

MEADOW PARK SPORTS CENTRE GROUND SOURCE HEAT PUMPS REPLACEMENT



1 SITE PLAN
M0.01 SCALE: NTS
AREA OF WORK: UPPER POOL MECHANICAL ROOM

CIVIC ADDRESS
8625 BC-99 WHISTLER, BC
V8E 1X1

DRAWINGS NO.	DESCRIPTION
M0.01	COVER PAGE & EQUIPMENT SCHEDULE
M1.01	UPPER MECH RM DEMO & RENO PLANS
M2.01	MECHANICAL SCHEMATIC
M3.01	MECHANICAL SPECIFICATION

SYMBOL SCHEDULE			
PIPING		SYSTEM MONITORING	
DEMOLITION	EXISTING	NEW	
---	----	-----	ROOM TEMPERATURE SENSOR
---	----	-----	REVERSE ACTING TEMPERATURE SENSOR
---	----	-----	SLAB TEMPERATURE SENSOR
---	----	-----	HUMIDITY SENSOR
---	----	-----	CO SENSOR
---	----	-----	AIR FLOW METER
---	----	-----	FLOW SWITCH
---	----	-----	PIPE TEMPERATURE SENSOR
---	----	-----	PRESSURE SENSOR
FITTINGS AND VALVES		DUCTWORK	
---	----	-----	SUPPLY OR OUTDOOR AIR DUCT UP
---	----	-----	SUPPLY OR OUTDOOR AIR DUCT DOWN
---	----	-----	RETURN AIR DUCT UP
---	----	-----	RETURN AIR DUCT DOWN
---	----	-----	EXHAUST AIR DUCT UP
---	----	-----	EXHAUST AIR DUCT DOWN
---	----	-----	TURNING VANES
---	----	-----	ACOUSTIC INSULATION
---	----	-----	BALANCING DAMPER (BD)
---	----	-----	BACKDRAFT DAMPER (BDD)
---	----	-----	MOTORIZED DAMPER (MD)
---	----	-----	FIRE DAMPER - VERTICAL (FD)
---	----	-----	FIRE DAMPER - HORIZONTAL (FD)
---	----	-----	DUCT OR PIPE CAP-OFF
---	----	-----	RETURN OR EXHAUST AIR GRILLE
---	----	-----	UNDER-CUT DOOR
FIRE PROTECTION		EQUIPMENT TAGS	
---	----	-----	GRILLE TYPE
---	----	-----	NECK / GRILLE SIZE
---	----	-----	AIR VOLUME (L/S)
---	----	-----	EQUIPMENT / FIXTURE TYPE
---	----	-----	GENERAL NOTE
---	----	-----	DRAWING REVISION
---	----	-----	DETAIL NUMBER
---	----	-----	DRAWING NUMBER
---	----	-----	SECTION NUMBER
---	----	-----	DRAWING NUMBER

DESCRIPTION	NAME	NEW	EXISTING
DOMESTIC COLD WATER	PDCW	---	----
DOMESTIC HOT WATER	PDHW	---	----
DOMESTIC HOT WATER RECIRC	PDHWR	---	----
DOMESTIC TEMPERED WATER	PDTW	---	----
NON POTABLE WATER	PNPW	---NPW---	---NPW---
IRRIGATION	PIR	---IR---	---IR---
MECHANICAL EQUIPMENT	MEQ	---	----
CONDENSATE DRAIN	MCOND	---	----
CONTROLS	MCONT	---	----
TEXT	MT	---	----
HEATING WATER SUPPLY	MHWS	---HWS---	---HWS---
HEATING WATER RETURN	MHWR	---HWR---	---HWR---
CHILLED WATER SUPPLY	MCHWS	---CHWS---	---CHWS---
CHILLED WATER RETURN	MCHWR	---CHWR---	---CHWR---
HEAT PUMP SUPPLY	MHPS	---HPS---	---HPS---
HEAT PUMP RETURN	MHPR	---HPR---	---HPR---
RADIANT HEATING SUPPLY	MRHS	---RHS---	---RHS---
RADIANT HEATING RETURN	MRHR	---RHR---	---RHR---
REFRIGERANT SUPPLY	MRFSG	---RFGS---	---RFGS---
REFRIGERANT RETURN	MRFGR	---RFGR---	---RFGR---
SOLAR WATER SUPPLY	MSWS	---SWS---	---SWS---
SOLAR WATER RETURN	MSWR	---SWR---	---SWR---
FUEL OIL SUPPLY	MFOS	---FOS---	---FOS---
FUEL OIL RETURN	MFOR	---FOR---	---FOR---
CONDENSER WATER SUPPLY	MCWS	---CWS---	---CWS---
CONDENSER WATER RETURN	MCWR	---CWR---	---CWR---
ETHANOL SUPPLY	METHS	---ETHS---	---ETHS---
ETHANOL RETURN	METHR	---ETHR---	---ETHR---
RADIANT FLOOR HEAT SUPPLY	MRFS	---RFS---	---RFS---
RADIANT FLOOR HEAT RETURN	MRFR	---RFR---	---RFR---

EQUIPMENT TAG		# OF MODULES		LOCATION	SERVICE	MANUFACTURER	MODEL	OPERATING MODE		SOURCE SIDE		LOAD SIZE		MCA		NOTES									
HP-1&2		2		MECHANICAL ROOM	HEAT RECOVERY LOOP	TRANE	TPWCCMV0400 (2 MODULES)	GEO HEAT EXTRACTION MODE	DEHM HEAT RECOVERY MODE	EWT (F)	LWT (F)	FLOW (GPM)	CAPACITY (MBH)	EER	P.D. (FT WG)	SIZE (LxWxH) (IN)	POWER (V/PH/Hz)	MCA	NOTES						
									30	25	221.6	504	5.73	23.3	115	130	108.8	805	2.7	4.35	77"x66"x77"	575/3/60	60	ALL	
									55	45	164.2	751	8.30	11.8	115	130	142.9	1061	3.4	5.85					

