

Addendum Transmittal

PROJECT	Downeast Correctional Facility 19176	DATE SENT	8/25/2020
SUBJECT	ADDENDUM 1-DCF Men's Reentry Center	ADDENDUM ID	ADD-01-DCF MRC
		TRANSMITTAL ID	00048
PURPOSE	For Bid	VIA	Info Exchange

FROM

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TO

NAME	COMPANY	EMAIL	PHONE
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Owens McCullough, PE	Sebago Technics Inc.	omccullough@sebagotech nics.com	207.200.2073

The specifications and drawings are amended herein. These items replace original items previously issued or are to be added to the Bidding and Construction Documents as indicated.

Bidders are required to acknowledge receipt of this addendum on the BID FORM in the space provided. Failure to acknowledge all addenda may cause the bid to be considered not responsive to the invitation, which would require rejection of the Bid.

The Contract Documents for solicitation of Bids for the construction are hereby changed as follows:

Addendum Transmittal

DATE: 8/25/2020

ID: 00048

DESCRIPTION: ADDENDUM 1-DCF Men's Reentry Center

REMARKS: **Created by: Shantall Moniz-Vargas**

Description:

ADDENDUM 1-DCF Men's Reentry Center

DESCRIPTION OF CONTENTS

QTY	DATED	TITLE	NUMBER	SCALE	SIZE	NOTES
1	8/25/2020	19176-01_ADD01_200825.pdf				
1	8/25/2020	19176-01_ADD01_DRA WINGS_200825.pdf				
1	8/25/2020	19176-01_ADD01_SPEC S_200825.pdf				
1	8/25/2020	200824- Bidders list.pdf				
1	8/25/2020	200824-Bidders List Typed.pdf				

COPIES:

Graham Vickers (SMRT)
Jessica Johnson (SMRT)
Shantall Moniz-Vargas (SMRT)

Addendum 01

SMRT Architects and Engineers

877.700.7678

smrtinc.com

To	David Schoenherr	Date	August 25, 2020
For	Downeast Correctional Facility – Men’s Reentry Center	Project No.	19176-01

This addendum forms a part of the bidding and contract documents.

Bidders are required to acknowledge receipt of this addendum on their proposal. Failure to acknowledge all addenda may cause the bid to be considered not responsive to the invitation, which may require rejection of the bid.

PART I – QUESTIONS/ANSWERS/INFORMATION RELATING THE PROJECT:

These items provide supplemental information to the Contract Drawings and Specifications without modification.

Part I-A – Attachments

Bidders Attendee List (200824-Bidders List.pdf)

Part I-B – Bidder Questions/Clarifications:

BIDDER QUESTIONS	
Q1.	[Fuel Tank] The overflow valve in the vent, what specifically did you have in mind? Most overflow valves are in the fill. Are you referring to a vent whistle for overflow? RESPONSE: The overflow prevention valve shown on the 2” vent is a vent whistle type vent alarm.
Q2.	[Fuel Tank] • You are showing the tank as primed only on M-503, do you not want a urethane white or some color finish? RESPONSE: No. Provide Shop Prime finish
Q3.	[Fuel Tank] The cost for including a single bulkhead and overflow chamber on such a small double wall tank is considerable? If you do want it, how do you want to address draining if it ever is overfilled? RESPONSE: The contract does require the overflow chamber. If the chamber does receive fuel from an overflow the fuel will be sucked out with the use of a wand. The tank diameter is 64-inches. An overflow alert gauge will be added.
Q4.	[Fuel Tank] Possibly a positive overflow valve in the fill line is a more reliable option RESPONSE: An overflow valve in the fill line is not required.
Q5.	[Fuel Tank] Is the Morrison 818 gauge to read in feet & inches or gallons? RESPONSE: The Morrison clock gauge shall be a model 918 with a 90-decibel high-level audible alarm mounted at the fill station. The readout will display in gallons.

Q6.	[Fuel Tank] Where the tank is inside, a non-discriminating sensor is a reasonable cost savings. A mechanical leak sensor would be a sizable cost savings. RESPONSE: The non-discriminating sensor interstitial space monitoring shall be removed from this contract. A mechanical leak sensor will be added. BJE Leak Guard Tank Gauge is acceptable.
Q7.	RESPONSE:
Q8.	RESPONSE:
Q9.	RESPONSE:
Q10.	RESPONSE:
Q11.	RESPONSE:
Q12.	RESPONSE:
Q13.	RESPONSE:
Q14.	RESPONSE:
Q15.	RESPONSE:

CLARIFICATIONS TO BIDDERS	
C1.	All bidder request for information must be received by August 31, 2020 by 4pm.
C2.	

PART II - MODIFICATIONS TO DRAWINGS AND MATERIAL SPECIFICATIONS:

Part II-A – Attachments.

The following items are attached to and are part of this Addendum. These items replace original items previously issued or are to be added to the Bidding and Construction Documents as indicated.

1. New Specification Section 284600 – Security Control System
2. New Specification Section 284605 – Conductors, Cabling and Raceway
3. New Specification Section 284606 – Cabinets and Enclosures
4. New Specification Section 284620 – Video Communication System
5. New Specification Section 284621 – Video Management, Server, Network and Software
6. New Specification Section 284640 – Access Control System
1. Drawing **CE001** – General Notes & Legend.
2. Drawing **CE201** – Site Plan.
3. Drawing **CE301** – Grading and Utility Plan.
4. Drawing **CE302** – Grading and Utility Plan.
5. New Drawing **TY101** – Technology Plan Area A. Interior/Exterior Camera information. Card reader/Door security information.
6. New Drawing **TY102** – Technology Plan Area B. Interior/Exterior Camera information. Card reader/Door security information. 24 RU Data cabinet & ACP
7. New Drawing **TY103** – Technology Plan. Exterior Camera information. Card reader/Door security information. 24 RU Data cabinet & ACP
8. New Drawing **TY104** – Technology Plan. Exterior Camera information. Card reader/Door security information. 24 RU Data cabinet & ACP
9. New Drawing **TY651** – Technology Single line diagram.
10. Revised Drawing **M503** – Mechanical Details
11. Revised Drawing **PD101** – Admin Building Plumbing Demolition Plan
12. Revised Drawing **PD102** – Storage Building Demolition Plan.
13. Revised Drawing **PL101** – Men’s Re-entry Center DWV plan.
14. Revised Drawing **PL102** – Admin Building DWV plan.
15. Revised Drawing **PL103** – Storage Building DWV plan.
16. Revised Drawing **PP101** – Men’s Re-entry Building Supply plan.
17. Revised Drawing **PP102** – Admin Building Supply plan.
18. Revised Drawing **PP103** – Storage Building Supply plan. Revised fixture tags.
19. Revised Drawing **PU101** – Men’s Re-entry Building Underslab plan.
20. Revised Drawing **PU102** – Admin Underslab plan.
21. Revised Drawing **PU103** – Storage Underslab plan.
22. Revised Drawing **PL401** – Plumbing Part plans.
23. Revised Drawing **PL501** – Plumbing Details.
24. Revised Drawing **PL502** – Plumbing Details.
25. Revised Drawing **PL601** – Plumbing Schedules.

Part II-B – Revisions by Reference:

The drawings and specifications are hereby revised as follows:

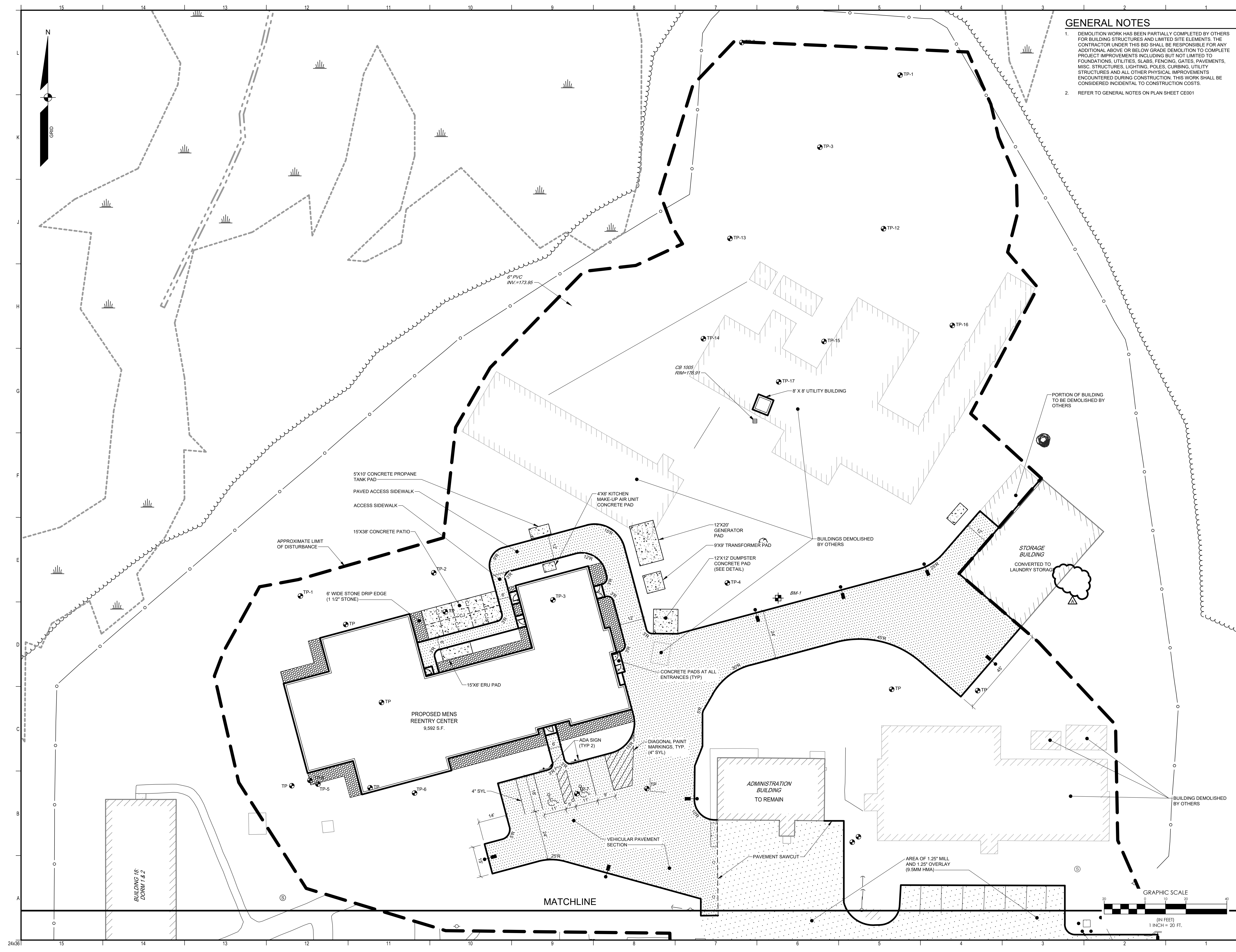
REVISIONS TO SPECIFICATIONS

26. Section 011000 – Summary –
 - a. Change item 1.3-L – Sanitary facilities will not be provided by Owner. Contractor to provide portable sanitary facilities.
 - b. Change Item 1.3-T to be “Snow removal will be performed by the contractor”.
27. Section 061000 – Rough Carpentry – 2.6-A – remove “or OSB sheathing”.
28. Section 102800 – Toilet, Bath and Laundry Accessories – 2.2.J – Shower Curtain, revise item 2 to add “with 6 inches clear on top and bottom per ACA standard 566”.

REVISIONS TO DRAWINGS

1. Drawing **CE001** – General Notes & Legend. **ADD:** Note 14 was added to the utility Notes.
2. Drawing **CE201** – Site Plan. Removed refrigeration rack pad at Storage Building.
3. Drawing **CE301** – Grading and Utility Plan. Revised location of sewer and water at the Storage Building, revised sewer and water at the Admin Building, **ADD:** 1-inch water line and gate valve to Motor Pool Building.
4. Drawing **CE302** – Grading and Utility Plan. **ADD:** 1-inch water line and gate valve to Motor Pool Building.
5. Drawing **M503**, Detail G9 – 1,000 Gallon Double Wall Heating Oil Tank. **ADD:** an overflow alert gauge to the overflow chamber. Krueger Sentry Gauge Co. or approved equal
6. Drawing **M503**, Detail G9 – 1,000 Gallon Double Wall Heating Oil Tank. **ADD:** a Leak detection gage to the interstitial space. Krueger Sentry Gauge Co. or approved equal
7. Drawing **M503**, Detail G9 – 1,000 Gallon Double Wall Heating Oil Tank. **REMOVE:** Interstitial (electronic) Space Monitoring with discriminating sensor and local alarm
8. Drawing **M503**, Detail G9 – 1,000 Gallon Double Wall Heating Oil Tank. **Clarification:** The Morrison Bros. 2” Clock Gauge shall be a Morrison Bros Model 918 with an external alarm box mounted at the fill station. The Clock Gauge shall read in gallons.
9. Drawing **PD101** – Admin Building Demolition Plan. Revised general note(s) to reflect proper plumbing scope of work.
10. Drawing **PD102** – Storage Building Demolition Plan. Revised notes to reflect proper plumbing scope of work.
11. Drawing **PL101** – Men’s Re-entry Center DWV plan. Revised fixture tags. Added floor drain to mechanical room.
12. Drawing **PL102** – Admin Building DWV plan. Revised fixture tags. Revised general note to reflect proper plumbing scope of work. Added floor drain to utility room.
13. Drawing **PL103** – Storage Building DWV plan. Revised fixture tags.
14. Drawing **PP101** – Men’s Re-entry Building Supply plan. Revised fixture tags. Removed HB-A located between bedrooms 101 & 102, 105 & 106. Revised LP gas note and pipe drop location to ERU-1.

15. Drawing **PP102** – Admin Building Supply plan. Revised fixture tags. Revised general note to reflect proper plumbing scope of work. Relocated water service entrance to utility room.
16. Drawing **PP103** – Storage Building Supply plan. Revised fixture tags. Revised general note to reflect proper plumbing scope of work.
17. Drawing **PU101** – Men’s Re-entry Building Underslab plan. Added piping to second floor drain located in mechanical room.
18. Drawing **PU102** – Admin Underslab plan. Revised general note to reflect proper plumbing scope of work.
19. Drawing **PU103** – Storage Underslab plan. Revised general note to reflect proper plumbing scope of work.
20. Drawing **PL401** – Plumbing Part plans. Added part plan #2. Revised LP piping to MAU-1 on part plan #3. Revised LP gas load at total developed length. Added drawing note to add backflow and water meter type.
21. Drawing **PL501** – Plumbing Details. Removed Emergency eye/face wash counter mounted detail. Removed gas vent through roof detail.
22. Drawing **PL502** – Plumbing Details. Added detail Kitchen gas shut off schematic.
23. Drawing **PL601** – Plumbing Schedules. The fixture schedule added. Domestic water heater schedule modified to reflect owner provided water heaters.



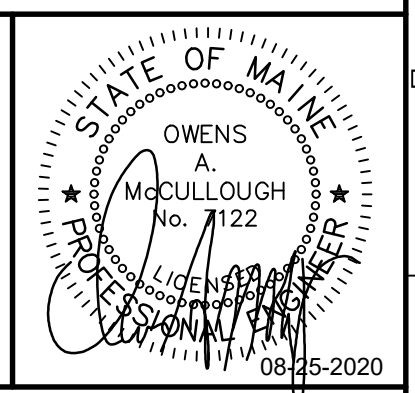
GENERAL NOTES

- DEMOLITION WORK HAS BEEN PARTIALLY COMPLETED BY OTHERS FOR BUILDING STRUCTURES AND LIMITED SITE ELEMENTS. THE CONTRACTOR UNDER THIS BID SHALL BE RESPONSIBLE FOR ANY ADDITIONAL ABOVE OR BELOW GRADE DEMOLITION TO COMPLETE PROJECT IMPROVEMENTS INCLUDING BUT NOT LIMITED TO FOUNDATIONS, UTILITIES, SLABS, FENCING, GATES, PAVEMENTS, MISC. STRUCTURES, LIGHTING, POLES, CURBING, UTILITY STRUCTURES AND ALL OTHER PHYSICAL IMPROVEMENTS ENCOUNTERED DURING CONSTRUCTION. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION COSTS.
- REFER TO GENERAL NOTES ON PLAN SHEET CE001

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South Portland, ME 04106
Tel. 207-200-2100

REV	DESCRIPTION	DATE
A	ISSUED FOR ADDENDUM 1	08-25-20

ISSUED FOR ADDENDUM 1
08-25-20
CURRENT ISSUE STATUS:

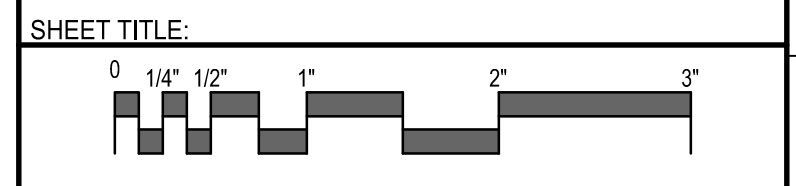


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MEN'S REENTRY CENTER

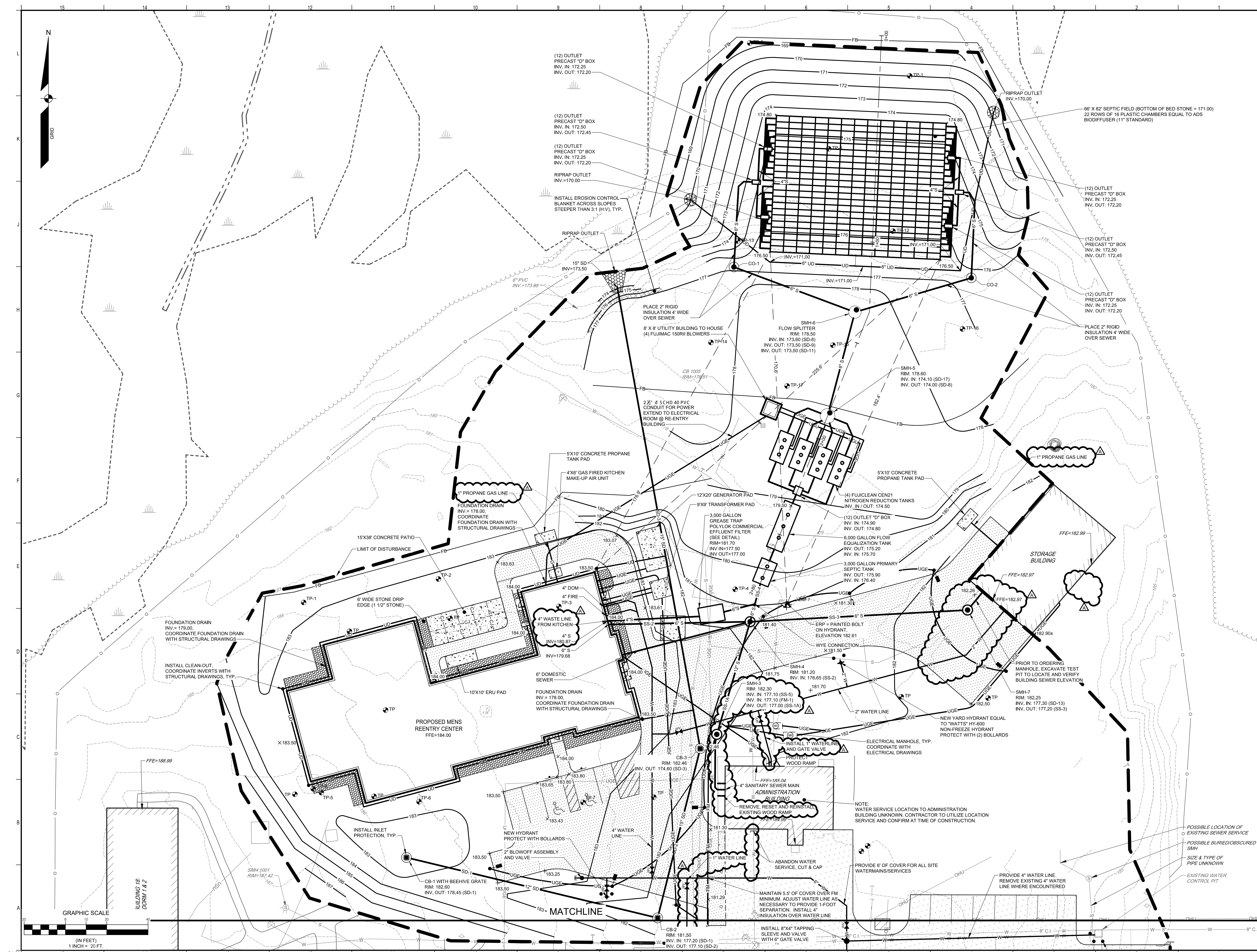
MACHIASPORT, MAINE
SITE PLAN

SHEET TITLE:



PROJECT NO: 19176
A/E OF RECORD: OAM
JOB CAPTAIN: BJB
DRAWN BY: MRS
SMRT FILE: CE201-17052 SHEET No. **CE201**

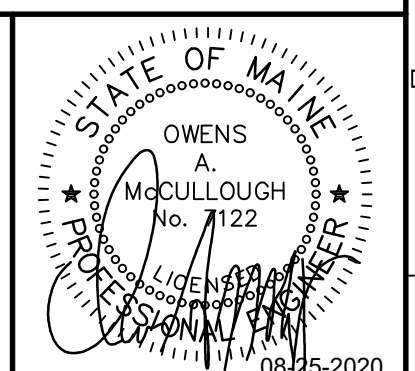
NOT FOR CONSTRUCTION



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A	ISSUED FOR ADDENDUM 1	08-25-20

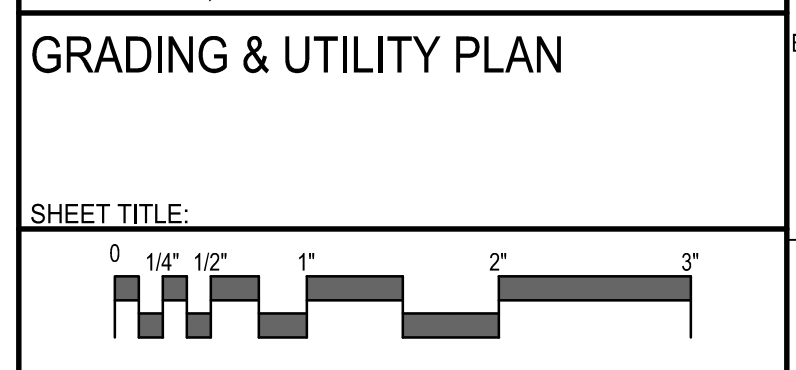
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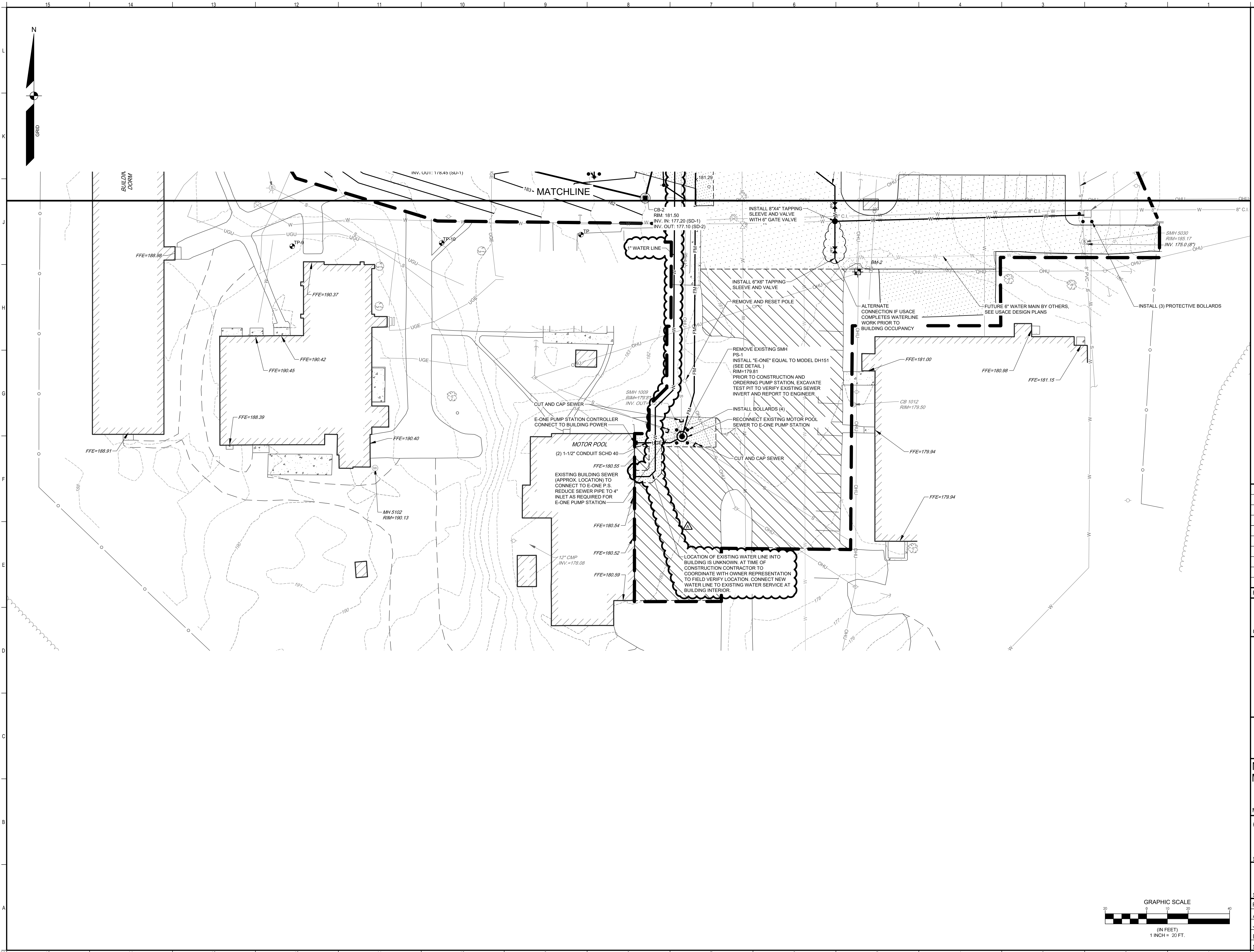
**MDOC - DCF
MEN'S REENTRY CENTER**

MACHIASPORT, MAINE
GRADING & UTILITY PLAN



PROJECT MANAGER:	OAM	PROJECT NO.:	19172
A/E OF RECORD:	OAM	JOB CAPTAIN:	BJB
DRAWN BY:	MRS	SMRT FILE:	CE301-17052
		SHEET No.:	CE301

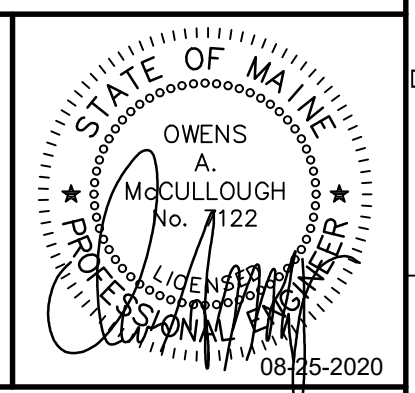
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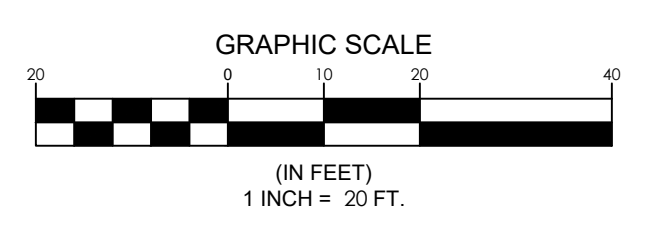
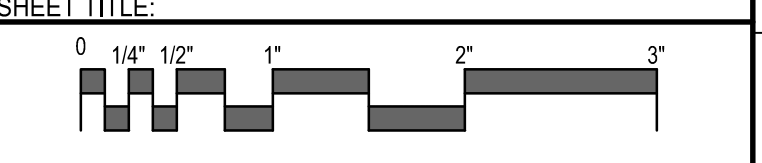
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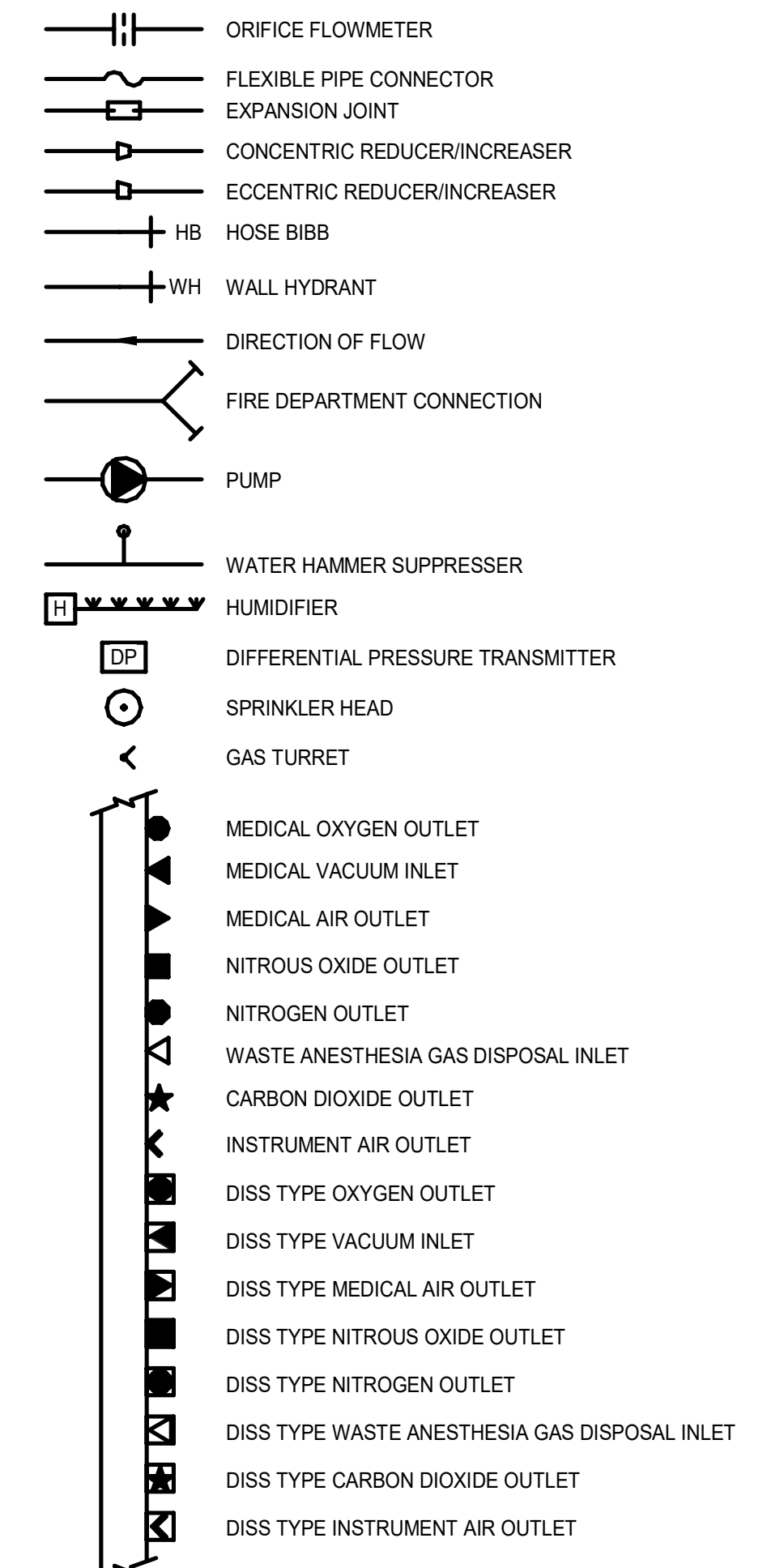
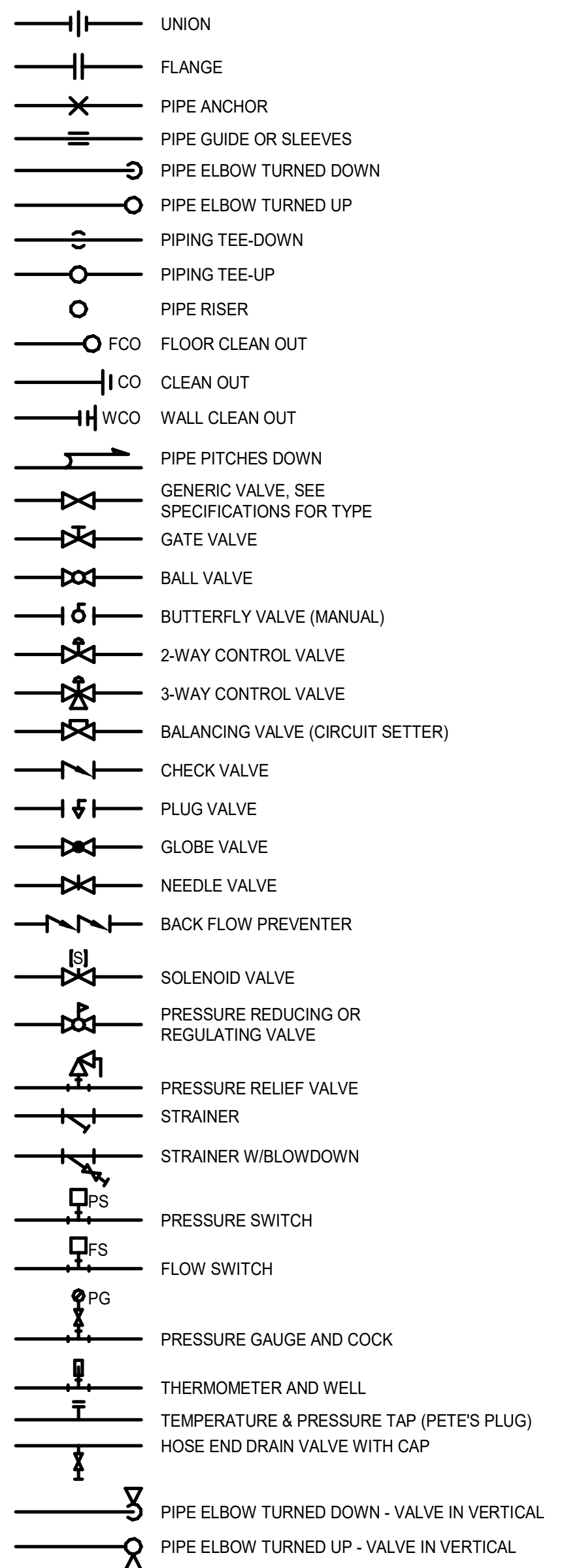
GRADING & UTILITY PLAN



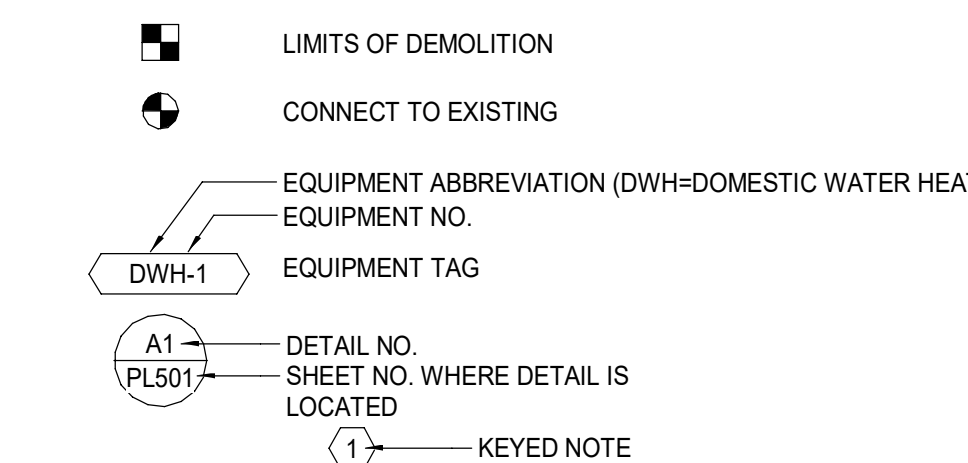
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A/E OF RECORD:	OAM		
JOB CAPTAIN:	BJB		
DRAWN BY:	MRS		
SMRT FILE:	CE302-17052	SHEET NO.	CE302

NOT FOR CONSTRUCTION

PIPING SYMBOLS



GENERAL SYMBOLS



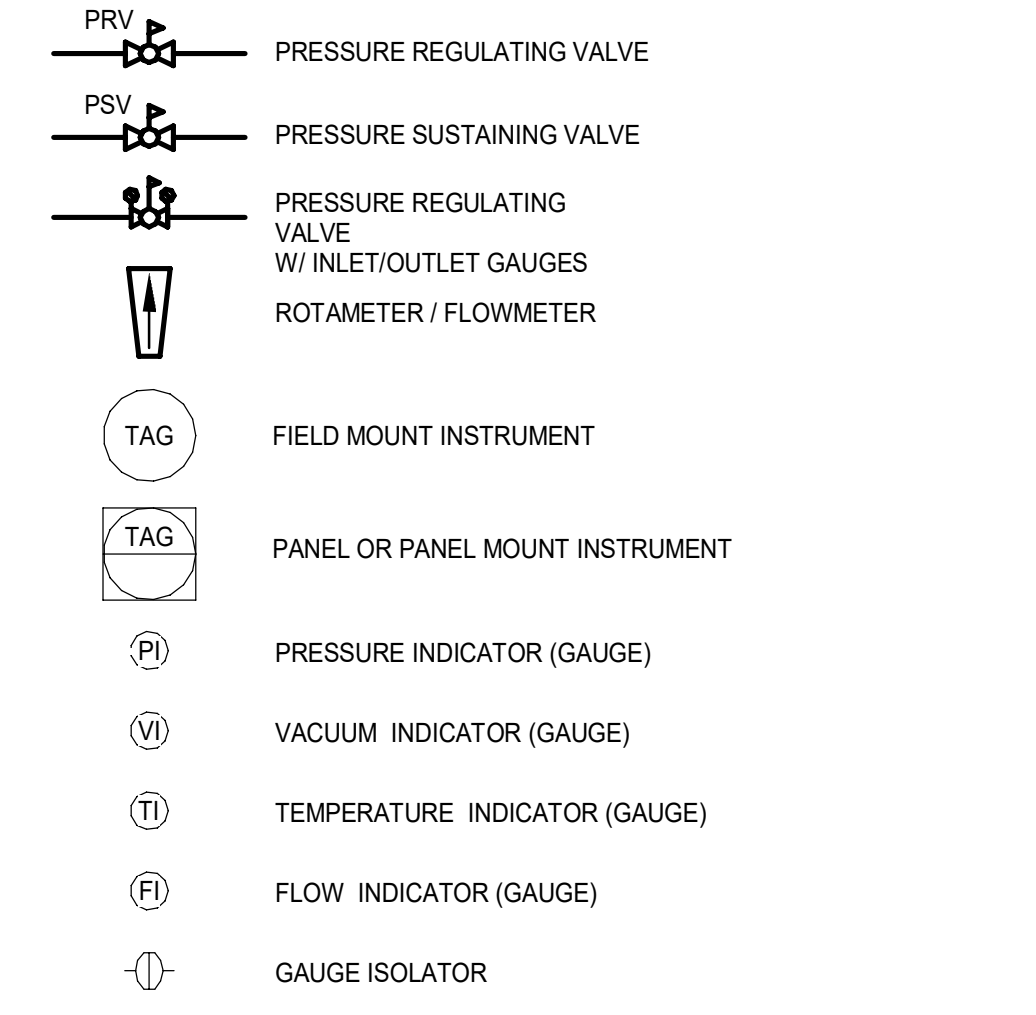
ABBREVIATIONS

AAV	AUTOMATIC AIR VENT	CW-P	DOUBLE CONTAINED	H	HUMIDIFIER	N2G	NITROGEN GENERATORS	SP	SUMP PUMP
AC	AIR CONDITIONING UNIT	DC	CITY WATER-PROCESS	HC	HEALTH CARE / HAND WASH SINK	P	PUMP	SS	STAINLESS STEEL
ACM	AIR COMPRESSOR	DCO	DANDY CLEANOUT	HB	HOSE BIB	PAS	PROCESS AIR SEPARATOR	SSK	SOILED SERVICE SINK
AD	ACCESS DOOR	DDC	DIRECT DIGITAL CONTROL	HP	HEAT PUMP	PCH	PROCESS CHILLER	ST	STORAGE TANK
AFF	ABOVE FINISHED FLOOR	DF	DRINKING FOUNTAIN	HRU	HEAT RECOVERY UNIT	PET	THERMAL EXPANSION TANK	T	TANK
AHU	AIR HANDLING UNIT	DIA	DIAMETER	HTR	HEATER	PF	PROCESS FILTER	TD	TRENCH DRAIN
ATC	AUTOMATIC TEMPERATURE CONTROL	DIC	DOWN IN CHASE	H & V	HEATING AND VENTILATION	PP	PROCESS PUMP	TE	TEMPERATURIZED ELEMENT (SENSOR)
AV	AIR VENT	DIRO	DIALYSIS PURIFIED WATER	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	PRE	PRE PURCHASED EQUIPMENT	TOP	TOP OF PIPE
BA	BREATHING COMPRESSED AIR	DIW	DOWN IN WALL	HW	HOT WATER	PRS	PRESSURE REDUCING STATION	TTS	TIGHT TO STEEL
BFP	BACKFLOW PREVENTER	DN	DOWN	HX	HEAT EXCHANGER	PRV	PRESSURE REDUCING VALVE	TYP	TYPICAL
BLDG	BUILDING	DS	DOWNSPOUT	IAC	INSTRUMENT AIR CONTROL PANEL	PSIG	POUNDS PER SQUARE INCH (PRESSURE)	UIC	UP IN CHASE
BOD	BOTTOM OF DUCT	DT	DROP AND TRANSITION	IE	ION EXCHANGE UNIT	PWS	POWER WASHING UNIT	UIW	UP IN WALL
BOP	BOTTOM OF PIPE	DTV	DRAIN TEMPERING VALVE	INT	INTERCEPTOR	RAH	RECIRCULATING AIR HANDLING UNIT	UR	URINAL
BP	BOOSTER PUMP	DWG	DRAWING	IN WG	INCHES WATER GAUGE	(R)	REMOVE	UV	ULTRAVIOLET FILTER
BT	BATHING TUB	DWH	DOMESTIC WATER HEATER	LAV	LAVATORY	(REL)	RELOCATED	VB	VACUUM BREAKER
BTU	BRITISH THERMAL UNIT	DWV	DRAINAGE, WASTE & VENT	MAC	MEDICAL AIR COMPRESSOR	RD	ROOF DRAIN	VAC	VACUUM PUMP
BW	BOOT WASH	EE	EMERGENCY EQUIPMENT	MAU	MAKE UP AIR UNIT	RHC	REHEAT COIL	VTR	VENT THRU ROOF
CAD	COMPRESSED AIR DRYER	ENC	ENCLOSURE	MAX	MAXIMUM	RM	ROOM	VCFF	VALVED AND CAPPED FOR FUTURE
CAF	COMPRESSED AIR FILTER	(E)	EXISTING	MBH	1000 BTU/HR.	RO	REVERSE OSMOSIS UNIT	VFD	VARIABLE FREQUENCY DRIVE
CC	COOLING COIL	ESP	ELEVATOR SUMP PUMP	ME	MECHANICAL ENGINEER	RP	RECIRCULATING PUMP	VOC	VOLATILE ORGANIC COMPOUNDS
CFE	CAPPED FOR FUTURE	EXIST.	EXISTING	MFR	MANUFACTURER	RPZ	REDUCED PRESSURE ZONE BFP	W/	WITH
CFH	CUBIC FEET PER HOUR	EWC	ELECTRIC WATER COOLER	MGAP	MEDICAL GAS ALARM PANEL	RTU	ROOF TOP AIR HANDLING UNIT	WAGD	WASTE ANESTHESIA GAS DISPOSAL PUMP
CH	CHILLER	F	FILTER	MIN	MINIMUM	RV	RELIEF VALVE	WB	WALL BOX
CLG	CEILING	FBO	FURNISHED BY OWNER	MP	MACERATING SANITARY EJECTOR PUM/RWP	SCV	SELF CONTAINED VALVE	WC	WATER CLOSET
CO	CLEANOUT	FC	FLEXIBLE CONNECTION	MPV	MULTI-PURPOSE VALVE	SG	STEAM GENERATOR	WCLAV	COMBINATION WATER CLOSET AND LAVATORY UNIT
CONT	CONTINUATION	FCO	FLOOR CLEANOUT	MR	MOP RECEPTOR	SG	STEAM GENERATOR	WCO	WALL CLEANOUT
COORD	COORDINATE	FCU	FAN COIL UNIT	MTD	MOUNTED	SH	SHOWER	WP	SANITARY WASTE EJECTOR PUMP
CP	CONDENSATE PUMP	FD	FLOOR DRAIN	MUA	MAKE-UP AIR UNIT	SK	SINK	W&T	WASTE AND TRAP
CSRO	CENTRAL STERILE PROCESS WATER	FG	FIBERGLASS	MUA	MAKE UP AIR	SOLC	SOLAR COLLECTOR PANEL	WH	WALL HYDRANT
CTE	CONNECT TO EXISTING	FRHB	FREEZE RESISTANT HOSE BIBB	MV	MIXING VALVE	SOLDT	SOLAR DRAIN-BACK TANK	WS	WATER SOFTENER
CT	COOLING TOWER	FS	FLOOR SINK	MVP	MEDICAL VACUUM	SOLP	SOLAR WATER PUMP	ZVB	ZONE VALVE BOX
CU	COPPER	GC	GENERAL CONTRACTOR	NCP	NITROGEN CONTROL PANEL	SOLPET	SOLAR THERMAL EXPANSION TANK		
CV	CONTROL VALVE	GPM	GALLONS PER MINUTE	NPW	NON-POTABLE WATER	SOLT	SOLAR STORAGE TANK		
CW	COLD WATER	GT	GREASE TRAP / INTERCEPTOR	NTS	NOT TO SCALE	SOLWH	SOLAR HOT WATER HEATER		

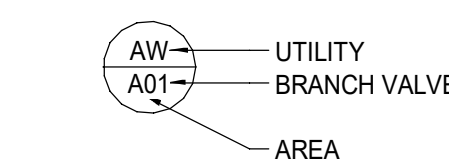
PIPING SYSTEMS

AV	ACID VENT	GWS	GRAY WATER SUPPLY	N2O	NITROUS OXIDE	INDICATES DUCT, PIPING, EQUIPMENT TO BE REMOVED.	
AD	ACID DRAIN	GWR	GRAY WATER RETURN	NEG. SOLV.	NEGATIVE SOLVENT DRAIN	HW (# DEG F)	DOMESTIC HOT WATER (TEMP DEG F)
AD	ACID DRAIN (BELOW SLAB)	H	HYDROGEN	NPW	NON POTABLE COLD WATER	RHW (# DEG F)	RECIRC. DOMESTIC HOT WATER (TEMP DEG F)
BA	BREATHING AIR	H2O2	HYDROGEN PEROXIDE	OFA	OIL FREE COMPRESSED AIR	TW	TEPID WATER (65 - 80 DEG F)
CA	COMPRESSED AIR / SERVICE AIR	HCV	HOUSE CLEAN VACUUM	PD	PUMPED DISCHARGE	CW	DOMESTIC COLD WATER
(FM) CD	FORCED MAIN CONDENSATE DRAIN	HCVE	HOUSE CLEAN VACUUM EXHAUST	PCWS	PROCESS COOLING WATER SUPPLY	HW	DOMESTIC HOT WATER
CD	CONDENSATE DRAIN	IA	INSTRUMENT AIR	PCWR	PROCESS COOLING WATER RETURN	RHW	RECIRCULATED DOMESTIC HOT WATER
CDA	COMPRESSED CLEAN DRY AIR	INW	INDUSTRIAL WASTE	PHWS	PROCESS HOT WATER SUPPLY	(FM) S, W, IW or KW	FORCED MAIN SANITARY, W WASTE, INDIRECT WASTE & KW KITCHEN WASTE
CO2	CARBON DIOXIDE	INWV	INDUSTRIAL WASTE VENT	PHWR	PROCESS HOT WATER RETURN	S, W, IW or KW	SANITARY, W WASTE, INDIRECT WASTE & KW KITCHEN WASTE
DB	DISTRIBUTION VALVE BOX	LN2	LIQUIFIED NITROGEN	POS SOLV	POSITIVE SOLVENT DRAIN	S, W or KW	SANITARY, W WASTE & KW KITCHEN WASTE (EXIST.)
DIS	DEIONIZED WATER SUPPLY	LP	LIQUID PROPANE GAS	PW	POTABLE WATER	S, W or KW	SANITARY, W WASTE & KW KITCHEN WASTE (BELOW SLAB)
DIR	DEIONIZED WATER RETURN	LP (# PSIG)	HIGH PRESSURE LIQUID PROPANE GAS	R	RELIEF LINE	S, W or KW	SANITARY, W WASTE & KW KITCHEN WASTE (BELOW SLAB-EXIST.)
ECWS	EMERGENCY CITY WATER SUPPLY	MA	MEDICAL AIR	SLD	MIXED SOLVENT DRAIN	SD	STORM DRAIN
ECWR	EMERGENCY CITY WATER RETURN	MV	MEDICAL VACUUM	SV	SOLVENT VENT	SD	STORM DRAIN (EXIST.)
EKCD	EKC DRAIN	MVE	MEDICAL VACUUM EXHAUST	SW	SOLVENT WASTE	SD	STORM DRAIN (BELOW SLAB)
ESEW	EYEWASH	N2NP	NON-PROCESS NITROGEN	SPK	SPRINKLER	SD	STORM DRAIN (BELOW SLAB-EXIST.)
FW	FLUORIDE WASTE	N2	NITROGEN	VAC	VACUUM	V	SANITARY VENT
FWV	FLUORIDE WASTE VENT	NG	NATURAL GAS	VACE	VACUUM EXHAUST	V	SANITARY VENT (EXIST.)
GLY	GLYCOL	NG (# PSIG)	HIGH PRESSURE NATURAL GAS	WAGD	WASTE ANESTHESIA GAS DISPOSAL	V	SANITARY VENT (BELOW SLAB)
GV	GAS VENT			WAGDE	WASTE ANESTHESIA GAS DISPOSAL EXHAUST	V	SANITARY VENT (BELOW SLAB-EXIST.)
				ZB	ZONE VALVE BOX		

PROCESS INSTRUMENTATION SYMBOLS



VALVE TAG KEY



GENERAL NOTE
 1. ALL GENERAL NOTES, SYMBOL LISTS, AND DETAILS ARE TO BE CONSIDERED AS APPLICABLE TO ALL PLUMBING DRAWINGS FOR THIS PROJECT. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND DO NOT INDICATE THEIR INCORPORATION INTO THE DESIGN.

