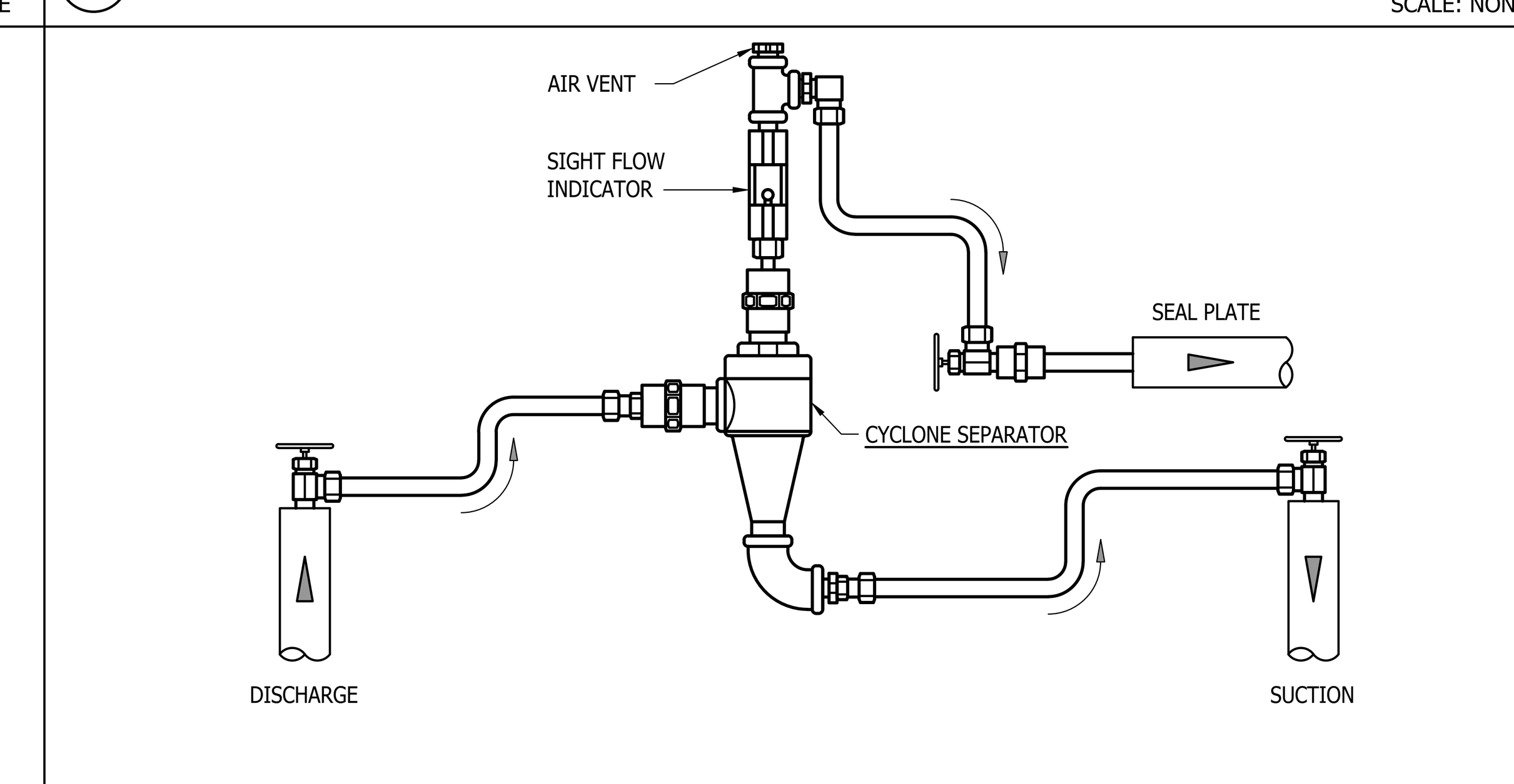


NOTE:

ALL FOUR SECTIONS TO BE EASILY REMOVED TO SERVICE PUMP.

8 BASE MOUNTED END SUCTION PUMP INSULATION BOX DETAIL

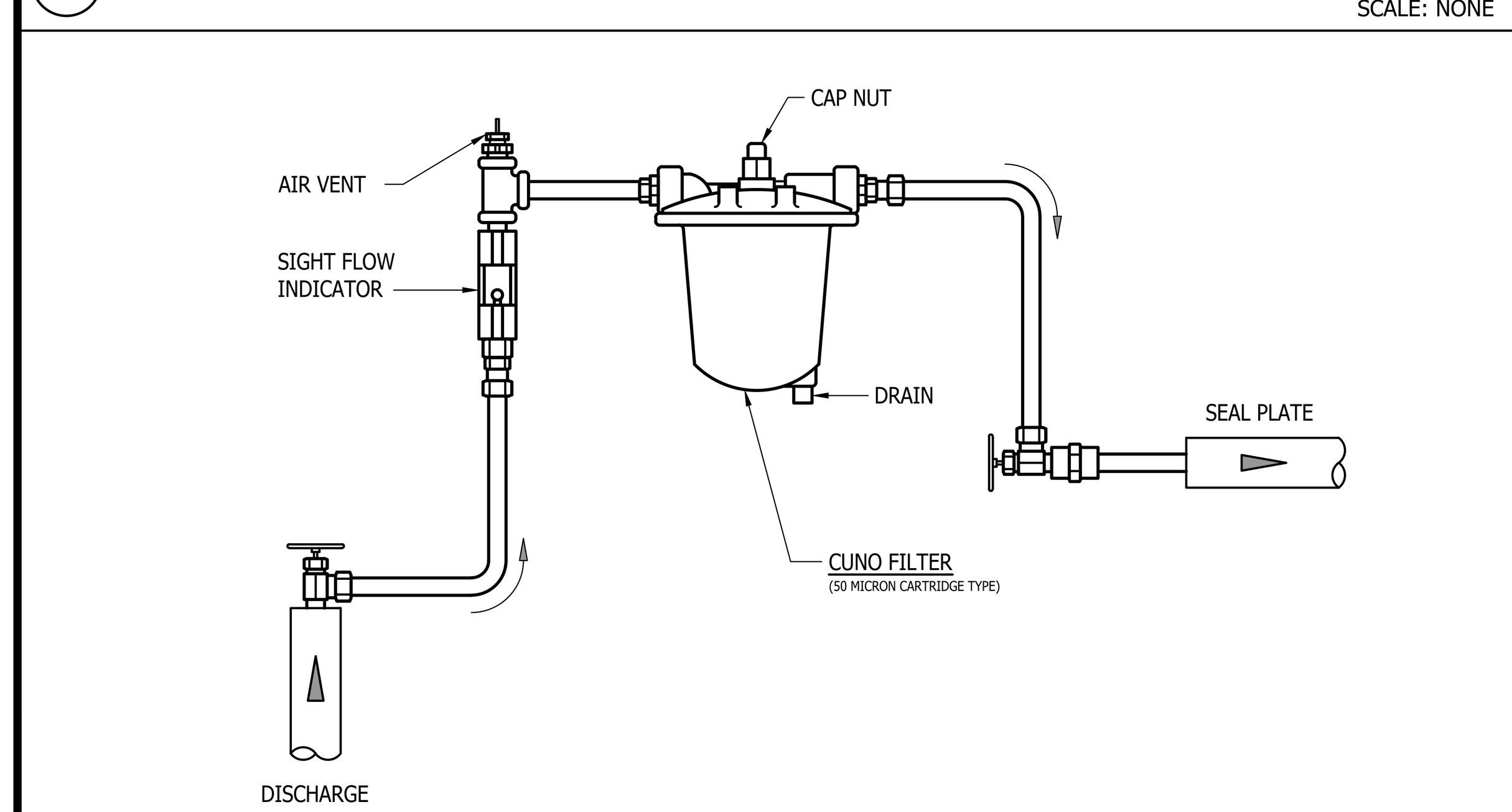
SCALE: NONE



NOTE: FOR USE ON PUMPS LESS THAN 220°F & >30 PSI (DIFFERENTIAL PRESSURE ACROSS THE PUMP).