NOTES:
1 25% ETHANOL ON SOURCE SIDE
2 REFER TO SPECIFICATION FOR DETAILS
3 REFER TO M3.01 CONTROL SPEC FOR CONTROL SEQUENCE

EQUIPMENT TAG	DESCRIPTION	LOCATION	TYPE	MANUFACTURER	MODEL	FLUID TEMP. (DEG F)	FLUID TYPE	FLOW (EA) (GPM)	HEAD (EA) (FT)	MOTOR (HP)	MOTOR @ MAX FLOW (RPM)	MAX. FLOW (GPM)	POWER (V/PH/Hz)	NOTES
P-1	GEO-SIDE CIRCULATION PUMP	MECH RM	VERTICAL INLINE	ARMSTRONG	SG-42	25	25% ETHANOL	90	75.0	5.0	3,260	118.8	208/3/60	ALL
P-2	GEO-SIDE CIRCULATION PUMP	MECH RM	VERTICAL INLINE	ARMSTRONG	SG-42	25	25% ETHANOL	90	75.0	5.0	3,260	118.8	208/3/60	ALL
P-3	GEO-SIDE CIRCULATION PUMP	MECH RM	VERTICAL INLINE	ARMSTRONG	FTV-4FA	130	WATER	71.0	40.0	2.0	2,761	93.7	208/3/60	ALL
P-4	HEATING SIDE CIRCULATION PUMP	MECH RM	VERTICAL INLINE	ARMSTRONG	FTV-4FA	130	WATER	71.0	40.0	2.0	2,761	93.7	208/3/60	ALL

NOTES:
1 PUMPS ARE SIZED FOR 2/3 CAPACITY
2 ALL CAST IRON CONSTRUCTION
3 CONTROLLED VIA VFD. VFDs TO BE CONNECTED TO DDC
4 REFER TO CONTROL SPEC FOR SEQUENCING
5 MOTOR TO BE TEFC ENCLOSURE

UNIT NUMBER	QTY	UNIT DESCRIPTION	UNIT LOCATION	ELECTRICAL LOAD				VOLT	PH	EQUIPMENT			STARTER			DISCONNECT			CONTROL			EMERGENCY POWER (YES/NO)	NOTES		
				MCA	FLA	KW	HP			S	I	C	S	I	C	S	I	C	S	I	C			S	I
HP-1	1	GEO-SOURCE HEAT PUMP MODULE 1	MECH RM	61			575	3	M	M	M	M	M	E	PCS	E	E	E	M	M	E	DDC	NO	1,2	
HP-2	1	GEO-SOURCE HEAT PUMP MODULE 2	MECH RM	61			575	3	M	M	M	M	M	E	PCS	E	E	E	M	M	E	DDC	NO	1,2	
P-1	1	GROUND SOURCE PUMP	MECH RM				5	208	3	M	M	E	M	M	E	VFD	E	E	E	M	M	E	DDC	NO	1
P-2	1	GROUND SOURCE PUMP	MECH RM				5	208	3	M	M	E	M	M	E	VFD	E	E	E	M	M	E	DDC	NO	1
P-3	1	HEATING WATER PUMP	MECH RM				2	208	3	M	M	E	M	M	E	VFD	E	E	E	M	M	E	DDC	NO	1
P-4	1	HEATING WATER PUMP	MECH RM				2	208	3	M	M	E	M	M	E	VFD	E	E	E	M	M	E	DDC	NO	1

SUPPLIER / INSTALL / WIRE CODES:
MECH = MECHANICAL
ELEC = ELECTRICAL
G = GENERAL CONTRACTOR
S = SUPPLIED BY
I = INSTALLED BY
C = CONNECTED BY

STARTER CODES:
MAN = MANUAL STARTER
HOA = MAGNETIC STARTER W/ HAND/OFF/AUTO SWITCH W/ AUX. CONTACTS
MAG = MAGNETIC STARTER C/W AUX. STATUS CONTACTS
MRR = MOTOR RATED RELAY, 24 VAC COIL & MOTOR PROTECTION SWITCH
PCS = PACKAGED CONTROL SYSTEM
VFD = VARIABLE FREQUENCY DRIVE

CONTROL DEVICE CODES:
AQUA = PUMP CONTROLLED BY AQUASTAT
BMS = BLDG MANAGEMENT SYSTEM
ES = END SWITCH
ET = LINE VOLTAGE TSTAT
FA = FIRE ALARM
FAP = FIRE ALARM PANEL
FS = FLOW SWITCH
GS = GAS SENSOR
H = HUMIDITY SENSOR
I = INTERLOCK, SEE NOTES
LIGHT = WIRED TO LIGHT SWITCH
LS = LEVEL SWITCH
OS = OCCUPANT SENSOR
PS = PRESSURE SWITCH
R. STAT = REVERSE ACTING THERMOSTAT

ELECTRICAL LOAD CODES:
BHP = BRAKE HORSEPOWER
FLA = UNIT FULL LOAD AMPS
HP = UNIT OR MOTOR HORSEPOWER
PH = POWER PHASE
MCA = MINIMUM CIRCUIT AMPS
VOLT = REQUIRED SUPPLY VOLTAGE

MISCELLANEOUS CODES:
FFCP = FIRE FIGHTERS CONTROL PANEL
FRAC = FRACTIONAL HORSEPOWER
INT = INTEGRAL PART OF UNIT

GENERAL NOTES:
A. ALL FIRE ALARM DEVICES WIRED BY ELECTRICAL
B. CONTROL PANELS ARE SHIPPED LOSS & REQUIRE FIELD WIRING
C. PCS EQUIPMENT REQUIRES SINGLE SOURCE POWER CONNECTION, UNLESS NOTED OTHERWISE
D. CP, VFD EQUIPMENT REQUIRES POWER WIRING TO AND FROM CONTROL PANEL TO CONTROLLED EQUIPMENT

