



## Appendix E: As-Built Reports

**Pogo Mine**  
**ADEC Final Operational Approval Package**  
**Modifications to Existing Wastewater System**  
**10 January 2012**

**Sumitomo Metal Mining Pogo, LLC**  
**P.O. Box 145**  
**Delta Junction, AK 99737**



## Sumitomo Metal Mining Pogo LLC

P.O. Box 145  
Delta Junction  
AK 99737 USA

TEL: +1 907 895 2841  
FAX: +1 907 895 2866  
URL: [www.smm.co.jp](http://www.smm.co.jp)



January 10, 2013  
COR-13-004  
Hand Delivered by M2C1

Mr. Bill Smyth  
Alaska Department of Environmental Conservation  
610 University Avenue  
Fairbanks, AK 99709

Subject: Request for Approval to Operate for Sumitomo Metal Mining Pogo LLC (Pogo) -  
Modifications to Existing Wastewater Treatment Plant (WWTP), ADEC Tracking  
#8992

Dear Mr. Smyth:

Sumitomo Metal Mining Pogo LLC (Pogo) hereby requests approval to operate the modifications to the wastewater treatment plant (WWTP) serving the Pogo mine site. M2C1 Construction & Engineering (M2C1) and Sanitherm Inc. (SI) recently completed the construction and startup. Pursuant to the approval to construct and interim approval to operate issued by the Alaska Department of Environmental Conservation (ADEC) dated July 11, 2012 and October 19, 2012, respectively, Pogo is enclosing the following documents:

1. *Record drawing.* Drawings reflecting as-built record conditions of the WWTP and modified sewer system.
2. *Certification of Construction.* See attached.
3. *O&M manual.* The preliminary O&M manual was reviewed during startup, and the final wastewater treatment system O&M Manual is on site.
4. *Discharge Monitoring Reports.* Discharge monitoring reports are submitted monthly to the ADEC office in Fairbanks. The wastewater effluent discharge has consistently remained within the limits of the APDES Permit No. AK0053341.

If you have any questions, please give me a call at 907-895-2879 or email me at [sally.mcleod@smpogo.com](mailto:sally.mcleod@smpogo.com).

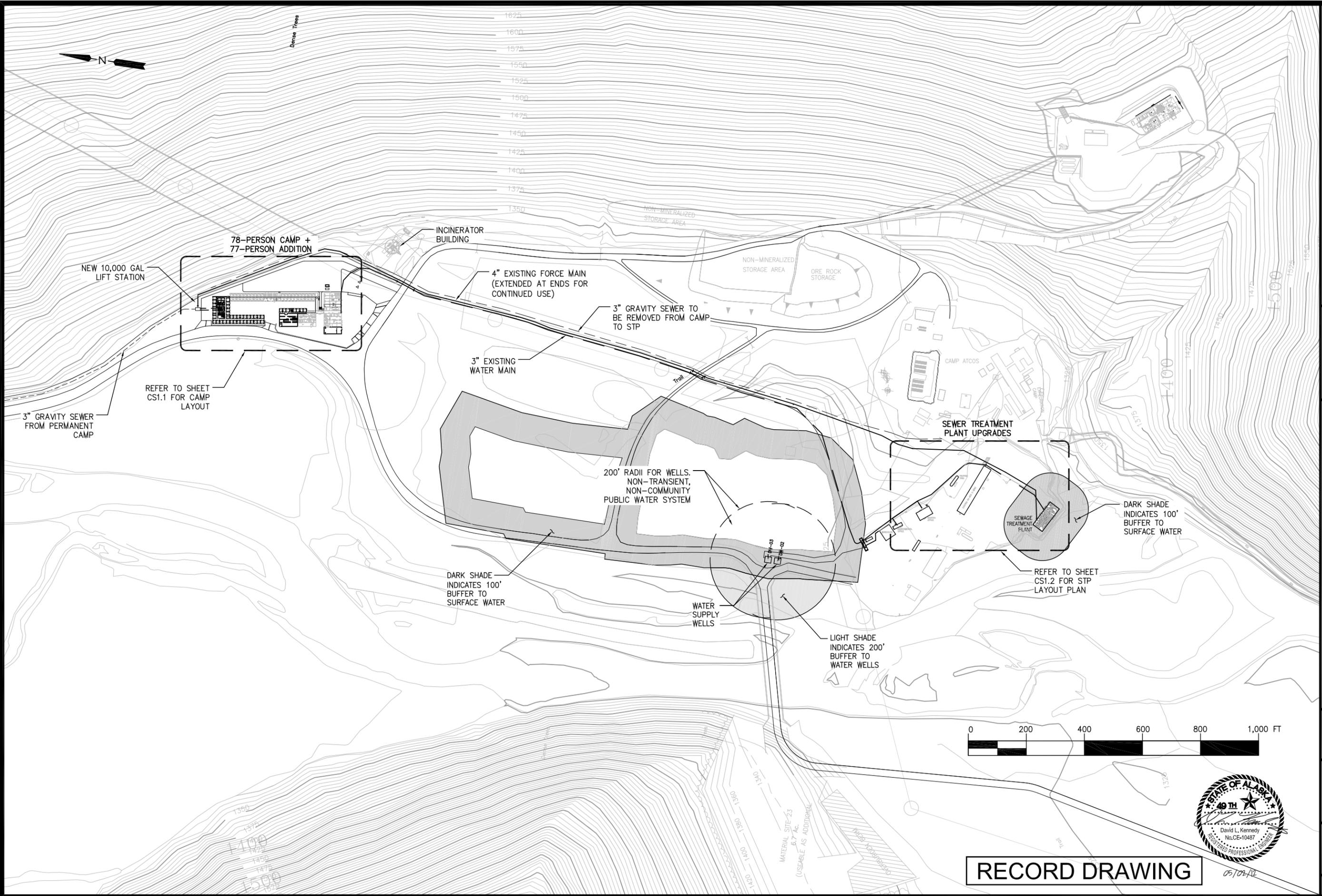
Sincerely,

Sally McLeod, CEM, REM  
Environmental Superintendant

Attachments: Record Drawings and Certification of Construction

Cc: Sharmon Stambaugh, ADNR  
Kim Speckman, ADEC  
Tim Pilon, ADEC

# **RECORD DRAWINGS**



M2C1  
 Construction and Engineering  
 P.O. Box 1750  
 Delta Junction, Alaska 99737  
 Tel: 907-895-5441  
 Fax: 907-895-5443



5/CAMP

**POGO MINE  
 LOWER CAMP EXPANSION  
 DELTA JUNCTION, ALASKA**

DATE: \_\_\_\_\_  
 PROJECT NO.: \_\_\_\_\_  
 DRAWN: CFG  
 CHECKED: DLK

TITLE:  
 CAMP LOCATION PLAN

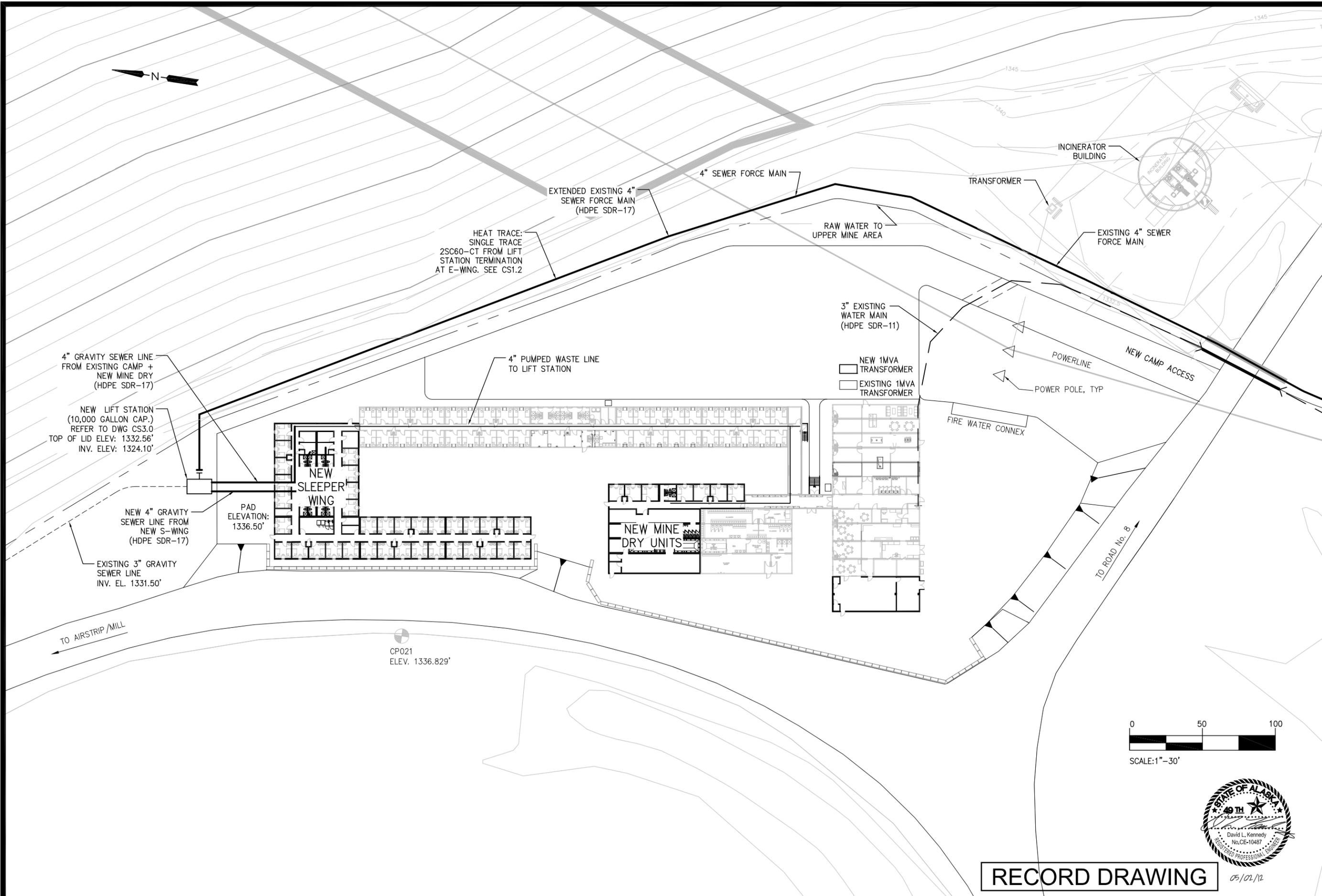
SHEET:  
**CS1.0**

REVISION#  
 01/08/13

**RECORD DRAWING**



05/09/12



4" GRAVITY SEWER LINE FROM EXISTING CAMP + NEW MINE DRY (HDPE SDR-17)

NEW LIFT STATION (10,000 GALLON CAP.) REFER TO DWG CS3.0 TOP OF LID ELEV: 1332.56' INV. ELEV: 1324.10'

NEW 4" GRAVITY SEWER LINE FROM NEW S-WING (HDPE SDR-17)

EXISTING 3" GRAVITY SEWER LINE INV. EL. 1331.50'

PAD ELEVATION: 1336.50'

HEAT TRACE: SINGLE TRACE 25C60-CT FROM LIFT STATION TERMINATION AT E-WING. SEE CS1.2

EXTENDED EXISTING 4" SEWER FORCE MAIN (HDPE SDR-17)

4" SEWER FORCE MAIN

RAW WATER TO UPPER MINE AREA

3" EXISTING WATER MAIN (HDPE SDR-11)

NEW 1MVA TRANSFORMER  
EXISTING 1MVA TRANSFORMER

FIRE WATER CONNEX

POWERLINE

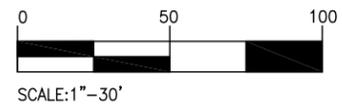
POWER POLE, TYP

NEW CAMP ACCESS

TO ROAD No. 8

TO AIRSTRIP/MILL

CP021  
ELEV. 1336.829'



**RECORD DRAWING**

05/02/12

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Fax: 907-895-5443



5/AMP

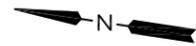
**POGO MINE  
LOWER CAMP EXPANSION  
DELTA JUNCTION, ALASKA**

DATE: \_\_\_\_\_  
PROJECT NO.: \_\_\_\_\_  
DRAWN: CFG  
CHECKED: DLK

TITLE:  
**CAMP  
ADDITION  
LAYOUT  
PLAN**

SHEET:  
**CS1.1**

REVISION#  
01/08/13



HEAT TRACE:  
25C60-CT  
CONSTANT  
WATTAGE

HEAT TRACE:  
10BTV2-CT  
SELF-REG

FLANGED  
CONNECTION

NEW SECTION OF 4"  
FORCE MAIN  
(HDPE SDR-17)

PROPANE  
TANK

4" WATER MAIN  
(HDPE SDR-17)

E-WING LIFT STATION

EXISTING WATER  
SERVICE TO STP

SEWER LINE CROSSES UNDER  
WATER LINE. MAINTAIN 18" (MIN)  
VERTICAL SEPARATION AND 9'  
(MIN) JOINT SEPARATION

1 1/2" Ø HDPE DR17  
SANITARY FORCE MAIN

EXISTING REDPATH  
OFFICE LIFT STATION

3" FORCE MAIN FROM  
E-WING LIFT STATION  
(HDPE SDR-17)

EXISTING 50-BED E-WING

SEWAGE  
TREATMENT  
PLANT

EXISTING ENVIRONMENTAL  
OFFICE LIFT STATION

REDPATH  
OFFICE

ENVIRONMENTAL  
OFFICE



SCALE: 1" = 20'



05/02/12

**RECORD DRAWING**

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5/AMP

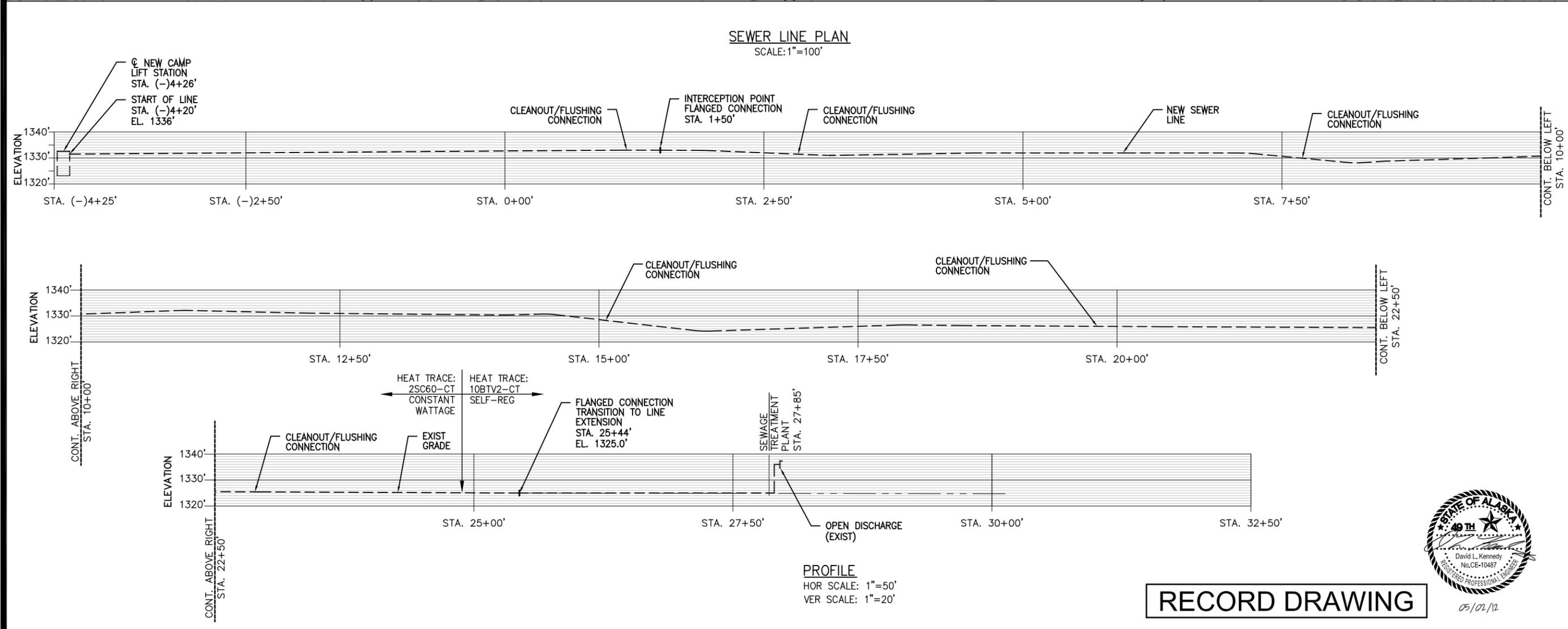
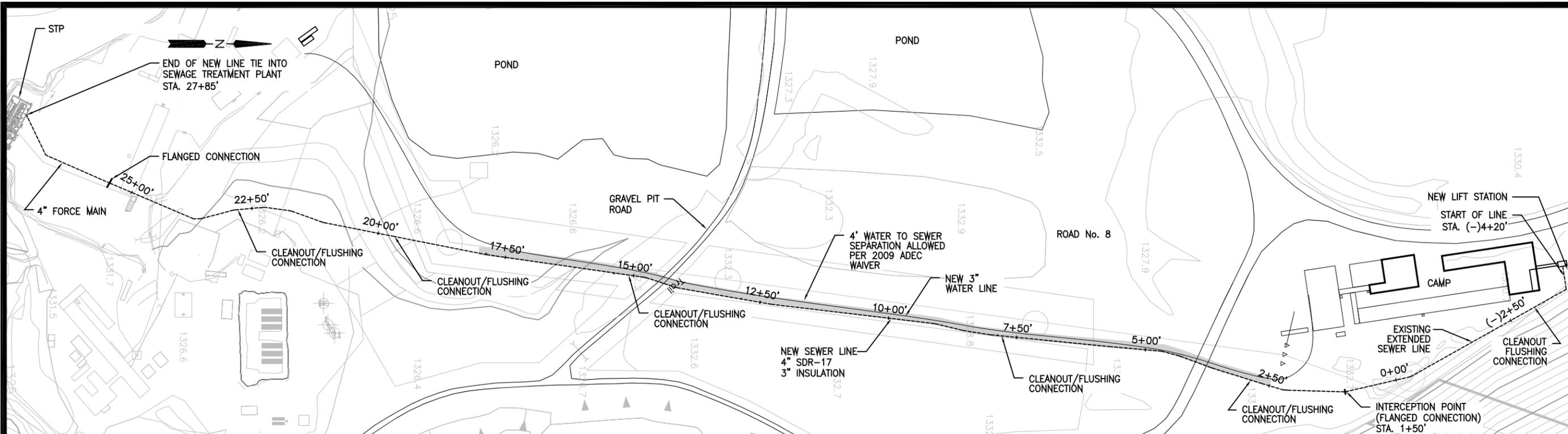
**POGO MINE  
LOWER CAMP EXPANSION  
DELTA JUNCTION, ALASKA**

DATE: \_\_\_\_\_  
PROJECT NO.: \_\_\_\_\_  
DRAWN: CFG  
CHECKED: DLK

TITLE:  
**E-WING/SEWER  
TREATMENT PLANT  
LAYOUT PLAN**

SHEET:  
**CS1.2**

REVISION#  
01/08/13



**RECORD DRAWING**



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5/CAMP

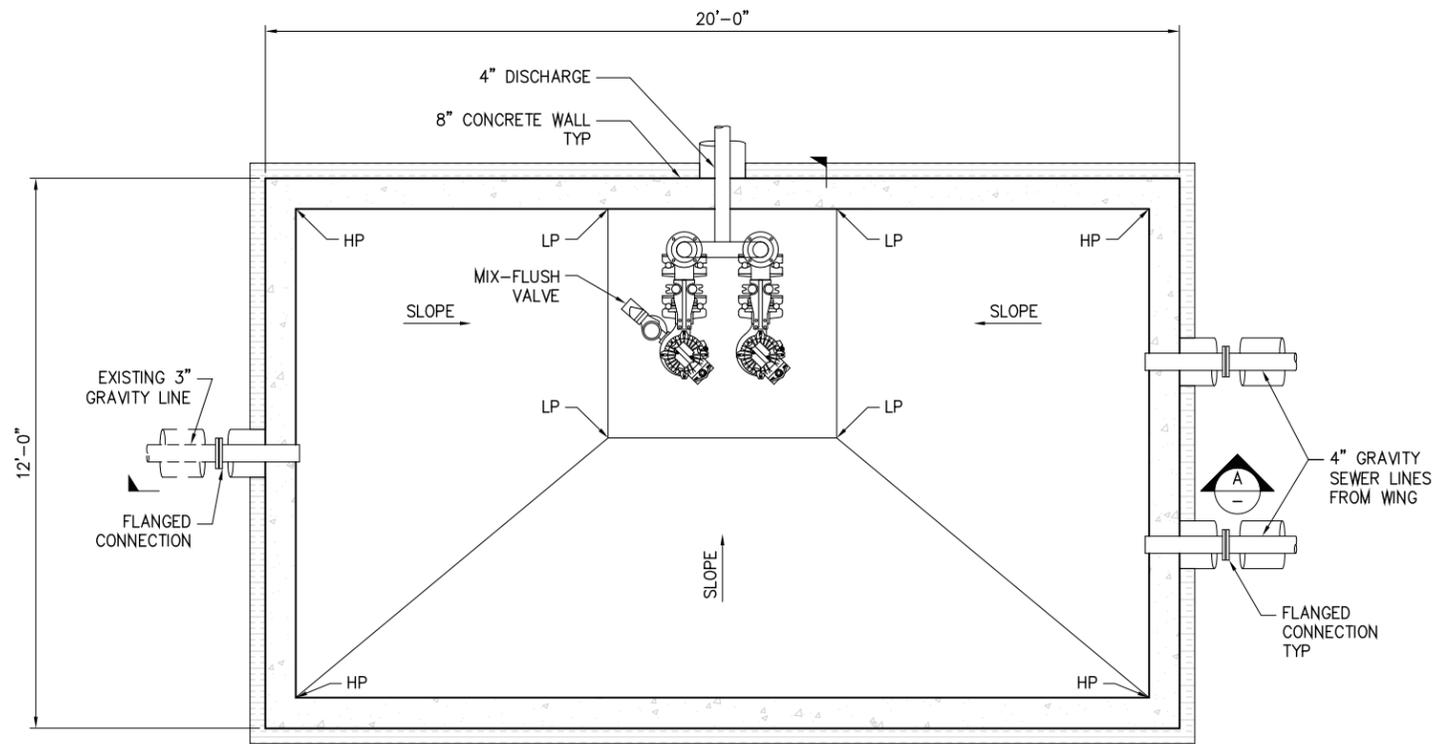
**POGO MINE  
LOWER CAMP EXPANSION  
DELTA JUNCTION, ALASKA**

DATE: \_\_\_\_\_  
PROJECT NO.: \_\_\_\_\_  
DRAWN: CFG  
CHECKED: DLK

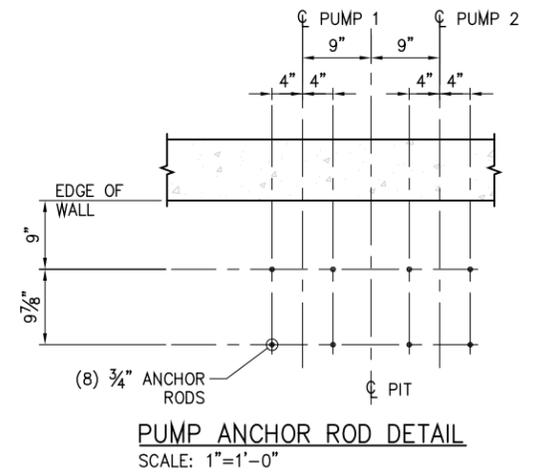
TITLE:  
SEWER LINE  
PLAN AND PROFILE

SHEET:  
**CS2.0**

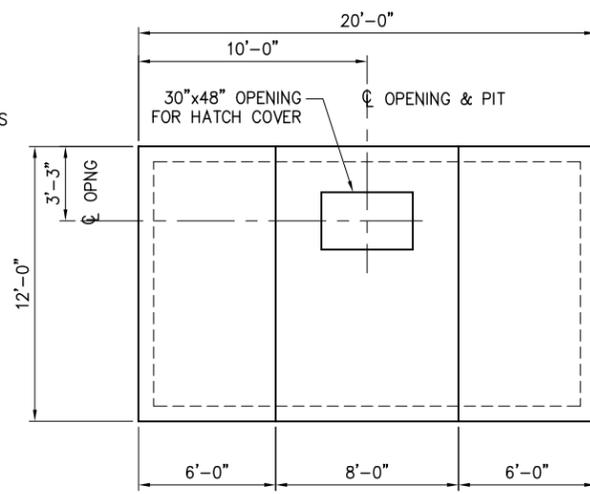
REVISION#  
01/08/13



**NEW LIFT STATION PLAN**  
SCALE: 1/2"=1'-0"



**PUMP ANCHOR ROD DETAIL**  
SCALE: 1"=1'-0"



**NEW LIFT STATION CONCRETE LID LAYOUT**  
SCALE: 1/4"=1'-0"

**NEW LIFT STATION DATA:**

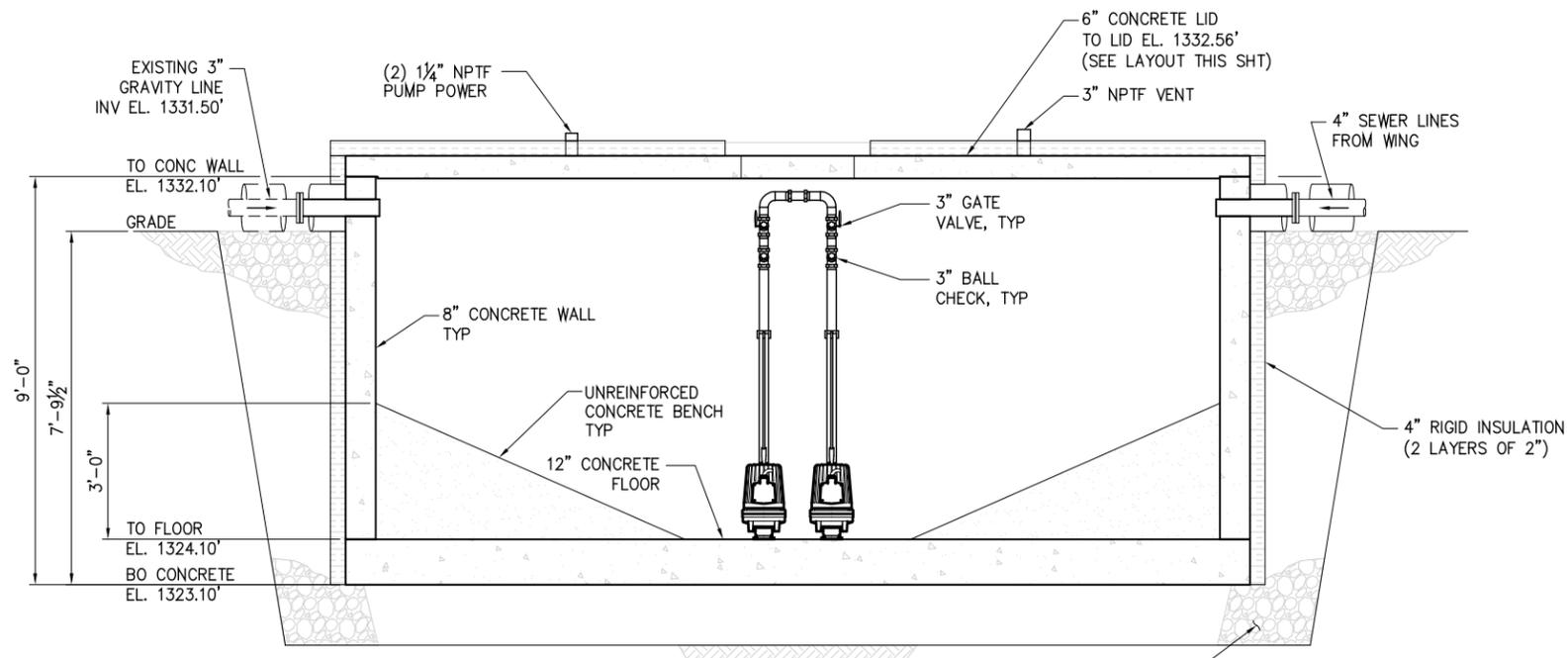
TANK SIZE: L: 18'-8", W: 10'-8", H: 7'-6"  
 DUPLEX PUMPS: FLYGT 6.5HP, 480V 3-PHASE, MODEL #NP3102.90, IMPELLER DIAMETER: 135mm  
 SC1000 CONTROL SYSTEM  
 OFF: 11"  
 PUMP #1 ON: 36"  
 PUMP #2 ON: 42"  
 ALARM: 48"

**NOTES:**

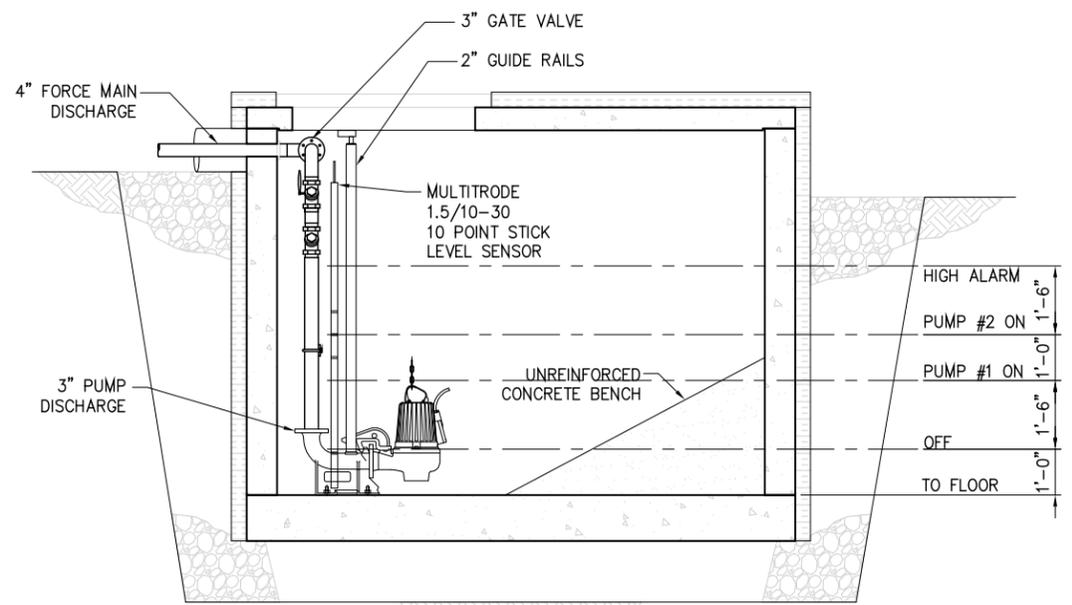
- TANK INSULATED WITH 4" OF RIGID INSULATION (2 LAYERS OF 2")
- ELECTRICAL CLASSIFICATION: CLASS 1, GROUP D, DIVISION 1
- BALL CHECK VALVES: FLYGT 3", PART #839172
- MIX FLUSH SYSTEM: FLYGT 3102 HT/SH
- MULTITRODE PROBE: 2.0/10-30
- COMBUSTIBLE GAS DETECTION REQUIRED IAW NFPA 820
- CONTROLS AND LIFT STATION PACKAGE: ALASKA PUMP (PER POGO STANDARDS)
- COORDINATE CONTROL PANEL INSTALLATION WITH OWNER



**RECORD DRAWING**



**SECTION A**  
SCALE: 1/2"=1'-0"



**SECTION B**  
SCALE: 1/2"=1'-0"

M2C1  
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5/20/12

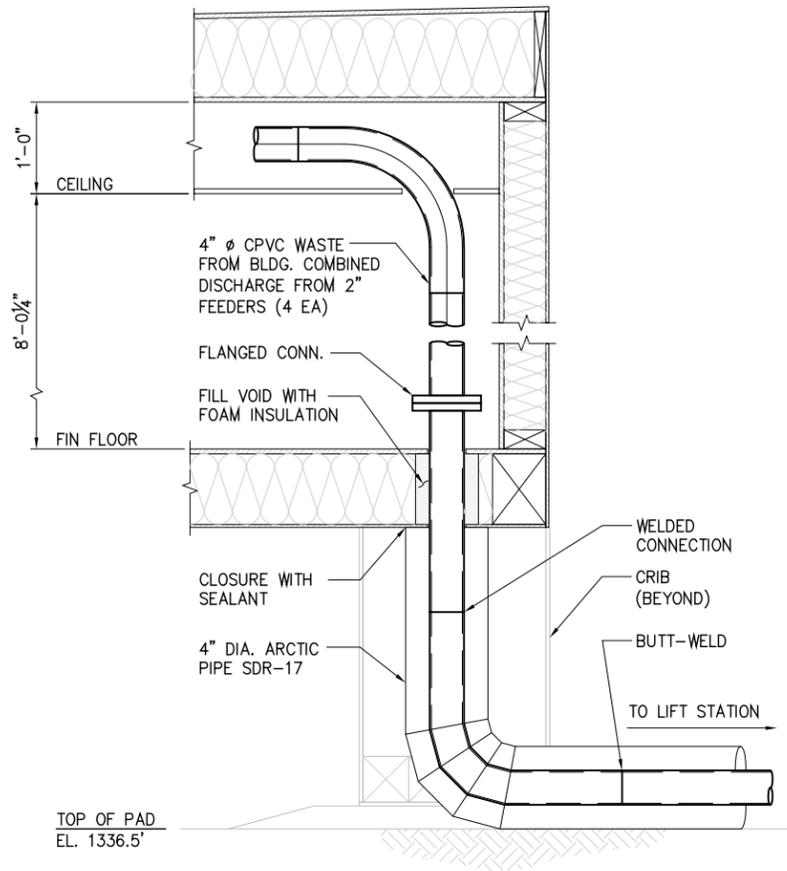
**POGO MINE  
 LOWER CAMP EXPANSION  
 DELTA JUNCTION, ALASKA**

DATE: \_\_\_\_\_  
 PROJECT NO: \_\_\_\_\_  
 DRAWN: CFG  
 CHECKED: DLK

TITLE:  
**SANITARY LIFT STATION PLAN AND SECTIONS**

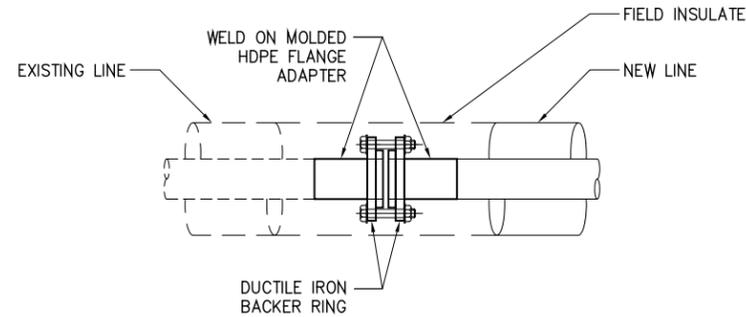
SHEET:  
**CS3.0**

REVISION#  
 01/08/13



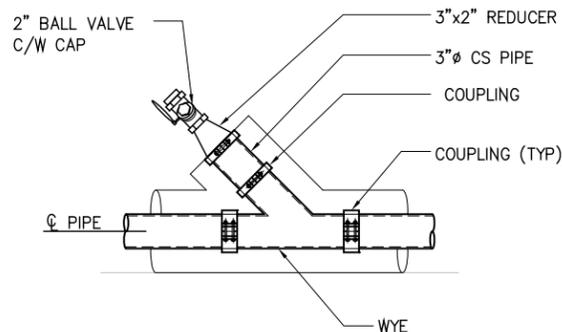
CONNECTION TO PRESSURIZED SEWER LINES AT BUILDING

DETAIL 1  
SCALE: 1"=1'-0"



TYPICAL SEWER FLANGED CONNECTION

DETAIL 2  
SCALE: 1 1/2" = 1'-0"



SEWER CLEANOUT/FLUSHING CONNECTION

DETAIL 3  
SCALE: 1" = 1'-0"

SEWER SYSTEM NOTES:

1. CAMP EXPANSION WILL RESULT IN AN INCREASED LOADING TO THE POGO SEWAGE TREATMENT PLANT (STP). STP EXPANSION IS ADDRESSED IN SEPARATE DRAWINGS.
2. MAINTAIN MINIMUM 10' SEPARATION DISTANCE TO POTABLE WATER MAINS.
3. MAINTAIN MINIMUM 100' SEPARATION TO SURFACE WATERS.
4. PIPE JOINTS TO BE FUSION-WELDED BY CERTIFIED WELDER. MECHANICAL CONNECTIONS FOR FITTINGS, WHERE USED, SHALL HAVE A MIN. NOMINAL PRESSURE RATING OF 100 PSIG.
5. SANITARY SEWER LINE TO BE PROTECTED FROM FREEZING BY EITHER CONSTANT WATTAGE OR SELF-REGULATING HEAT TRACE.  
-MANUFACTURER: RAYCHEM  
-CONTROLS: DIGITRACE 920  
-DESIGN: BY MANUFACTURER
6. PROVIDE 1 SPARE HEAT TRACE CHANNEL IN PIPING FOR FUTURE/ALTERNATE USE.
7. MINIMIZE GROUND DISTURBANCE TO THE MAXIMUM EXTENT POSSIBLE DURING CONSTRUCTION.
8. FILL AND BEDDING, WHERE USED, TO BE CLEAN GRAVEL AVAILABLE ONSITE: 1" MINUS (D-1) OR EQUIVALENT.
9. LOWER CONSTRUCTION CAMP FACILITIES ARE PROTECTED WITH EMERGENCY POWER. CONSTRUCTION CAMP + EXPANSION WILL NOT HAVE EMERGENCY POWER. IN AN EVENT OF A POWER FAILURE, CONSTRUCTION CAMP PRESSURIZED SYSTEM IS FAIL-SAFE. ADEQUATE SURGE CAPACITY IS PROVIDED IN NEW LIFT STATION TO PROVIDE TIME TO REGAIN POWER OR CONNECT TEMPORARY POWER.
10. MOBILE GENERATOR, PUMP, TANK, AND TRUCK CAPABILITIES TO BE MAINTAINED ONSITE POGO IN THE EVENT OF AN EMERGENCY.
11. SYSTEM TO BE MAINTAINED AND OPERATED BY SMM POGO LLC. CERTIFIED OPERATOR: MR JOSEPH SMITH, WASTEWATER LEVEL II CERTIFIED.
12. CLEANOUTS AND AIR/VACUUM VALVES PROVIDED TO MAXIMIZE SYSTEM OPERATION. PROVIDE ROUTINE CLEANOUT AND AIR/VACUUM VALVE MAINTENANCE TO ENSURE OPERABILITY.
13. THERE ARE NO SERVICE CONNECTIONS TO THE SYSTEM FOR PETROLEUMS, INDUSTRIAL WASTES, STORMWATER, OR RUNOFF.
14. NEW PRESSURIZED LINE TO BE HYDROSTATICALLY TESTED TO 100 PSIG BY A 4-HR/1-HR NON-MONITORED MAKEUP WATER TEST IAW PLASTIC PIPE ENGINEERING HANDBOOK. PRESSURE STABILIZATION TOLERANCE: <5%.
15. GROUND DISTURBANCE << 1 ACRE. SWPPP NOT REQUIRED. ONSITE WORK SHALL STILL COMPLY WITH ACGP REQUIREMENTS.
16. CAPTURE/CONTAIN ALL WASTE ASSOCIATED WITH 3" LINE REMOVAL. TRANSPORT TO STP FOR DISPOSAL AND TREATMENT.

