

MONTANA STATE UNIVERSITY - BOZEMAN

RENNE LIBRARY DATA CENTER FIRE PROTECTION SYSTEM UPGRADES

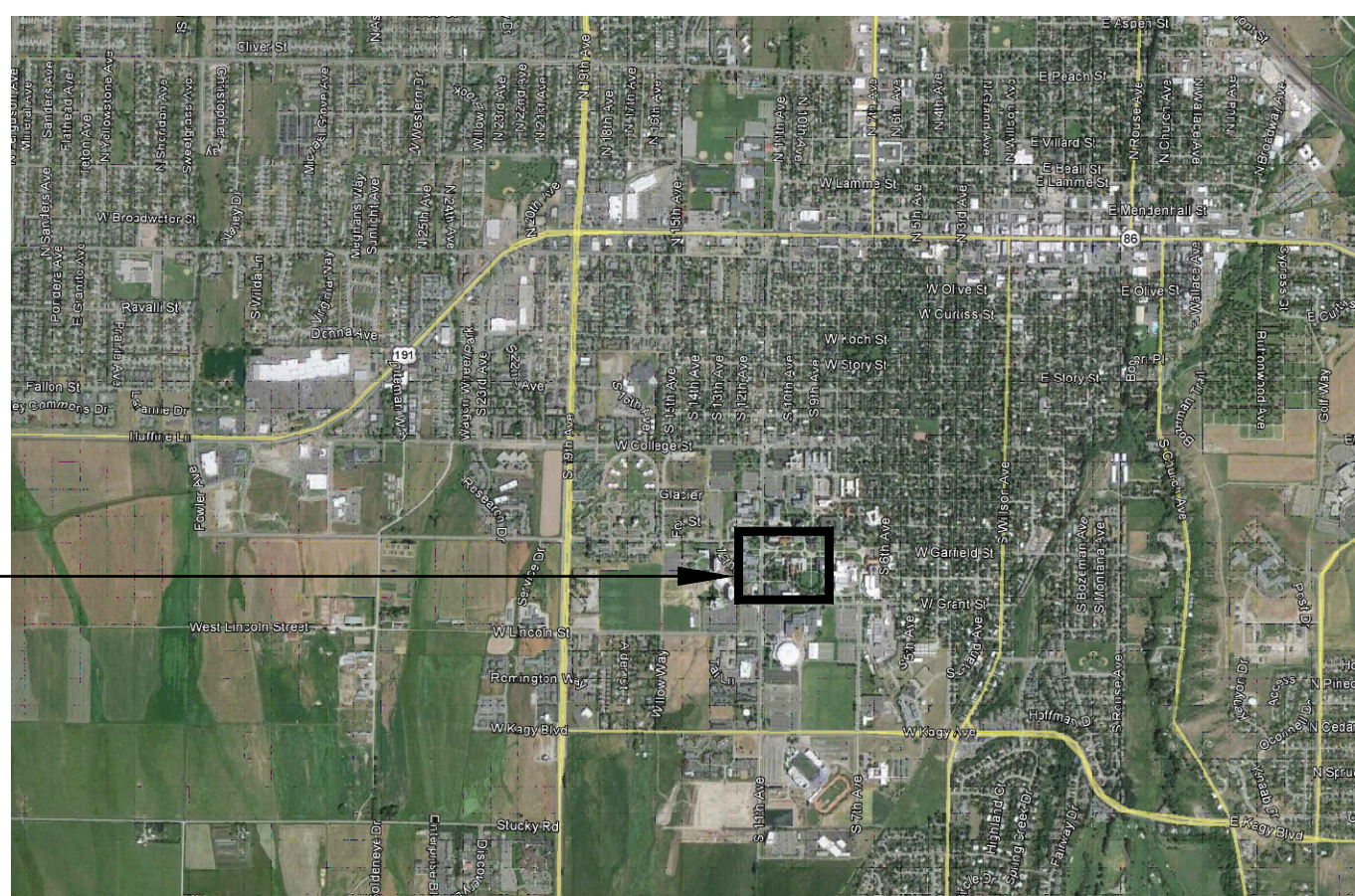
DRAWING INDEX

FIRE SPRINKLER DRAWINGS

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PPA #20-0036
A/E #2020-02-09D