NOTES:
1. SINGLE POINT POWER CONNECTION (EXCEPT FOR LIGHTS).
2. TWO MODULES OF HEAT PUMP REQUIRE ONE POWER SUPPLY (114 MCA)

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REV.	DATE	DESCRIPTION
1.	2023.07.05	ISSUED FOR 50% REVIEW
2.	2023.07.24	ISSUED FOR TENDER REVIEW
3.	2023.07.07	ISSUED FOR TENDER

CONSULTANT:

SEAL:

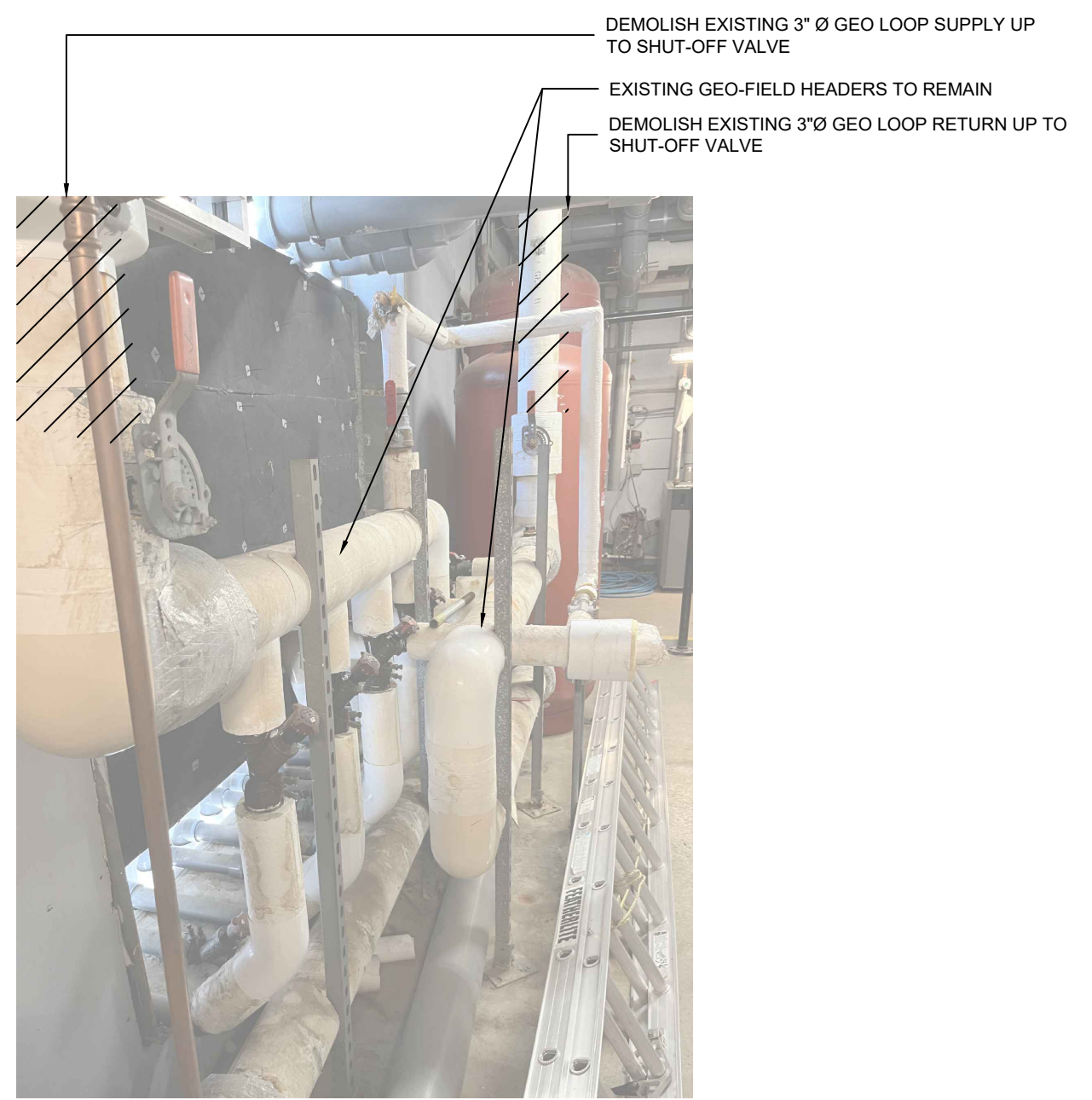
PROJECT TITLE:
MEADOW PARK SPORTS CENTRE - GROUND SOURCE HP REPLACEMENT

PROJECT ADDRESS:
8625 BC-99 WHISTLER, BC
V8E 1X1