MOTORPOOL BUILDING
 ALL FLOOR DRAINS SHALL BE PLUGGED. CONTRACTOR SHALL REMOVED EXISTING FLOOR DRAINS AND PLUG. PATCH FLOOR TO MATCH EXISTING.
 CONTRACTOR SHALL PROVIDE NEW BACKFLOW PREVENTER PER LOCAL PLUMBING CODE. BACKFLOW SHALL BE LOCATED DOWN STREAM OF WATER METER.
 BACKFLOW MODEL NUMBER: WATTS SERIES 007
 WATER METER: NEPTUNE T-10

0	ISSUED FOR CONSTRUCTION	08-14-20
REV	DESCRIPTION	DATE

ISSUED FOR CONSTRUCTION
 08-14-20

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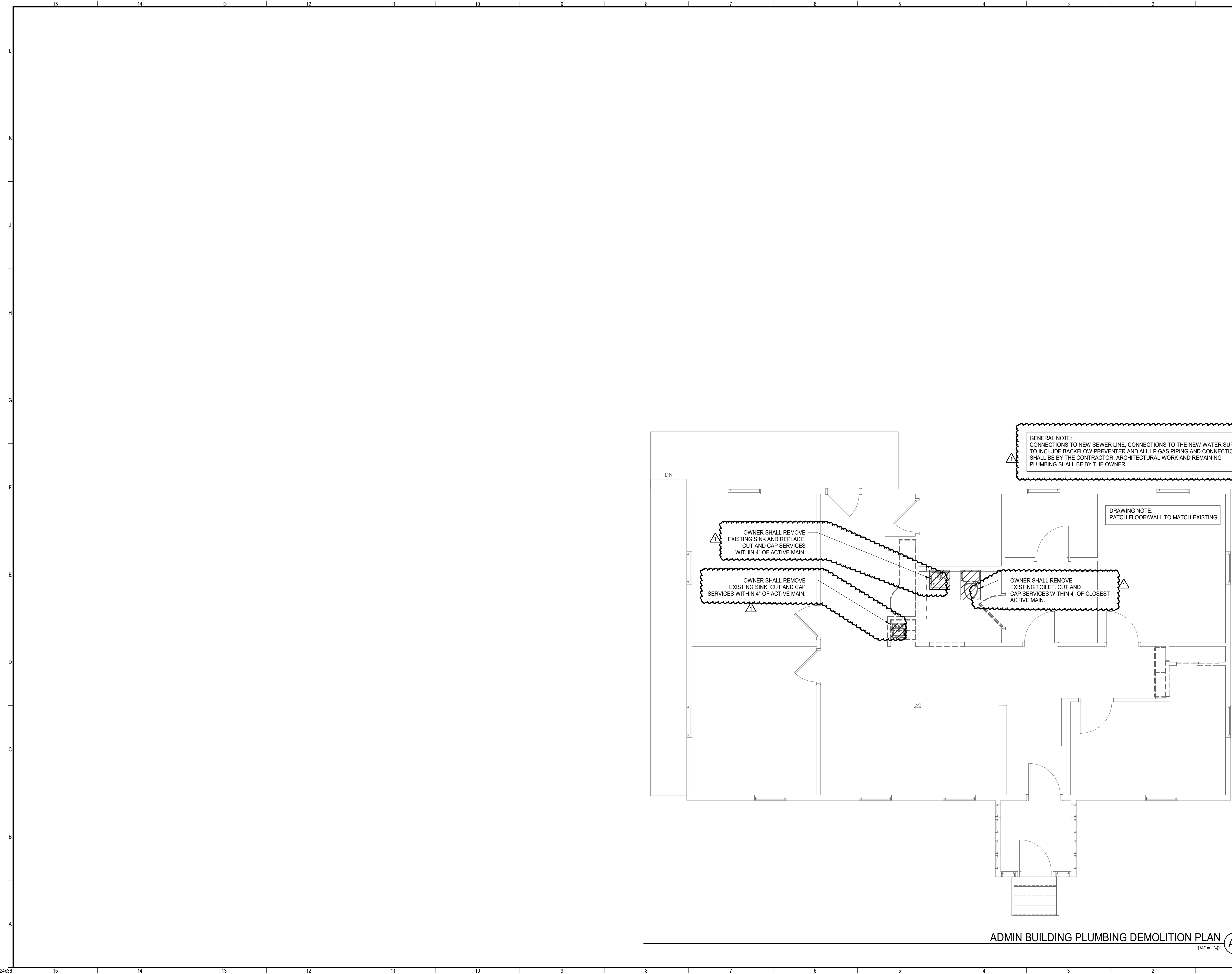
MDOC - DCF MEN'S REENTRY CENTER
 MACHIASPORT, MAINE

PLUMBING LEGEND AND ABBREVIATIONS

SHEET TITLE:

SCALE: AS NOTED

PROJECT MANAGER: JGJ	PROJECT NO: 19176
A/E OF RECORD: DRV	
JOB CAPTAIN: CBM	
DRAWN BY: KPB	
SMRT FILE: PL001-19176	SHEET No. PL001



NOTES:
 1. SEE SHEET PL001 FOR LEGEND AND ABBREVIATIONS.

KEYNOTES	
KEYNOTE	KEYNOTE DESCRIPTION

GENERAL NOTE:
 CONNECTIONS TO NEW SEWER LINE, CONNECTIONS TO THE NEW WATER SUPPLY TO INCLUDE BACKFLOW PREVENTER AND ALL LP GAS PIPING AND CONNECTIONS SHALL BE BY THE CONTRACTOR. ARCHITECTURAL WORK AND REMAINING PLUMBING SHALL BE BY THE OWNER

DRAWING NOTE:
 PATCH FLOOR/WALL TO MATCH EXISTING

OWNER SHALL REMOVE EXISTING SINK AND REPLACE. CUT AND CAP SERVICES WITHIN 4" OF ACTIVE MAIN.

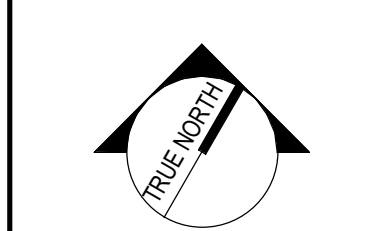
OWNER SHALL REMOVE EXISTING SINK. CUT AND CAP SERVICES WITHIN 4" OF ACTIVE MAIN.

OWNER SHALL REMOVE EXISTING TOILET. CUT AND CAP SERVICES WITHIN 4" OF CLOSEST ACTIVE MAIN.

REV	DESCRIPTION	DATE
1	ADDENDUM #1	8-25-2020
0	ISSUED FOR CONSTRUCTION	08-14-20

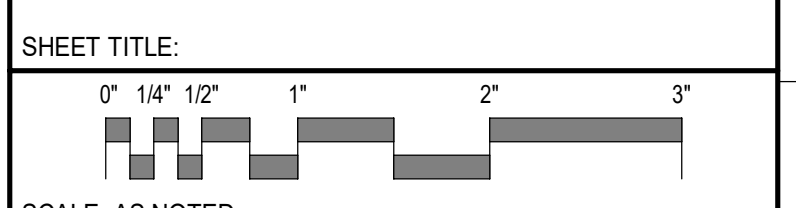
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MEN'S REENTRY CENTER
 MACHIASPORT, MAINE
ADMIN BUILDING - PLUMBING
DEMOLITION PLAN



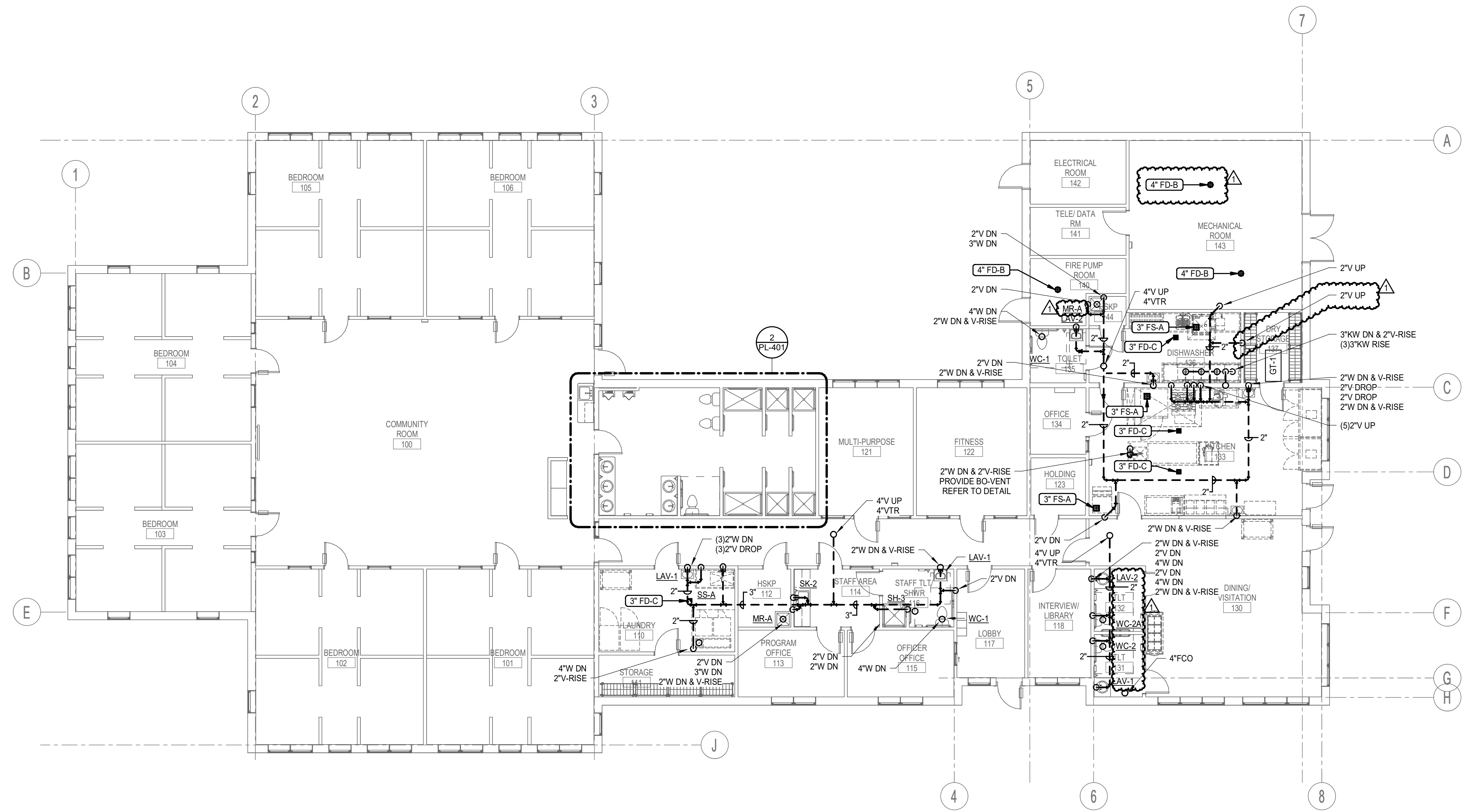
ADMIN BUILDING PLUMBING DEMOLITION PLAN (A1)
 1/4" = 1'-0"

PROJECT MANAGER:	JGJ	PROJECT NO:	19176
A/E OF RECORD:	DRV		
JOB CAPTAIN:	CBM		
DRAWN BY:	JMW		
SMRT FILE:	PD101-19176	SHEET No.	PD101

- NOTES:**
- SEE SHEET PL001 FOR LEGEND AND ABBREVIATIONS.
 - SEE PLUMBING CONNECTION SCHEDULE ON PL601 FOR ALL PIPE TERMINATIONS TO FIXTURES AND SPECIALTIES.

KEYNOTES

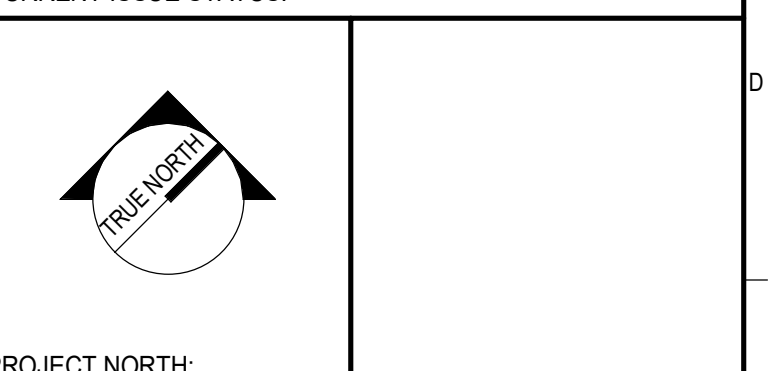
KEYNOTE	KEYNOTE DESCRIPTION
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REV	DESCRIPTION	DATE
1	ADDENDUM #1	8-25-2020
0	ISSUED FOR CONSTRUCTION	08-14-20

ISSUED FOR CONSTRUCTION
08-14-20

CURRENT ISSUE STATUS:

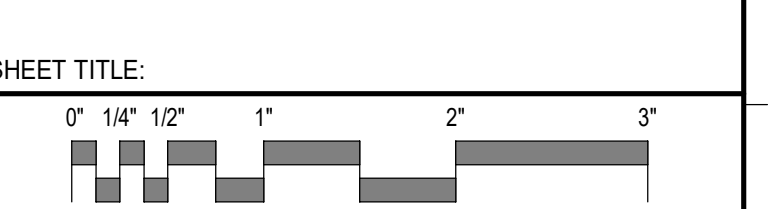


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MEN'S RE-ENTRY CENTER

MACHIASPORT, MAINE

MEN'S RE-ENTRY CENTER - DWV
PIPING PLAN



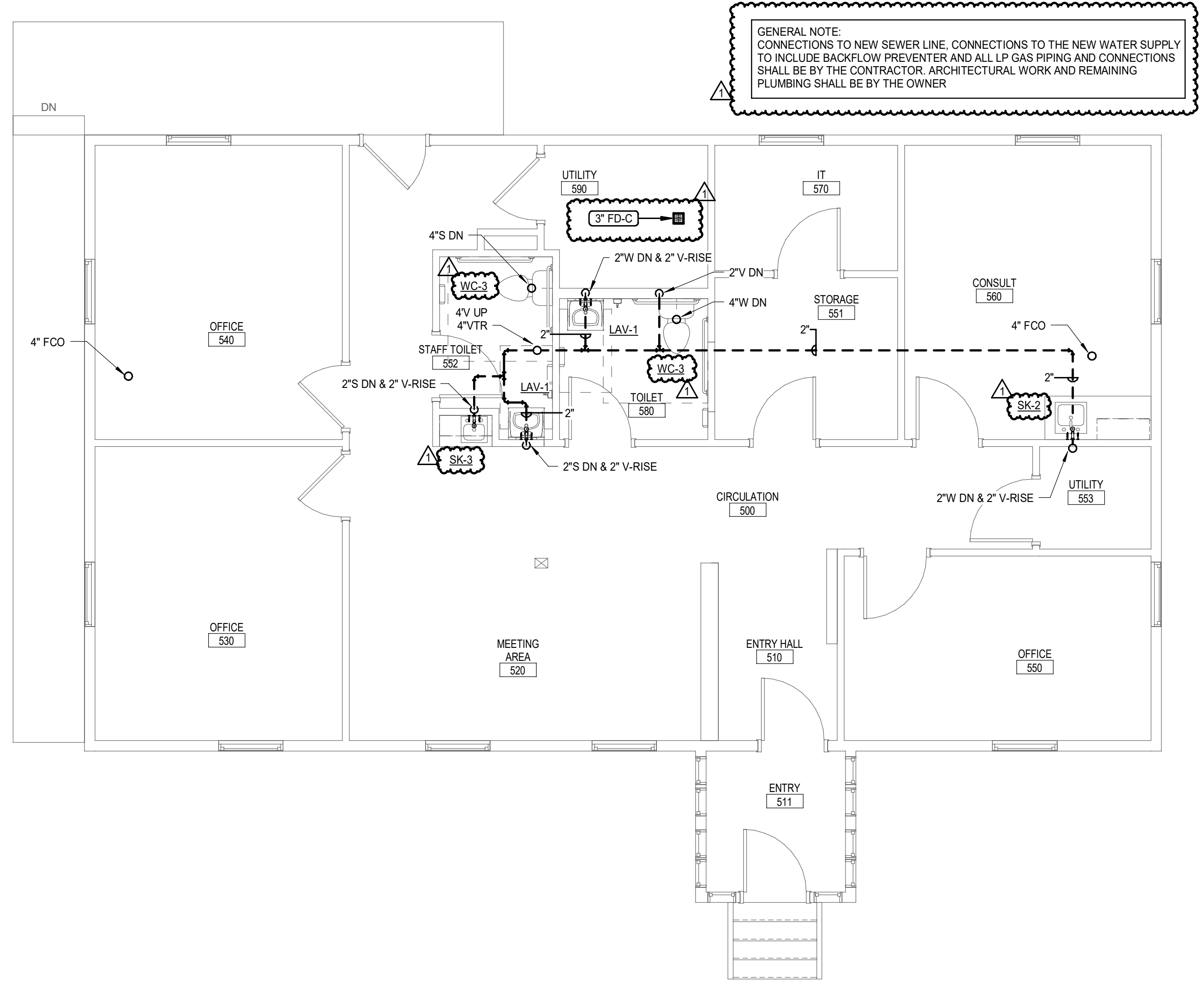
MEN'S RE-ENTRY BUILDING DWV PIPING PLAN A1
1/8" = 1'-0"

PROJECT MANAGER:	JGJ	PROJECT NO.:	19176
A/E OF RECORD:	DRV		
JOB CAPTAIN:	CBM		
DRAWN BY:	JMW		
SMRT FILE:	PL101-19176	SHEET No.:	PL101

- NOTES:**
- SEE SHEET PL001 FOR LEGEND AND ABBREVIATIONS.
 - SEE PLUMBING CONNECTION SCHEDULE ON PL601 FOR ALL PIPE TERMINATIONS TO FIXTURES AND SPECIALTIES.

KEYNOTES

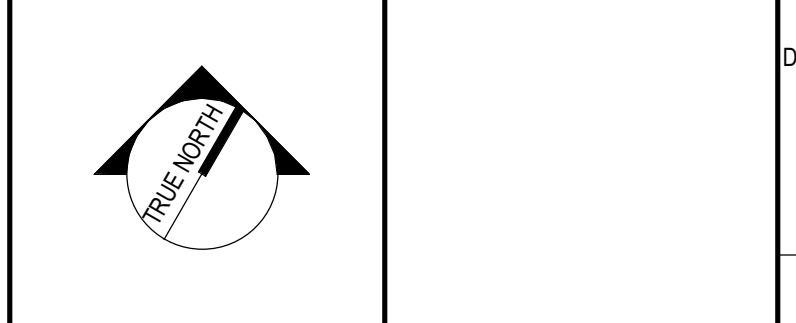
KEYNOTE	KEYNOTE DESCRIPTION
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REV	DESCRIPTION	DATE
1	ADDENDUM #1	8-25-2020
0	ISSUED FOR CONSTRUCTION	08-14-20

ISSUED FOR CONSTRUCTION
08-14-20

CURRENT ISSUE STATUS:

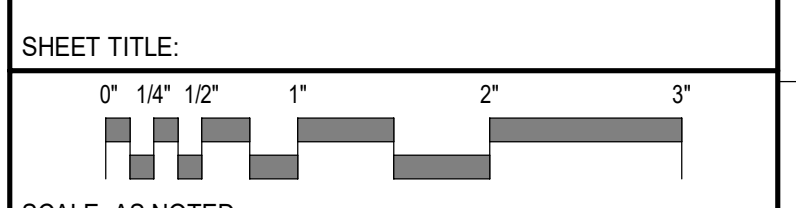


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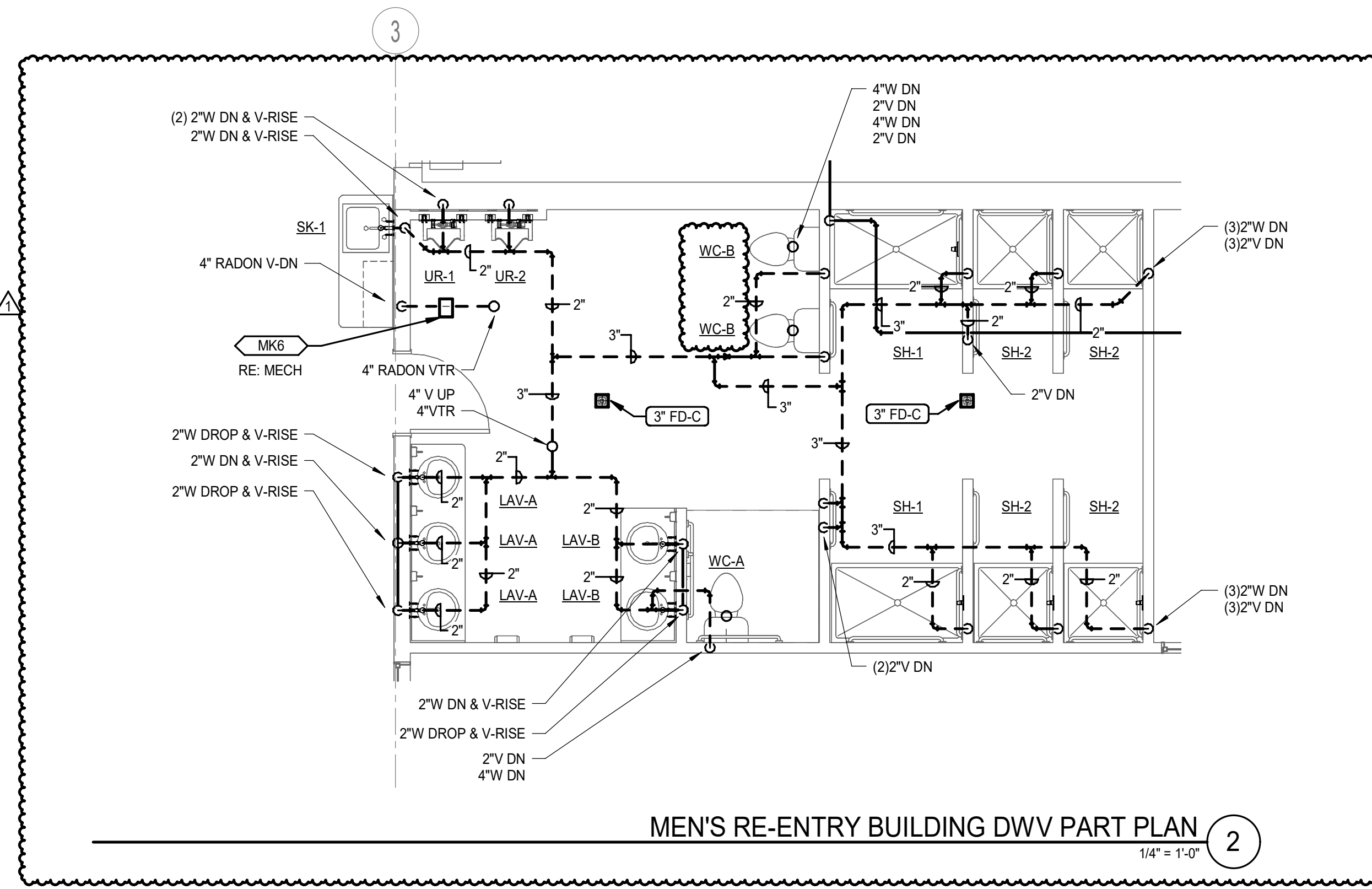
**ADMIN BUILDING - DWV PIPING
PLAN**



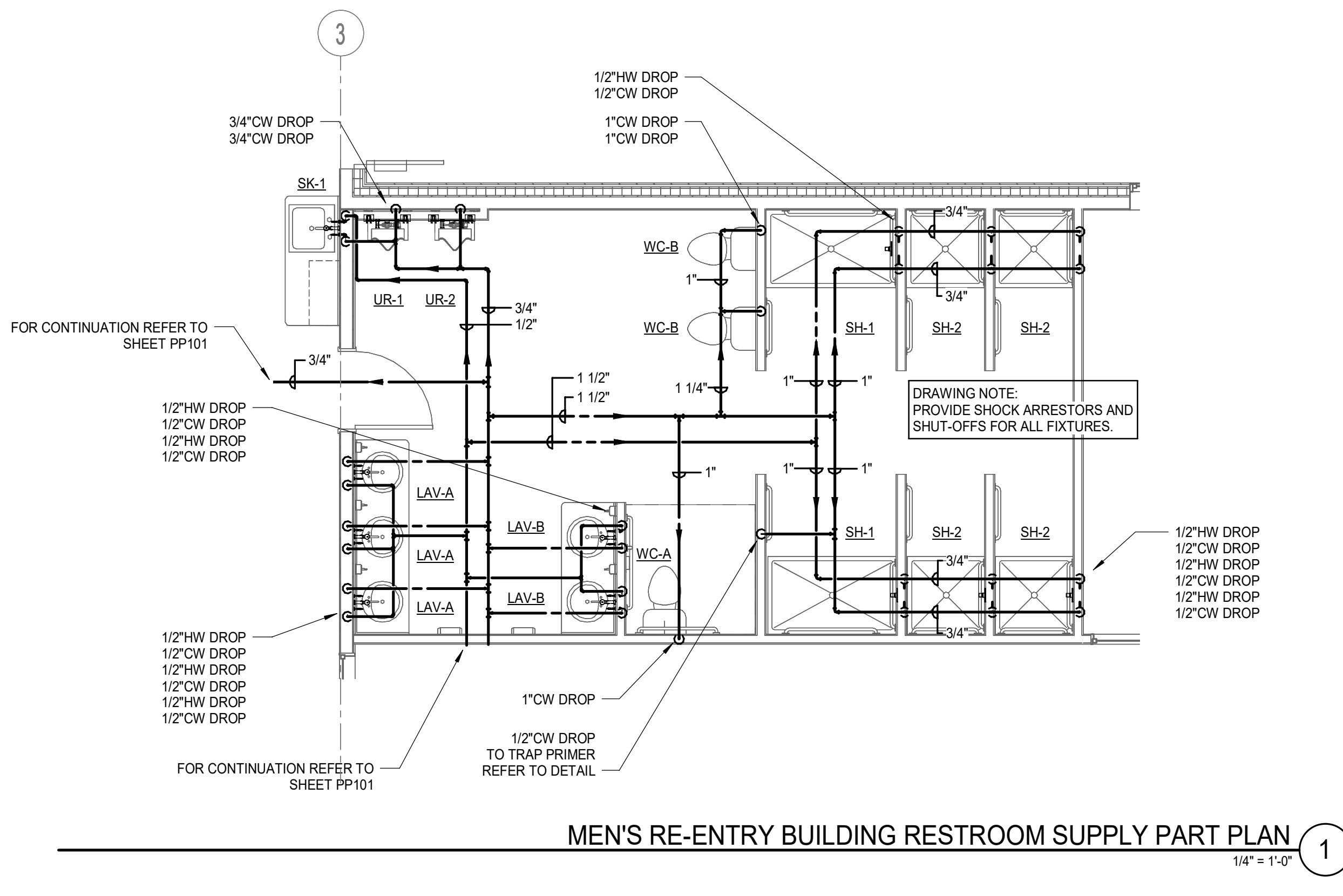
SCALE: AS NOTED

PROJECT MANAGER:	JGJ	PROJECT NO.:	19176
A/E OF RECORD:	DRV		
JOB CAPTAIN:	CBM		
DRAWN BY:	JMW		
SMRT FILE:	PL102-19176	SHEET No.:	PL102

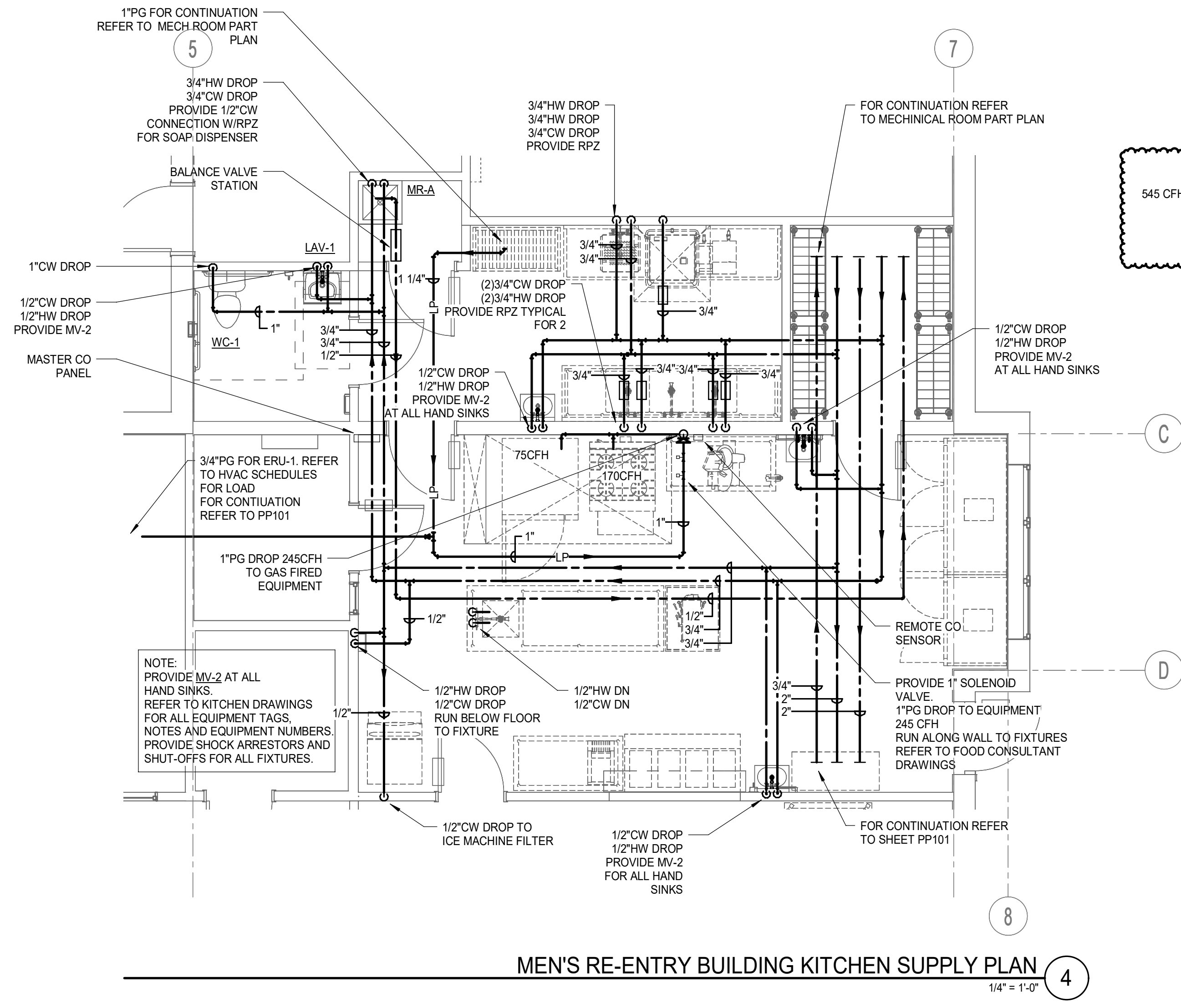
ADMIN BUILDING PLUMBING DWV PIPING PLAN (A1)
1/4" = 1'-0"



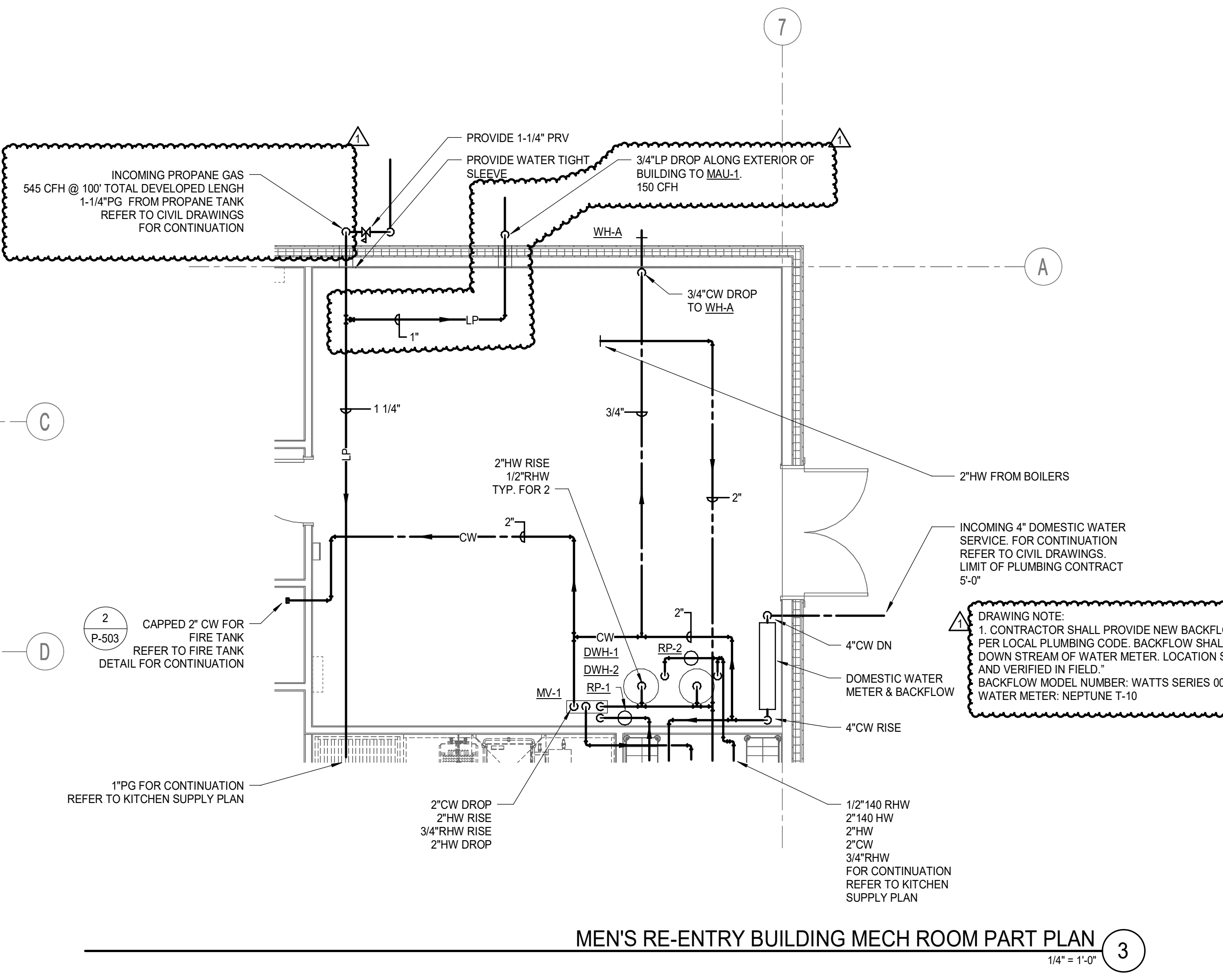
MEN'S RE-ENTRY BUILDING DWV PART PLAN
1/4" = 1'-0" 2



MEN'S RE-ENTRY BUILDING RESTROOM SUPPLY PART PLAN
1/4" = 1'-0" 1



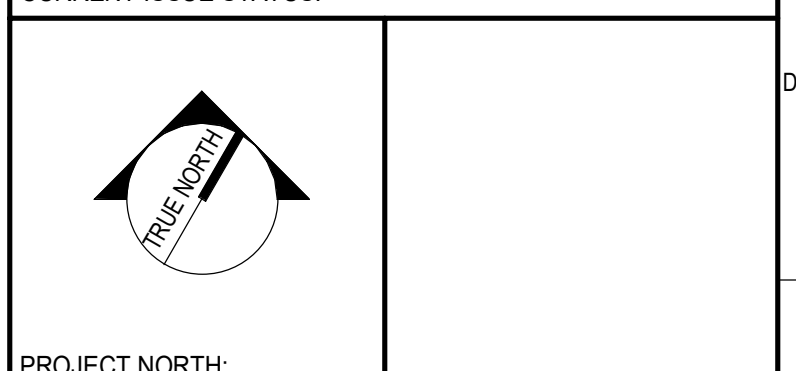
MEN'S RE-ENTRY BUILDING KITCHEN SUPPLY PLAN
1/4" = 1'-0" 4



MEN'S RE-ENTRY BUILDING MECH ROOM PART PLAN
1/4" = 1'-0" 3

REV	DESCRIPTION	DATE
1	ADDENDUM #1	8-25-2020
0	ISSUED FOR CONSTRUCTION	08-14-20

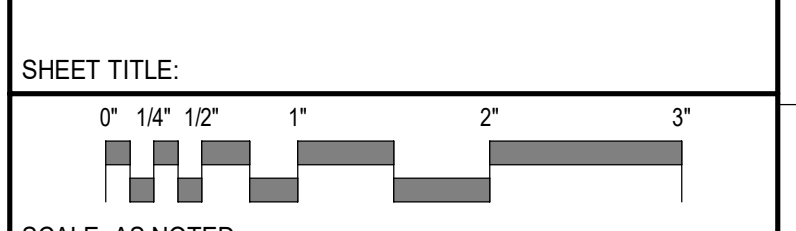
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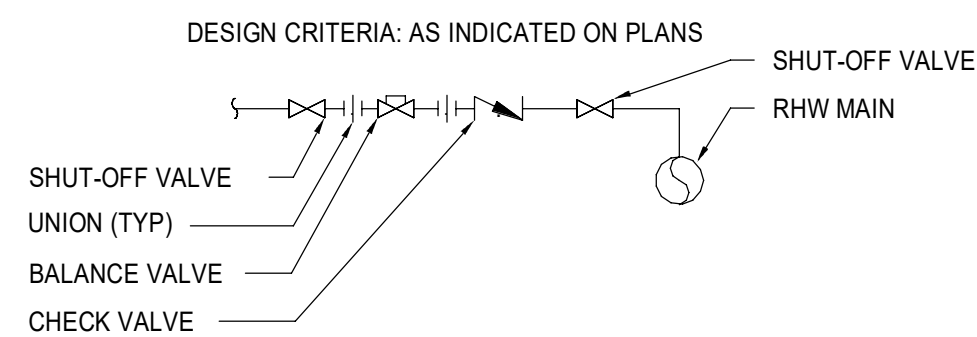
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MEN'S REENTRY CENTER

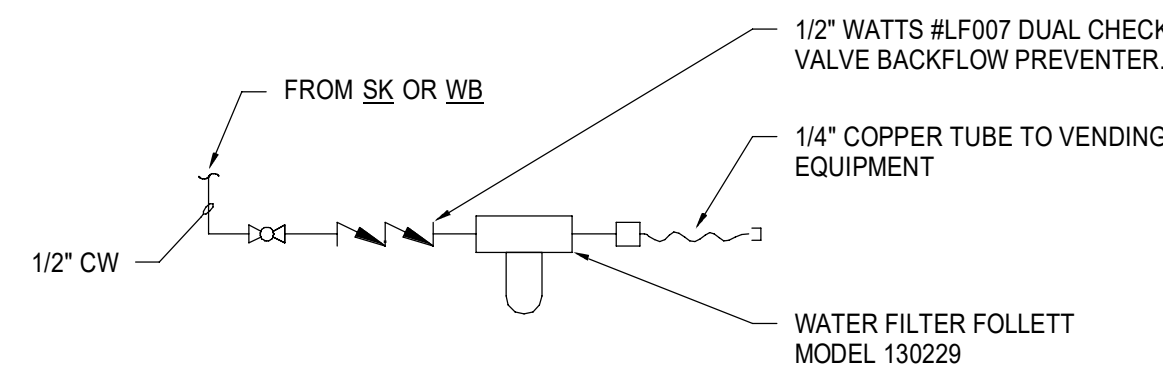
MACHIASPORT, MAINE
MEN'S RE-ENTRY CENTER - PART PLANS



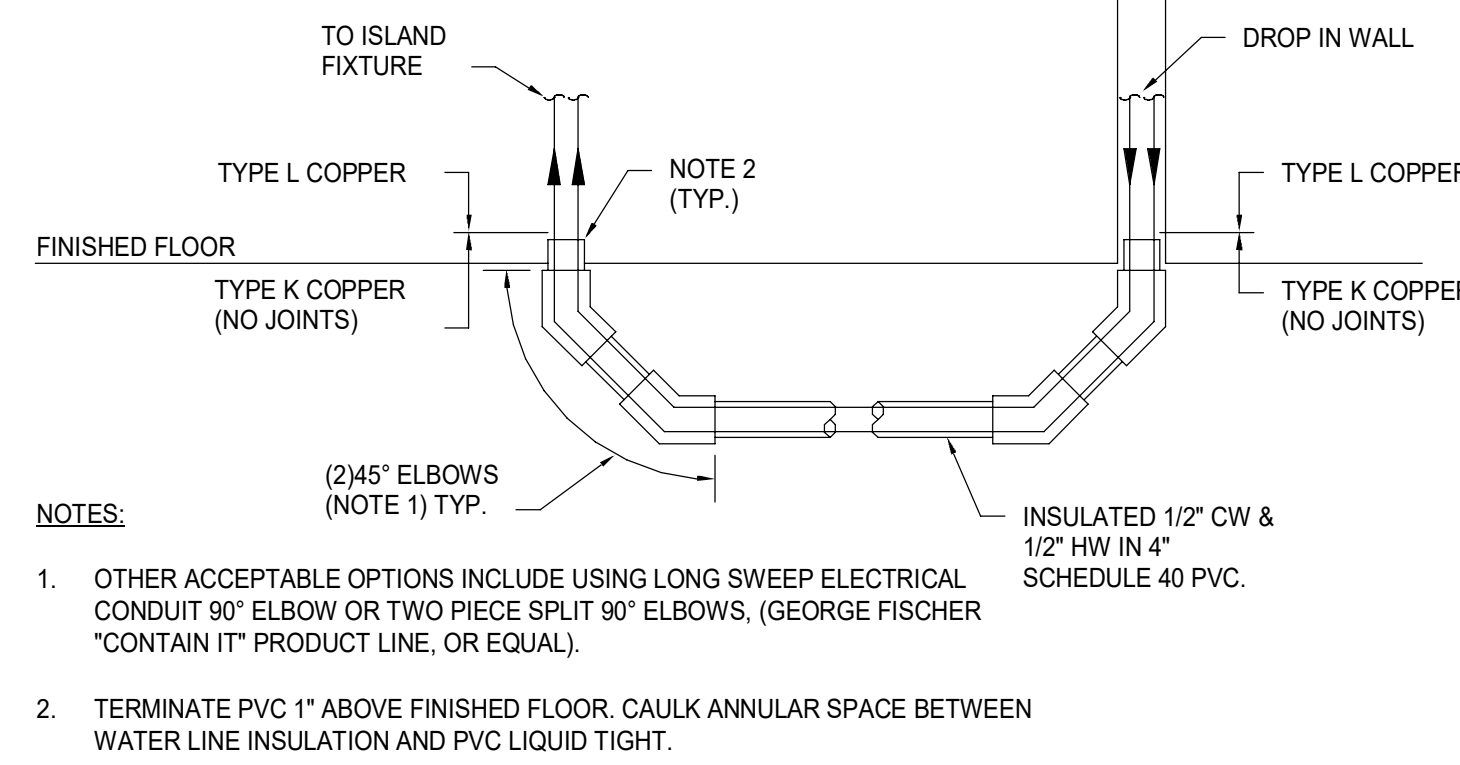
SHEET TITLE:
SCALE: AS NOTED
PROJECT MANAGER: JGJ PROJECT NO: 19176
A/E OF RECORD: DRV
JOB CAPTAIN: CBM
DRAWN BY: JMW
SMRT FILE: PL-401-19176 SHEET No. PL-401