M2C1 Construction and Engineering  
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Fax: 907-895-5443



5/CAMP

POGO MINE  
LOWER CAMP EXPANSION  
DELTA JUNCTION, ALASKA

RECORD DRAWING



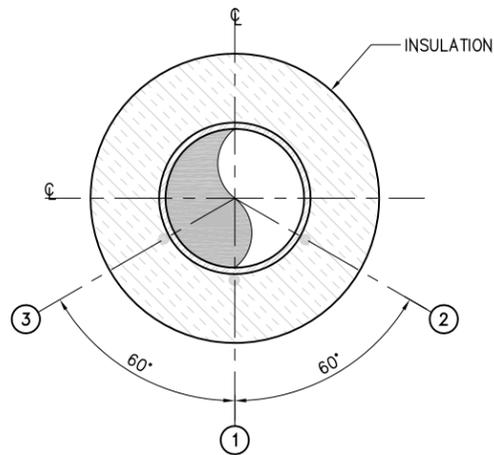
05/02/12

DATE: \_\_\_\_\_  
PROJECT NO: \_\_\_\_\_  
DRAWN: CFG  
CHECKED: DLK

TITLE:  
ARCTIC PIPE CONNECTION DETAILS

SHEET:  
CS3.1

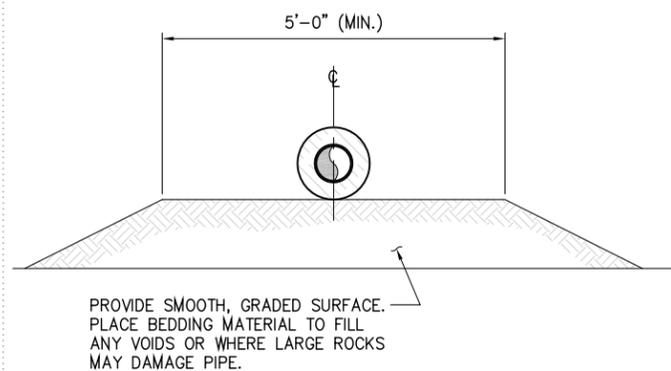
REVISION#  
01/08/13



- ① PRIMARY HEAT TRACE CHANNEL
- ② SPARE HEAT TRACE CHANNEL (NO CONDUCTOR)
- ③ SPARE HEAT TRACE CHANNEL (NO CONDUCTOR)

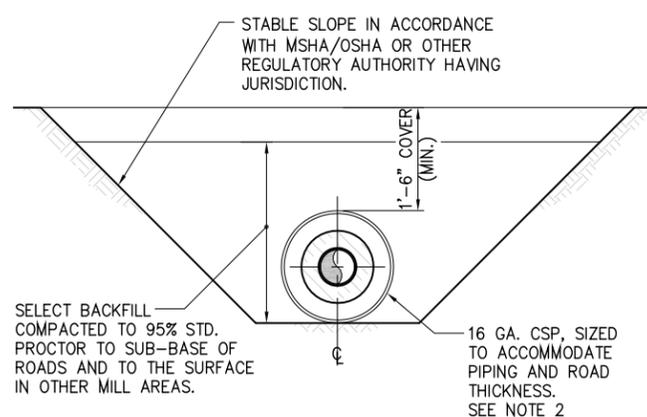
TYPICAL INSULATED/HEAT TRACED PIPE ORIENTATION

DETAIL ①  
SCALE: N.T.S.



TYPICAL ABOVE GRADE PIPE INSTALLATION

DETAIL ②  
SCALE: 3/4" = 1'-0"

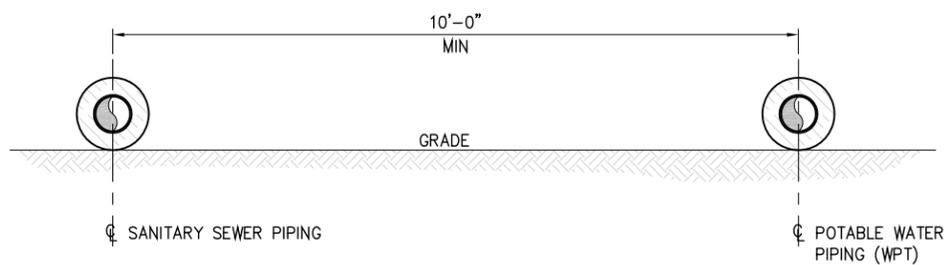


TYPICAL TRENCH SECTION UNDER ROADWAYS

DETAIL ③  
SCALE: N.T.S.

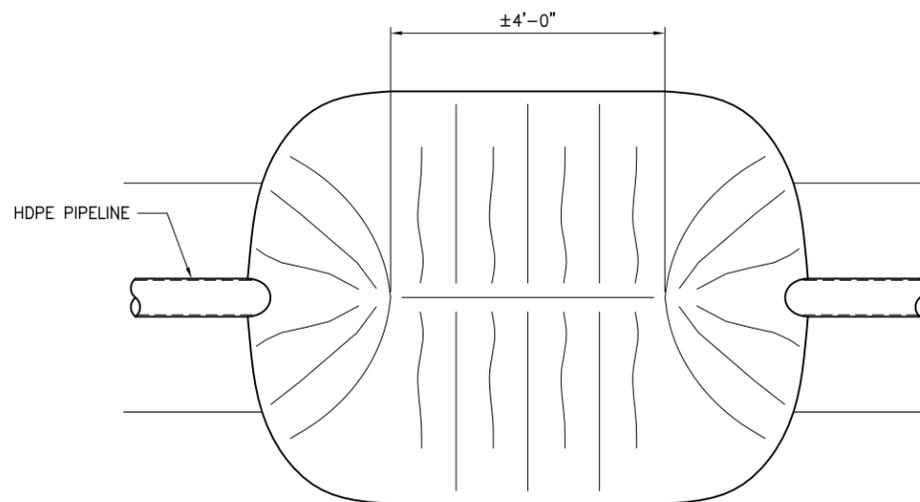
NOTE:

1. CONSTRUCTION MANAGER TO DETERMINE PIPE SIZE AND LOCATION OF ROAD CROSSINGS.



TYPICAL HORIZONTAL & VERTICAL PIPING SEPARATION REQUIREMENTS

DETAIL ④  
SCALE: N.T.S.



TYPICAL ABOVE GRADE GRAVEL PIPE ANCHOR

DETAIL ⑤  
SCALE: N.T.S.

RECORD DRAWING



05/02/12

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Tel: 907-895-5441  
Fax: 907-895-5443



5/AMP

POGO MINE  
LOWER CAMP EXPANSION  
DELTA JUNCTION, ALASKA

DATE: \_\_\_\_\_  
PROJECT NO: \_\_\_\_\_  
DRAWN: CFG  
CHECKED: DLK

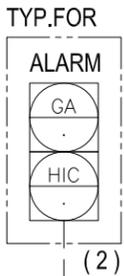
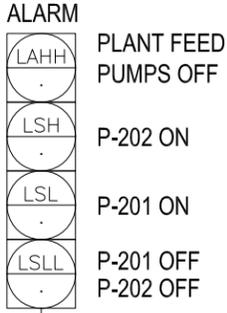
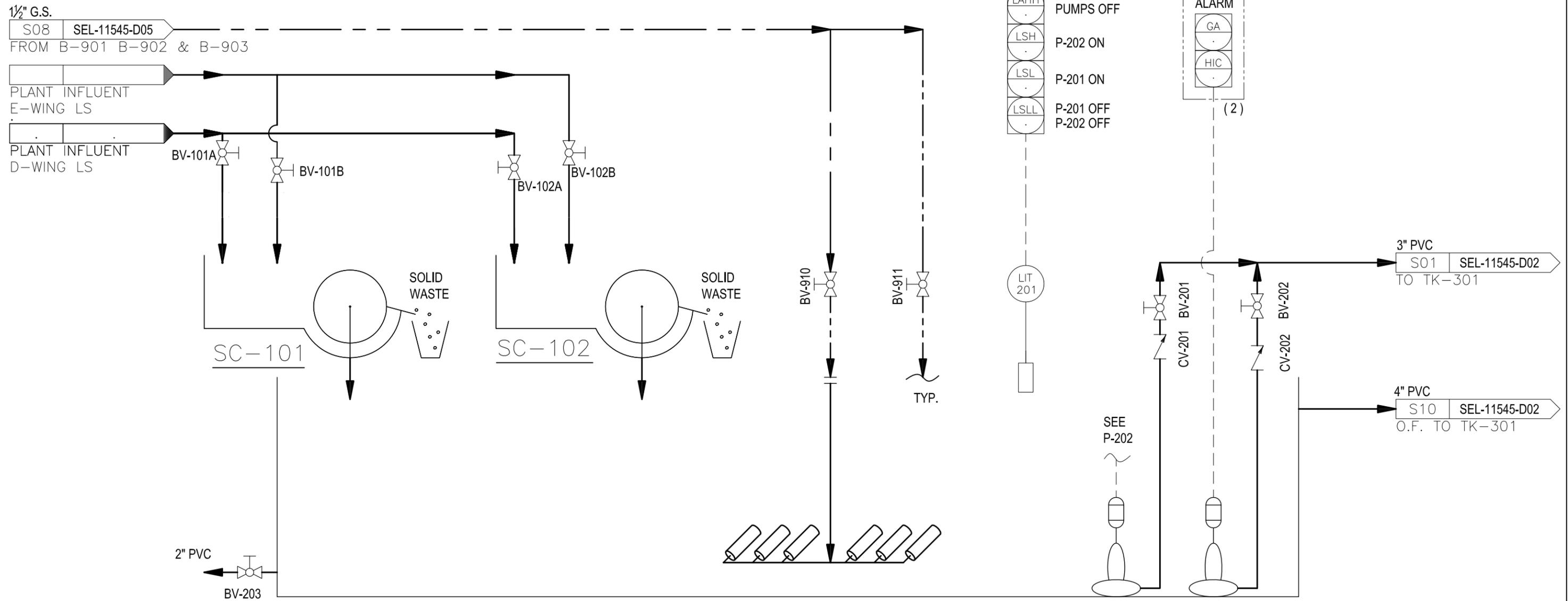
TITLE:  
ARCTIC PIPE  
INSTALLATION  
DETAILS

SHEET:  
CS4.0

REVISION#  
01/08/13

The equipment suppliers and manufacturer's as-built, record drawings (submitted herein) have been reviewed by this engineer, and represent the installed wastewater treatment system which meets the original design intent and is compliant with the requirements of 18AAC72 and the facility APDES permit for wastewater treatment effluent.





SC-101 SC-102

**AUTOMATIC FINE SCREEN**

MODEL: RSS2524  
 SCREEN: 1.5 mm  
 CAPACITY: 700 USGPM  
 POWER: 0.5 HP  
 ELECTRICAL: 480 V / 3 Ø / 60 Hz

TK-201

**EQUALIZATION TANK**

CAPACITY: 15,000 USG (NOMINAL)  
 SIZE: - W 10'-5"  
 - L 18'-0"  
 - H 10'-0"  
 MATERIAL: S.S.

P-201 P-202

**E.Q. PUMPS ( EXISTING )**

MODEL: BARNES SGV 3042L

2	09-JAN-13	AS-BUILTS
1	16-APR-12	FOR APPROVAL
0	07-MAR-12	INITIAL RELEASE
REVISION	DATE	DESCRIPTION



**SANITHERM INC.**

A CLEAN HARBORS COMPANY  
 2120 HARTLEY AVE COQUITLAM, BC, V3K 6W5, CANADA

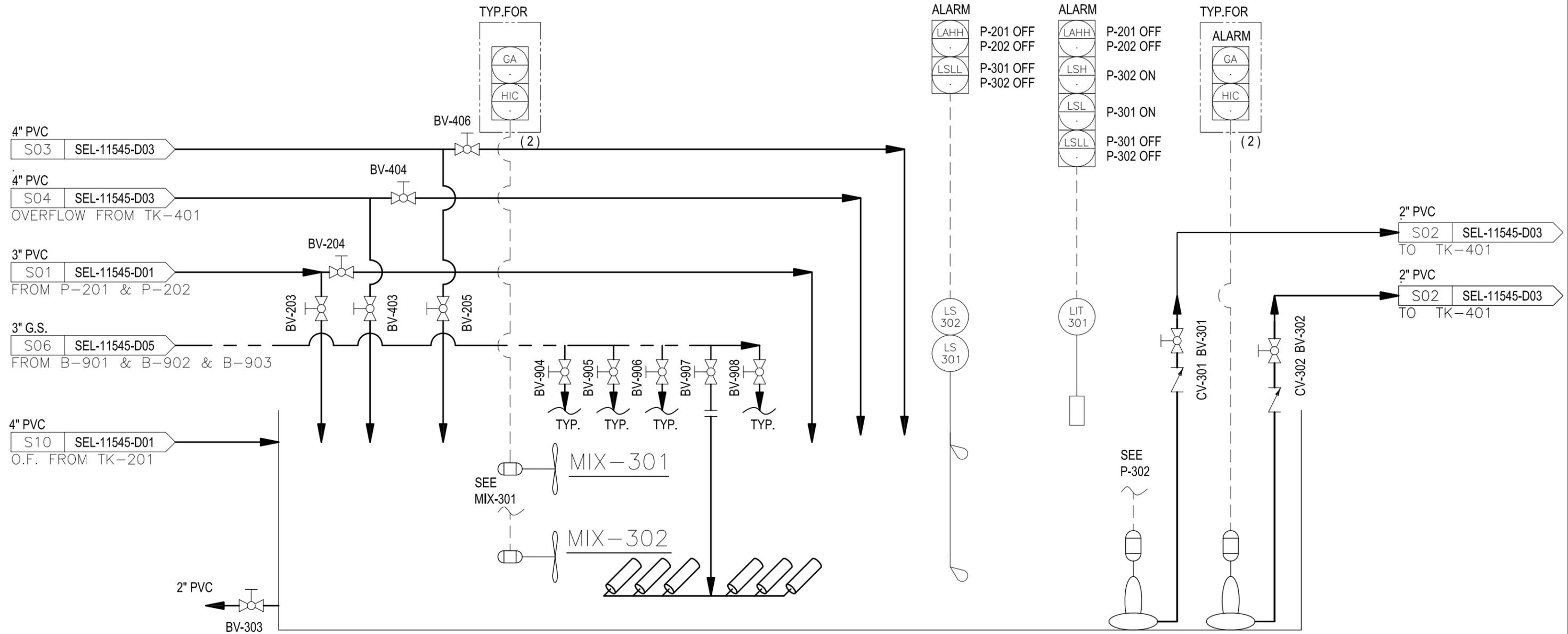
TEL: (604) 529 - 2150  
 FAX: (604) 529 - 2160

E-MAIL: information@sanitherm.com  
 WEBSITE: www.sanitherm.com

PROJECT	SMM POGO WWTP	PROJ. NO.	11545	
CLIENT	SUMITOMO METAL MINING POGO LLC		REV. NO.	2
TITLE	P & ID - SCREENS & E.Q. TANK			
DRAWN BY	T.Y.	CHECKED BY	A.L.	
DATE	12-SEP-12	SCALE	N.T.S.	
DRAWING NO.	SEL- 11545-d01			

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K:\M2C1\01 Current Jobs\1203&1204-WTP&STP-Upgrades\STP\D01-kevin(1).dwg



MIX-301 MIX-302

TK-301

P-301 P-302

**MIXER  
( EXISTING )**  
MODEL: ABS RW200-2022

**REACTOR TANK**  
CAPACITY: 18,000 USG  
SIZE: - W 10'-5"  
- L 33'-0"  
- H 8'-0"  
MATERIAL: S.S.

**RECYCLE PUMPS**  
MODEL: BARNES 2SE-51

2	09-JAN-13	AS-BUILTS
1	16-APR-12	FOR APPROVAL
0	07-MAR-12	INITIAL RELEASE
REVISION	DATE	DESCRIPTION



**SANITHERM INC.**

A CLEAN HARBORS COMPANY  
2120 HARTLEY AVE COQUITLAM, BC, V3K 6W5, CANADA

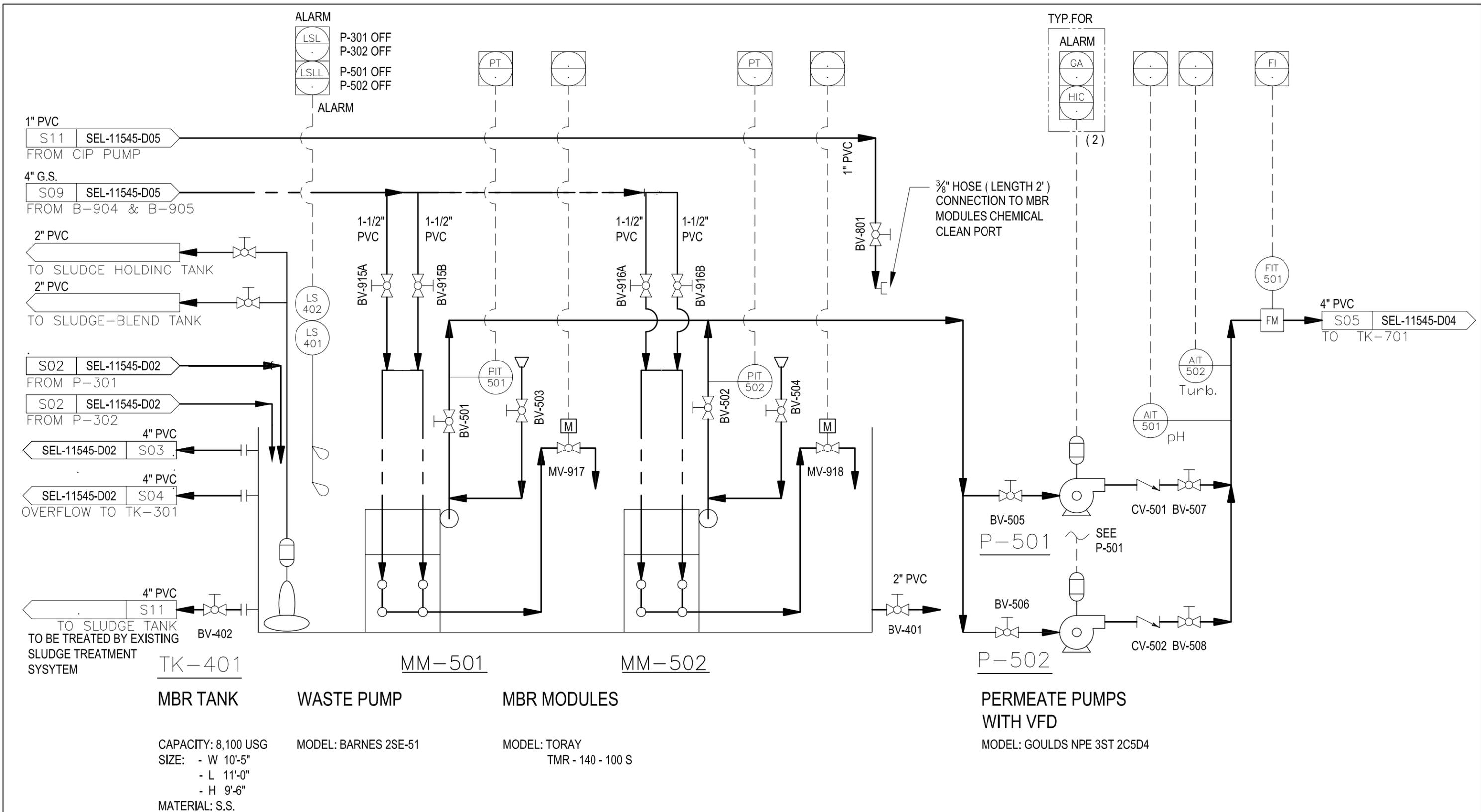
TEL: (604) 529 - 2150  
FAX: (604) 529 - 2160

E-MAIL: information@sanitherm.com  
WEBSITE: www.sanitherm.com

PROJECT	SMM POGO WWTP	PROJ. NO.	11545	
CLIENT	SUMITOMO METAL MINING POGO LLC		REV. NO.	2
TITLE	P & ID - REACTOR TANK			
DRAWN BY	T.Y.	CHECKED BY	A.L.	
DATE	09-JAN-13	SCALE	N.T.S.	
DRAWING NO.	SEL- 11545 - D02			

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K:\M2C1\01 Current Jobs\1203&1204-WTP&STP-Upgrades\STP\D01-kevin(1).dwg



REVISION	DATE	DESCRIPTION
2	09-JAN-13	AS-BUILTS
1	16-APR-12	FOR APPROVAL
0	07-MAR-12	INITIAL RELEASE

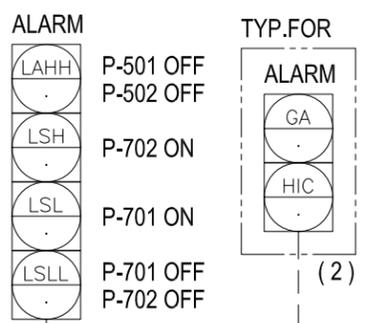
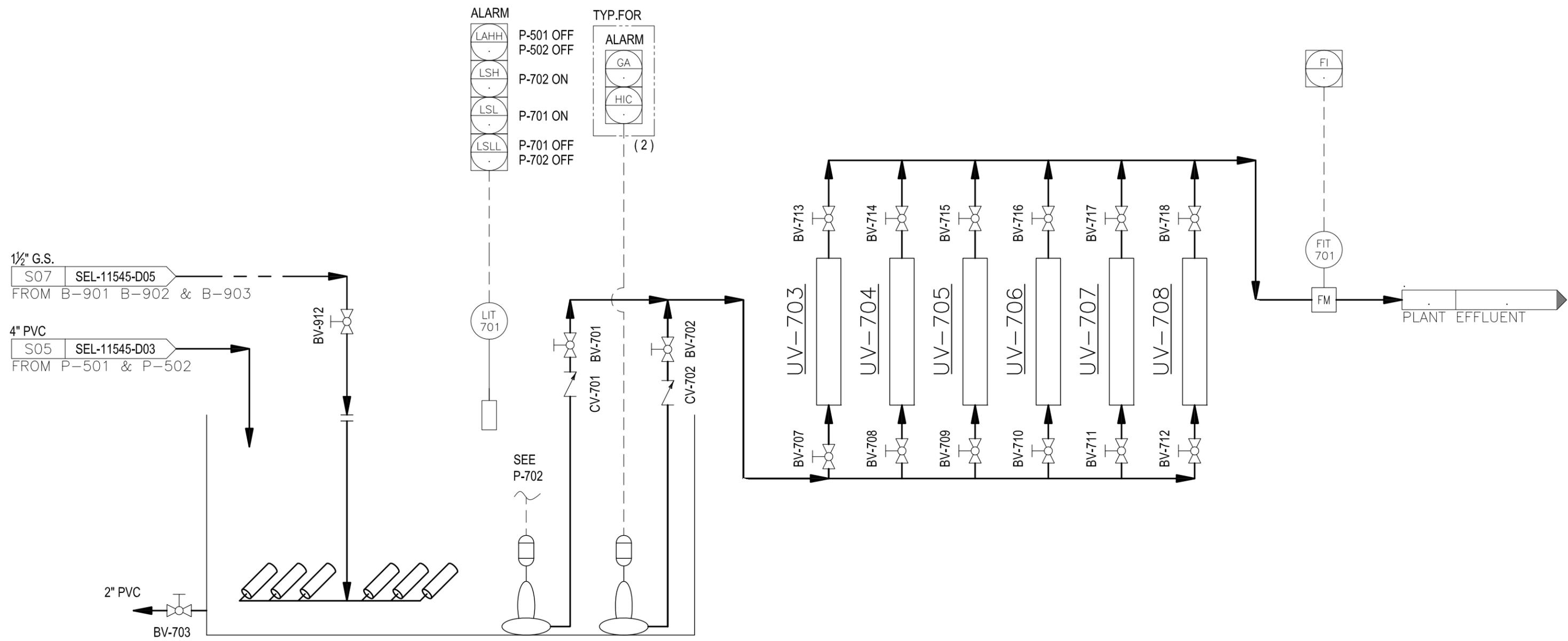


**SANITHERM INC.**  
 A CLEAN HARBORS COMPANY  
 2120 HARTLEY AVE COQUITLAM, BC, V3K 6W5, CANADA  
 TEL: (604) 529 - 2150 E-MAIL: information@sanitherm.com  
 FAX: (604) 529 - 2160 WEBSITE: www.sanitherm.com

PROJECT	SMM POGO WWTP	PROJ. NO.	11545
CLIENT	SUMITOMO METAL MINING POGO LLC	REV. NO.	2
TITLE	P & ID - MBR		
DRAWN BY	T.Y.	CHECKED BY	A.L.
DATE	09-JAN-12	SCALE	N.T.S.
DRAWING NO.	SEL- 11545 - D03		

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G:\M2C1\01 Current Jobs\1203&1204-WTP&STP-Upgrades\STP\D01-kevin(1).dwg



TK-701

**EFFLUENT TANK**

CAPACITY: 3,300 USG  
 SIZE: - W 10'-5"  
 - L 4'-6"  
 - H 9'-6"  
 MATERIAL: S.S.

P-701 P-702

**EFFLUENT PUMPS**

MODEL: ZOELLER 185/4185

UV-703 TO UV-708

**ULTRAVIOLET  
 DISINFECTION UNITS**

MODEL: UV PURE HALLETT 30-1.5

2	09-JAN-13	AS-BUILTS
1	16-APR-12	FOR APPROVAL
0	07-MAR-12	INITIAL RELEASE
REVISION	DATE	DESCRIPTION

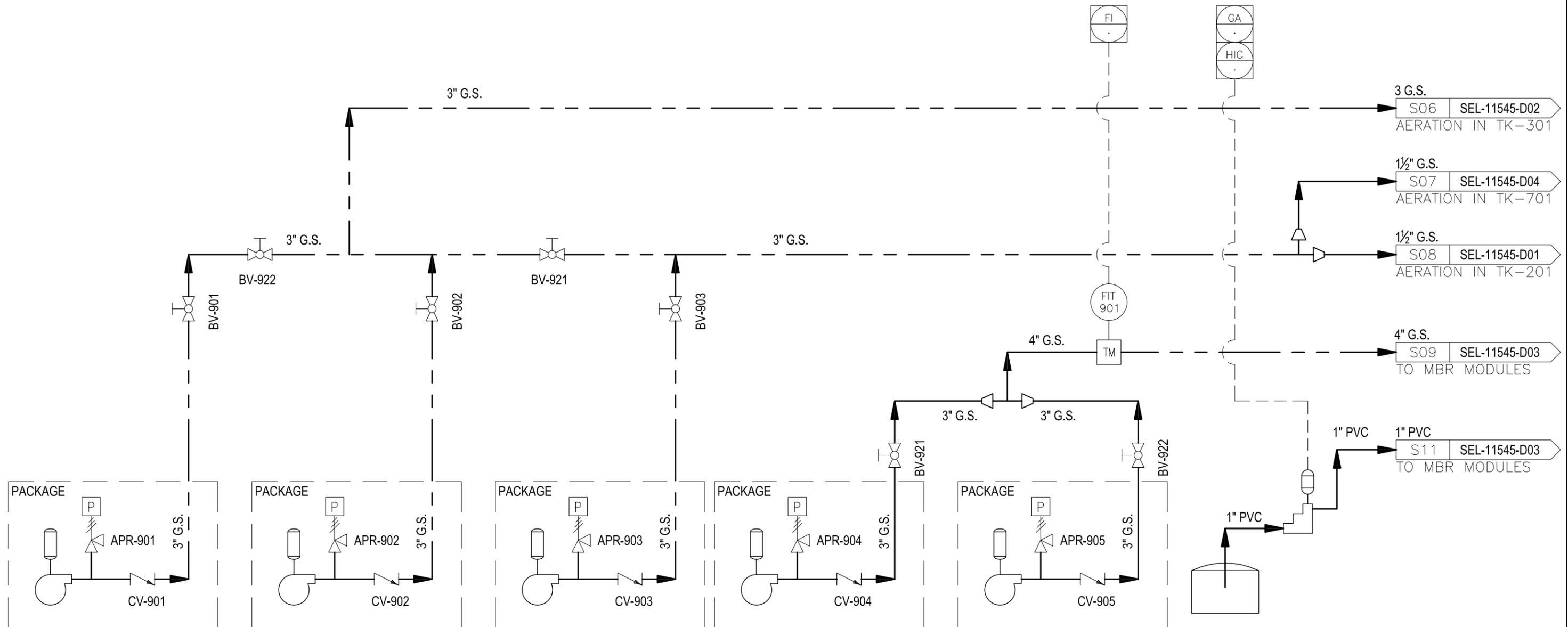


**SANITHERM INC.**  
 A CLEAN HARBORS COMPANY  
 2120 HARTLEY AVE COQUITLAM, BC, V3K 6W5, CANADA  
 TEL: (604) 529-2150 FAX: (604) 529-2160  
 E-MAIL: information@sanitherm.com WEBSITE: www.sanitherm.com

PROJECT	SMM POGO WWTP	PROJ. NO.	11545	
CLIENT	SUMITOMO METAL MINING POGO LLC		REV. NO.	2
TITLE	P & ID - EFFLUENT TANK & UVS			
DRAWN BY	T.Y.	CHECKED BY	A.L.	
DATE	09-JAN-13	SCALE	N.T.S.	
DRAWING NO.	SEL-11545-D04			

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K:\M2C1\01 Current Jobs\1203&1204-WTP&STP-Upgrades\STP\D01-kevin(1).dwg