DRAWN BY	JX
CHECKED BY	RA, MK
SCALE	AS NOTED
DATE	SEPTEMBER 07, 2023

DRAWING TITLE:
COVER PAGE, SYMBOL & EQUIPMENT SCHEDULE

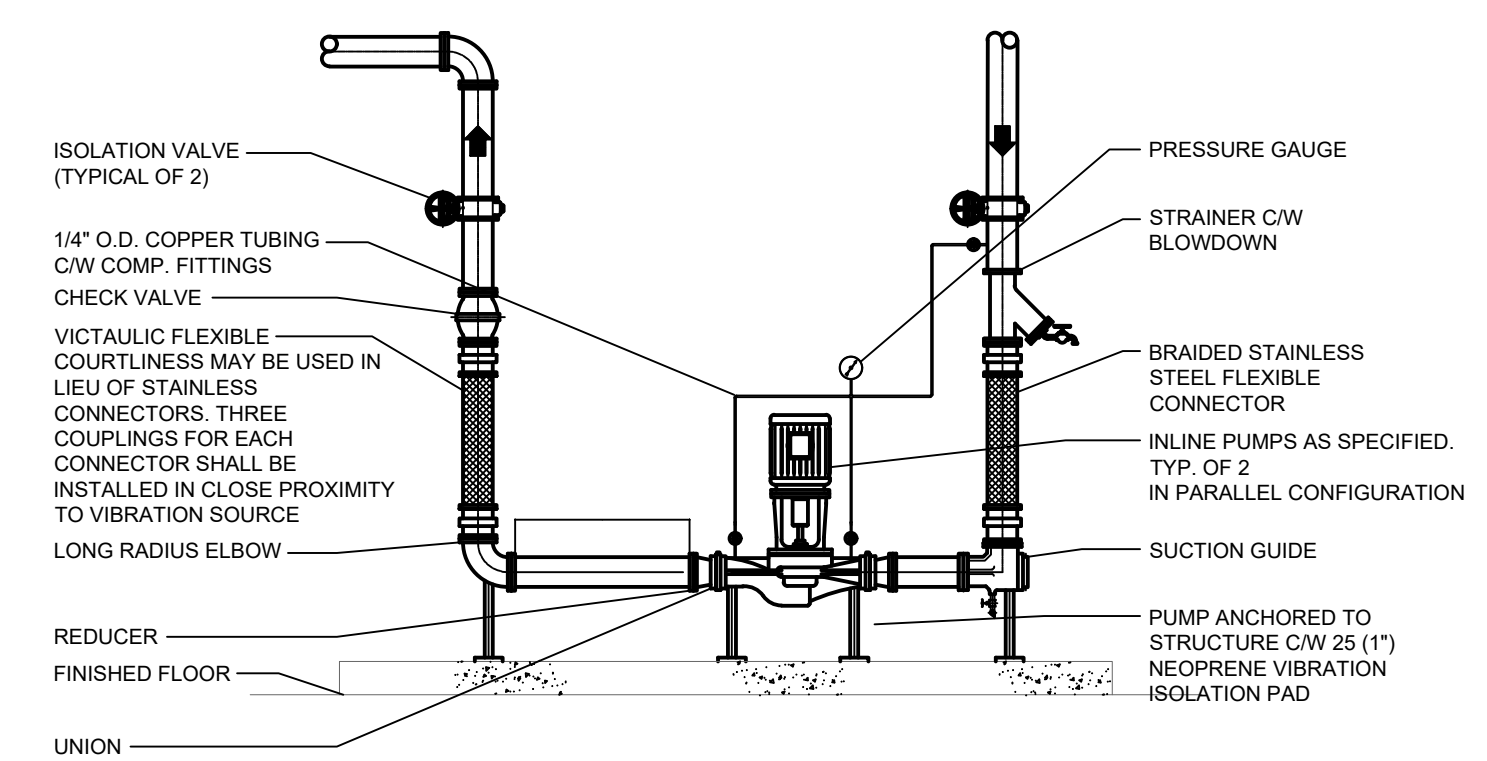
PROJECT NO.	DRAWING NO.
124B-020-23	M0.01



3 EX. GEO LOOP HEADER
SCALE: NTS



4 EX. GEO HEAT PUMP
SCALE: NTS



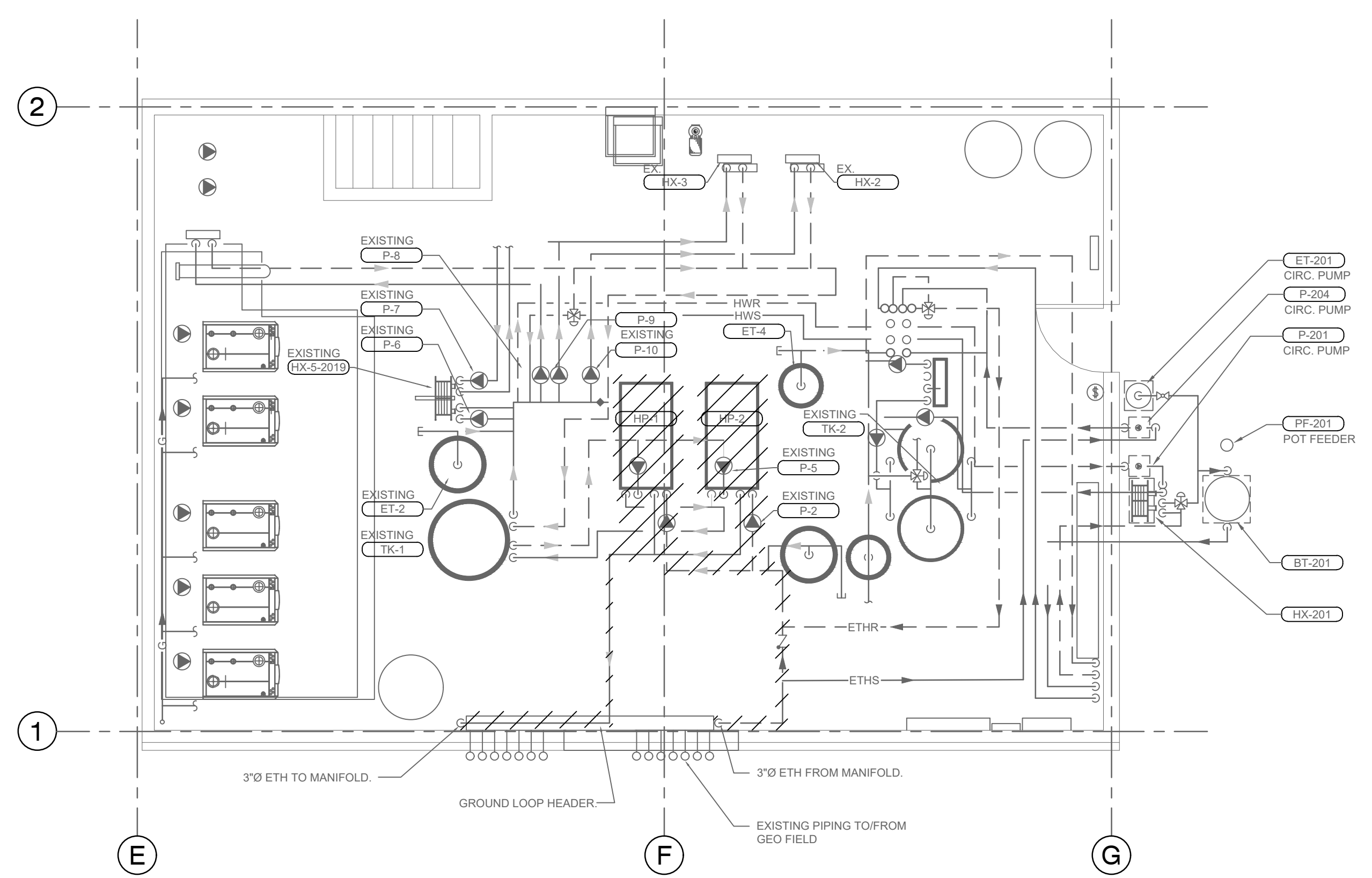
DETAIL NOTES
 1. DIMENSION 'A' TO BE AT LEAST 5 PIPE DIAMETERS IN LENGTH.
 2. WHERE SPACE IS LIMITED, PROVIDE SUCTION DIFFUSER ON INLET WITH INTEGRAL STRAINER.