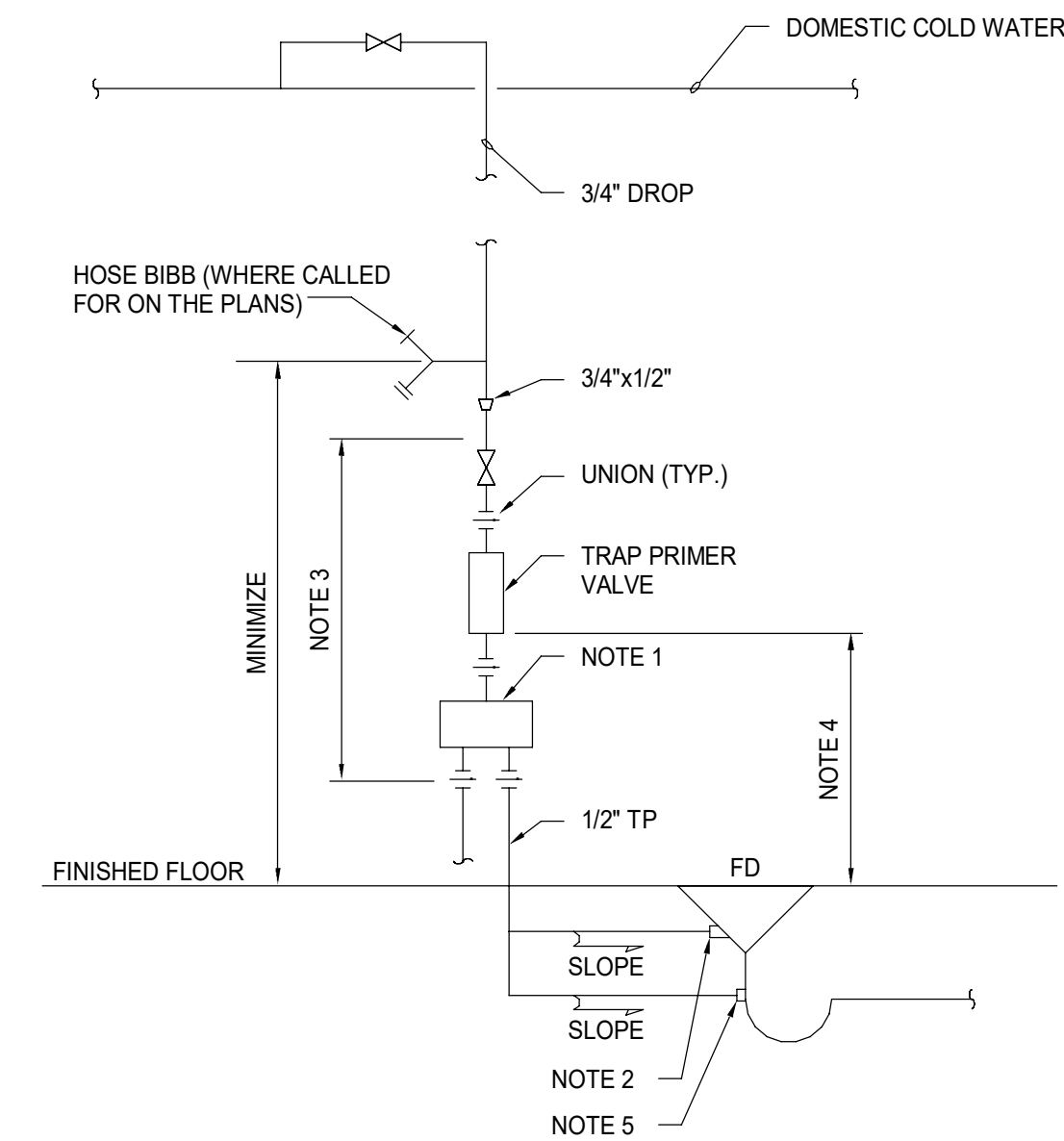
TYPICAL BALANCING STATION DETAIL (4)
NOT TO SCALE



COFFEE/ICEMAKER CONNECTION DETAIL (3)
NOT TO SCALE

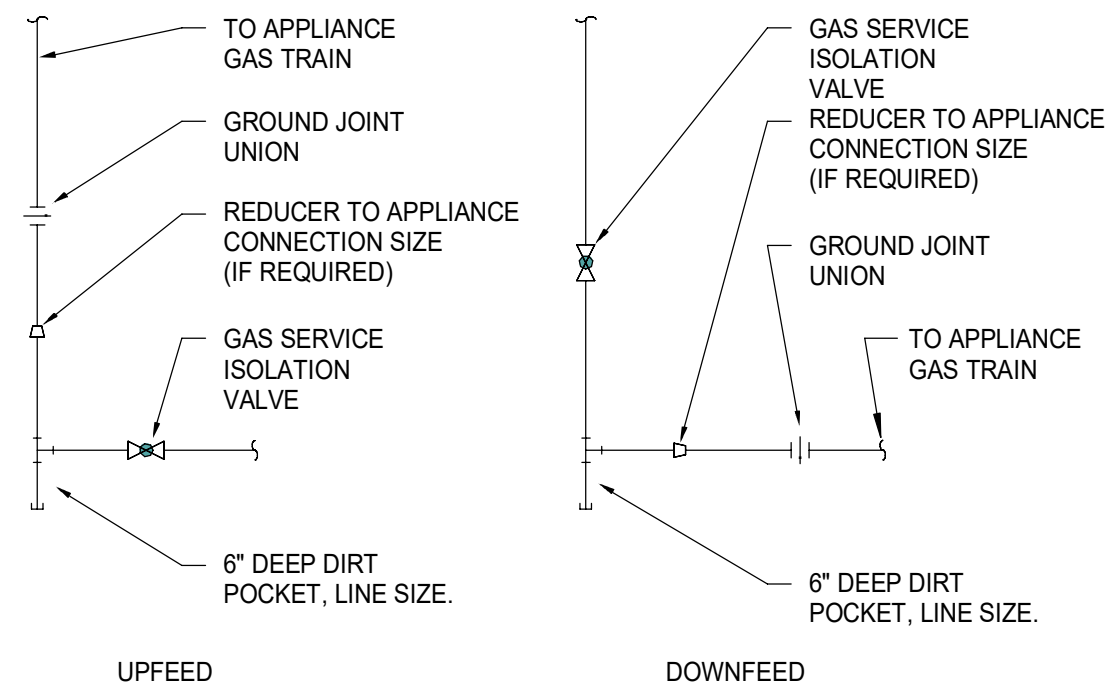


ISLAND SUPPLY PIPING DETAIL (2)
NOT TO SCALE

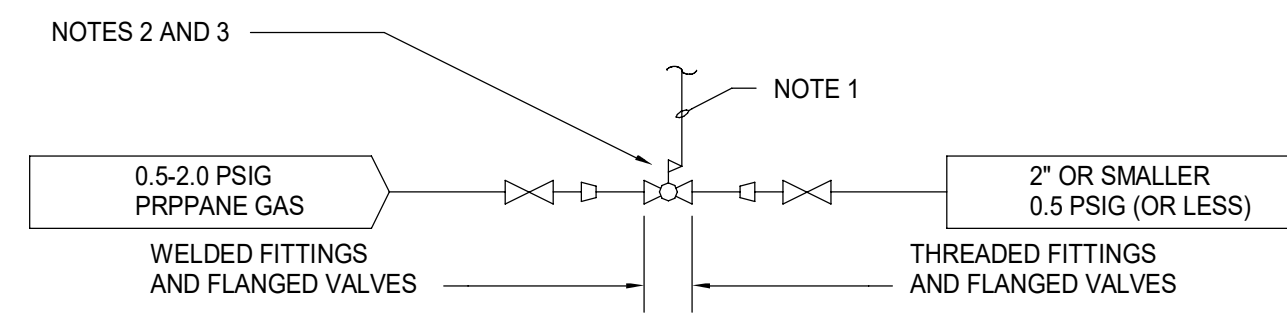
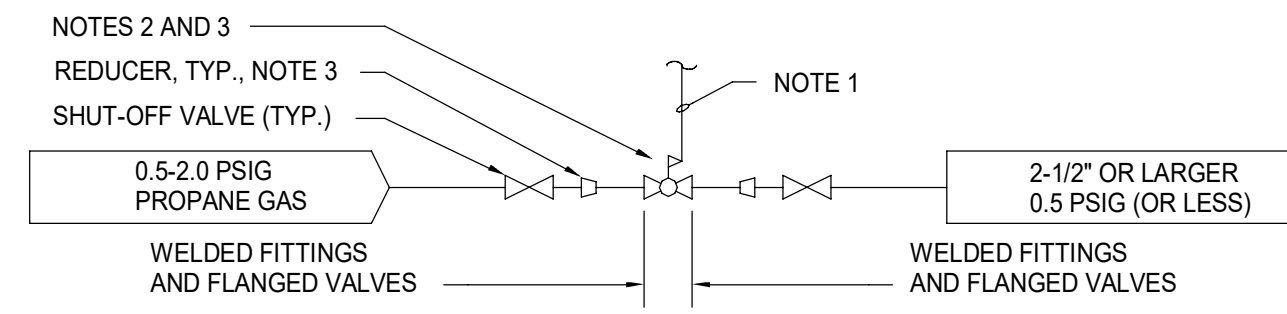


MECHANICAL TRAP PRIMER DETAIL (1)
NOT TO SCALE

NOTE:
APPLIANCES WITH REGULATORS:
LOCATE PIPING SHOWN HEREIN UPSTREAM OF THE APPLIANCE REGULATOR. PROVIDE A TEST PLUG DOWNSTREAM OF THE APPLIANCE REGULATOR. DO NOT INSTALL ISOLATION VALVES ABOVE CEILINGS OR IN CONFINED AREAS.



GAS PIPING CONNECTION DETAIL (8)
NOT TO SCALE

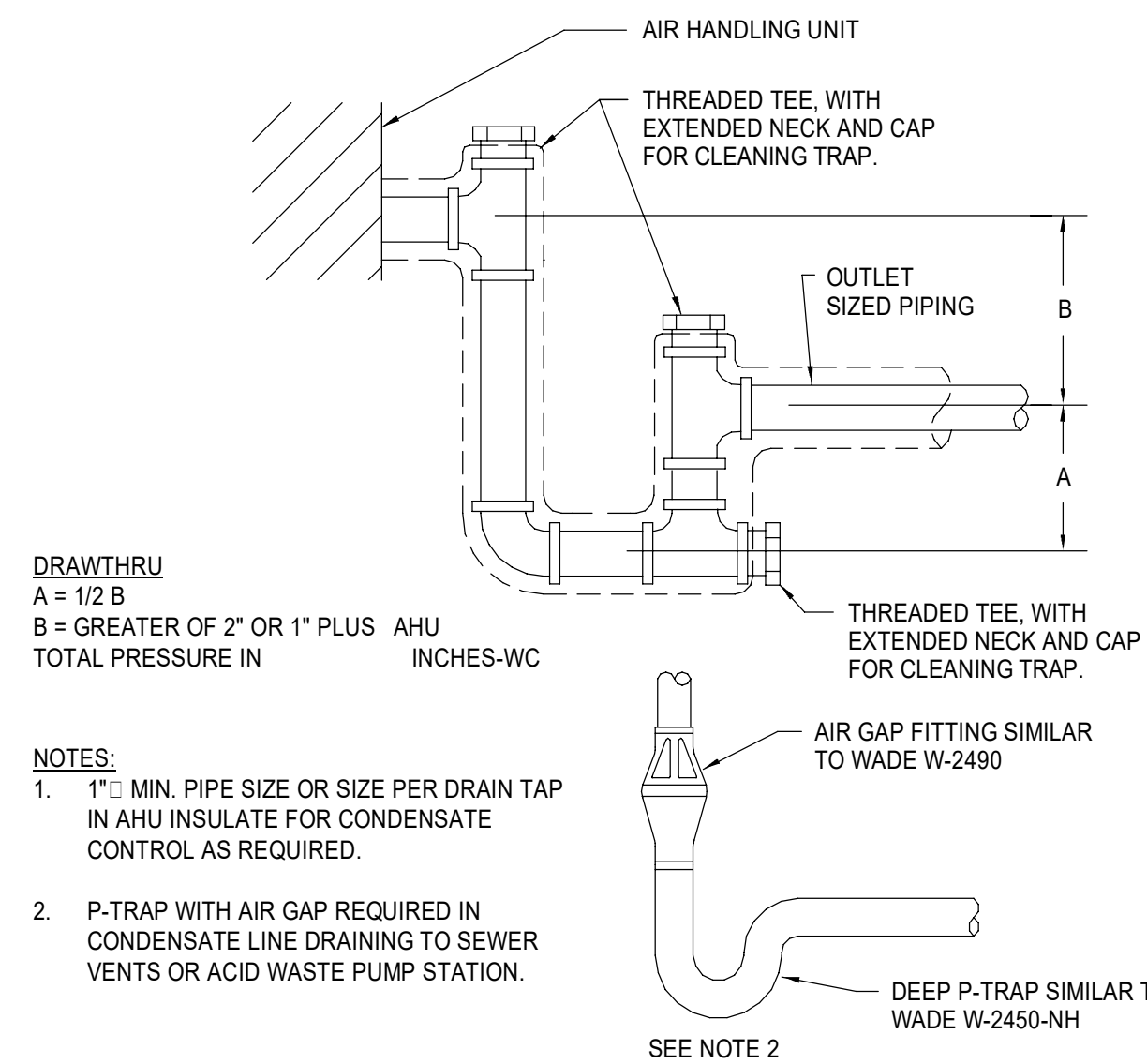


NOTES:
1. EXTEND REGULATOR VENT PIPING OUTDOORS PER THE PLANS. VENT PIPE SIZE SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE, BUT NO SMALLER THAN THE REGULATOR RELIEF PORT SIZE OR REGULATOR MANUFACTURER RECOMMENDATIONS.

TOTAL EQUIVALENT LENGTH OF VENT PIPING RUN (FT)	0-40	0-100	0-200
MINIMUM RELIEF VENT PIPE SIZE (IN)	3/4"	1"	1-1/2"

2. FLANGED END PRESSURE REGULATORS ARE ACCEPTABLE FOR ALL SIZES. THREADED END REGULATORS ARE ACCEPTABLE FOR 2" AND SMALLER SIZES ONLY IF THE THREADED JOINTS ARE FULLY BACK WELDED.
3. REDUCERS AND REGULATOR SIZES ARE PER REGULATOR MANUFACTURER RECOMMENDATIONS.

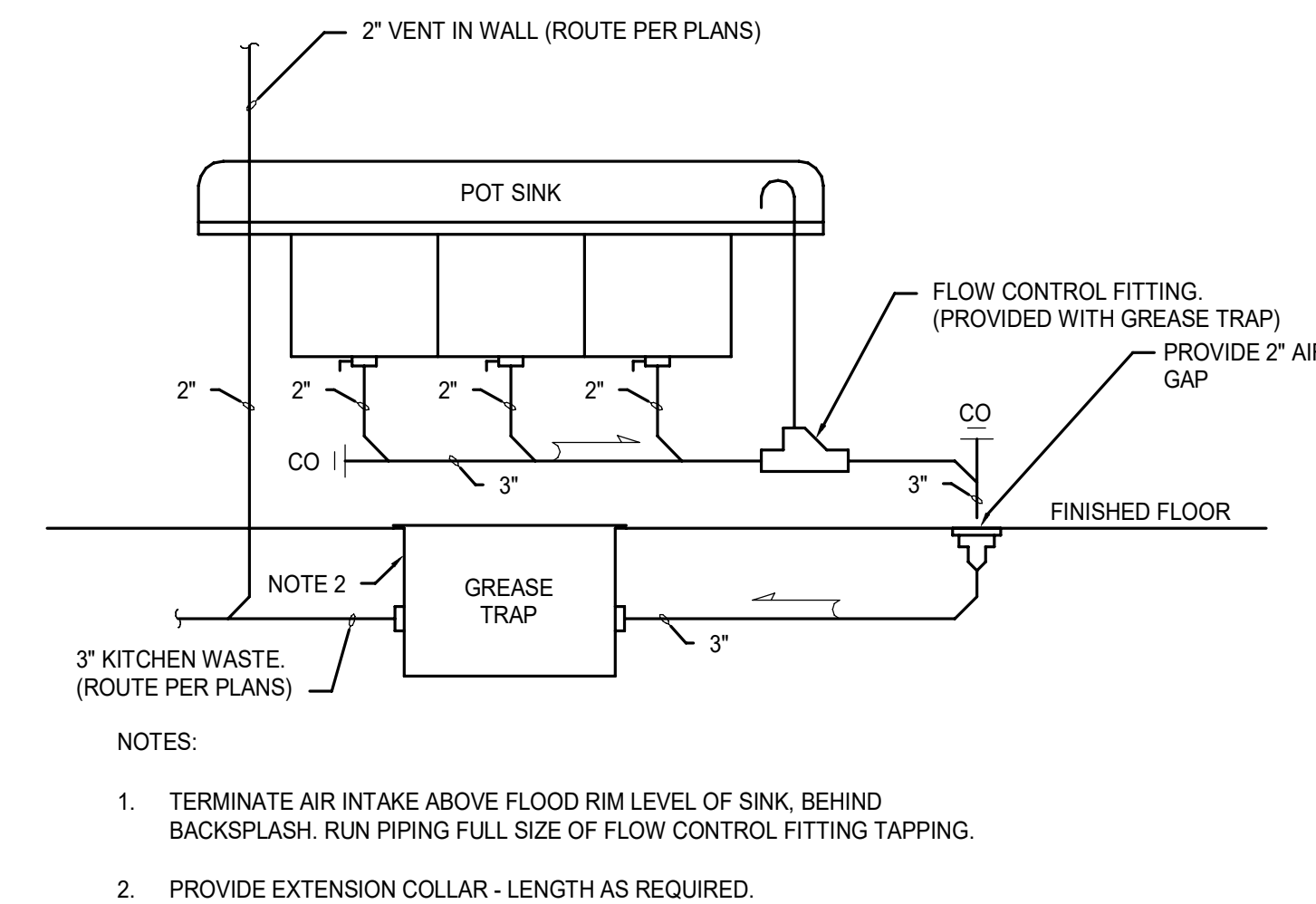
GAS REGULATOR DETAIL (7)
NOT TO SCALE



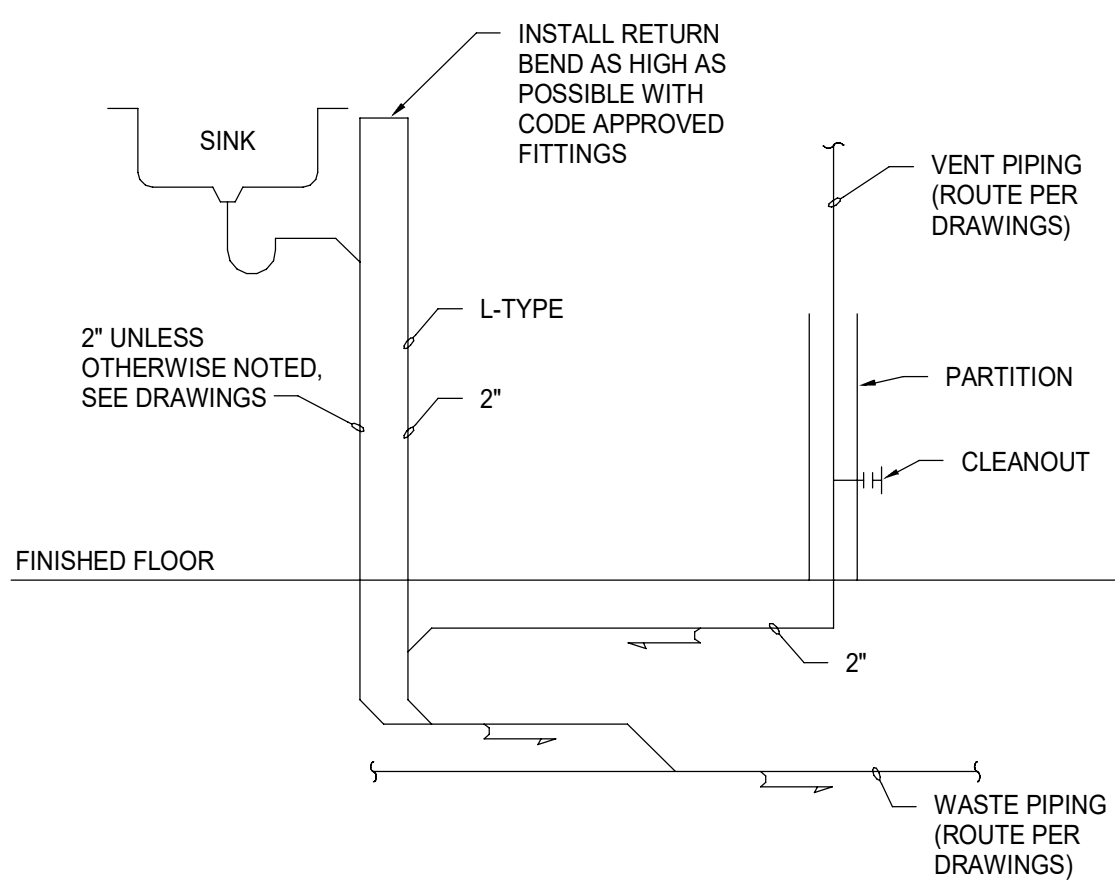
DRAWTHRU
A = 1/2 B
B = GREATER OF 2" OR 1" PLUS AHU TOTAL PRESSURE IN INCHES-WC

NOTES:
1. 1" MIN. PIPE SIZE OR SIZE PER DRAIN TAP IN AHU INSULATE FOR CONDENSATE CONTROL AS REQUIRED.
2. P-TRAP WITH AIR GAP REQUIRED IN CONDENSATE LINE DRAINING TO SEWER VENTS OR ACID WASTE PUMP STATION.

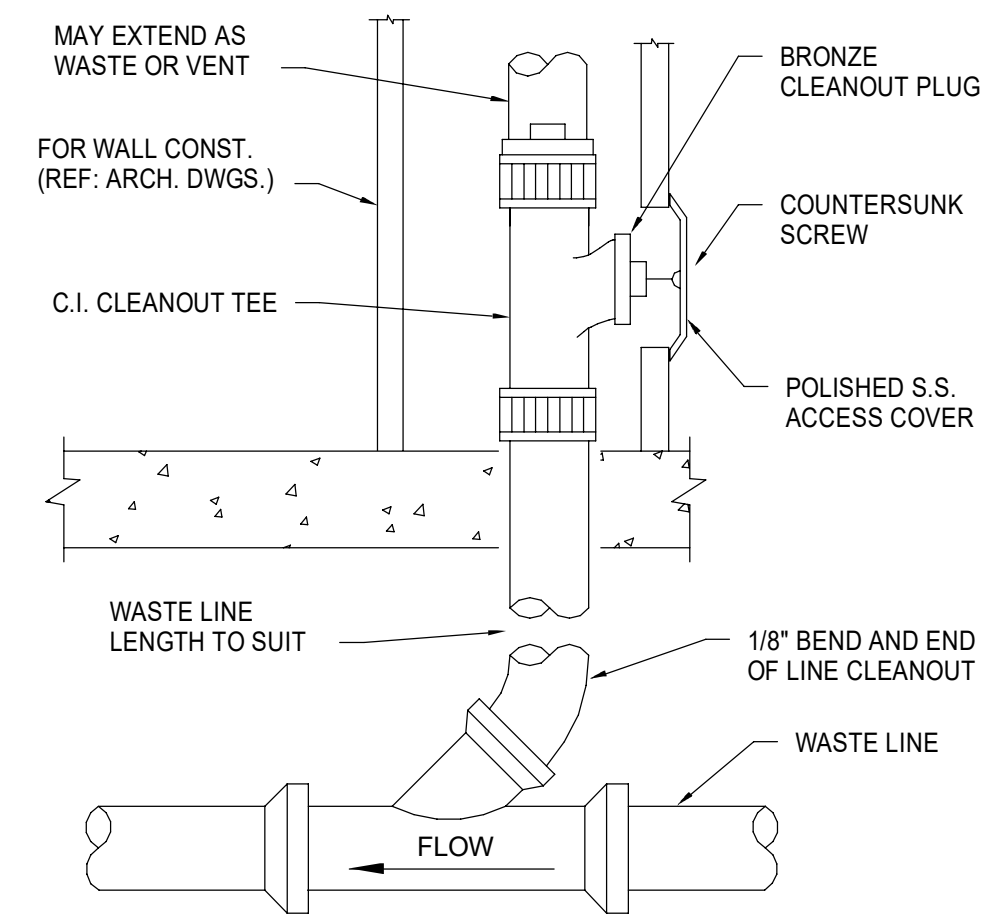
CONDENSATE DRAIN TRAP DETAIL (6)
NOT TO SCALE



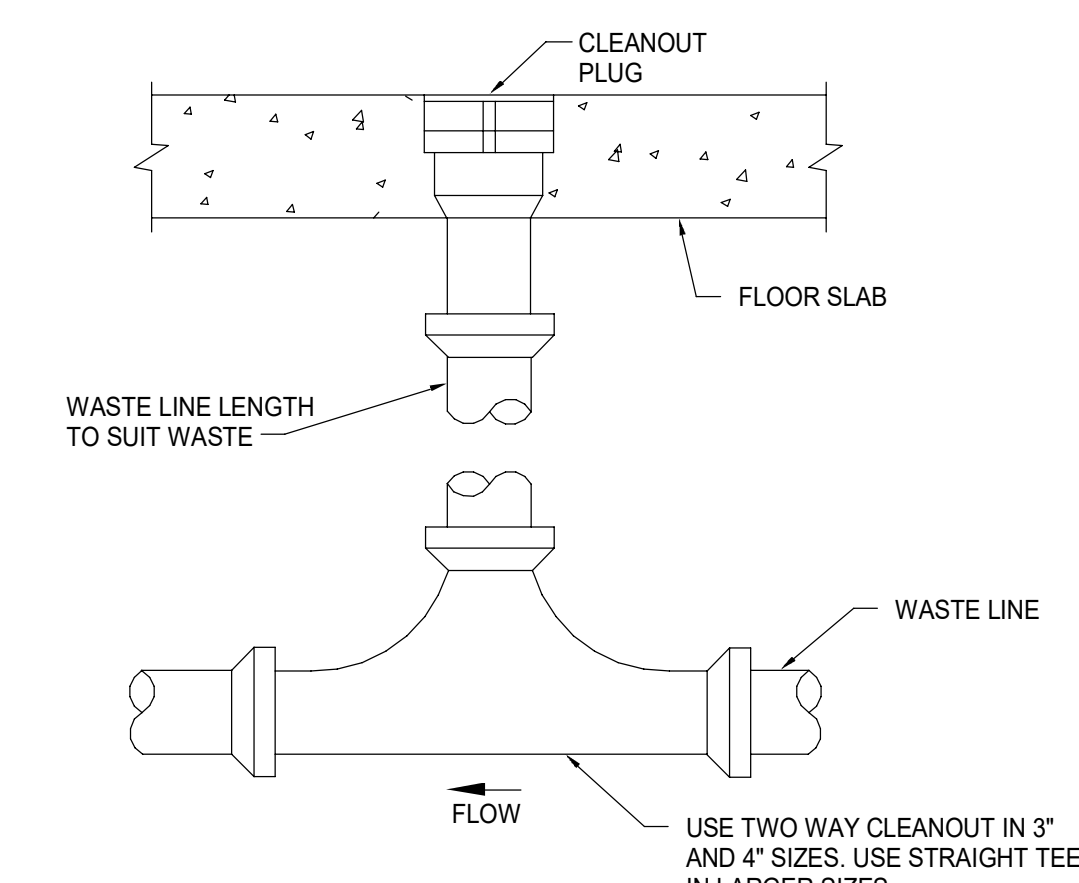
KITCHEN WASTE AT POT SINK DETAIL (5)
NOT TO SCALE



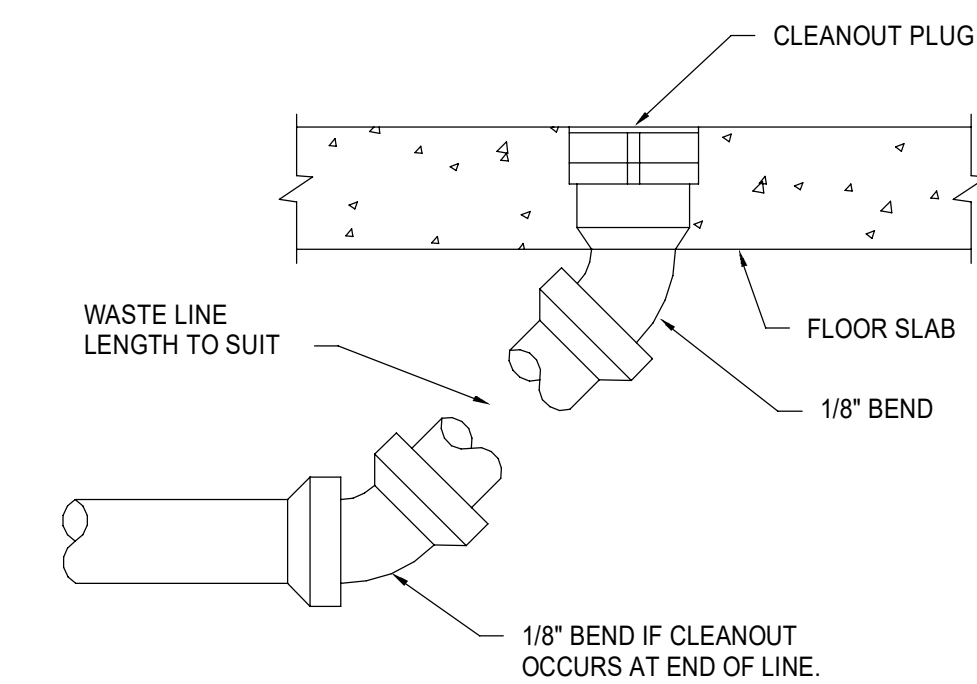
BOW (ISLAND) VENT DETAIL (12)
NOT TO SCALE



WALL CLEANOUT DETAIL (11)
NOT TO SCALE



2 WAY FLOOR CLEANOUT DETAIL (10)
NOT TO SCALE



1 WAY FLOOR CLEANOUT DETAIL (9)
NOT TO SCALE

NOTES:
1. SEE SHEET PL001 FOR LEGEND AND ABBREVIATIONS.

REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION	08-14-20

ISSUED FOR CONSTRUCTION
08-14-20
CURRENT ISSUE STATUS:

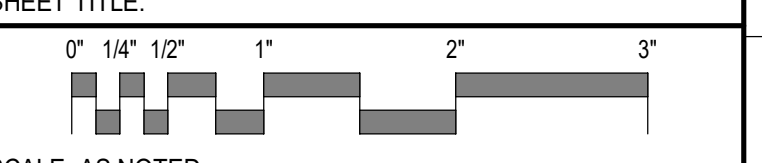
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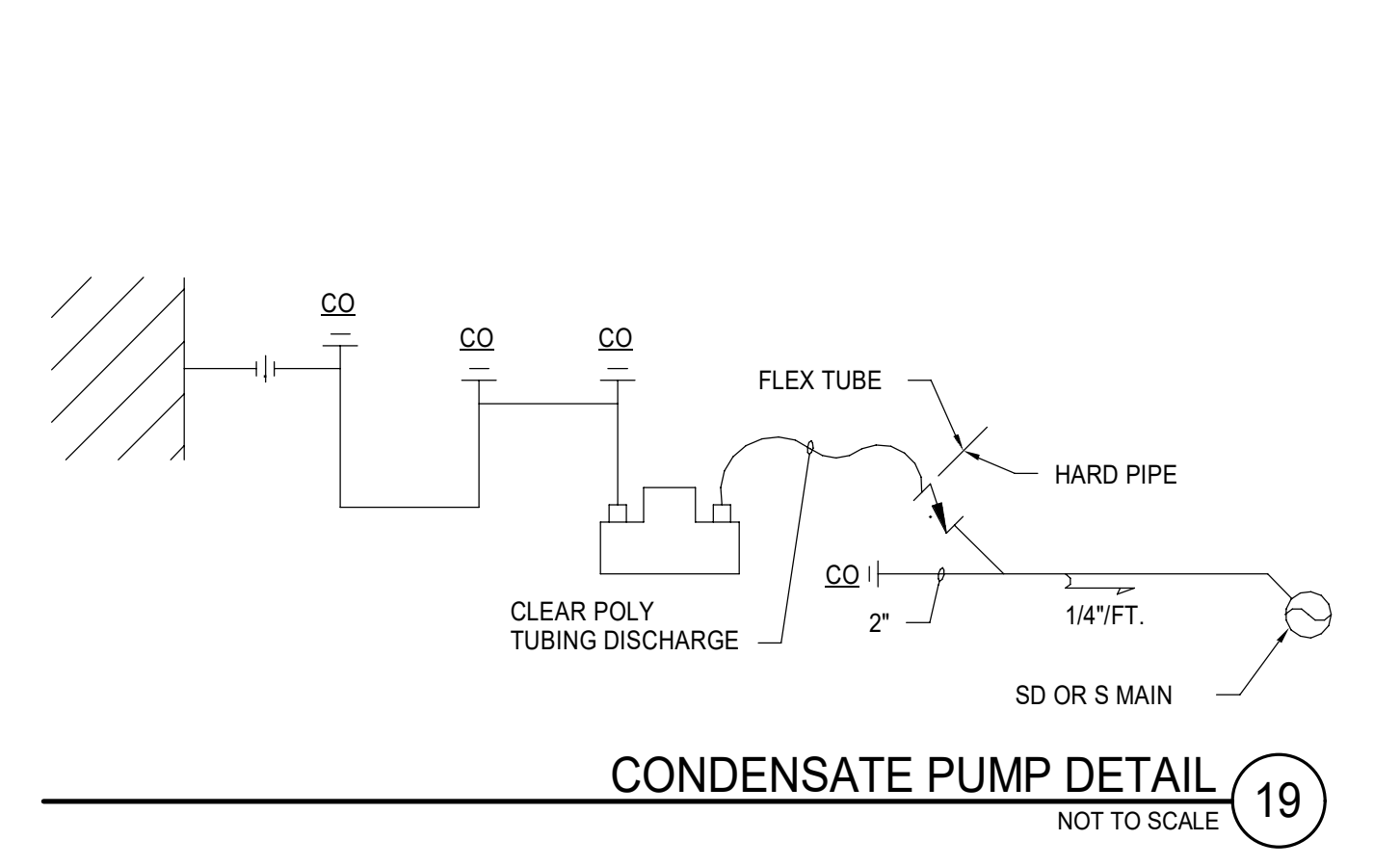
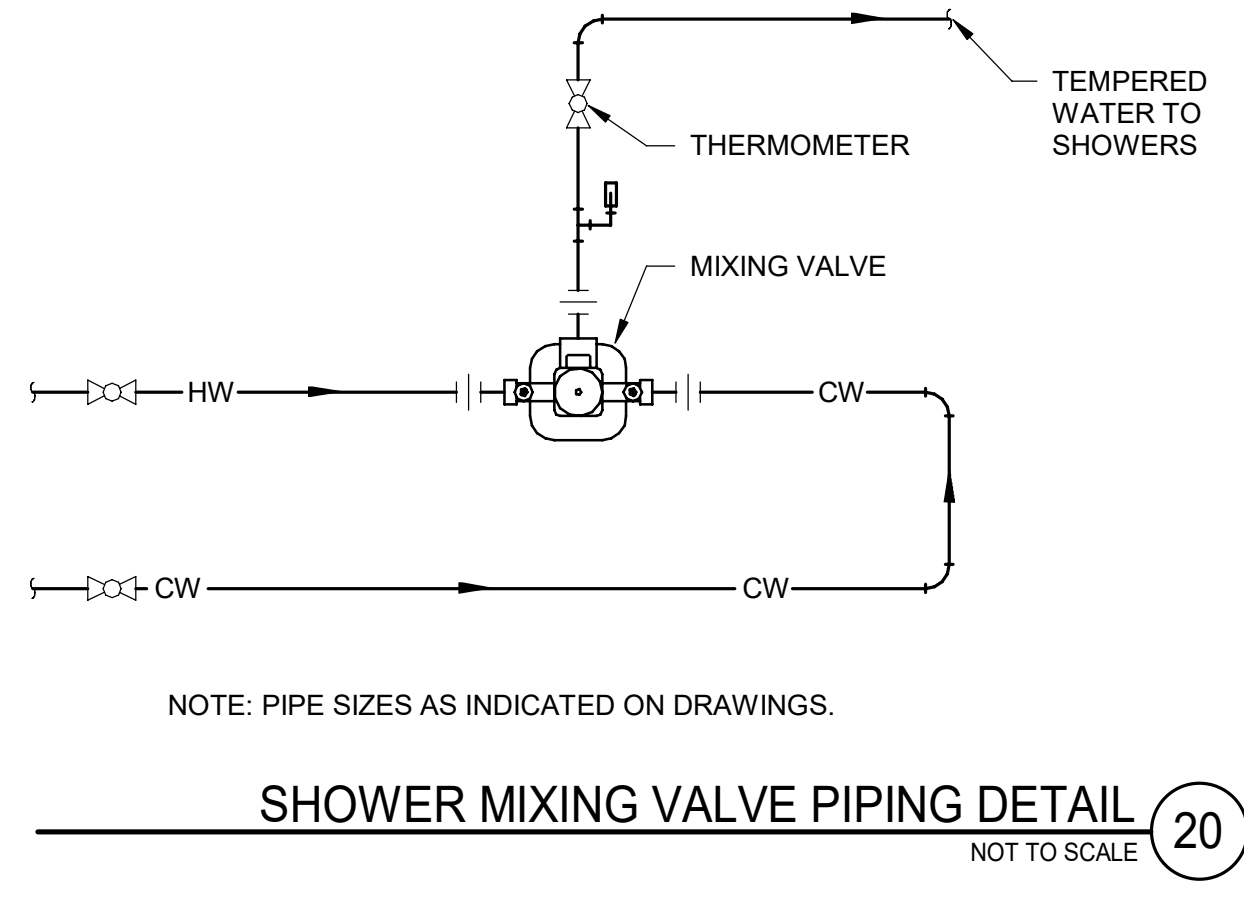
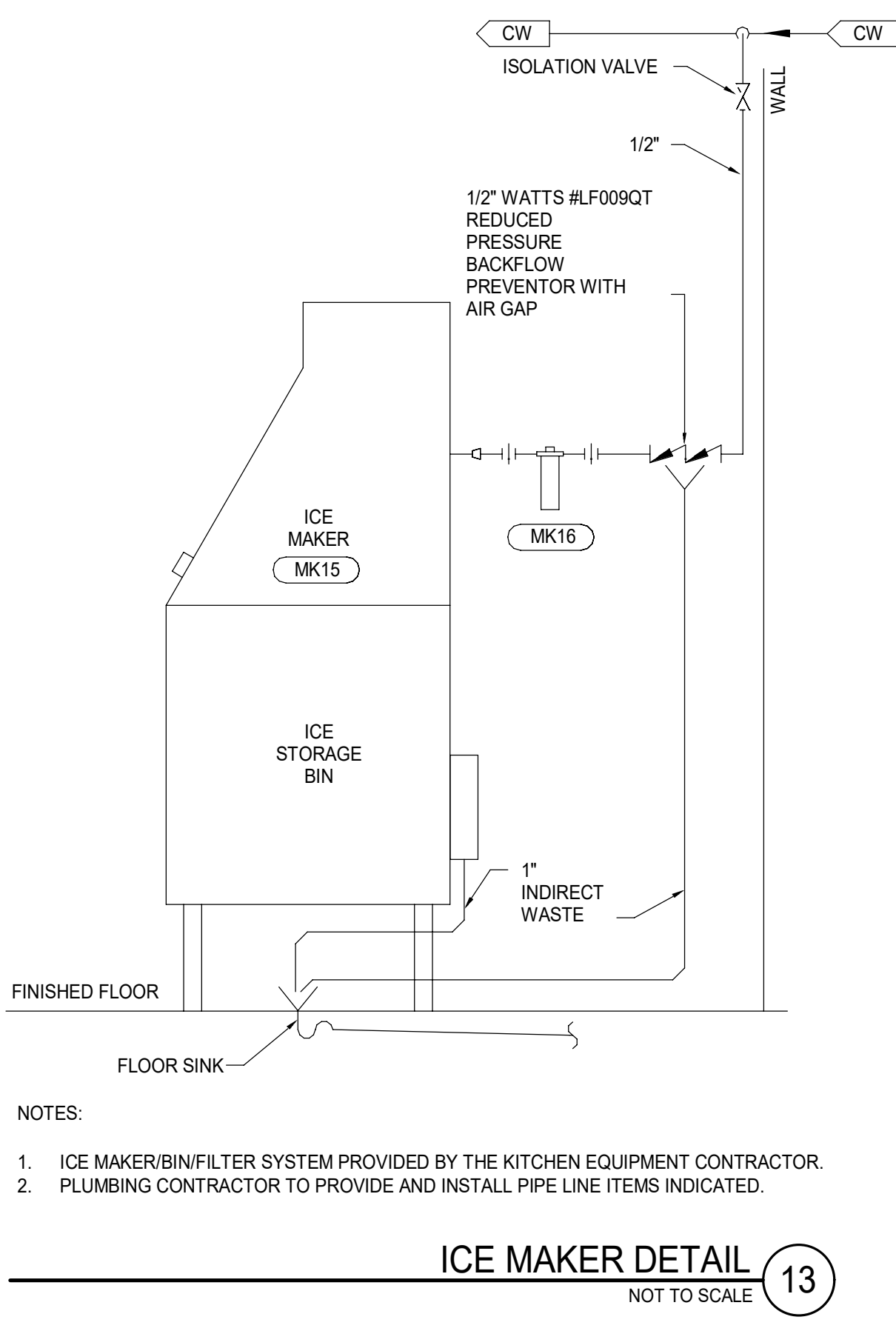
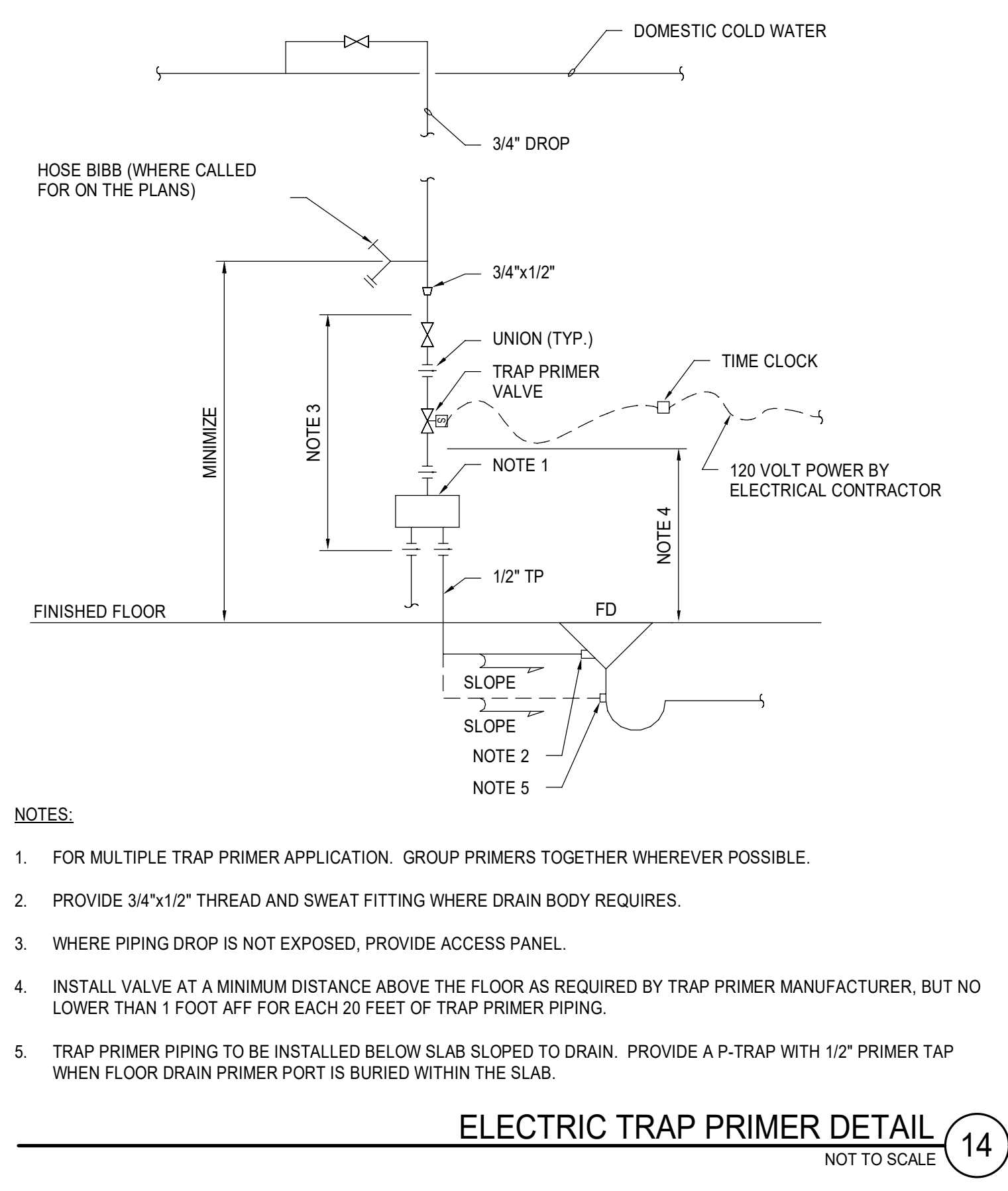
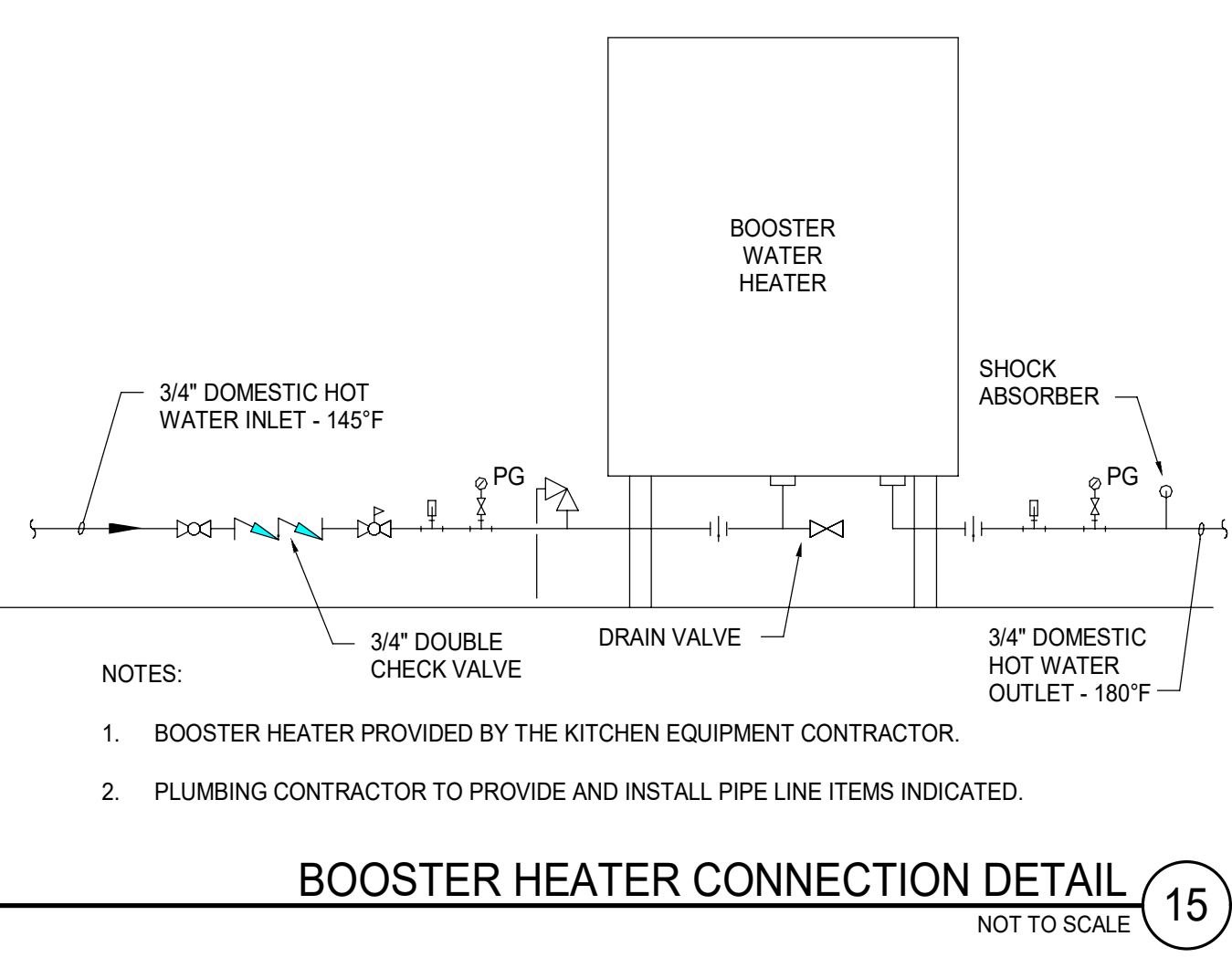
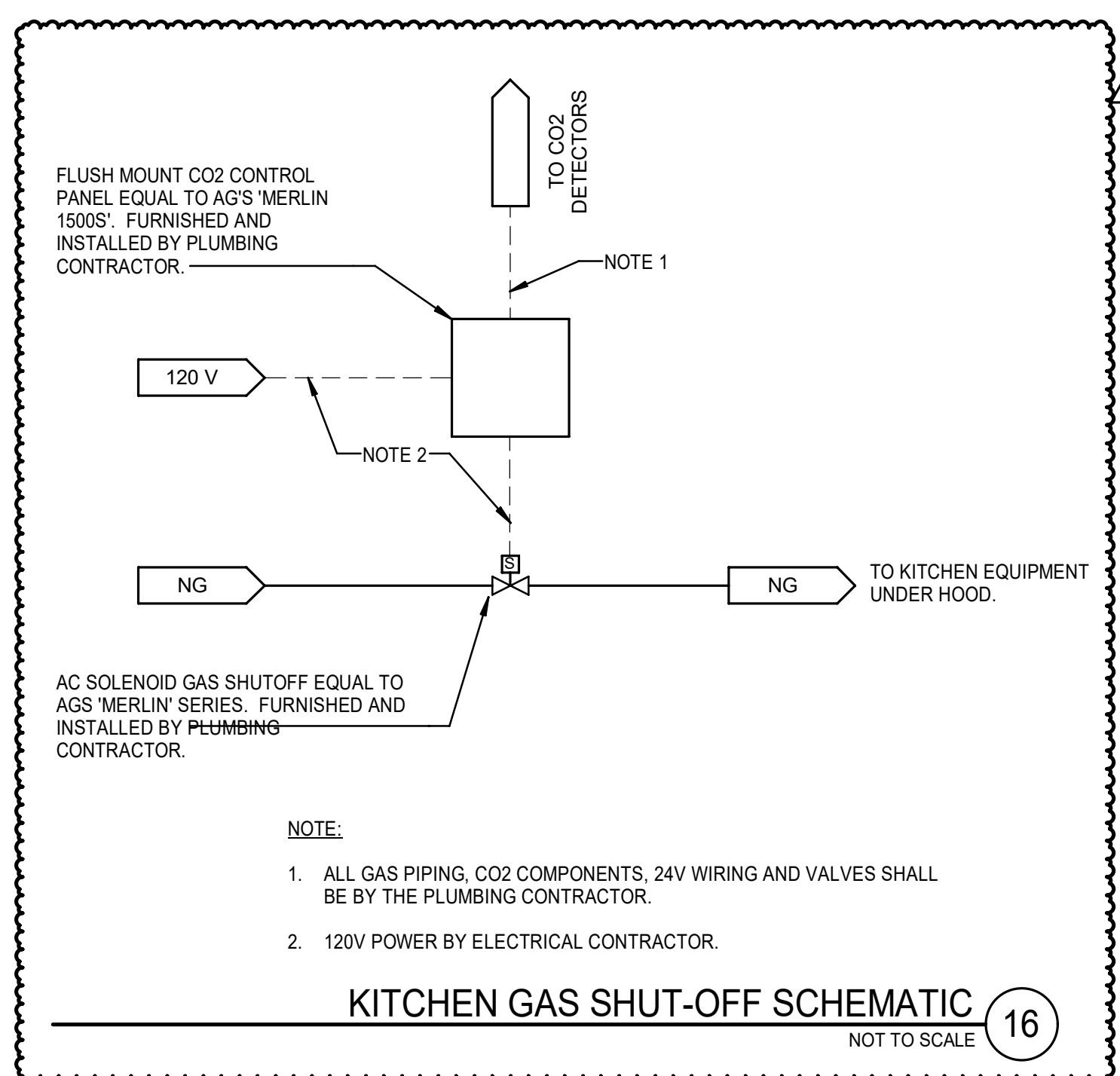
MACHIASPORT, MAINE