9 CYCLONE SEPARATOR w/ SIGHT FLOW INDICATOR DETAIL

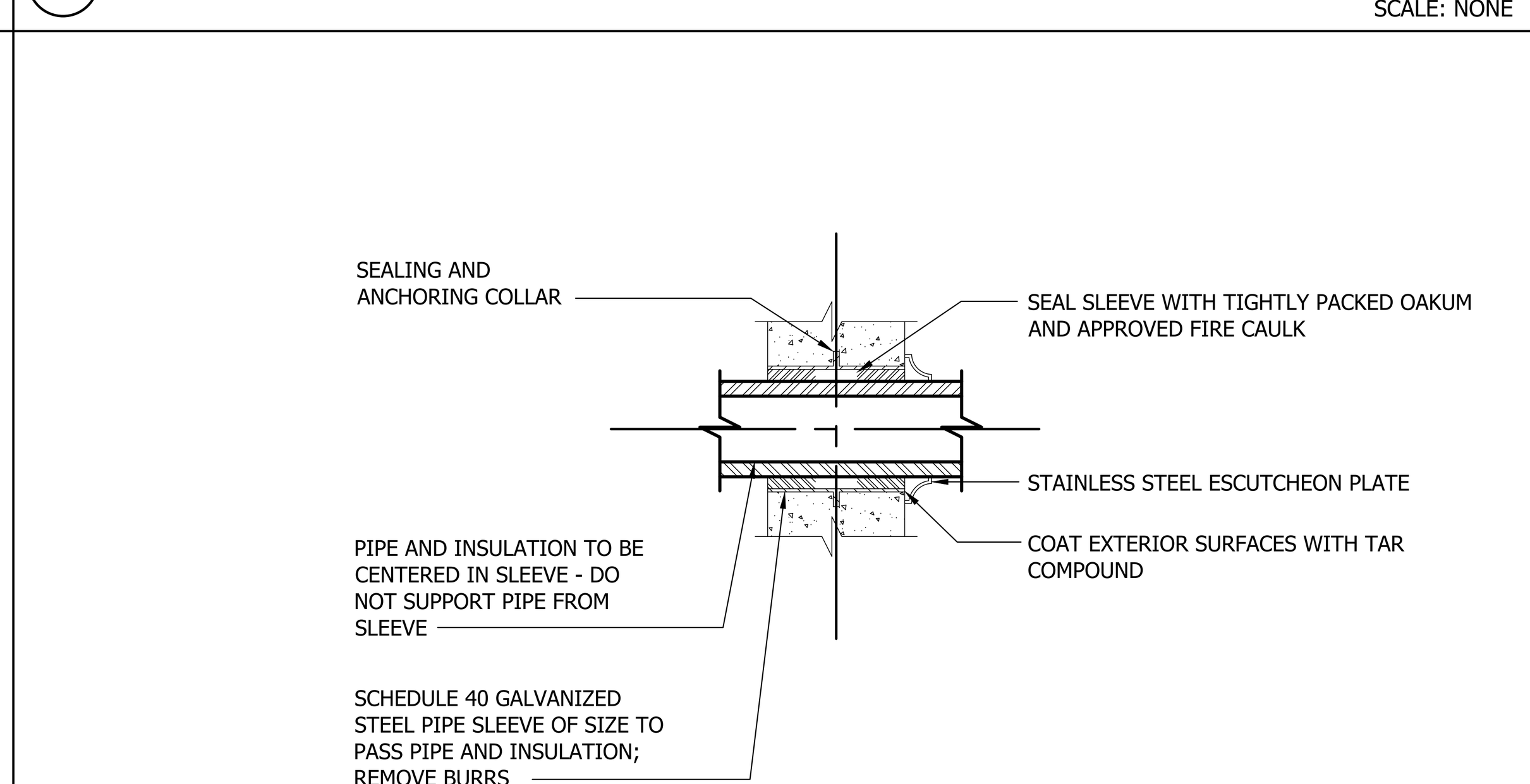
SCALE: NONE



NOTE: FOR USE ON PUMPS LESS THAN 220°F & <30 PSI (DIFFERENTIAL PRESSURE ACROSS THE PUMP).