**B-901**  
**AERATION BLOWER**

MODEL:  
 FLOW RATE: 300 sfcM @ 4 psi  
 POWER: 7.5 HP  
 ELECTRICAL: 460 V / 3Ø / 60Hz

**B-902**  
**AERATION BLOWER**

MODEL:  
 FLOW RATE: 300 sfcM @ 4 psi  
 POWER: 7.5 HP  
 ELECTRICAL: 460 V / 3Ø / 60Hz

**B-903**  
**AERATION BLOWER**

MODEL:  
 FLOW RATE: 150 sfcM @ 6.5 psi  
 POWER: 7.5 HP  
 ELECTRICAL: 460 V / 3Ø / 60Hz

**B-904**  
**MBR BLOWER WITH VFD**

MODEL: AERZEN  
 FLOW RATE: 150 sfcM @ 5.5 psi

**B-905**  
**MBR BLOWER WITH VFD**

MODEL: AERZEN  
 FLOW RATE: 150 sfcM @ 5.5 psi

**TK-801**  
**CIP TANK**

CAPACITY: 300 USG  
 SIZE: - Ø 2'-6"  
 - H 4'-6"  
 MATERIAL: POLYPROPYLENE

**P-801**  
**CHEMICAL PUMP**

MODEL: NEPTUNE  
 FLOW RATE: 5 GPM @ 5 psi

2	09-JAN-13	AS-BUILTS
1	16-APR-12	FOR APPROVAL
0	07-MAR-12	INITIAL RELEASE
REVISION	DATE	DESCRIPTION



**SANITHERM INC.**

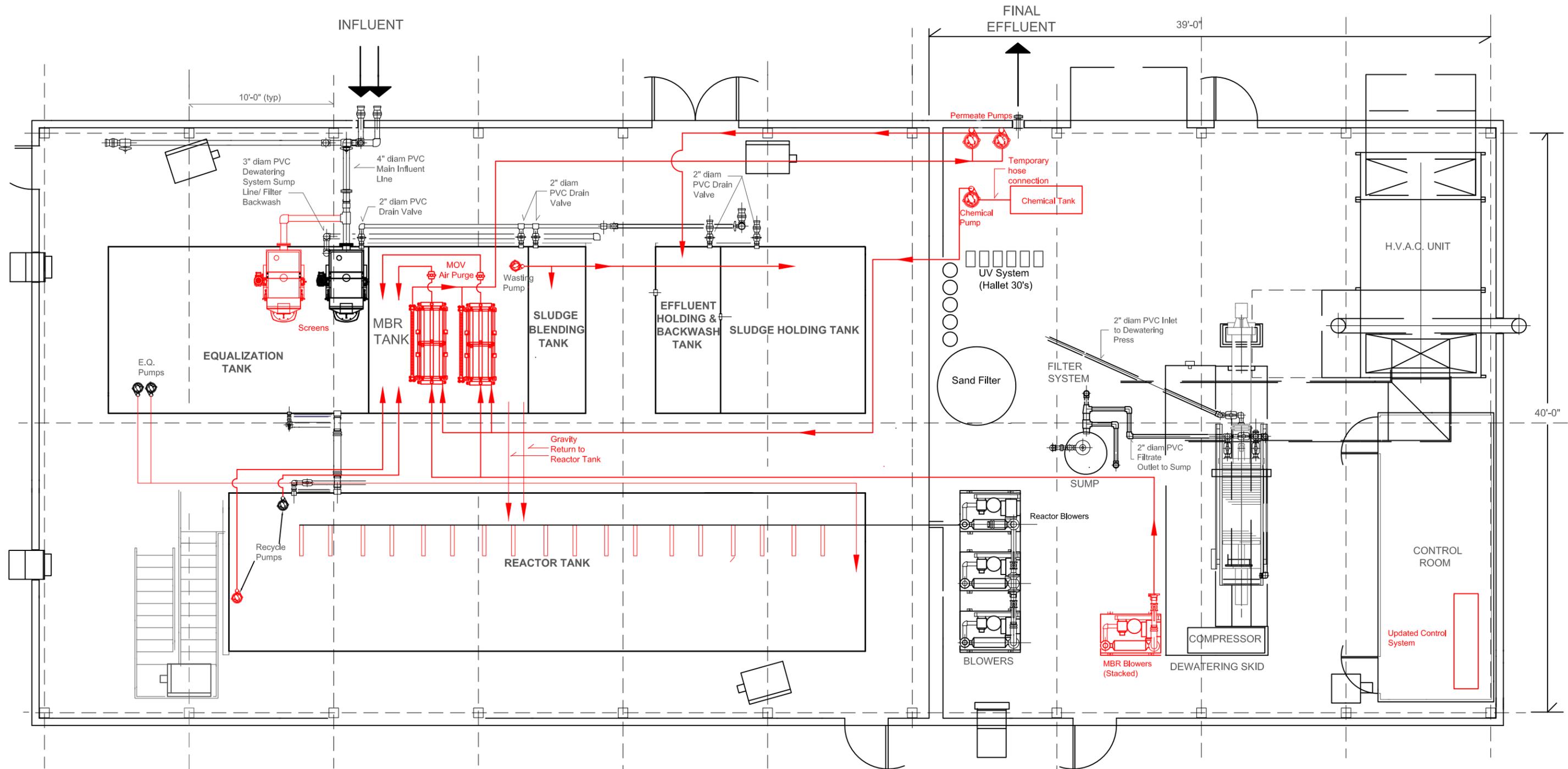
A CLEAN HARBORS COMPANY  
 2120 HARTLEY AVE COQUITLAM, BC, V3K 6W5, CANADA

TEL: (604) 529 - 2150  
 FAX: (604) 529 - 2160

E-MAIL: information@sanitherm.com  
 WEBSITE: www.sanitherm.com

PROJECT	SMM POGO WWTP		PROJ. NO.	11545	
CLIENT	SUMITOMO METAL MINING POGO LLC			REV. NO.	2
TITLE	P & ID - BLOWERS				
DRAWN BY	T.Y.	CHECKED BY	A.L.	DATE	09-JAN-13
SCALE	N.T.S.		DRAWING NO.	SEL- 11545 - D05	

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**PLAN VIEW**

PIPING TO BE SUPPORTED OFF TANK STRUCTURE  
FOR DETAILS SEE SEPARATE DRAWINGS

REVISION	DATE	DESCRIPTION
2	10-JAN-13	RECORD DRAWING
1	03-MAY-12	FIRST SUBMITTAL FOR FORMAL APPROVE
0	7-MAR-12	INITIAL RELEASE



**SANITHERM INC.**

A CLEAN HARBORS COMPANY  
2120 HARTLEY AVENUE, COQUITLAM, BC, V3K-6W5

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WEBSITE: [www.sanitherm.com](http://www.sanitherm.com)

PROJECT	TECK POGO WWTP			PROJ. NO.	11545
CLIENT	SUMITOMO METAL MINING POGO LLC			REV. NO.	2
TITLE	GENERAL LAYOUT -- MEMBRANE UPGRADES				
DRAWN BY	CHECKED BY	DATE	SCALE	DRAWING NO.	
	-	10-JAN-13	1/8" = 1'-0"	SEL-11545-P01	

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NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17

## MECHANICAL LEGEND AND ABBREVIATIONS

GENERAL ABBREVIATIONS		PIPING SYSTEM REFERENCES		
ADA	AMERICAN W/DISABILITIES ACT	— XXXX —	TYPICAL PIPING SYMBOL	
APPROX.	APPROXIMATE	NOTE:	"XXXX" DENOTES SYSTEM ACCORDING TO PIPING SYSTEM SYMBOL LIST. GRAPHIC LINE TYPE AND LINE WEIGHT MAY VARY. SINGLE-LINE SYMBOL SHOWN, WHERE DOUBLE-LINE PIPING IS DRAWN, CONSULT ADDITIONAL DRAWING NOTES FOR PIPING AND SYSTEM INFORMATION.	
ARCH	ARCHITECT, ARCHITECTURAL	<b>PLUMBING SYSTEMS</b>		
AVG.	AVERAGE	CW	DOMESTIC COLD WATER	
BHP	BRAKE HORSEPOWER	CW(NP)	COLD WATER (NON-POTABLE)	
BMS	BUILDING AUTOMATION SYSTEM	HW	DOMESTIC HOT WATER	
BTU	BRITISH THERMAL UNIT	HWC	DOMESTIC HOT WATER CIRCULATION	
BTUH	BTU PER HOUR	RL	RAIN LEADER	
CFM	CUBIC FEET PER MINUTE	V	SANITARY VENT	
CFI	CONTRACTOR FURNISHED OWNER INSTALL	W	SANITARY WASTE	
CO	CARBON MONOXIDE	<b>FUEL GAS SYSTEMS</b>		
CO2	CARBON DIOXIDE	G	NATURAL GAS	
CU.FT.	CUBIC FEET	FOR	FUEL OIL RETURN	
CU.IN.	CUBIC INCHES	FOS	FUEL OIL SUPPLY	
dB	DECIBEL	<b>FIRE PROTECTION SYSTEMS</b>		
DB	DRY BULB (AIR)	SP	FIRE PROTECTION PIPING	
DDC	DIRECT DIGITAL CONTROL	FDC	FIRE DEPARTMENT CONNECTION	
DEG.	DEGREE	<b>HYDRONIC SYSTEMS</b>		
DMPR	DAMPER	CHR	CHILLED WATER RETURN	
DN	DOWN	CHS	CHILLED WATER SUPPLY	
DPS	DIFFERENTIAL PRESSURE SENSOR	HWR	HEATING WATER RETURN	
DWV	DRAIN WASTE AND VENT	HWS	HEATING WATER SUPPLY	
EA	EACH	GHR	GLYCOL HEATING RETURN	
EAT	ENTERING AIR TEMPERATURE	GHS	GLYCOL HEATING SUPPLY	
EGT	ENTERING GLYCOL TEMPERATURE	<b>PIPING COMPONENTS AND ASSEMBLIES</b>		
ELEC	ELECTRICAL	SYMBOL	ABBREV.	DESCRIPTION
ESP	EXTERNAL STATIC PRESSURE	○		PIPE UP
EWT	ENTERING WATER TEMPERATURE	○		PIPE DOWN
F	FAHRENHEIT	○		PIPE TEE UP
FDC	FIRE DEPARTMENT CONNECTION	○		PIPE TEE DOWN
FPM	FEET PER MINUTE	○		FIXTURE CONNECTIONS/STOPS
FPS	FEET PER SECOND	○		FLOOR DRAIN
FU	FIXTURE UNIT	○		ROOF DRAIN
GAL	GALLON	○		OVERFLOW ROOF DRAIN
GALV.	GALVANIZED	○		CLEANOUT, PIPE END PLUG
GPH	GALLON PER HOUR	○		CLEANOUT, WALL, CONCEALED
GPM	GALLON PER MINUTE	○		CLEANOUT, FLOOR
HEPA	HIGH EFFICIENCY PARTICULATE ARREST (FILTER)	○		CLEANOUT, YARD
HP	HORSEPOWER (ELEC.)	○		W/CONCRETE COLLAR
HZ	HERTZ (ELEC.)	○		WATER HAMMER ARRESTOR
IAQ	INDOOR AIR QUALITY	○		(# DENOTES FIXTURE UNIT LOAD)
IN.W.C.	INCH, WATER COLUMN	○		AUTOMATIC AIR VENT
KW	KILOWATT	○		W/SHUT-OFF VALVE(NOT SHOWN)
KWH	KILOWATT HOUR	○		MANUAL AIR VENT
L	LIGHT (SYMBOL)	○		W/SHUT-OFF VALVE(NOT SHOWN)
LAT	LEAVING AIR TEMPERATURE	○		VENT THROUGH ROOF
LB	POUND	○		TRAP PRIMER, AUTOMATIC
LGT	LEAVING GLYCOL TEMPERATURE	○		GATE VALVE
LWT	LEAVING WATER TEMPERATURE	○		BALL VALVE
MAT	MIXED AIR TEMPERATURE	○		CHECK VALVE
MAX	MAXIMUM	○		NON-SLAM CHECK VALVE
MBH	1,000 BTU PER HOUR	○		STRAINER, IN-LINE W/HOSE-END DRAIN
MECH	MECHANICAL	○		DRAIN VALVE W/HOSE END
MIN.	MINIMUM	○		BALANCING VALVE
MISC.	MISCELLANEOUS	○		FLOW CONTROL VALVE
MMBH	1,000,000 BTU PER HOUR	○		CONTROL VALVE, 2-WAY
NC	NORMALLY CLOSED	○		CONTROL VALVE, 3-WAY MIXING
NIC	NOT IN CONTRACT	○		CONTROL VALVE, 3-WAY DIVERTING
NO	NORMALLY OPEN	○		UNION CONNECTION
NTS	NOT TO SCALE	○		FLANGE CONNECTION
OAT	OUTSIDE AIR TEMPERATURE	○		FLEXIBLE JOINT
OFCI	OWNER FURNISHED CONTRACTOR INSTALL	○		PIPE ANCHOR
OFOI	OWNER FURNISHED OWNER INSTALL	○		PIPE ALIGNMENT GUIDE
PD	PRESSURE DROP	○		PIPING SEISMIC FLEXIBLE JOINT
PG	PROPYLENE GLYCOL	○		PIPE EXPANSION COMPENSATOR
PH	PHASE (ELEC)	○		
PRES	PRESSURE	○		
PSI	POUND PER SQUARE INCH	○		
PSIA	PSI ABSOLUTE	○		
PSIG	PSI GAGE	○		
RH	RELATIVE HUMIDITY	○		
RPM	REVOLUTION PER MINUTE	○		
S	SWITCH (SYMBOL)	○		
SEC.	SECOND	○		
SSTL	STAINLESS STEEL	○		
T	THERMOSTAT (SYMBOL)	○		
TEMP.	TEMPERATURE	○		
TYP.	TYPICAL	○		
UON	UNLESS OTHERWISE NOTED	○		
V	VOLT (ELEC.)	○		
VEL.	VELOCITY	○		
VFD	VARIABLE FREQUENCY DRIVE	○		
W/	WITH	○		
W/O	WITHOUT	○		
WB	WET BULB	○		
ADDITIONAL ABBREVIATIONS NOTED BY EQUIPMENT TAGS, SYSTEM SYMBOLS, AND ACRONYMS GENERALLY ACCEPTED BY THE INDUSTRY SHALL BE APPLICABLE.				
GRAPHIC REFERENCES		DUCTWORK AND ACCESSORIES		
AFF	ABOVE FINISHED FLOOR	E/A	EXHAUST AIR	
BOD	BOTTOM OF DUCT	O/A	OUTSIDE AIR	
BOP	BOTTOM OF PIPE	R/A	RETURN AIR	
CL	CENTER LINE	S/A	SUPPLY AIR	
ELEV.	ELEVATION	T/A	TRANSFER AIR	
FFL	FINISHED FLOOR LEVEL	FD	FIRE DAMPER	
INV.	INVERT	FSD	FIRE-SMOKE DAMPER	
TOD	TOP OF DUCT	BD	BALANCING DAMPER	
TOP	TOP OF PIPE	BDD	BACK DRAFT DAMPER	
OC	ON CENTER			

## MECHANICAL SPECIFICATIONS

### BASIC MECHANICAL MATERIALS AND METHODS

ALL WORK SHALL CONFORM TO THE CURRENTLY APPLICABLE CODES AND STANDARDS AND AS AMENDED AND/OR REFERENCED.

BASIS OF DESIGN: "BASIS OF DESIGN" EQUIPMENT IS IDENTIFIED FOR THE PURPOSE OF ESTABLISHING SIGNIFICANT PERFORMANCE, FUNCTION, DIMENSIONS, AND OTHER RELEVANT MATERIAL CHARACTERISTICS, UNLESS OTHERWISE NOTED. IDENTIFICATION OF THE "BASIS OF DESIGN" EQUIPMENT IS NOT INTENDED TO PRECLUDE ALTERNATIVE EQUIPMENT SELECTION. IN CASE OF ALTERNATIVE EQUIPMENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS NECESSARY TO INCORPORATE SUCH EQUIPMENT INTO THE PROJECT.

### HANGERS AND SUPPORTS

CONFORM TO THE REQUIREMENTS OF THE UNIFORM PLUMBING CODE, 2003 ED, FOR HANGER SIZE AND SPACING REQUIREMENTS FOR PIPING SYSTEMS.

CONFORM TO MANUFACTURER'S INSTALLATION REQUIREMENTS FOR SUPPORT OR MECHANICAL EQUIPMENTS.

### MECHANICAL IDENTIFICATION

PROVIDE APPROPRIATE MANUFACTURED MECHANICAL IDENTIFICATION DEVICES AND SIGNAGE OF PIPING, DUCTWORK, AND MECHANICAL EQUIPMENT. TYPICALLY ACCEPTED MANUFACTURERS INCLUDE SETON CO. OR EQUAL.

### PIPE INSULATION

TYPICAL FIELD APPLIED PIPE INSULATION SHALL BE MINERAL-FIBER INSULATION; GLASS FIBERS BONDED WITH A THERMOSETTING RESIN COMPLYING WITH ASTM C 547, TYPE 1, WITH FACTORY-APPLIED, ALL-PURPOSE, VAPOR-RETARDER JACKET.

### DUCTWORK INSULATION

TYPICAL FIELD APPLIED PIPE INSULATION SHALL BE MINERAL-FIBER INSULATION; GLASS FIBERS BONDED WITH A THERMOSETTING RESIN COMPLYING WITH ASTM C 547, TYPE 1, WITH FACTORY-APPLIED, ALL-PURPOSE, VAPOR-RETARDER JACKET.

### DOMESTIC WATER PIPING

ALL DOMESTIC WATER PIPING SHALL BE HARD COPPER TUBE: ASTM B 88, TYPES L, WATER TUBE, DRAWN TEMPER.

COPPER PRESSURE FITTINGS: ASME B16.18, CAST-COPPER-ALLOY OR ASME B16.22, WROUGHT-COPPER, SOLDER-JOINT FITTINGS.

### PEX-PPH PIPING SYSTEMS

### SANITARY WASTE AND VENT PIPING

ALL SANITARY WASTE AND VENT PIPING SHALL BE PLASTIC (ABS) PIPING SYSTEM, PLASTIC (ABS) PIPING SYSTEM SHALL BE LIMITED TO NON-PRESSURIZED WASTE AND VENT PIPING ONLY.

### FUEL GAS PIPING

ASTM A53 SCHEDULE 40 BLACK STEEL PIPE, THREADED FITTINGS.

### SHEETMETAL DUCTWORK

DUCTWORK SHALL CONFORM TO THE REQUIREMENTS OF SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESS, AND DUCT CONSTRUCTION METHODS, UNLESS OTHERWISE INDICATED. SHEET METAL MATERIALS SHALL BE FREE OF PITTING, SEAM MARKS, ROLLER MARKS, STAINS, DISCOLORATIONS, AND OTHER IMPERFECTIONS.

FLEXIBLE DUCTS SHALL BE THERMAFLEX SERIES GKM (R4.2) FLEXIBLE DUCT OR EQUAL.

### CONTROLS

PROVIDE CONTROL EQUIPMENT AND COMPONENTS NECESSARY TO COMPLETE THE CONTROLS AND MONITORING SYSTEMS AS SHOWN IN THESE DRAWINGS. GENERAL CONTROLS SYSTEM REQUIREMENTS INCLUDE:

- COORDINATE WITH ELECTRICAL TO PROVIDE ALL POWER AND CONTROL CIRCUITS AND CONDUITS TO COMPLETE THE SYSTEM.
- COORDINATE WITH ALL INTEGRAL EQUIPMENT CONTROLLERS FOR CONTROL INTERFACE REQUIREMENTS.

### TESTING, ADJUSTING, AND BALANCING

PROVIDE THE SERVICES OF AN AABC OR NEBB CERTIFIED TESTING, ADJUSTING, AND BALANCING (TAB) AGENT FOR THE TAB OF THE FOLLOWING SYSTEMS:

- VENTILATION/EXHAUST SYSTEMS
- HOT WATER CIRCULATION SYSTEMS

SUBMIT PRELIMINARY TAB REPORT TO THE OWNER FOR REVIEW AS PART OF THE SUBSTANTIAL COMPLETION PROCESS. SUBMIT FINAL TAB REPORT AFTER THE CORRECTION OF ANY DEFICIENCIES DISCOVERED DURING THE PREPARATION OF THE PRELIMINARY TAB REPORT. IF ANY, AS PART OF THE OPERATION AND MAINTENANCE DOCUMENTATION.

## GENERAL MECHANICAL INFORMATION

### CODE ANALYSIS, MECHANICAL AND PLUMBING SYSTEMS:

#### BUILDING DOMESTIC WATER SYSTEMS

THE DOMESTIC WATER SYSTEMS SHALL CONFORM TO UNIFORM PLUMBING CODE, 2009 ED., TABLE 6-6 FOR 45-60 PSI RANGE AT 200 FEET ALLOWABLE LENGTH. FOR THE NEW DOMESTIC WATER SYSTEMS, THE FOLLOWING SIZING CRITERIA ARE USED:

2" BUILDING SERVICE	1/2" PIPE - FIXTURE SERVICE ONLY
	3/4" PIPE - 11 FIXTURE UNITS MAX
	1" PIPE - 25 FIXTURE UNITS MAX
	1-1/4" PIPE - 52 FIXTURE UNITS MAX
	1-1/2" PIPE - 117 FIXTURE UNITS MAX
	2" PIPE - 318 FIXTURE UNITS MAX

#### BUILDING DRAIN, WASTE, AND VENT SYSTEMS

THE BUILDING DRAIN, WASTE, AND VENT SYSTEMS ARE DESIGNED IN ACCORDANCE WITH UNIFORM PLUMBING CODE, 2009 ED., TABLES 7-4 AND 7-5.

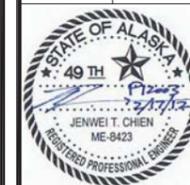
#### BUILDING FUEL GAS SYSTEMS

THE BUILDING FUEL GAS SYSTEMS ARE DESIGNED IN ACCORDANCE WITH INTERNATIONAL FUEL GAS CODE, 2009 ED., TABLE 402.4(26). THE FOLLOWING SIZING CRITERIA ARE USED:

11"W.C. SERVICE	1/2" PIPE - 94 MBH
0.5 INCH PRESSURE DROP	3/4" PIPE - 197 MBH
	1" PIPE - 372 MBH
	1-1/4" PIPE - 763 MBH

#### BUILDING HEATING AND VENTILATION SYSTEMS

BUILDING VENTILATION SHALL BE THROUGH MECHANICAL VENTILATION THROUGH HEAT RECOVERY VENTILATOR UNITS THROUGHOUT AND SUPPLEMENTED BY NATURAL VENTILATION PER INTERNATIONAL MECHANICAL CODE, 2009 ED., SECTION 402, USING PERIMETER OPERABLE WINDOWS.



DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TL/HA	JOB NO. P12009
SHEET CONTENTS	

MECHANICAL  
LEGEND, NOTES,  
AND  
SPECIFICATIONS

DRAWING NO.

M1.00

FINAL PRODUCTION DRAWING

### PLUMBING FIXTURE SCHEDULE

FIXTURE ID:	DESCRIPTION	CONNECTIONS					COMMENT / BASIS OF DESIGN
		CW	HW	W/SD	V		
P-1	WATER CLOSET	1/2"	-	3"	2"	-	
P-1M	MACERATOR TOILET	1/2"	-	-	-	1	
P-2	LAVATORY	1/2"	1/2"	2"	1-1/2"	-	
P-3	SHOWER	1/2"	1/2"	2"	1-1/2"	-	
P-4	SERVICE SINK	1/2"	1/2"	2"	1-1/2"	-	
P-5	WASHER BOX	1/2"	1/2"	2"	1-1/2"	-	
P-6	URINAL (WATERLESS)	-	-	2"	1-1/2"	-	
P-7	SHOWER (M-3 MODULE)	1/2"	1/2"	-	-	-	
TP-1	TRAP PRIMER	1/2"	-	-	-	-	
WHA	WATER HAMMER ARR.	-	-	-	-	-	
FD-1	FLOOR DRAIN	-	-	2"	1-1/2"	-	
FD-2	FLOOR DRAIN	-	-	3"	2"	-	

COMMENTS:  
 1. MACERATOR TOILET, BASIS OF DESIGN: SANIFLO MODEL SANIBEST, ELECTRICAL: 0.8HP/0.9 AMPS, 120V/1PH/60Hz. UNIT RATED AT 14 GPM AT 18' HD.

### PUMP SCHEDULE

PUMP ID:	SERVICE	FLUID (TYPE)	FLOW (GPM)	HEAD (FT)	ELECTRICAL DATA				BASIS OF DESIGN	COMMENT	
					HP	RPM	VOLT	HZ			
CP-1S	HW CIRCULATION	HW	2	8	1/40	3250	120	1	60	TACO MODEL 006	-
CP-1M	HW CIRCULATION	HW	2	8	1/40	3250	120	1	60	TACO MODEL 006	-

COMMENTS:  
 (NOT USED.)

### ELECTRIC HEATING COIL SCHEDULE

COIL ID:	SERVICE	AIR SIDE DATA				ELECTRICAL DATA				BASIS OF DESIGN	COMMENT	
		CFM	SP (IN. W.C.)	EAT (DEG F)	LAT (DEG F)	KW	VOLTAGE	PH	HZ			
PHC-1	HEATING	-	-	-50	-	1.0	-	208	1	60	SEE COMMENT	1
PHC-2	HEATING	-	-	-50	-	2.0	-	208	1	60	SEE COMMENT	2
PHC-3	HEATING	-	-	-50	-	6.0	-	208	1	60	SEE COMMENT	3
PHC-4	HEATING	-	-	-50	-	6.0	-	208	1	60	SEE COMMENT	3
PHC-5	HEATING	-	-	-50	-	6.0	-	208	1	60	SEE COMMENT	3
PHC-6	HEATING	-	-	-50	-	6.0	-	208	1	60	SEE COMMENT	3
PHC-7	HEATING	-	-	-50	-	10.0	-	208	1	60	SEE COMMENT	4
PHC-8	HEATING	-	-	-50	-	10.0	-	208	1	60	SEE COMMENT	4

COMMENTS:  
 1. BASIS OF DESIGN: THERMOLEC MODEL THERMO-AIR TER-6-1-208.  
 2. BASIS OF DESIGN: THERMOLEC MODEL THERMO-AIR TER-6-2-208.  
 3. BASIS OF DESIGN: THERMOLEC MODEL THERMO-AIR TER-6-3-208.  
 4. BASIS OF DESIGN: THERMOLEC MODEL THERMO-AIR TER-10-10-208.

### FAN SCHEDULE

FAN ID:	SERVICE	FAN DATA				ELECTRICAL DATA					BASIS OF DESIGN	COMMENT
		FLOW (CFM)	ESP (INCH W.C.)	DRIVE TYPE	RPM	HP/W/A	RPM	VOLT	PHASE	HZ		
SF-1	SUPPLY	450	0.5	DIRECT	1550	1/8HP	1550	120	1	60	SEE COMMENT	1
SF-2	SUPPLY	450	0.5	DIRECT	1550	1/8HP	1550	120	1	60	SEE COMMENT	1
SF-3	SUPPLY	180	0.6	DIRECT	-	1.3A	-	120	1	60	SEE COMMENT	2
SF-4	SUPPLY	180	0.6	DIRECT	-	1.3A	-	120	1	60	SEE COMMENT	2
SF-5	SUPPLY	180	0.6	DIRECT	-	1.3A	-	120	1	60	SEE COMMENT	2
SF-6	SUPPLY	180	0.6	DIRECT	-	1.3A	-	120	1	60	SEE COMMENT	2
EF-1	EXHAUST	50	0.25	DIRECT	-	17.5W	-	120	1	60	SEE COMMENT	3
EF-2	EXHAUST	1400	0.25	DIRECT	-	1/4HP	-	120	1	60	SEE COMMENT	4
EF-3	EXHAUST	100	0.25	DIRECT	-	1.3A	-	120	1	60	SEE COMMENT	5

COMMENTS:  
 1. BASIS OF DESIGN: GREENHECK MODEL SQ-95-D.  
 2. BASIS OF DESIGN: BROAN MODEL SF200.  
 3. BASIS OF DESIGN: BROAN MODEL 578.  
 4. BASIS OF DESIGN: GREENHECK MODEL CW-101-A.  
 5. BASIS OF DESIGN: BROAN MODEL 676.

### AIR INTAKE AND OUTLET SCHEDULE

ID:	SERVICE	UNIT DATA		NOMINAL PERFORMANCE			BASIS OF DESIGN	COMMENT	
		TYPE	FACE SIZE (INCH)	INLET SIZE (INCH)	CFM	SP (IN.W.C.)			NC
SA-1	S/A	-	6X6	4	-	<0.038	-	SEE COMMENT	1
SA-2	S/A	-	15	12	600	0.040	20-25	SEE COMMENT	2
SA-3	S/A	-	12X6	12X6	195	0.018	20	SEE COMMENT	3
EA-1	E/A	-	12X12	12X12	-	-	-	SEE COMMENT	4
RA-1	R/A	-	6X6	4	-	<0.038	-	SEE COMMENT	5

COMMENTS:  
 1. BASIS OF DESIGN: SHOEMAKER CEILING GRILLE WITH SHOP FABRICATED COLLAR AND SIDE INLET RADIATION DAMPER.  
 2. BASIS OF DESIGN: SHOEMAKER MODEL 1203 NOZZLE DIFFUSER.  
 3. BASIS OF DESIGN: SHOEMAKER MODEL RSS20 DUCT MOUNTED DIFFUSER WITH RECESS OPPOSING BLADE BALANCING DAMPER.  
 4. BASIS OF DESIGN: SHOEMAKER SERIES 600 LATTICE RETURN AIR GRILLE WITH OPPOSING BLADE BALANCING DAMPER.  
 5. BASIS OF DESIGN: SHOEMAKER CEILING GRILLE WITH SHOP FABRICATED COLLAR AND SIDE INLET RADIATION DAMPER.

### TERMINAL HEATING UNIT SCHEDULE

EQ ID:	SERVICE	CAPACITY (MBH/KW)	AIRFLOW (CFM)	EFT (DEG F)	LFT (DEG F)	FLOW (GPM)	ELECTRICAL DATA				BASIS OF DESIGN	COMMENT	
							HP	RPM	VOLT	PHASE			HZ
HU-1C	HEATING	1.0KW	-	-	-	-	1KW	-	120	1	60	SEE COMMENT	1
HU-2C	HEATING	2.25KW	-	-	-	-	2.25KW	-	120	1	60	SEE COMMENT	2
HU-1W	HEATING	250W	-	-	-	-	250W	-	120	1	60	SEE COMMENT	3
HU-2W	HEATING	500W	-	-	-	-	500W	-	120	1	60	SEE COMMENT	4
HU-3W	HEATING	1KW	-	-	-	-	1KW	-	120	1	60	SEE COMMENT	5
HU-4W	HEATING	2KW	-	-	-	-	2KW	-	208	1	60	SEE COMMENT	6
HU-5W	HEATING	4.5KW	-	-	-	-	4.5KW	-	208	1	60	SEE COMMENT	7
EUH-1	HEATING	7.5KW	-	-	-	-	7.5KW	-	208	3	60	SEE COMMENT	8
UH-1	HEATING	125	1200	-	-	-	1/2/4	-	120	1	60	SEE COMMENT	9
UH-2	HEATING	125	1200	-	-	-	1/2/4	-	120	1	60	SEE COMMENT	9

COMMENTS:  
 1. ELECTRIC CEILING HEATER WITH REMOTE THERMOSTAT, BASIS OF DESIGN: KING ELECTRIC MODEL WHFC-1210.  
 2. ELECTRIC CEILING HEATER WITH REMOTE THERMOSTAT, BASIS OF DESIGN: KING ELECTRIC MODEL LPWC-2045.  
 3. ELECTRIC WALL HEATER WITH INTEGRAL THERMOSTAT, BASIS OF DESIGN: KING ELECTRIC MODEL PAW-1215.  
 4. ELECTRIC WALL HEATER WITH INTEGRAL THERMOSTAT, BASIS OF DESIGN: KING ELECTRIC MODEL PAW-1215.  
 5. ELECTRIC WALL HEATER WITH INTEGRAL THERMOSTAT, BASIS OF DESIGN: KING ELECTRIC MODEL PAW-1210.  
 6. ELECTRIC WALL HEATER WITH INTEGRAL THERMOSTAT, BASIS OF DESIGN: KING ELECTRIC MODEL PAW-1220.  
 7. ELECTRIC WALL HEATER WITH INTEGRAL THERMOSTAT, BASIS OF DESIGN: KING ELECTRIC MODEL LPW-2445-T-A.  
 8. ELECTRIC UNIT HEATER WITH REMOTE THERMOSTAT, BASIS OF DESIGN: KING ELECTRIC MODEL KB2007-3MP.  
 9. PROPANE UNIT HEATER, BASIS OF DESIGN: MODINE MODEL HDC-125.

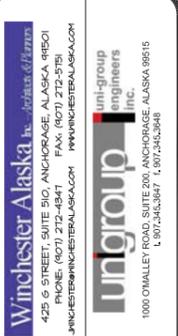
### INSULATION SCHEDULE

PIPING SYSTEMS:	
- DOMESTIC COLD WATER PIPING:	1" FIBERGLASS INSULATION WITH ALL PURPOSE JACKET.*
- DOMESTIC HOT WATER PIPING:	1" FIBERGLASS INSULATION WITH ALL PURPOSE JACKET.*
- WASTE PIPING IN SUBFLOOR ASSEMBLY (ENCASED IN INSULATION):	NO INSULATION REQUIRED.
- VENT PIPING IN SUBFLOOR ASSEMBLY (ENCASED IN INSULATION):	NO INSULATION REQUIRED.
* PIPING EMBEDDED IN ROOF/CEILING INSULATION SYSTEM NEED NOT BE ADDITIONALLY INSULATED.	
DUCTWORK SYSTEMS:	
- SUPPLY AND RETURN DUCTWORK:	1" INSULATION WITH FOIL JACKET *
- OUTSIDE AIR DUCTWORK:	2" INSULATION WITH VAPOR BARRIER.
- EXHAUST FAN DUCTWORK:	1" INSULATION WITH VAPOR BARRIER.
- LAUNDRY DRYER EXHAUST DUCTWORK IN LAUNDRY ROOM:	1" INSULATION WITH VAPOR BARRIER.
* SUPPLY/RETURN AIR DUCTWORK EMBEDDED IN ROOF/CEILING INSULATION SYSTEM NEED NOT BE ADDITIONALLY INSULATED.	