PLUMBING DETAILS

SHEET TITLE:



SCALE: AS NOTED
PROJECT MANAGER: JGJ PROJECT NO: 19176
A/E OF RECORD: DRV
JOB CAPTAIN: CBM
DRAWN BY: JMW
SMRT FILE: PL-501-19176 SHEET No. PL-501



MAKE-UP WATER DETAIL (18)
NOT TO SCALE

TOTAL SYSTEM PUMP FLOW (GPM)	MAKE-UP SIZE (d)	
	d (INCHES)	PRV. MIN. FLOW (GPM)
UP TO 200	1/2	3
201-500	3/4	5
501-1200	1	10
1201-3000	1-1/4	20
3001-5000	1-1/2	30
5001-12000	2	60

ISOLATION OR BRANCH VALVE

VALVE HANDLE EXTENSION AS REQUIRED FOR INSULATION THICKNESS

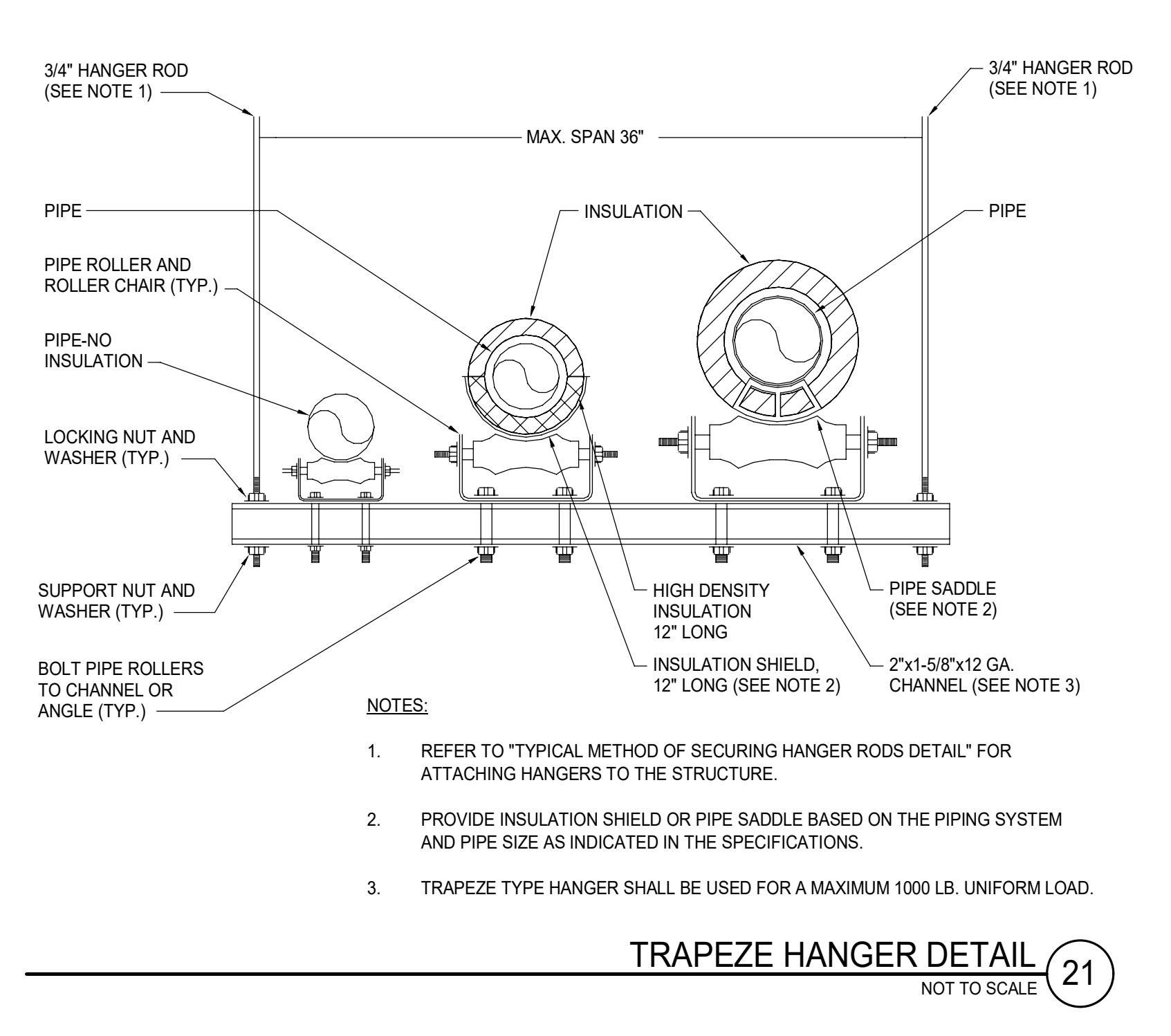
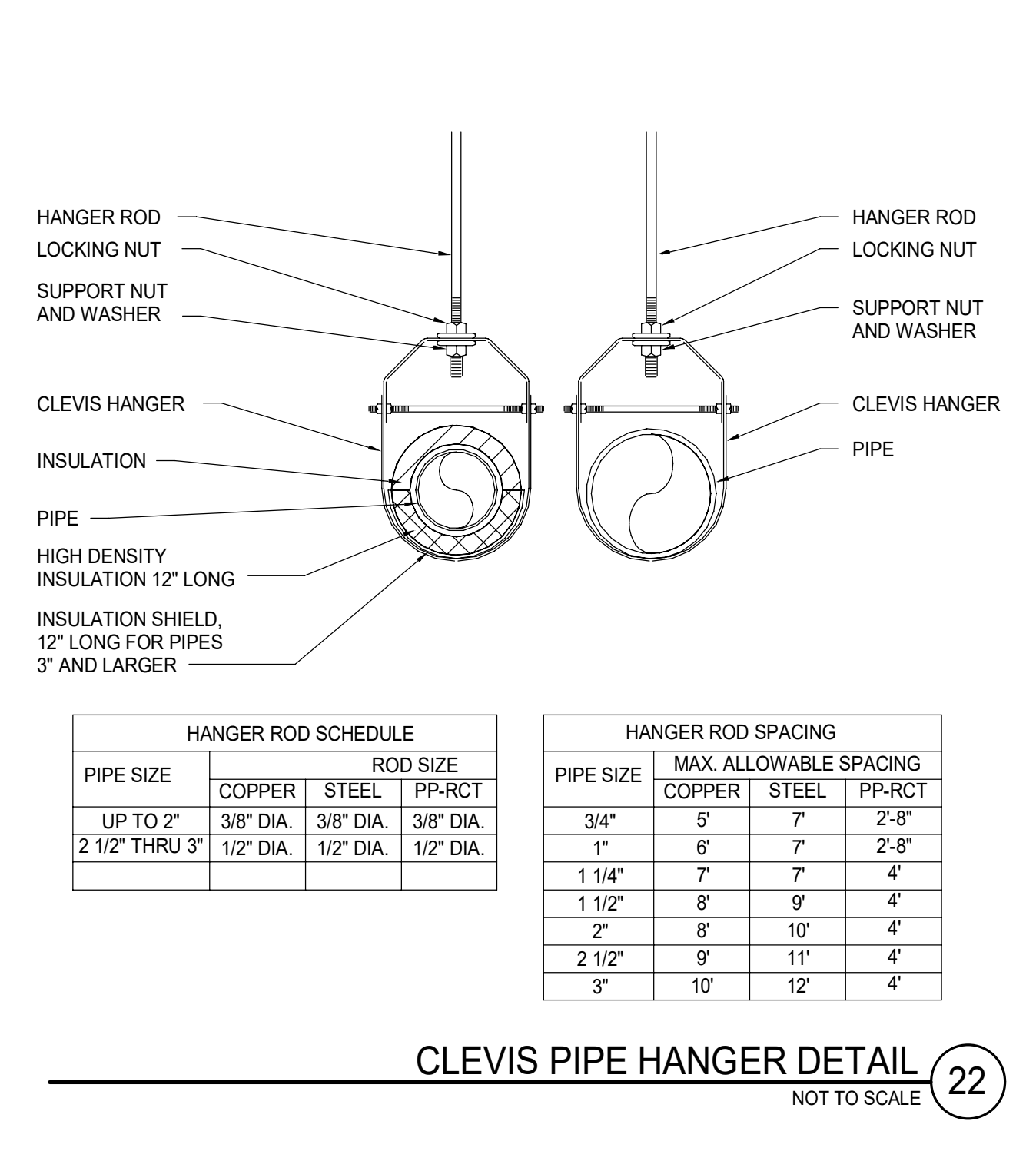
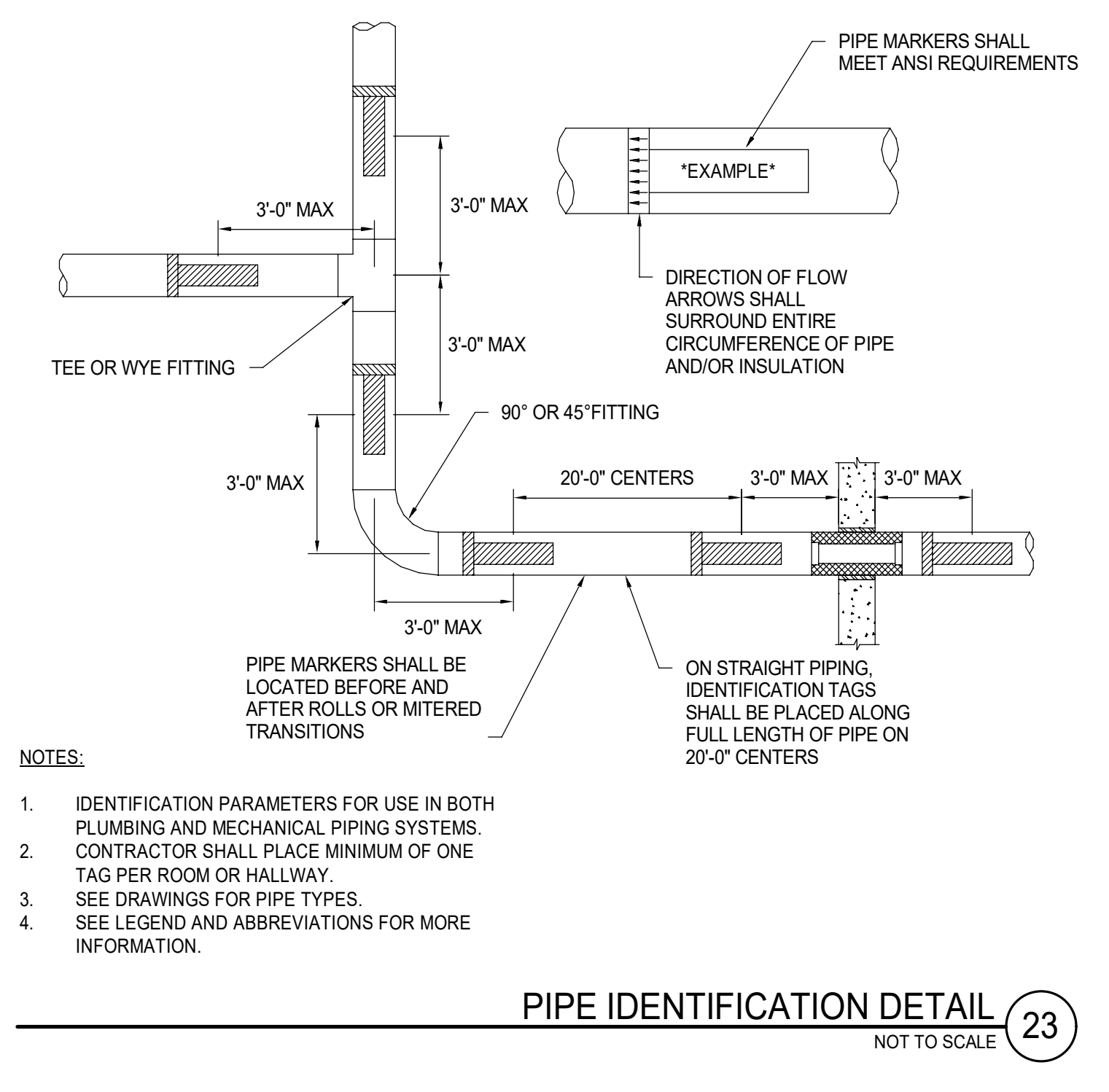
PIPE INSULATION

PIPE

VALVE TAG SHALL BE IMPRINTED WITH INDIVIDUAL IDENTIFICATION AND LOCATED WITHIN 6" OF CEILING

CEILING

VALVE TAG DETAIL (17)
NOT TO SCALE



NOTES:

- SEE SHEET PL001 FOR LEGEND AND ABBREVIATIONS.

REV	DESCRIPTION	DATE
1	ADDENDUM #1	8-25-2020
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PLUMBING DETAILS

SHEET TITLE:

SCALE: AS NOTED

PROJECT MANAGER: JGJ PROJECT NO: 19176

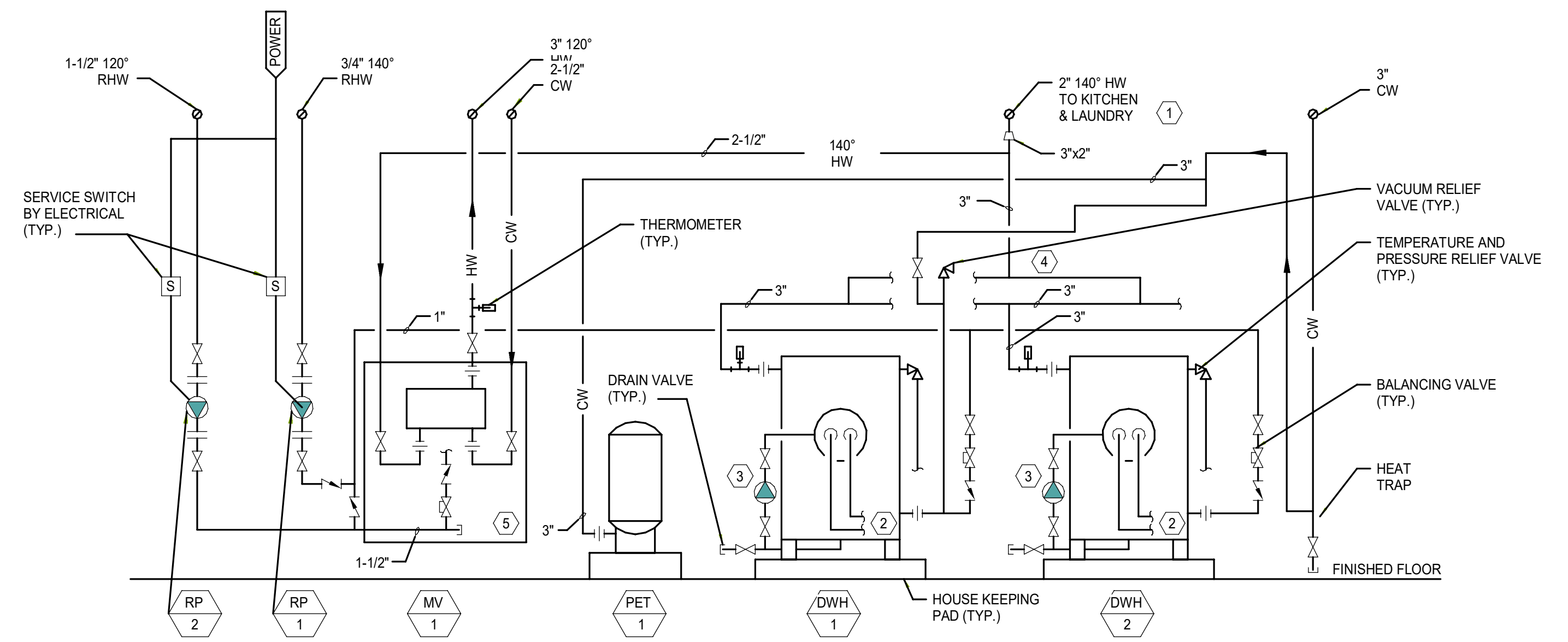
A/E OF RECORD: DRV

JOB CAPTAIN: CBM

DRAWN BY: JMW

SMRT FILE: PL-502-19176 SHEET No. PL-502

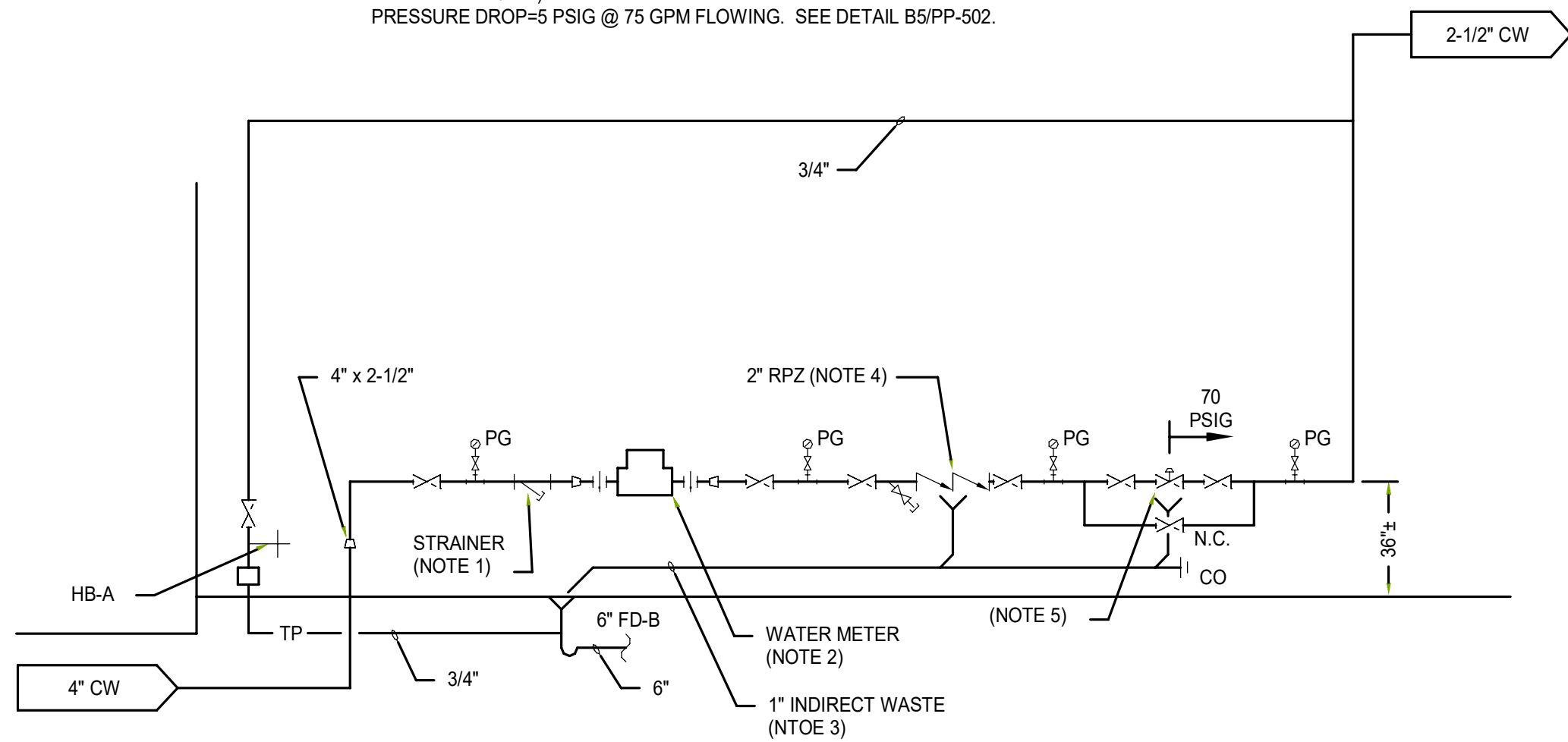
- KEYED NOTES:**
- ① LOCAL BOOSTER HEATER TO PROVIDE 180° WATER TO DISHWASHER.
 - ② BOILER WATER SUPPLY AND RETURN (SEE HVAC DRAWING.)
 - ③ INTRA-TANK CIRCULATOR, (FURNISHED WITH HEATER.)
 - ④ COLD WATER & HOT WATER PIPING TO WATER HEATERS SHALL BE EQUALLY SPACED TO PROVIDE A BALANCED FLOW.
 - ⑤ PIPE THE RECIRCULATED HOT WATER CONNECTION IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR MASTER MIXING APPLICATION.
- EQUIPMENT TAGS**
- RP RECIRCULATION PUMP
 - HTR DOMESTIC WATER HEATER
 - PET PLUMBING EXPANSION TANK
 - MV MIXING VALVE



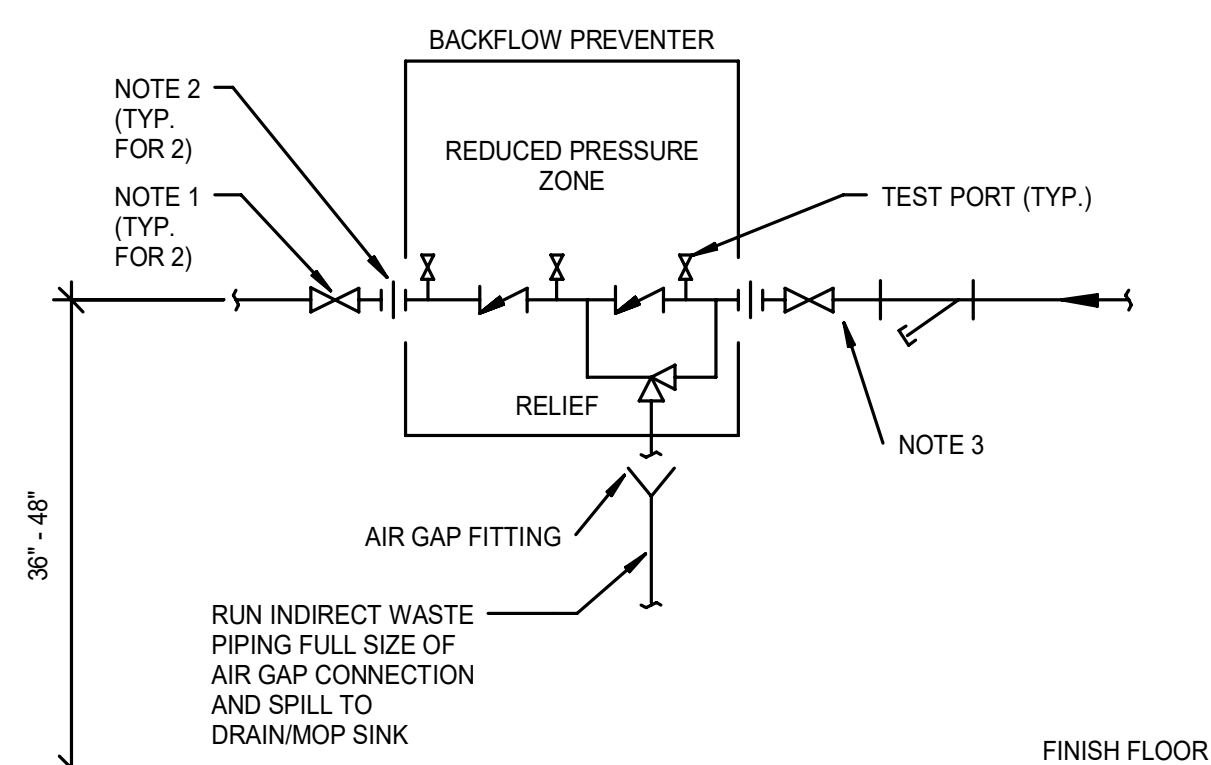
WATER HEATER DETAIL 24
NOT TO SCALE

NOTES:

1. PROVIDE STRAINER INTEGRAL WITH METER, UNLESS NOT ALLOWED BY THE AHJ.
2. PROVIDE VALVED BYPASS AROUND METER IF REQUIRED BY AHJ.
3. PIPE IW TO WITHIN 2" OF FLOOR DRAIN AND SPILL.
4. PROVIDE 2-1/2" WATTS #9090SY-S-FDA RPZ. PIPE DRAIN TO 2" ABOVE FLOOR DRAIN AND SPILL.
5. PROVIDE 2-1/2" WATTS #N223-B5 PRESSURE REDUCING VALVE, (OR APPROVED EQUAL). SET TO AN OUTLET PRESSURE OF 70 PSIG. MAXIMUM PRESSURE DROP=5 PSIG @ 75 GPM FLOWING. SEE DETAIL B5PP-502.

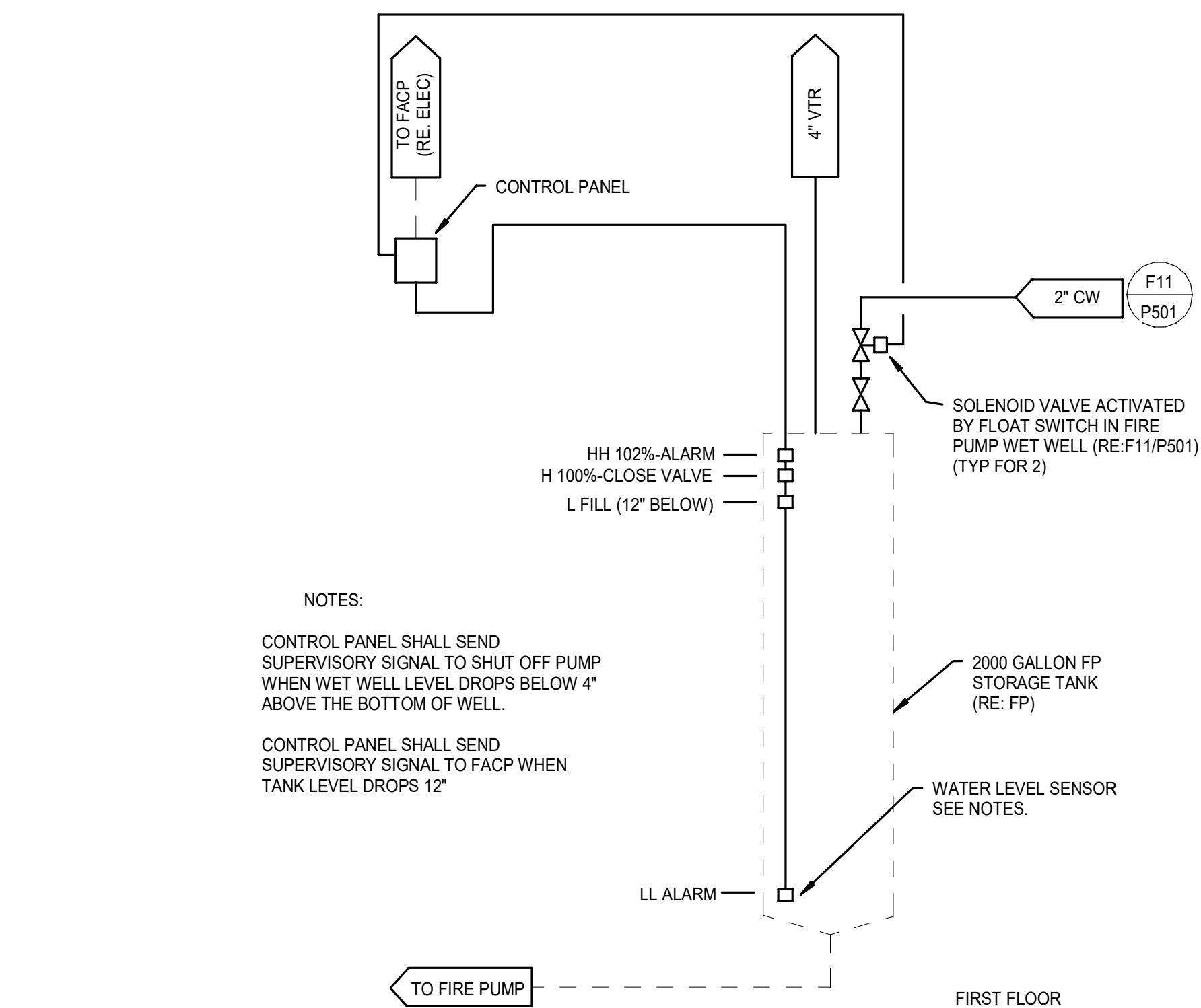


WATER HEATER SERVICE ENTRANCE DETAIL 27
NOT TO SCALE



- NOTES:**
1. SHUT-OFF VALVE PROVIDED WITH DEVICE, BALL OR GATE STYLE.
 2. FOR NON-FLANGED DEVICES, DISASSEMBLE AND INSTALL UNIONS WHERE SHOWN.
 3. PROVIDE 3/4" BALL VALVE AND MALE HOSE THREAD END FOR STRAINERS 2-1/2" AND LARGER. STRAINER NOT REQUIRED FOR UNITS INSTALLED IMMEDIATELY DOWNSTREAM OF METERS WHICH INCORPORATE STRAINERS.
 4. PROVIDE A MINIMUM CLEARANCE OF 12" BEHIND DEVICE. PROVIDE 36" CLEAR FLOOR SPACE IN FRONT OF DEVICE, FOR ACCESS AND TESTING.
 5. SUPPORT DEVICE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. SUPPORTS SHALL IN NO MANNER INTERFERE WITH THE OPERATION, TESTING AND SERVICING OF THE DEVICE, INCLUDING THE RELIEF VALVE AND DRAIN. AT A MINIMUM, SUPPORTS SHALL CONSIST OF:
 - (2) FLOOR SUPPORTED PIPE STANDS OR WALL MOUNT STRUT WITH ANGLE BRACES FOR DEVICES 2-1/2" AND LARGER.
 - (2) SPLIT RING TYPE, WALL MOUNT PIPE CLAMP ASSEMBLIES FOR DEVICES 2" AND SMALLER.

RPZ DETAIL 26
NOT TO SCALE



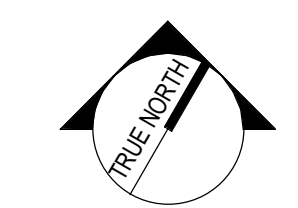
- NOTES:**
- CONTROL PANEL SHALL SEND SUPERVISORY SIGNAL TO SHUT OFF PUMP WHEN WET WELL LEVEL DROPS BELOW 4" ABOVE THE BOTTOM OF WELL.
 - CONTROL PANEL SHALL SEND SUPERVISORY SIGNAL TO FACP WHEN TANK LEVEL DROPS 12"
- CONTROL PANEL**
- CERUS / FRANKLIN CONTROLS #C4/CRLXXXXX-D-31 (120V/1/60)
- 4 FLOAT PANEL LOW / FILL / HIGH / OVERFLOW
 - LEVEL CONTACTS TO CUSTOMER SCADA SYSTEM
 - POWER ON INDICATE LIGHT
 - LOW / FILL / HIGH / OVERFLOW INDICATOR LIGHTS
 - NEMA 4 ENCLOSURE
- FLOATS**
- FRANKLIN ELECTRIC #599321 WIDE ACTION FLOAT SWITCHES.

FIRE PROTECTION FILL TANK DETAIL 25
NOT TO SCALE

REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION	08-14-20

ISSUED FOR CONSTRUCTION
08-14-20

CURRENT ISSUE STATUS:



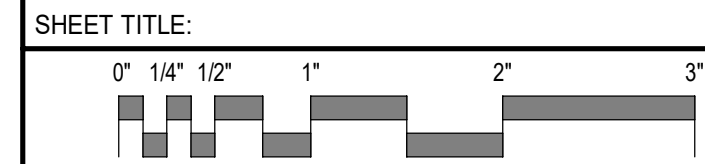
PROJECT NORTH:

SMRT SMRT Architects and Engineers
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MEN'S REENTRY CENTER

MACHIASPORT, MAINE

PLUMBING DETAILS



SCALE: AS NOTED

PROJECT MANAGER:	JGJ	PROJECT NO.:	19176
A/E OF RECORD:	DRV		
JOB CAPTAIN:	CBM		
DRAWN BY:	JMW		
SMRT FILE:	PL-503-19176	SHEET No.:	PL-503

PLUMBING FIXTURE CONNECTION SCHEDULE						
TAG	DESCRIPTION	BRANCH SIZES				NOTES
		CW	HW	VENT	WASTE	
WC-A	ADA WATER CLOSET, OFFENDER	1"	-	2"	4"	
WC-1	ADA WATER CLOSET, STAFF	1"	-	2"	4"	
WC-2	WATER CLOSET, STAFF	1"	-	2"	4"	
UR-1	ADA URINAL, OFFENDER	3/4"	-	2"	2"	
UR-2	URINAL, OFFENDER	3/4"	-	2"	2"	
LAV-A	ADA LAVATORY, WALL HUNG - OFFENDER	1/2"	1/2"	2"	2"	
LAV-B	ADA LAVATORY, WALL HUNG - OFFENDER	1/2"	1/2"	2"	2"	
LAV-1	LAVATORY, WALL HUNG - STAFF	1/2"	1/2"	2"	2"	
LAV-B	ADA LAVATORY, WALL HUNG - STAFF	1/2"	1/2"	2"	2"	
SK-1	SINK, COUNTER MOUNTED BREAK ROOM	1/2"	1/2"	2"	2"	
SK-2	SINK, COUNTER MOUNTED GENERAL PURPOSE	1/2"	1/2"	2"	2"	
SH-1	ADA SHOWER, OFFENDER	1/2"	1/2"	2"	2"	
SH-2	SHOWER, OFFENDER	1/2"	1/2"	2"	2"	
SH-3	SHOWER, STAFF	1/2"	1/2"	2"	2"	
MR-A	MOP SERVICE BASIN - OFFENDER	3/4"	3/4"	2"	3"	
SS-A	SERVICE SINK - STAFF	3/4"	3/4"	2"	2"	
HB-A	HOSE BIBB (INTERIOR)	3/4"	-	-	-	
WHA	WALL HYDRANT	3/4"	-	-	-	
WBA	ICE MAKER WALL BOX	1/2"	-	-	-	
EW-C-2	ELECTRIC WATER COOLER	1/2"	-	2"	1-1/2"	
FD-A	FLOOR DRAIN, UNFINISHED EQUIPMENT SPACES	-	-	2"	3" OR 4"	W/ TRAP PRIMER CONNECTION. REFER TO DRAWINGS FOR WASTE CONNECTION SIZE.
FD-B	FLOOR DRAIN, KITCHEN	-	-	2"	3" OR 4"	W/ TRAP PRIMER CONNECTION. REFER TO DRAWINGS FOR WASTE CONNECTION SIZE.
FD-C	FLOOR DRAIN, FINISHED SPACES	-	-	2"	3" OR 4"	W/ TRAP PRIMER CONNECTION. REFER TO DRAWINGS FOR WASTE CONNECTION SIZE.
FD-D	FLOOR DRAIN, OFFENDER FINISHED SPACES	-	-	2"	3" OR 4"	W/ TRAP PRIMER CONNECTION. REFER TO DRAWINGS FOR WASTE CONNECTION SIZE.
FD-E	LAUNDRY TRENCH - 4"	-	-	2"	4"	ROOF DRAIN - LAUNDRY APPLICATION. W/ TRAP PRIMER CONNECTION. BRONZE DOME AND BRONZE MESH SCREEN.
FS-A	FLOOR SINK, KITCHEN 1/2 GRATE	-	-	2"	3" OR 4"	W/ TRAP PRIMER CONNECTION. REFER TO DRAWINGS FOR WASTE CONNECTION SIZE.
FS-B	FLOOR SINK, KITCHEN FULL GRATE	-	-	2"	3" OR 4"	W/ TRAP PRIMER CONNECTION. REFER TO DRAWINGS FOR WASTE CONNECTION SIZE.
FT-A	FLOOR TROUGH, CART WASH TRENCH	-	-	2"	3"	W/ TRAP PRIMER CONNECTION. REFER TO DRAWINGS FOR WASTE CONNECTION SIZE.
NOTES:						

PLUMBING FIXTURE SCHEDULE						
TAG	DESCRIPTION	FIXTURE	FAUCET/DRAIN	TRIM	SUPPORT	NOTES
WC-A	FLOOR MOUNTED WATER CLOSET - ADA OFFENDER	AMERICAN STANDARD #3043.001 "MADERA", VITREOUS CHINA, SIPHON JET TYPE, 1-1/2" TOP SPUD, 1.28 GPF, 16-1/2" RIM HEIGHT.	SLOAN ROYAL #111-1.28 EXPOSED FLUSH VALVE, 1.28 GPF	CHURCH #9500 SSCT SEAT - WHITE	-	
WC-B	FLOOR MOUNTED WATER CLOSET - OFFENDER	AMERICAN STANDARD #2234.001 "MADERA", VITREOUS CHINA, SIPHON JET TYPE, 1-1/2" TOP SPUD, 1.28 GPF, 15" RIM HEIGHT.	SLOAN ROYAL #111-1.28 EXPOSED FLUSH VALVE, 1.28 GPF	CHURCH #9500 SSCT SEAT - WHITE	-	
WC-1	FLOOR MOUNTED WATER CLOSET - STAFF	AMERICAN STANDARD #2234.001 "MADERA", VITREOUS CHINA, SIPHON JET TYPE, 1-1/2" TOP SPUD, 1.28 GPF, 15" RIM HEIGHT.	SLOAN ROYAL #111-1.28 EXPOSED FLUSH VALVE, 1.28 GPF	CHURCH #9500 SSCT SEAT - WHITE	-	
WC-2	FLOOR MOUNTED WATER CLOSET - PUBLIC	AMERICAN STANDARD #2234.001 "MADERA", VITREOUS CHINA, SIPHON JET TYPE, 1-1/2" TOP SPUD, 1.28 GPF, 15" RIM HEIGHT.	SLOAN ROYAL #111-1.28 EXPOSED FLUSH VALVE, 1.28 GPF	CHURCH #9500 SSCT SEAT - WHITE	-	
WC-2A	FLOOR MOUNTED WATER CLOSET - ADA PUBLIC	AMERICAN STANDARD #3043.001 "MADERA", VITREOUS CHINA, SIPHON JET TYPE, 1-1/2" TOP SPUD, 1.28 GPF, 16-1/2" RIM HEIGHT.	SLOAN ROYAL #111-1.28 EXPOSED FLUSH VALVE, 1.28 GPF	CHURCH #9500 SSCT SEAT - WHITE	-	
WC-3	FLOOR MOUNTED WATER CLOSET	KOHLER K-25077, VITREOUS CHINA, 1.28 GPF, 16-1/2" RIM HEIGHT.	-	CHURCH #9500 SSCT SEAT - WHITE	-	
WC-4	FLOOR MOUNTED WATER CLOSET	PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR	PROVIDED BY OWNER	PROVIDED BY OWNER	-	
LAV-A	WALL MOUNTED LAVATORY - OFFENDER	AMERICAN STANDARD #0355.012, "LUCERNE" VITREOUS CHINA, 20"X18", 3 HOLES ON 2" CENTERS	CHICAGO #420-ABCP FAUCET, 0.5 GPM, CHICAGO #337-CP GRID DRAIN, OFFSET TAILPIECE, CHROME PLATED FINISHES.	McGUIRE LOOSE KEY ANGLE STOPS, ESCUTCHEONS AND RISERS-CHROME PLATED	ZURN #Z-1231-EZ	①
LAV-B	WALL MOUNTED LAVATORY - ADA OFFENDER	AMERICAN STANDARD #0355.012, "LUCERNE" VITREOUS CHINA, 20"X18", 3 HOLES ON 2" CENTERS	CHICAGO #420-ABCP FAUCET, 0.5 GPM, CHICAGO #337-CP GRID DRAIN, OFFSET TAILPIECE, CHROME PLATED FINISHES.	McGUIRE LOOSE KEY ANGLE STOPS, ESCUTCHEONS AND RISERS-CHROME PLATED	ZURN #Z-1231-EZ	①
LAV-1	WALL MOUNTED LAVATORY - STAFF	AMERICAN STANDARD #0355.012, "LUCERNE" VITREOUS CHINA, 20"X18", 3 HOLES ON 2" CENTERS	CHICAGO #420-ABCP FAUCET, 0.5 GPM, CHICAGO #337-CP GRID DRAIN, OFFSET TAILPIECE, CHROME PLATED FINISHES.	McGUIRE LOOSE KEY ANGLE STOPS, ESCUTCHEONS AND RISERS-CHROME PLATED	ZURN #Z-1231-EZ	①
LAV-2	WALL MOUNTED LAVATORY - ADA STAFF	AMERICAN STANDARD #0355.012, "LUCERNE" VITREOUS CHINA, 20"X18", 3 HOLES ON 2" CENTERS	CHICAGO #420-ABCP FAUCET, 0.5 GPM, CHICAGO #337-CP GRID DRAIN, OFFSET TAILPIECE, CHROME PLATED FINISHES.	McGUIRE LOOSE KEY ANGLE STOPS, ESCUTCHEONS AND RISERS-CHROME PLATED	ZURN #Z-1231-EZ	①
LAV-3	WALL MOUNTED LAVATORY	PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR	PROVIDED BY OWNER	PROVIDED BY OWNER	-	
UR-1	URINAL	AMERICAN STANDARD #6590.501 "WASHBROOK" VITREOUS CHINA, 0.5GPF, 3/4" INLET SPUD	6145051.002 FLUSH VALVE FOR 3/4" TOP SPUD URINAL, 11-1/2" ROUGH-IN, 0.5GPF/0.9LPP	-	-	
UR-2	URINAL ADA	AMERICAN STANDARD #6590.501 "WASHBROOK" VITREOUS CHINA, 0.5GPF, 3/4" INLET SPUD	6145051.002 FLUSH VALVE FOR 3/4" TOP SPUD URINAL, 11-1/2" ROUGH-IN, 0.5GPF/0.9LPP	-	-	
SH-1	60"x36" SHOWER - ADA OFFENDER	TOWER INDUSTRIES MODEL #MSB8036SACC SOLID SURFACE BASE AND "MERIDIAN" SOLID SURFACE SHOWER WALLS (3 SIDE) - 1/4" THICK x 7' HEIGHT. PROVIDE FLEXIBLE VINYL WATER DAM.	SYMMONS #C-96-500-B30-V-X-1.5 ADA SHOWER SYSTEM	-	-	② ③
SH-2	36"x36" SHOWER - OFFENDER	TOWER INDUSTRIES MODEL #MSB3753675SACCOL SOLID SURFACE BASE AND "MERIDIAN" SOLID SURFACE SHOWER WALLS (3 SIDE) - 1/4" THICK x 7' HEIGHT. PROVIDE FLEXIBLE VINYL WATER DAM.	SYMMONS #C-96-500-B30-V-X-1.5 ADA SHOWER SYSTEM	-	-	② ③
SH-3	36"x36" SHOWER - STAFF	TOWER INDUSTRIES MODEL #MSB3753675SACCOL SOLID SURFACE BASE AND "MERIDIAN" SOLID SURFACE SHOWER WALLS (3 SIDE) - 1/4" THICK x 7' HEIGHT. PROVIDE FLEXIBLE VINYL WATER DAM.	SYMMONS #C-96-500-B30-V-X-1.5 ADA SHOWER SYSTEM	-	-	② ③
SK-1	STAINLESS STEEL WALL MOUNTED LAUNDRY ROOM	ELKAY #LRAD25210465, 205x21"x6-1/2" DEPTH, 18 GAUGE, 304 SS, (4) HOLES ON 4" CENTERS.	CHICAGO #1102-317ABCP FAUCET, ELKAY #LKAD35 BASKET DRAIN AND OFFSET TAILPIECE, CHROME PLATED FINISHES.	McGUIRE LOOSE KEY ANGLE STOPS, ESCUTCHEONS AND RISERS-CHROME PLATED	-	①
SK-2	STAINLESS STEEL COUNTER MOUNTED STAFF AREA	ELKAY #LRAD25210465, 205x21"x6-1/2" DEPTH, 18 GAUGE, 304 SS, (4) HOLES ON 4" CENTERS.	CHICAGO #1102-317ABCP FAUCET, ELKAY #LKAD35 BASKET DRAIN AND OFFSET TAILPIECE, CHROME PLATED FINISHES.	McGUIRE LOOSE KEY ANGLE STOPS, ESCUTCHEONS AND RISERS-CHROME PLATED	-	①
SK-3	STAINLESS STEEL COUNTER MOUNTED	PROVIDED BY OWNER	CHICAGO #1102-317ABCP FAUCET, ELKAY #LKAD35 BASKET DRAIN AND OFFSET TAILPIECE, CHROME PLATED FINISHES.	McGUIRE LOOSE KEY ANGLE STOPS, ESCUTCHEONS AND RISERS-CHROME PLATED	-	①
SS-A	LAUNDRY TUB SINK	PROVIDED BY OWNER	PROVIDED BY OWNER AND INSTALLED BY OWNER	PROVIDED BY OWNER AND INSTALLED BY OWNER	-	
SS-B	HAND SINK	CHS1716C ELKAY STAINLESS STEEL, 16-3/4" x 15-1/2" x 13", SINGLE BOWL WALL HUNG HANDWASH SINK KIT	PROVIDED BY OWNER, INSTALLED BY CONTRACTOR	PROVIDED BY OWNER, INSTALLED BY CONTRACTOR	-	
MR-A	MOP RECEPTOR	FIAT #TSB-3000 TERRAZZO BASIN, 24"x24"x12" DEEP, #MSG 2424 WALL GUARDS.	CHICAGO #445-RC897SXKCP SERVICE SINK FAUCET, INTEGRAL CHECK STOPS	FIAT #832-AA HOSE AND BRACKET, #889-CC MOP HANGER, ALL WALL GUARDS	-	
EW-C-A	DUAL-HEIGHT ELECTRIC WATER COOLER	ELKAY #VRCGRNTL8C ELECTRIC WATER COOLER, SERIES 300 STAINLESS STEEL, VANDAL-RESISTANT, 8 GPH	-	-	ZURN #Z1225	
NOTES: ① TRUEBRO #103 E-Z HANDI LAV-GUARD INSULATION KIT AND EXTENSIONS AS REQUIRED FOR ALL EXPOSED PIPING BENEATH SINK BASIN. ② INCLUDE 1" STAINLESS STEEL CURTAIN ROD, WEIGHTED ANTI-BACTERIAL WHITE SHOWER CURTAIN, HOOKS AND FULL WATER RETENTION STRIP. ③ REFER TO ARCHITECTURAL DRAWINGS FOR CEILING HEIGHT AND SHOWER HEAD MOUNTING HEIGHT. ④ ROUTE WASTE THROUGH A ZURN #Z-1176-CP HAIR INTERCEPTOR WITH PERFORATED STAINLESS STEEL BASKET REMOVABLE FROM BOTTOM. ⑤ PROVIDE BELVEDERE #5001741 NECKREST, #5001244 HOSE RECEIVER ASSEMBLY WITH HOLES FOR VACUUM BREAKER, #0039 FLO-TROL WATER PRESSURE EQUALIZER, #503 VACUUM BREAKER AND #50900288 HOSE AND SPRAY ASSEMBLY. ⑥ PROVIDE RHA ON WALLS.						