5 FLOOR MOUNTED VERTICAL IN-LINE PUMP
SCALE: NTS

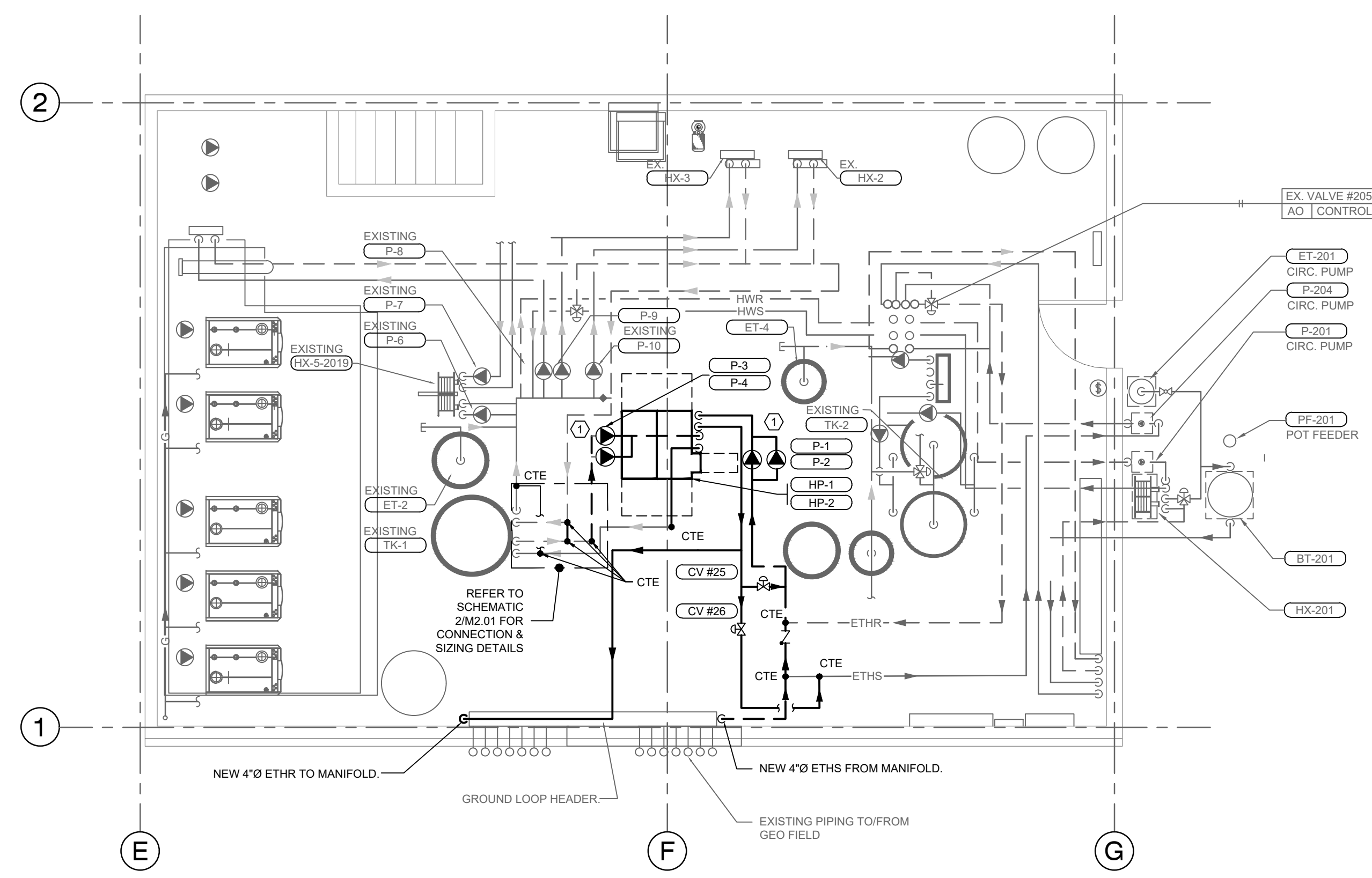
DEMOLISH EXISTING 3" Ø GEO LOOP SUPPLY UP TO SHUT-OFF VALVE
 EXISTING GEO-FIELD HEADERS TO REMAIN
 DEMOLISH EXISTING 3"Ø GEO LOOP RETURN UP TO SHUT-OFF VALVE