10 CUNO FILTER w/ SIGHT FLOW INDICATOR DETAIL

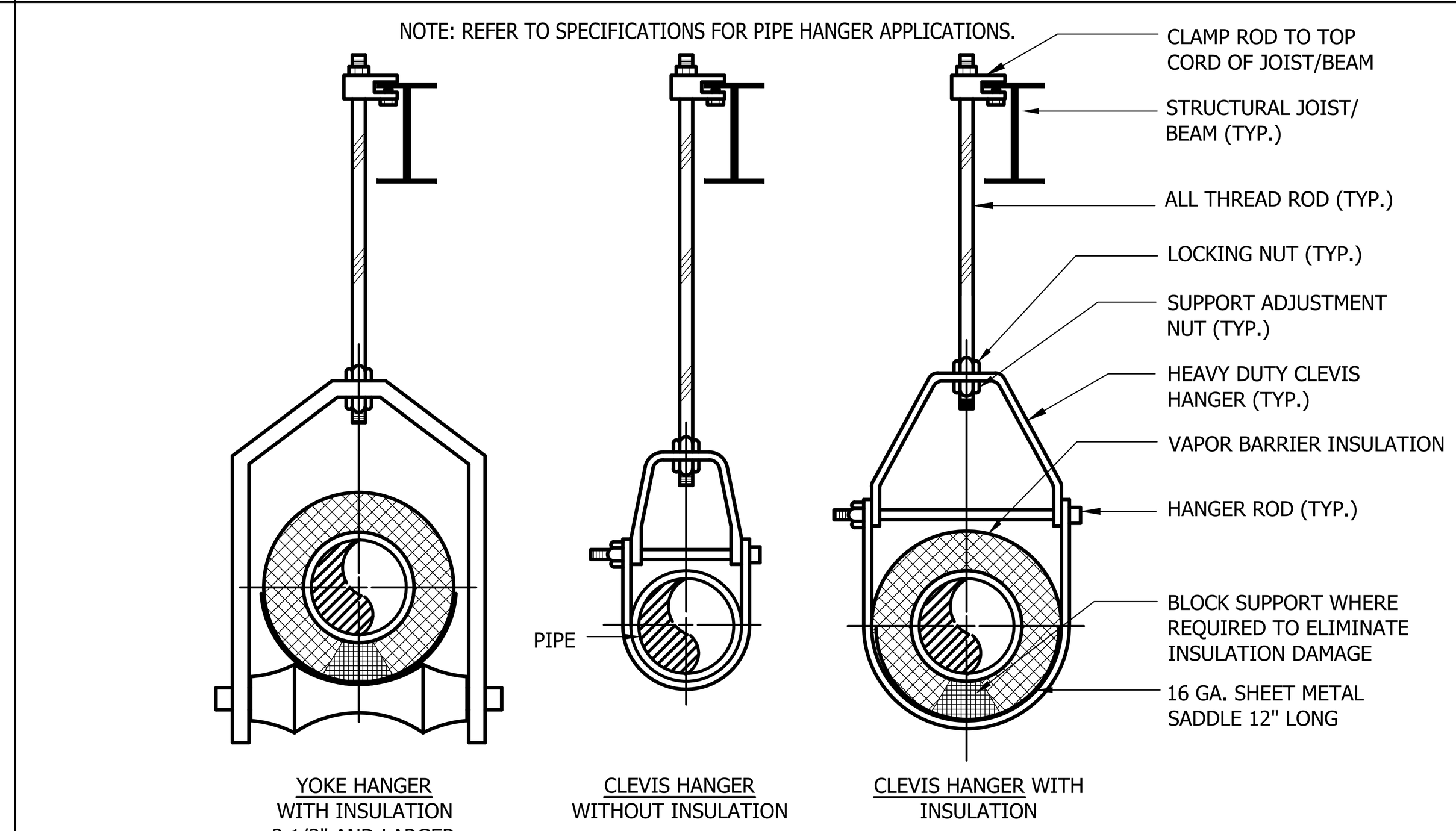
SCALE: NONE



11 TYPICAL PIPE SLEEVE THRU EXTERIOR WALL ABOVE GRADE DETAIL

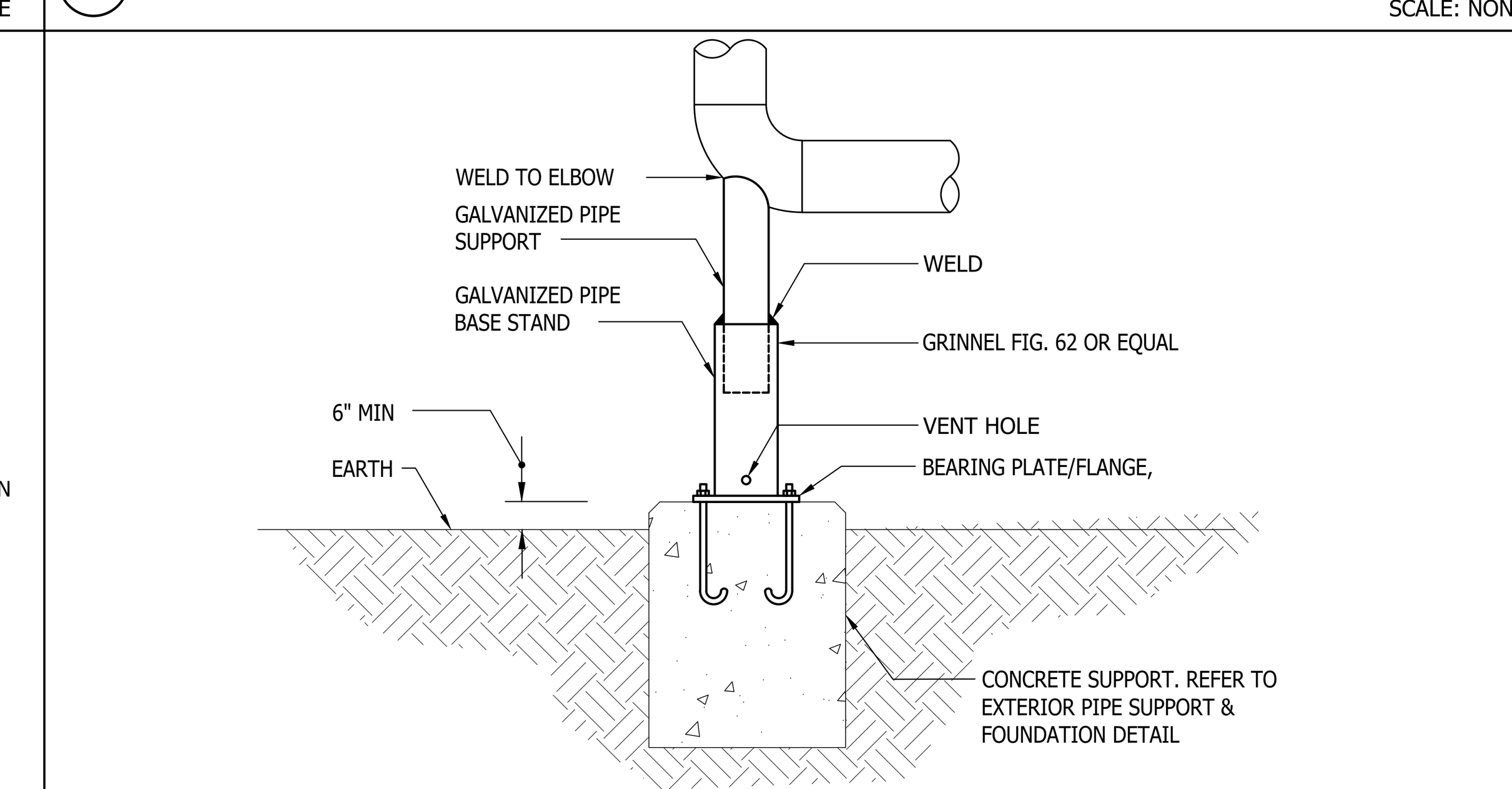
SCALE: NONE

NOTE: REFER TO SPECIFICATIONS FOR PIPE HANGER APPLICATIONS.



12 TYPICAL PIPE SUPPORT DETAIL

SCALE: NONE



NOTE:
1. ALL SUPPORTS SHALL BE GALVANIZED STEEL.
2. ALL BOLTS, NUTS, THREAD RODS, WASHERS, ETC. SHALL BE STAINLESS STEEL.
3. PROVIDE ½" THICK ARMAFLEX INSULATION ON PIPE STANDS.