### EQUIPMENT SCHEDULE

EQ. ID	DESCRIPTION	COMMENTS
AHU-1	AIR HANDLING UNIT PACKAGED PROPANE-FIRED INDOOR AIR HANDLING FURNACE. 300 MBH INPUT, 240 MBH OUTPUT, 2400 CFM DESIGN SUPPLY AIR VOLUME. ELECTRICAL: 1 HP FAN, 208V/3PH/60Hz BASIS OF DESIGN: HASTING MODEL IHRHVA-300-V	UNIT DESIGNED TO OPERATE AT: <ul style="list-style-type: none"> <li>1200 CFM MAXIMUM OUTSIDE AIR VOLUME AT DESIGN TEMPERATURE OF -50 DEG F</li> <li>SPACE TEMPERATURE SETPOINT: 85 DEG F</li> <li>MIXED AIR TEMPERATURE: 17.5 DEG F</li> <li>MAXIMUM SUPPLY AIR TEMPERATURE AVAILABLE: 110 DEG F</li> </ul>
AHU-2	AIR HANDLING UNIT PACKAGED ELECTRIC FURNACE. ELECTRICAL: 1/5 HP FAN, 9.0 KW HEATING ELEMENT, 208V/3PH/60Hz BASIS OF DESIGN: KING ELECTRIC MODEL KFS-2009-3	-
HRV-1	HEAT RECOVERY VENTILATOR ELECTRICAL: 98 WATTS, 120V/1PH/60Hz BASIS OF DESIGN: VENMAR MODEL EKO 1.5	-
WH-1S WH-2S	WATER HEATERS ELECTRIC STORAGE WATER HEATERS, 120-GAL TANK CAPACITY, 970 GPH RECOVERY AT 70 DEG F TEMPERATURE RISE. ELECTRICAL: 90KW, 208V/3PH/60Hz BASIS OF DESIGN: AO SMITH MODEL DSE-120-90	SET OUTLET TEMPERATURE AT 120 DEG F.
WH-3S	WATER HEATER ELECTRIC STORAGE WATER HEATERS, 65-GAL TANK CAPACITY, 340 GPH RECOVERY AT 100 DEG F TEMPERATURE RISE. ELECTRICAL: 90KW, 208V/3PH/60Hz BASIS OF DESIGN: AO SMITH MODEL DSE-65-90	SET OUTLET TEMPERATURE AT 160 DEG F FOR HOUSEKEEPING LAUNDRY SERVICE.
WH-1M WH-2M	WATER HEATERS PROPANE-FIRED, STORAGE WATER HEATERS, 150-GAL TANK CAPACITY, 270 MBH INPUT, 359 GPH RECOVERY AT 80 DEG F TEMPERATURE RISE. ELECTRICAL: 1/4 HP (BURNER), 120V/1PH/60Hz BASIS OF DESIGN: AO SMITH MODEL BTP-150-270	SET OUTLET TEMPERATURE AT 120 DEG F.
LS-1	LIFT STATION PACKAGED LIFT STATION, UNIT RATED AT 30 GPM AT 12.5' HD. ELECTRICAL: 1/2 HP, 7.3 AMPS, 120V/1PH/60Hz BASIS OF DESIGN: LIBERTY PUMP MODEL 405	-
LS-2	LIFT STATION PACKAGED LIFT STATION, UNIT RATED AT 15 GPM AT 12' HD. ELECTRICAL: 1/5 HP, 5.5 AMPS, 120V/1PH/60Hz BASIS OF DESIGN: SANIFLO MODEL SANISHOWER	FOR FLOOR DRAIN APPLICATION. RECESSED IN FLOOR INSTALLATION.
LS-3	LIFT STATION PACKAGED DUPLEX GRINDER PUMPS, UNIT RATED AT 26 GPM (EACH PUMP) AT 36' HEAD (MAX). ELECTRICAL: 1 HP, 13 AMPS, 208V/1PH/60Hz BASIS OF DESIGN: SANIFLO MODEL SANI-CUBIC	-
LS-4	LIFT STATION PACKAGED CONDENSATE PUMP, UNIT RATED AT 30 GPH AT 15' HEAD. ELECTRICAL: 1/30HP, 1.5AMPS, 120V/1PH/60Hz BASIS OF DESIGN: SANIFLO MODEL SANICONDENS	FOR HEAT RECOVERY VENTILATOR CONDENSATE REMOVAL.
HD-1 HD-5 HD-6 HD-7	OUTSIDE AIR INTAKE HOODS SHOP FABRICATED/PAINTED GALVANIZED METAL HOODS WITH SNOW BAFFLE AND 1" MESH SCREEN AT OPENING.	HOOD DIMENSIONS: HD-1: 120 CFM (MAX) DUCT CONNECTION SIZE: 6" HOOD OPENING SIZE: 12"x8" (<200 FPM) HD-5: 400 CFM (MAX) DUCT CONNECTION SIZE: 12"x5" HOOD OPENING SIZE: 20"x12" (<250 FPM) HD-6: 450 CFM (MAX) DUCT CONNECTION SIZE: 12"x5" HOOD OPENING SIZE: 20"x12" (<250 FPM) HD-7: 1400 CFM (MAX, WINTER) DUCT CONNECTION SIZE: 40"x20" HOOD OPENING SIZE: 40"x20" (<250 FPM)
HD-2 HD-3 HD-4	EXHAUST HOODS SHOP FABRICATED/PAINTED GALVANIZED METAL HOODS WITH 1" MESH SCREEN AT OPENING.	HOOD DIMENSIONS: HD-2: 50 CFM (MAX) DUCT CONNECTION SIZE: 4" HOOD OPENING SIZE: 4" HD-3: 100 CFM (MAX) DUCT CONNECTION SIZE: 4" HOOD OPENING SIZE: 4" HD-4: 200 CFM (MAX) DUCT CONNECTION SIZE: 4" HOOD OPENING SIZE: 6"

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TLTHAA	JOB NO. P12009
SHEET CONTENTS	

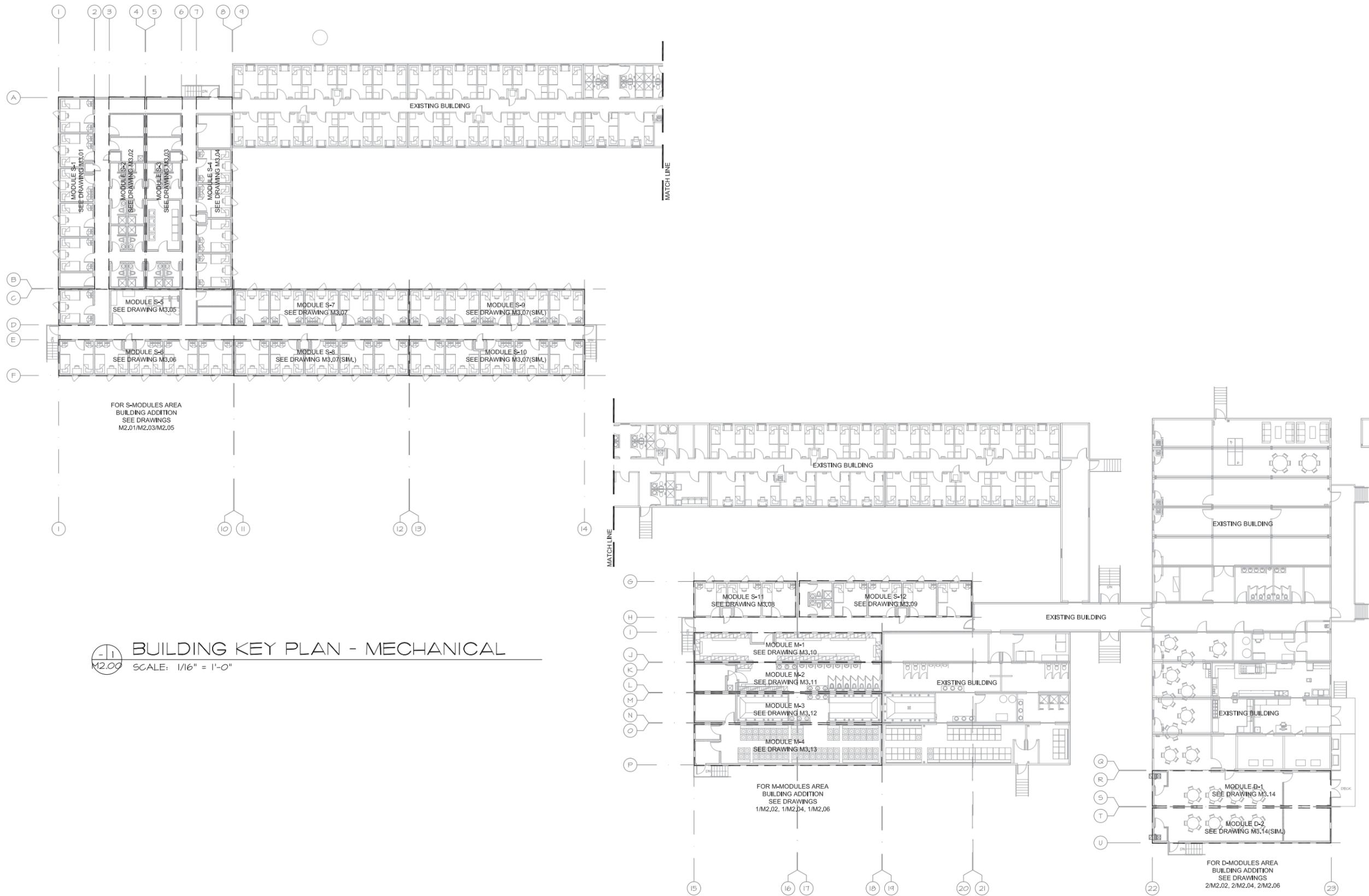
MECHANICAL EQUIPMENT SCHEDULES

DRAWING NO.

MI.01

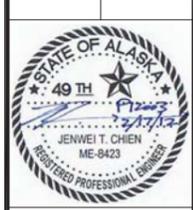
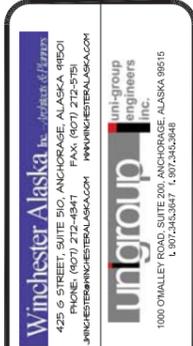
FINAL PRODUCTION DRAWING

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



**BUILDING KEY PLAN - MECHANICAL**  
 SCALE: 1/16" = 1'-0"

FINAL PRODUCTION DRAWING



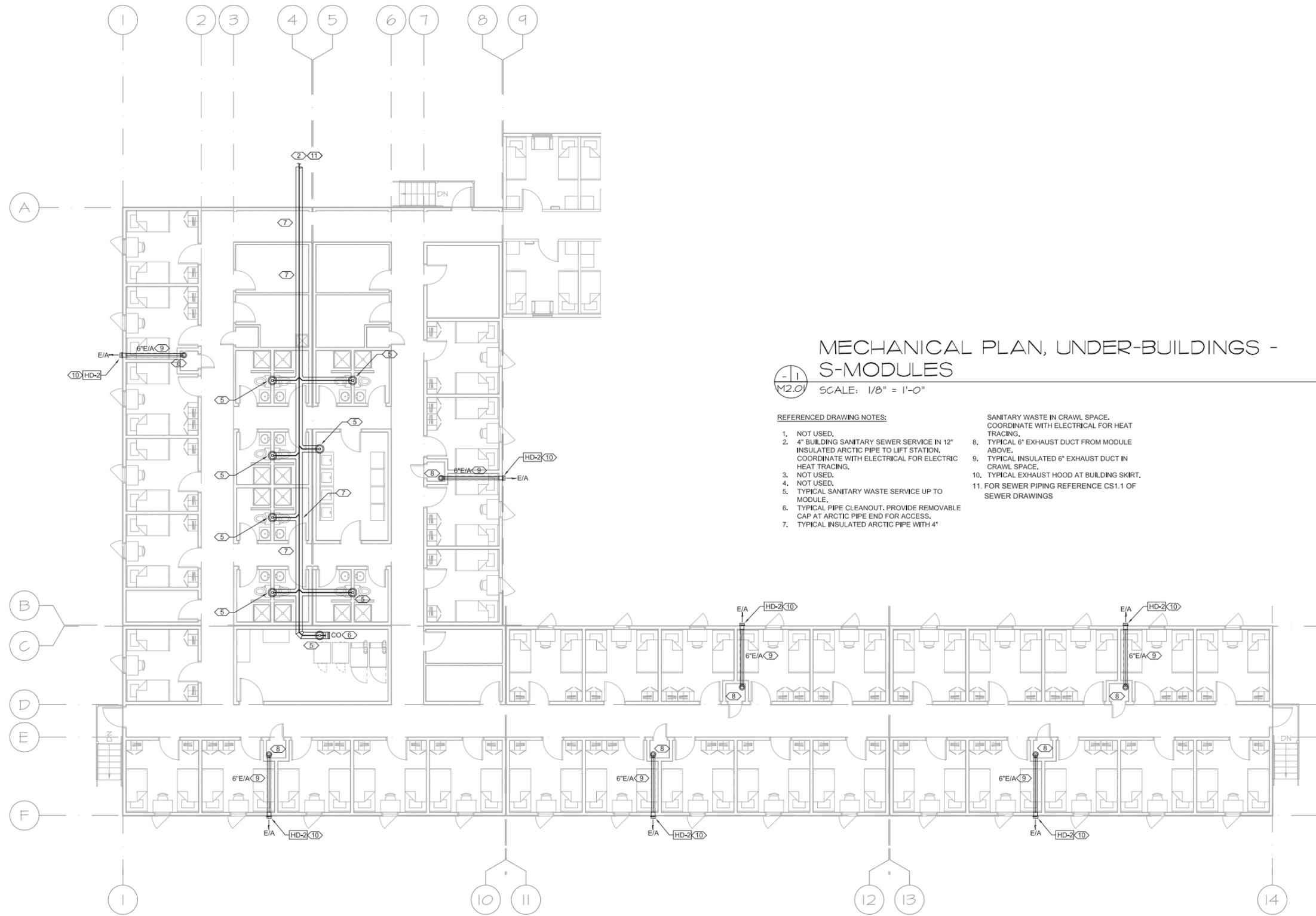
**POGO MINE CAMP ADDITION**  
 DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TLT	JOB NO. P12003
SHEET CONTENTS	

BUILDING KEY PLAN - MECHANICAL

DRAWING NO.  
**M2.00**

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



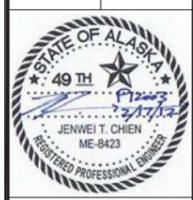
**MECHANICAL PLAN, UNDER-BUILDINGS - S-MODULES**

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

**REFERENCED DRAWING NOTES:**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. NOT USED.</li> <li>2. 4" BUILDING SANITARY SEWER SERVICE IN 12" INSULATED ARCTIC PIPE TO LIFT STATION. COORDINATE WITH ELECTRICAL FOR ELECTRIC HEAT TRACING.</li> <li>3. NOT USED.</li> <li>4. NOT USED.</li> <li>5. TYPICAL SANITARY WASTE SERVICE UP TO MODULE.</li> <li>6. TYPICAL PIPE CLEANOUT. PROVIDE REMOVABLE CAP AT ARCTIC PIPE END FOR ACCESS.</li> <li>7. TYPICAL INSULATED ARCTIC PIPE WITH 4"</li> </ol> | <ol style="list-style-type: none"> <li>8. TYPICAL 6" EXHAUST DUCT FROM MODULE ABOVE.</li> <li>9. TYPICAL INSULATED 6" EXHAUST DUCT IN CRAWL SPACE.</li> <li>10. TYPICAL EXHAUST HOOD AT BUILDING SKIRT.</li> <li>11. FOR SEWER PIPING REFERENCE CS1.1 OF SEWER DRAWINGS</li> </ol> |
|--|--|

SANITARY WASTE IN CRAWL SPACE. COORDINATE WITH ELECTRICAL FOR HEAT TRACING.



**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TLT	JOB NO. P12003
SHEET CONTENTS	

MECHANICAL PLAN, UNDER-BUILDING - S-MODULES

DRAWING NO.  
**M2.01**

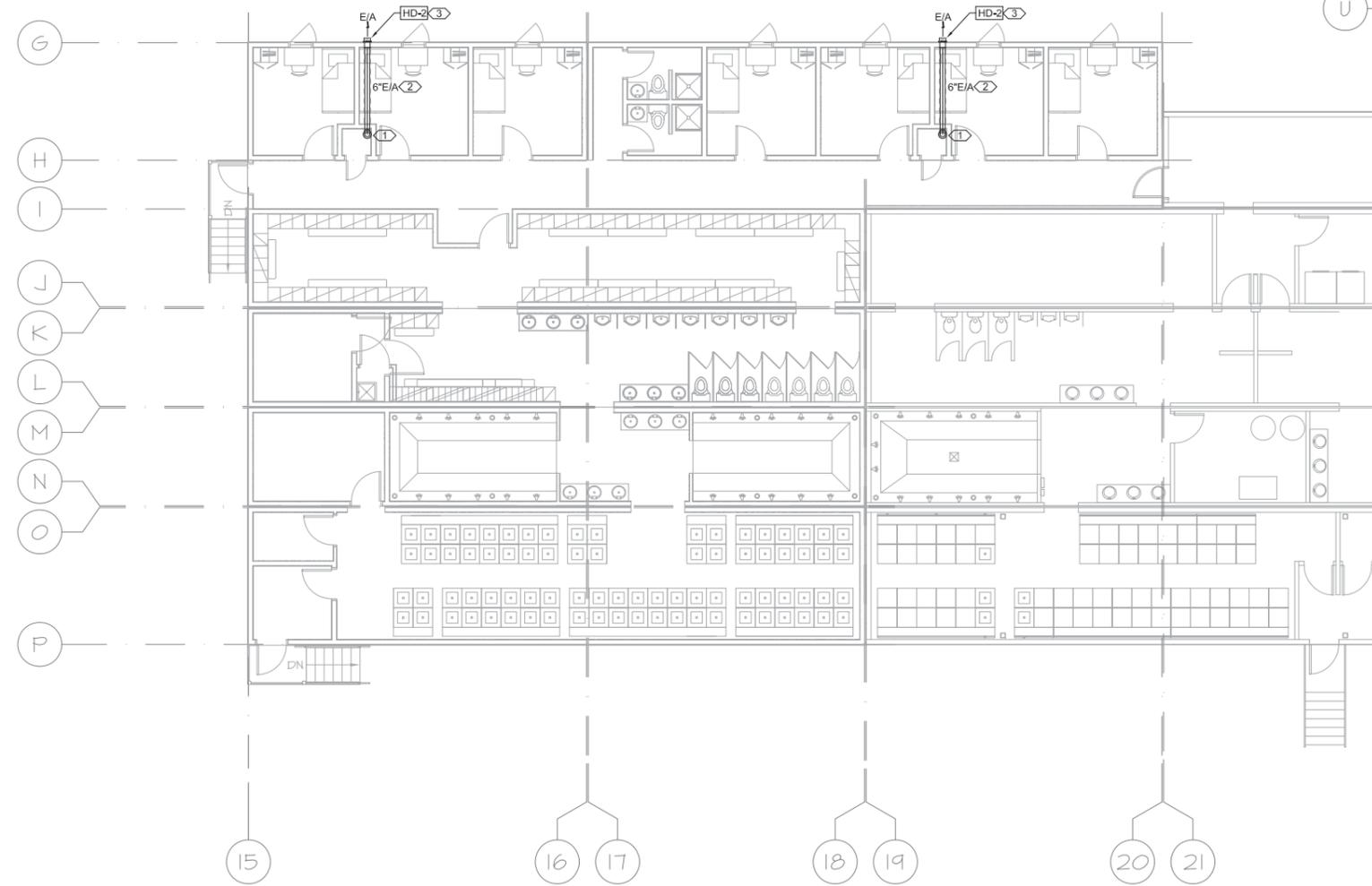
FINAL PRODUCTION DRAWING

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17

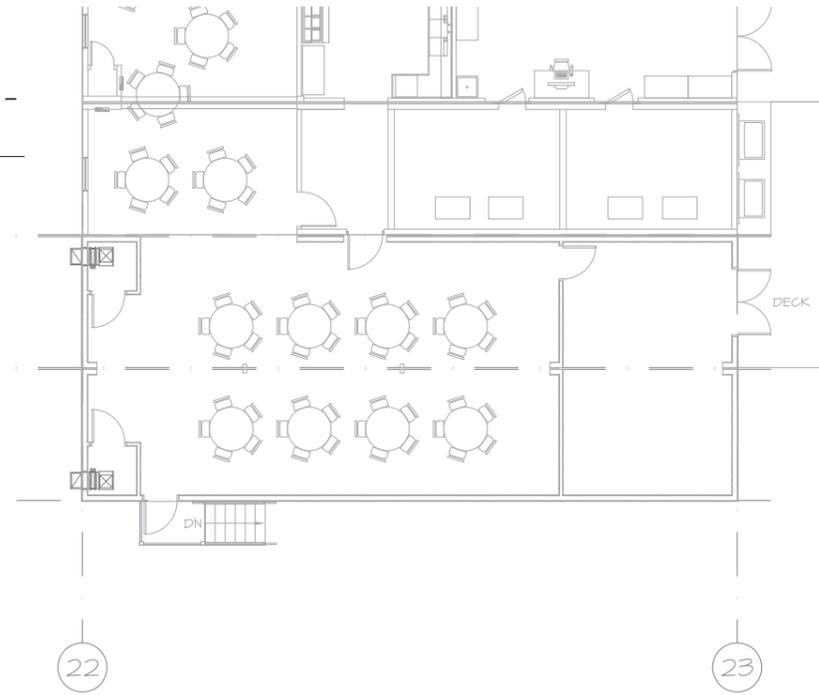
### MECHANICAL PLAN, UNDER-BUILDING - D-MODULES

**M2.02** SCALE: 1/8" = 1'-0"

REFERENCED DRAWING NOTES:  
(NOT USED.)



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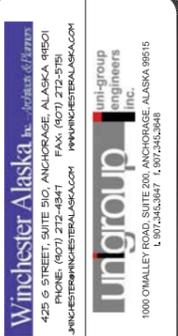


### MECHANICAL PLAN, UNDER-BUILDING - M-MODULES

**M2.02** SCALE: 1/8" = 1'-0"

REFERENCED DRAWING NOTES:

1. TYPICAL 6" EXHAUST DUCT FROM MODULE ABOVE.
2. TYPICAL INSULATED 6" EXHAUST DUCT IN CRAWL SPACE.
3. TYPICAL EXHAUST HOOD AT BUILDING SKIRT.



**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

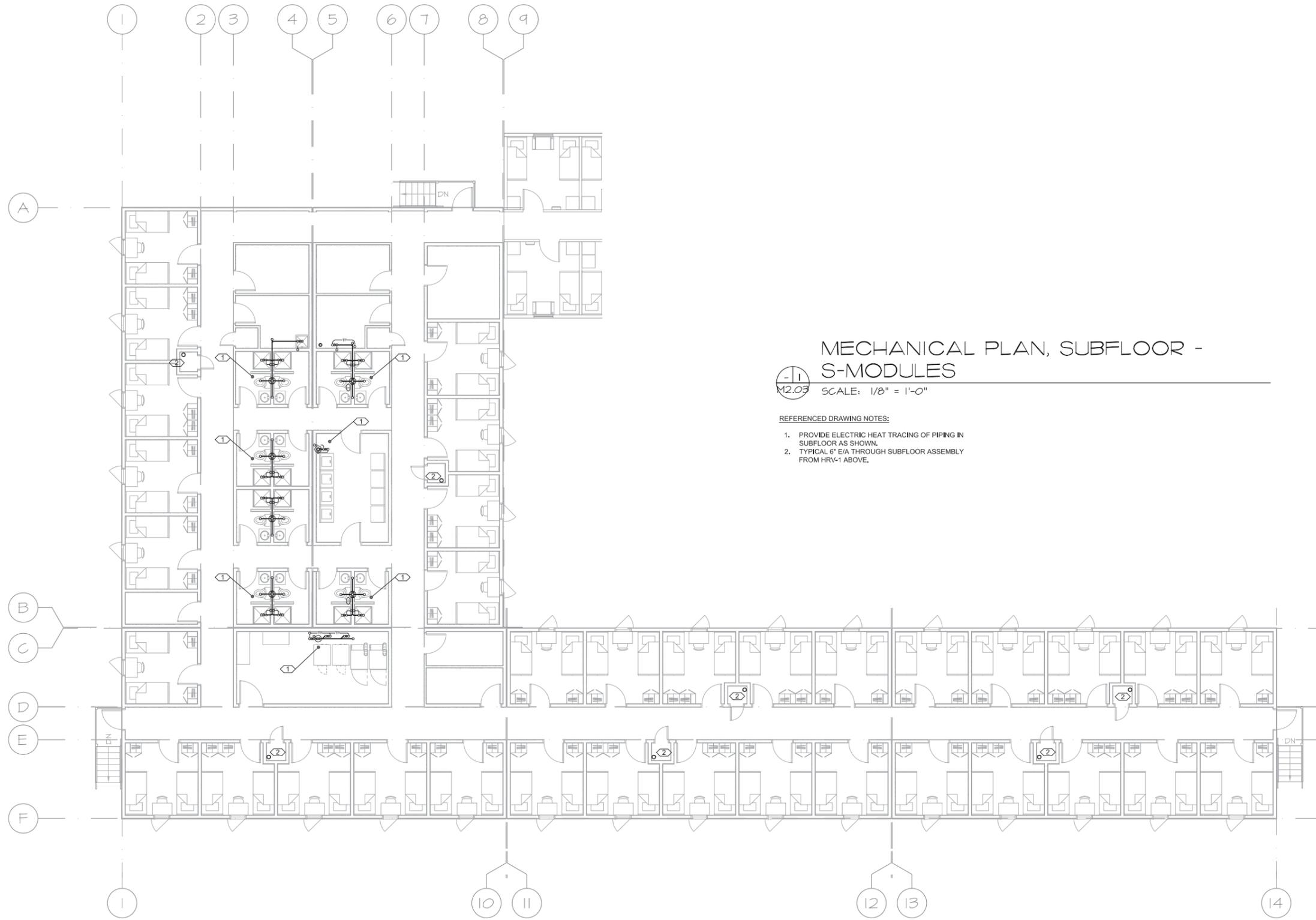
DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TLT	JOB NO. P12009

SHEET CONTENTS  
MECHANICAL PLANS  
UNDER-BUILDING - D- AND M-MODULES

DRAWING NO.  
**M2.02**

FINAL PRODUCTION DRAWING

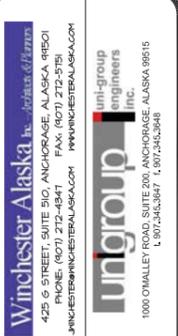
NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



**MECHANICAL PLAN, SUBFLOOR -  
S-MODULES**

**M2.03** SCALE: 1/8" = 1'-0"

- REFERENCED DRAWING NOTES:
1. PROVIDE ELECTRIC HEAT TRACING OF PIPING IN SUBFLOOR AS SHOWN.
  2. TYPICAL 6" E/A THROUGH SUBFLOOR ASSEMBLY FROM HRV-1 ABOVE.



**POGO MINE CAMP  
ADDITION**  
DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TLT	JOB NO. P12009
SHEET CONTENTS	

MECHANICAL  
PLAN,  
SUBFLOOR -  
S-MODULES

DRAWING NO.  
**M2.03**

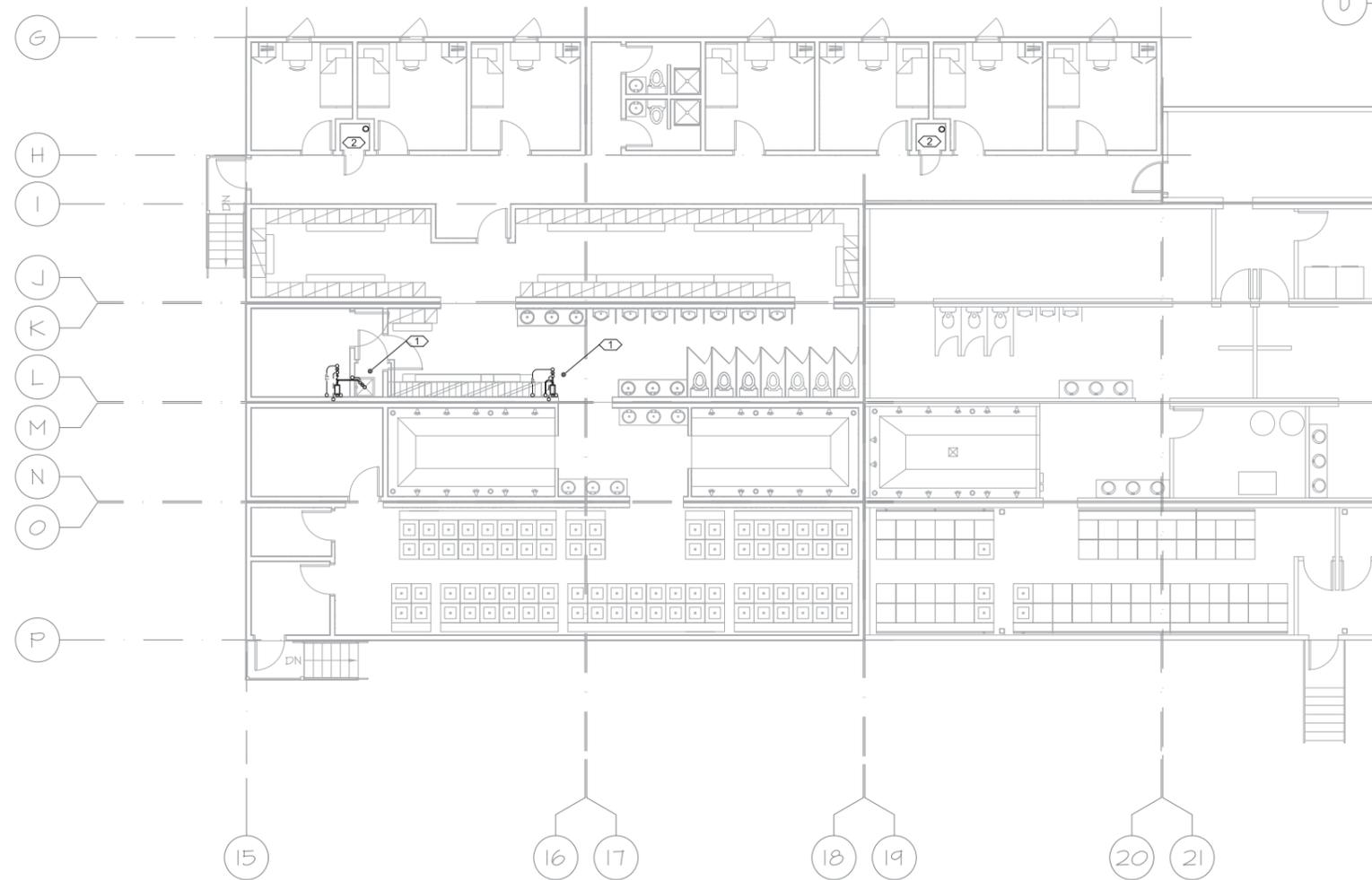
FINAL PRODUCTION DRAWING

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17

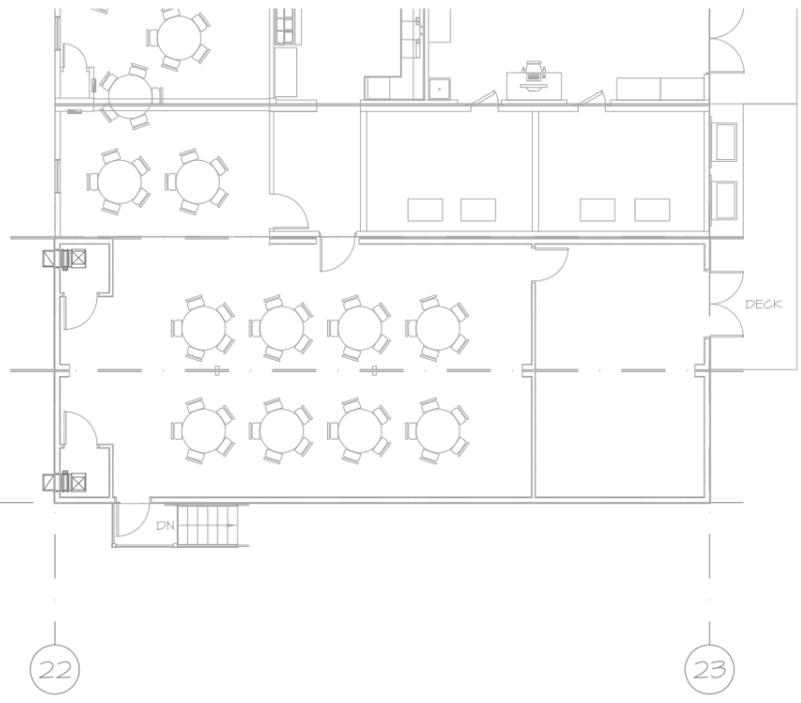
### MECHANICAL PLAN, SUBFLOOR - D-MODULES

**M2.04** SCALE: 1/8" = 1'-0"

REFERENCED DRAWING NOTES:  
(NOT USED.)



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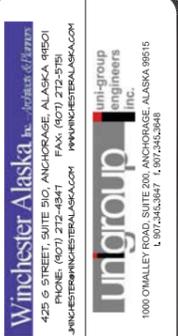


### MECHANICAL PLAN, SUBFLOOR - M-MODULES

**M2.04** SCALE: 1/8" = 1'-0"

REFERENCED DRAWING NOTES:

1. PROVIDE ELECTRIC HEAT TRACING OF PIPING IN SUBFLOOR AS SHOWN.
2. TYPICAL 6" E/A THROUGH SUBFLOOR ASSEMBLY FROM HRV-1 ABOVE.