DEMOLISH EXISTING GEO HPs (TYP. OF 2) AND PIPING CONNECTIONS

EXISTING CONCRETE PAD TO REMAIN



1 MECHANICAL PLAN - DEMO
SCALE: 1:100



2 MECHANICAL PLAN - RENO
SCALE: 1:100

GENERAL NOTE
 1. ALL NEW EQUIPMENT TO BE INSTALLED ON EXISTING HOUSE KEEPING PAD
 2. REFER TO M2.01 SCHEMATIC FOR CONNECTION DETAILS

KEY NOTE
 ① REFER TO S/M1.01 & 2/M2.01 FOR PUMP CONNECTIONS DETAILS & SCHEMATIC. PROVIDE NEW CONCRETE PAD

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3.	2023.09.07	ISSUED FOR TENDER

CONSULTANT:

SEAL:



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PROJECT ADDRESS:
 8625 BC-99 WHISTLER, BC V8E 1K1

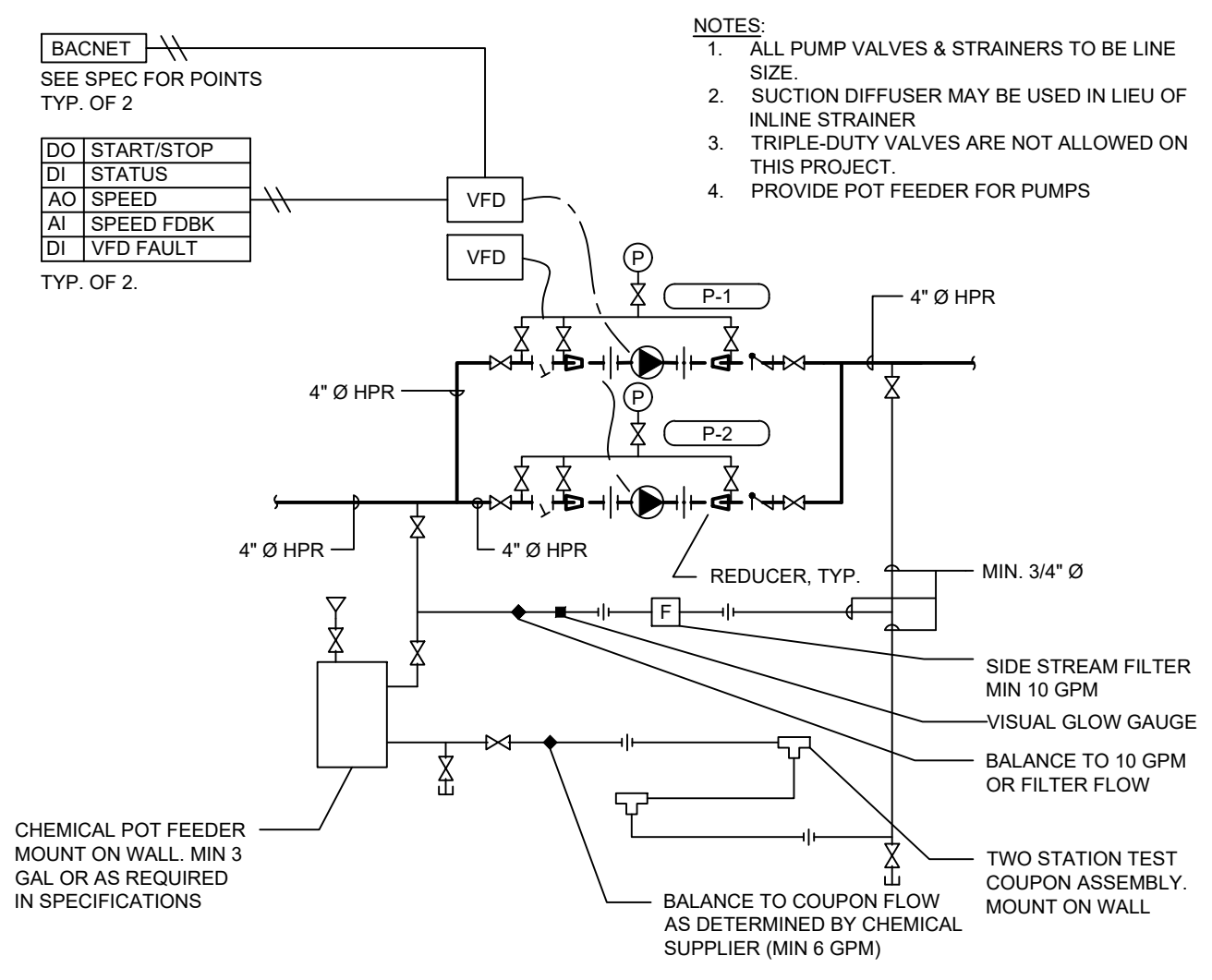
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DATE: SEPTEMBER 07, 2023