WATER HEATER SCHEDULE											
TAG	LOCATION	FUEL	BOILER INPUT	RECOVERY RATE GPH @ 140 F	STORAGE TANK SIZE/GAL	ELECTRICAL DATA		INLET/OUTLET	OPERATING WEIGHT(LBS)	TYPICAL UNIT MFG AND MODEL NO.	NOTES:
						Hz	VOLTS/PH				
DWH-1	MECHANICAL ROOM	INDIRECT	40 GPM	950	119	60	120/1	2"	-	PV1 1800-L-150A-QWD	1
DWH-2	MECHANICAL ROOM	INDIRECT	40 GPM	950	119	60	120/1	2"	-	PV1 1800-L-150A-QWD	1
DWH-3	ADMIN BUILDING	ELECTRIC	-	-	30	60	120/1	3/4"	-	A.O. SMITH DEL-30	2,3
DWH-4	STORAGE BUILDING	PROPANE	-	-	-	60	120/1	-	-	RTGH-CM950VLP	3
NOTES: 1. PROVIDE DOUBLE-WALL PLATE AND FRAME HEAT EXCHANGER. PROVIDE 2-WAY BOILER WATER CONTROL VALVE. PROVIDE CONTACTS FOR REMOTE START/STOP AND MONITORING FROM BAS. BOILER WATER TEMPERATURE IS 160 DEG. F ENTERING AND 120 DEG. F LEAVING. 2. PROVIDE LEAK DETECTION AND SAFETY WASTE PAN 3. OWNER PROVIDED, CONTRACTOR INSTALLED, NOT IN CONTRACT											

MIXING VALVE SCHEDULE											
TAG	LOCATION	SERVICE	MANUFACTURER & MODEL NUMBER	MIN. FLOW (GPM)	DESIGN FLOW (GPM)	OUTLET TEMP. SET POINT DEG. F	MAX. PRESS. DROP @ DESIGN FLOW (PSI)	INLETS (IN)	OUTLETS (IN)	TYPICAL UNIT MFG AND MODEL NO.	NOTES:
MV-2	ALL HAND SINKS	POINT OF USE	WATTS	0.5	-	120	-	1/2"	1/2"	WATTS	-
NOTES: 1. CENTRAL WATER HEATING APPLICATION 2. 3/4" RHW CONNECTION AS WELL AS HW AND CW											

PLUMBING SPECIALTIES SCHEDULE				
TAG	APPLICATION	TYPICAL UNIT MFG & MODEL NO.	DESCRIPTION	NOTES
GI-A	GREASE INTERCEPTOR	SCHIRER GB-75	75-GPM, 86-LB. GREASE CAPACITY, ACID RESISTANT COATED STEEL, EXTENSION, ANCHOR FLANGE	1
NOTES: 1. PROVIDE WITH 4" INLET/OUTLET				

SHOCK ABSORBER SCHEDULE			
TYPE	FIXTURE UNIT RATING	BASIS OF DESIGN	
		MANUF.	FIGURE NO.
A'	1-10	ZURN	100
B'	12-32	ZURN	200
C'	33-60	ZURN	300
D'	61-113	ZURN	400
E'	114-154	ZURN	500
F'	155-330	ZURN	600
NOTES:			

PLUMBING SPECIALTIES SCHEDULE				
TAG	APPLICATION	TYPICAL UNIT MFG & MODEL NO.	DESCRIPTION	NOTES
GI-A	GREASE INTERCEPTOR	SCHIRER GB-75	75-GPM, 86-LB. GREASE CAPACITY, ACID RESISTANT COATED STEEL, EXTENSION, ANCHOR FLANGE	1
NOTES: 1. PROVIDE WITH 4" INLET/OUTLET				

PLUMBING PUMP SCHEDULE										
TAG	LOCATION	SERVICE	GPM	HD(FT.)	ELECTRICAL DATA				TYPICAL UNIT MFG AND MODEL NO.	NOTES:
					HP	RPM	VOLTS/PH	AMP		
RP-1	MECHANICAL ROOM	DOMESTIC HW 120 DEG. F	5	10	1/25	3250	120/1	<3	TACO 0011-SF3	1
RP-2	MECHANICAL ROOM	DOMESTIC HW 140 DEG. F	5	10	1/25	3250	120/1	<3	TACO 0011-SF3	1
NOTES: 1. ALL BRONZE OR STAINLESS STEEL CONSTRUCTION										

EXPANSION TANK SCHEDULE								
TAG	LOCATION	SERVED	ACCEPT. GAL.	DIA (IN.)	HEIGHT (IN.)	MAX OPERATING TEMP (DEGREES)	TYPICAL UNIT MFG AND MODEL NO.	NOTES:
PET-1	MECHANICAL ROOM	DOMESTIC HOT WATER	11	16"	45"	200	AMTROL THERM-X-TROL ST-70VC	1
NOTES: 1. PROVIDE ASME RATED SHELL AND NSF RATED BLADDER								

NOTES:
1. SEE SHEET PL001 FOR LEGEND AND ABBREVIATIONS.

REV	DESCRIPTION	DATE
1	ADDENDUM #1	8-25-2020
0	ISSUED FOR CONSTRUCTION	08-14-20

ISSUED FOR CONSTRUCTION
08-14-20

CURRENT ISSUE STATUS:

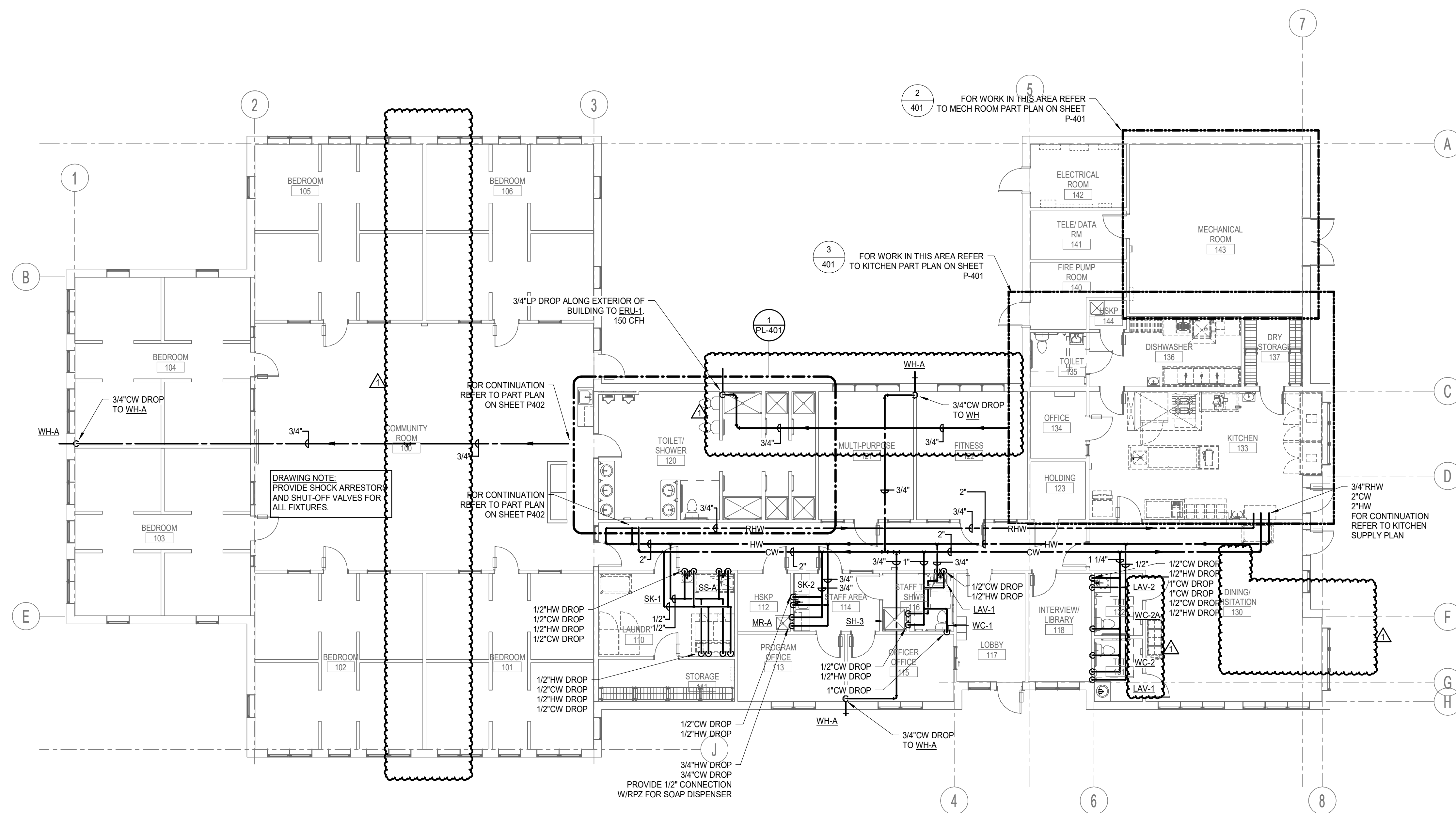
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MEN'S REENTRY CENTER

MACHIASPORT, MAINE

PLUMBING SCHEDULES

SHEET TITLE:
0" 1/4" 1/2" 1" 2" 3"
SCALE: AS NOTED
PROJECT MANAGER: JGJ PROJECT NO: 19176
A/E OF RECORD: DRV
JOB CAPTAIN: CBM
DRAWN BY: JMW
SMRT FILE: PL-601-19176 SHEET No. PL-601
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- NOTES:**
- SEE SHEET PL001 FOR LEGEND AND ABBREVIATIONS.
 - SEE PLUMBING CONNECTION SCHEDULE ON PL601 FOR PIPE TERMINATIONS TO FIXTURES AND SPECIALTIES. REFER TO PLUMBING SCHEMATICS ON PL651 FOR CONNECTIONS TO EQUIPMENT.
 - PROVIDE ISOLATION VALVES FOR ALL CW, HW AND RHW RUNOUTS TO EVERY INDIVIDUAL FIXTURE, EQUIPMENT, SPECIALTY ETC. VALVES SHALL BE LOCATED AT THE TOP-OF-DROPS IN AN ACCESSIBLE LOCATION WITH THE CEILING GRID MARKED FOR MAINTENANCE.
 - PROVIDE SERVICE VALVES FOR ALL CW, HW AND RHW MAINS AND BRANCH RUNNOUTS. LOCATE VALVES AT ALL FIRE/SMOKE PARTITIONS BRANCH LOCATIONS AND RISERS. VALVES SHALL BE LOCATED IN AN ACCESSIBLE LOCATION WITH THE CEILING GRID MARKED FOR MAINTENANCE.
 - LOCATE AND COORDINATE WITH THE GENERAL CONTRACTOR THE INSTALLATION OF ACCESS PANELS FOR ALL CONCEALED VALVES INCLUDING BUT NOT LIMITED TO VALVES ABOVE HARD CEILING AND WITHIN SOFFITS.

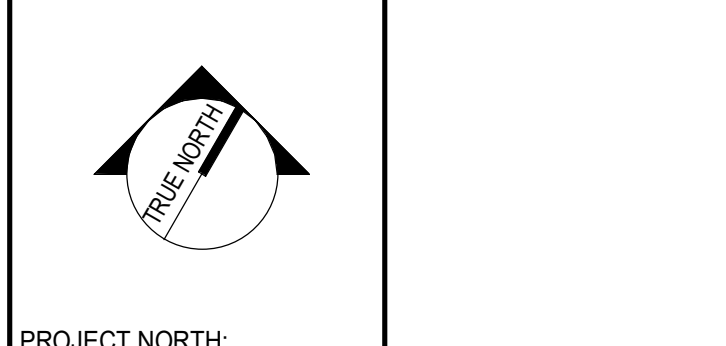
KEYNOTES

KEYNOTE	KEYNOTE DESCRIPTION
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REV	DESCRIPTION	DATE
1	ADDENDUM #1	8-25-2020
0	ISSUED FOR CONSTRUCTION	08-14-20

ISSUED FOR CONSTRUCTION
08-14-20

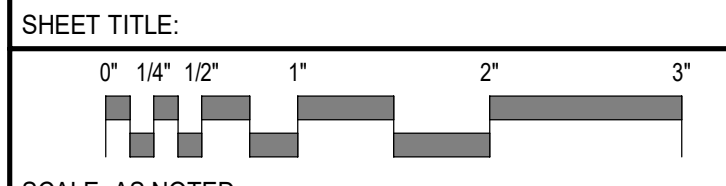
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MEN'S RE-ENTRY CENTER**

**MACHIASPORT, MAINE
MEN'S RE-ENTRY CENTER -
SUPPLY PIPING PLAN**



SCALE: AS NOTED

PROJECT MANAGER: JGJ	PROJECT NO: 19176
A/E OF RECORD: DRV	
JOB CAPTAIN: CBM	
DRAWN BY: JMW	
SMRT FILE: PP101-19176	SHEET No. PP101

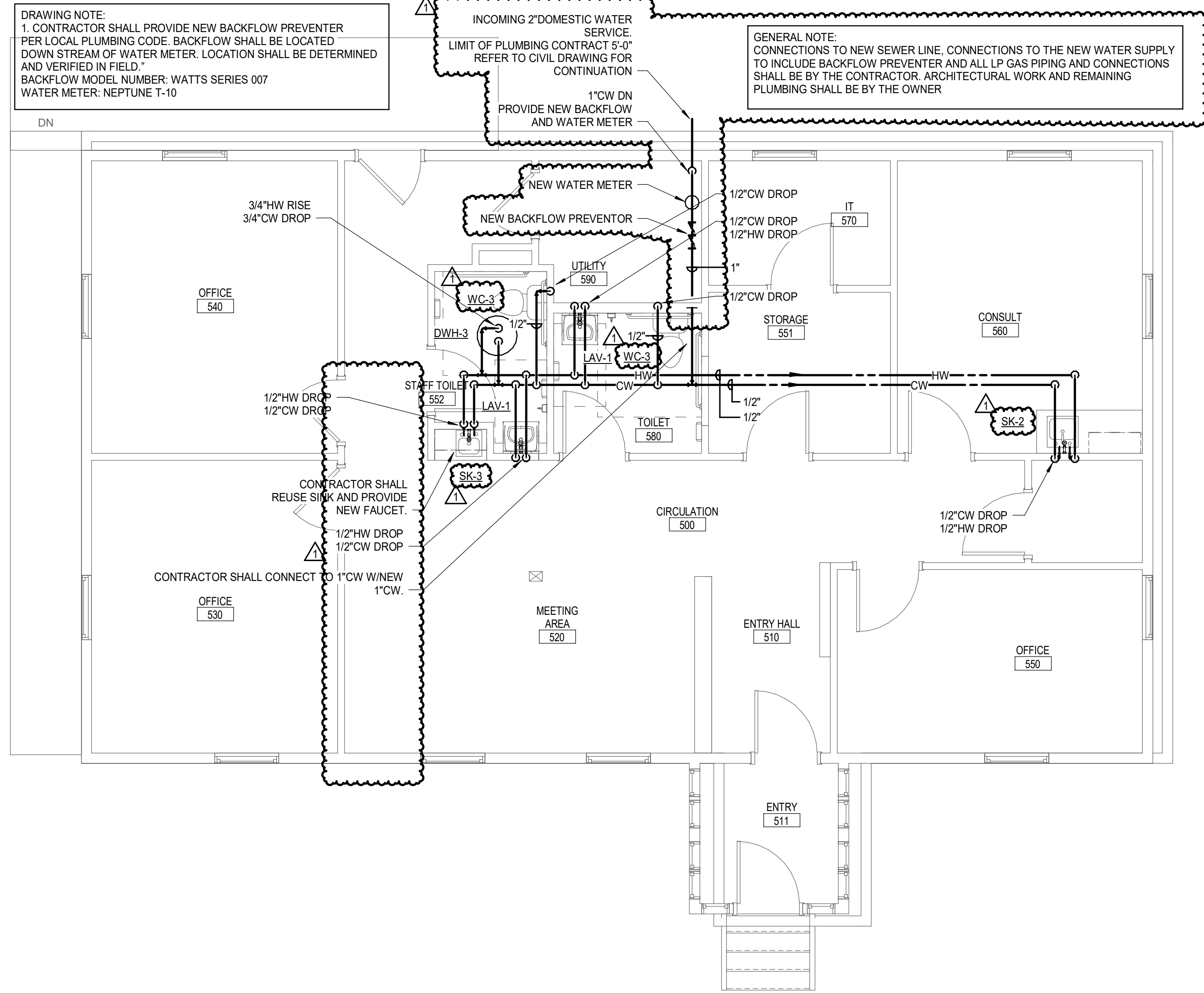
MEN'S RE-ENTRY BUILDING SUPPLY PIPING PLAN (A1)
1/8" = 1'-0"

NOTES:

- SEE SHEET PL001 FOR LEGEND AND ABBREVIATIONS.
- SEE PLUMBING CONNECTION SCHEDULE ON PL601 FOR PIPE TERMINATIONS TO FIXTURES AND SPECIALTIES. REFER TO PLUMBING SCHEMATICS ON PL651 FOR CONNECTIONS TO EQUIPMENT.
- PROVIDE ISOLATION VALVES FOR ALL CW, HW AND RHW RUNOUTS TO EVERY INDIVIDUAL FIXTURE, EQUIPMENT, SPECIALTY ETC. VALVES SHALL BE LOCATED AT THE TOP-OF-DROPS IN AN ACCESSIBLE LOCATION WITH THE CEILING GRID MARKED FOR MAINTENANCE.
- PROVIDE SERVICE VALVES FOR ALL CW, HW AND RHW MAINS AND BRANCH RUNNOOTS. LOCATE VALVES AT ALL FIRE/SMOKE PARTITIONS, BRANCH LOCATIONS AND RISERS. VALVES SHALL BE LOCATED IN AN ACCESSIBLE LOCATION WITH THE CEILING GRID MARKED FOR MAINTENANCE.
- LOCATE AND COORDINATE WITH THE GENERAL CONTRACTOR THE INSTALLATION OF ACCESS PANELS FOR ALL CONCEALED VALVES INCLUDING BUT NOT LIMITED TO VALVES ABOVE HARD CEILING AND WITHIN SOFFITS.

KEYNOTES

KEYNOTE	KEYNOTE DESCRIPTION
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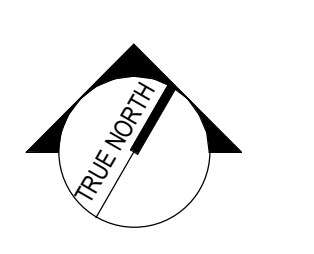
DRAWING NOTE:
 1. CONTRACTOR SHALL PROVIDE NEW BACKFLOW PREVENTER PER LOCAL PLUMBING CODE. BACKFLOW SHALL BE LOCATED DOWN STREAM OF WATER METER. LOCATION SHALL BE DETERMINED AND VERIFIED IN FIELD.
 * BACKFLOW MODEL NUMBER: WATTS SERIES 007
 WATER METER: NEPTUNE T-10

GENERAL NOTE:
 CONNECTIONS TO NEW SEWER LINE, CONNECTIONS TO THE NEW WATER SUPPLY TO INCLUDE BACKFLOW PREVENTER AND ALL LP GAS PIPING AND CONNECTIONS SHALL BE BY THE CONTRACTOR. ARCHITECTURAL WORK AND REMAINING PLUMBING SHALL BE BY THE OWNER

REV	DESCRIPTION	DATE
1	ADDENDUM #1	8-25-2020
0	ISSUED FOR CONSTRUCTION	08-14-20

ISSUED FOR CONSTRUCTION
 08-14-20

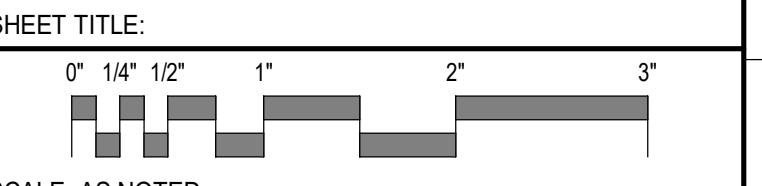
CURRENT ISSUE STATUS:



PROJECT NORTH:
SMRT SMRT Architects and Engineers
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 1.877.700.7678
 www.smrtno.com

MDOC - DCF
MEN'S REENTRY CENTER

MACHIASPORT, MAINE
ADMIN BUILDING - SUPPLY PIPING
PLAN



SCALE: AS NOTED

PROJECT MANAGER:	JGJ	PROJECT NO.:	19176
A/E OF RECORD:	DRV		
JOB CAPTAIN:	CBM		
DRAWN BY:	JMW		
SMRT FILE:	PP102-19176	SHEET No.:	PP102

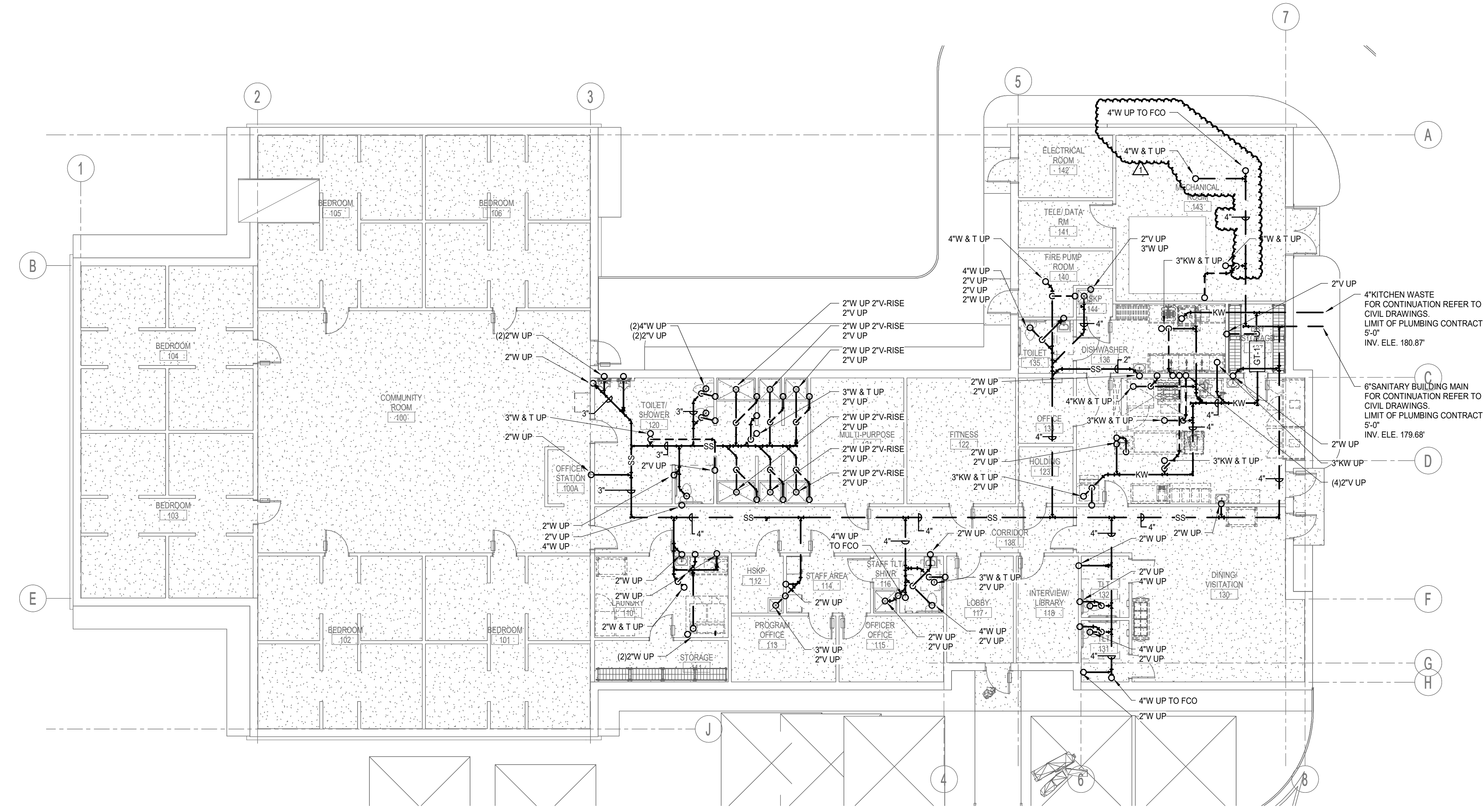
ADMIN BUILDING PLUMBING SUPPLY PIPING PLAN (A1)

1/4" = 1'-0"

NOTES:
 1. SEE SHEET PL001 FOR LEGEND AND ABBREVIATIONS.

KEYNOTES

KEYNOTE	KEYNOTE DESCRIPTION
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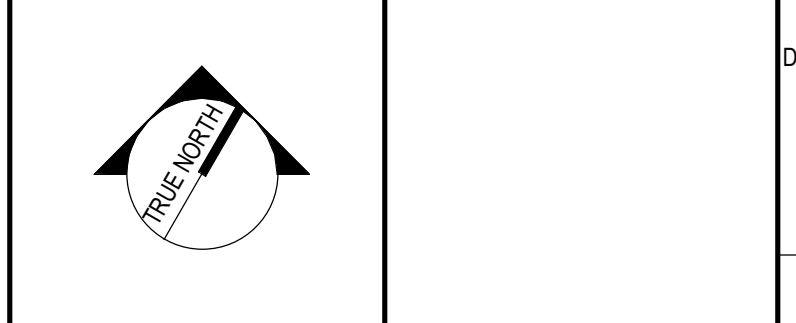


MEN'S RE-ENTRY BUILDING UNDERSLAB DWV PIPING PLAN A1
 1/8" = 1'-0"

REV	DESCRIPTION	DATE
1	ADDENDUM #1	8-25-2020
0	ISSUED FOR CONSTRUCTION	08-14-20

ISSUED FOR CONSTRUCTION
 08-14-20

CURRENT ISSUE STATUS:

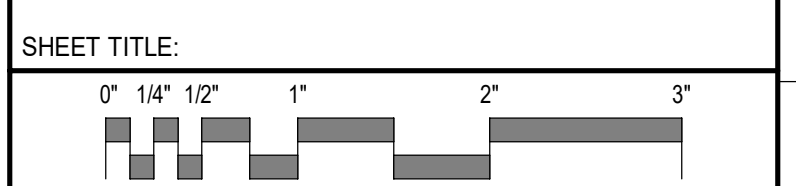


PROJECT NORTH:
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MDOC - DCF
MEN'S RE-ENTRY CENTER

MACHIASPORT, MAINE
MEN'S RE-ENTRY CENTER -
UNDERSLAB DWV PIPING PLAN

SHEET TITLE:



SCALE: AS NOTED

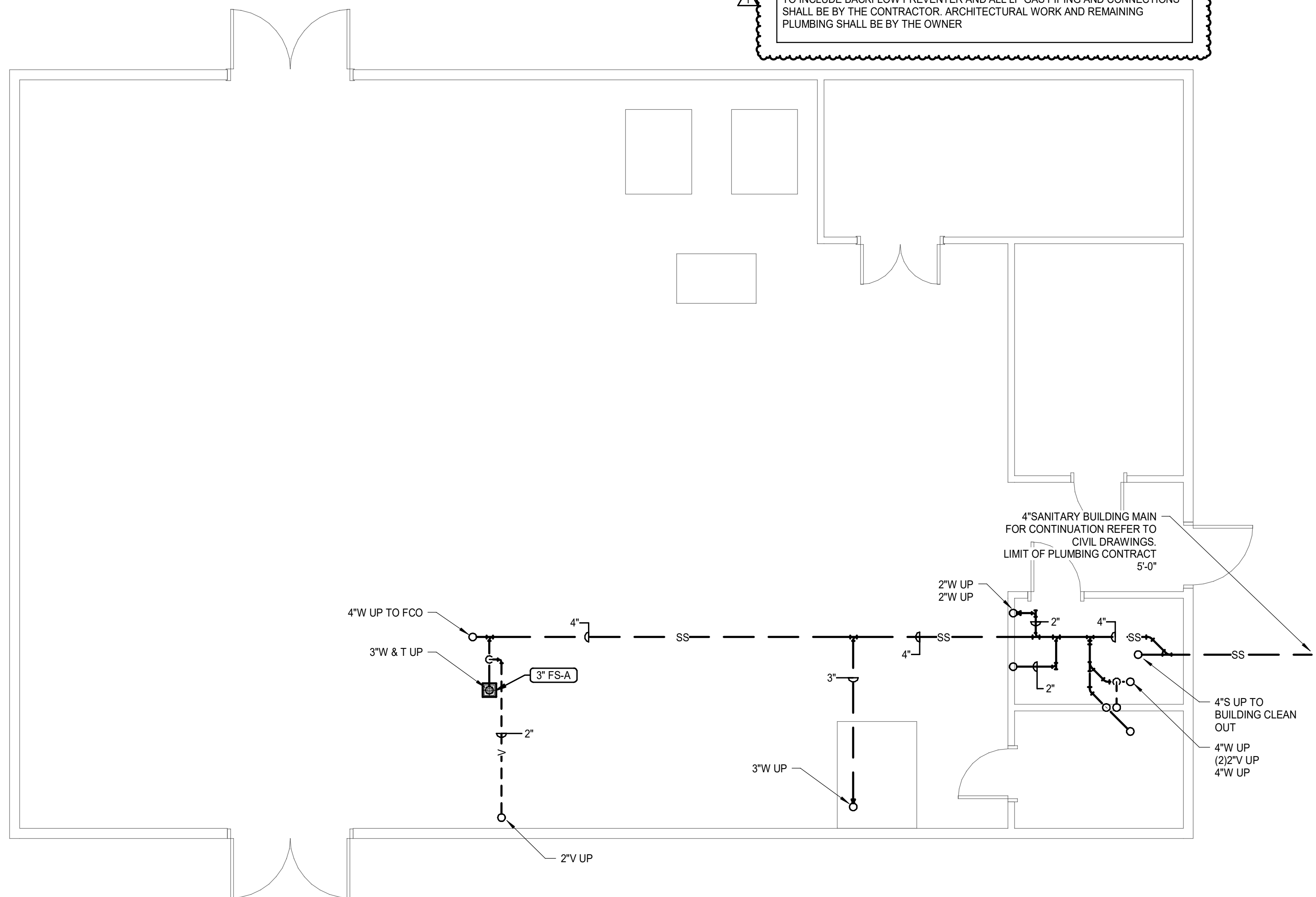
PROJECT MANAGER:	JGJ	PROJECT NO.:	19176
A/E OF RECORD:	DRV	JOB CAPTAIN:	CBM
DRAWN BY:	JMW	SMRT FILE:	PU101-19176
		SHEET No.:	PU101

NOTES:
 1. SEE SHEET PL001 FOR LEGEND AND ABBREVIATIONS.

KEYNOTES

KEYNOTE	KEYNOTE DESCRIPTION
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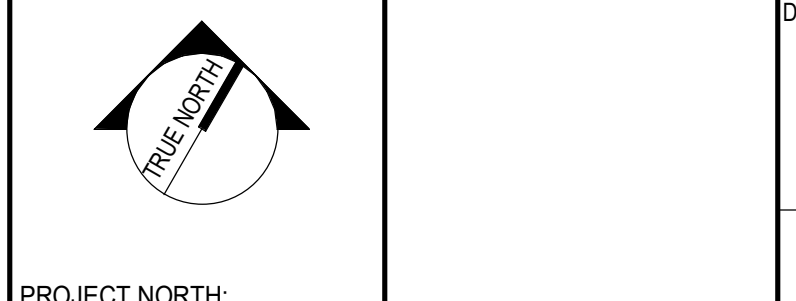
GENERAL NOTE:
 CONNECTIONS TO NEW SEWER LINE, CONNECTIONS TO THE NEW WATER SUPPLY TO INCLUDE BACKFLOW PREVENTER AND ALL LP GAS PIPING AND CONNECTIONS SHALL BE BY THE CONTRACTOR. ARCHITECTURAL WORK AND REMAINING PLUMBING SHALL BE BY THE OWNER



REV	DESCRIPTION	DATE
1	ADDENDUM #1	8-25-2020
0	ISSUED FOR CONSTRUCTION	08-14-20

ISSUED FOR CONSTRUCTION
 08-14-20

CURRENT ISSUE STATUS:

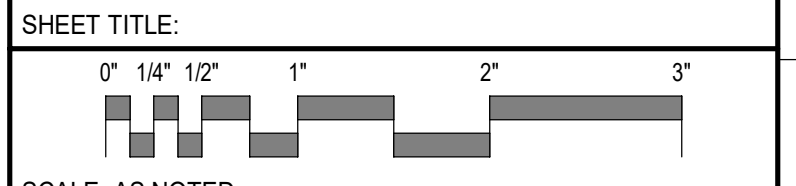


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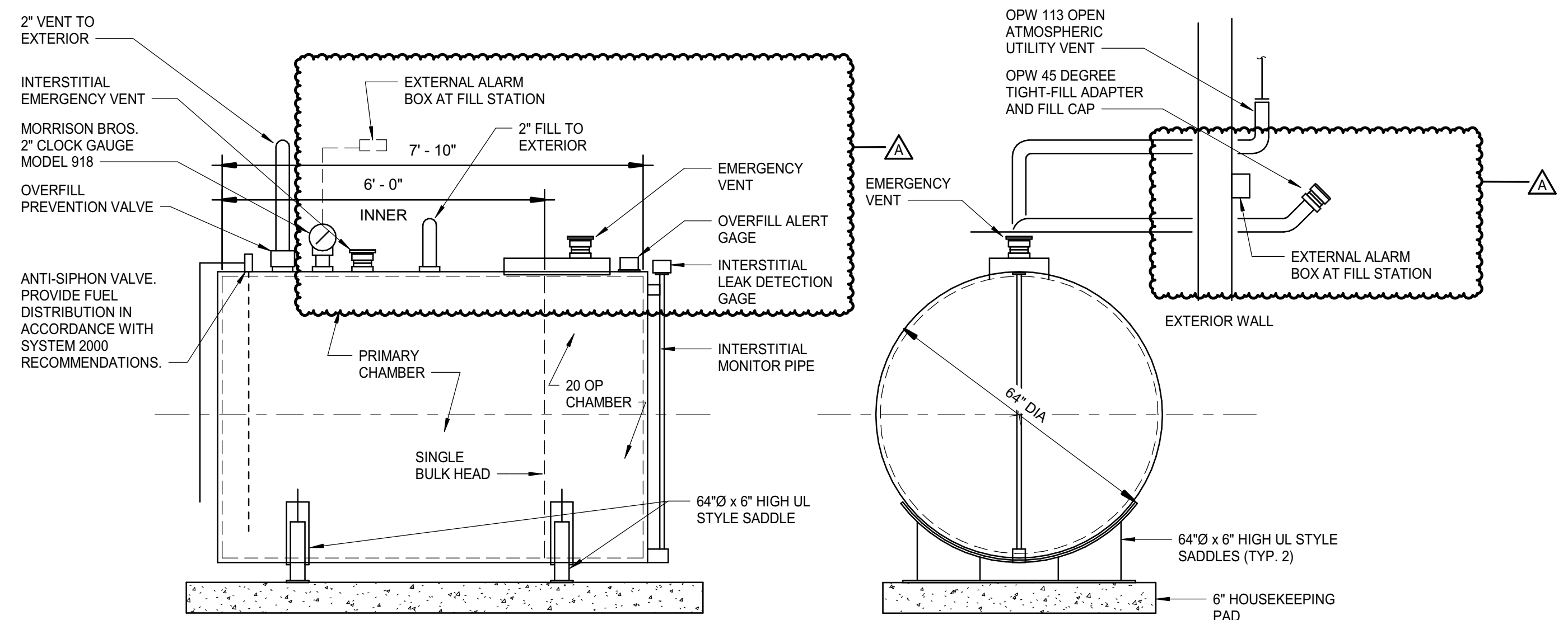
MACHIASPORT, MAINE

STORAGE BUILDING - FIRST FLOOR UNDERSLAB PLAN



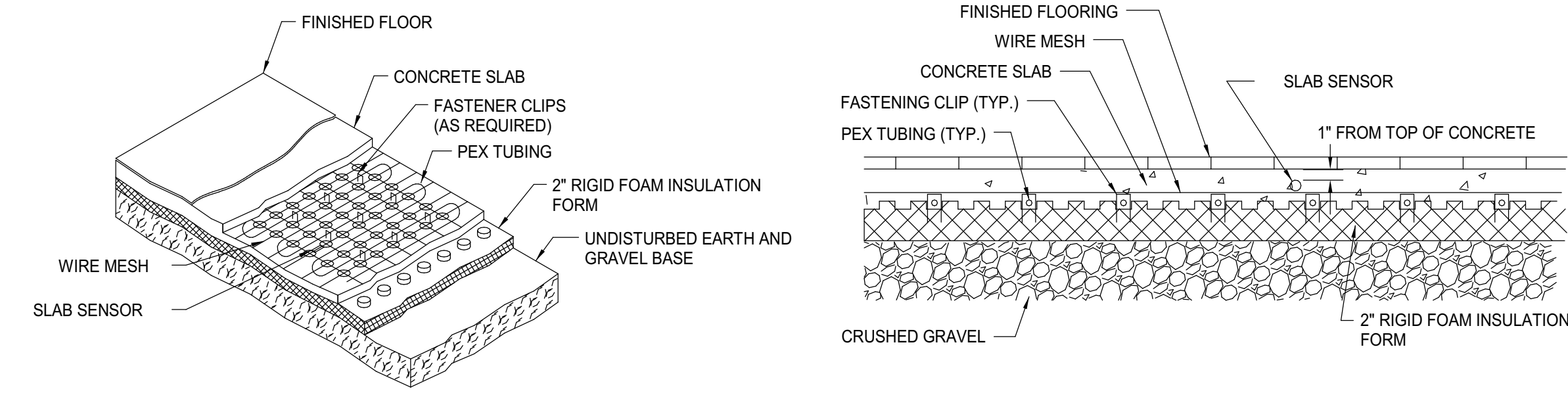
SCALE: AS NOTED
 PROJECT MANAGER: JGJ PROJECT NO: 19176
 A/E OF RECORD: DRV
 JOB CAPTAIN: CBM
 DRAWN BY: JMW
 SMRT FILE: PU103-19176 SHEET No. **PU103**

STORAGE FIRST FLOOR UNDERSLAB PLAN (A1)
 1/4" = 1'-0"



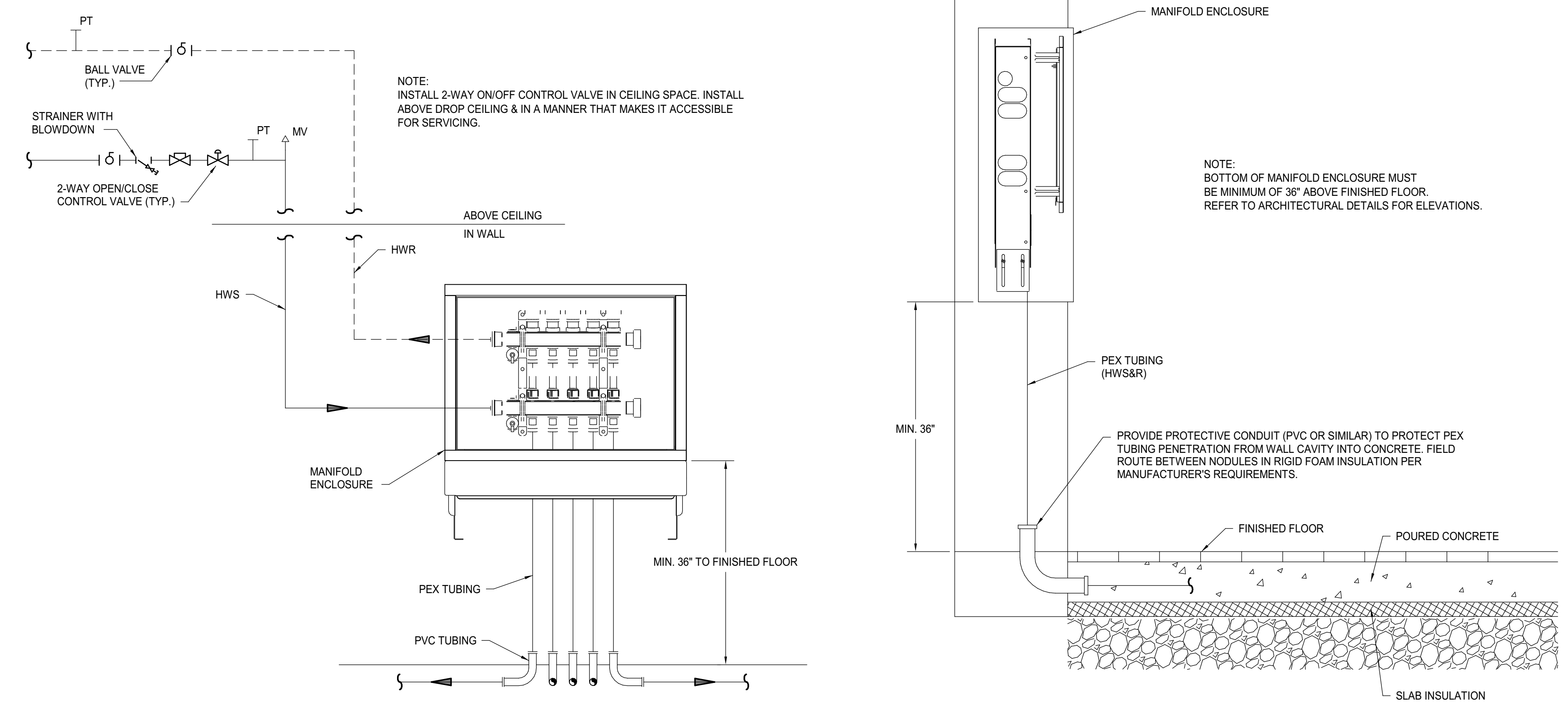
- NOTES:**
1. PROVIDE 1,000 GALLON, 64" DIAMETER, DOUBLE-WALL HORIZONTAL HEATING OIL STORAGE TANK BY HIGHLAND TANK OR APPROVED EQUAL.
 2. TANK SHALL BE UL 142 LISTED, CARBON STEEL, 7 GAUGE INNER HEADS AND SHELL, 10 GAUGE OUTER HEADS AND SHELL.
 3. TANK SHALL BE SHOP PRIMED.
 4. MARK INTERSTITIAL EMERGENCY VENT WITH WARNING LABEL AS FOLLOWS: "INTERSTITIAL EMERGENCY VENT USE ONLY"
 5. PROVIDE NFPA REQUIRED SIGNAGE AND WARNINGS.
 6. PROVIDE GROUND WIRE TO TANK GROUNDING LUG.

1000 GALLON DOUBLE WALL HEATING OIL TANK (G8)
NOT TO SCALE



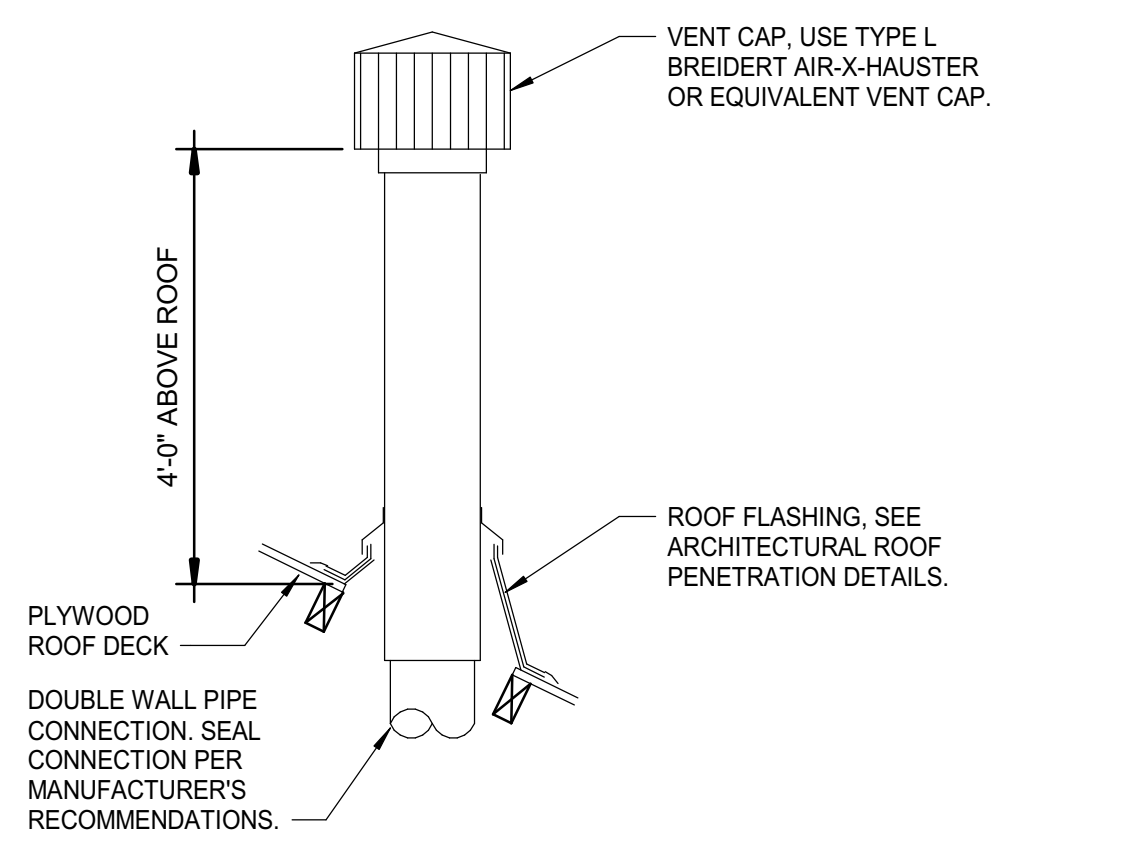
- NOTES:**
1. REFER TO MANUFACTURER'S LITERATURE FOR ALL MANDATORY AND RECOMMENDED INSTALLATION REQUIREMENTS. STORE PEX TUBING INDOORS AND AWAY FROM UV EXPOSURE.
 2. ROUTE PEX LOOPS PER DRAWINGS AND COORDINATE FINAL LAYOUT WITH RADIANT MANUFACTURER AND ARCHITECTURAL DRAWINGS (INCLUDING AGENDA) PRIOR TO INSTALLING. COORDINATE INSTALLATION WITH GENERAL CONTRACTOR. LOCATE ANY OBSTACLES THAT MAY NEED TO BE AVOIDED (PLUMBING, CONDUIT, STEEL, AND OTHER SLAB PENETRATIONS) AND RE-ROUTE/ADJUST PEX AND WIRE MESH TO ACCOMMODATE OBSTACLES.
 3. MAINTAIN MANUFACTURER RECOMMENDED DISTANCES FROM SLAB EDGE (8"-12") TO MINIMIZE PERIMETER HEAT LOSS AND PREVENT POST CONSTRUCTION ISSUES (I.E. SLAB PENETRATIONS THAT COULD DAMAGE TUBING).
 4. SECURE PEX TUBING TO PRE-FORMED RIGID INSULATION TRACKS AS RECOMMENDED BY INSULATION MANUFACTURER. PROVIDE ADDITIONAL FASTENERS AS REQUIRED. HEAT TREAT ANY PEX TUBING THAT BECOMES KINKED PRIOR TO SLAB BEING POURED.
 5. INSTALL FLOOR SENSOR BETWEEN 1/2 WAY BETWEEN PEX TUBING AND 1" ON CENTER FROM TOP OF SLAB IN SEALED CONDUIT. SECURELY SUPPORT SLAB SENSOR TUBING PRIOR TO POURING IN ORDER TO PREVENT MOVEMENT. CONTRACTOR SHALL RECORD EXACT LOCATION OF EACH SENSOR LOCATION ONTO PLANS AND INCLUDE THEM IN THE AS-BUILT DRAWINGS.
 6. CONTRACTOR SHALL MARK LOCATION OF FLOOR SENSOR AND COORDINATE WITH GC PRIOR TO CONTROL CUTS OF CONCRETE.