**POGO MINE CAMP  
ADDITION**  
DELTA JUNCTION, ALASKA

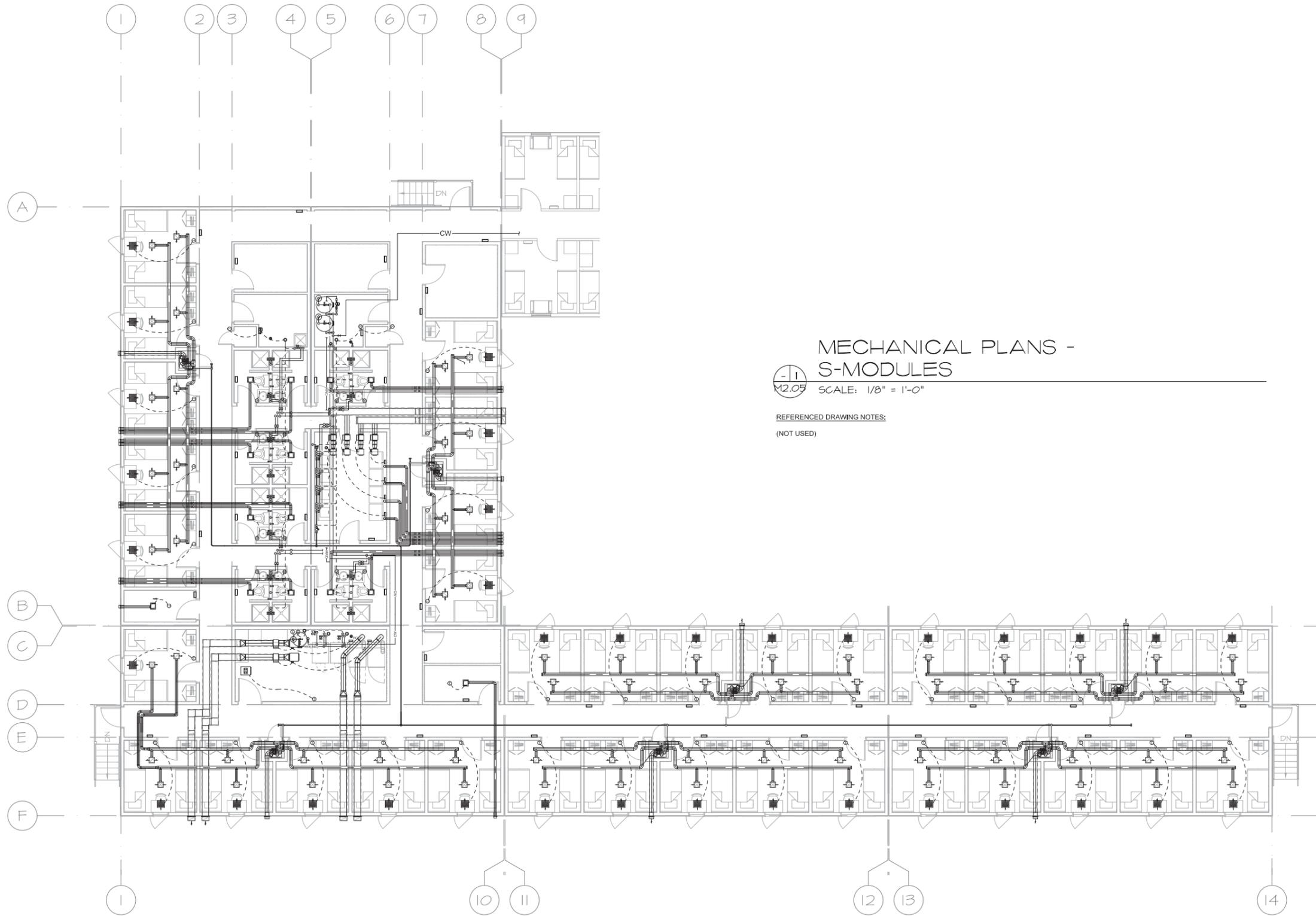
DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TLT	JOB NO. P12009

SHEET CONTENTS  
MECHANICAL  
PLANS,  
SUBFLOOR -  
M- AND D-  
MODULES

DRAWING NO.  
**M2.04**

FINAL PRODUCTION DRAWING

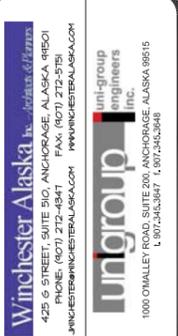
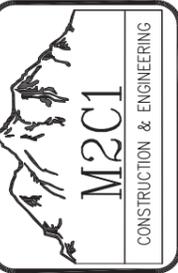
NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



**MECHANICAL PLANS -  
S-MODULES**

**M2.05** SCALE: 1/8" = 1'-0"

REFERENCED DRAWING NOTES:  
(NOT USED)



**POGO MINE CAMP  
ADDITION**  
DELTA JUNCTION, ALASKA

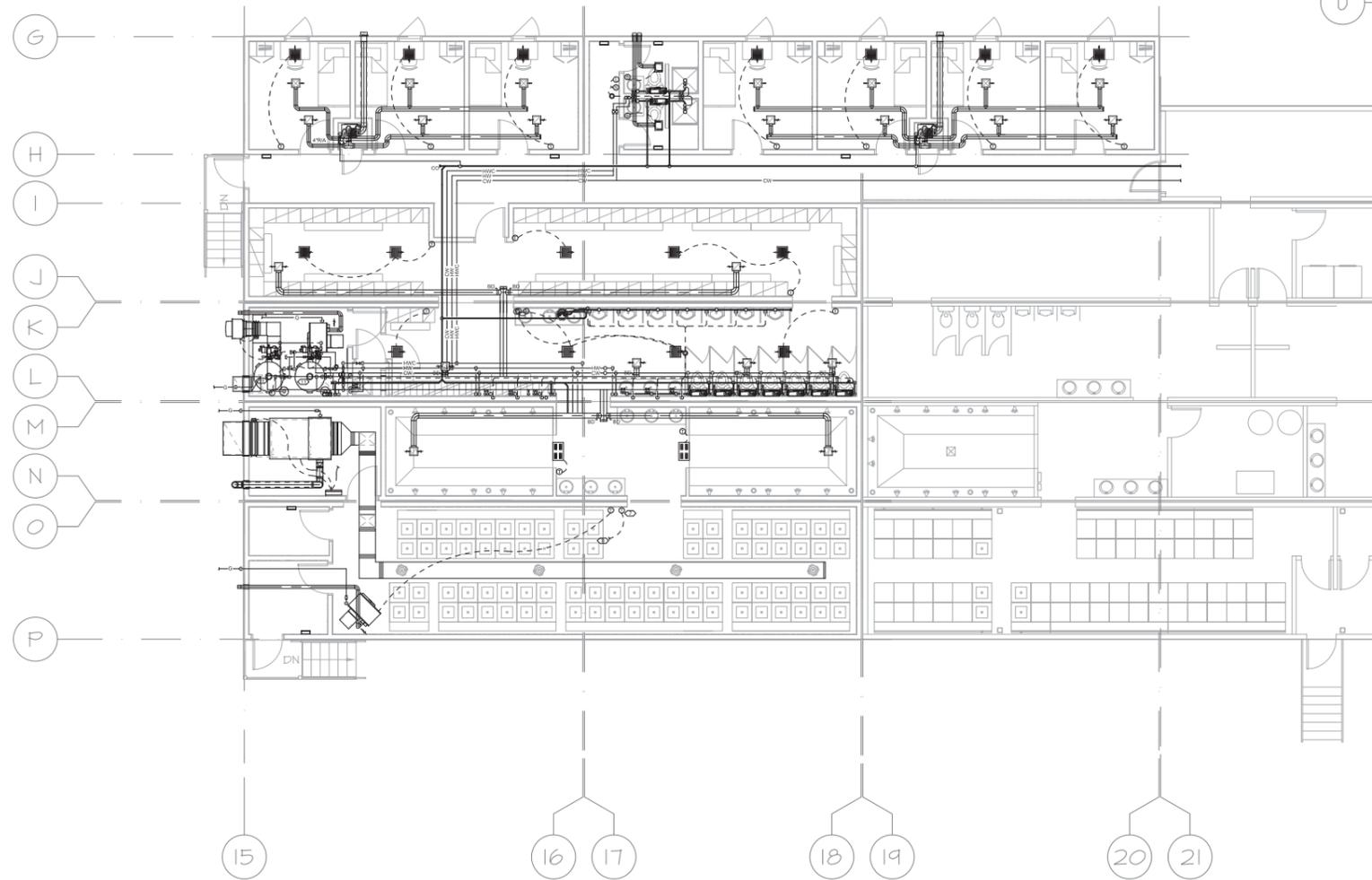
DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TLT	JOB NO. P12003
SHEET CONTENTS	

MECHANICAL  
PLAN,  
S - MODULES

DRAWING NO.  
**M2.05**

FINAL PRODUCTION DRAWING

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17

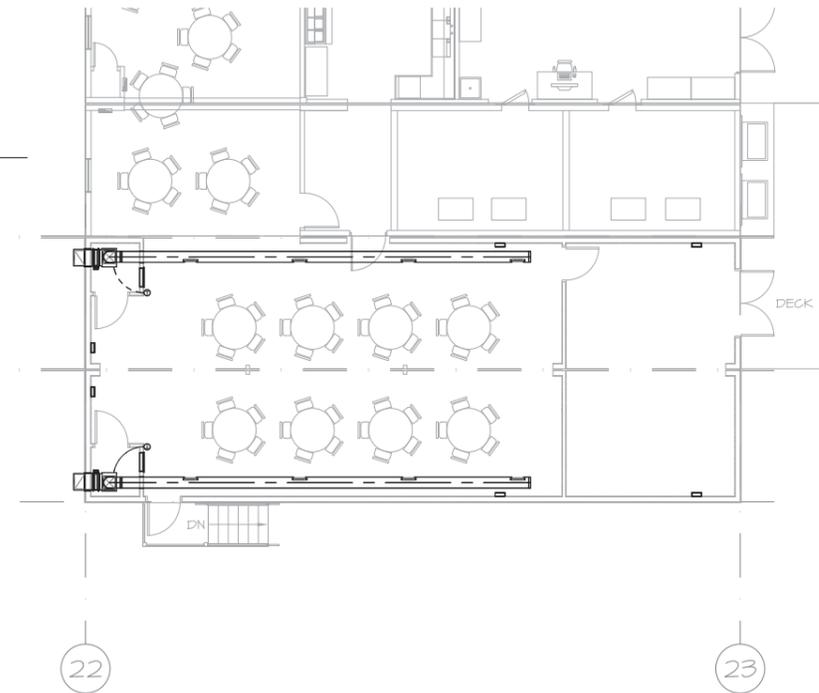


**MECHANICAL PLANS -  
D-MODULES**

**M2.06** SCALE: 1/8" = 1'-0"

REFERENCED DRAWING NOTES:  
(NOT USED.)

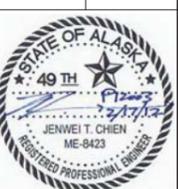
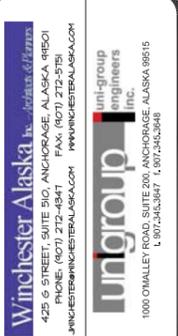
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**MECHANICAL PLANS -  
M-MODULES**

**M2.06** SCALE: 1/8" = 1'-0"

REFERENCED DRAWING NOTES:  
(NOT USED.)



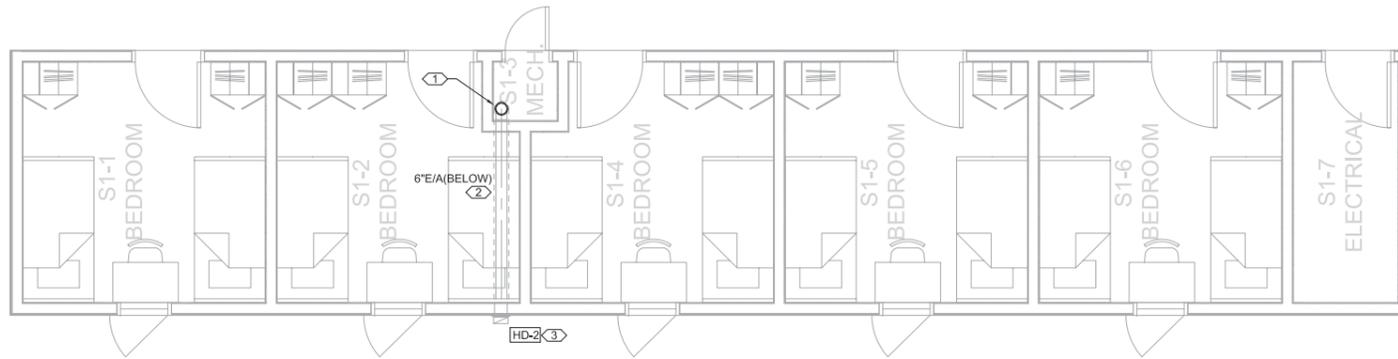
**POGO MINE CAMP  
ADDITION**  
DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TLT	JOB NO. P12003
SHEET CONTENTS	

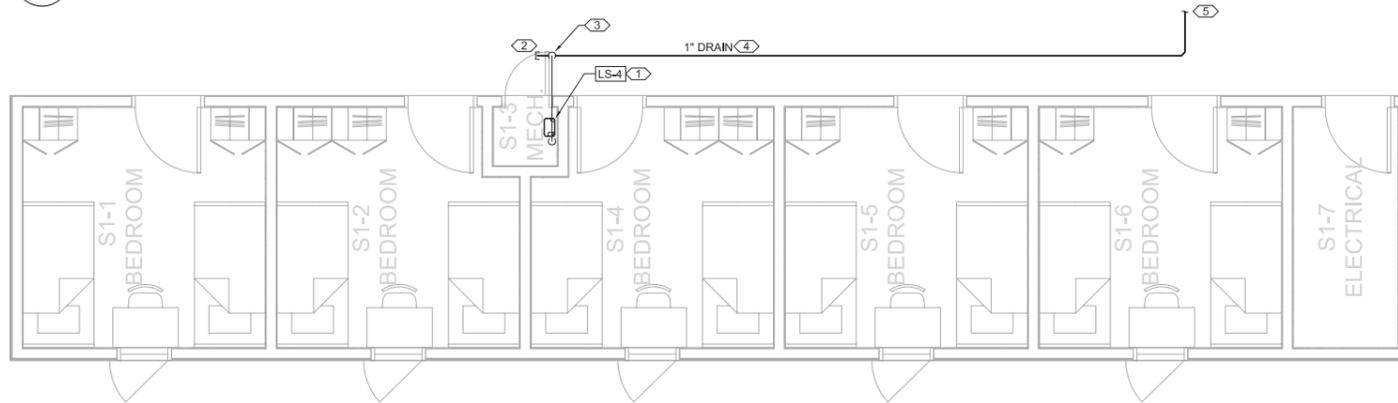
MECHANICAL  
PLANS -  
M- AND D-  
MODULES

DRAWING NO.  
**M2.06**

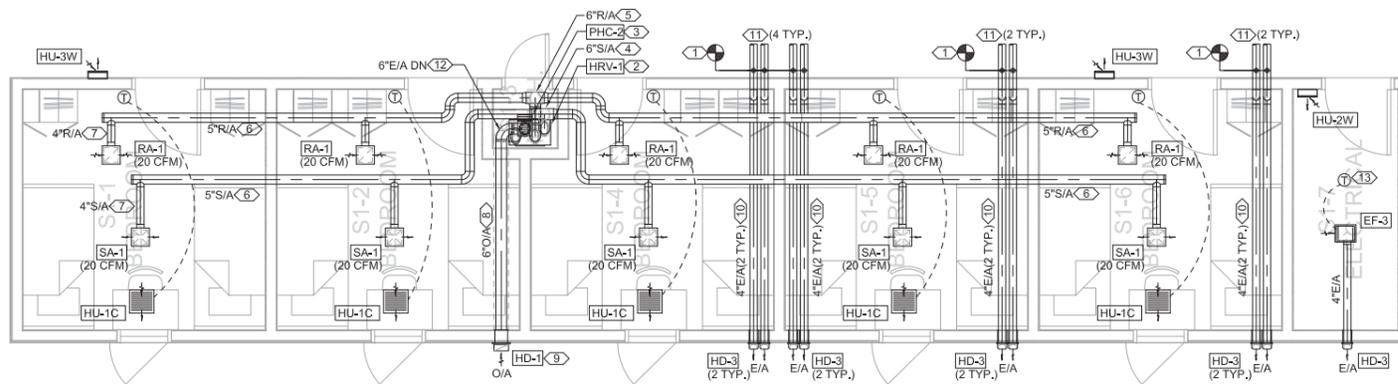
FINAL PRODUCTION DRAWING



M3.01  
 -1-  
 MODULE S-1, MECHANICAL PLAN, SUBFLOOR  
 SCALE: 1/4" = 1'-0"



M3.02  
 -2-  
 MODULE S-1, PLUMBING PLAN  
 SCALE: 1/4" = 1'-0"



M3.03  
 -3-  
 MODULE S-1, MECHANICAL PLAN  
 SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:

1. TYPICAL 6" EXHAUST DUCT FROM HRV-1 THROUGH SUBFLOOR ASSEMBLY DOWN TO CRAWL SPACE BELOW BUILDING.
2. TYPICAL INSULATED 6" EXHAUST DUCT IN CRAWL SPACE.
3. TYPICAL EXHAUST HOOD AT BUILDING SKIRT.

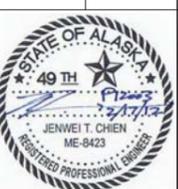
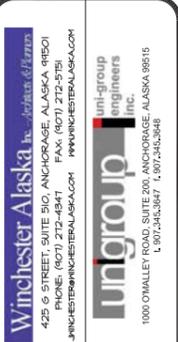
REFERENCED DRAWING NOTES:

1. LIFT STATION ON WALL TO RECEIVE CONDENSATE FROM HRV-1.
2. PROVIDE REMOVABLE PIPE CAP AND END.
3. CONNECTION 1" CONDENSATE DISCHARGE FROM LS-4 TO TOP OF CONDENSATE DRAIN.
4. 1" CONDENSATE DRAIN IN HALLWAY.
5. FOR CONTINUATION SEE M2 SERIES DRAWINGS.

REFERENCED DRAWING NOTES:

1. TYPICAL POINT OF FIELD CONNECTION.
2. HEAT RECOVERY VENTILATION, HRV-1, ON WALL.
3. OUTSIDE AIR PREHEAT COIL, PHC-2, ON OUTSIDE INTAKE DUCTWORK ABOVE HRV-1.
4. 6" S/A DUCT FROM HRV-1.
5. 6" R/A DUCT DOWN TO HRV-1.
6. TYPICAL 5" S/A AND R/A BRANCH MAIN IN ARCHITECTURAL SOFFIT.
7. TYPICAL 4" S/A AND R/A EMBEDDED IN ROOF INSULATION ASSEMBLY.
8. 6" O/A DUCT WITH 2" INSULATION WITH VAPOR BARRIER IN CEILING ASSEMBLY.
9. OUTSIDE INTAKE HOOD.
10. TYPICAL 4" EXHAUST DUCT EMBEDDED IN ROOF ASSEMBLY.
11. FOR CONTINUATION SEE M2 SERIES DRAWINGS.
12. 4" HRV-1 E/A DUCT DOWN TO BELOW.
13. ELECTRICAL ROOM HEAT EXTRACTION FAN THERMOSTAT. MOUNT AT CEILING LEVEL. SETPOINT AT 72 DEG F.

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



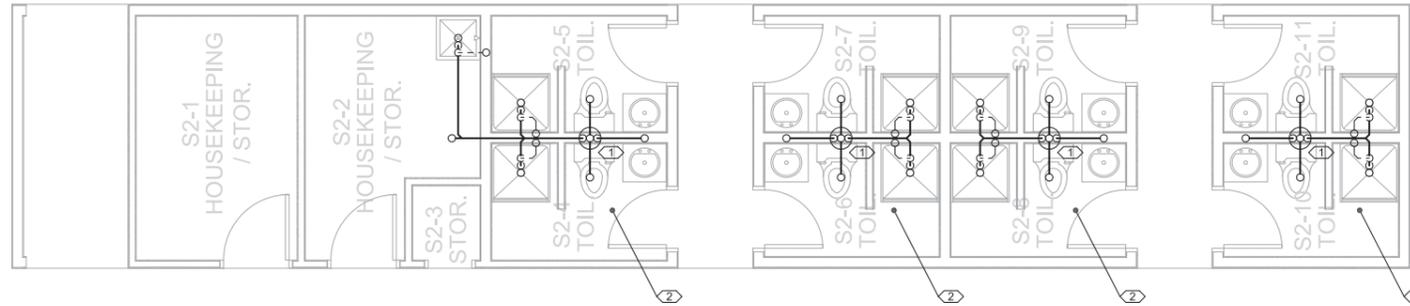
**POGO MINE CAMP ADDITION**  
 DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TL/HA	JOB NO. P12009
SHEET CONTENTS	

MODULE S-1  
 MECHANICAL  
 PLANS

DRAWING NO.  
 M3.01

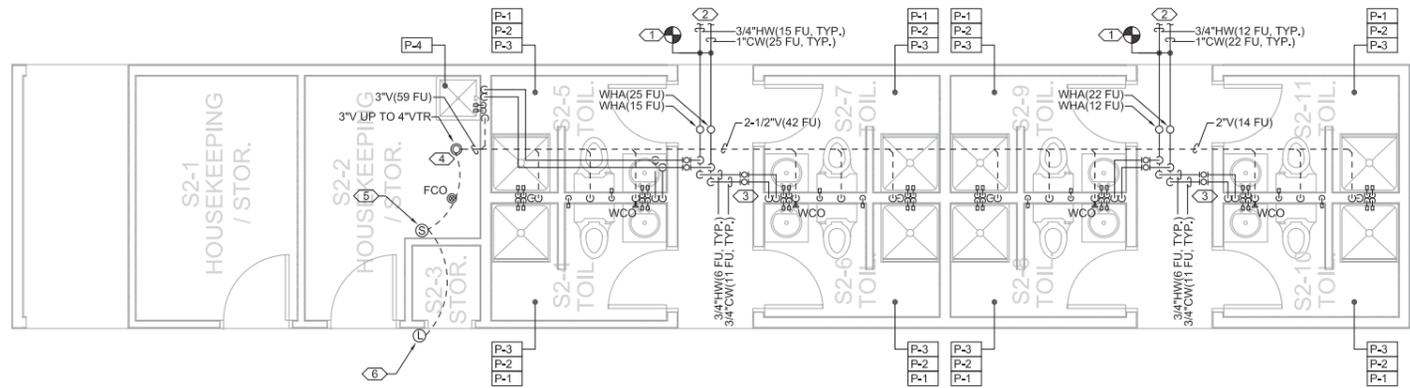
FINAL PRODUCTION DRAWING



M3.02 -1  
MODULE S-2, MECHANICAL PLAN, SUBFLOOR  
SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:

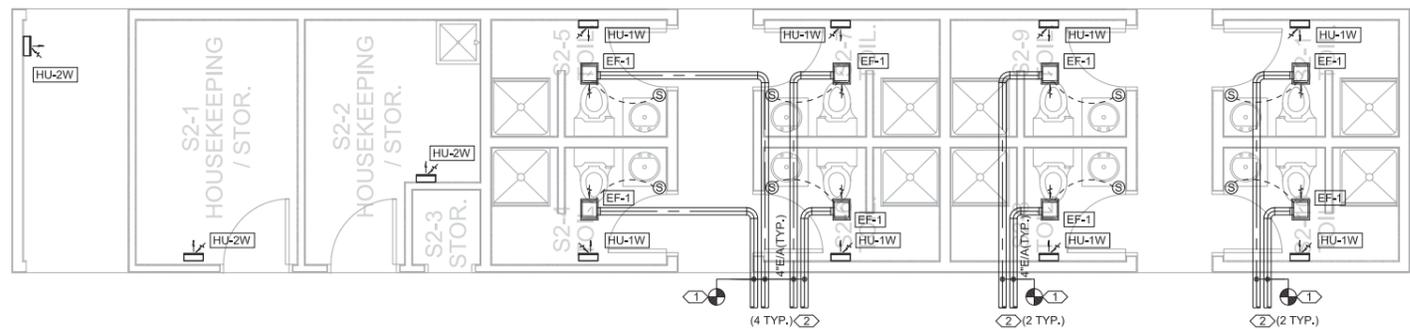
1. TYPICAL 3" WASTE IN 12" INSULATED ARCTIC PIPE DOWN TO BELOW.
2. COORDINATE WITH ELECTRICAL FOR HEAT TRACING OF SANITARY WASTE PIPING IN SUBFLOOR ASSEMBLY.



M3.02 -2  
MODULE S-2, PLUMBING PLAN  
SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:

1. TYPICAL POINT OF FIELD CONNECTION. FOR CONTINUATION SEE M2 SERIES DRAWINGS.
2. TYPICAL BATHROOM SERVICE ISOLATION VALVES IN HALLWAY CEILING.
3. VENT THROUGH ROOF ASSEMBLY WITH ELECTRIC HEAT TRACING.
4. VENT THROUGH ROOF HEAT TRACING CONTROL ON/OFF SWITCH.
5. VENT THROUGH ROOF HEAT TRACING SYSTEM STATUS INDICATOR LIGHT ON WALL AT APPROXIMATELY 12" BELOW CEILING, PROVIDE SIGNAGE TO DENOTE FUNCTION.

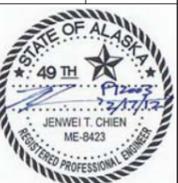
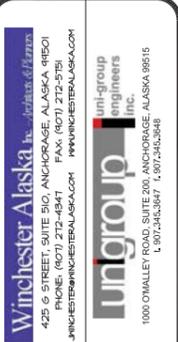


M3.02 -3  
MODULE S-2, MECHANICAL PLAN  
SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:

1. TYPICAL POINT OF FIELD CONNECTION. FOR CONTINUATION SEE M2 SERIES DRAWINGS.

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



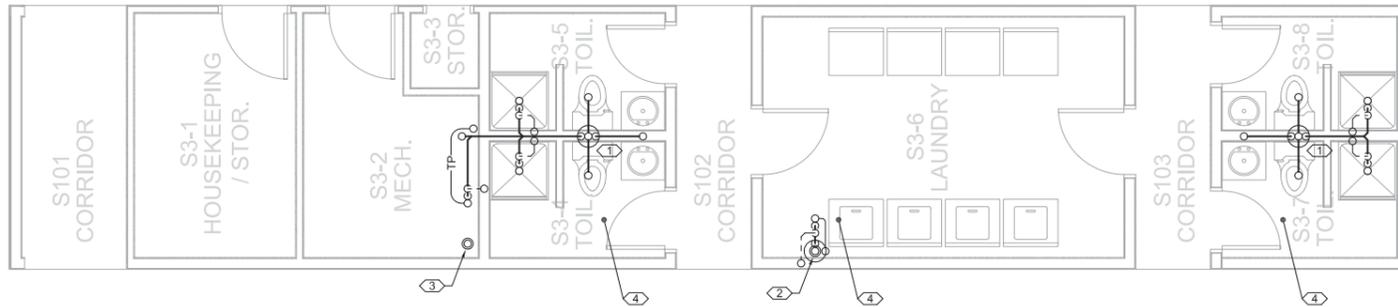
**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TL/MAA	JOB NO. P12009
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MODULE S-2  
MECHANICAL  
PLANS

DRAWING NO.  
**M3.02**

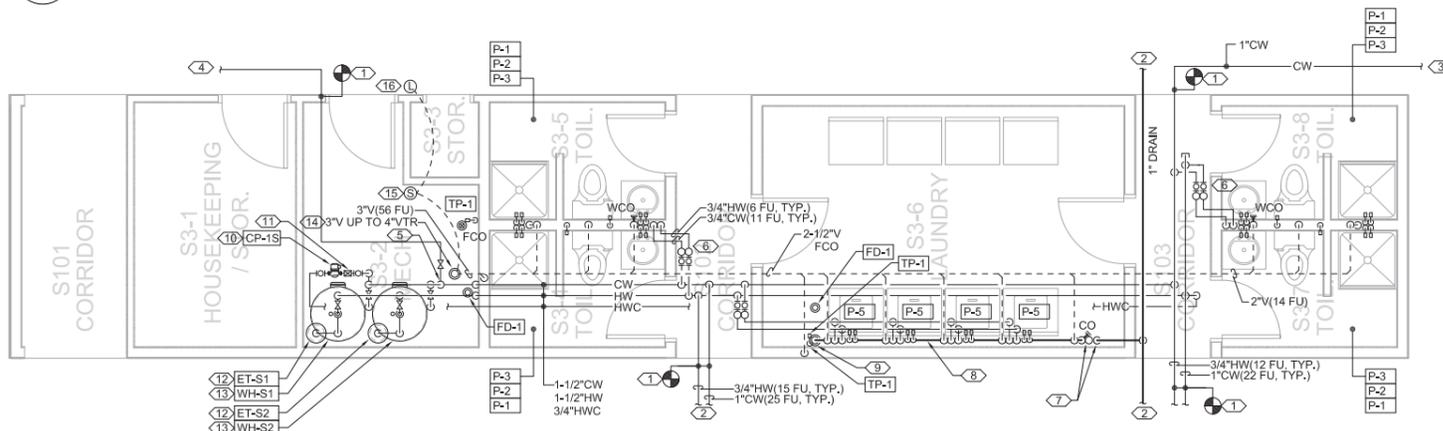
FINAL PRODUCTION DRAWING



M3.03 MODULE S-3, MECHANICAL PLAN, SUBFLOOR  
SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:

1. TYPICAL 3" WASTE IN 12" INSULATED ARCTIC PIPE DOWN TO BELOW.
2. 4" WASTE IN 12" INSULATED ARCTIC PIPE DOWN TO BELOW.
3. 6" BUILDING WATER SERVICE FROM BELOW.
4. COORDINATE WITH ELECTRICAL FOR HEAT TRACING OF SANITARY WASTE PIPING IN SUBFLOOR ASSEMBLY.

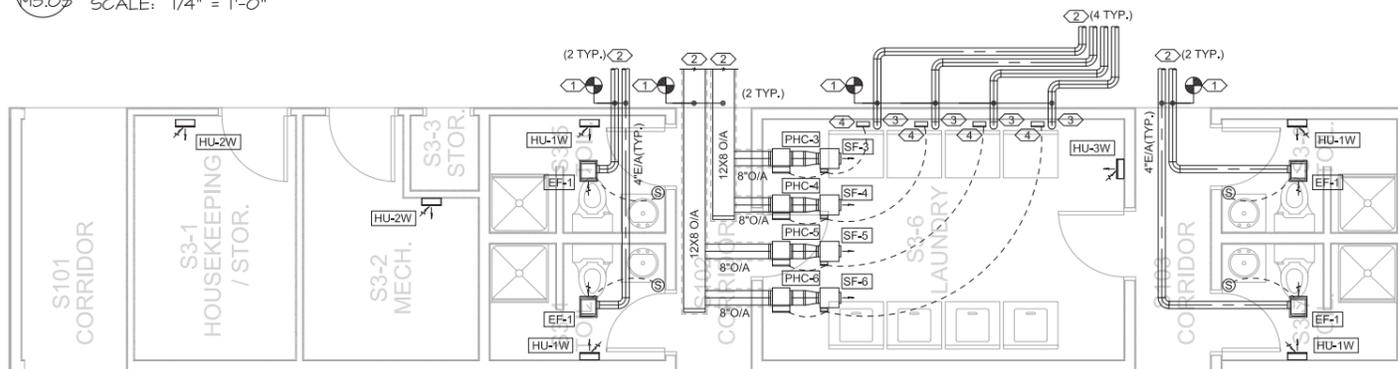


M3.03 MODULE S-3, PLUMBING PLAN  
SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:

1. TYPICAL POINT OF FIELD CONNECTION.
2. FOR CONTINUATION SEE M2 SERIES DRAWINGS.
3. 1" CW SERVICE TO HOUSEKEEPING LAUNDRY IN MODULE S-5, SEE DRAWING M3.05 FOR CONTINUATION.
4. 2" BUILDING DOMESTIC WATER SERVICE FROM EXISTING BUILDING.
5. PROVIDE 12" HEIGHT THERMAL TRAP AT WATER SERVICE TO WATER HEATERS.
6. TYPICAL BATHROOM SERVICE ISOLATION VALVES IN HALLWAY CEILING.
7. 1" DRAIN DOWN TO DISCHARGE AT 48" ABOVE FLOOR AT 4" DIA. STANDPIPE.
8. 4" DRAIN ABOVE FLOOR TO RECEIVE

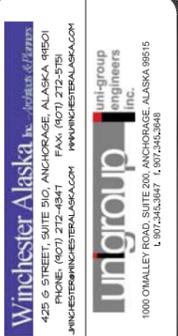
9. DISCHARGE FROM WASHER STANDPIPES.
10. 4" DRAIN DOWN TO BELOW.
11. HOT WATER CIRCULATION PUMP.
12. SET BALANCING VALVE FOR 2 GPM.
13. TYPICAL HOT WATER EXPANSION TANK, SECURE TO WALL.
14. TYPICAL WATER HEATER, PROVIDE SEISMIC RESTRAINT TO SECURE WATER HEATER TO BUILDING STRUCTURE.
15. VENT THROUGH ROOF ASSEMBLY WITH ELECTRIC HEAT TRACING.
16. VENT THROUGH ROOF HEAT TRACING SYSTEM STATUS INDICATOR LIGHT ON WALL AT APPROXIMATELY 12" BELOW CEILING, PROVIDE SIGNAGE TO DENOTE FUNCTION.



M3.03 MODULE S-3, MECHANICAL PLAN  
SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:

1. TYPICAL POINT OF FIELD CONNECTION.
2. FOR CONTINUATION SEE M2 SERIES DRAWINGS.
3. TYPICAL 4" DRYER VENT DOWN TO CONNECTION AT DRYER EXHAUST OUTLET.
4. TYPICAL DRYER EXHAUST AND MAKEUP AIR INTERLOCK CONTROL PANEL.



**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

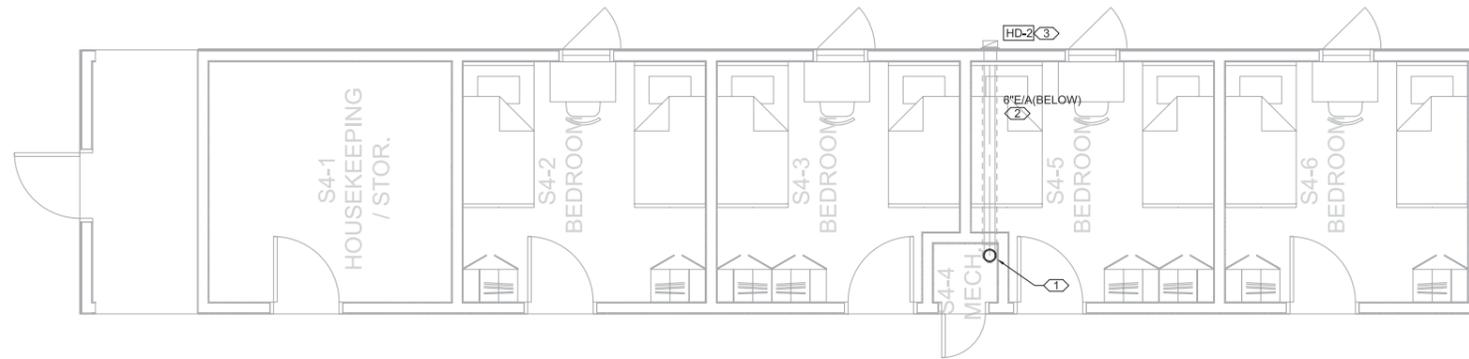
DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TL/MAA	JOB NO. P12003
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MODULE S-3  
MECHANICAL  
PLANS

DRAWING NO.  
**M3.03**

FINAL PRODUCTION DRAWING

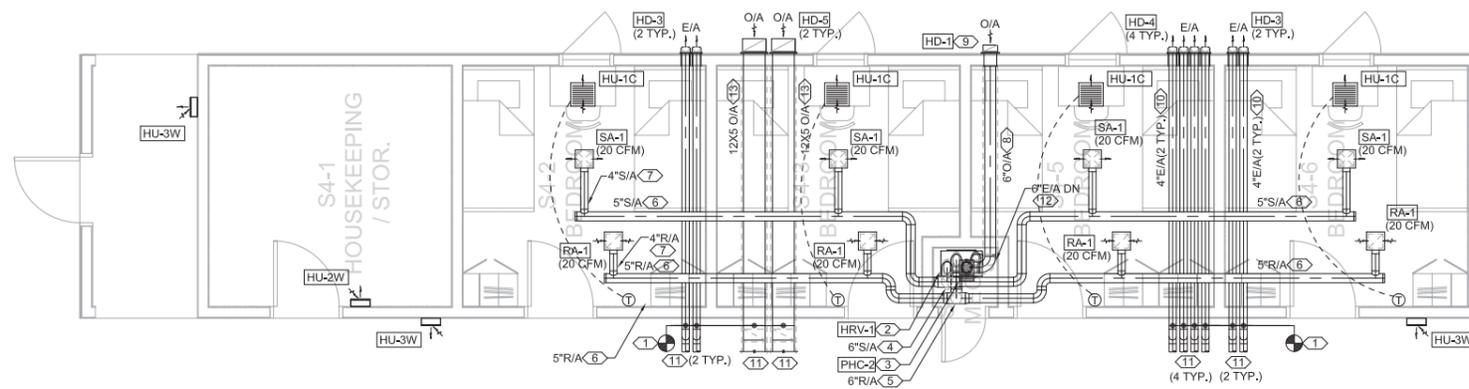
NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



M3.04 **MODULE S-4, MECHANICAL PLAN, SUBFLOOR**  
SCALE: 1/4" = 1'-0"



M3.04 **MODULE S-4, PLUMBING PLAN**  
SCALE: 1/4" = 1'-0"



M3.04 **MODULE S-4, MECHANICAL PLAN**  
SCALE: 1/4" = 1'-0"

**REFERENCED DRAWING NOTES:**

1. TYPICAL 6" EXHAUST DUCT FROM HRV-1 THROUGH SUBFLOOR ASSEMBLY DOWN TO CRAWL SPACE BELOW BUILDING.
2. TYPICAL INSULATED 6" EXHAUST DUCT IN CRAWL SPACE.
3. TYPICAL EXHAUST HOOD AT BUILDING SKIRT.

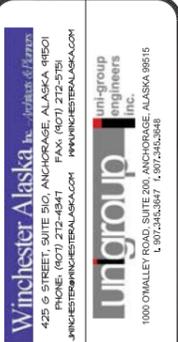
**REFERENCED DRAWING NOTES:**

1. LIFT STATION ON WALL TO RECEIVE CONDENSATE FROM HRV-1.
2. PROVIDE REMOVABLE PIPE CAP AND END CONNECTION 1" CONDENSATE DISCHARGE FROM LS-4 TO TOP OF CONDENSATE DRAIN.
3. 1" CONDENSATE DRAIN IN HALLWAY.
4. FOR CONTINUATION SEE M2 SERIES DRAWINGS.
5. 2" BUILDING WATER SERVICE FROM EXISTING BUILDING.