13 TYPICAL EXTERIOR PIPE STANCHION DETAIL

SCALE: NONE

REVISIONS

NO.	DATE	DESCRIPTION
2	11.28.23	ADDENDUM NO. 2

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8719 Brooks Drive, Suite 2-5, Easton, Maryland 21601

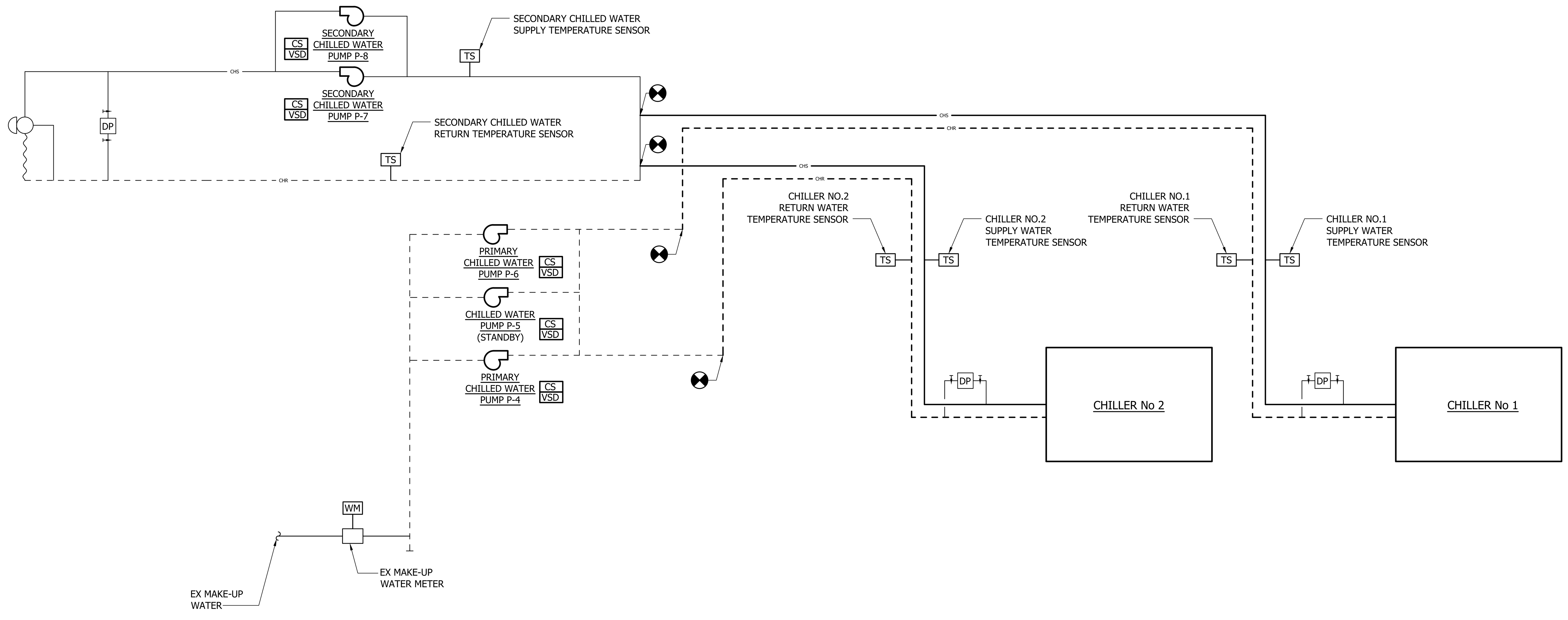
WO# 22082

PROJECT MANAGER	MPN
DESIGNER	PGB
PSC#:	07.042.23

MECHANICAL DETAILS
CECIL SCHOOL OF TECHNOLOGY CHILLER REPLACEMENT
CECIL COUNTY PUBLIC SCHOOLS

100% IAC SUBMISSION 06/16/2023

M4.1



NOTE: CHILLED WATER PUMPS P-4, P-5, & P-6 ARE TO BE REPLACED UNDER ALTERNATE NO. 1. △1

CHILLED WATER SYSTEM CONTROL DIAGRAM

1. GENERAL:

   A. THE CHILLED WATER SYSTEM SHALL BE STARTED AND STOPPED THROUGH THE ENERGY MANAGEMENT SYSTEM (EMS). PROVIDE A HAND-OFF-AUTOMATIC (H-O-A) SWITCH THAT LOCALLY OVERRIDES THE EMS TO MANUALLY START OR STOP THE SYSTEM ON THE ATC PANEL. WHEN THE SWITCH IS INDEXED TO THE "HAND" OR "OFF" POSITION THE CHILLER AND ASSOCIATED CHILLED WATER PUMP SHALL START OR STOP RESPECTFULLY. WHEN THE H-O-A SWITCH IS INDEXED TO THE "AUTOMATIC" POSITION THE SYSTEM SHALL AUTOMATICALLY START THE CHILLER TO MAINTAIN CAPACITY AS REQUIRED BY THE SEQUENCE OF OPERATION. THE SYSTEM H-O-A SWITCH SHALL BE MONITORED THROUGH THE EMS.

   B. THE CHILLED WATER LOOP SHALL BE PROVIDED WITH A FLOW METER. THE FLOW METER IN CONJUNCTION WITH ASSOCIATED TEMPERATURE SENSORS SHALL BE USED TO CALCULATE THE CAPACITY OF THE EQUIPMENT AND/OR LOOP.

   C. COORDINATE ALL CONTROLS WITH EQUIPMENT MANUFACTURERS INCLUDING CHILLER(S), VARIABLE SPEED DRIVE(S), DIFFERENTIAL PRESSURE SENSORS, FLOW METERS, ETC.

   D. COORDINATE AND INTERLOCK ALL CONTROLS WITH THE CHILLER CONTROL PANEL AND CHILLER MANUFACTURER RECOMMENDATIONS. THE ATC CONTRACTOR SHALL PROVIDE INTERLOCK WIRING FOR THE VARIABLE SPEED DRIVES AND ALL DEVICES NECESSARY FOR A COMPLETE OPERATIONAL SYSTEM.

   E. EACH PUMP SHALL BE PROVIDED WITH A LOCAL HAND - OFF - AUTOMATIC SWITCH ON THE ATC PANEL.

   F. WHEN THE CHILLER IS SHUTDOWN MANUALLY OR AUTOMATICALLY, THE CHILLED WATER PUMP SHALL REMAIN ENERGIZED AN ADDITIONAL 5 MINUTES (ADJ) AFTER THE CHILLER COMPRESSORS HAVE BEEN DE-ENERGIZED.

2. CHILLED WATER SYSTEM CONTROL:

   A. WHEN THE SYSTEM IS STARTED, THE LEAD CHILLED WATER PUMP SHALL SOFT START THROUGH THE ASSOCIATED VARIABLE SPEED DRIVE. IF THE LEAD CHILLED WATER PUMP FAILS AS SENSED BY CURRENT SENSOR, THE LAG PUMP (STANDBY) SHALL START AFTER A 15 SECOND TIME DELAY AND AN ALARM CONDITION SHALL BE SENT TO THE EMS. PROVIDE A MANUAL SOFTWARE SELECTOR SWITCH TO AUTOMATICALLY ALTERNATE LEAD/LAG PUMP CONTROL BASED ON RUNTIME OR THROUGH TIME OF DAY SCHEDULING (DAILY, WEEKLY, MONTHLY).