RADIANT FLOOR INSTALLATION DETAIL - FIRST FLOOR (G1)
NOT TO SCALE



- NOTES:**
1. REFER TO MANUFACTURER'S LITERATURE FOR ALL MANDATORY AND RECOMMENDED INSTALLATION REQUIREMENTS.
 2. REFER TO ALL FLOOR PLANS AND ARCHITECTURAL PLANS AND SCHEDULES FOR EXACT MANIFOLD LOCATIONS AND ELEVATIONS. HOT WATER SUPPLY AND RETURN MAIN AND CIRCUIT PIPING SHALL PENETRATE KNOCK-OUTS OF MANIFOLD ENCLOSURE.
 3. PROVIDE STAINLESS STEEL MANIFOLDS WITH RETURN BALANCING VALVES WITH CAPS (FOR INDIVIDUAL CIRCUITS), CIRCUIT FLOW METERS WITH INTEGRAL ISOLATION VALVE, FLOW ADJUSTMENT KEY, FLOW INDICATORS, CIRCUIT ISOLATION VALVES, PURGE/VENT/DRAIN ASSEMBLY, TRUNK ISOLATION VALVES WITH INTEGRAL TEMPERATURE GAUGE.
 4. CONTRACTOR SHALL LABEL INDIVIDUAL SUPPLY RETURN CIRCUITS (1, 2, 3, ... ETC) AND APPROXIMATE PIPING LENGTHS. DOCUMENT CIRCUIT NUMBERS AND LENGTHS ON THE AS-BUILT DRAWINGS FOR FUTURE USE AND TAB CONTRACTOR REFERENCE.
 5. INSTALL 2-WAY ON/OFF CONTROL VALVE (FURNISHED BY ATC CONTRACTOR), STRAINER, AND BALANCING VALVES IN CEILING SPACE ABOVE MANIFOLDS AS INDICATED. TAB CONTRACTOR SHALL BALANCE CEILING VALVE TO SCHEDULED MANIFOLD FLOW RATES AND THEN ADJUST INDIVIDUAL CIRCUITS AS REQUIRED TO PROVIDE EQUAL FLOW TO EACH CIRCUIT BASED ON PEX INSTALLED LENGTHS.
 6. SECURE MANIFOLD BRACKET INSIDE MANIFOLD ENCLOSURE. SECURE PEX PIPING TO INDIVIDUAL CIRCUITS BY MANUFACTURER APPROVED COMPRESSION FITTINGS. PROVIDE PIPE REDUCERS AS REQUIRED.
 7. CONTRACTOR SHALL PRESSURIZE EACH MANIFOLD PER MANUFACTURER'S RECOMMENDED PRESSURE (50-100 PSI) AND TIME PERIODS (MINIMUM 24 HOURS) WITH AIR. DOCUMENT BEFORE AND AFTER PRESSURES AND FORWARD TO ENGINEER FOR REVIEW.
 8. CONTRACTOR SHALL PRESSURIZE MANIFOLDS AND PEX TUBING DURING CONCRETE PLACEMENT.

RADIANT FLOOR MANIFOLD INSTALLATION DETAIL (A1)
NOT TO SCALE



VENT STACK WEATHER PROTECTION CAP (A11)
NOT TO SCALE

NOTES:

1. SEE SHEET M-001 FOR LEGEND AND GENERAL NOTES.

REV	DESCRIPTION	DATE
A	ADDENDUM #1	8-25-2020
0	ISSUED FOR CONSTRUCTION	08-14-20

ADDENDUM #1
8-25-2020

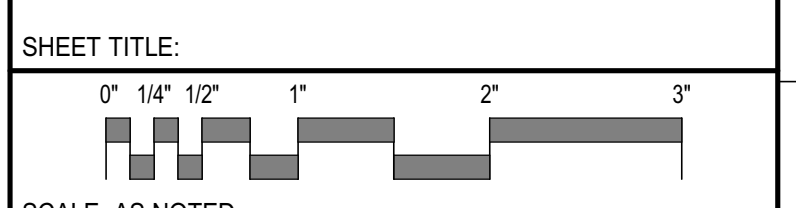
CURRENT ISSUE STATUS:

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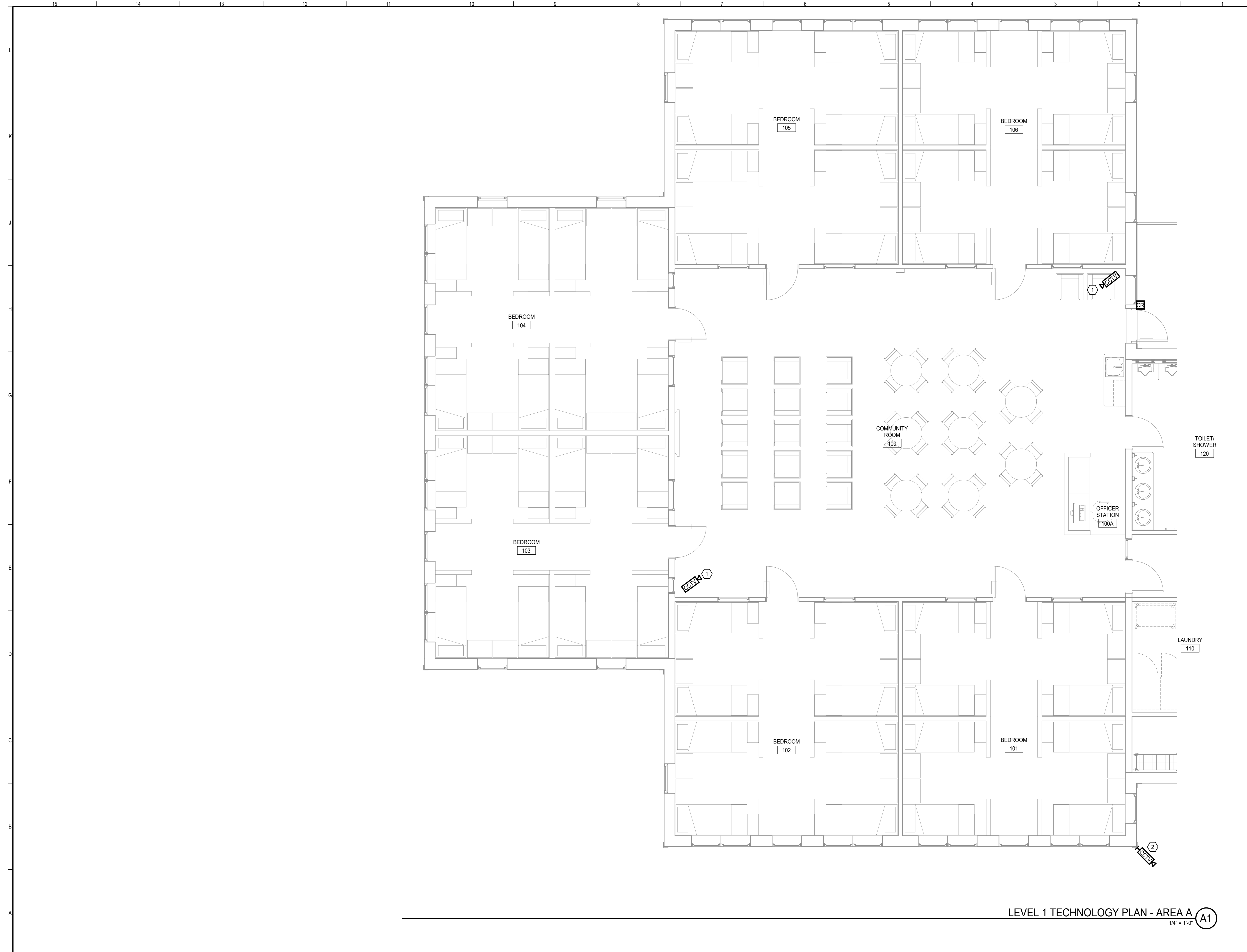
MDOC - DCF
MEN'S REENTRY CENTER

MACHIASPORT, MAINE

MECHANICAL DETAILS



PROJECT MANAGER: JGJ	PROJECT NO: 19176
A/E OF RECORD: DRV	
JOB CAPTAIN: CBM	
DRAWN BY: KPB	
SMRT FILE: M-503-19176	SHEET No. M-503

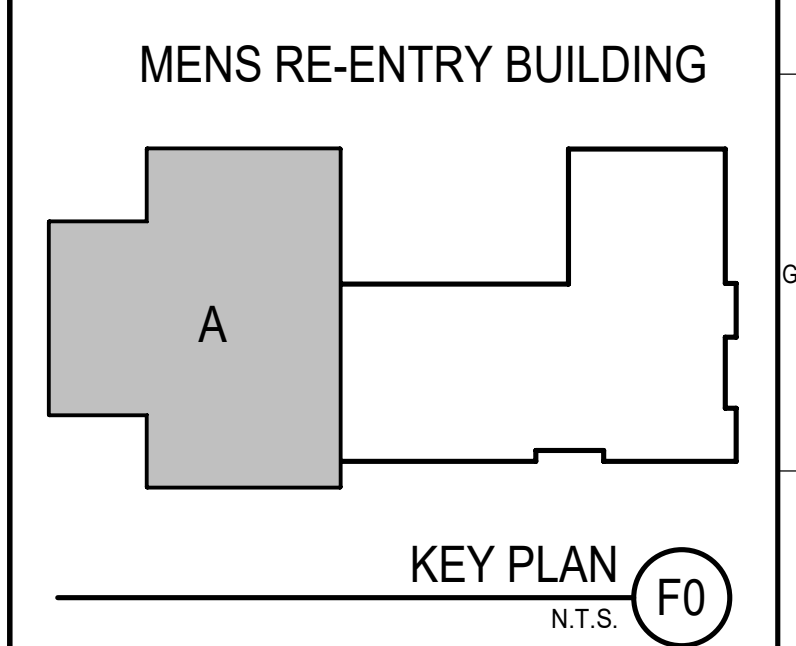


NOTES:

1. SEE SHEET E-001 FOR LEGEND AND GENERAL NOTES.
2. WHERE CARD READERS ARE SHOWN, PROVIDE A FULLY FUNCTIONING CARD ACCESS CONTROLLED DOOR. PROVIDE CARD READER AS SHOWN, COORDINATE LOCATION WITH ARCHITECTURE. PROVIDE DOOR CONTACTS AND COMPOSITE CABLE TO NEAREST ACP. DOOR HARDWARE FURNISHED AND INSTALLED BY DIVISION 8 AND CONNECTED BY THIS CONTRACTOR. COORDINATE WITH DIVISION 8 FOR REQUEST TO EXIT SWITCH IN DOOR HARDWARE. IF NO REX IS PROVIDED IN DOOR HARDWARE, PROVIDE A MOTION DETECTOR STYLE REX ABOVE THE DOOR.

KEYED NOTES:

- ① CEILING MOUNTED FIXED CAMERA
- ② CORNER MOUNTED PTZ CAMERA, MOUNTED AT 12'-0" ABOVE FINISHED GRADE.



REV	DESCRIPTION	DATE
0	ADDENDUM #1	8-25-20

ADDENDUM #1
8-25-20

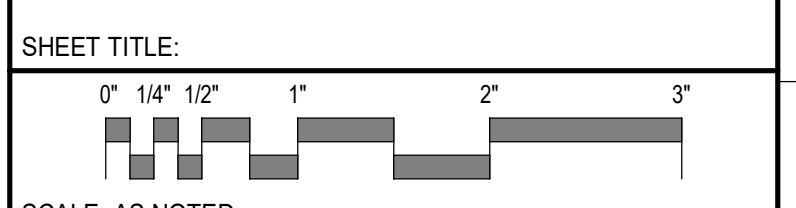
CURRENT ISSUE STATUS:

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MACHIASPORT, MAINE
MEN'S REENTRY CENTER -
TECHNOLOGY PLAN - AREA A



SCALE: AS NOTED

PROJECT MANAGER:	JGJ	PROJECT NO.:	19176
A/E OF RECORD:	DJT		
JOB CAPTAIN:	CBM		
DRAWN BY:	TAR		
SMRT FILE:	TY101-19176	SHEET No.:	TY101

LEVEL 1 TECHNOLOGY PLAN - AREA A (A1)
1/4" = 1'-0"



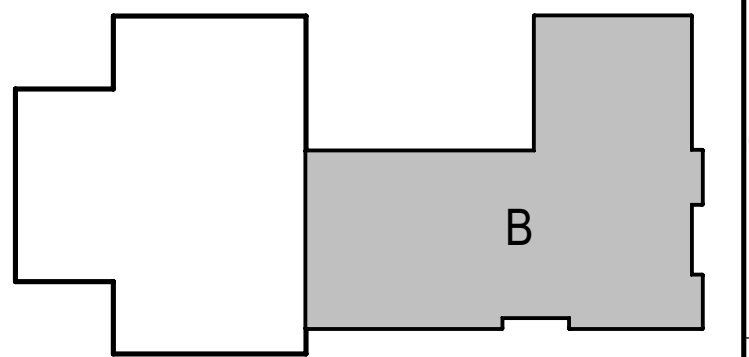
NOTES:

1. SEE SHEET E-001 FOR LEGEND AND GENERAL NOTES.
2. WHERE CARD READERS ARE SHOWN, PROVIDE A FULLY FUNCTIONING CARD ACCESS CONTROLLED DOOR. PROVIDE CARD READER AS SHOWN, COORDINATE LOCATION WITH ARCHITECTURE. PROVIDE DOOR CONTACTS AND COMPOSITE CABLE TO NEAREST ACP. DOOR HARDWARE FURNISHED AND INSTALLED BY DIVISION 8 AND CONNECTED BY THIS CONTRACTOR. COORDINATE WITH DIVISION 8 FOR REQUEST TO EXIT SWITCH IN DOOR HARDWARE. IF NO REX IS PROVIDED IN DOOR HARDWARE, PROVIDE A MOTION DETECTOR STYLE REX ABOVE THE DOOR.

KEYED NOTES:

- ① CEILING MOUNTED FIXED CAMERA
- ② CORNER MOUNTED PTZ CAMERA, MOUNTED AT 12'-0" ABOVE FINISHED GRADE.
- ③ PENDANT MOUNTED 360 DEGREE (FISH EYE) CAMERA MOUNTED AT 10'-0" AFF.

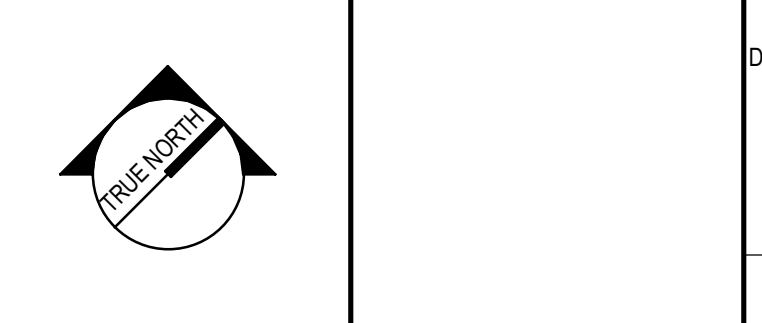
MENS RE-ENTRY BUILDING



KEY PLAN
N.T.S. (F0)

REV	DESCRIPTION	DATE
0	ADDENDUM #1	8-25-20

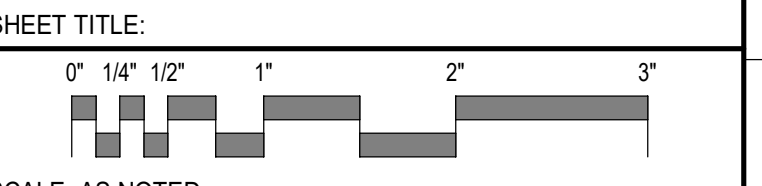
ADDENDUM #1
8-25-20
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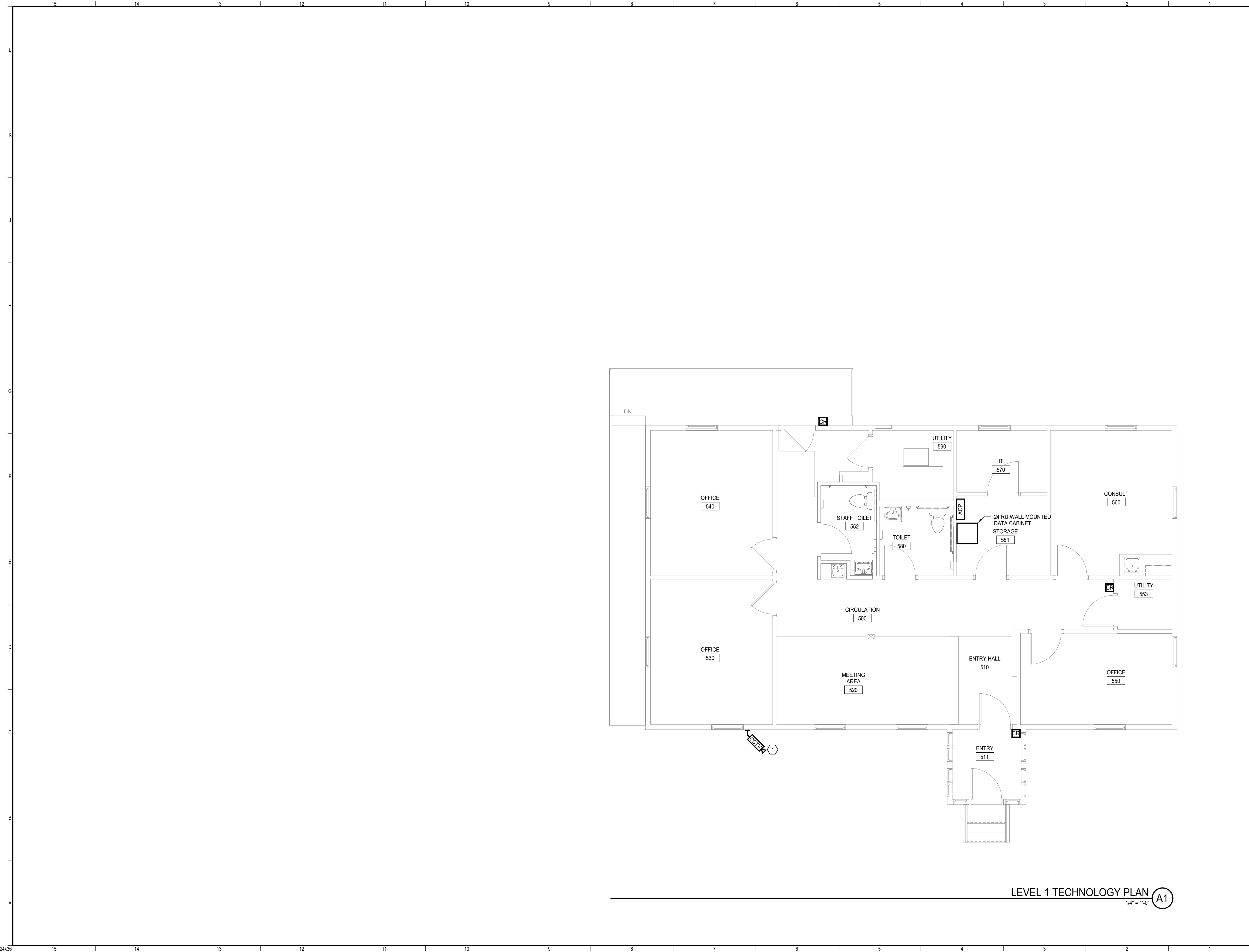
MDOC DCF
MEN'S RE-ENTRY CENTER

MACHIASPORT, MAINE
MEN'S REENTRY CENTER -
TECHNOLOGY PLAN - AREA B



SHEET TITLE:
 SCALE: AS NOTED
 PROJECT MANAGER: JGJ PROJECT NO: 19176
 A/E OF RECORD: DJT
 JOB CAPTAIN: CBM
 DRAWN BY: TAR
 SMRT FILE: TY102-19176 SHEET No. **TY102**

LEVEL 1 TECHNOLOGY PLAN - AREA B (A1)
 1/4" = 1'-0"



NOTES:

- SEE SHEET E-001 FOR LEGEND AND GENERAL NOTES.
- WHERE CARD READERS ARE SHOWN, PROVIDE A FULLY FUNCTIONING CARD ACCESS CONTROLLED DOOR. PROVIDE CARD READER AS SHOWN. COORDINATE LOCATION WITH ARCHITECTURE. PROVIDE DOOR CONTACTS AND COMPOSITE CABLE TO NEAREST ACP. DOOR HARDWARE FURNISHED AND INSTALLED BY DIVISION 8 AND CONNECTED BY THIS CONTRACTOR. COORDINATE WITH DIVISION 8 FOR REQUEST TO EXIT SWITCH IN DOOR HARDWARE. IF NO REX IS PROVIDED IN DOOR HARDWARE, PROVIDE A MOTION DETECTOR STYLE REX ABOVE THE DOOR.

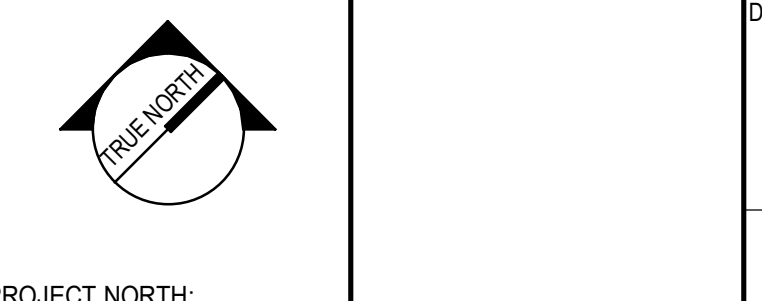
KEYED NOTES:

- CORNER MOUNTED PTZ CAMERA, MOUNTED AT 12'-0" ABOVE FINISHED GRADE.

REV	DESCRIPTION	DATE
0	ADDENDUM #1	8-25-20

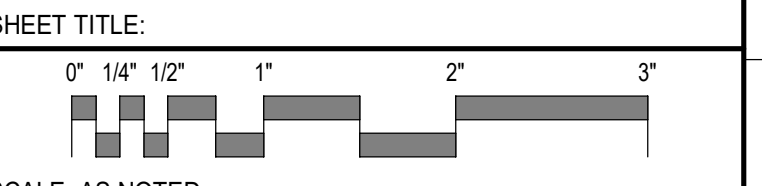
ADDENDUM #1
8-25-20

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MEN'S RE-ENTRY BUILDING
 MACHIASPORT, MAINE
ADMIN BUILDING - TECHNOLOGY PLAN

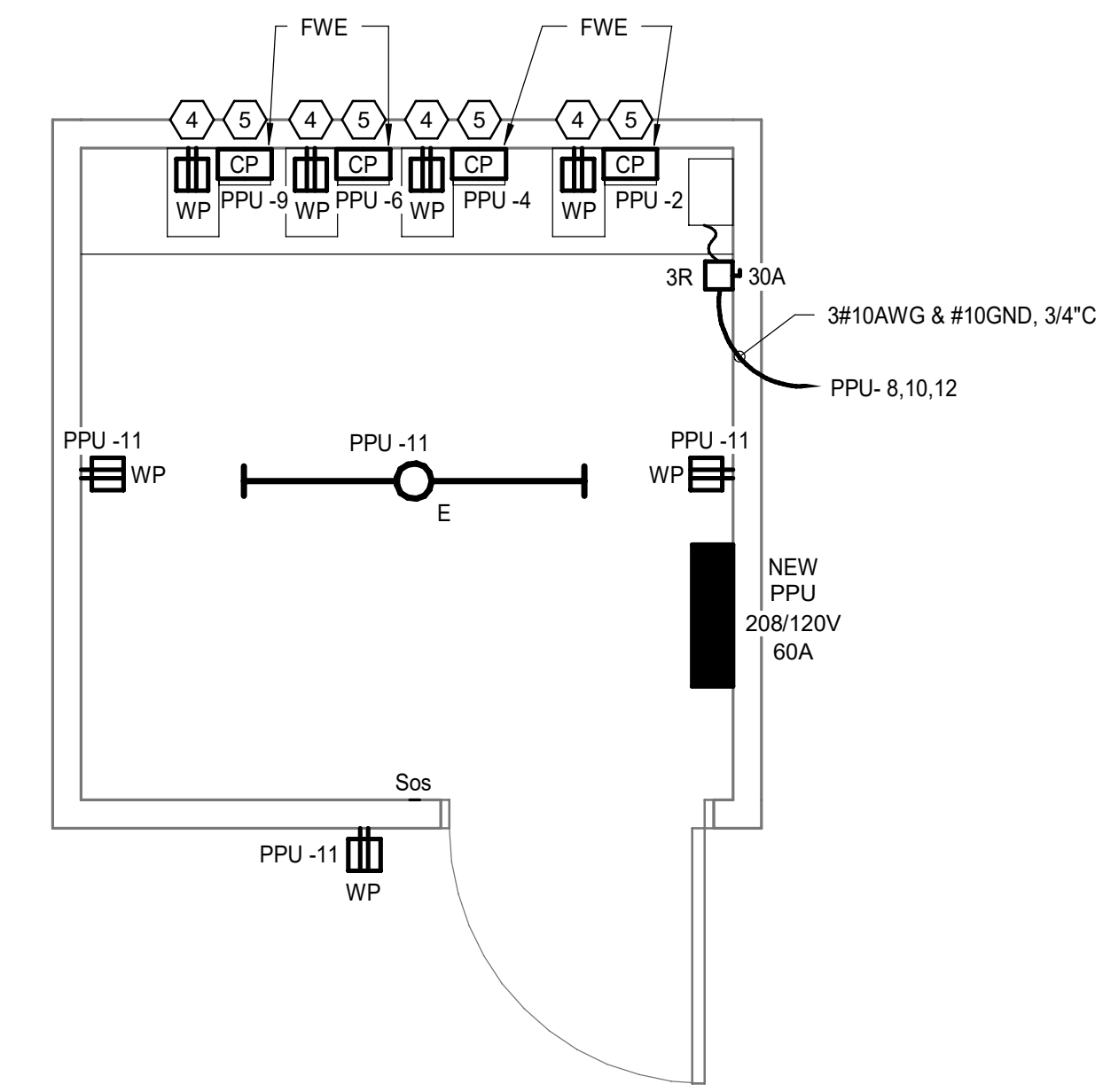


SCALE: AS NOTED

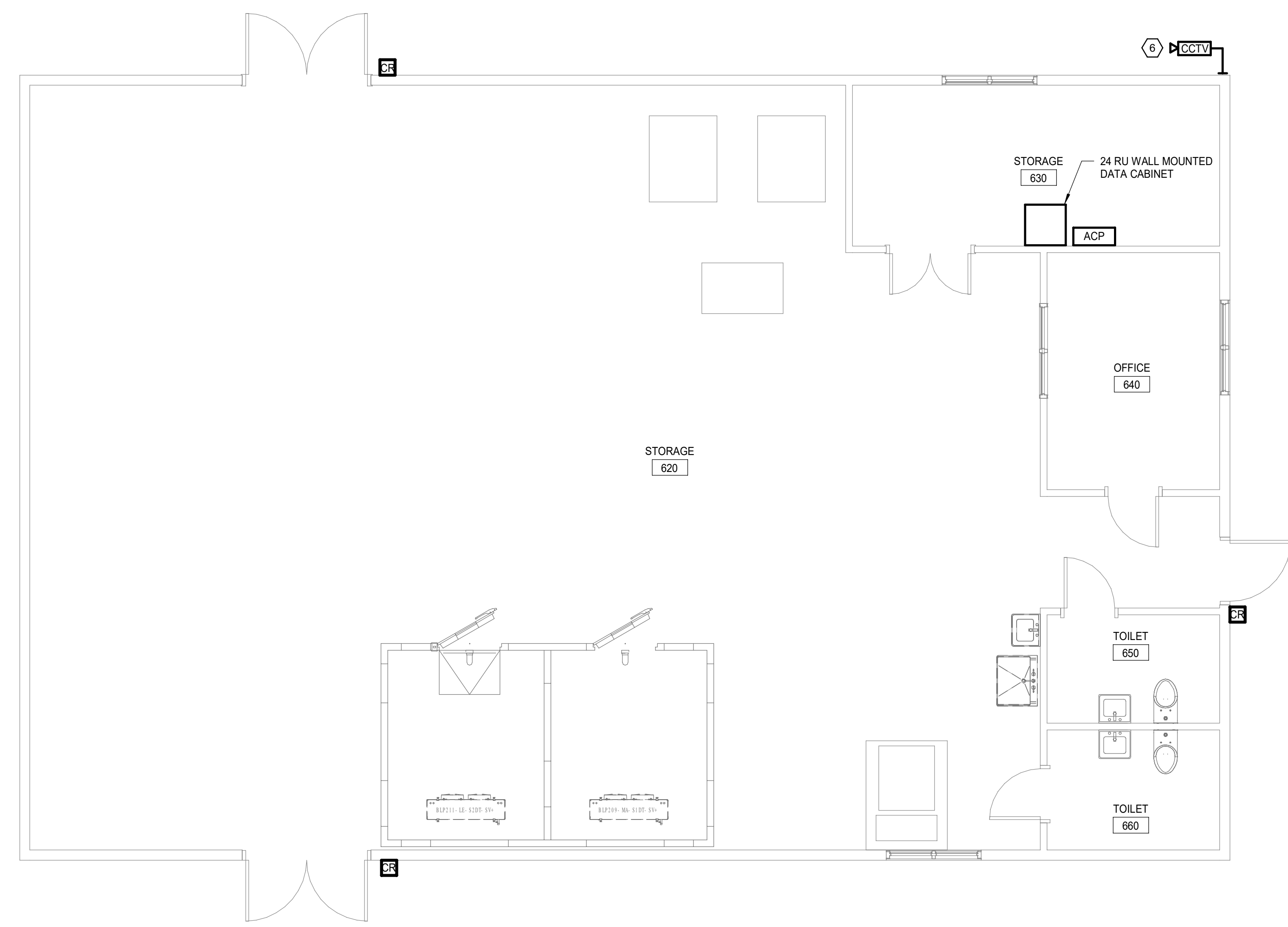
PROJECT MANAGER:	JGJ	PROJECT NO.:	19176
A/E OF RECORD:	DJT		
JOB CAPTAIN:	CBM		
DRAWN BY:	TAR		
SMRT FILE:	TY103-19176	SHEET No.	TY103

LEVEL 1 TECHNOLOGY PLAN 1/4" = 1'-0"

DIRECTORY	KVA LOAD			CCT NO.	BKR AMPS	A	B	C	BKR AMPS	CCT NO.	KVA LOAD			DIRECTORY		
	A	B	C								A	B	C			
SPARE	-	-	-	1	20				30	2	2.0			BLOWER CONTROL PANEL		
SPARE	-	-	-	3	20				30	4	2.0	2.0		BLOWER CONTROL PANEL		
SPARE	-	-	-	5	20				30	6			2.0	BLOWER CONTROL PANEL		
SPARE	-	-	-	7	20				8		2.5					
BLOWER CONTROL PANEL		2.0		9	30				30	10	2.5			ELECTRIC SPACE HEATER		
UTILITY BUILDING LTG/RECEPTS			0.8	11	20				12			2.5				
SPARE				13	20				30	14				SPARE		
SPARE				15	20				30	16				SPARE		
SPARE				17	20				30	18				SPARE		
SPACE				19					20					SPACE		
SPACE				21					22					SPACE		
SPACE				23					24					SPACE		
SPACE				25					26					SPACE		
SPACE				27					28					SPACE		
SPACE				29					30					SPACE		
SUB-TOTAL				0.0	2.0	0.8	NEUTRAL BUS				4.5	4.5	4.5	SUB-TOTAL		
								GROUND BUS								
VOLTAGE:				208Y/120V	3 PHASE	4 WIRE	100 AMP BUS	TOTAL KVA		A	4.9	PANEL NO.		PPU		
MAIN BREAKER:								100 AMP TRIP	TOTAL KVA		B	6.7	LOCATION		UTILITY BUILDING	
MOUNTING:				SURFACE				TOTAL KVA		C	5.5					
SC RATING:				10,000 AIC				TOTAL KVA		17.1						
NOTES: (1) PANELBOARD TO BE PROVIDED WITH A NEMA 4 ENCLOSURE.																



UTILITY BUILDING (1)
1/2" = 1'-0"

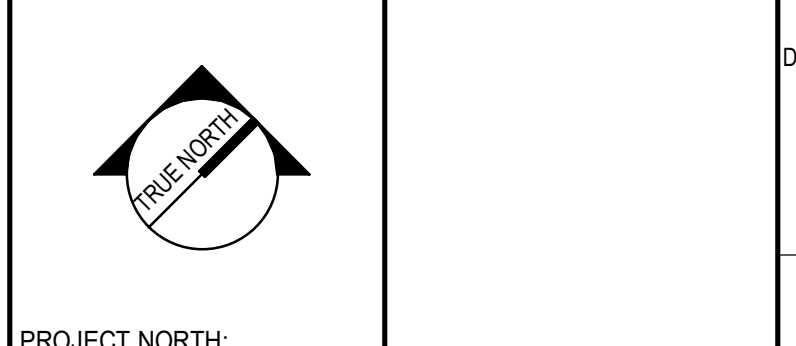


LEVEL 1 TECHNOLOGY PLAN (A1)
1/4" = 1'-0"

- NOTES:**
- SEE SHEET E-001 FOR LEGEND AND GENERAL NOTES.
 - WHERE CARD READERS ARE SHOWN, PROVIDE A FULLY FUNCTIONING CARD ACCESS CONTROLLED DOOR. PROVIDE CARD READER AS SHOWN. COORDINATE LOCATION WITH ARCHITECTURE. PROVIDE DOOR CONTACTS AND COMPOSITE CABLE TO NEAREST ACP. DOOR HARDWARE FURNISHED AND INSTALLED BY DIVISION 8 AND CONNECTED BY THIS CONTRACTOR. COORDINATE WITH DIVISION 8 FOR REQUEST TO EXIT SWITCH IN DOOR HARDWARE. IF NO REX IS PROVIDED IN DOOR HARDWARE, PROVIDE A MOTION DETECTOR STYLE REX ABOVE THE DOOR.
- KEYED NOTES:**
- INSTALL LIGHTS AND CONTROL SWITCHES SHIPPED LOOSE WITH WALK-IN COOLER / FREEZER. PROVIDE POWER FOR LIGHTS, DOOR FRAME HEATERS, PRESSURE RELIEF PORT AND OTHER ASSOCIATED CONTROLS. COORDINATE ALL LOCATIONS OF ELECTRICAL CONNECTIONS WITH EQUIPMENT SUPPLIER. ALL ELECTRICAL CONDUITS PENETRATING THROUGH WALK-IN COOLER / FREEZER ENCLOSURES TO BE SEALED TO STOP MOISTURE TRANSFER THROUGH RACEWAYS.
 - PROVIDE 5 #12 AWG THHN CONDUCTORS FROM CONDENSING UNIT MOUNTED ABOVE FREEZER AND COOLER TO THE EVAPORATOR COILS INSIDE FREEZERS & COOLERS. COORDINATE ALL LOCATIONS OF ELECTRICAL CONNECTIONS WITH EQUIPMENT SUPPLIER. ALL ELECTRICAL CONDUITS PENETRATING THROUGH WALK-IN COOLER / FREEZER ENCLOSURES TO BE SEALED TO STOP MOISTURE TRANSFER THROUGH RACEWAYS.
 - PROVIDE TWO 1" CONDUITS FROM BLOWER CONTROL PANEL TO NITROGEN REDUCTION TANK. PROVIDE EY SEALS AT CONDUIT PENETRATIONS TO TANK TO MAINTAIN SEAL FROM HAZARDOUS LOCATION. IN ONE CONDUIT RUN 2#12AWG & #12GND FOR PUMP MOTOR AND IN THE SECOND CONDUIT RUN FLOAT SWITCH WIRING CABLE FURNISHED BY TANK INSTALLER.
 - PROVIDE GFCI RECEPTACLE WITH IN USE WEATHERPROOF COVER. SEE SHEET CE607 FOR MOUNTING HEIGHT OF RECEPTACLES. RECEPTACLES TO BE FED FROM A CIRCUIT BREAKER IN THE NITROGEN REDUCTION SYSTEM CONTROL PANEL. COORDINATE ALL WORK WITH EQUIPMENT INSTALLER.
 - PROVIDE POWER FOR NITROGEN REDUCTION TANK CONTROL PANEL AND WIRING FROM CONTROL PANEL TO BLOWER MOTORS, PUMPS AND FLOAT SWITCHES. WIRING TO THE CONTROL PANEL SHALL BE 2#10AWG & #10GND, 3/4"C AND WIRING FROM CONTROL PANEL TO AUXILIARY EQUIPMENT TO BE 2#12AWG & #12GND. COORDINATE WITH EQUIPMENT SUPPLIER FOR EXACT LOCATIONS OF ALL ELECTRICAL CONNECTIONS.
 - CORNER MOUNTED PTZ CAMERA, MOUNTED AT 12'-0" ABOVE FINISHED GRADE.

REV	DESCRIPTION	DATE
0	ADDENDUM #1	8-25-20

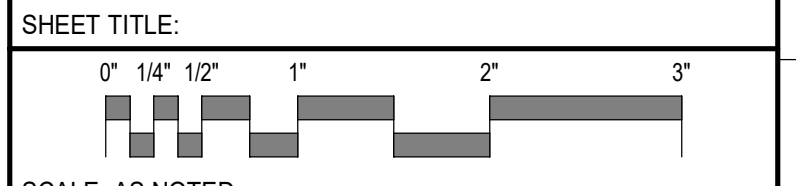
ADDENDUM #1
8-25-20



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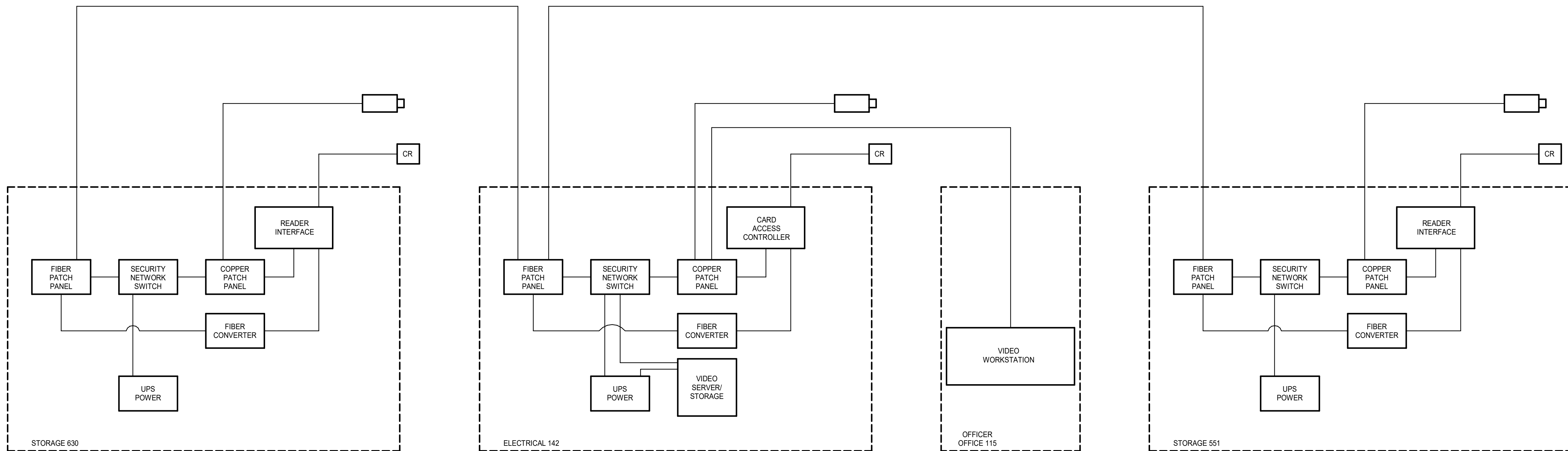
MDOC - DCF
MEN'S RE-ENTRY CENTER

STORAGE BUILDING -
TECHNOLOGY PLAN



SCALE: AS NOTED

PROJECT MANAGER:	JGJ	PROJECT NO.:	19176
A/E OF RECORD:	DJT		
JOB CAPTAIN:	CBM		
DRAWN BY:	TAR		
SMRT FILE:	TY104-19176	SHEET No.:	TY104



STORAGE BUILDING

MEN'S RE-ENTRY CENTER

ADMINISTRATION BUILDING

REV	DESCRIPTION	DATE
0	ADDENDUM #1	8-25-20

ADDENDUM #1
8-25-20

CURRENT ISSUE STATUS:

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MDOC DCF
MEN'S RE-ENTRY CENTER

MACHIASPORT, MAINE
TECHNOLOGY SINGLE LINE
DIAGRAM

SHEET TITLE:
0" 1/4" 1/2" 1" 2" 3"

SCALE: AS NOTED

PROJECT MANAGER: JGJ PROJECT NO: 19176

A/E OF RECORD: DJT

JOB CAPTAIN: CBM

DRAWN BY: TAR

SMRT FILE: TY651-19176 SHEET No. **TY651**

SECTION 284600

SECURITY CONTROL SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Provisions of the Division 1 contract apply to this section.
- B. Refer to Division 1 Section "Alternates" for alternate pricing required under this division.

1.2 DESCRIPTION OF WORK

- A. Summary of work includes, but not necessarily limited to, providing the products, labor, and services for the complete installation of a fully functional integrated electronic security system as indicated and specified herein.
- B. Consider all the work of this section and the following listed sections as a single subcontract and assume sole responsibility for the specified work
- C. The security contractor shall provide all equipment, shop drawing submittals, testing reports, and samples as described in the following specification sections:
 - 1. 284600 Security Control Systems
 - 2. 284605 Conductors and Cabling
 - 3. 284606 Cabinets and Enclosures
 - 4. 284620 Video Communication System
 - 5. 284621 Video Management Server, Network and Software
 - 6. 284640 Access Control System
 - 7. 284680 Uninterruptible Power Supply
- D. The security contractor shall be responsible for engineering, coordinating, fabrication, assembly, and installation of a complete security control system. This shall include but not limited to, cabling, cabling raceways, terminations of all system cabling, all distributed AC and/or DC power, field devices and control components, systems start-up, acceptance testing, training, and the complete and total integration of all systems utilizing 'In-House' software programming expertise.
- E. Provide only commercial off-the-shelf (COTS) equipment.
- F. Provide a complete fully functional, integrated security system. This shall include all requirements for proper control of detention hardware and architectural hardware.
- G. Provide all conduit/raceway, back boxes and wiring for a complete integrated electronic security system.
- H. The Security Control System shall be connected through UPS power. All cameras, monitors, access equipment and any other system provided under this section, shall be connected to UPS power.
- I. Provide all necessary distributed AC/DC system power, unless otherwise noted. Provide and install power supplies for all locking devices including electromechanical locks specified under Division 11 or 8.
- J. Provide Owner training by factory-trained and authorized personnel as specified.

- K. Turn over to Owner all termination point and interconnection schedules, all programming source codes including video recorder software, video review software, video surveillance software, access control and applicable license required for operations. Provide floor plan layouts of all devices indicating device nomenclature. Provide as-built drawings indicating new conduit and raceways. Provide block diagrams of all systems within the security control system. This is to include the security management systems runtime and development licenses.
- L. Provide all spare components as specified.
- M. Provide other controls, annunciation & monitoring indicated in this specification and on the drawings.
- N. Provide locations of all 120-volt power connections required by the electronic security system for computers and monitoring equipment at security control stations.
- O. Provide a Network Time Protocol (NTP) time managing device to synchronize the time of day across the integrated electronic security system.
- P. Provide coordination to ensure that security electronics rooms are completed as early as possible to facilitate installation of control wiring. Control rooms and security electronics equipment rooms shall be free of airborne contaminants from cutting, grinding, painting, masonry work, etc., prior to the installation of any security electronics equipment. HVAC system must be operating properly and running at a temperature and humidity level required for the operation of the equipment in the spaces.
- Q. Prior to fabrication, coordinate exact location and installation of all supplied equipment and devices with other trades.
- R. Prior to fabrication, coordinate equipment requirements and locations with the millwork provider.
- S. Coordinate the inter-related work of the security contractor with Div. 11, Div. 8, and Div. 26. Consult these divisions of the specifications for any responsibilities of the security contractor. Coordination with the contractors:
 - 1. Security Electronics Contractor (SEC) Responsibilities in Coordinating with the DEC:
 - a. Coordinate conduit, boxes and cabling requirements, sizes and runs for security electronics systems which are to be provided by the Electrical Contractor to the interface point at the door.
 - b. Perform all device terminations. Connect the mating connector to the control conductors and connect to hardware interface connector.
 - c. Provide all hardware and systems to control or monitor a door in accordance with the requirements of related Sections in accordance with the wiring diagrams provided by the hardware supplier.
 - d. After installation, verify proper control operations of all doors.
 - 2. Coordinate with the contractor to provide manufacturer's suggested cable and connections for control and monitoring of supplied devices.
 - 3. Coordinate to work in conjunction with the contractor for testing and adjusting the lacing and monitoring devices. Prior to substantial completion, have a time when both contractors are present at the same time and work in conjunction to make proper adjustments for correct hardware operation.
 - 4. Coordinate with the contractor the location of each controlled device. The security contractor is responsible for all control and power wiring (except where indicated to be by others), termination and raceway to each controlled device.
- T. Complete the inspections, submittal and closeout documentation as described in the general provisions.