DRAWING TITLE:
 UPPER MECH ROOM DEMO & RENO PLANS

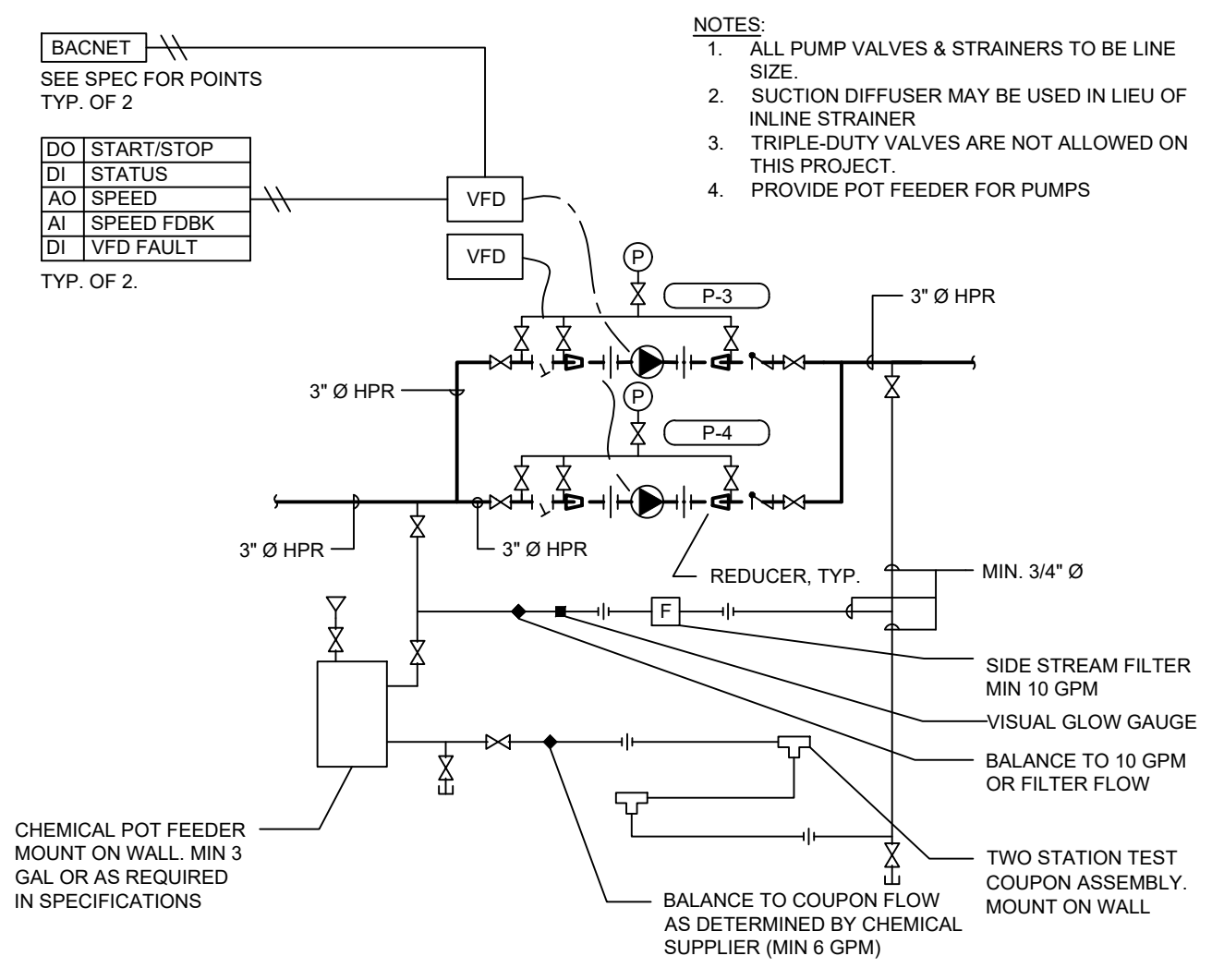
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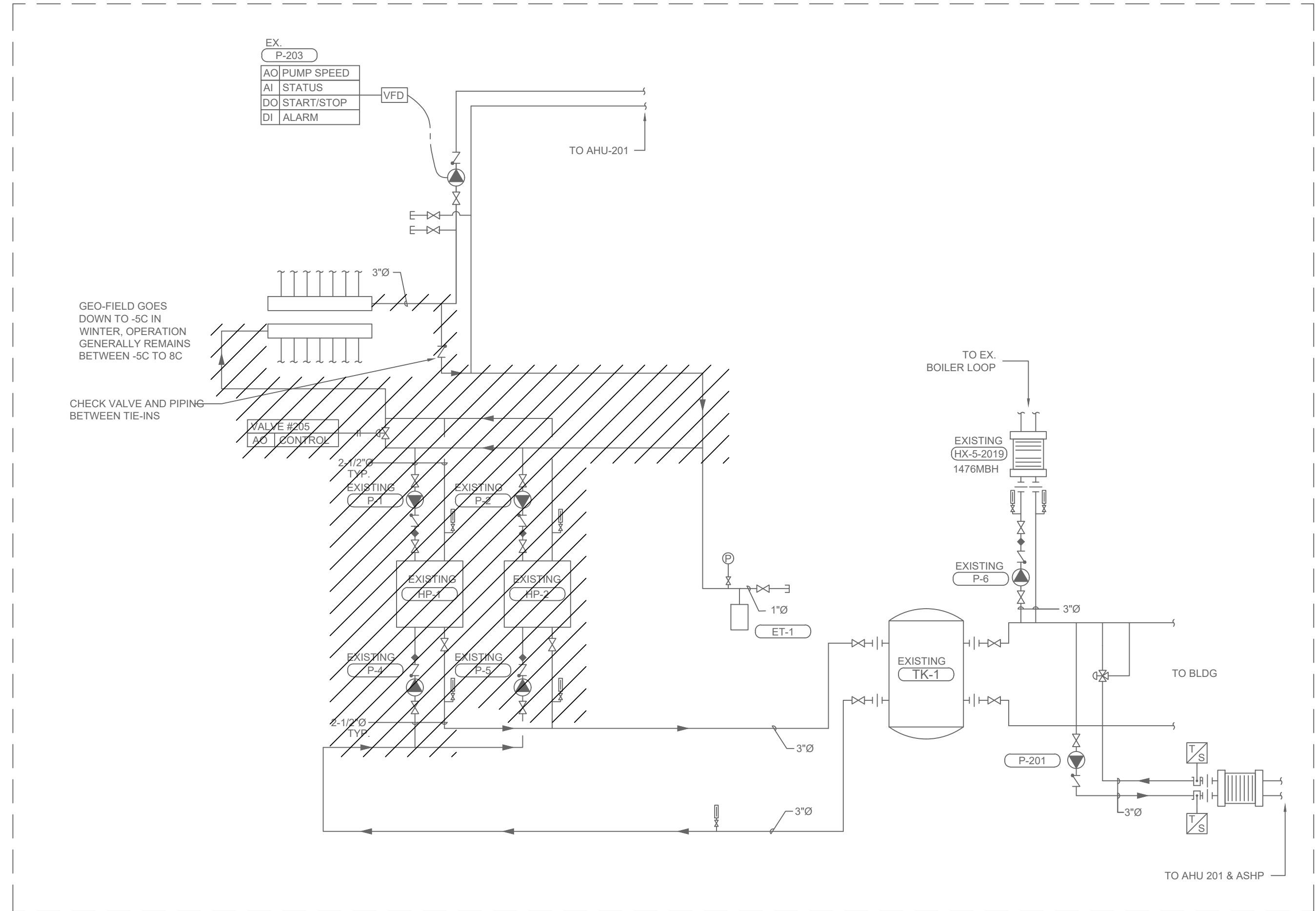
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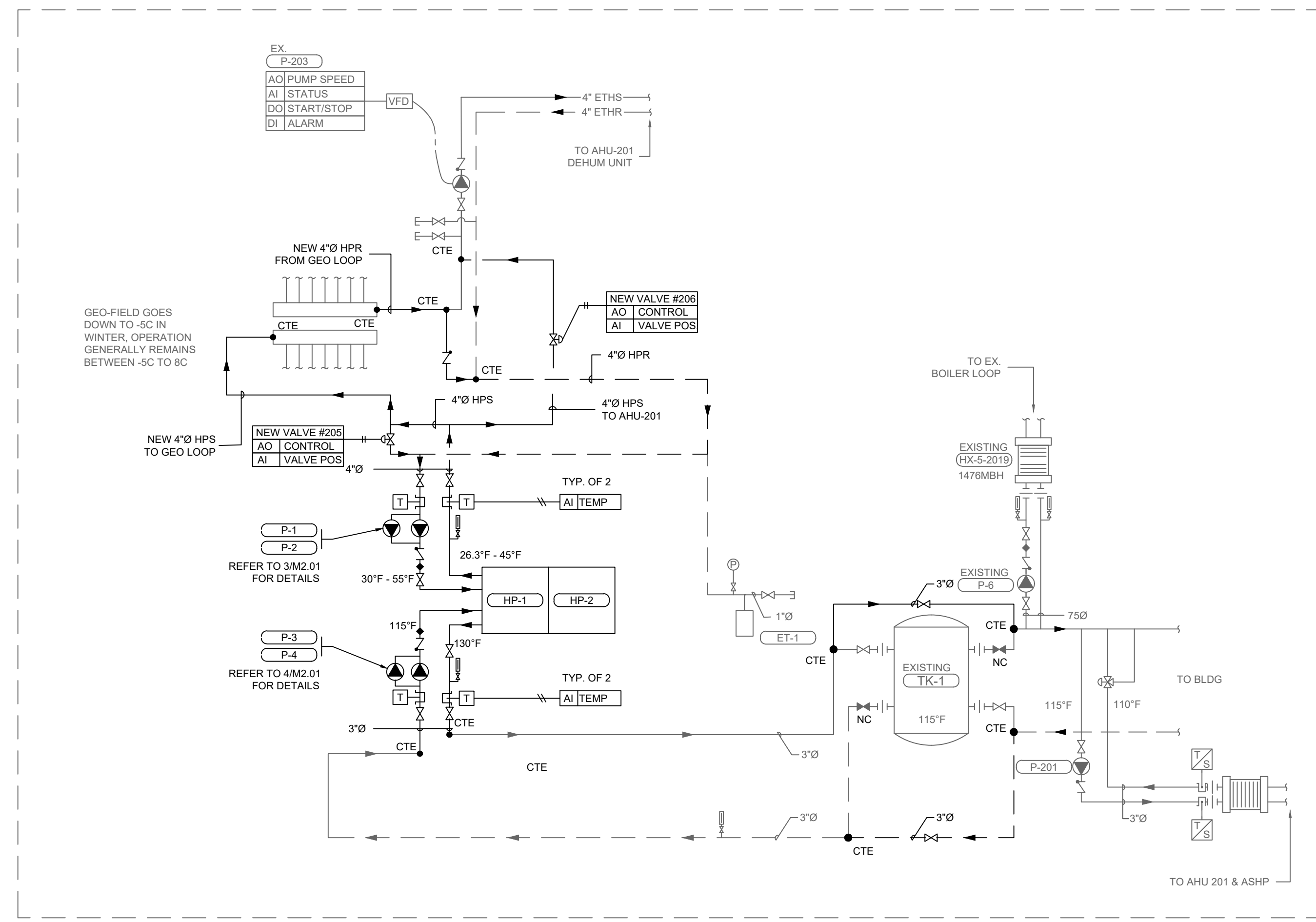
3 SOURCE SIDE PARALLEL PUMP DETAILS
 SCALE: NTS



4 LOAD SIDE PARALLEL PUMP DETAILS
 SCALE: NTS



1 MECHANICAL SCHEMATIC - DEMO
 SCALE: NTS



2 MECHANICAL SCHEMATIC - NEW
 SCALE: NTS

CONSULTANT:

SEAL:



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MEADOW PARK SPORTS CENTRE - GROUND SOURCE HP REPLACEMENT

PROJECT ADDRESS:
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 WHISTLER, BC
 V8E 1K1

DRAWN BY: JX
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MECHANICAL SPECIFICATION

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