3. CHILLED WATER SYSTEM CONTROL:

   A. THE CHILLED WATER SYSTEM SHALL BE STARTED WHEN THE OUTSIDE AIR TEMPERATURE IS 55°F OR ABOVE (ADJ.), WHEN THE BUILDING (OR ANY ZONE IN THE BUILDING) IS IN THE "OCCUPIED" MODE OR WHEN AN EXISTING AIR HANDLING UNIT STARTS IN THE "UNOCCUPIED" MODE. WHEN THE CHILLED WATER SYSTEM IS STARTED, EITHER LOCALLY, REMOTELY THROUGH THE EMS, OR THROUGH AN INTERLOCK WITH ANY EXISTING AIR HANDLING UNIT REQUIRING COOLING, THE LEAD CHILLED WATER PUMP SHALL START AND ONCE THE FLOW IS PROVEN BY DIFFERENTIAL PRESSURE SENSOR THE CHILLER SHALL START.

4. EXISTING AHU "UNOCCUPIED" MODE CONTROL:

   A. IF ANY EXISTING AIR HANDLING UNIT IS STARTED IN "UNOCCUPIED" MODE AND THE OUTSIDE AIR TEMPERATURE IS 55°F OR ABOVE (ADJ), THE CHILLED WATER PLANT SHALL START. CHILLED WATER SYSTEM SHALL HAVE A 20-MINUTE DEADBAND.

5. CHILLED WATER RESET CONTROL:

   A. CHILLED WATER SUPPLY TEMPERATURE SHALL BE RESET IN ACCORDANCE WITH THE CHILLED WATER RESET SCHEDULE.

6. CONTROLS:

   A. COORDINATE AND INTERLOCK CONTROLS WITH CHILLER'S CONTROL PANEL AND CHILLER MANUFACTURER'S RECOMMENDATIONS. THE ATC CONTRACTOR SHALL PROVIDE INTERLOCK WIRING FOR THE VARIABLE SPEED DRIVES AND ALL OTHER DEVICES NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM.

CHILLED WATER SYSTEM SEQUENCE OF OPERATION

RESET SCHEDULE	
OUTSIDE AIR TEMPERATURE	SECONDARY SUPPLY WATER TEMPERATURE
≥60°F	44°F
<60°F	48°F

1. ALL SETPOINTS SHALL BE ADJUSTABLE THROUGH SOFTWARE
2. RESET SHALL BE LINEAR TYPE

CHILLED WATER RESET SCHEDULE

CHILLED WATER SYSTEM INPUT/OUTPUT SUMMARY

INPUT – ANALOG

SYSTEM	SPACE TEMPERATURE	DUCT/COIL/UNIT TEMPERATURE	WATER TEMPERATURE	OA TEMPERATURE (GLOBAL)	CONCRETE TEMPERATURE	DEWPOINT/HUMIDITY/ENTHALPY	DIFFERENTIAL PRESSURE	REFRIGERANT PRESSURE	STEAM PRESSURE	CARBON DIOXIDE	CARBON MONOXIDE	NITROGEN DIOXIDE	FLOW (TOTALIZED)	VARIABLE SPEED (HZ)	BTU	MODULATING ACTUATOR	KW (TOTALIZED)
CHILLED WATER SYSTEM				●									●		●		

INPUT – BINARY

SYSTEM	FLOW SWITCH	STATIC PRESSURE	DIFFERENTIAL PRESSURE	STATUS	END SWITCH	SWITCH POSITION	LOW TEMPERATURE CUTOFF	LOW WATER CUTOFF	STATUS
CHILLED WATER SYSTEM									

OUTPUTS – ANALOG

SYSTEM	VARIABLE SPEED	MODULATING ACTUATOR	MODULATING VALVE	E/P TRANSDUCER
CHILLED WATER SYSTEM				

OUTPUTS – BINARY

SYSTEM	SUMMER-WINTER	CONTROL RELAY	SOLENOID	START/STOP	2-POSITION VALVE	2-POSITION MOTOR OPERATED DAMPER	OCCUPIED/UNOCCUPIED
CHILLED WATER SYSTEM				●			

OUTPUTS – 3-POINT FLOATING

SYSTEM	MERCURY RELAY	FEED/BLEED SAV
CHILLED WATER SYSTEM		

ALARMS

SYSTEM	HIGH LIMIT	LOW LIMIT	RUN TIME	MAINTENANCE MESSAGE	TROUBLE MESSAGE	FIRE/SMOKE	SECURITY SYSTEM
CHILLED WATER SYSTEM							

FEATURES

SYSTEM	SCHEDULED START/STOP	TEMPERATURE SETBACK/SETUP	OPTIMIZED START/STOP	DEMAND LIMITING	DUTY CYCLE	VENTILATION DELAY	ECONOMIZER CYCLE	RESET BASED ON OA TEMP	VAV CONTROL	REMOTE READ/RESET	TENANT OVERRIDE	COLOR GRAPHICS	POINT LOCKOUT	TREND LOG	LEAD/LAG
CHILLED WATER SYSTEM	●		●					●		●		●		●	●

CHILLED WATER SYSTEM INPUT/OUTPUT SUMMARY

REVISIONS

NO.	DATE	DESCRIPTION
△1	11.28.23	ADDENDUM NO. 2

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STATE OF MARYLAND ★ MICHAEL NOTARANGELO ★ No. 35222 ★ PROFESSIONAL ENGINEER