**REFERENCED DRAWING NOTES:**

1. TYPICAL POINT OF FIELD CONNECTION.
2. HEAT RECOVERY VENTILATION, HRV-1, ON WALL.
3. OUTSIDE AIR PREHEAT COIL, PHC-2, ON OUTSIDE INTAKE DUCTWORK ABOVE HRV-1.
4. 6" S/A DUCT FROM HRV-1.
5. 6" R/A DUCT DOWN TO HRV-1.
6. TYPICAL 5" S/A AND R/A BRANCH MAIN IN ARCHITECTURAL SOFFIT.
7. TYPICAL 4" S/A AND R/A EMBEDDED IN ROOF INSULATION ASSEMBLY.
8. 6" O/A DUCT WITH 2" INSULATION WITH VAPOR BARRIER IN CEILING ASSEMBLY.
9. OUTSIDE INTAKE HOOD.
10. TYPICAL 4" EXHAUST DUCT EMBEDDED IN ROOF ASSEMBLY.
11. FOR CONTINUATION SEE M2 SERIES DRAWINGS.
12. 4" HRV-1 E/A DUCT DOWN TO BELOW.
13. TYPICAL 12"X6" O/A DUCT WITH 4" FOAM INSULATION IN CEILING ASSEMBLY.

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



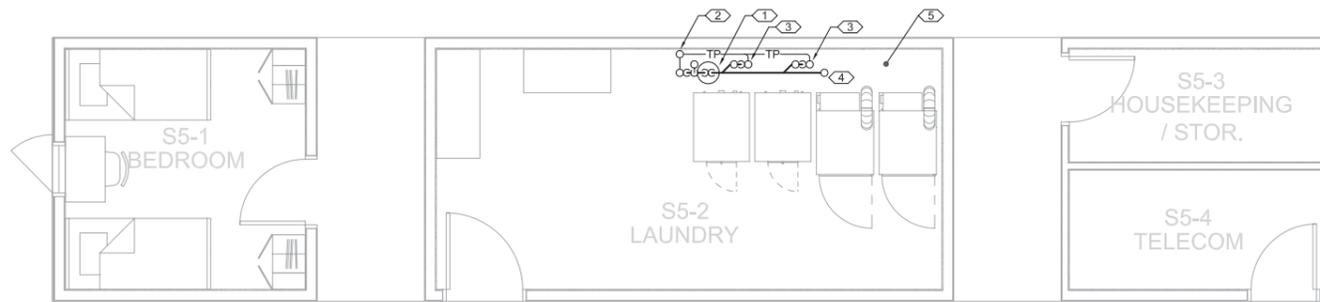
**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

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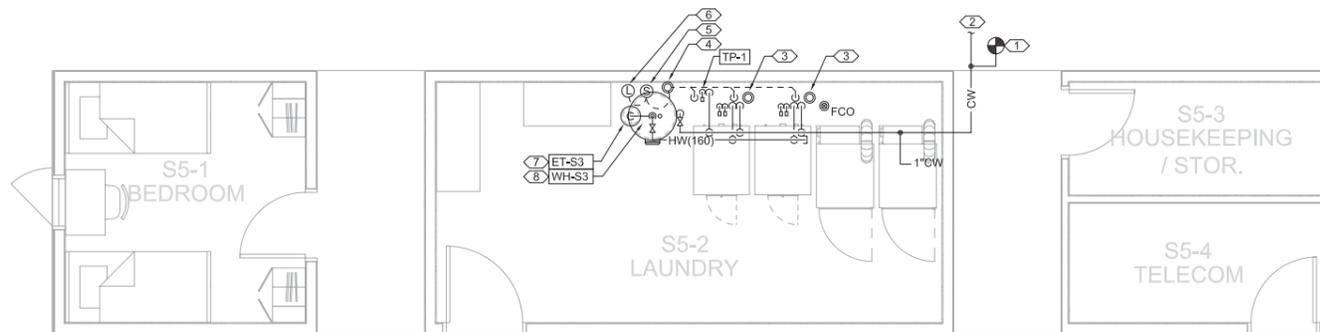
MODULE S-4 MECHANICAL PLANS

DRAWING NO. M3.04

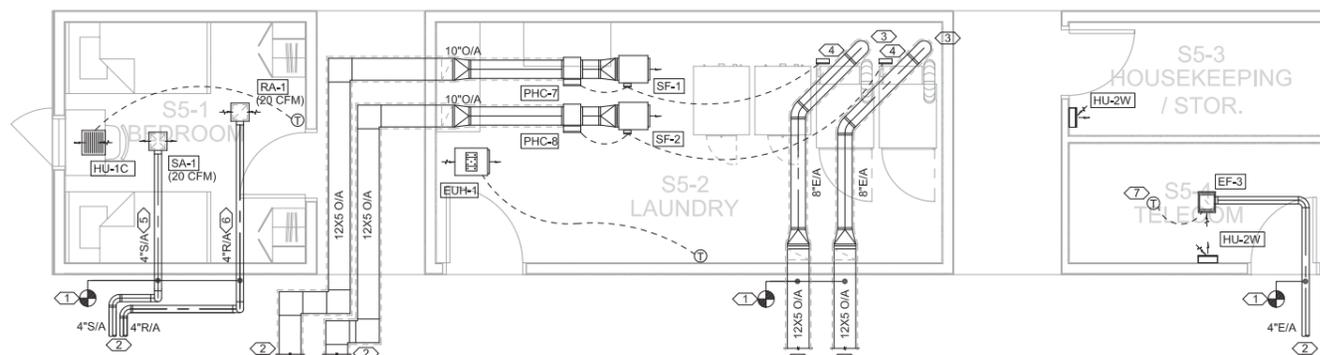
FINAL PRODUCTION DRAWING



M3.05 **MODULE S-5, MECHANICAL PLAN, SUBFLOOR**  
SCALE: 1/4" = 1'-0"



M3.06 **MODULE S-5, PLUMBING PLAN**  
SCALE: 1/4" = 1'-0"



M3.07 **MODULE S-5, MECHANICAL PLAN**  
SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:

- 4" WASTE PIPE IN 12" INSULATED ARCTIC PIPE DOWN TO BELOW.
- 1/2" TRAP PRIMER LINE FROM ABOVE.
- 4" WASTE PIPE UP TO STANDPIPE ABOVE.
- 4" WASTE UP TO FLOOR CLEANOUT.
- COORDINATE WITH ELECTRICAL FOR HEAT TRACING OF SANITARY WASTE PIPING IN SUBFLOOR ASSEMBLY.

REFERENCED DRAWING NOTES:

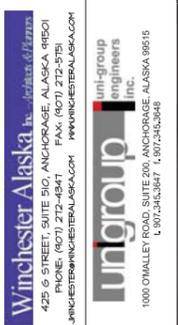
- TYPICAL POINT OF FIELD CONNECTION.
- FOR CONTINUATION SEE M2 SERIES DRAWINGS.
- TYPICAL 4" DRAIN TO RECEIVE DISCHARGE FROM CLOTHES WASHER.
- VENT THROUGH ROOF ASSEMBLY WITH ELECTRIC HEAT TRACING.
- VENT THROUGH ROOF HEAT TRACING CONTROL ON/OFF SWITCH.
- VENT THROUGH ROOF HEAT TRACING SYSTEM STATUS INDICATOR LIGHT ON WALL AT

- APPROXIMATELY 12" BELOW CEILING. PROVIDE SIGNAGE TO DENOTE FUNCTION.
- TYPICAL HOT WATER EXPANSION TANK. SECURE TO WALL.
- TYPICAL WATER HEATER. PROVIDE SEISMIC RESTRAINT TO SECURE WATER HEATER TO BUILDING STRUCTURE.

REFERENCED DRAWING NOTES:

- TYPICAL POINT OF FIELD CONNECTION.
- FOR CONTINUATION SEE M2 SERIES DRAWINGS.
- TYPICAL 8" E/A DOWN TO DRYER CONNECTION.
- TYPICAL DRYER AND EXHAUST AIR MAKEUP SYSTEM INTERLOCK CONTROL PANEL.
- 4" S/A FROM MODULE S-6.
- 4" R/A FROM MODULE S-6.
- ELECTRICAL ROOM HEAT EXTRACTION FAN THERMOSTAT. MOUNT AT CEILING LEVEL. SETPOINT AT 72 DEG F.

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



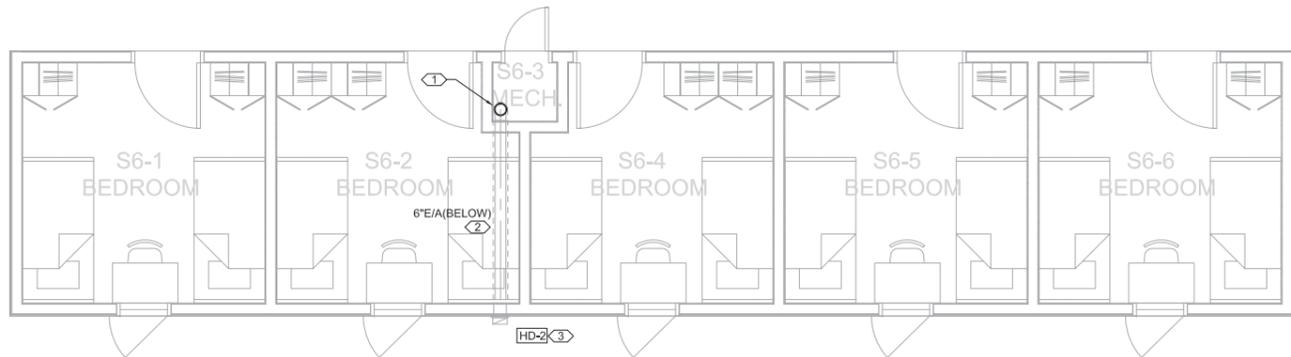
**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

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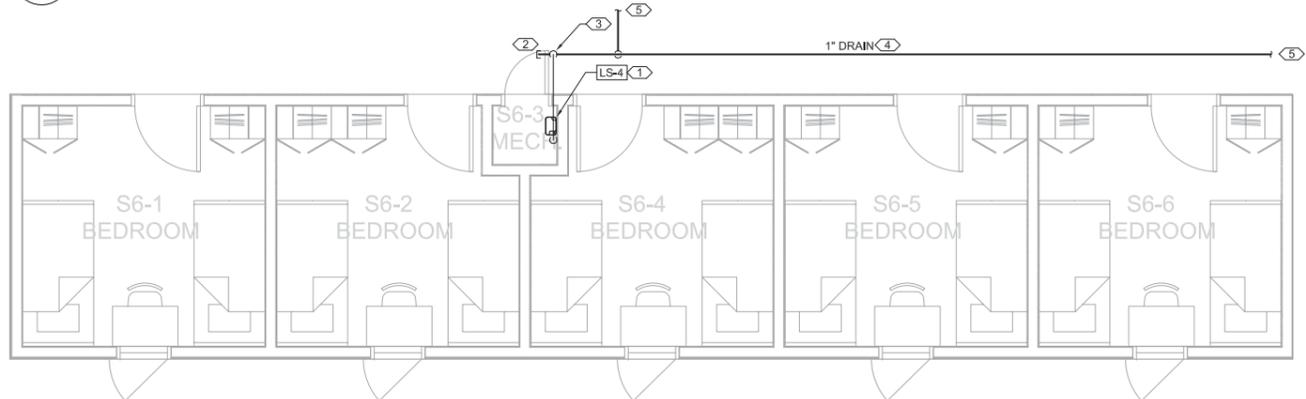
MODULE S-5  
MECHANICAL  
PLANS

DRAWING NO.  
**M3.05**

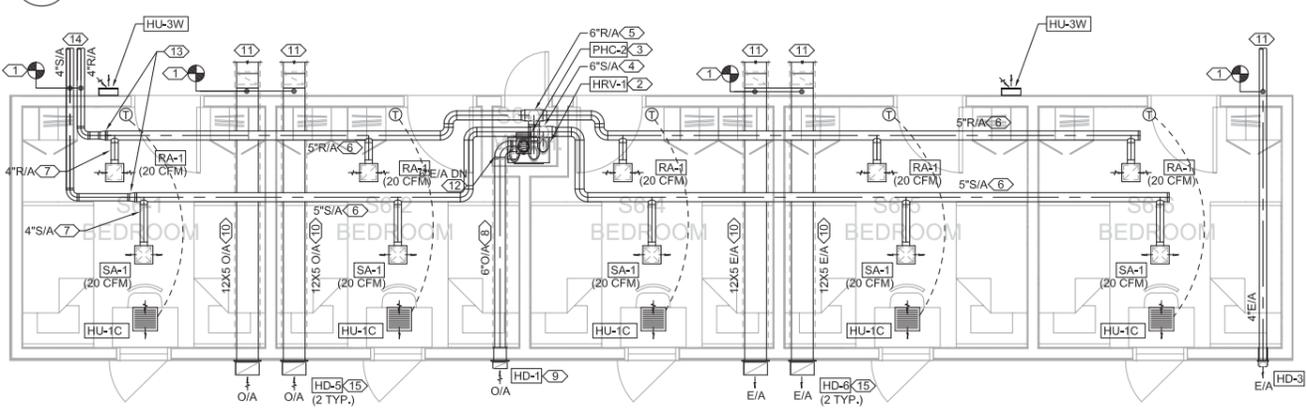
FINAL PRODUCTION DRAWING



M3.06 **MODULE S-6, MECHANICAL PLAN, SUBFLOOR**  
SCALE: 1/4" = 1'-0"



M3.06 **MODULE S-6, PLUMBING PLAN**  
SCALE: 1/4" = 1'-0"



M3.06 **MODULE S-6, MECHANICAL PLAN**  
SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:

1. TYPICAL 6" EXHAUST DUCT FROM HRV-1 THROUGH SUBFLOOR ASSEMBLY DOWN TO CRAWL SPACE BELOW BUILDING.
2. TYPICAL INSULATED 6" EXHAUST DUCT IN CRAWL SPACE.
3. TYPICAL EXHAUST HOOD AT BUILDING SKIRT.

REFERENCED DRAWING NOTES:

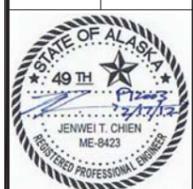
1. LIFT STATION ON WALL TO RECEIVE CONDENSATE FROM HRV-1.
2. PROVIDE REMOVABLE PIPE CAP AND END.
3. CONNECTION 1" CONDENSATE DISCHARGE FROM LS-4 TO TOP OF CONDENSATE DRAIN.
4. 1" CONDENSATE DRAIN IN HALLWAY.
5. FOR CONTINUATION SEE M2 SERIES DRAWINGS.

REFERENCED DRAWING NOTES:

1. TYPICAL POINT OF FIELD CONNECTION.
2. HEAT RECOVERY VENTILATION, HRV-1, ON WALL.
3. OUTSIDE AIR PREHEAT COIL, PHC-1, ON WALL.
4. OUTSIDE INTAKE DUCTWORK ABOVE HRV-1.
5. 6" R/A DUCT FROM HRV-1.
6. 6" R/A DUCT DOWN TO HRV-1.
7. TYPICAL 5" S/A AND R/A BRANCH MAIN IN ARCHITECTURAL SOFFIT.
8. TYPICAL 4" S/A AND R/A EMBEDDED IN ROOF INSULATION ASSEMBLY.
9. 6" O/A DUCT WITH 2" INSULATION WITH VAPOR BARRIER IN CEILING ASSEMBLY.
10. OUTSIDE INTAKE HOOD.

10. HOUSEKEEPING LAUNDRY MAKEUP AIR AND EXHAUST DUCTWORK.
11. FOR CONTINUATION SEE M2 SERIES DRAWINGS.
12. 4" HRV-1 E/A DUCT DOWN TO BELOW.
13. TYPICAL 5"x4" TRANSITION FITTING.
14. 4" S/A AND 4" R/A TO MODULE S-5.
15. TYPICAL HOUSEKEEPING MAKE-UP AIR AND EXHAUST WALL HOOD.

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



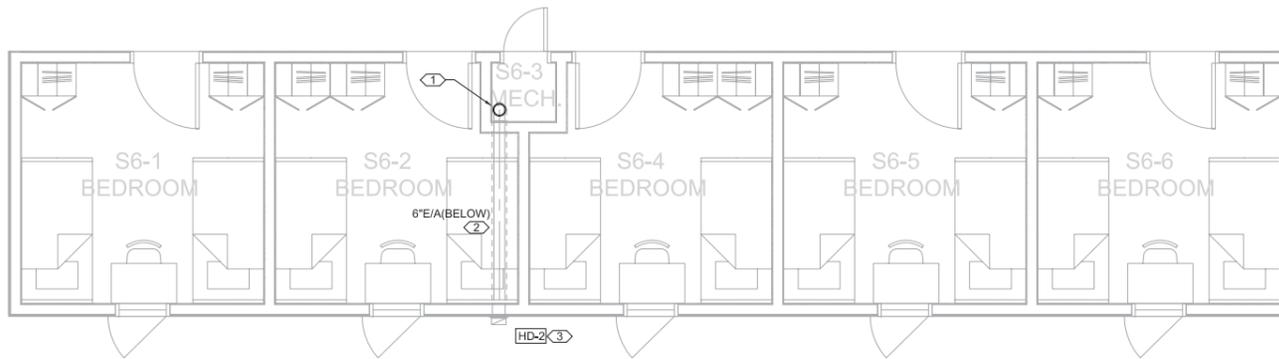
**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
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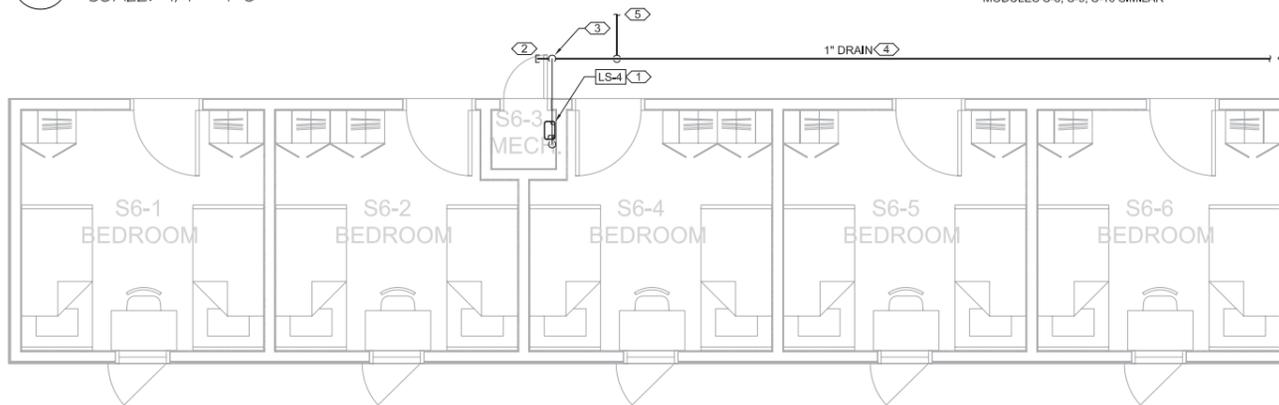
MODULE S-6  
MECHANICAL  
PLANS

DRAWING NO.  
**M3.06**

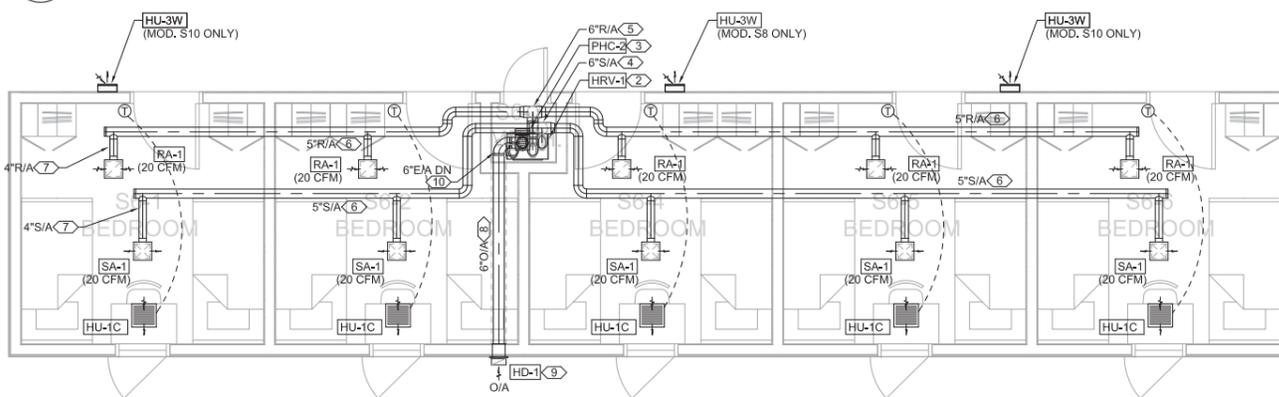
FINAL PRODUCTION DRAWING



**M3.07** -1  
**MODULE S-7, MECHANICAL PLAN, SUBFLOOR**  
 SCALE: 1/4" = 1'-0"  
 MODULES S-8, S-9, S-10 SIMILAR



**M3.07** -2  
**MODULE S-7, PLUMBING PLAN**  
 SCALE: 1/4" = 1'-0"  
 MODULES S-8, S-9, S-10 SIMILAR



**M3.07** -3  
**MODULE S-7, MECHANICAL PLAN**  
 SCALE: 1/4" = 1'-0"  
 MODULES S-8, S-9, S-10 SIMILAR

**REFERENCED DRAWING NOTES:**

1. TYPICAL 6" EXHAUST DUCT FROM HRV-1 THROUGH SUBFLOOR ASSEMBLY DOWN TO CRAWL SPACE BELOW BUILDING.
2. TYPICAL INSULATED 6" EXHAUST DUCT IN CRAWL SPACE.
3. TYPICAL EXHAUST HOOD AT BUILDING SKIRT.

**REFERENCED DRAWING NOTES:**

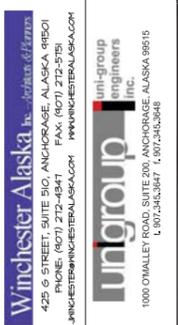
1. LIFT STATION ON WALL TO RECEIVE CONDENSATE FROM HRV-1.
2. PROVIDE REMOVABLE PIPE CAP AND END.
3. CONNECTION 1" CONDENSATE DISCHARGE FROM LS-4 TO TOP OF CONDENSATE DRAIN.
4. 1" CONDENSATE DRAIN IN HALLWAY.
5. FOR CONTINUATION SEE M2 SERIES DRAWINGS.

**REFERENCED DRAWING NOTES:**

1. TYPICAL POINT OF FIELD CONNECTION.
2. HEAT RECOVERY VENTILATION, HRV-1, ON WALL.
3. OUTSIDE AIR PREHEAT COIL, PHC-1, ON OUTSIDE INTAKE DUCTWORK ABOVE HRV-1.
4. 6" S/A DUCT FROM HRV-1.
5. 6" R/A DUCT DOWN TO HRV-1.
6. TYPICAL 5" S/A AND R/A BRANCH MAIN IN ARCHITECTURAL SOFFIT.
7. TYPICAL 4" S/A AND R/A EMBEDDED IN ROOF INSULATION ASSEMBLY.
8. 6" O/A DUCT WITH 2" INSULATION WITH VAPOR BARRIER IN CEILING ASSEMBLY.
9. OUTSIDE INTAKE HOOD.

10. 4" HRV-1 E/A DUCT DOWN TO BELOW.

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



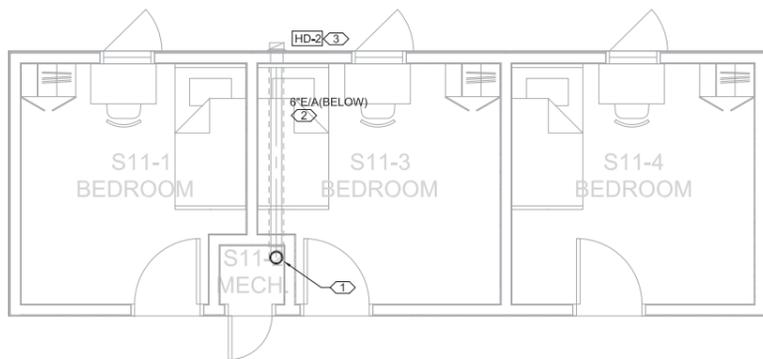
**POGO MINE CAMP ADDITION**  
 DELTA JUNCTION, ALASKA

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SHEET CONTENTS	

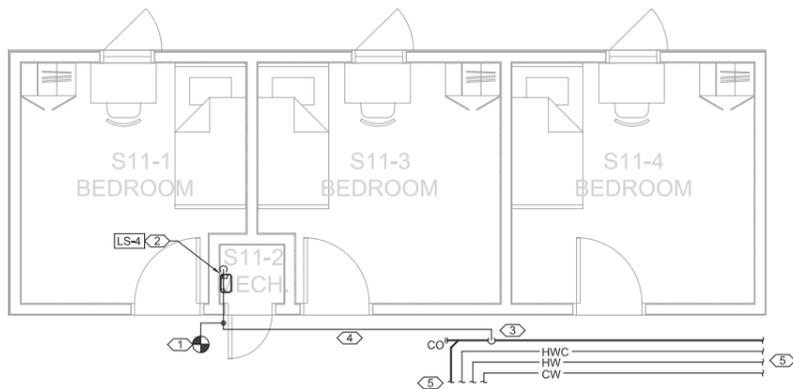
MODULE S-7  
 MECHANICAL  
 PLANS

DRAWING NO.  
**M3.07**

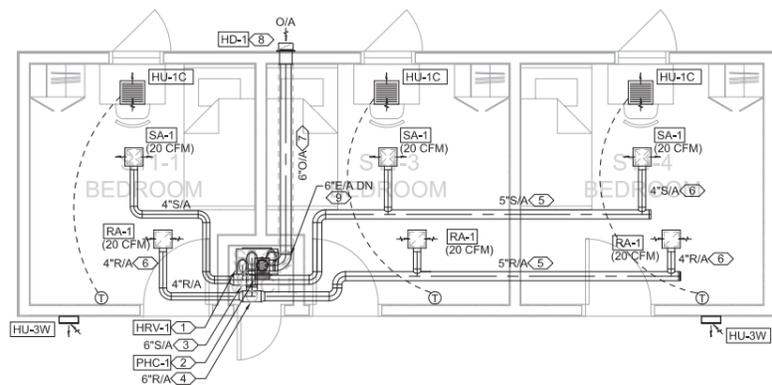
FINAL PRODUCTION DRAWING



**1** **M3.08** MODULE S-II, MECHANICAL PLAN, SUBFLOOR  
SCALE: 1/4" = 1'-0"



**2** **M3.08** MODULE S-II, PLUMBING PLAN  
SCALE: 1/4" = 1'-0"



**3** **M3.08** MODULE S-II, MECHANICAL PLAN  
SCALE: 1/4" = 1'-0"

**REFERENCED DRAWING NOTES:**

1. TYPICAL 6" EXHAUST DUCT FROM HRV-1 THROUGH SUBFLOOR ASSEMBLY DOWN TO CRAWL SPACE BELOW BUILDING.
2. TYPICAL INSULATED 6" EXHAUST DUCT IN CRAWL SPACE.
3. TYPICAL EXHAUST HOOD AT BUILDING SKIRT.

**REFERENCED DRAWING NOTES:**

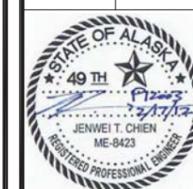
1. TYPICAL POINT OF FIELD CONNECTION.
2. LIFT STATION ON WALL TO RECEIVE CONDENSATE FROM HRV-1.
3. CONNECTION 1" CONDENSATE DISCHARGE FROM LS-4 TO TOP OF CONDENSATE DRAIN.
4. 1" CONDENSATE DRAIN IN HALLWAY.
5. FOR CONTINUATION SEE M2 SERIES DRAWINGS.

**REFERENCED DRAWING NOTES:**

1. HEAT RECOVERY VENTILATION, HRV-1, ON WALL.
2. OUTSIDE AIR PREHEAT COIL, PHC-1, ON OUTSIDE INTAKE DUCTWORK ABOVE HRV-1.
3. 6" S/A DUCT FROM HRV-1.
4. 6" R/A DUCT DOWN TO HRV-1.
5. TYPICAL 5" S/A AND R/A BRANCH MAIN IN ARCHITECTURAL SOFFIT.
6. TYPICAL 4" S/A AND R/A EMBEDDED IN ROOF INSULATION ASSEMBLY.
7. 6" O/A DUCT WITH 2" INSULATION WITH VAPOR BARRIER IN CEILING ASSEMBLY.

8. OUTSIDE INTAKE HOOD.
9. 4" HRV-1 E/A DUCT DOWN TO BELOW.

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



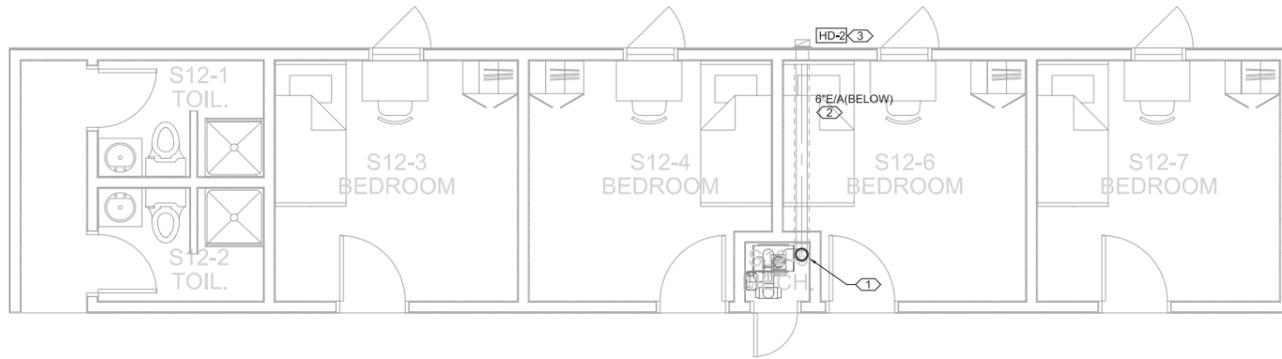
**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

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SHEET CONTENTS	

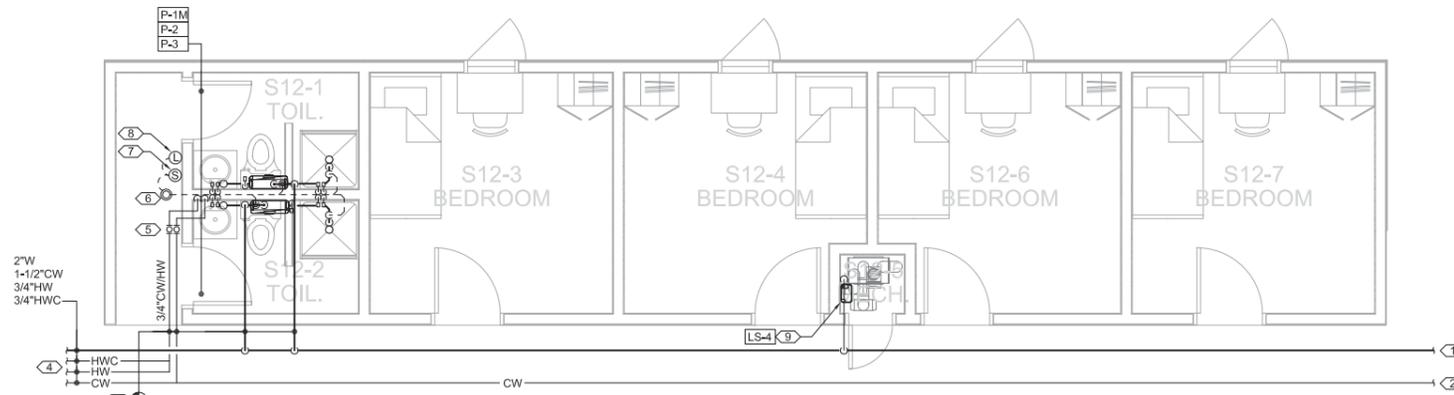
MODULE S-II  
MECHANICAL  
PLANS

DRAWING NO.  
**M3.08**

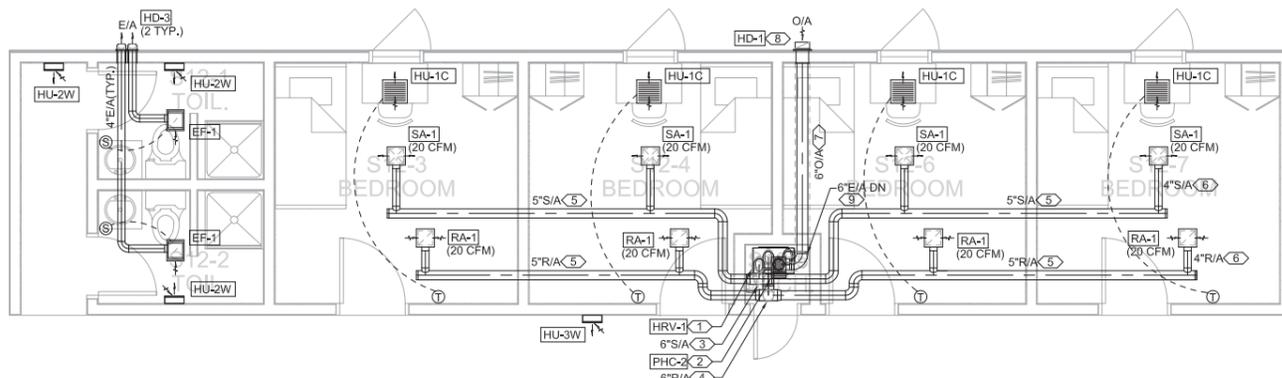
FINAL PRODUCTION DRAWING



M3.09 -1- MODULE S-12, MECHANICAL PLAN, SUBFLOOR  
SCALE: 1/4" = 1'-0"



M3.09 -2- MODULE S-12, PLUMBING PLAN  
SCALE: 1/4" = 1'-0"



M3.09 -3- MODULE S-12, MECHANICAL PLAN  
SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:

1. TYPICAL 6" EXHAUST DUCT FROM HRV-1 THROUGH SUBFLOOR ASSEMBLY DOWN TO CRAWL SPACE BELOW BUILDING.
2. TYPICAL INSULATED 6" EXHAUST DUCT IN CRAWL SPACE.
3. TYPICAL EXHAUST HOOD AT BUILDING SKIRT.

REFERENCED DRAWING NOTES:

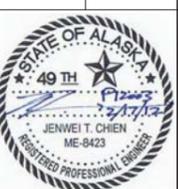
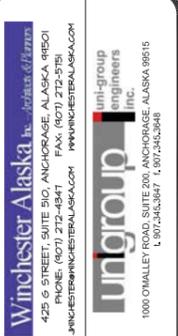
1. NEW 1-1/2" WATER SERVICE FROM EXISTING BUILDING.
2. 2" SANITARY FORCED MAIN TO EXISTING BUILDING.
3. TYPICAL POINT OF FIELD CONNECTION. FOR CONTINUATION SEE M2 SERIES DRAWINGS.
4. TYPICAL BATHROOM SERVICE ISOLATION VALVES IN HALLWAY CEILING.
5. VENT THROUGH ROOF ASSEMBLY WITH ELECTRIC HEAT TRACING.
7. VENT THROUGH ROOF HEAT TRACING CONTROL ON/OFF SWITCH.
8. VENT THROUGH ROOF HEAT TRACING SYSTEM STATUS INDICATOR LIGHT ON WALL AT APPROXIMATELY 12" BELOW CEILING. PROVIDE SIGNAGE TO DENOTE FUNCTION.
9. LIFT STATION ON WALL TO RECEIVE CONDENSATE FROM HRV-1.