CONSTRUCTION DOCUMENT BID SET
JANUARY 17, 2021



PROJECT
LOCATION

CONTACT INFO

MSU BOZEMAN
FACILITIES
P.O. BOX 72760
BOZEMAN, MT 59717
ATTN: LORAS OTOOLE

DESIGN TEAM:
COFFMAN ENGINEERS, INC
2011 N. 22ND AVE, SUITE 4
BOZEMAN, MT 59718
ATTN: JASON ANDERSON, P.E.

AUTHORITY HAVING JURISDICTION
CITY OF BOZEMAN
FIRE MARSHALL
121 N. ROUSE AVE.
BOZEMAN, MT 59715

CONTRACTOR NOTES:

THE DATA CENTER AND ASSOCIATED AREAS (ROOMS 75 THROUGH 75G) HAVE RESTRICTED ACCESS. THE CONTRACTOR WILL BE ACCOMPANIED AND/OR MONITORED WHILE WORKING IN THESE AREAS. MAIN DOORS INTO THE DATA CENTER AREA MUST BE KEPT CLOSED AT ALL TIMES UNLESS THEY ARE BEING ACTIVELY MONITORED BY THE CONTRACTOR TO PREVENT UNAUTHORIZED ACCESS DURING CONSTRUCTION ACTIVITIES. GENERALLY, THE CONTRACTOR WILL NEED TO CHECK IN WITH UNIVERSITY INFORMATION TECHNOLOGY (UIT) STAFF WHEN ENTERING THE DATA CENTER. DAILY KEYS OR ACCESS KEY CODES MAY BE PROVIDED FOR CONTRACTOR USE UNDER CERTAIN CIRCUMSTANCES.

THE DATA CENTER SYSTEMS PROVIDE INFORMATION TECHNOLOGY FOR MSU AND ENTITIES ACROSS THE STATE OF MONTANA, AND WILL BE ACTIVE DURING THE CONSTRUCTION PERIOD. WORK PERFORMED IN THE DATA CENTER MUST BE COORDINATED WITH UIT STAFF TO ENSURE THAT DATA CENTER SYSTEMS ARE PROTECTED FROM DAMAGE. CONTRACTOR IS TO PROVIDE PROTECTION FOR EQUIPMENT USING METHODS AS REQUIRED TO ENSURE THAT CONSTRUCTION ACTIVITIES WILL NOT DAMAGE THE UIT SYSTEMS OR IMPACT THEIR ABILITY TO FUNCTION. HARD SURFACE PROTECTION IS TO BE PROVIDED ABOVE DATA CENTER EQUIPMENT AS REQUIRED TO PREVENT DAMAGE FROM FALLING OBJECTS. FLEXIBLE COVERS ARE TO BE PROVIDED WHERE NEEDED TO PREVENT DAMAGE FROM DUST OR WATER DAMAGE. AIR-CONDITIONING SYSTEMS ARE TO BE PROTECTED FROM DAMAGE ALSO AND UIT EQUIPMENT IS TO BE PROVIDED ACCESS TO COOLING AIRFLOW AT ALL TIMES. OTHER PROTECTION IS TO BE PROVIDED BY CONTRACTOR AS REQUIRED TO ADDRESS HAZARDS NOTED BY UIT OR OTHER MSU STAFF.