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WO# 22082

PROJECT MANAGER: MPN

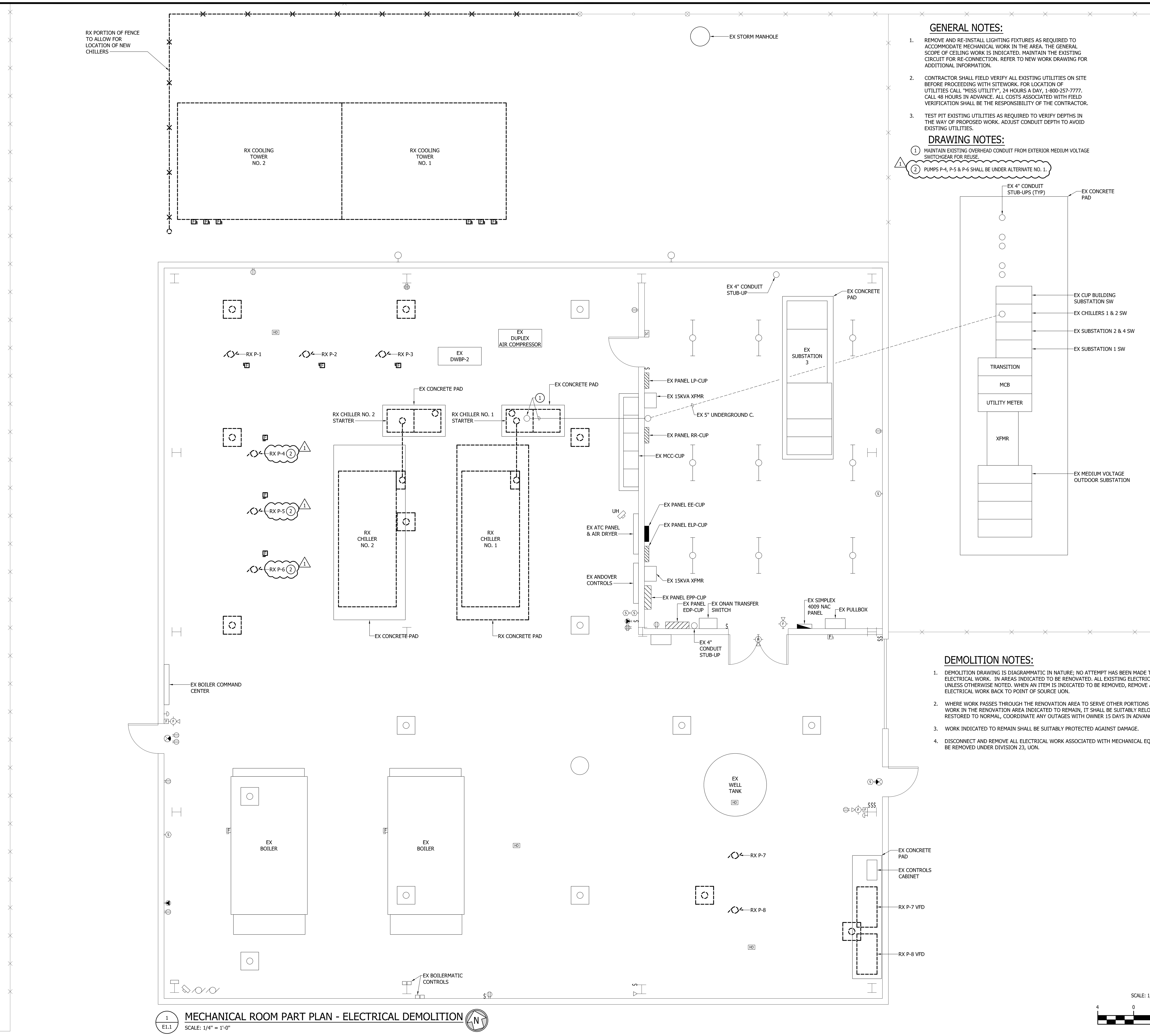
DESIGNER: PGB

PSC#: 07.042.23

CHILLED WATER SYSTEM CONTROL DIAGRAM
CECIL SCHOOL OF TECHNOLOGY CHILLER REPLACEMENT
CECIL COUNTY PUBLIC SCHOOLS

100% IAC SUBMISSION 06/16/2023

M5.1



1 E1.1 MECHANICAL ROOM PART PLAN - ELECTRICAL DEMOLITION
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. REMOVE AND RE-INSTALL LIGHTING FIXTURES AS REQUIRED TO ACCOMMODATE MECHANICAL WORK IN THE AREA. THE GENERAL SCOPE OF CEILING WORK IS INDICATED. MAINTAIN THE EXISTING CIRCUIT FOR RE-CONNECTION. REFER TO NEW WORK DRAWING FOR ADDITIONAL INFORMATION.
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES ON SITE BEFORE PROCEEDING WITH SITEWORK. FOR LOCATION OF UTILITIES CALL "MISS UTILITY", 24 HOURS A DAY, 1-800-257-7777. CALL 48 HOURS IN ADVANCE. ALL COSTS ASSOCIATED WITH FIELD VERIFICATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. TEST PIT EXISTING UTILITIES AS REQUIRED TO VERIFY DEPTHS IN THE WAY OF PROPOSED WORK. ADJUST CONDUIT DEPTH TO AVOID EXISTING UTILITIES.

DRAWING NOTES:

(1) MAINTAIN EXISTING OVERHEAD CONDUIT FROM EXTERIOR MEDIUM VOLTAGE SWITCHGEAR FOR REUSE.
(2) PUMPS P-4, P-5 & P-6 SHALL BE UNDER ALTERNATE NO. 1.

DEMOLITION NOTES:

1. DEMOLITION DRAWING IS DIAGRAMMATIC IN NATURE; NO ATTEMPT HAS BEEN MADE TO SHOW ALL EXISTING ELECTRICAL WORK. IN AREAS INDICATED TO BE RENOVATED. ALL EXISTING ELECTRICAL WORK SHALL REMAIN UNLESS OTHERWISE NOTED. WHEN AN ITEM IS INDICATED TO BE REMOVED, REMOVE ALL ASSOCIATED ELECTRICAL WORK BACK TO POINT OF SOURCE UON.
2. WHERE WORK PASSES THROUGH THE RENOVATION AREA TO SERVE OTHER PORTIONS OF THE BUILDING, OR WORK IN THE RENOVATION AREA INDICATED TO REMAIN, IT SHALL BE SUITABLY RELOCATED AND THE SYSTEMS RESTORED TO NORMAL, COORDINATE ANY OUTAGES WITH OWNER 15 DAYS IN ADVANCE.
3. WORK INDICATED TO REMAIN SHALL BE SUITABLY PROTECTED AGAINST DAMAGE.
4. DISCONNECT AND REMOVE ALL ELECTRICAL WORK ASSOCIATED WITH MECHANICAL EQUIPMENT INDICATED TO BE REMOVED UNDER DIVISION 23, UON.

REVISIONS

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8719 Brooks Drive, Suite 2-5, Easton, Maryland 21601

WO# 22082

PROJECT MANAGER	KTC
DESIGNER	KTC
PSC#:	07.042.23

MECHANICAL ROOM PART PLAN
ELECTRICAL DEMOLITION
CECIL SCHOOL OF TECHNOLOGY CHILLER REPLACEMENT
CECIL COUNTY PUBLIC SCHOOLS