REFERENCED DRAWING NOTES:

1. HEAT RECOVERY VENTILATION, HRV-1, ON WALL.
2. OUTSIDE AIR PREHEAT COIL, PHC-2, ON OUTSIDE INTAKE DUCTWORK ABOVE HRV-1.
3. 6" S/A DUCT FROM HRV-1.
4. 6" R/A DUCT DOWN TO HRV-1.
5. TYPICAL 5" S/A AND R/A BRANCH MAIN IN ARCHITECTURAL SOFFIT.
6. TYPICAL 4" S/A AND R/A EMBEDDED IN ROOF INSULATION ASSEMBLY.
7. 6" O/A DUCT WITH 2" INSULATION WITH VAPOR BARRIER IN CEILING ASSEMBLY.

8. OUTSIDE INTAKE HOOD.
9. 6" HRV-1 E/A DUCT DOWN TO BELOW.

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



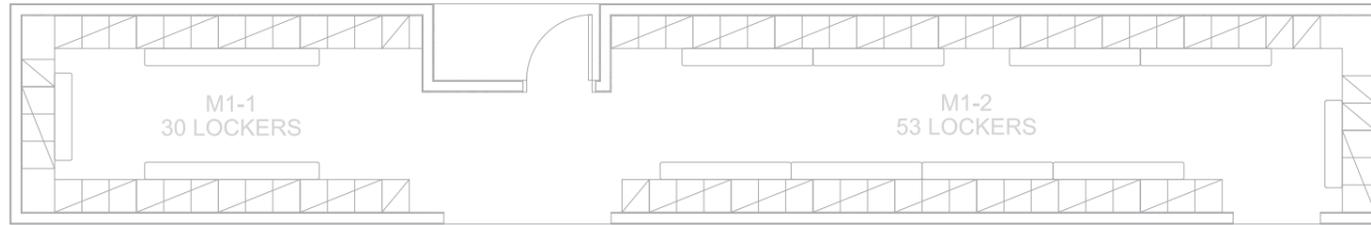
**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TL/HA	JOB NO. P12009
SHEET CONTENTS	

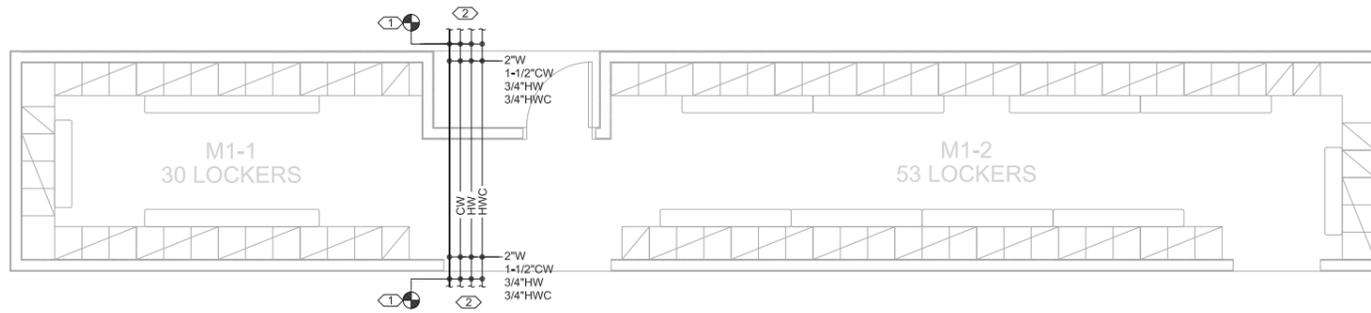
MODULE S-12  
MECHANICAL  
PLANS

DRAWING NO.  
**M3.09**

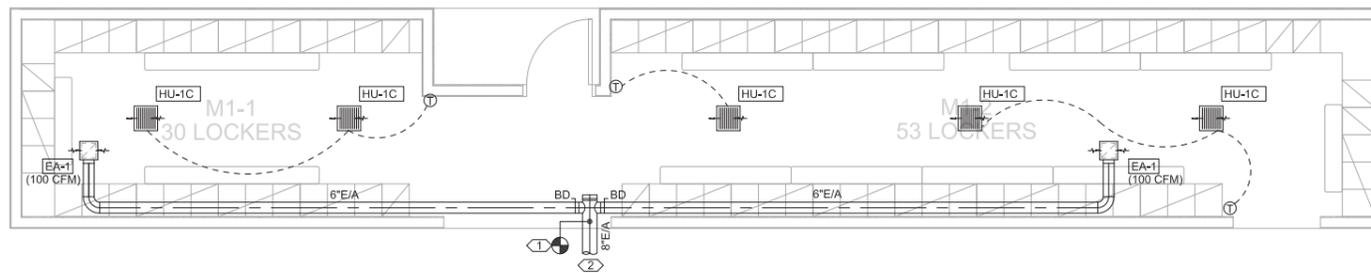
FINAL PRODUCTION DRAWING



M3.10 MODULE M-1, MECHANICAL PLAN, SUBFLOOR  
SCALE: 1/4" = 1'-0"



M3.10 MODULE M-1, PLUMBING PLAN  
SCALE: 1/4" = 1'-0"



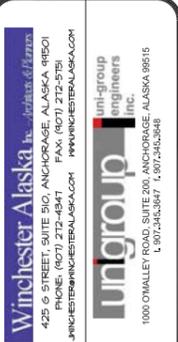
M3.10 MODULE M-1, MECHANICAL PLAN  
SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:  
(NOT USED.)

REFERENCED DRAWING NOTES:  
1. TYPICAL POINT OF FIELD CONNECTION.  
2. FOR CONTINUATION SEE M2 SERIES DRAWINGS.

REFERENCED DRAWING NOTES:  
1. TYPICAL POINT OF FIELD CONNECTION.  
2. FOR CONTINUATION SEE M2 SERIES DRAWINGS.

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT IIX17



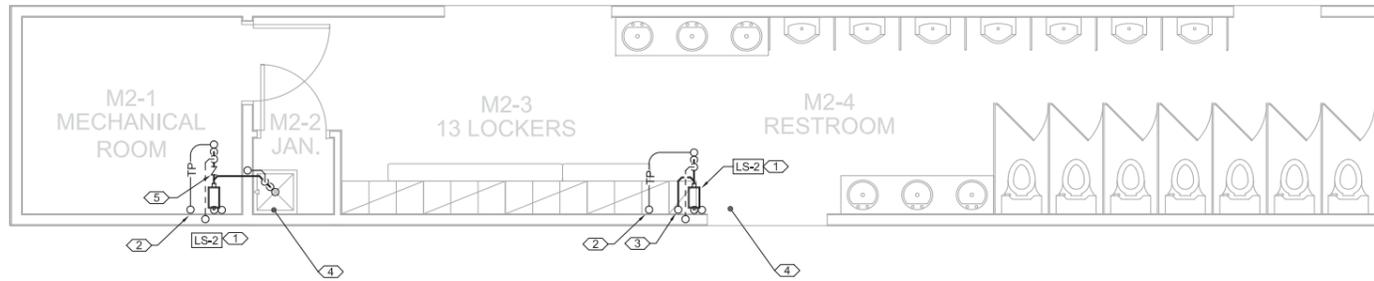
**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TLT/AAA	JOB NO. PI2009
SHEET CONTENTS	

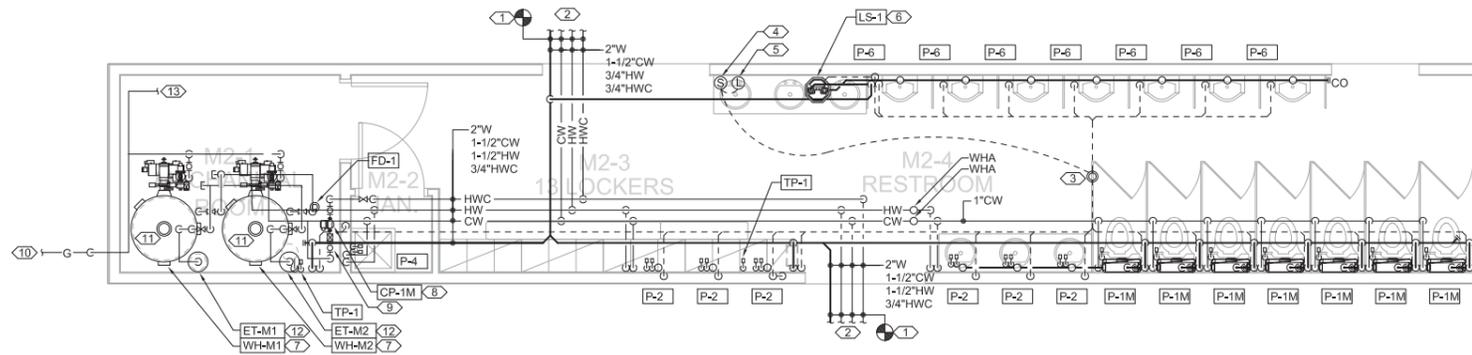
MODULE M-1  
MECHANICAL  
PLANS

DRAWING NO.  
**M3.10**

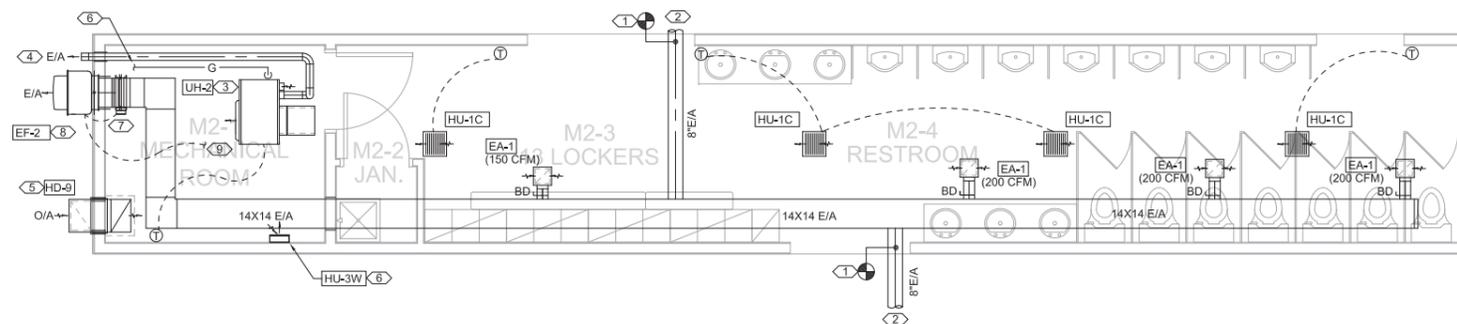
FINAL PRODUCTION DRAWING



**M3.11** - 1  
**MODULE M-2, MECHANICAL PLAN, SUBFLOOR**  
 SCALE: 1/4" = 1'-0"



**M3.11** - 2  
**MODULE M-2, PLUMBING PLAN**  
 SCALE: 1/4" = 1'-0"



**M3.11** - 3  
**MODULE M-2, MECHANICAL PLAN**  
 SCALE: 1/4" = 1'-0"

**REFERENCED DRAWING NOTES:**

- LIFT STATION RECESSED IN FLOOR.
- 1/2" TRAP PRIMER LINE FROM ABOVE.
- 2" WASTE FROM LAVATORIES.
- COORDINATE WITH ELECTRICAL FOR HEAT TRACING OF SANITARY WASTE PIPING IN SUBFLOOR ASSEMBLY.
- PROVIDE BACKWATER CHECK VALVE IN FLOOR DRAIN TRAP ARM.

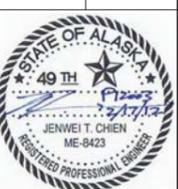
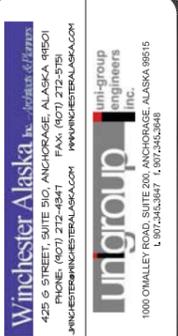
**REFERENCED DRAWING NOTES:**

- TYPICAL POINT OF FIELD CONNECTION.
- FOR CONTINUATION SEE M2 SERIES DRAWINGS.
- VENT THROUGH ROOF ASSEMBLY WITH ELECTRIC HEAT TRACING.
- VENT THROUGH ROOF HEAT TRACING CONTROL ON/OFF SWITCH.
- VENT THROUGH ROOF HEAT TRACING SYSTEM STATUS INDICATOR LIGHT ON WALL AT APPROXIMATELY 12" BELOW CEILING. PROVIDE SIGNAGE TO DENOTE FUNCTION.
- SECURE LIFT STATION TO WALL.
- TYPICAL WATER HEATER. PROVIDE SEISMIC RESTRAINT TO SECURE WATER HEATER TO BUILDING STRUCTURE.
- HOT WATER CIRCULATION PUMP.
- SET BALANCING VALVE FOR 2 GPM.
- 1-1/4" PROPANE SERVICE TO MODULE.
- WATER HEATER STACK THROUGH ROOF ASSEMBLY WITH ELECTRIC HEAT TRACING.
- TYPICAL HOT WATER EXPANSION TANK. SECURE TO WALL.
- 3/4" PROPANE PIPE TO UNIT HEATER.

**REFERENCED DRAWING NOTES:**

- TYPICAL POINT OF FIELD CONNECTION.
- FOR CONTINUATION SEE M2 SERIES DRAWINGS.
- UNIT HEATER IN MECHANICAL ROOM.
- UNIT HEATER VENT TO EXTERIOR.
- COMBUSTION AIR INTAKE HOOD ASSEMBLY.
- 3/4" PROPANE SERVICE TO UNIT HEATER. SEE DRAWING 2/M3.11 FOR CONTINUATION.
- EXHAUST FAN EF-1 ISOLATION CONTROL DAMPER.
- EXHAUST FAN, EF-1 AT CEILING LEVEL.
- CONTROL WIRING TO VENTILATION SYSTEM CONTROL PANEL FOR EXHAUST FAN, EF-2. INTERLOCK WITH AIR HANDLING UNIT, AHU-1.

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



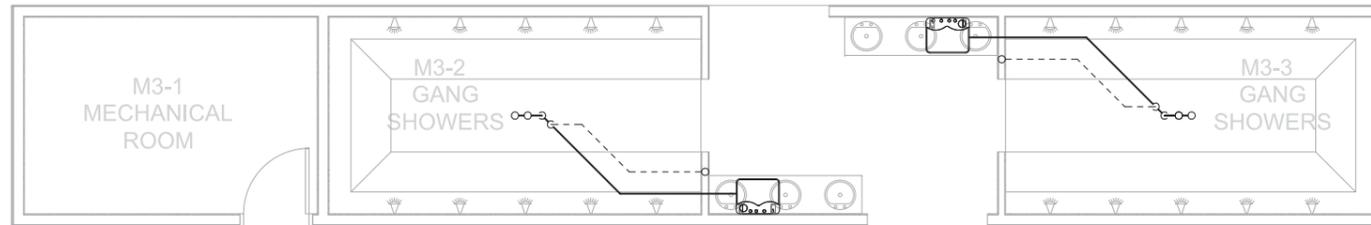
**POGO MINE CAMP ADDITION**  
 DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TL/MAA	JOB NO. P12009
SHEET CONTENTS	

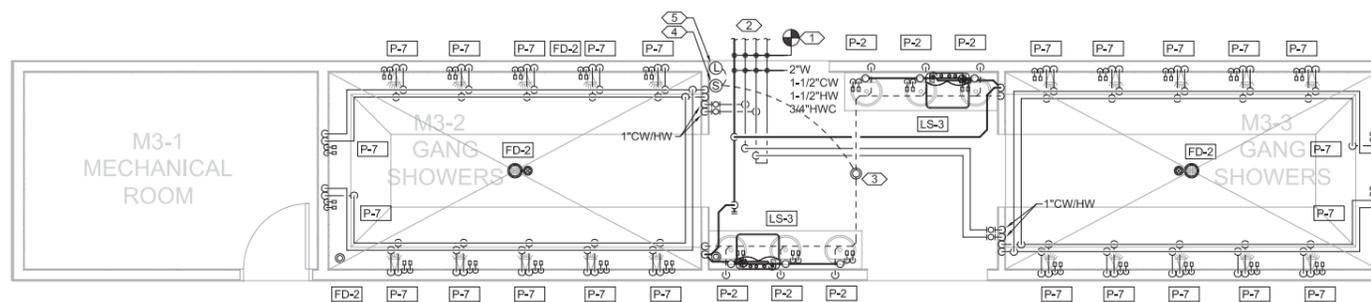
MODULE M-2 MECHANICAL PLANS

DRAWING NO. M3.11

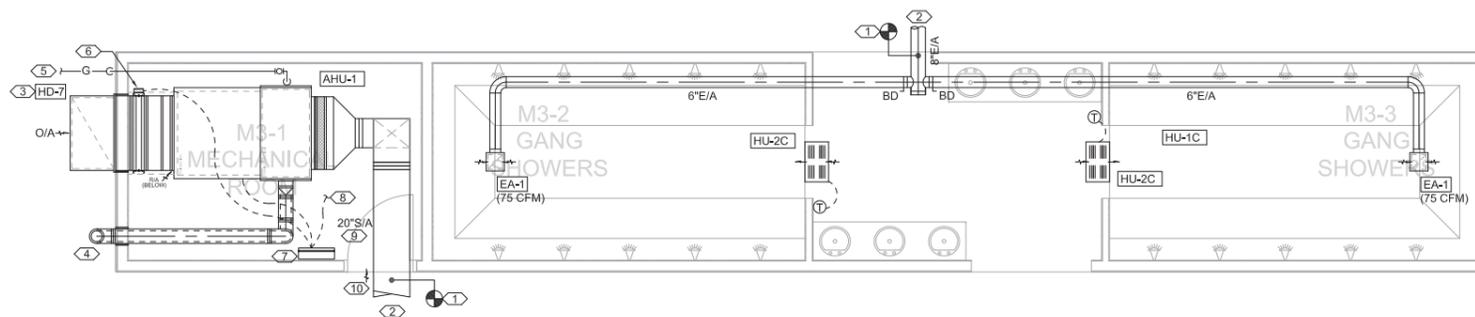
FINAL PRODUCTION DRAWING



M3.12 MODULE M-3, MECHANICAL PLAN, SUBFLOOR  
SCALE: 1/4" = 1'-0"



M3.12 MODULE M-3, PLUMBING PLAN  
SCALE: 1/4" = 1'-0"



M3.12 MODULE M-3, MECHANICAL PLAN  
SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:  
(NOT USED)

REFERENCED DRAWING NOTES:

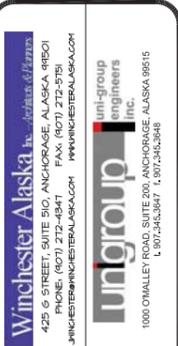
1. TYPICAL POINT OF FIELD CONNECTION.
2. FOR CONTINUATION SEE M2 SERIES DRAWINGS.
3. VENT THROUGH ROOF ASSEMBLY WITH ELECTRIC HEAT TRACING.
4. VENT THROUGH ROOF HEAT TRACING CONTROL ON/OFF SWITCH.
5. VENT THROUGH ROOF HEAT TRACING SYSTEM STATUS INDICATOR LIGHT ON WALL AT APPROXIMATELY 12" BELOW CEILING. PROVIDE SIGNAGE TO DENOTE FUNCTION.

REFERENCED DRAWING NOTES:

1. TYPICAL POINT OF FIELD CONNECTION.
2. FOR CONTINUATION SEE M2 SERIES DRAWINGS.
3. AHU-1 OUTSIDE AIR INTAKE HOOD ASSEMBLY.
4. AHU-1 VENT UP TO DISCHARGE ABOVE ROOF.
5. 1" PROPANE SERVICE TO MODULE.
6. AHU-1 OUTSIDE AIR INTAKE ISOLATION CONTROL DAMPER.
7. VENTILATION SYSTEM CONTROL PANEL.
8. CONTROL INTERLOCK WIRING TO EXHAUST FAN, EF-1.

9. 20"X16" S/A AT CEILING LEVEL.
10. TRANSFER AIR PATH THROUGH DOOR.

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



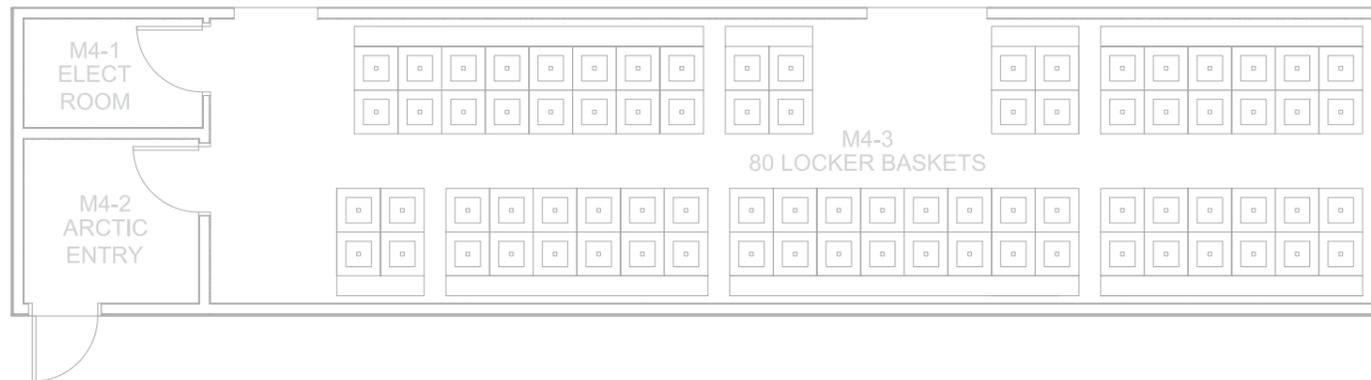
**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TL/MAA	JOB NO. PI2009
SHEET CONTENTS	

MODULE M-3  
MECHANICAL  
PLANS

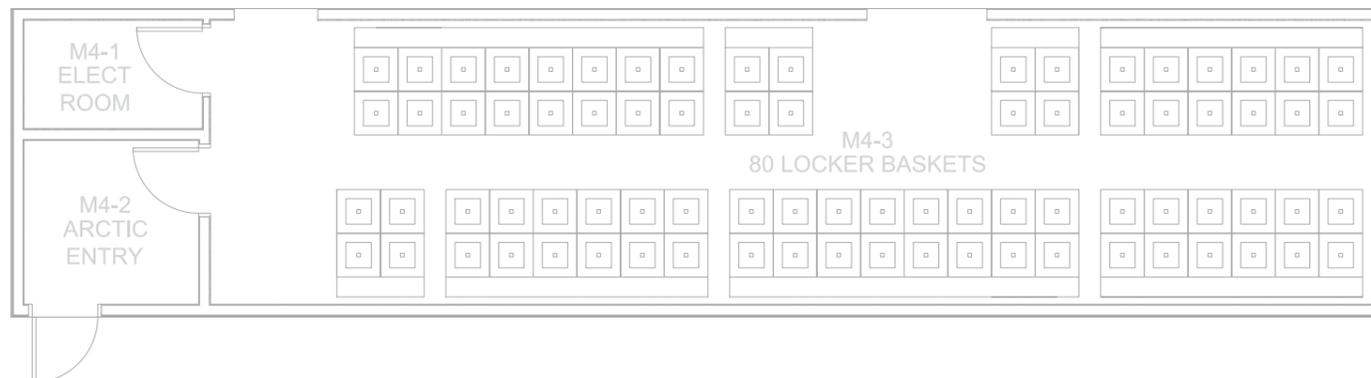
DRAWING NO.  
**M3.12**

FINAL PRODUCTION DRAWING



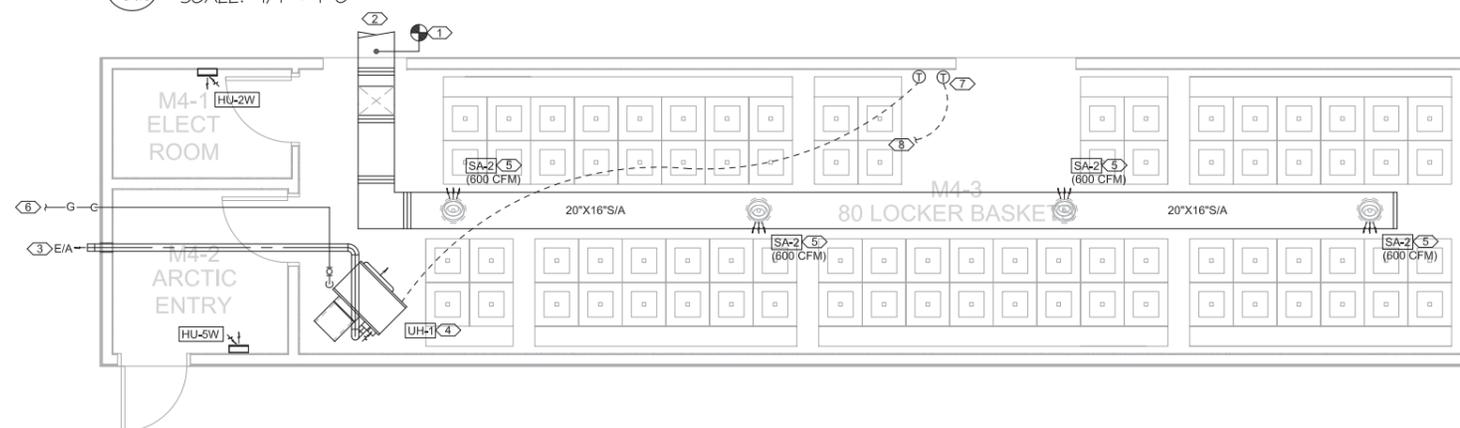
**M3.13** -1  
**MODULE M-4, MECHANICAL PLAN, SUBFLOOR**  
 SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:  
 (NOT USED.)



**M3.13** -2  
**MODULE M-4, PLUMBING PLAN**  
 SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:  
 (NOT USED.)



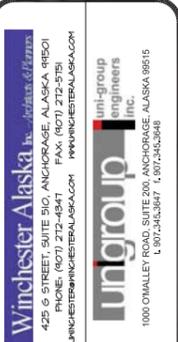
**M3.13** -3  
**MODULE M-4, MECHANICAL PLAN**  
 SCALE: 1/4" = 1'-0"

REFERENCED DRAWING NOTES:

1. TYPICAL POINT OF FIELD CONNECTION.
2. FOR CONTINUATION SEE M2 SERIES DRAWINGS.
3. UNIT HEATER VENT EXHAUST.
4. PROPANE UNIT HEATER OVERHEAD.
5. TYPICAL SUPPLY AIR DIFFUSER, ORIENT DISCHARGE DOWN TOWARDS EDGE OF FLOOR IN DIRECTION AS SHOWN.
6. 3/4" PROPANE SERVICE TO MODULE.
7. AHU-1 CONTROL THERMOSTAT, SETPOINT: 85 DEG F.

8. TO VENTILATION SYSTEM CONTROL PANEL (LOCATED IN MODULE M-3).

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



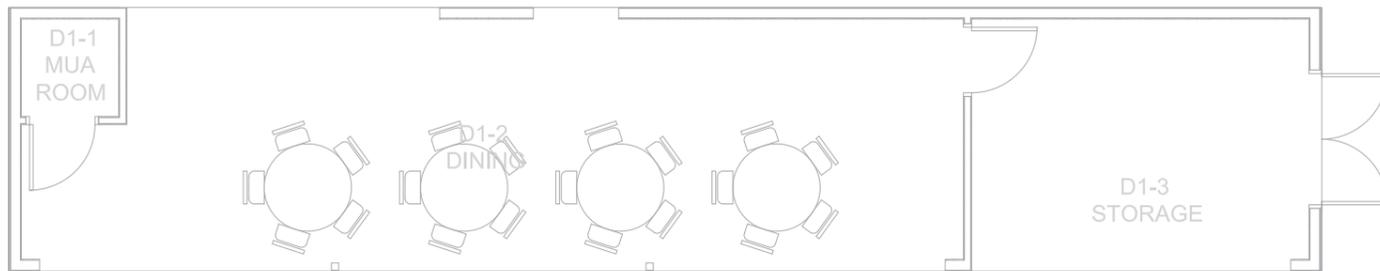
**POGO MINE CAMP ADDITION**  
 DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TLT/HAA	JOB NO. PI2009
SHEET CONTENTS	

MODULE M-4  
 MECHANICAL  
 PLANS

DRAWING NO.  
**M3.13**

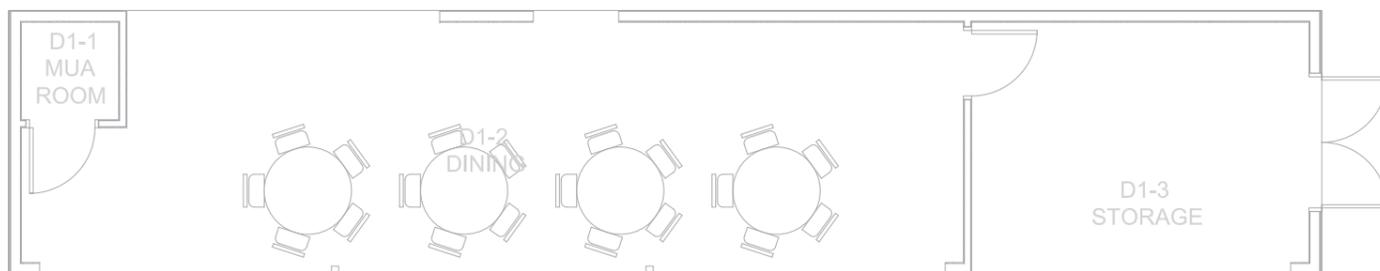
FINAL PRODUCTION DRAWING



REFERENCED DRAWING NOTES:  
(NOT USED.)

**1** - **M3.14** MODULE D-1, MECHANICAL PLAN, SUBFLOOR  
SCALE: 1/4" = 1'-0"

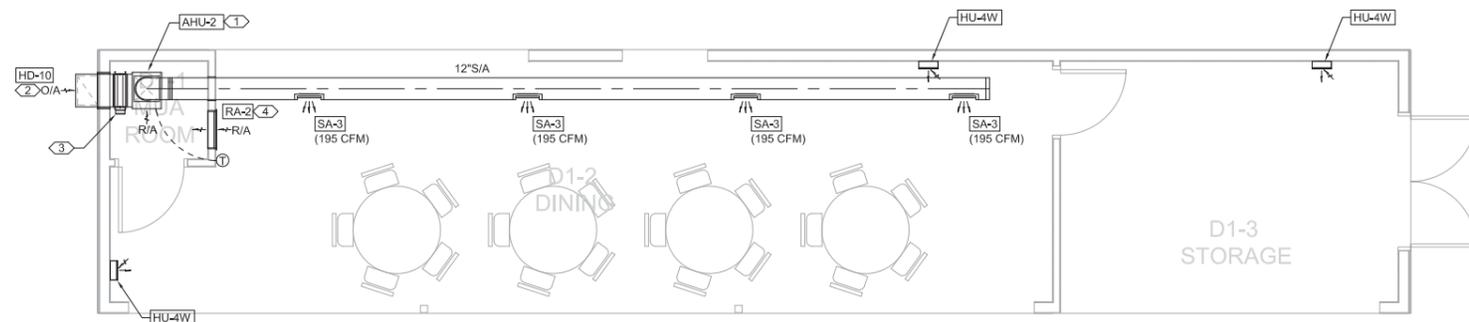
MODULE D-2 SIMILAR



REFERENCED DRAWING NOTES:  
(NOT USED.)

**2** - **M3.14** MODULE D-1, PLUMBING PLAN  
SCALE: 1/4" = 1'-0"

MODULE D-2 SIMILAR



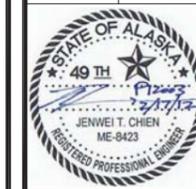
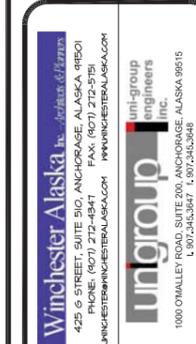
- REFERENCED DRAWING NOTES:
1. AIR HANDLING UNIT.
  2. AIR HANDLING UNIT OUTSIDE AIR INTAKE HOOD ASSEMBLY.
  3. AIR HANDLING UNIT OUTSIDE AIR INTAKE ISOLATION CONTROL DAMPER.
  4. LOCATE TOP OF RETURN AIR GRILLE AT 6" BELOW CEILING LEVEL.

**3** - **M3.14** MODULE D-1, MECHANICAL PLAN  
SCALE: 1/4" = 1'-0"

MODULE D-2 SIMILAR

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17

FINAL PRODUCTION DRAWING



**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

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MODULE D-1  
MECHANICAL  
PLANS

DRAWING NO.  
**M3.14**



**Winchester Alaska Inc.** - *Builders of Choice*  
 425 G STREET, SUITE 210, ANCHORAGE, ALASKA 99501  
 PHONE: (907) 272-4847 FAX: (907) 272-5751  
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 engineers  
 inc.  
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 (907) 561-1000

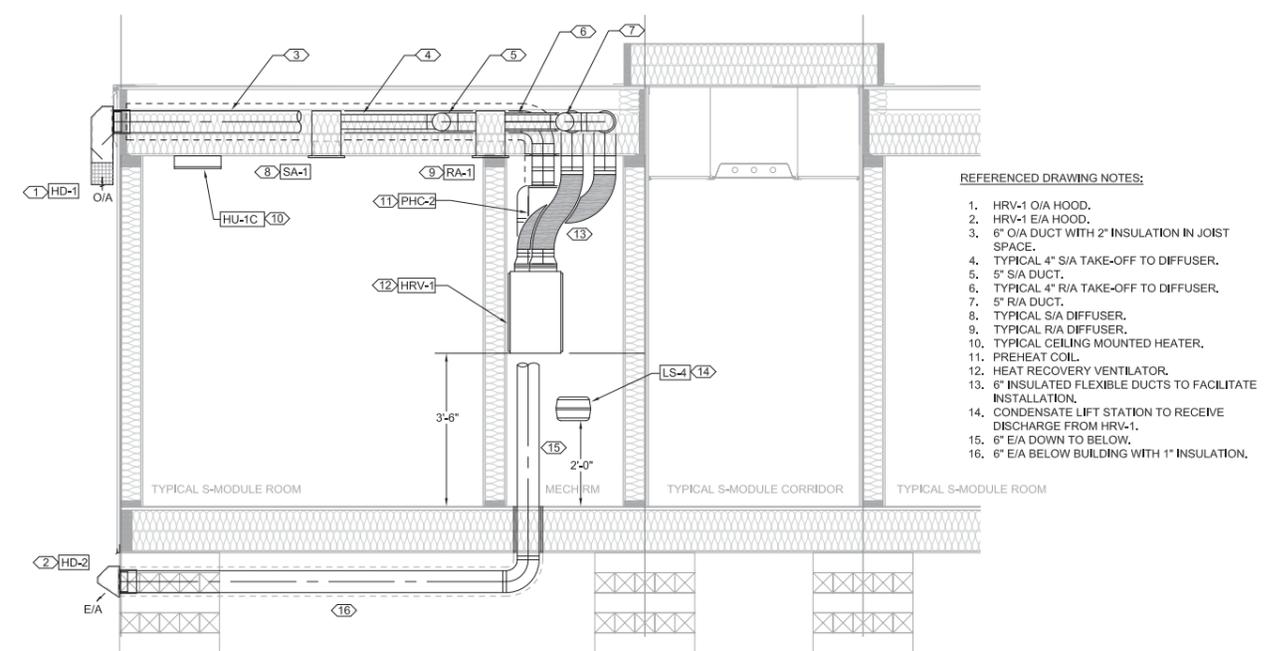


**POGO MINE CAMP ADDITION**  
 DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TL/HAA	JOB NO. P12003
SHEET CONTENTS	

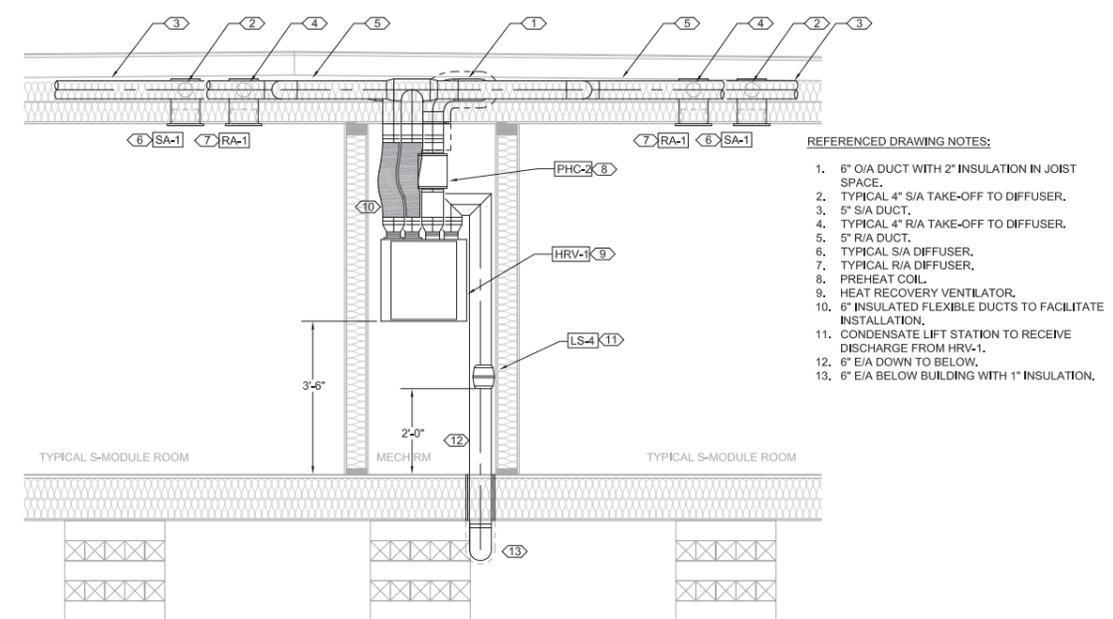
MECHANICAL SECTIONS AND ELEVATIONS

DRAWING NO.  
M4.01



- REFERENCED DRAWING NOTES:
1. HRV-1 O/A HOOD.
  2. HRV-1 E/A HOOD.
  3. 6" O/A DUCT WITH 2" INSULATION IN JOIST SPACE.
  4. TYPICAL 4" S/A TAKE-OFF TO DIFFUSER.
  5. 5" S/A DUCT.
  6. TYPICAL 4" R/A TAKE-OFF TO DIFFUSER.
  7. 5" R/A DUCT.
  8. TYPICAL S/A DIFFUSER.
  9. TYPICAL R/A DIFFUSER.
  10. TYPICAL CEILING MOUNTED HEATER.
  11. PREHEAT COIL.
  12. HEAT RECOVERY VENTILATOR.
  13. 6" INSULATED FLEXIBLE DUCTS TO FACILITATE INSTALLATION.
  14. CONDENSATE LIFT STATION TO RECEIVE DISCHARGE FROM HRV-1.
  15. 6" E/A DOWN TO BELOW.
  16. 6" E/A BELOW BUILDING WITH 1" INSULATION.