1.3 REFERENCES:

- A. Comply with the following applicable standards which are referenced in this section:
- B. NEC- National Electrical Code
- C. NFPA-National Fire Code
- D. Life Safety Code
- E. UL - Underwriters Laboratories.
- F. BICSI - Telecommunications Distribution Methods Manual (TDMM)
- G. All Local Codes and Ordinances

1.4 QUALITY ASSURANCE

- A. Security Electronics Contractor (SEC) is required to submit for approval the names of the equipment manufacturers they intend to use with their bid. Pre-qualified SEC's are as follows:
 - 1. Accurate Controls, Ripon, WI
 - 2. Cornerstone (Com-Tec Division) Greenville, WI
 - 3. Stanley Security, Noblesville, IN
 - 4. Johnson Controls Tyco Simplex Grinnell – Montgomery, AL
- B. A single source of responsibility for the integrated electronic security system is required for this project. A subcontractor shall be responsible a complete division 2846XX system. It is critical that the security contractor understands and meets the requirements of the contract documents, the equipment specified and security systems integration.
- C. Division and separation of total responsibility for contract delivery of the security control systems will not be acceptable. All system electronic integration design, programming and commissioning under Division 28 sections other than 283111 – *Fire Alarm System* shall be performed by the bidding SEC and not sub-contracted.
- D. During construction, the security contractor shall be able to respond on site (with qualified personnel) to emergency service within 12 hours of notification.
- E. Non-pre-qualified security contractors intending to submit a bid on the work specified in this section shall provide to the Architect the following information no less than 10 business days prior to bid date and shall be approved by addendum prior to bid date. Verbal approval will not be given.
 - 1. The security contractor shall have been actively engaged in the design and delivery of detention electronics security control system solutions for greater than five (5) years. Provide a historical narrative of the company from inception; including history of ownership, partnership, incorporation and/or other organizational information. Include information on the growth of the firm over time to include number of employees, relocation(s) of the firm, mergers and acquisitions. Use only the current corporate/business entity, intending on bidding and performing the work.
 - 2. Provide documentation of experience, list five (5) projects over a project cost of \$1M and similar scope to include project names, addresses, description of systems, and the names, addresses, telephone numbers, and contact persons of the contractor and/or Owner for whom the work was done.
 - 3. Provide statement that firm has been in business for minimum of five (5) continuous years

4. Provide a resume of all key employees in supervisory positions; include their current position, time of service in current position, years as a full-time employee of the security contractor, and number of years of experience in the corrections and criminal justice markets.
 5. Submit a block diagram of two previous projects which are similar in scope outlining all major and minor system components within the security control system as well as related systems, describing the integration of both hardware and software required for the complete system.
 6. Submit a listing of all jobs which the security contractor is presently or has been involved in litigation and the status thereof.
 7. Provide a list of all jobs that your firm has been involved in liquidated damages or where delay damages were filed against your firm.
 8. Submit a current letter from the proposed system equipment manufacturer's stating that the security contractor is factory trained, fully authorized distributor and installer of their complete line of products.
 9. Provide signed statement that security contractor has not been found guilty of charges relating to conflicts of interest or to any criminal activity relating to construction methods, bidding, bid rigging, or bribery in the past five years.
 10. Provide signed statement that security contractor has not been found guilty of charges relating to employment of illegal aliens on construction projects in the past five (5) years.
 11. Provide a letter from 'A' rated surety company that your company will be able to provide a Performance/Payment bond for this project if awarded the project.
 12. The security contractor shall indicate complete and total compliance with the provisions of this specification by letter signed by an officer of the corporation or a principal if other ownership currently exists.
 13. The security contractor shall provide the following information:
 - a. Contractor Qualification Statement AIA-A305.
 - b. Financial Statement for previous fiscal year.
 - c. List of projects currently under construction.
 - d. Name, address and telephone number of organization's current Bonding Company and level of bonding capacity.
 14. Any bidder who fails to submit the above or submits misrepresented or incomplete information shall be disqualified. After review of the above information, the Architect may at his sole discretion add any additional approved security contractors by addendum that in his opinion have shown by this documentation that they will provide the owner with equal quality service of the previously approved contractors.
 15. Approval of a security contractor does not convey approval of equipment customarily used by the contractor.
- F. All contractors/integrators are prohibited from any substitutions or deviations from the specified intent, products, and levels of quality specified herein. Unless, as described below, the integrator has stated compliance/non-compliance on a paragraph-by-paragraph basis to all sections of Division 2846XX and each deviation has been approved in writing by the Architect/Engineer as acceptable.
- G. Approved manufacturer list.
1. Manufacturers listed as approved to bid, are required to provide proof of compliance for all items listed under paragraph below.

2. Manufacturers will not be added to this list unless qualification evidence is provided to and approved by the Architect.
 3. Approved manufacturers will be added by addendum prior to bid date. Verbal approval will not be given.
 4. Approval of a manufacture does not convey approval of all equipment manufactured by the manufacturer. Manufactures will be listed in each equipment section. Manufacture's approval does not relieve the supplier of restrictions and descriptions of the specifications.
- H. Non-approved equipment manufacturers who wish to bid on the work in this section shall provide evidence of the following to the Architect no less than eight (8) business days prior to bid date.
1. The manufacturer of detention equipment shall have a minimum of ten (10) years successful experience in the design and manufacture of integrated control systems similar to the type of detention equipment required for this project.
 2. To insure future availability of repair parts, the manufacturer shall warrant that replacement parts will be available for ten (10) years from the date of original purchase. Manufacturer shall actively maintain a stock of repair parts and publish maintenance manuals for all items specified herein.
 3. A local representative of the manufacturer specially trained in the operation and design, and with a thorough knowledge of the projects, shall be available for consultation on this project.
 4. The manufacturer shall submit proof of product liability insurance.
 5. Submit proof of a quality assurance program equal to ISO 9001
 6. Equipment shall comply with UL 508 and UL508A requirements.
- I. Work shall be in accordance with the applicable federal, state, and local codes or standards current at the commencement of installation. Where more than one code or regulation is applicable, the more stringent shall apply. All security contractor licensing requirements for contractors and subcontractors shall be enforced as per applicable codes and statutes.

1.5 SECURITY CONTROL SYSTEM TRAINING

- A. Provide supervisory and operator training for the owner's personnel prior to the Owner's use of newly installed equipment.
1. Provide one (1) four-hour sessions at time set by the owner.
 2. Provide one (1) two-hour sessions at times set by the owner for maintenance training of the system.
- B. Provide an interactive video training for all system operations and system troubleshooting.
1. This training shall be carefully organized and segmented so that training may be given on the complete system or on specific functions as may be appropriate.
 2. The videos shall contain computer generated screen animation with narration describing step by step operation.
 3. The maintenance portion of the videos shall contain still images with graphics and narration describing all equipment states and troubleshooting methods.

1.6 SUBMITTALS

- A. Submit the necessary submittal criteria for Div. 2846XX sections as a complete submittal package, and for each subsequent re-submittal if necessary. Following this process will afford the submitted information to be reviewed more efficiently. All the necessary information the reviewer needs to properly evaluate the submission will be in one package each and every time it has to be reviewed. Failure to follow these submission requirements shall constitute the submittal as being non-compliant and will be returned as "Rejected/Resubmit".
- B. Submit one (1) reproducible electronic set on disk (preferably computer generated "PDF" format).
- C. The submittal package shall consist of the following:
 - 1. The Equipment Layout Floor Plans shall indicate the following:
 - a. A scaled plan drawing indicating the placement of all required security control system components/racks and their relationship with all other adjacent objects.
 - b. All necessary clearances around components for both installation and maintenance have been coordinated.
 - c. Dimensioned the location and provide installation details of the security control system's 'Head-End' racks.
 - 2. A Bill of Materials for each system, which shall include the manufacturer names, model numbers, and quantities of all equipment proposed.
 - 3. Provide spreadsheet with each part or assembly listed in part 2 of these specifications. List in the spread sheet the manufacture, manufacture part number, specification section, paragraph, deviations from specifications, shop drawing number that include part and additional parts required not specified.
 - 4. Technical product information clearly identifying the principal component proposed.
 - 5. Specifications information for each type of cable required (power and data) and its application.
 - 6. Provide block diagrams of all systems/sub-systems showing interconnects and relationships as a complete system.
 - 7. Provide a complete block diagram of all power requirements and connections. Show line and low voltage information, all UPS, battery back-up, and emergency/generator power.
 - 8. Provide complete "point to point" wiring diagrams for all systems and subsystems. Show all components in the communications path from the master control through all intervening system components, including terminal boards to the individual end devices. Document dedicated leased lines and associated equipment required to complete a transmission path. Where conductors are grouped into a cable for long site runs, a single line properly identified shall be shown. Where these cables fan out for termination, individual wire terminations and markings shall be shown.
 - 9. Wire management details for the installation of cable harnesses inside racks, equipment cabinets, and consoles, control panels and other areas of exposed cable.
 - 10. Provide all electrical connections, electrical cable pathways, and identify electrical panel location and circuits allocated for used by the security system.
 - 11. Provide layout of all racks and equipment cabinets.
 - 12. Equipment locations: Provide drawings that show the elevations indicating the exact locations of all system equipment, interior and exterior.
 - 13. Provide written document detailing the test procedure for substantial completion of the system provided. These procedures shall include all tests recommended by the equipment

manufacturer and by this specification. Provide samples of system approval test sheets for review.

14. Markings: Submit for approval wire marking, panel label, zone label, terminal strip numbering & terminal strip identification styles and typical text as outlined.
 15. Touch screen Control Console "Screens": Submit for approval a detail drawing or screen snap shot of each control console "screen" depicting the exact layout to full size scale. Representation of all colors shall be included, as well as the operator's orientation of the control panel in relationship to the control room and building. Provide multiple screens for areas of the building that multiple control stations operate that face different directions. Include a glossary of all icons available and a description of their function and actions. Contractor shall conduct a submittal review meeting as described in this section.
 16. The security contractor shall provide a detail schematic depicting the location and elevation of all equipment to be provided within each security control room(s).
 17. The security contractor shall provide a detail schematic depicting the location and elevation of all equipment to be provided within each security equipment room(s).
 18. Provide theory of operation for all integrated equipment.
- D. All drawings shall be computer generated for expedient modifications if required.
- E. Shop detail drawings: These drawings shall indicate the accurate locations of all equipment associated with each system in respect to architectural and structural conditions. Size drawings of components, equipment layouts and other small size areas to the common scale of 1/8", 1/2" or 1" per foot. Size drawings of larger areas to the common scale of 1/4" or 1/8" per foot. Drawings shall include explicit notes on the termination of all conductors and shields for each location. Architectural backgrounds shall be in accordance with the latest architectural drawings and shall be complete with elevations, sections, and details as required to depict the installation. These drawings shall be approved prior to starting work.

1.7 TESTING

- A. Design a complete system test and written operational certification to the Architect/Engineer and Owner as part of the submittal process. The form shall be an excel spreadsheet. The test and certification shall be used for pre-shipment test, owner verification prior to shipment, contractor verification after installation and substantial completion verification. The contractor shall document in the submittal process the test forms and procedures.
- B.
- C. Submit approved substantial completion test sheets 15 days prior to schedule testing date.
- D. Conduct with owner and/or architect a comprehensive system test of all system components per the approved test plan. At completion of all testing provide substantial completion test sheets.

1.8 RECORD DRAWINGS

- A. The security contractor shall obtain, pay for, and keep up-to-date and available to the Owner or its representative, complete prints as well as digital media copies of all computer drawings of the project, clearly annotated with "as-built" data as the work is performed. This data shall include the following:
 1. Routing of signal and power wire and cables, including the designations assigned to each wire/cable and field terminations schedules.
 2. Accurate location of all equipment installed under the specifications.
 3. A complete equipment list for each functional area.

- B. Upon completion and for inclusion into the Final Record Sets of drawings of this project, all as-built information shall be transferred to a full size set of CAD drawings and transmitted to the A/E within 30 days of substantial completion. Refer to Division 1 Sections for additional requirements.

1.9 WARRANTY

- A. The security contractor shall warranty all equipment & systems for a period of minimum two (2) years commencing with Substantial Completion. The warranty shall cover all costs for Warranty Services, including parts, labor, prompt field service, pick-up and transportation.
- B. Equipment that has manufacturers' warranty longer than two (2) years shall be warranties for the longer period of time. The contractor shall document in the submittal process the manufactures warranty policy for each component.
- C. When warranties are listed in subsequent sections, the contractor shall provide warranty of the most stringent requirement.

1.10 WARRANTY AND PREVENTATIVE MAINTENANCE SERVICES

- A. Provide Security System Interface, cabling & connection for remote warranty troubleshooting and maintenance. Coordinate VPN connection with the owner. The security contractor shall request a meeting during the submittal phase with the Owner, User, Engineer, and IT to coordinate this connection and implementation. The connection to the security control system will be through a provided VPN connection. This remote connection shall be used by the security contractor during the warranty period for remote system troubleshooting and maintenance. The connection shall be implemented so that the Owner has control of the access into the system.
- B. Maintenance services within this scope of work shall include a preventative maintenance and system optimization inspection to be conducted every three (3) months. These visits shall be recorded at the site by signing in the Owner's daily operations log book and include, as a minimum, the following:
 - 1. Configuration Checks on video recording system.
 - 2. Verify the integrity of all system software including Remote Viewing Stations.
 - 3. Cleaning of air filters.
 - 4. Adjustment of video monitors' picture controls.
 - 5. Tuning of video camera views (i.e., focus, iris).
 - 6. Configuration and through put tests of system network (i.e., network switches)
 - 7. Inspection of cables and connections.
 - 8. Inspect and test all UPS units, including batteries and cables.
 - 9. Lubricate and clean system, report, and badging printers.
- C. Service response requirements shall include the following:
 - 1. Twenty-four (24) hour phone number to reach in-house troubleshooting personnel.
 - 2. Ability to restore functionality within eight (8) hours after notification on a twenty-four (24) hour basis.
 - 3. Service technicians trained by the manufacturers of the system components.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Materials shall be as specified herein, except, consideration shall be given to other products that meet or exceed the performance of those specified if documentation is received not less than eight (8) business days prior to the date of bid opening in accordance with Division 1 Section "Product Requirements".

2.2 See appropriate Division 28 section for specific product information.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Check location, "roughing in", and field dimensions prior to beginning work.
- B. Do not begin installation until all unsatisfactory conditions have been corrected.
- C. Verify field measurements are as shown on Drawings and as instructed by manufacturer.
- D. Verify that required utilities are available, in proper location, and ready for use.

3.2 INSTALLATION/APPLICATION OF ALL SECURITY PRODUCTS

- A. Field testing and inspection will be performed under the provisions of each section.
- B. Replace equipment, components, & wiring as required to achieve a fully functional system.

END OF SECTION 284600

SECTION 284605

CONDUCTORS, CABLING AND RACEWAY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Provisions of the Contract and of the Contract Documents apply to this section.
- B. Refer to Division 27 Section "Communications Horizontal Cabling" for color coding of cabling jacket. Provide color jacket for all SEC cabling different from other communication cabling.

1.2 SUMMARY

- A. Section Includes:
 - 1. UTP cabling.
 - 2. Optical fiber cabling.
 - 3. RS-485 cabling.
 - 4. Low-voltage control cabling.
 - 5. Control-circuit conductors.
 - 6. Identification products.
- A. Cable installation, identification and termination shall be performed in accordance with the Manufacturer's technical installation guidance, in addition to the applicable codes.
- B. Wiring shall be concealed in conduit. Flexible metallic conduit shall not be permitted in any area that an inmate may occupy.
- C. Rigid non-metallic conduit (PVC) shall not be permitted above ground floor slab.
- D. All portions of the security system requiring maintenance, including junction and pull boxes, shall be accessible to maintenance staff.
- E. All concealed portions of the system requiring maintenance shall be accessible to maintenance staff by means of adequately sized and properly located access doors.
- F. All conduit shall be concealed in finished rooms. Prior to being exposed in any finished room, Architect approval shall be sought and given in writing. In rooms with unfinished ceilings, including vehicle garages and warehouse spaces, conduit may be exposed provided it is no less than 12'-0" above finished floor level. Conduit may be exposed in unfinished rooms such as mechanical rooms, electrical rooms, telecom data rooms.
- G. All screws and fasteners for the equipment within the security perimeter shall be tamper resistant security screws, requiring a special tool.
- H. In the absence of the Manufacturer's recommendations on conductor applications, the security contractor shall ensure that the cables selected meets all technical requirements of the equipment to be installed.
- I. System cabling shall be color coded by system where possible.

- J. Green wires shall be used for ground only.

1.3 DEFINITIONS

- A. BICSI: Building Industry Consulting Service International.
- B. EMI: Electromagnetic interference.
- C. IDC: Insulation displacement connector.
- D. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control and signaling power-limited circuits.
- E. Open Cabling: Passing telecommunications cabling through open space (e.g., behind drop ceilings or in wall cavity).

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Test cables upon receipt at Project site.
 - 1. Test optical fiber cable to determine the continuity of the strand end to end. Use optical fiber flashlight or optical loss test set.
 - 2. Test each pair of UTP cable for open and short circuits.

1.5 FIELD CONDITIONS

- A. Do not install conductors and cables that are wet, moisture damaged, or mold damaged.
 - 1. Indications that wire and cables are wet, or moisture damaged include, but are not limited to, discoloration and sagging of factory packing materials.
- B. Environmental Limitations: Do not deliver or install UTP, optical fiber, and coaxial cables and connecting materials until wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.6 SUBSTITUTIONS

- A. Materials shall be as specified herein, except, consideration shall be given to other products that meet or exceed the performance of those specified if documentation is received not less than eight (8) business days prior to the date of bid opening in accordance with Division 1 Section "Product Requirements".

1.7 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 25 or less.
 2. Smoke-Developed Index: 50 or less.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
1. For the control system network, provide a yellow permanent marking on the device cover plate or jack to indicate that jack is associated with the control network.

PART 2 - PRODUCTS

2.1 UTP CABLE

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. ADC.
 2. AMP Netconnect; a brand of Tyco Electronics Corporation.
 3. Belden Inc.
 4. Berk-Tek; a Nexans company.
 5. CommScope, Inc.
 6. Draka Cableteq USA.
 7. Genesis Cable Products; Honeywell International, Inc.
 8. Mohawk; a division of Belden Networking, Inc.
 9. Superior Essex Inc.
 10. SYSTIMAX Solutions; a CommScope, Inc. brand.
 11. 3M; Communication Markets Division.
- B. Description: 100-ohm, four-pair UTP, covered with a thermoplastic jacket.
1. Comply with ICEA S-90-661 for mechanical properties.
 2. Comply with TIA/EIA-568-B.2, Category 5e or 6.
- C. Color code by system:
1. Yellow - Video system
 2. Orange - Control (PLC) network
 3. Blue - Other

2.2 UTP CABLE HARDWARE

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. ADC.
 2. American Technology Systems Industries, Inc.
 3. AMP Netconnect; a brand of Tyco Electronics Corporation.
 4. Belden Inc.
 5. Dynacom Inc.

6. Hubbell Incorporated; Hubbell Premise Wiring.
7. Leviton Commercial Networks Division.
8. Molex Premise Networks; a division of Molex, Inc.
9. Panduit Corp.
10. Siemon.

- B. UTP Cable Connecting Hardware: IDC type, using modules designed for punch-down caps or tools. Cables shall be terminated with connecting hardware of the same category or higher.

2.3 OPTICAL FIBER CABLE

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AMP Netconnect; a brand of Tyco Electronics Corporation.
2. Belden Inc.
3. Berk-Tek; a Nexans company.
4. CommScope, Inc.
5. Corning Incorporated; Corning Cable Systems.
6. CSI Technologies Inc.
7. General Cable Technologies Corporation.
8. Mohawk; a division of Belden Networking, Inc.
9. Superior Essex Inc.
10. SYSTIMAX Solutions; a CommScope, Inc. brand.
11. 3M; Communication Markets Division.

- B. Description: Multimode, 62.5/125 micrometer, 12-fiber, tight buffer, optical fiber cable.

1. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 444, UL 1651, and NFPA 70 for the following types:
2. Maximum Attenuation: 3.50 dB/km at 850 nm; 1.5 dB/km at 1300 nm.
3. Minimum Modal Bandwidth: 160 MHz-km at 850 nm; 500 MHz-km at 1300 nm.

- C. Description: Single Mode, 9/125 micrometer, 12-fiber, tight buffer, optical fiber cable.

1. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 444, UL 1651, and NFPA 70 for the following types:
2. Maximum Attenuation: 0.33 dB/km at 1310nm; 0.2 dB/km at 1550 nm.

- D. Jacket:

1. Jacket Color: Orange for 62.5/125-micrometer multimode cable.
2. Jacket Color: Aqua for 9/125-micrometer single mode cable
3. Cable cordage jacket, fiber, unit, and group color shall be according to TIA-598-C.
4. Imprinted with fiber count, fiber type, and aggregate length at regular intervals not to exceed 40 inches.

2.4 OPTICAL FIBER CABLE HARDWARE

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. ADC.
 2. American Technology Systems Industries, Inc.
 3. Belden Inc.
 4. Berk-Tek; a Nexans company.
 5. Corning Incorporated; Corning Cable Systems.
 6. CSI Technologies Inc.
 7. Dynacom Inc.
 8. Hubbell Incorporated; Hubbell Premise Wiring.
 9. Molex Premise Networks; a division of Molex, Inc.
 10. Siemon.
- B. Cable Connecting Hardware: Meet the Optical Fiber Connector Intermateability Standards (FOCIS) specifications of TIA-604-2-B, TIA-604-3-B, and TIA/EIA-604-12. Comply with TIA/EIA-568-B.3.
1. Quick-connect, simplex and duplex connectors. Insertion loss not more than 0.75 db.
 2. Type SFF connectors may be used in termination racks, panels, and equipment packages.

2.5 RS-232 CABLE

- A. Standard Cable: NFPA 70, Type CM.
1. Paired, 2 pairs, No. 22 AWG, stranded (7x30) tinned copper conductors.
 2. Polypropylene insulation.
 3. Individual aluminum foil-polyester tape shielded pairs with 100 percent shield coverage.
 4. PVC jacket.
 5. Pairs are cabled on common axis with No. 24 AWG, stranded (7x32) tinned copper drain wire.
 6. Flame Resistance: Comply with UL 1581.
- B. Plenum-Rated Cable: NFPA 70, Type CMP.
1. Paired, 2 pairs, No. 22 AWG, stranded (7x30) tinned copper conductors.
 2. Plastic insulation.
 3. Individual aluminum foil-polyester tape shielded pairs with 100 percent shield coverage.
 4. Plastic jacket.
 5. Pairs are cabled on common axis with No. 24 AWG, stranded (7x32) tinned copper drain wire.
 6. Flame Resistance: Comply with NFPA 262.

2.6 RS-485 CABLE

- A. Standard Cable: NFPA 70, Type CM or CMG.

1. Paired, 2 pairs, twisted, No. 22 AWG, stranded (7x30) tinned copper conductors.
2. PVC insulation.
3. Unshielded.
4. PVC jacket.
5. Flame Resistance: Comply with UL 1581.

B. Plenum-Rated Cable: NFPA 70, Type CMP.

1. Paired, 2 pairs, No. 22 AWG, stranded (7x30) tinned copper conductors.
2. Fluorinated ethylene propylene insulation.
3. Unshielded.
4. Fluorinated ethylene propylene jacket.
5. Flame Resistance: NFPA 262, Flame Test.

2.7 LOW-VOLTAGE CONTROL CABLE

A. Paired Cable: NFPA 70, Type CMG.

1. One pair, twisted, No. 16 AWG, stranded (19x29) and No. 18 AWG, stranded (19x30)] tinned copper conductors.
2. PVC insulation.
3. Unshielded.
4. PVC jacket.
5. Flame Resistance: Comply with UL 1581.

B. Plenum-Rated, Paired Cable: NFPA 70, Type CMP.

1. One pair, twisted, No. 16 AWG, stranded (19x29) and No. 18 AWG, stranded (19x30)] tinned copper conductors.
2. PVC insulation.
3. Unshielded.
4. PVC jacket.
5. Flame Resistance: Comply with NFPA 262.

2.8 CONTROL-CIRCUIT CONDUCTORS

- A. Class 1 Control Circuits: Stranded copper, Type THHN-THWN, complying with UL 83, in raceway
- B. Class 2 Control Circuits: Stranded copper, Type THHN-THWN, complying with UL 83, in raceway
- C. Class 3 Remote-Control and Signal Circuits: Stranded copper, Type TW or TF, complying with UL 83.

2.9 IDENTIFICATION PRODUCTS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Brady Worldwide, Inc.
 2. Hellermann Tyton North America.
 3. Kroy LLC.
 4. Panduit Corp.
- B. Comply with UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.
- 2.10 Card Access Cable
- A. Bases of design Honeywell-Genesis-3196
 - B. 22/6 Shielded + 18/4 + 22/4 + 22/2 (Color: Yellow)

PART 3 - EXECUTION

3.1 SOURCE QUALITY CONTROL

- A. Factory test UTP cables according to TIA/EIA-568-B.2.
- B. Factory test multimode optical fiber cables according to TIA-526-14-A and TIA/EIA-568-B.3.

3.2 WIRING METHOD

- A. Install wiring in metal pathways and wireways.
 1. Minimum conduit size shall be 1 inch. Control and data transmission wiring shall not share conduit with other building wiring systems.
- B. Install cable, concealed in accessible ceilings, walls, and floors when possible.
- C. Wiring within Enclosures:
 1. Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii.
 2. Install lacing bars and distribution spools.
 3. Separate power-limited and non-power-limited conductors as recommended in writing by manufacturer.
 4. Install conductors parallel with or at right angles to sides and back of enclosure.
 5. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with intrusion system to terminal blocks.
 6. Mark each terminal according to system's wiring diagrams.
 7. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Sleeve Installation for Electrical Penetrations

1. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.
2. Coordinate sleeve selection and application with selection and application of firestopping.
3. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
4. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
5. Rectangular Sleeve Minimum Metal Thickness:
 - a. For sleeve cross-section rectangle perimeter less than 50 inches and no side greater than 16 inches thickness shall be 0.052 inch.
 - b. For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, thickness shall be 0.138 inch.
6. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
7. Cut sleeves to length for mounting flush with both surfaces of walls.
8. Extend sleeves installed in floors 2 inches above finished floor level.
9. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.
10. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials.

B. Sleeve-Seal Installation

1. Install to seal underground, exterior wall penetrations.
2. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

C. Firestopping

1. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly in compliance with the requirements of Division 7 Sections.
2. Comply with TIA-569-B, "Firestopping" Annex A.
3. Comply with BICSI TDMM, "Firestopping Systems" Article.

3.4 GROUNDING

- A. For communications wiring, comply with J-STD-607-A and with BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.

- 3.5 Conductors: Size according to system manufacturer's written instructions unless otherwise indicated.
- 3.6 General Requirements for Cabling:
- A. Comply with TIA/EIA-568-B.1.
 - B. Comply with BICSI ITSIM, Ch. 6, "Cable Termination Practices."
 - C. Terminate all conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, and cross-connect and patch panels.
 - D. Cables may not be spliced. Secure and support cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
 - E. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI ITSIM, "Cabling Termination Practices" Chapter. Install lacing bars and distribution spools.
 - F. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
 - G. Cold-Weather Installation: Bring cable to room temperature before de-reeling. Heat lamps shall not be used for heating.
 - H. Pulling Cable: Comply with BICSI ITSIM, Ch. 4, "Pulling Cable." Monitor cable pull tensions.
- 3.7 UTP Cable Installation:
- A. Install using techniques, practices, and methods that are consistent with Category 6 rating of components and that ensure Category 6 performance of completed and linked signal paths, end to end.
 - B. Comply with TIA/EIA-568-B.2.
 - C. Install CAT 5e or 6 patch panels at all equipment racks for termination of cable unless otherwise indicated.
 - D. Do not untwist UTP cables more than 1/2 inch from the point of termination to maintain cable geometry.
- 3.8 Optical Fiber Cable Installation:
- A. Comply with TIA/EIA-568-B.3.
 - B. Cable shall be terminated on connecting hardware that is rack or cabinet mounted.
 - C. All fiber shall be terminated to a fiber patch panel at each termination location.

3.9 Separation from EMI Sources:

- A. Comply with BICSI TDMM and TIA-569-B recommendations for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.
- B. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
 - 1. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches.
 - 2. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches.
 - 3. Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches.
- C. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
 - 1. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2 inches.
 - 2. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches.
 - 3. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches.
- D. Separation between cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
 - 1. Electrical Equipment Rating Less Than 2 kVA: No requirement.
 - 2. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches.
 - 3. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches.
- E. Separation between Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches.
- F. Separation between Cables and Fluorescent Fixtures: A minimum of 5 inches.

3.10 POWER AND CONTROL-CIRCUIT CONDUCTORS

- A. Minimum Conductor Sizes:
 - 1. Class 1 remote-control and signal circuits, No. 14 AWG.
 - 2. Class 2 low-energy, remote-control and signal circuits, No. 16 AWG.
 - 3. Class 3 low-energy, remote-control, alarm and signal circuits, No. 12 AWG.

3.11 CONNECTIONS

- A. Comply with requirements in Section 284620 "Video Surveillance" for connecting, terminating, and identifying wires and cables.
- B. Comply with requirements in Section 284612 "Control I/O infrastructure" for connecting, terminating, and identifying wires and cables.

3.12 IDENTIFICATION

- A. Identify system components, wiring, and cabling complying with TIA/EIA-606-A.

3.13 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
 - 1. Visually inspect UTP and optical fiber cable jacket materials for NRTL certification markings. Inspect cabling terminations to confirm color-coding for pin assignments, and inspect cabling connections to confirm compliance with TIA/EIA-568-B.1.
 - 2. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
 - 3. Test UTP cabling for DC loop resistance, shorts, opens, intermittent faults, and polarity between conductors. Test operation of shorting bars in connection blocks. Test cables after termination but not cross connection.
 - a. Test instruments shall meet or exceed applicable requirements in TIA/EIA-568-B.2. Perform tests with a tester that complies with performance requirements in "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in "Measurement Accuracy (Informative)" Annex. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.
 - 4. Optical Fiber Cable Tests:
 - a. Test instruments shall meet or exceed applicable requirements in TIA/EIA-568-B.1. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.
 - b. Link End-to-End Attenuation Tests:
 - 1) Multimode Link Measurements: Test at 850 or 1300 nm in one direction according to TIA-526-14-A, Method B, One Reference Jumper.
 - 2) Attenuation test results for links shall be less than 2.0 dB. Attenuation test results shall be less than that calculated according to equation in TIA/EIA-568-B.1.
- B. Document data for each measurement. Print data for submittals in a summary report that is formatted using Table 10.1 in BICSI TDMM as a guide or transfer the data from the instrument to the computer, save as text files, print, and submit.
- C. End-to-end cabling will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

END OF SECTION 284605

SECTION 284606

CABINETS AND ENCLOSURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Provisions of the Contract and of the Contract Documents apply to this section.

1.2 DESCRIPTION OF WORK

- A. Provide all material and labor for all cabinets and enclosures required by the security control system for this project.
- B. Provide all connection accessories to make this a full working system. All fittings, extenders, and supplementary items shall be provided for a complete and security installation.

1.3 SUMMARY

- A. Provide cabinets and enclosures for the protection and security of the equipment contained within the cabinet or enclosure.
- B. All cabinets and enclosures shall be rated for the space within which they are installed unless noted otherwise.
 - 1. Type 1: Indoor use - protect against contact with equipment located inside and protect against dirt and dust.
 - 2. Type 3: Outdoor use – protect against windblown dust and rain, and protect against formation of ice on the enclosure
 - 3. Type 3R: Outdoor use - protect against windblown dust and rain, and protect against formation of ice on the enclosure
 - 4. Type 4: Indoor or Outdoor use – protect against falling rain, splashing water and protect against the formation of ice on the enclosure.
 - 5. Type 4X: Indoor or Outdoor use - protect against falling rain, splashing water and protect against the formation of ice on the enclosure; resists corrosion
 - 6. Type 12: Indoor use: provide protection against dust, dirt, fiber, dripping water, and condensation of non-corrosive liquids.
- C. Refer to other Division 284605 sections for cabling, installation, identification and termination requirements.

1.4 SUBSTITUTIONS

- A. Materials shall be as specified herein, except, consideration shall be given to other products that meet or exceed the performance of those specified if documentation is received not less than five (5) business days prior to the date of bid opening in accordance with Division 1 Section "Product Requirements".

1.5 GENERAL

- A. Cabinet & Enclosures for Security Equipment
 - 1. Acceptable Manufacturers
 - a. Atlas Soundolier
 - b. Eldon

- c. Hoffman
- d. Middle Atlantic Products, Inc.
- e. Winsted

B. Cabinet & Enclosures for Server Equipment

- 1. Acceptable Manufacturers
 - a. HP (10642G2)
 - b. APC (AR3100)
 - c. Belkin (RK1000)
 - d. Dell (Startech RK4242BK0)
 - e. Chatsworth (GF-1A320)

1.6 MATERIALS

A. Cabinets

- 1. Cold Rolled steel units, 12 Ga angles, 14 Ga posts, 16 Ga molding and braces.
- 2. 16 Ga flush mount doors; flush or louvered with flush pulls
- 3. 16 Ga flush mount; flush or louvered, easy removal.
- 4. Floor Mounted Units
 - a. Door Control & Video Equipment Cabinets: Nominal size as required EIA rack mounting frames
 - b. Intercom & Paging Equipment Cabinets: Nominal size as required EIA rack mounting frames
 - c. Provide door with key lock on all cabinets.
 - d. Provide louvers as required for cooling equipment.
 - e. Provide ventilation fans to maintain manufacturer recommended temperatures for equipment.
 - f. Provide electrical outlet and power strip for power supplies. Install wire ties around plugs to prevent the plug from being removed accidentally.
 - g. Provide blank plates on all unused areas of the cabinet.

B. Enclosures

- 1. Provide wall mounted equipment as need in security control system rooms.
- 2. Provide hinged door with keyed lock.
- 3. Provide ventilation fans to maintain manufacturer recommended temperatures for equipment.

1.7 FABRICATION

- A. Install enclosures to easily accommodate interconnecting cables from above or below through the use of cable trays or conduits.
- B. Combine wires/cables by types and boards. Provide installation meeting National Electrical Code clearances, cabling installation and circuit separation requirements.
- C. Organize all wiring and cable routing by device types. Provide cabling support and tie up throughout the cabinet to provide a clean installation.
- D. No splices permitted from field device to head end connection.
- E. Provide grounding of all equipment as required by NEC.
- F. Provide protection from contact of terminals and exposed conductors.

- G. Provide din rail and mounting equipment for all applications. All equipment shall be accessible from each side of the cabinet as needed. Do not block access to required equipment to be maintained.

1.8 GUARANTEE

- A. The security contractor shall guarantee all equipment for a period of three (3) years commencing with Substantial Completion. The guarantee shall cover all costs for Warranty Services, including parts, labor, prompt field service, pick-up and transportation. All manufacturers' warranties shall be passed onto the Owner beyond the warranty period.

PART 2 - PRODUCTS

2.1 FREE-STANDING EQUIPMENT CABINETS

- A. Each cabinet enclosure shall have a rectangular frame and removable top panel, side panels and doors. Installed cabinets shall include thermal, power, and cable management accessories that control airflow through the cabinet and keep network and power cables separate and organized.
- B. The cabinet frame shall be manufactured from steel and aluminum with welded and bolted frame construction. The front and rear of the cabinet shall be welded rectangular frames. The sides of the cabinet shall have four slides, two at the top and two at the bottom. The slides shall be extruded aluminum supports formed with integral T-slots to create front-to-rear tracks that accept drop-in hardware and allow quick attachment and easy depth adjustment of equipment mounting rails and thermal, cable and power management accessories. Each slide shall have three T-slots (one top, two on the side) to provide attachment points on the top and inside of the slides. The T-slots on the top surfaces of the extruded aluminum slides at the top of the frame shall be accessible from the top exterior of the cabinet and provide a structural mounting surface for roof mounted accessories. The T-slots shall provide a fully bonded connection between internal and external mounted accessories without the need of surface preparation. The four slides shall be bolted to the front and rear frames. The cabinet frame shall include leveling feet and casters and label seals to cover any openings in the frame.
- C. Each cabinet shall include two pairs of equipment mounting rails. Mounting rails shall bolt to the side supports (slides) located near the top and bottom of the frame and shall be fully adjustable in depth to provide front and rear support for equipment. Equipment Mounting Rails shall be spaced horizontally to support 19" (482.6 mm) wide EIA/ECA-310-E compliant rack-mount equipment and shall provide up to 45.1" (1145 mm) of rail-to-rail depth for equipment. Mounting rails shall be square-punched according to the EIA/ECA-310-E Universal hole pattern with equipment mounting holes on alternating 5/8" – 5/8" – 1/2" (15.9 mm – 15.9 mm – 12.7 mm) vertical hole centers. Square-punched holes shall accept cage nut hardware with various threads. Rack mount spaces or units (U) shall be 1-3/4" (44.45 mm) high and shall be marked and numbered on the mounting rails. Numbering shall start at the bottom of the rail. Mounting rails shall provide 42U for equipment. The mounting rails shall be fully bonded to the frame without wiring. Wide

surface mounting rails will support 19" (482.6 mm) wide EIA/ECA-310-E compliant rack-mount equipment without the need for panel adapters or spacers. Wide surface mounting rails will each provide four 5.5"H x 2.0"W (140 mm x 51 mm) clearance holes for front to rear cabling. Front to rear pass through will accept optional cable grommets that facilitate a front to rear pathway, protect cabling from cuts or abrasion, and maintain airflow

- D. The cabinet shall include two solid side panels. Each side panel will be formed as a half-height panel. The top panel will rest on top of the bottom panel so that the panels stack to form a single panel when installed. Each side panel shall have a single keyed latch located at the top center of the top half-height panel for easy installation and removal. Side panel latches shall not occlude the mounting surface of accessories.
- E. The doors shall be removable and reversible to open from the right or left. The doors shall have a swing handle with a single-point cam latch and a keyed lock. All doors shall be keyed alike.
- F. Cabinet frames shall support 2500 lb (1134 kg) of equipment when supported on leveling feet and secured to the structural floor

2.2 WALL-MOUNT CABINETS

- A. Wall-mounted cabinets shall be manufactured from steel sheet.
- B. Each cabinet shall have a rear panel that attaches to the wall, a hinged cabinet body that swings open from the rear panel providing easy access to the rear of equipment and a locking front door
- C. The rear panel shall be 5" deep and shall provide cable access with pre-punched knockouts for conduit along the top and bottom edges of the panel. There shall be a minimum of 4 combination 1/2" and 3/4" conduit knockouts 2 top/2 bottom) and 8 combination 2-1/2" and 3" knockouts 4 top/4 bottom. The back edge of the knockouts will be located 1-5/8" from the back surface of the panel (cabinet/wall) allowing conduit to be attached to the wall with auxiliary framing strut. The cabinet body shall include a single pair of vertical 19"EIA equipment mounting rails. The mounting rails shall be EIA-310-D compliant with the Universal hole pattern. Mounting holes shall be spaced vertically on alternating 5/8"-5/8"-1/2" (15.9 mm – 15.9 mm – 12.7 mm) centers and shall be roll-formed with #12-24 threads. Mounting rails shall provide 12, 18, or 26 rack-mount unit (U) spaces for equipment as specified below.
- D. Mounting rails shall be adjustable in depth so that they can be positioned at any point within the cabinet body.
- E. Mounting rails shall bolt in place directly to the cabinet frame. The mounting rails shall be L-shaped. The side of the mounting rails will be punched to provide lacing points for cables.
- F. The hinge design that attaches the cabinet body and the rear panel shall allow the rear panel to be removed during installation.

- G. The hinge that attaches the cabinet body and the rear panel shall allow the cabinet body to open at least 90°. The hasp used to secure the rear panel and the cabinet body together shall assist in drawing the components together during the locking action.
- H. The cabinet body shall include vents that are designed to accept fan kits.
- I. The front door will be hinged and locking. The front door and rear panel will be keyed alike. The front door will have rounded edges and corners. The cabinet body will allow the front door to be attached so that it will swing open from the right or left. The front door will be solid.
- J. Finish shall be epoxy-polyester hybrid powder coat (paint) in the color(s) specified below. Tinted windows in doors shall be bronze acrylic (not clear) with a UL flammability classification of 94HB or better.
- K. Load bearing capacity for cabinets will be 200 pounds per cabinet.
- L. Cabinets shall be UL Listed under category NWIN to standard UL 60950.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Check location, "roughing in", and field dimensions prior to beginning work.
- B. Do not begin installation until all unsatisfactory conditions have been corrected.
- C. Verify field measurements are as shown on Drawings and as instructed by manufacturer.
- D. Verify that required utilities are available, in proper location, and ready for use.

3.2 INSTALLATION/APPLICATION OF ALL SECURITY PRODUCTS

- A. Provide wire management throughout cabinets and enclosures.
- B. Replace equipment, components, & wiring as required to achieve a fully functional system.

END OF SECTION 284606

SECTION 284620

VIDEO COMMUNICATION SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Provisions of the Contract and of the Contract Documents apply to this section.

1.2 SYSTEM DESCRIPTION

- A. Design and install a complete video surveillance system.
- B. The system shall consist of cameras, network infrastructure and monitoring stations.
- C. Furnish and install all security video cameras, mounts, housings, power supply systems, UTP and fiber cable, network cables, connectors, equipment racks, monitors and consoles, computer controlled network switches, work stations, storage, decoders and all other hardware and software to provide a fully operational system.
- D. In all cases, the equipment shall be state of the art, standardized commercial off-the-shelf, and modular.
- E. In all cases, the method of communication from remote locations within the network to the central components shall be transparent to the user.
- F. The security video system shall provide unlimited expansion capability for the addition or modification of video inputs.
- G. Equipment shall be selected and installed so repairs may be accomplished on site by module replacement, utilizing spare components.
- H. Refer to camera schedule for resolution requirements.
- I. The cameras shall be equipped with low light capability as indicated in the camera specifications.
- J. Pan/tilt zoom (PTZ) cameras shall be located as shown on the drawings and schedules.
- K. The video system shall be an IP network-based, fully distributed digital video system.
- L. The security video system will utilize a dedicated local area network (LAN) as a transmission medium for video, configuration, as well as storage of all video and data.
 - 1. Fiber cabling shall be provided between equipment locations to establish the network backbone.
 - 2. The network shall be a minimum of 1 gigabit, with single mode and copper network drops.
 - 3. Head end equipment shall establish fiber transmission and provide a network copper drop for video recording devices and surveillance and playback equipment.
 - 4. Power over Ethernet (POE) shall be provided for all cameras. Where power requirements exceed POE capabilities, provide power supplies as required.
- M. The security video system shall provide full video control at the monitor stations with additional full selection capability at any point within the network utilizing a workstation or a decoder.

- N. The IP video system shall permit normal and event monitoring of all secured areas on digital monitors.
- O. Video monitoring of any cameras shall be possible at the video monitoring station but shall be limited by user and defined access to each camera.
- P. The system shall allow review of the digitally recorded video, via the secure network, without interruption to recording capabilities.
- Q. The IP video system based digital recording and monitoring system shall incorporate a fault tolerant architecture and shall include redundancy in critical areas of concern.
- R. Power supplies for the encoder and Network Storage Managers shall be capable of redundancy.
- S. All Network Storage Managers shall provide RAID 5 or RAID 6 redundancy for the storage drives.
- T. Network Storage Manager devices shall be sized as specified to accomplish the desired storage retention.
 - 1. Storage retention shall be a minimum of 90 days.
 - 2. Storage shall be at camera native resolution. Storage shall be a minimum of 15 frames per second during periods of activity.
 - 3. Minimum recording at non-motion shall be 1 frames per second.
 - 4. Assume 60% motion as average for the facility.
 - 5. Contractor will provide, as part of the submittal, all calculations and assumption made to meet the above requirements. Calculations should be based on the equipment proposed and conditions applicable to the facility type.
- U. Multi-level diagnostics of each component in all critical areas shall be provided.
 - 1. Diagnostics shall be reported to a diagnostic console for processing.
- V. Diagnostic and alarm data shall be capable of being scripted into actionable events within the system. The system shall consist of cameras, lenses, monitors, mounting hardware, housings, switchers, signal generating, processing equipment, network video recorders and amplifiers.
- W. Provide cameras as shown on the drawings and described herein.
- X. Each workstation shall consist of 32" monitor with multiple views on the monitor. The monitor shall view the cameras associated with all workstation associated areas.
- Y. Each work station shall also be capable of viewing multiple camera views at the same time utilizing the same monitor. The workstations shall consist of a computer running client software or encoder and controls for selection and control of cameras associated with the respective area. Selection of cameras should be limited to the cameras associated with work station responsibility.
- Z. Provide a unlimited licenses for remote viewing of video in addition to those required for workstations shown on drawings. The software shall be loaded on facility computers as directed. A separate network connection for interfacing from these computers shall be provided by the facility. The remote connections shall include client software for viewing both live and recorded video.

1.3 QUALITY ASSURANCE

- A. NEC Compliance. Comply with applicable requirements pertaining to TV equipment and signal distribution systems
- B. UL Compliance. Comply with applicable requirements of UL safety standards pertaining to television equipment and accessories. Provide TV equipment and accessories, which are UL-listed and labeled.
- C. EIA Compliance. Comply with applicable requirements of Electronic Industries Associations standards pertaining to television cameras and monitors.

1.4 INSTALLER QUALIFICATIONS

- A. Installer must be FLIR/ DVTEL certified installer capable of coordinating with the existing system.

1.5 SUBSTITUTIONS

- A. The Owner recognizes this specification section may limit the competitive bidding to a single or restricted number of qualified bidders, sub-bidders or suppliers. The Owner and the Bureau of Real Estate Management has reviewed the justification for this specification and has determined that this approach is acceptable and is applied in the best interests of the State of Maine. Substitutions will not be accepted for this specification section.

PART 2 - PRODUCTS

2.1 MULTI-SENSOR CAMERA.

- A. Acceptable Manufacturer/Model:
 - 1. Provide FLIR Model CM-6308 indoor/outdoor 4x2K Convertible 180°/360° panoramic mini-dome H.265/H.264/MJPEG IP camera designed for operation in spaces that require video coverage of a wide area of interest, and able to be deployed interchangeably by the installation technician for both 360 and 180 mode mounting orientations, or approved equivalent by a major manufacturer.
 - 2. Use this camera in locations designated on drawings for multi-sensor camera.
- B. General Product Description:
 - 1. Up to 4K (4 x 1080p image sensors), triple-stream H.265/H264/MJPEG, True (Shutter) WDR support, IP67-rated, day/night mini-dome digital video camera with fixed F2.0, 3.6mm lens, within an IK10 vandal-resistant housing for overhead mounting or side orientation mounting, designed so that the same unit can be deployed with 360 or 180 mode orientations.
 - 2. The camera shall be equipped with sensors and lenses that are field configurable, supporting both 360 and 180 modes
 - 3. The camera shall automatically sense when it is being used in 360 or 180 mode deployment.
 - 4. The camera shall provide a Mechanical Tilt capability in both 360 and 180 mode orientations
 - 5. Mounting accessories shall be compatible with other dome cameras provided by the same vendor

6. In 360 mounting mode, the camera should provide up to three simultaneous single streams (with resolutions and frame rates selected by the user from the available options) containing four images, one in each direction.
7. In 180 mounting mode, the camera shall provide up to three simultaneous single streams (with resolutions and frame rates selected by the user from the available options) containing a blended stitching of the linear scene. User adjustment of the digital stitching shall be supported. In order to support the wide viewing angles required for 180 mode mounting, an aspect ratio of 24:9 shall be supported.
8. The three (3) simultaneous video streams (up to 4K) shall be delivered through a digital network.
9. Resolution and bandwidth shall be scalable.
10. The camera shall incorporate a fully digital 4 x 1080p Full HD CMOS imaging system with IR illumination and day/night IR cut filter for infrared sensitivity.
11. The imaging system shall incorporate Back Side Illumination to enhance pixel sensitivity to a level of at least 1/2.8" BSI.
12. WDR – the camera shall support multi-exposure, shutter based Wide Dynamic Range capability
13. The camera IR illumination shall be separately controllable for X and Y axis, so that the illumination can be optimized for the requirements of either 360 or 180 mode mounting.
14. IR illumination shall have a range of 25 m.
15. The camera shall utilize scene adaptive algorithms to provide a high image quality with low bandwidth and storage requirements (Smart Picture Quality to automatically adapt to wider range of changing conditions using advanced picture settings optimizations).
16. The camera shall provide bi-directional audio via audio I/O.
17. The camera shall accommodate alarm inputs and provide a relay output.
18. The camera shall provide a microSDXC card slot with support for up to 128GB (Class 10) devices.
19. The camera may be powered by 802.3at PoE+ or 24VAC
20. The camera shall be IEEE-compliant utilizing the multicast networking protocol such that a single camera may be transmitted to multiple viewers/archivers on the network simultaneously, further reducing bandwidth and providing greater flexibility in network monitoring/recording configurations.

C. Product Performance Requirements:

1. The digital video camera shall provide the user with H.265 and H.264 video compression on up to three digital streams simultaneously.
2. Resolution shall be scalable dependent on operation mode, from D1 to 4K/3840x1440 which may be set to unicast or multicast.
3. The camera shall be capable of producing 30 frames per second (NTSC) and/or 25 frames per second (PAL) 4K Ultra HD (3840 x 2160) video stream
4. The camera shall be capable of producing (NTSC) or (PAL) Full HD / 1080P (1920 x 1080) video stream at 30 frames per second.