100% IAC SUBMISSION 06/16/2023

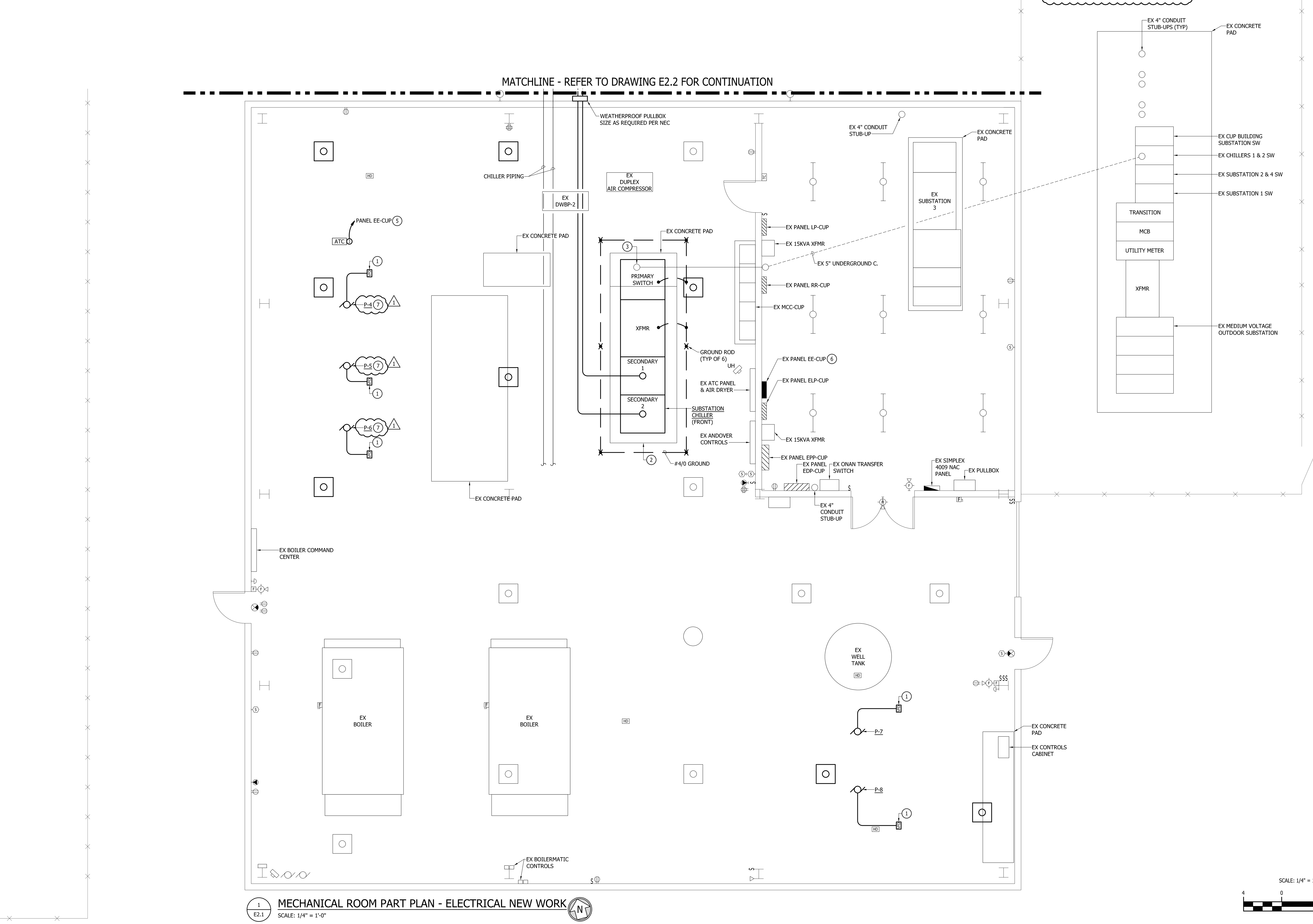
E1.1

GENERAL NOTES:

1. REFER TO PANEL SCHEDULES AND MECHANICAL EQUIPMENT CONNECTION SCHEDULE ON DRAWING E5.1 FOR ADDITIONAL INFORMATION.
2. CUT AND PATCH EXISTING FLOORS AS REQUIRED TO INSTALL GROUNDING.

DRAWING NOTES:

1. PROVIDE KINDORF SUPPORTS AS REQUIRED.
2. MODIFY AND EXTEND CONCRETE PAD TO SUIT THE INSTALLATION OF THE SUBSTATION.
3. COORDINATE SWITCHGEAR PLACEMENT WITH EXISTING INCOMING PRIMARY FEEDER. EXTEND CONDUITS AS REQUIRED.
4. PROVIDE 2 #12 AND 1 #12 GROUND IN 3/4" CONDUIT AS REQUIRED AND MAKE ALL CONNECTIONS TO NEAREST EXTERIOR RECEPTACLE.
5. 2 #12 AND 1 #12 GROUND IN 3/4" CONDUIT TO SPARE CIRCUIT BREAKER IN EXISTING PANEL EE-CUP.
6. PROVIDE 1P, 20A CIRCUIT BREAKER IN EXISTING SQUARE D NQOD PANELBOARD.
7. (Revision 1) PUMPS P-4, P-5 & P-6 SHALL BE UNDER ALTERNATE NO. 1.



1 / E2.1 MECHANICAL ROOM PART PLAN - ELECTRICAL NEW WORK
SCALE: 1/4" = 1'-0"

SCALE: 1/4" = 1'-0"
4 0 4 8

REVISIONS

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WO# 22082

PROJECT MANAGER	KTC
DESIGNER	KTC
PSC#:	07.042.23

MECHANICAL ROOM PART PLAN
ELECTRICAL NEW WORK
CECIL SCHOOL OF TECHNOLOGY CHILLER REPLACEMENT
CECIL COUNTY PUBLIC SCHOOLS

100% IAC SUBMISSION 06/16/2023

E2.1

EX MEDIUM VOLTAGE SWITCHGEAR - SQUARE D

MOUNTING: FREE STANDING	A.I.C. RATING: 12,000	LOCATION: CUP COURTYARD
VOLTAGE: 4160, 3PHASE, 3 WIRE	1200 AMPERE MAIN BUS	1200 AMPERE MAIN CIRCUIT BREAKER

DISTRIBUTION SECTION

FDR		CIRCUIT BREAKER			WIRING						CONN
NO	SERVES	P	FRAME	TRIP	SETS	NO	SIZE	GND	C	REMARKS	KVA
1	EX SUBSTATION 1	3	600	400E							
2	EX SUBSTATION 2	3	600	400E							
3	EX CHILLER 1 AND CHILLER 2	3	600	150E							
4	EX SUBSTATION 3	3	600	150E							
5	FUTURE BUILDING										
6	FUTURE BUILDING										
7	FUTURE CHILLERS										

TOTAL CONNECTED LOAD: 0 KVA

EX MEDIUM VOLTAGE SWITCHGEAR (MODIFIED) - SQUARE D

MOUNTING: FREE STANDING	A.I.C. RATING: 12,000	LOCATION: CUP COURTYARD
VOLTAGE: 4160, 3PHASE, 3 WIRE	1200 AMPERE MAIN BUS	1200 AMPERE MAIN CIRCUIT BREAKER

DISTRIBUTION SECTION

FDR		CIRCUIT BREAKER			WIRING						CONN
NO	SERVES	P	FRAME	TRIP	SETS	NO	SIZE	GND	C	REMARKS	KVA
1	EX SUBSTATION 1	3	600	400E							
2	EX SUBSTATION 2	3	600	400E							
3	**SUBSTATION CHILLER**	3	600	**250E**	**REFER TO ONLINE DIAGRAM**					**MODIFY SWITCH AS REQUIRED**	
4	EX SUBSTATION 3	3	600	150E							
5	FUTURE BUILDING										
6	FUTURE BUILDING										
7	FUTURE CHILLERS										

TOTAL CONNECTED LOAD: 0 KVA

EX MOTOR CONTROL CENTER MCC-CUP - SQUARE D MODEL 5

VOLTAGE: 480, 3PH, 3W	HORIZONTAL BUS: 800A		A.I.C. RATING: 42,000
LOCATION: MECH RM 208	VERTICAL BUS: 800A		800 AMPERE MAIN LUGS ONLY