SIDE VIEW



- REFERENCED DRAWING NOTES:
1. 6" O/A DUCT WITH 2" INSULATION IN JOIST SPACE.
  2. TYPICAL 4" S/A TAKE-OFF TO DIFFUSER.
  3. 5" S/A DUCT.
  4. TYPICAL 4" R/A TAKE-OFF TO DIFFUSER.
  5. 5" R/A DUCT.
  6. TYPICAL S/A DIFFUSER.
  7. TYPICAL R/A DIFFUSER.
  8. PREHEAT COIL.
  9. HEAT RECOVERY VENTILATOR.
  10. 6" INSULATED FLEXIBLE DUCTS TO FACILITATE INSTALLATION.
  11. CONDENSATE LIFT STATION TO RECEIVE DISCHARGE FROM HRV-1.
  12. 6" E/A DOWN TO BELOW.
  13. 6" E/A BELOW BUILDING WITH 1" INSULATION.

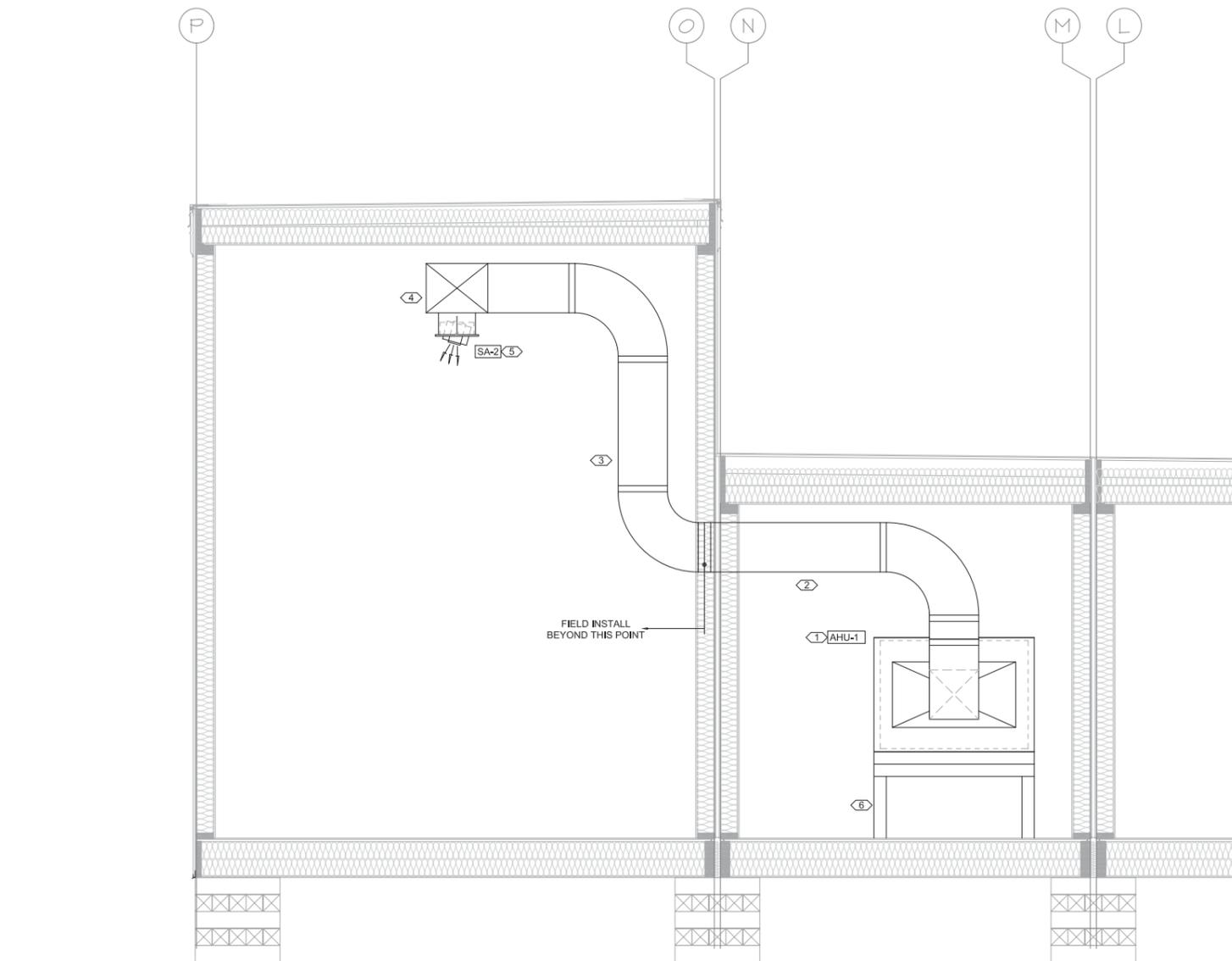
FRONT VIEW

**M4.01** MECHANICAL SECTION - TYPICAL SLEEPER WING MECHANICAL ROOM  
 SCALE: 1/2" = 1'-0"

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17

FINAL PRODUCTION DRAWING

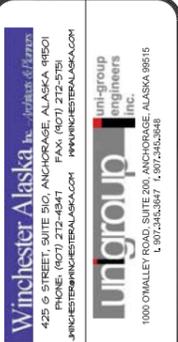
NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



REFERENCED DRAWING NOTES:

1. MINE DRY AIR-HANDLING UNIT.
2. 16"x20" S/A DUCT.
3. 16"x20" S/A DUCT (FIELD INSTALL), SUPPORT FROM WALL.
4. 16"x20" S/A DUCT (FIELD INSTALL), SUPPORT FROM CEILING.
5. TYPICAL S/A DIFFUSER.
6. PROVIDE 24" HEIGHT TUBE STEEL STAND AND CHANNEL FRAME PLATFORM FOR AIR-HANDLING UNIT MOUNTING.

**M4.02** MECHANICAL SECTION - M-MODULES  
SCALE: 1/2" = 1'-0"



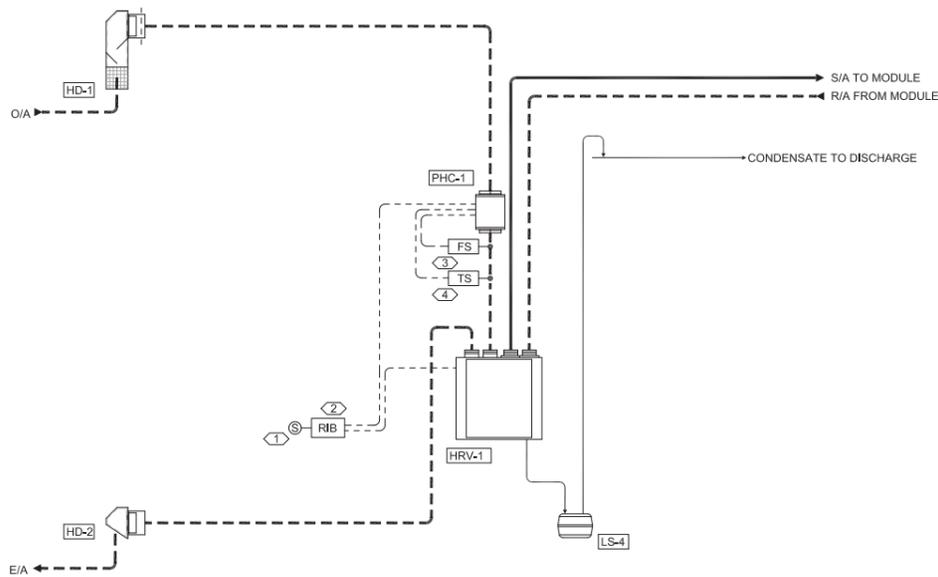
**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

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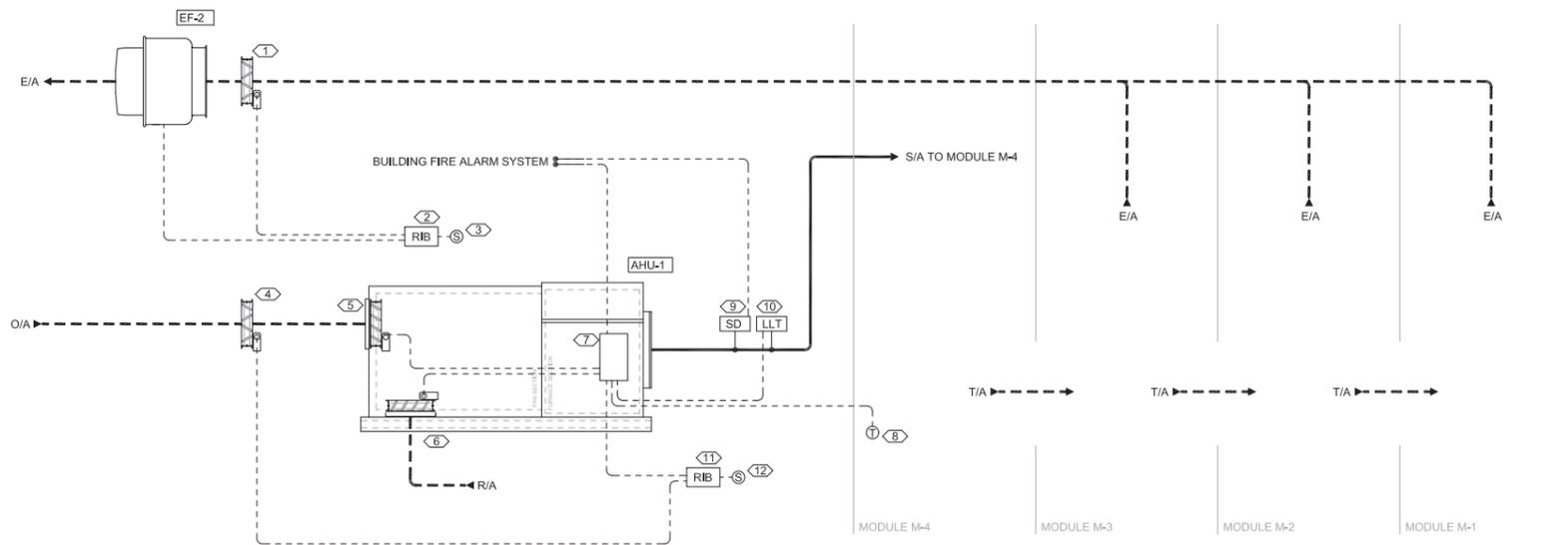
MECHANICAL SECTIONS AND ELEVATIONS

DRAWING NO.  
**M4.02**

FINAL PRODUCTION DRAWING



1 SYSTEM SCHEMATICS - TYPICAL SLEEPER WING VENTILATION SYSTEM  
SCALE: NONE



2 SYSTEM SCHEMATICS - M-MODULES VENTILATION SYSTEMS  
SCALE: NONE

REFERENCED DRAWING NOTES:

1. VENTILATION SYSTEM ON/OFF CONTROL SWITCH.
2. VENTILATION SYSTEM PREHEAT COIL/HEAT RECOVERY VENTILATOR INTERLOCK CONTROL RELAY.
3. PREHEAT COIL INTEGRAL FLOW SENSOR.
4. PREHEAT COIL INTEGRAL SUPPLY AIR TEMPERATURE SENSOR.

SEQUENCE OF OPERATION:

- SYSTEM ON/OFF CONTROL.  
HEAT RECOVERY VENTILATOR AND PREHEAT COIL SHALL OPERATE BASED ON SYSTEM ON/OFF CONTROL SWITCH POSITION.
- HEAT RECOVERY VENTILATOR AND PREHEAT COIL INTERLOCK  
HEAT RECOVERY VENTILATOR SHALL BE INTERLOCKED WITH PREHEAT COIL TO LOCKOUT PREHEAT COIL WHEN HEAT RECOVERY VENTILATOR IS NOT OPERATING.
- HEAT RECOVERY VENTILATOR OPERATION  
HEAT RECOVERY VENTILATOR SHALL OPERATE CONTINUOUSLY ON ON/OFF CONTROL SWITCH IN "ON" POSITION.
- PREHEAT COIL OPERATION  
WHEN OPERATING, PREHEAT COIL SHALL OPERATE TO MAINTAIN SUPPLY AIR TEMPERATURE SETPOINT OF 32 DEG F.

REFERENCED DRAWING NOTES:

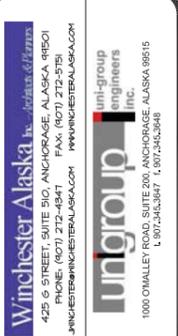
1. EXHAUST FAN ISOLATION CONTROL DAMPER, INTERLOCK CONTROL RELAY.
2. EXHAUST FAN ISOLATION CONTROL DAMPER INTERLOCK CONTROL RELAY.
3. EXHAUST FAN SYSTEM ON/OFF CONTROL SWITCH.
4. OUTSIDE AIR ISOLATION CONTROL DAMPER.
5. OUTSIDE AIR MODULATING CONTROL DAMPER.
6. RETURN AIR MODULATING CONTROL DAMPER.
7. AIR-HANDLING UNIT CONTROL PANEL.
8. MINE DRY MODULE SPACE TEMPERATURE SENSOR.
9. AIR-HANDLING UNIT SUPPLY AIR SMOKE DETECTOR, PROVIDE INTERFACE WITH BUILDING FIRE ALARM SYSTEM FOR SHUT-DOWN OF AIR-HANDLING UNIT BY BUILDING FIRE ALARM SYSTEM ON SMOKE DETECTION.
10. AIR-HANDLING UNIT LOW LIMIT TEMPERATURE SENSOR.
11. AIR-HANDLING UNIT ISOLATION CONTROL DAMPER INTERLOCK CONTROL RELAY.
12. AIR-HANDLING SYSTEM ON/OFF CONTROL SWITCH.

SEQUENCE OF OPERATION:

- GENERAL SYSTEM DESCRIPTION  
ALTHOUGH BOTH EF-2 AND AHU-1 SYSTEMS ARE INDEPENDENTLY CONTROLLED, THE SYSTEMS ARE DESIGNED TO OPERATE IN CONJUNCTION WITH EACH OTHER TO MAINTAIN BUILDING PRESSURIZATION BALANCE AND PROPER OPERATION OF THE SYSTEMS.
- EXHAUST FAN SYSTEM OPERATION:  
- WHEN ON/OFF SWITCH IN "ON" POSITION,  
THE ISOLATION DAMPER SHALL BE OPEN, EXHAUST FAN SHALL OPERATE CONTINUOUSLY.  
- WHEN ON/OFF SWITCH IN "OFF" POSITION,  
THE ISOLATION DAMPER SHALL BE CLOSED, EXHAUST FAN SHALL BE OFF.
- AIR-HANDLING UNIT OPERATION:  
- ON ON/OFF SWITCH IN "ON" POSITION,  
ISOLATION DAMPER SHALL BE OPEN, AIR-HANDLING UNIT SHALL OPERATE CONTINUOUSLY.  
AIR-HANDLING UNIT FURNACE SECTION SHALL OPERATE BASED ON MINE DRY SPACE TEMPERATURE SENSOR TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 85 DEG F.  
AIR-HANDLING UNIT CONTROL PANEL SHALL SHUT DOWN SYSTEM ON LOW LIMIT TEMPERATURE SENSOR SETPOINT OF 40 DEG F (WITH MANUAL RESET).  
- ON ON/OFF SWITCH IN "OFF" POSITION,  
SYSTEM SHALL BE OFF.  
ISOLATION DAMPER SHALL BE CLOSED.  
- DUCT SMOKE DETECTOR CONTROL  
ON DUCT SMOKE DETECTOR ACTIVATION (SENSING OF SMOKE), BUILDING FIRE ALARM SYSTEM SHALL SHUT-DOWN THE AIR-HANDLING SYSTEM.

SYSTEM AIRFLOW SETTINGS:

- ADJUST SYSTEM TO SET MINIMUM OUTSIDE AIR DAMPER SETTING FOR MINIMUM OUTSIDE AIR VOLUME OF 1400 CFM FOR MIXED AIR TEMPERATURE OF 0 DEG F AT DESIGN CONDITION OF -40 DEG F OUTSIDE AIR TEMPERATURE. AIR-HANDLING UNIT FURNACE SECTION SHALL BE CAPABLE OF 90 DEG F TEMPERATURE RISE FOR SUPPLY AIR TEMPERATURE OF 90 DEG F.



**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

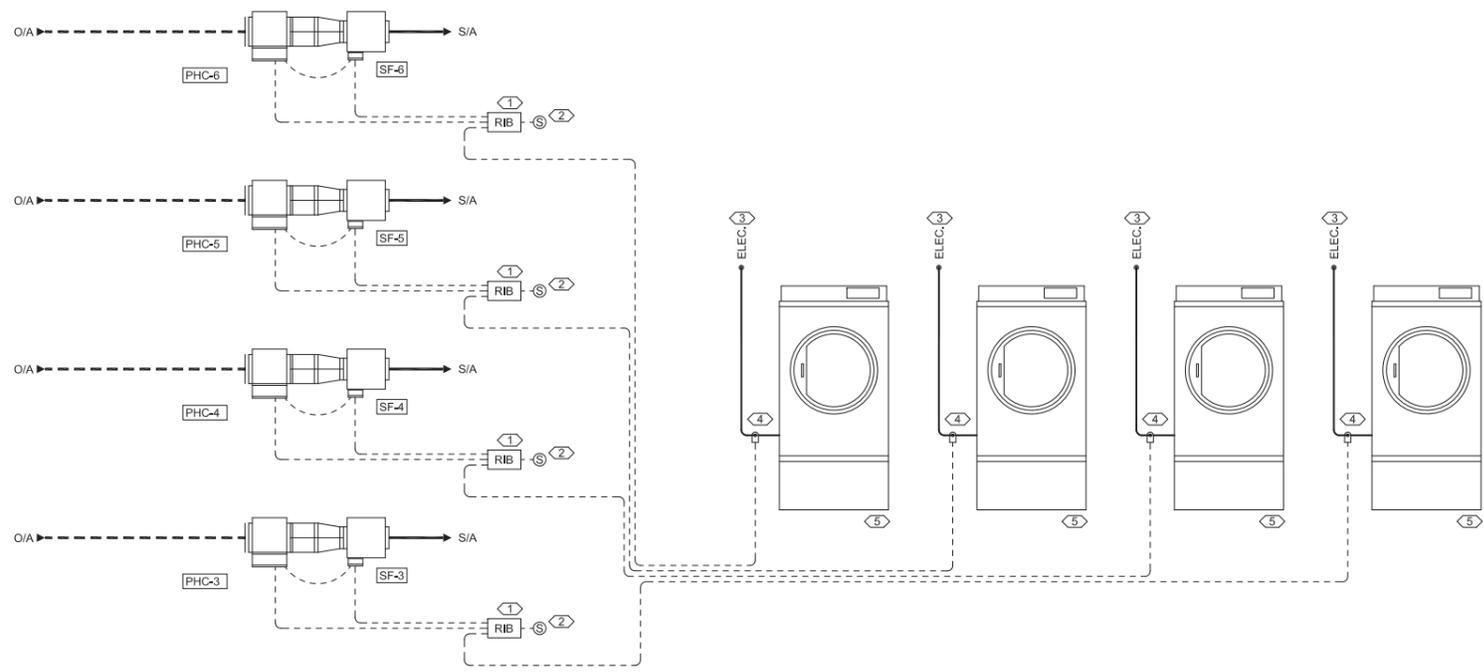
DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TLT/AAA	JOB NO. PI2009
SHEET CONTENTS	

MECHANICAL SYSTEM SCHEMATICS

DRAWING NO.  
M5.01

FINAL PRODUCTION DRAWING

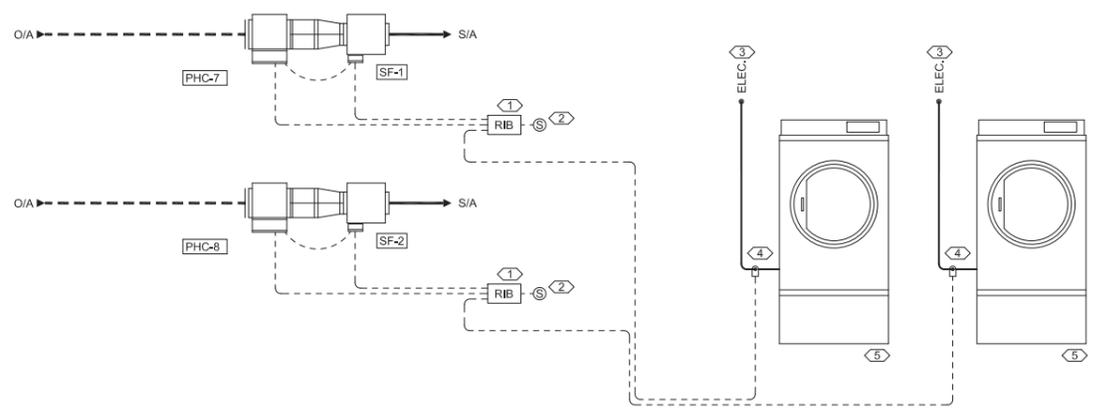
NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



- REFERENCED DRAWING NOTES:
1. TYPICAL MAKE-UP AIR SYSTEM CONTROL RELAY.
  2. TYPICAL MAKE-UP AIR SYSTEM ON/OFF SWITCH.
  3. TYPICAL ELECTRICAL SERVICE TO DRYER.
  4. TYPICAL DRYER STATUS (ON/OFF) CURRENT SENSOR.
  5. TYPICAL DRYER.

- SEQUENCE OF OPERATION:
- ON CURRENT SENSOR SENSING OF DRYER OPERATION, DEDICATED MAKE-UP AIR UNIT SHALL OPERATE TO DELIVER TEMPERED MAKE-UP AIR FOR EXHAUST.

 **SYSTEM SCHEMATICS - RESIDENT LAUNDRY VENTILATION SYSTEMS**  
SCALE: NONE

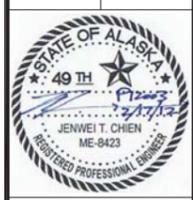


- REFERENCED DRAWING NOTES:
1. TYPICAL MAKE-UP AIR SYSTEM CONTROL RELAY.
  2. TYPICAL MAKE-UP AIR SYSTEM ON/OFF SWITCH.
  3. TYPICAL ELECTRICAL SERVICE TO DRYER.
  4. TYPICAL DRYER STATUS (ON/OFF) CURRENT SENSOR.
  5. TYPICAL HOUSEKEEPING DRYER.

- SEQUENCE OF OPERATION:
- ON CURRENT SENSOR SENSING OF DRYER OPERATION, DEDICATED MAKE-UP AIR UNIT SHALL OPERATE TO DELIVER TEMPERED MAKE-UP AIR FOR EXHAUST.

 **SYSTEM SCHEMATICS - HOUSEKEEPING LAUNDRY VENTILATION SYSTEMS**  
SCALE: NONE

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

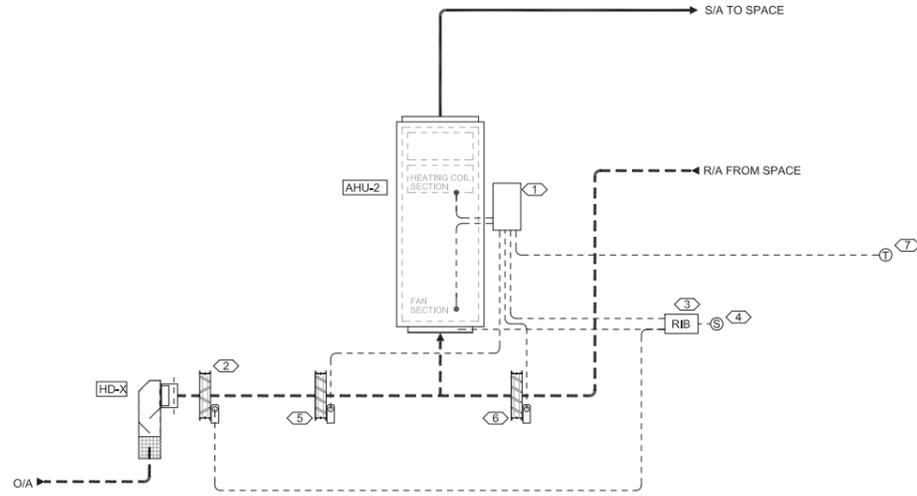
DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TL/HA	JOB NO. PI2003
SHEET CONTENTS	

MECHANICAL SYSTEM SCHEMATICS

DRAWING NO.  
**M5.02**

FINAL PRODUCTION DRAWING

NOTE: THIS SHEET IS FULL SIZE AT 22X34 AND HALF SIZE AT 11X17



**1** SYSTEM SCHEMATICS - DINING ROOM VENTILATION SYSTEM  
SCALE: NONE

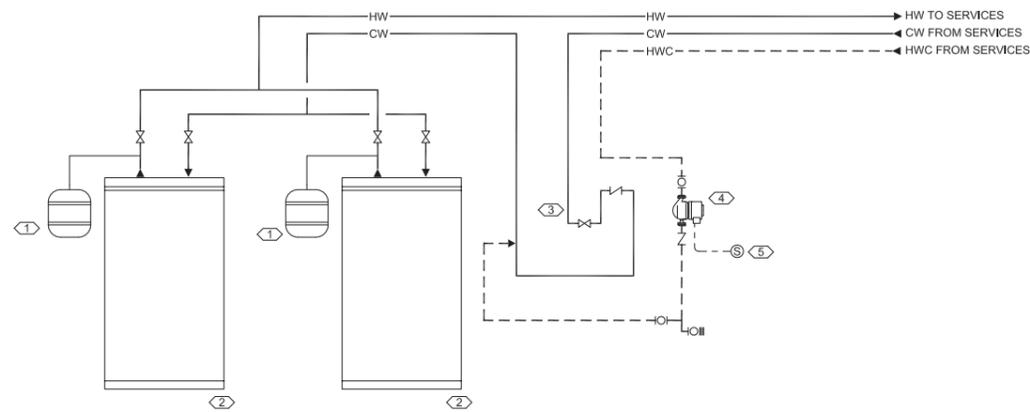
**REFERENCED DRAWING NOTES:**

1. AIR-HANDLING UNIT CONTROL PANEL.
2. OUTSIDE AIR ISOLATION CONTROL DAMPER.
3. AIR-HANDLING UNIT/ISOLATION CONTROL DAMPER INTERLOCK CONTROL RELAY.
4. AIR-HANDLING SYSTEM ON/OFF CONTROL SWITCH.
5. OUTSIDE AIR MODULATING CONTROL DAMPER.
6. RETURN AIR MODULATING CONTROL DAMPER.
7. DINING MODULE SPACE TEMPERATURE SENSOR.

**SEQUENCE OF OPERATION:**

**AIR-HANDLING UNIT OPERATION:**

- WHEN ON/OFF SWITCH IN "ON" POSITION, ISOLATION DAMPER SHALL BE OPEN. AIR-HANDLING UNIT SHALL OPERATE CONTINUOUSLY.
- AIR-HANDLING UNIT HEATING COIL SHALL OPERATE BASED ON MINE DRY SPACE TEMPERATURE SENSOR TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 68 DEG F.
- AIR-HANDLING UNIT CONTROL PANEL SHALL SHUT-DOWN SYSTEM ON LOW LIMIT TEMPERATURE SENSOR SETPOINT OF 40 DEG F (WITH MANUAL RESET).
- WHEN ON/OFF SWITCH IN "OFF" POSITION, SYSTEM SHALL BE OFF.
- ISOLATION DAMPER SHALL BE CLOSED.



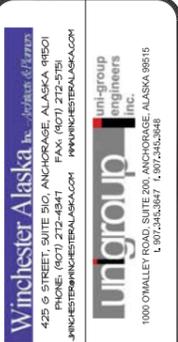
**2** SYSTEM SCHEMATICS - TYPICAL DOMESTIC HOT WATER SYSTEM  
SCALE: NONE

**REFERENCED DRAWING NOTES:**

1. TYPICAL WATER HEATER EXPANSION TANK.
2. TYPICAL WATER HEATER.
3. PROVIDE 12" HEIGHT THERMAL TRAP AT COLD WATER SERVICE TO WATER HEATERS.
4. HOT WATER CIRCULATION PUMP.
5. HOT WATER CIRCULATION PUMP ON/OFF CONTROL SWITCH.

**SEQUENCE OF OPERATION:**

- HOT WATER CIRCULATION PUMP SHALL OPERATE CONTINUOUSLY.



**POGO MINE CAMP ADDITION**  
DELTA JUNCTION, ALASKA

DRAWN JTC	DATE 3/02/2012R
CHECKED JTC/TL/HAA	JOB NO. P12003
SHEET CONTENTS	

MECHANICAL SYSTEM SCHEMATICS

DRAWING NO.  
**M5.03**

# **CERTIFICATE OF CONSTRUCTION**



**State of Alaska**  
**DEPARTMENT OF ENVIRONMENTAL CONSERVATION**



**Certification of Construction for  
Domestic Wastewater Systems**

**Instructions:** Within 90 days after the construction, installation, or modification of a project is completed, the owner, the contractor(s) responsible for constructing the project, and a registered engineer responsible for construction inspection, must complete and sign this form declaring that the project was constructed in accordance with the most recent Department-approved plans, or in accordance with the attached as-built drawings.

If a project is being completed in phased construction, a map shall be attached showing that portion of the project being declared completed on the date stated in Section A - Owners Section. Completion of each phase of a project must be declared as it is completed. Additional Certification of Construction forms are available from any Department of Environmental Conservation office.

*Please type or print, except for signatures*

**SECTION A- Owner's Section**

Name and brief description of the project Pogo Lower Camp Sewage Upgrades: STP MBR Upgrade  
w/ capacity to 40,000 GPD, New Lift Station, Approx. 816 LF of new 4" HDPE Force Main.

Owner Name Sumitomo Metal Mining Pogo LLC

Owner Address P.O. Box 145, Delta Junction, AK 99737-0145

City State Zip

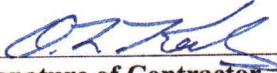
ADEC Project No. Tracking #8992 Date Project Completed: 10/18/12

I certify that I am the owner of the above-referenced project. I further certify that this project was constructed in accordance with the latest plans submitted to and approved by the Alaska Department of Environmental Conservation (ADEC), or in accordance with the attached as-built drawings. I understand that I may be required to take remedial measures to correct any construction which was completed without prior ADEC approval, which departs from the approved plans, and which is found to be inconsistent with the applicable requirements of ADEC wastewater disposal regulations (18 AAC 72).

Chris Kennedy Jan - 9 - 2013  
Signature of Owner (Please Sign in Ink) Date

**SECTION B- Contractor's Section**

I certify that I (or an individual under my direct supervision) have conducted an inspection of the project referenced in Section A, or portions of the project which I had the responsibility for constructing, and that to the best of my knowledge and information, the project, or those portions, was or were constructed in accordance with the latest plans submitted to and approved by the Alaska Department of Environmental Conservation, or in accordance with the attached as-built drawings.

M2C1 CONSTRUCTION AND ENGINEERING  
**Printed Name of Contractor**        
**Signature of Contractor**      1/7/2013  
**Date**

For multiple contractors, if applicable:

SANITHEAM INC  
A CLEAN HARBORS COMPANY  
**Printed Name of Contractor**        
**Signature of Contractor**      1/8/2013  
**Date**

\_\_\_\_\_  
**Printed Name of Contractor**      \_\_\_\_\_  
**Signature of Contractor**      \_\_\_\_\_  
**Date**

**SECTION C- Engineer's Section**

I certify that I (or any individual under my direct supervision) have conducted an inspection of the above referenced project, and that to the best of my knowledge and information, the project was constructed in accordance with: (check one of the following)

- the latest plans submitted to and approved by the Alaska Department of Environmental Conservation  
or  
 in accordance with the attached as-built drawings.

I further certify that:

- all conditions placed on the construction approval have been met as described briefly below: (if using a cover letter, you may write "see cover letter")

NO CONDITIONS SPECIFIED IN DEPARTMENT'S CONSTRUCTION APPROVAL

  
**Signature of Professional Engineer  
Responsible for Construction Inspection  
(Please Sign in Ink)**      CE 10487  
**State of Alaska  
Professional Engineer  
Registration Number**      1/7/2013  
**Date**  
DAVID L. KENNEDY  
\_\_\_\_\_  
**Typed or Printed Name of Professional Engineer**