5. Bandwidth shall be scalable between 64Kbps and 20,000Kbps.
6. The camera shall support the functionalities required to implement mechanisms for automatic dynamic video streaming adaptation with supported VMSs. The camera shall showcase valid integrations, introducing such mechanism with one or more VMS products.
7. The audio capabilities shall support either half-duplex or full-duplex audio on two-way connections.
8. The camera shall accommodate alarm-input and alarm-output.
9. The camera shall provide a password protected web Interface for viewing, configuration and control. The web interface shall support the following web browsers: Internet Explorer, Chrome and Firefox.
10. Motion Detection:
 - a. The camera shall provide intelligent multi-zone video motion detection with the following configurable parameters:
 - i. Sampling pixel interval (1-10)
 - ii. Detection level (1-100)
 - iii. Sensitivity level (1-100)
 - iv. Time interval(sec) (0-7200)
11. Storage and Bandwidth Efficiency:
 - a. Motion Compensation and Processing:
 - i. The camera shall employ industry-standard motion compensation methods as described and recommended by the Motion Pictures Experts Group (MPEG) to control and reduce the storage and bandwidth consumption associated with scene motion.
 - ii. Compliant motion compensation shall employ a block-matching algorithm covering an area of at least 256 macro-blocks surrounding each block to be processed.
 - iii. The motion compensation process shall output industry-standard H.265 and H.264 compliant motion vectors as described and recommended by the Motion Pictures Experts Group (MPEG) to control and reduce storage and bandwidth consumption associated with scene motion.
 - iv. The compliant motion vectors shall be compatible with and verifiable using Windows Media Player equipped with FFDSHOW or equivalent utility to visualize the motion vectors contained within the resulting H.265 / H.264 video stream.
 - b. Compression Efficiency:
 - i. The camera shall provide an effective rate control algorithm which maintains set frame rates of full 30fps (NTSC) or 25fps (PAL) in 4K Ultra HD using no more than 45 (+/-10%) pixels per bit of storage with full screen (100%) motion including panning/tilting velocities of at minimum 25% of the camera field of view per second.
 - ii. Pixels per bit (ppb) efficiency shall be defined as $ppb = (ppf) * (fps) / (bps)$ where:

- a) ppb = pixels per bit
- b) ppf = pixels per frame (= horizontal resolution x vertical resolution)
- c) fps = frames per second
- d) bps = bits per second. This is a bandwidth measurement which equals the Kb/s generated by the camera x1000

D. Technical Specifications:

1. Image Sensor:
 - a. 4x 1/2.8" BSI CMOS
 - b. Day/Night with IR sensitivity
2. Sensor Resolution: 4 x 2.1 megapixels (1920 x 1080)
3. Scanning Mode: Progressive
4. Sensitivity:
 - a. Color (Day) Mode: 0.02 lux @ 30 IRE
 - b. B/W (Night) Mode: 0.1 lux without IR, 0 lux with IR @ 30 IRE
5. Lens Type:
 - a. F2.0, 3.6mm, fixed-focus lens
 - b. H FoV 92°
6. IR Illuminator: High-power/high-efficiency SMD devices with wide-angle illumination arranged to cover both installation modes.
 - a. Effective IR range: Up to 25m (82 feet)
 - b. Illumination Angle: 60 degrees
 - c. IR Compensation: Automatically adjusts the scene brightness to compensate for nearby bright objects.
7. White Balance: Auto/ATW/Manual
8. Automatic Electronic Shutter (AES): 1.0 to 1/10,000 sec. (Auto)
9. Digital Slow Shutter: 1~30 fps (NTSC)/1/1.5~25 fps (PAL)
10. Noise Reduction: ,3DNR
11. Exposure Modes: Auto shutter, Flickerless, Shutter WDR, Mode control
12. Digital Wide Dynamic Range: Low/Medium/High/Off
13. Day/Night Mode: Auto/Color/B&Wa
14. Tamper Detection (On/Off)
15. Privacy Zone: On/Off (8 zones)
16. Video Motion Detection: Up to 4 independent zones
17. Mechanical IR Cut Filter: Yes
18. IR Peak Emission Wavelength 850nm
19. Signal to Noise Ratio (SNR): \pm 50 dB

E. Video:

1. Compression: Enhanced H.265 Main Profile + Enhanced H.264/H.265 Main/High/Baseline Profile: (MPEG-4 Part 10) + MJPEG, triple-streaming
2. Performance:
 - a. 360 Mode:
 - i. Single stream 4K Ultra HD (3840 x 2160) (NTSC/PAL) @ 30/25 FPS or
 - ii. Dual Stream 4K @ 15/12 FPS + HD1080P @ 15/12 FPS or Full HD 1080p + HD 720p @ 25/30 FPS (PAL/NTSC) simultaneously or 4K Ultra HD (3840 x 2160) @ 25FPS + D1 @ 25 FPS
 - iii. Triple-stream: 4K @ 15/12 FPS + HD1080P @ 15/12 FPS + D1 @ 15/12 FPS (PAL/NTSC) simultaneously
 - b. 180 Mode:
 - i. Single stream 3840 x 1440 (NTSC/PAL) @ 30/25 FPS
 - ii. Dual Stream 3840 x 1440 + 1920 x 720 @ 25/30 FPS
 - iii. Triple-stream: 3840 x 1440 + 1920 x 720 @ 15/12 FPS + D1 @ 20 FPS (PAL/NTSC) simultaneously
3. Resolution Range: Scalable from D1 to 4K UHD
4. Bandwidth:
 - a. Configurable between 64Kbps to 20,000Kbps
 - b. Rate Control: CBR/CVBR/VBR/MJPEG
5. Video Motion Detection (VMD):
 - a. Intelligent multi-zone VMD
 - b. Up to four independent zones

F. Audio:

1. Bidirectional Audio:
 - a. Line-level In for using line-level audio inputs or Mic-in
 - b. Line-level Out to feed any single-ended line-level audio input, such as an amplified bullhorn, amplified speakers, or public address system
2. Compression: G.711 (uLAW/aLAW)/G.726/AAC/PCM

G. Alarms:

- Input: One (1) dry contact
3. Output: One (1) relay contact, 400VDC/250VAC @ 120mA maximum

H. Network:

1. Ethernet: 10/100 IEEE 802.3, auto sensing 1 x RJ45
2. Protocols: TCP, UDP, ICMP, HTTP, HTTPS, FTP, DHCP, DNS, DDNS, RTP, RTSP, RTCP, PPPoE, NTP, UPnP, SMTP, SNMP, IGMP, 802.1X, QoS, IPv4, IPv6, SSL, LDAP

3. Digital Streams: The camera shall provide up to three digital streams plus bi-directional audio on one Ethernet connection
4. Web Browsers: Internet Explorer 10+, Firefox 50+, Chrome 55+

I. Security

The camera shall support internal and end-to-end security features that limit access and make it more difficult for unauthorized control signals to be carried out. The following shall be supported at a minimum:

1. Direct camera support for:
 - a. Password protection,
 - b. IP address filtering,
 - c. HTTPS encryption,
 - d. IEEE 802.1X network access control,
 - e. Digest authentication.
2. End-to-end support (when connected to a VMS system that supports security features, such as the FLIR United VMS) for User-configurable security policies that enable enforcement of the following:
 - a. Compulsory changing of the manufacturer's default unit passwords
 - b. Secured connections (TLS) for control messages, using unit self-certificates or downloaded third-party certificates

J. Management:

1. Configuration: Remote (via web interface or supported Video Management Software)
2. The camera shall be supplied with utility software for discovery and initial setup. The software shall support the following minimum capabilities.
 - a. Discover camera by connection to the camera network
 - b. Display existing DHCP address (if there is a DHCP server), default IP address, MAC address.
 - c. Display installed Firmware version,
 - d. Reset camera to supplier defaults.
 - e. Upgrade the firmware
 - f. Assign a user-defined IP address
 - g. Display camera uptime.
3. Firmware Updates: Flash memory for upgrade of camera firmware over the network

K. Power:

1. Input Voltage:
 - a. 24VAC (+20%)
 - b. IEEE 802.3at (PoE+)
2. Power Consumption: 24.9W with IR and heater operating

- L. Connections:
 - 1. Network: RJ45
 - 2. Power:
 - a. 24VAC (through terminal block connector)
 - b. PoE+: through the RJ45 connector
 - 3. Audio In/Out:
 - a. Line In/Line Out: through terminal block connector
 - 4. Alarm In/Alarm Out: through terminal block connector
 - 5. microSDXC card drive: For recording up to 128GB, Class 10 (card not included)
 - 6. RS-485: PelcoD and PelcoP protocols
 - 7. Analog Video: BNC (1V p-p), 75Ω
- M. Physical and Mechanical:
 - 1. Physical:
 - a. Dimensions: Ø 190 x 130 mm (7.5 x 5.1in.)
 - b. Unit Weight: 3.44 lbs. (1.56kg)
 - c. Enclosure: IP67 with IK10 vandal-resistant
 - 2. Mechanical:
 - a. IK10 Vandal Resistant Polycarbonate
- N. Environmental:
 - 1. Operating Temperature: -40°F to 122°F (-40°C to 50°C)
 - 2. Storage Temperature: -40°F to 140°F (-40°C to 60°C)
 - 3. Humidity: Up to 90% (non-condensing)
 - 4. Ratings: IP67
 - 5. Internal Heater: Automatic
- O. Regulatory:
 - 1. Safety: AS/NZS CISPR22 (Class B); EN50130-4; EN61000-3-2/3; EN61000-4-2/3/4/5/6/8/11; EN61000-6-3 (Class B); UL 60950-1
 - 2. Electromagnetic Interference (EMC): ANSI C63.4: 2009 (FCC 47 CFR Part 15 Subpart B, Class B; CISPR Pub. 22); EN55022:1998 Class A; EN55032:2012; EN60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013; EMC Directive 2004/108/EC; IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013; ICES-003: Issue 5
 - 3. Environmental: RoHS 2011_65_EU, excluding Pb in 2LI (lead on second level interconnect); WEEE Directive 2012/19/EU; REACH

2.2 VARIFOCAL 4K RESOLUTION FIXED CAMERA (TYPE "F")

A. Acceptable Manufacturer/Model:

1. Provide FLIR Model CM-3308 1 1 I indoor/outdoor 4k Convertible 180°/360° panoramic mini-dome H.265/H.264/MJPEG IP camera designed for operation in spaces that require video coverage of a wide area of interest, and able to be deployed interchangeably by the installation technician for both 360 and 180 mode mounting orientations, or approved equivalent by a major manufacturer.
2. Use this camera in locations designated on drawings for fixed camera.
3. The FLIR Ariel 4K UHD Mini-dome camera is a multi-purpose 4K UHD resolution evidentiary detail camera combined with a low light FHD camera for nighttime operations. Utilizing programmable schedules, the camera can switch from UHD mode (4K with up to 30 FPS) during daytime, to Enhanced Low Light Performance mode (1080P with up to 60 FPS) at nighttime, thus providing optimal image capture at all times based on optimal scene resolution along with sWDR
5. Features
 - a. Multi-streaming at the highest frame rates
 - b. 4K UHD at the lowest bit rates
 - c. Motorized Varifocal Lens with Push to Focus
 - d. Shutter Wide Dynamic Range
 - e. True Day/Night with IR Illumination
 - f. • Bi-Directional Audio
 - g. • Indoor/Outdoor IP67 / IK10
 - h. • Included analytics – Multi-zone VMD – Tamper Detection
 - i. • H.264, H.265, ONVIF Profile S/G
 - j. • Privacy Masking
 - k. • Storage on the Edge

2.3 PAN TILT ZOOM CAMERAS (PTZ)

- A. Provide FLIR Model Quasar CP-6302-31-I, H.265/H.264/MJPEG 2.1 megapixel, Full HD 1080p, True (Shutter) WDR, high-resolution digital video IR PTZ camera or approved equivalent by a major manufacturer.

B. General Product Description:

1. Full HD 1080p, 2.1-megapixel (1920 x 1080) quad-stream H.265/H.264/MJPEG, True (Shutter) WDR, IP66-rated day/night IR PTZ digital video camera with integrated 4.3mm to 129mm motorized auto-focusing, vari-focal P-iris lens, within an IK10 vandal-resistant housing for wall mounting or pendant mounting.
2. The camera shall include a mechanism for electronic image stabilization.
3. The camera shall include a mechanism that ensures precise positioning and preset location.

4. The digital video camera shall support H.265/H.264/MJPEG compression on four (4) simultaneous video streams (up to Full HD 1080p) through a digital network.
5. Resolution and bandwidth shall be scalable.
6. The camera shall incorporate a fully digital Full HD 1080p (2.1 megapixel) CMOS imaging system with IR illumination and day/night IR cut filter for infrared sensitivity.
7. The camera shall support infrared illumination up to 200 meters (656 feet).
8. The camera shall utilize scene adaptive algorithms to provide a high image quality with low bandwidth and storage requirements (Smart Picture Quality to automatically adapt to wider range of changing conditions using advanced picture settings optimizations).
9. The camera shall provide bi-directional audio via audio I/O.
10. The camera shall accommodate alarm inputs and provide relay outputs.
11. The camera shall provide a microSDXC card slot with support for up to 128GB (Class 10) devices.
12. The camera may be powered by 12VDC, 24VAC or IEEE 802.3bt PoE++.
13. The camera shall be IEEE-compliant utilizing the multicast networking protocol such that a single camera may be transmitted to multiple viewers/archivers on the network simultaneously, further reducing bandwidth and providing greater flexibility in network monitoring/recording configurations.

a.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces and areas are ready to receive work.
- B. Verify field measurements are as shown on Drawings and as instructed by manufacturer.
- C. Verify that required utilities are available, in proper location, and ready for use.

3.2 INSTALLATION

- A. All system equipment to be contained within equipment racks, cabinets, or closets. If more or larger equipment racks or cabinets are required than exist or are indicated on the drawings, allow for such additional equipment racks and cabinets in contract price.
- B. Install video switches in the data rack provided in the data room. Connect to the provided fiber patch panel for network connection to the security electronics room.
- C. All system equipment equipped with plug in power connectors to be connected to a dedicated receptacle. Do not use tap connectors for plugging in multiple plugs into a single receptacle.
- D. All cable within equipment racks, cupboards, and cabinets, or on backboards, to be neatly bundled and secured. Wires shall not be nicked, have strands removed, or have frayed strands when removing insulation or terminating.
- E. Factory manufactured interface cables to be provided for each field interface board. Terminal blocks to be provided in cabinet or on backboard for factory cable interface to field wiring.
- F. Wiring shall be executed in strict adherence to standard broadcast practices.
- G. Identify wiring by continuous insulation color. Where multi-conductor cables are used, use the same color-coding system for identification of wiring throughout. (yellow is recommended).

- H. Name identification of wiring:
 - I. Identify wiring at all equipment locations, pull boxes, junction boxes and outlet boxes.
 - J. Develop a uniform identification scheme for use throughout the system.
 - K. Record wire name identification on all applicable drawings and provide wiring tables within the operating and installation manuals.
 - L. Use one of the following marking materials:
 - 1. Heat shrink sleeves.
 - 2. Clear plastic tape wrap-on strips with designated labeling section.
 - 3. Slip-on identification bead markers or sleeves.
 - M. Replace equipment, components, and wiring as required to achieve a fully functional system.
- 3.3 ADJUSTING
- A. When requested by the Architect or owner within one year after the date of Substantial Completion, provide on-site assistance in adjusting levels, resetting matching transformer taps, and adjusting controls to suit actual occupied conditions.
 - B. When requested by the Architect or owner within one year after the date of Substantial Completion, provide on-site assistance in programming and adjusting presets and analytic conditions and alarms.
- 3.4 WARRANTY
- A. All labor and material for this section shall be warranted for 3 year from the date of substantial completion.

END OF SECTION 284620

SECTION 284621

VIDEO MANAGEMENT SERVER, NETWORK AND SOFTWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Provisions of the Contract and of the Contract Documents apply to this section.

1.2 GENERAL REQUIREMENTS

- A. The work under this section includes the installation of the Video Communications System. Provide all materials, equipment, mounting brackets and hardware and supervision to install, checkout, adjust and calibrate the system.
- B. Provide items, articles, materials, operations and methods listed, mentioned or scheduled herein or on drawings, in quantities as required to complete project.
- C. Provide hardware that functions properly. The contractor shall provide a fully functional system and is responsible for notifying the engineer and providing equipment that may be need to meet the intent of the specified system whether or not the equipment included in the documents and drawings.
- D. Provide all electrical additions necessary to adequately power equipment in compliance with NEC and local codes.
- E. The contractor shall provide all wire and fiber necessary to construct the system.
- F. The contractor is responsible for supplying a complete and functional system. If addition equipment or configuration is necessary to complete the above mention system the contractor shall notify the engineer and give a detailed description of additional equipment necessary.

1.3 SUMMARY

- A. Section Includes:
 - 1. Security electronics for providing a secure high-speed network.
- B. Monitoring and recording equipment for video surveillance. A high-speed network shall be established for the transmission of video. Fiber cabling shall be provided between buildings to establish a dedicated video network. The system shall be a 1 gigabit network, with single mode cables. Copper network drops shall be established at each building.
- C. Head end equipment shall establish fiber transmission and provide a 1 gigabyte copper drop for video recording devices and surveillance and playback equipment. The equipment shall consist of a combination of the products described in this document.
- D. Area configurations shall include fiber mid-spans with copper drops. Power over Ethernet (POE) shall be provided for indoor cameras. Each area shall consist of a combination of indoor and outdoor cameras as shown on contract drawings.
- E. Equipment locations shall be in existing equipment room as shown on the drawings or identified by the contractor. Equipment should be strategically located in the buildings to reduce conduit and wire. Equipment should be located as to use existing power circuits. If addition power circuits are required, the contractor will be responsible for the addition of the circuits by a licensed electrician.
- F. Each power location shall be battery backed by a UPS system that shall sustain the equipment for a minimum of 30 minutes.

- G. Head end and recording equipment shall be located as show on drawings. All equipment and materials used shall be standard components that are regularly manufactured and used in the manufacturer's system.
 - H. All systems and components shall have been thoroughly tested and proven in actual use.
 - I. Recording disk space shall be sized to exceed 45 days retention of all cameras. Submit calculations and assumptions as part of the submittal package.
 - J. All systems and components shall be provided with the availability of a toll-free (U.S. and Canada), 24-hour technical assistance program (TAP) from the manufacturer. The TAP shall allow for immediate technical assistance for either the dealer/installer or the end user at no charge for as long as the product is installed.
- 1.4 All systems and components shall be provided with a one-day turnaround repair express and 24-hour parts replacement. The repair and parts express shall be guaranteed by the manufacturer on warranty and non-warranty items. SUBSTITUTIONS
- A. The Owner recognizes this specification section may limit the competitive bidding to a single or restricted number of qualified bidders, sub-bidders or suppliers. The Owner and the Bureau of Real Estate Management has reviewed the justification for this specification and has determined that this approach is acceptable and is applied in the best interests of the State of Maine. Substitutions will not be accepted for this specification section.
- 1.5 NETWORK EQUIPMENT
- A. Fiber Managed Switch - The Gigabit Ethernet managed switch head end transceiver system shall support the transmission of 1000 Mbps Ethernet over a single-mode fiber. The module shall require no in-field electrical or optical adjustments or in-line attenuators to ease installation. The module shall provide power, link speed, and fiber port status indicating LED's for monitoring proper system operation. The unit also provides a contact closure for a loss of fiber alarm. The modules shall provide automatic re-settable solid-state current limiters and independent voltage regulators on each module to reduce the chance of a single point failure of the system. The module shall have redundant power supply connections to minimize single point failure. The module shall provide a serial connection for local management of the device. The module shall have a lifetime warranty to reduce system life cycle cost in an event of a module failure.
 - B. Mid-span Fiber/Copper Drop. The building Ethernet data transceiver system shall support the transmission of 10, 100, 1000 Mbps over a single-mode or multimode fiber. The module shall support the Ethernet data interface and be IEEE 802.3 compliant. The unit is set to auto-negotiate data rates and can be used for half duplex or full duplex transmission. The module shall require no in-field electrical or optical adjustments or in-line attenuators to ease installation. The unit also provides a continuously active contact closure relay to activate an external alarm. The module shall provide power and fiber link status indicating LED's for monitoring proper system operation. The modules shall provide automatic re-settable solid-state current limiters and independent voltage regulators on each module to reduce the chance of a single point failure of the system. The module shall be UL and ULC listed and CE marked. The circuit board shall be UL 94 flame rated and meet all PCI standards. All PC boards shall be designated with part number, PC board number and show appropriate revision number. Housing shall be of all metal construction. All LED indicators and both electrical and mechanical connections shall be identified with silk-screened labels. The module shall have a lifetime warranty to reduce system life cycle cost in an event of a module failure.

PART 2 - PRODUCTS

- 2.1** Ethernet Switch - Each building shall have an Ethernet data switches to allow individual drops for each camera.
1. Acceptable manufacturer
 - a. HP ProCurve
 - b. Cisco
 - c. Approved Equal
 2. Each switch shall have the following characteristics
 - a. 20 or 44 Ethernet 10/100/1000 ports and 1 10 Gigabit Ethernet port
 - b. 1 rack unit (RU) stackable, multilayer switch
 - c. Full dynamic IP routing
 - d. IEEE802.3af Power over Ethernet compliant
 - e. 1 rack unit (RU) stackable
 - f. Individual enable/disable for each port
 - g. 4 dual personality ports
 - h. Expansion slot for an optional 4 port 10-GbE module.
 - i. Power output "All power supplies for equipment and cameras shall be part of this assembly.
 - j. Power shall be 130 w max
- B. All Fiber and network equipment including power supplies for the cameras shall be installed in a standard EIA 19" (482.6 mm) rack and to be located by the contractor with the approval of the engineer and owner. The placement of the unit shall allow provision for cable installation and maintenance as indicated on the approved detail drawings.
- 2.2** SECURITY MANAGER NETWORK MONITORING SOFTWARE
- A. The State is using Flir/DVTEL Latitude for their video management system and requires that all new equipment be compatible with the existing. FLIR has purchased DVTEL. Provide compatible equipment and software and upgrade all existing software if necessary to make compatible. The new system must be FLIR/DVTEL Latitude and connect to the existing systems.
 - B. Provide all required licenses for the system as part of the contract. Licenses should be life licenses for each camera.
 - C. System architecture
 1. The VMS shall support being a part of a multi-tier VMS solution, where global client can concurrently monitor real-time views and access recorded material on multiple NVRs and VMS systems
 2. The VMS shall provide a scalable solution suitable to grow from a single site with a few cameras to multiple distributed sites with thousands of cameras through defined upgrade paths, for example:
 3. Three (3) system software editions, matched with appropriate hardware scaling:

- a. Basic – Up to 70 cameras with basic features
- b. Intermediate – Between 70 and 250 cameras with extended functions
- c. Enterprise – Effectively unlimited cameras with comprehensive, enterprise-level platform functions
4. The software shall support an upgrade path between one software edition and another.
5. The software shall operate in client/server configuration across a LAN or wide-area network (WAN).
6. Protocols
The VMS shall utilize the following protocols: TCP/IP, UDP/IP, SNMP, and RTP/IP
7. ONVIF conformance
 - a. The VMS shall be ONVIF Profile S-conformant
 - b. The VMS shall support any edge device (in ONVIF terminology Network Video Transmitter or NVT) that is ONVIF-conformant
 - c. ONVIF Conformance shall include:
 - 1) Device Discovery
 - 2) Video settings configuration (e.g. resolution, frame rate, etc.)
 - 3) Picture settings configuration (e.g. brightness, contrast, etc.)
 - 4) PTZ control
 - 5) Audio
 - 6) Serial
8. The VMS shall support:
 - a. Motion Detection
 - b. Audio
 - c. I/O pins
9. The VMS shall support Microsoft SQL server.
10. The VMS shall support the following integral software services:
 - a. Directory Service: Central administration and configuration database
 - b. Intelligent rule-based software switching of events and actions (such as FLIR's Event Distributor® (EDB):)
 - c. Archiver: Record video, audio and metadata and manage edge devices
 - d. Gateway: Portal for remote access over the Internet
 - e. Transcoder: Convert data formats to facilitate reliable communications and provide remote connectivity to the system and video streaming over the Internet
 - f. Watchdog service
 - g. Web server: Allows connecting from web browsers
11. Case management service
12. Global Admin Server to synchronize users, user groups and privileges among multiple Latitude systems.

D. Resiliency

1. Software shall have an integral watchdog module.
2. Software shall have Failover capabilities for all major services including Directory Service, Event Distributor, and Archiver. Failover Archiver Service shall accommodate one-to-many servers.
3. Software shall have redundant Archive Service available for real-time video backup. Redundancy shall be supported on the unit level.

2.3 NETWORK VIDEO RECORDER (NVR)

A. Network video recorder shall be stand alone and shall have the following minimum requirements.

1. Equal to and compatible with the existing NVR's
2. Existing NVR are DVTEI (FLIR) USS Enterprise 2U Server/storage units.
3. Chassis: Intel 2U Rack Mount Server Chassis
4. Provide recording for no more than 64 cameras per unit
5. RAID Controller
6. hot swappable bays

B. Features

1. Enterprise Eight-core Intel® Xeon® processor
2. OS installation optimized for United VMS
3. Server + Storage in one
4. Rack space efficient
5. Up to 288TB of internal hard drive storage
6. Enterprise class hardware
7. Hot-swappable hard disk drives
8. High efficiency server runs cool
9. Multi-port NIC

2.4 VIEWING AND MANAGEMENT PCS

A. The minimum configuration of the PC shall be:

1. The PC shall be based on a Core 2 DUO 2.66GHz 1066MHz FSB, 3MB L2 cache or greater.
2. Minimum 2 GB of RAM
3. Network adapter 1000 Mbit Ethernet
4. 2 x 160 GB 7200 RPM SATA RAID 1 Drive
5. Standard sound card.
6. Windows OS.
7. DirectX 8.1 or better
8. Graphic card: NVIDIA® Quadro NVS 290 Dual Output (2 Monitors).
9. Keyboard and mouse

10. 32 in. 1080p monitor.

2.5 The viewing PC shall have client software to be able to perform all task in the VMS

A. Client software

1. The VMS shall provide client applications for the following needs:
 - a. **Control Center** – Viewing and monitoring application
 - b. **Admin Center** – System Administration and Configuration application
 - c. **Quick Control Center** – Self-contained version of Control Center which doesn't require installation and is used primarily as a stand-alone player
 - d. **Web client** used for viewing live, playback, alarms and export recorded video
 - e. **Operator Monitoring** – An agent software that shall enable monitoring and recording the PC screen in the VMS (such as FLIR's Mentor module)
2. The VMS client application shall communicate with the VMS server-side and handle the user requests without interfering with the background tasks of any of the VMS services, or impacting its ongoing operation
3. The VMS client applications that connect and communicate with the VMS server-side shall require the user to authenticate via the Login dialog box by providing username and password
4. The VMS client application shall provide multi-language support
5. The VMS client applications shall utilize GUI skinning technologies

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation of equipment is to existing buildings. Any demolition, altering or disturbance of property shall be restored to original appearance and condition.
- B. Install finish hardware in accordance with reviewed hardware schedule and manufacturer's printed instructions.
- C. Installation of hardware shall comply with NFPA 80 and NFPA 101 requirements. Any installation of wire ways, raceway, or conduit shall be the responsibility of the contractor.
- D. Installation shall meet all requirements of UL508A for equipment racks and panels.
- E. Installation of cable shall meet all requirements set forth by ANSI/TIA/EIA 568-B
- F. All equipment cabinet wiring shall be laced and fastened in place using tie wraps or equal. Cabled runs shall be straight and either parallel or perpendicular to cabinet sides.
- G. All network cable shall be CAT 6 or multimode mode fiber. Code Compliance
- H. The work of this section shall comply with the latest requirements of the Federal, State, and local codes or ordinances, and other agencies having jurisdiction. In the event of conflict, the more stringent requirements shall apply.
- I. The work shall conform to applicable sections of the Life Safety Code, NFPA-101, the National Electric code, and NFPA-70.
- J. Installation and assembly of all equipment panels shall meet the guidelines listed in Standards for Industrial Control Panels, UL 508A.
- K. Installation of network cabling shall meet the standards set forth by ANSI/TIA/EIA 568-B.

- L. Network installation shall meet all requirements and recommendations in 13 edition of BICSI standards Telecom Distribution Methods Manual (TDMM).

3.2 DELIVERY, STORAGE AND HANDLING

- A. Deliver hardware to jobsite in manufacturer's original packaging, marked to correspond with approved hardware schedule. Do not deliver hardware until suitable locked storage space is available. Check hardware against reviewed hardware schedule.
- B. Store hardware to protect against loss, theft or damage. Equipment received but not installed shall be placed in secured storage. Control handling to prevent losses and delays before and after installation.
- C. Immediately upon delivery, inspect components and assemblies for damage. Advise manufacturer no later than two days after receipt of damaged items, the quantity and description of the items. Remove all damaged items from the site.

3.3 WARRANTY

- A. Guarantee workmanship and material provided against defective manufacture. Repair or replace defective workmanship and material appearing within period of three years after Substantial Completion.
- B. Provide three year factory warranty on fiber network equipment.
- C. Replace shortages and incorrect items with correct material at no additional cost to Owner.

END OF SECTION 284621

SECTION 284640
ACCESS CONTROL SYSTEM

PART - 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Provisions of the Contract and of the Contract Documents apply to this section.

1.2 SUMMARY

- A. The contractor shall provide the following products, labor and services to program, document and test the card access system as required herein and on the drawings.
- B. The system shall consist of access-control software that enables communication between personal computers (PC) and microprocessor-equipped smart controllers with distributed databases.
- C. The non-proprietary smart controllers make access-control decisions at doors, exits, entrances, etc.,
- D. The controllers shall receive data input from other hardware components of the system, such as readers, relays, push buttons and locking controller I/O.
- E. All system controllers shall be connected to the system server where event history, cardholder data and system programming data shall reside. The controllers shall receive data input from, and provide system data to, the controlling system servers. The controllers shall be designed specifically for access-control system applications.
- F. All devices shall be connected to the network time protocol server.
- G. This performance specification provides the minimum requirements for the Access-Control system. The system shall include, but not be limited to, all equipment, materials, labor, documentation and services necessary to furnish and install a complete and operational system to include, but not be limited to, the following functions:
 - 1. Enabling valid access and preventing unauthorized access at facility portals
 - 2. Enabling alarm/alert notification of access breaches at facility portals and other points as desired
 - 3. Enabling data collection and management for a cardholder database at the facility
 - 4. Card enrollment and badge generation.
- H. The system shall log all access control events, including access granted, access denied, and duress codes used. All access control events shall be associated with the token user's Name.
- I. The system shall be connected to a dedicated security network. The network shall be isolated from all other networks with the exception of the video surveillance network.

1.3 FUNCTIONAL SYSTEM

- A. It is the responsibility of the contractor to provide a fully functional system that meets all the requirements listed herein or on the drawing. Other equipment not listed here may be required and should be provided as part of the system to assure functionality.
- B. Readers –The system shall be made fully functional and include readers as required.
- C. Head End - The head end equipment shall be as described herein. The equipment shall be located in main equipment room. The contractor is responsible to provide new equipment that will meet the space restriction.
- D. Computer - Computer equipment for the use of programming and monitoring the card access equipment shall be part of this section as listed below.
- E. Enrollment Station - An enrollment station shall be provided. The location shall be coordinated with owner as to allow ease of use for the security personnel to coordinate card enrollment.

1.4 REFERENCES AND STANDARDS

- A. NEC- National Electrical Code
- B. NFPA-National Fire Code
- C. Life Safety Code
- D. UL - Underwriters Laboratories.
- E. All Local Codes and Ordinances

PART - 2 - PRODUCTS

- 2.1 Card Access Controllers - The access controllers shall be 'smart' to the entry and be able to operate in a 'stand-alone' mode or within a network of other like controllers. All decisions regarding the user access, alarms, and automatic timed functions are to be made at the controller independent of a computer.
 - A. Outputs – The controller shall contain and operate various outputs for controlling access and consisting of not less than the following:
 - B. Door Control Output - A 1.0 amp, form C, dry contact, single pole double throw relay for application of power to an electric locking device, automatic gate, door operator or other interface.
 - C. Alarm Output – The alarm output shall consist of a 1.0 amp; form C, dry contact closure. The alarm output must be configurable to annunciate any or all of the following conditions:
 - 1. Breach -Door opened without activation by the reader.
 - 2. Prop - Door held open for extended period of time.
 - D. RS 485 or ethernet communication Output– An network communication output capable of linking up to 128 controllers into one network.
 - E. RS232 communication Output – A serial RS 232 communication port automatically configured for direct connection to a personal computer.
 - F. Inputs – The controller shall contain and manage various inputs for the control of access that shall include not less than the following:
 - 1. Door Status Input – An input for sensing the normally closed switch to indicate door is in the closed position.

2. Request to Exit Input – There shall be an input that is normally open and upon closure will active the door control output unless other conditions prevent it activation.
3. Reader Inputs – There shall be connections for not less than two Proximity type readers or two Wiegand type readers. The type reader shall match the type designated by the reader schedule or designated on the plans.
- G. Diagnostic Aids – the controller shall contain special visual aids for viewing and diagnostic test and ID functions that shall include but not limited to the following:
 1. Programming Display - An LCD display shall be used as a programming and diagnostic
 2. Address Display – A display of type LED or LCD will display the address of the controller.
 3. Selection – A single push button or multiple buttons for setting the controller address and selecting and performing diagnostic test will be located on the controller.
- H. Memory Requirements – The controller' database memory shall be nonvolatile or supported by lithium battery to allow a minimum of five years retention. The memory shall have the following capacity and characteristics:
 1. Card and Tag Database - The memory of the controller will have the capacity to manage 10,000 cards or tag holders per controller and shall be expandable to 65,000 card or tag holders.
 - a. Block enrollment - Entry of cards into the controller database shall be done by using a block enrollment method. The method shall allow card enrollment by serial number.
 - b. Individual enrollment - Card and tag enrollment can also be done by a learn method requiring the card to be presented to an enrollment reader at the time of enrollment.
 2. Transaction Database – The memory of the controller will have the capacity to store at least 1000 transactions per reader. Storage capacity of transactions shall be independent of the size of the card database. Management of the transaction database will have the following characteristics:
 - a. Comprehensive Coverage – All transactions performed by the controller will be recorded and will act independent of any other controller in the network.
 - b. FIFO – Transactions will be stored on a first in first out bases. When the transaction memory reaches capacity, the oldest transaction will be deleted to make room for a new transaction.
- I. Computer Interface – The controller shall be capable of communicating with a personal computer at a remote location via a network connection.
 1. Communication Protocol – The controller shall automatically sense if connected directly to a PC or if connected via a modem and adjust its communication protocols accordingly.
 2. Transaction Data Transfer - The controller shall contact the host and upload the contents of the controller's buffer when the buffer reaches a pre-programmed percentage of its event database memory capacity. Should the communication connection be broken during the upload process, the controller shall try to reestablish the communication connection every 10 minutes until a successful connection is made and all data is uploaded.
- J. Time Date Stamps – The controller shall tag each event with a time and date stamp.

- K. Nonvolatile Clock - The real time clock (RTC) of the controller shall be nonvolatile and be backed up by a lithium battery matched to load to provide no less than 3 year life.
 - L. Daylight Saving Time – The RTC shall have the capability to automatically adjust for daily savings time.
 - M. Reader Inputs – The controller shall provide a minimum of two reader inputs that may be of the type for proximity interface or for the type of Wiegand interface. The type reader interface shall match that the type reader designated by the reader schedule or designated on the plans.
 - N. Simultaneous Operation - All readers on the controller will be capable of being operated simultaneously.
 - O. Direction Configuration - All the readers shall be capable of configures as egress or ingress.
 - P. Independent Operation - All readers connected to the controller shall have the capability of operating independent or as pairs.
 - Q. Cable Connections - All cable connections to the controller shall be the quick disconnect type.
 - R. Voltage Input – The controller shall operate on low voltage. Power inputs will be no more than 24vDC and must consume less than 1 amp maximum with all options installed.
 - S. Transient Protection - The controller shall have MOV protection on all relay outputs and transorbs across all input and non-relay outputs to provide electrical transient protections.
 - T. Over Voltage Protection – The controller shall provide protection against incorrect input power connection including over voltage and reverse power and ground.
 - U. Temperature Rating – The controller shall operate at a temperature range 0-140 degrees F and at 0% to 90% relative humidity, non-condensing.
 - V. Bases of design is Mercury components.
- 2.2 Controller Programming and Monitoring Software - All configuration, programming and monitoring of the controllers must be done through a software program that makes the task easy to perform. The program shall run in a Windows environment.
- A. Programming – The programming software shall have the following features and capabilities:
 - 1. Card Management – The program shall be able to manage up to 10,000 cards and user profiles.
 - a. Enrollment – Each card may be activated by entry into the system from the serial number of the card or through presenting the card to an enrollment reader.
 - b. User Profiles – Each card shall have a user profile that will include not less than the name, access group and department group. The user profile shall include at least 4 other fields that can be defined and changed by the owner.
 - c. Activation/Deactivation – Each card can be activated or deactivated without the removal of the card from the database. The program shall the capabilities to set future activation or expiration of a card.
 - 2. Time Zones – Be able to manage no less than 32 distinct time zones. Each time zone should be subdivided into the 7 days of the week and 4 start stop time intervals.

3. Holiday Schedules – The program shall have the capability of managing at least 3 holiday schedules, each with up to 32 entries.
 4. Access Groups – The number of access groups shall not be limited. The software shall have a ‘wizard’ to step the operator through the access group programming procedure.
 5. Doors – The programming software shall be capable of programming and managing up to 512 doors.
- B. Monitoring – The software shall the capability to monitor activity of each controller.
 - C. Configuration – The software shall have the capabilities to poll the access control network and retrieve network hardware information that the program uses to automatically setup and configure itself without manual entry.
 - D. Event Log – The program shall be capable of monitoring all activity and logging the events to the hard drive.
 - E. Event Monitoring – The software shall be capable of configuring up to 3 separately configurable event monitoring windows. Each window shall be capable of displaying event information from any individual controller or all controllers on the access network. The program shall have the capability of selecting events by type that will be displayed on the screen to avoid overwhelming data.
- 2.3 Control Programming and Enrollment Computer – The programming and monitoring computer shall be located at the owner’s discretion and have not less than the following features:
- A. Intel ® I5 Processor (2.80 GHz, 1M 800 MHz FSB)
 - B. 4 GB DDR 2 Non- ECC SDRAM, 5333 MHz
 - C. Ethernet Connection port
 - D. 2 USB 2.0 high speed connections
 - E. 1 22 in LCD monitor
 - F. Latest Windows® operating system
 - G. Camera
- 2.4 Readers – The contractor shall supply readers of the type listed below. Refer to the drawings as to location and quantity of each reader.
- A. Bases of design Multi-technology contactless smart card reader shall be HID Global multiclass SE Model RP40 or SE Model RPK40 where a keypad is designated.
 - B. Read Only Multi-technology contactless smart card reader. The multi-technology contactless smart card reader(s) shall be designed to securely read, interpret, and authenticate access control data from 13.56 MHz contactless smart card credentials and 125 kHz proximity cards.
 - C. The multi-technology contactless smart card reader shall be optimally designed for use in access control applications by providing:
 1. Customized security protection through support of the device-independent Secure Identity Object™ (SIO) portable credential methodology to provide enhanced security and performance features.
 2. Unique read selection that enables reading of the Secure Identity Object™ (SIO), standard iCLASS, 125 kHz proximity, or two or all technologies at the same time.
 3. Participates in an advanced, bounded and trust-based security system utilizing the Trusted Identity Platform™ (TIP) architecture.

4. A migration platform to upgrade from the most popular 125 kHz proximity technologies to SIO on iCLASS SE by reading both 125 kHz proximity technology and 13.56 MHz contactless smart card technology.
 5. Guaranteed compatibility to read all HID data formats and ensuring card-to-reader interoperability in multi-location installations and multi-card and reader populations when used with Genuine HID products.
 6. Backwards compatibility with legacy 13.56 MHz contactless smart card and 125 kHz proximity access control formats (E.g. 26-bit, 32, 35-bit, 37-bit, 56-bit, and HID Corporate 1000 formats). Compatibility across the product line shall be assured without the need of special programming.
 7. Global, off-the-shelf availability.
- D. The multi-technology contactless smart card reader shall provide enhanced security technology and features.
1. The multi-technology contactless smart card reader shall be SeoS Compatible

2.5 Badge Printer –

- A. Bases of design HID Fargo DTC4500e
- B. A badge printer shall be part of the enrollment station and shall have the following characteristics:
 1. Method: Dye sublimation / resin thermal transfer
 2. Resolution: 600 dpi
 3. Colors: Up to 16.7 million
 4. Print Speed:
 - a. Fast print quality – 8 seconds per card
 - b. Normal print quality – 16 seconds per card
 - c. Best print quality – 24 seconds per card
 5. Accepted Standard Card Sizes: (3.370"L x 2.125"W / 85.6mmL x 54mmW)
 6. Print Area: Over-the-edge
 7. Accepted Card Thickness: .030" (30 mil) / .762mm
- C. PVC or polyester cards with polished PVC finish; monochrome resin required for 100% polyester cards
- D. Card Cartridge Capacity: 200 pre-loaded Cards
- E. Output Hopper Card Capacity: 100 cards (.030" / .762mm)
- F. Memory: 32MB RAM
- G. Software Drivers: Windows
- H. Interface: USB 1.1 (USB 2.0 compatible)
- I. Operating Temperature: 59° to 95° F / 15° to 35° C
- J. Humidity: 20-80% non-condensing
- K. Agency Listings: Safety: UL 60950, CSA C22.2 (No. 60950) and UL-GS (EN 60950 A1-A4, A11), CE
- L. Emissions: CE, CRC c1374, ITS (EN 55022 Class B: 1998), FCC Class B, EN 55024: 1998
- M. Approved Manufacturers
 1. HID
 2. Approved Equal

2.6 Cards –

- A. The contractor shall supply 500 new i-class SEOS cards with the following characteristics:
 - 1. The contractor shall supply 500 new non-reader cards:
 - 2. Wallet-friendly- The card should be equipped with a vertical slot punch and can accept photos and graphics via industry standard adhesive packs (dye sublimation or laminated).
 - 3. Dimensions – The cards shall be 2.13" x 3.38" x 0.065" (54 mm x 86 mm x 1.6 mm).
 - 4. Sequentially Numbered – The cards shall be sequentially (except C5 formatting).
 - 5. The card should have printable surface compatible with the badge printer.
 - 6. Lifetime warranty
 - 7. Cards shall be corporate 1000 format assigned to Owner. Formats assigned to the contractor will not be acceptable.

2.7 Enclosures for controller units

- A. Bases of design is LifeSafety model FPO150/250
- B. The controller unit shall be one enclosure with features as described herein.
- C. The unit shall house the mercury modules and provide dual power for electronics and door solutions. The unit shall be UL listed as an assembly. The unit shall include 12V and 24V DC dual voltage access power system. The lock control modules shall provide sixteen access control inputs capable of voltage or dry contact activation, and sixteen outputs programmable for failsafe / fail secure operation at either 12 or 24 VDC and be controlled by an integrated fire alarm interface circuit within the enclosure. The unit shall include modules that provide sixteen auxiliary class II outputs, where each output is configurable for 12 or 24VDC operation. The unit shall have a removable backplate and include lock, two (2) keys and tamper switch.
- D. Features
 - 1. On board Fire Alarm Interface –
 - 2. Continuous and resettable DC
 - 3. Distributed outputs –
 - 4. 16 auxiliary, power limited at 2.5A each –
 - 5. 16 controlled, fused at 3A each
 - 6. Network monitoring and reporting
 - 7. Lifetime Warranty
- E. POWER
 - 1. Input 120/230 VAC 50/60 Hz | 452 Watts
 - 2. Overload and short circuit protection
 - 3. Over temperature protection
 - 4. Polarized AC power supply disconnect
 - 5. FPO150: 12V/12A or 24V/6A | 150 Watts

6. FPO250: 12V/20A or 24V/10A | 250 Watts
7. Outputs: Continuous (DC1) Resettable (DC2)
8. 16 control outputs, fused at 3A each
9. 16 auxiliary outputs, class 2 power limited at 2.5A each
10. 120 mV output voltage ripple
11. System Efficiency: 87% System BTU Rating: 175 BTU/Hr

F. Battery charger

1. Independent built-in 2A charger for sealed lead acid or gel type batteries
2. Microprocessor dual rate charging of 12 or 24 V battery sets
3. Charges up to 80Ah battery sets within UL limit
4. Automatic switchover to standby battery when AC fails
5. Zero voltage drop when switched over to battery backup

G. Supervision AC Fail (form "C" contacts)

H. System Fault (form "C" contacts) may be triggered by low/no battery, short to earth ground, power supply failure or blown fuse

I. Visual Indicators AC input, DC1 and DC2 output

1. System fault / AC fault | Short to earth ground | Reverse battery polarity
2. Fire Alarm Input activated
3. C8: DC outputs and fault status

J. D8P: DC outputs

K. Regulatory Compliance Mercury/LSP Joint Listing

1. UL294, UL603, UL1076, ULC S318, ULC S319
2. CSA C22.2 #107.1, CSA 22.2 #60950
3. CSFM / FCC Part 15, Subpart B
4. CE

PART - 3 - EXECUTION

3.1 EXAMINATION

- A. Examine pathway elements intended for cables. Check raceways, cable trays, and other elements for compliance with space allocations, installation tolerances, hazards to cable installation, and other conditions affecting installation
- B. Examine roughing-in for LAN and control cable conduit systems to PCs, controllers, card readers, and other cable-connected devices to verify actual locations of conduit and back boxes before device installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Comply with recommendations in SIA CP-01.
- B. Comply with TIA/EIA 606-A, "Administration Standard for Commercial Telecommunications Infrastructure."
- C. Obtain detailed Project planning forms from manufacturer of access-control system; develop custom forms to suit Project. Fill in all data available from Project plans and specifications and publish as Project planning documents for review and approval.
- D. Record setup data for control station and workstations.
- E. For each Location, record setup of controller features and access requirements.
- F. Propose start and stop times for time zones and holidays, and match up access levels for doors.
- G. Set up groups, facility codes, linking, and list inputs and outputs for each controller.
- H. Assign action message names and compose messages.
- I. Set up alarms. Establish interlocks between alarms, intruder detection, and video surveillance features.
- J. Prepare and install alarm graphic maps.
- K. Develop user-defined fields.
- L. Develop screen layout formats.
- M. Propose setups for guard tours and key control.
- N. Discuss badge layout options; design badges.
- O. Complete system diagnostics and operation verification.
- P. Prepare a specific plan for system testing, startup, and demonstration.
- Q. Develop acceptance test concept and, on approval, develop specifics of the test.
- R. Develop cable and asset-management system details; input data from construction documents. Include system schematics and Visio Technical Drawings in electronic format.
- S. In meetings with Architect and Owner, present Project planning documents and review, adjust, and prepare final setup documents. Use final documents to set up system software.

3.3 CABLING

- A. Comply with NECA 1, "Good Workmanship in Electrical Construction."
- B. Wiring Method: Install wiring in raceway and cable tray except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Use NRTL-listed plenum cable in environmental airspaces, including plenum ceilings. Conceal raceway and cables except in unfinished spaces.
- C. Install LAN cables using techniques, practices, and methods that are consistent with Category 5E rating of components and fiber-optic rating of components, and that ensure Category 6 and fiber-optic performance of completed and linked signal paths, end to end.
- D. Boxes and enclosures containing security-system components or cabling, and which are easily accessible to employees or to the public, shall be provided with a lock. Boxes above ceiling level in occupied areas of the building shall not be considered accessible. Junction boxes and small device enclosures below ceiling level and easily accessible to employees or the public shall be covered with a suitable cover plate and secured with tamperproof screws.
- E. Install end-of-line resistors at the field device location and not at the controller or panel location.

3.4 SYSTEM SOFTWARE AND HARDWARE

- A. Develop, install, and test software and hardware, and perform database tests for the complete and proper operation of systems involved. Assign software license to Owner.

3.5 FIELD QUALITY CONTROL

- A. Perform tests and inspections.

END OF SECTION 284630

MEETING SIGN-IN SHEET

Project:	Downeast Corrections	Meeting Date:	7/24/20
Purpose:	Pre bid walk throu	Time	11:00 to 13:00

Name	Title	Company	Phone	Fax	E-Mail
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MEETING SIGN-IN SHEET

Project:	Downeast Corrections	Meeting Date:	7/24/2020
Purpose:	Pre bid walk threw	Time:	11:00 to 13:00

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