CKT				CIRCUIT BREAKER				WIRING				STARTER				CONN
NO	SERVES	HP	KW	P	FRAME	TRIP	SETS	NO	SIZE	GND	C	SIZE	TYPE	AUX	REMARKS	KVA
A1	SPARE			3	100							X				
A2	EX P-7 (CHW SEC.)			3	100	100										
A3	EX B-1			3	100	70										
A4	EX D-1			3	100	30										
A5	EX ATC-2			3	100	20										
A6	EX DWBP-2			3	100	20										
B1	EX P-6 (CHW PRI)			3	100	30						X				
B2	EX SF-11			3	100	100						X				
B3	EX EF-12			3	100	100						X				
B4	EX EF-13			3	100	15						X				
B5	EX P-8 (CHW SEC)			3	100	15										
C1	EX CT-1			3	100	50						X				
C2	EX MOTORIZED DOOR			3	100	15						X				
D1	EX CT-2			3	100	50						X				
D2	EX P-1 (CDW)			3	100	70						X				
E1	EX P-2 (CDW)			3	100	70						X				
E2	EX P-3 (CDW)			3	100	70						X				
E3	EX P-4 (CHW PRI)			3	100	30						X				
E4	EX P-5 (CHW PRI)			3	100	30						X				
E5	SPARE			3	100											
F1	EX EF-14			3	100	15						X				
F2	EX SF-9			3	100	15						X				
F3	EX SF-10			3	100	15						X				
F4	SPARE			3	100							X				
F5	SPARE			3	100							X				
F6	SPARE			3	100							X				

MOTOR STARTER AUXILIARY DEVICES

- A 120 VOLT CONTROL POWER TRANSFORMER
- B RED "ON" INDICATEING LIGHT
- C GREEN "OFF" INDICATING LIGHT
- D HAND-OFF-AUTOMATIC SELECTOR SWITCH
- E 2-NO, 2-NC AUXILIARY CONTACTS

TOTAL CONNECTED LOAD IN KVA: 0

EX MOTOR CONTROL CENTER MCC-CUP (MODIFIED) - SQUARE D MODEL 5

VOLTAGE: 480, 3PH, 3W	HORIZONTAL BUS: 800A		A.I.C. RATING: 42,000
LOCATION: MECH RM 208	VERTICAL BUS: 800A		800 AMPERE MAIN LUGS ONLY

CKT				CIRCUIT BREAKER				WIRING				STARTER				CONN
NO	SERVES	HP	KW	P	FRAME	TRIP	SETS	NO	SIZE	GND	C	SIZE	TYPE	AUX	REMARKS	KVA
A1	SPARE			3	100							X				
A2	**PUMP-7**			3	100	**100**	**1**	**3**	**6**	**8**	**1-1/4**				**NOTE 2**	**41.0**
A3	EX B-1			3	100	70										
A4	EX D-1			3	100	30										
A5	EX ATC-2			3	100	20										
A6	EX DWBP-2			3	100	20										
B1	**SPARE**			3	100	30						X				
B2	EX SF-11			3	100	100						X				
B3	EX EF-12			3	100	100						X				
B4	EX EF-13			3	100	15						X				
B5	**PUMP-8**			3	100	**100**	**1**	**3**	**6**	**8**	**1-1/4**					**41.0**
C1	EX CT-1			3	100	50						X				
C2	EX MOTORIZED DOOR			3	100	15						X				
D1	EX CT-2			3	100	50						X				
D2	**PUMP-4**			3	100	**60**	**1**	**3**	**8**	**10**	**3/4**	X			**NOTE 2 & 3**	**21.3**
E1	**PUMP-5 (STAND-BY)**			3	100	**60**	**1**	**3**	**8**	**10**	**3/4**	X			**NOTE 2 & 3**	
E2	**PUMP-6**			3	100	**60**	**1**	**3**	**8**	**10**	**3/4**	X			**NOTE 2 & 3**	**21.3**
E3	**SPARE**			3	100	30						X			1	
E4	**SPARE**			3	100	30						X				
E5	SPARE			3	100											
F1	EX EF-14			3	100	15						X				
F2	EX SF-9			3	100	15						X				
F3	EX SF-10			3	100	15						X				
F4	SPARE			3	100							X				
F5	SPARE			3	100							X				
F6	SPARE			3	100							X				

MOTOR STARTER AUXILIARY DEVICES

- A 120 VOLT CONTROL POWER TRANSFORMER
- B RED "ON" INDICATEING LIGHT
- C GREEN "OFF" INDICATING LIGHT
- D HAND-OFF-AUTOMATIC SELECTOR SWITCH
- E 2-NO, 2-NC AUXILIARY CONTACTS

NOTE 1: MODIFY BUCKET TO PROVIDE CIRCUIT BREAKER.

NOTE 2: MODIFY BUCKET AS REQUIRED TO ACCOMMODATE NEW CIRCUIT BREAKER

1 **NOTE 3: WORK SHALL BE UNDER ALTERNATE NO. 1.**

TOTAL CONNECTED LOAD IN KVA: 124.6

GENERAL NOTES:

1. PROVIDE NEW CIRCUIT BREAKERS IN EXISTING TO REMAIN PANELS (SHOWN BOLD IN SCHEDULE). NEW CIRCUIT BREAKER SHALL MATCH EXISTING MANUFACTURER, STYLE, TYPE AND SHORT CIRCUIT RATING.

MECHANICAL EQUIPMENT CONNECTION SCHEDULE

EQUIPMENT	LOAD			SERVICE		CIRCUIT DESIGNATION	NEMA SIZE STARTER	DISCONNECT				NOTES
	KW	HP	AMPS	VOLTS	PH			POLE	AMPS	FUSE VERIFY W/ NAMEPLATE	NEMA ENCLOSURE	
CHILLER-1			842.1	480	3	SS-CH-1						4
CHILLER-2			842.1	480	3	SS-CH-2						4
P-4		20		480	3	MCC-D2						3
P-5 (STAND-BY)		20		480	3	MCC-E1						3
P-6		20		480	3	MCC-E2						3
P-7		40		480	3	MCC-A2						3
P-8		40		480	3	MCC-B5						3

MECHANICAL SCHEDULE NOTES:

1. SINGLE POINT CONNECTION. MAKE ALL CONNECTIONS TO UNIT AS REQUIRED
2. PROVIDE COMBINATION TYPE MOTOR STARTER FVNR WITH CONTROL TRANSFORMER, RED AND GREEN INDICATING LIGHTS, AND DISCONNECT.
3. INSTALL VFD (FURNISHED UNDER MECHANICAL DIVISION) MAKE ALL CONNECTIONS TO MOTOR AS REQUIRED
4. MAKE CONNECTION TO INTEGRAL VSD FURNISHED WITH UNIT.

MVSWG	MCC-CUP	MECS
MVSWG(M)	MCC-CUP(M)	

REVISIONS

NO.	DATE	DESCRIPTION
1	11.28.23	ADDENDUM NO. 2

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 34699, EXPIRATION DATE: 07/16/2025.

Gipe Associates Inc.
Consulting Engineers

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WO# 22082

PROJECT MANAGER: KTC

DESIGNER: KTC

PSC#: 07.042.23

MECHANICAL EQUIPMENT CONNECTION AND PANELBOARD SCHEDULES

CECIL SCHOOL OF TECHNOLOGY CHILLER REPLACEMENT

CECIL COUNTY PUBLIC SCHOOLS

100% IAC SUBMISSION 06/16/2023

E5.1