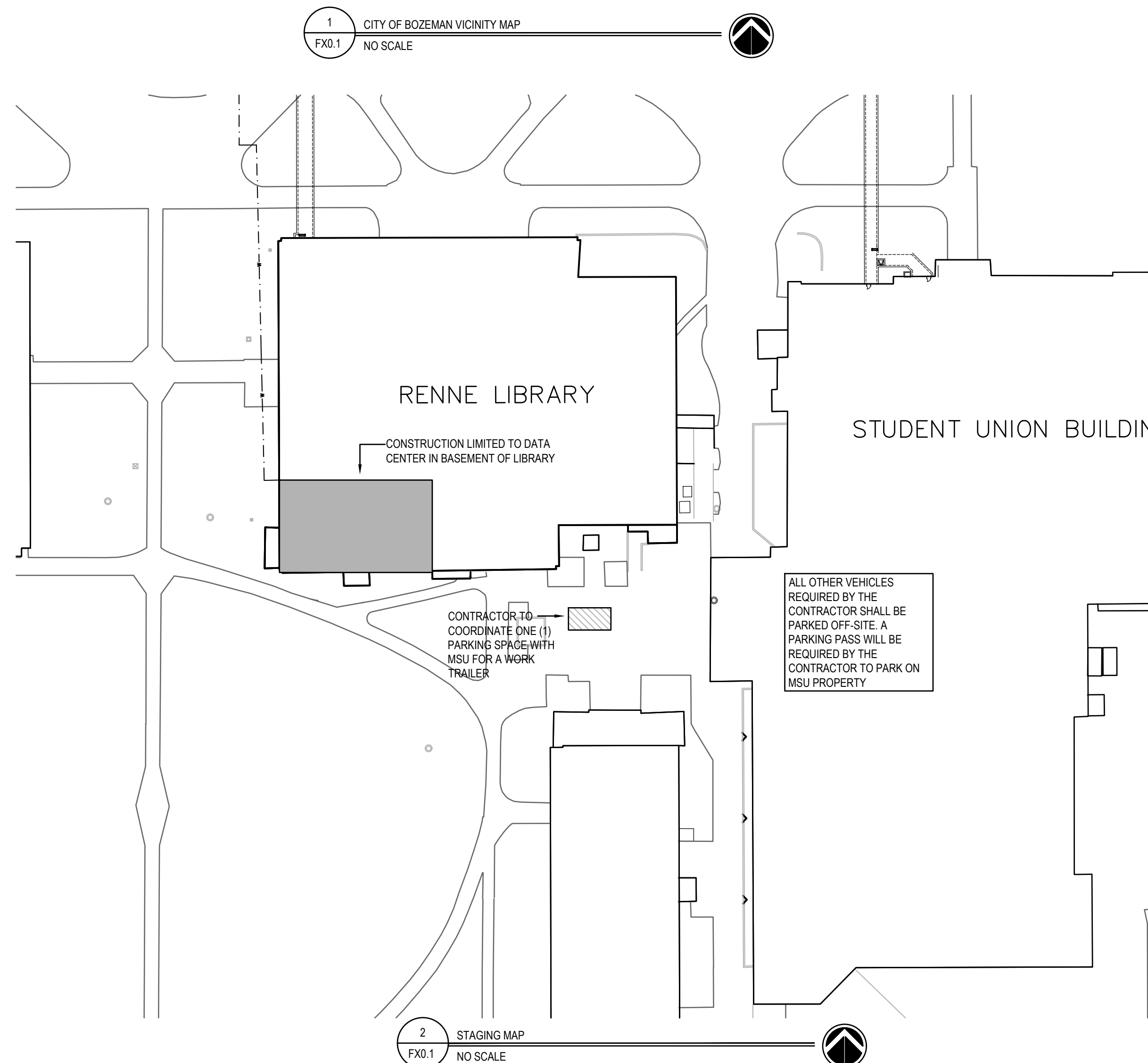
STAGING NOTES:

1. CONSTRUCTION STAGING AREA: FENCE TO ENCLOSE ALL AREAS AS CONSTRUCTION STAGING AREAS USED AS CONSTRUCTION STAGING AREAS. PROVIDE A FENCE WHICH PREVENTS PEDESTRIANS FROM ENTERING THE CONSTRUCTION STAGING AREA. THE CONTRACTOR NEED NOT MAKE USE OF THE ENTIRE CONSTRUCTION STAGING AREA SHOWN. ALL CONSTRUCTION STAGING AREAS WHICH ARE DAMAGED SHALL BE REPLACED WHEN CONSTRUCTION IS COMPLETE.
2. DO NOT BLOCK ANY ROADS OR SIDEWALKS.
3. CONTRACTOR TO ACCESS SITE FROM GRANT ST. THROUGH THE SERVICE DRIVE.
4. CONTRACTOR IS RESPONSIBLE FOR PURCHASING PARKING PERMITS FROM MONTANA STATE UNIVERSITY FOR ITS CREW.
5. CONTRACTOR TO OBTAIN APPROVAL OF CONSTRUCTION STAGING SET-UP FROM MONTANA STATE UNIVERSITY CONSTRUCTION INSPECTOR BEFORE BEGINNING CONSTRUCTION.
6. DO NOT BLOCK ACCESS TO ANY GARBAGE DUMPSTERS.

THE SAFETY MEASURES REQUIRED OF THE CONTRACTOR ARE OUTLINED MORE FULLY IN THE SPECIFICATIONS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY AND SHALL TAKE WHATEVER ADDITIONAL MEASURES ARE NECESSARY TO ENSURE THE HEALTH AND SAFETY OF THE CONTRACTOR'S EMPLOYEES, SUBCONTRACTORS, AND BUILDING OCCUPANTS, OF PEDESTRIANS AT OR NEAR THE CONSTRUCTION SITE AND ACCESS ROUTES, AND OF ALL OTHER PERSONS IN AREAS AFFECTED BY THE CONTRACTOR'S ACTIVITIES.

STAGING LEGEND:

- AREAS NOT DEFINED BELOW ARE NOT IN THE CONTRACT (NIC) AND SHALL NOT BE USED BY THE CONTRACTOR, MACHINERY, OR PERSONNEL DURING THE TERM OF THE CONTRACT.
- CONSTRUCTION STAGING AREA: SITE SHOWN IS THE MAXIMUM AREA AVAILABLE TO THE CONTRACTOR FOR MATERIAL STORAGE, EQUIPMENT STORAGE, AND OTHER ACTIVITIES RELATED TO CONSTRUCTION. ALL AREAS USED FOR CONSTRUCTION OR AREAS DAMAGED DURING THE EXECUTION OF THIS CONTRACT SHALL BE REPAIRED AND IF NECESSARY RESODDED OR REPAVED WHEN CONSTRUCTION IS COMPLETED. EXISTING TREES AND SIDEWALKS SHALL BE PROTECTED FROM DAMAGE AND SHALL BE REPLACED IF DAMAGED. NO PARKING IN THE STAGING AREA OR ACCESS ROUTE. SEE PARKING MAP FOR PARKING AREA. ALL VEHICLES OTHER THAN DUMP TRUCK AND MATERIALS DELIVERY TRUCK MUST HAVE VALID PARKING PERMIT AND BE PARKED IN DESIGNATED MSU BOZEMAN PARKING LOT. ALL VEHICLES TO LEAVE STAGING AREA IMMEDIATELY AFTER COMPLETING INTENDED TASK. CONTRACTOR WILL BE RESPONSIBLE TO REPAIR OR REPLACE DAMAGED AREAS OF BUILDINGS AND/OR LANDSCAPING.
 - CONSTRUCTION SCOPE OF WORK



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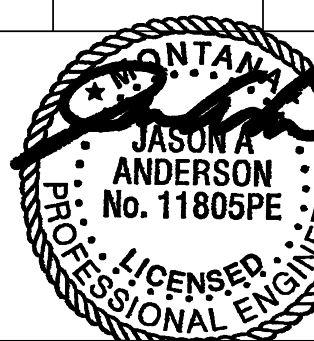
RENNE LIBRARY
DATA CENTER - FIRE PROTECTION
UPGRADES



DRAWN BY: BMH

REVIEWED BY: JAA

REV.	DESCRIPTION	DATE



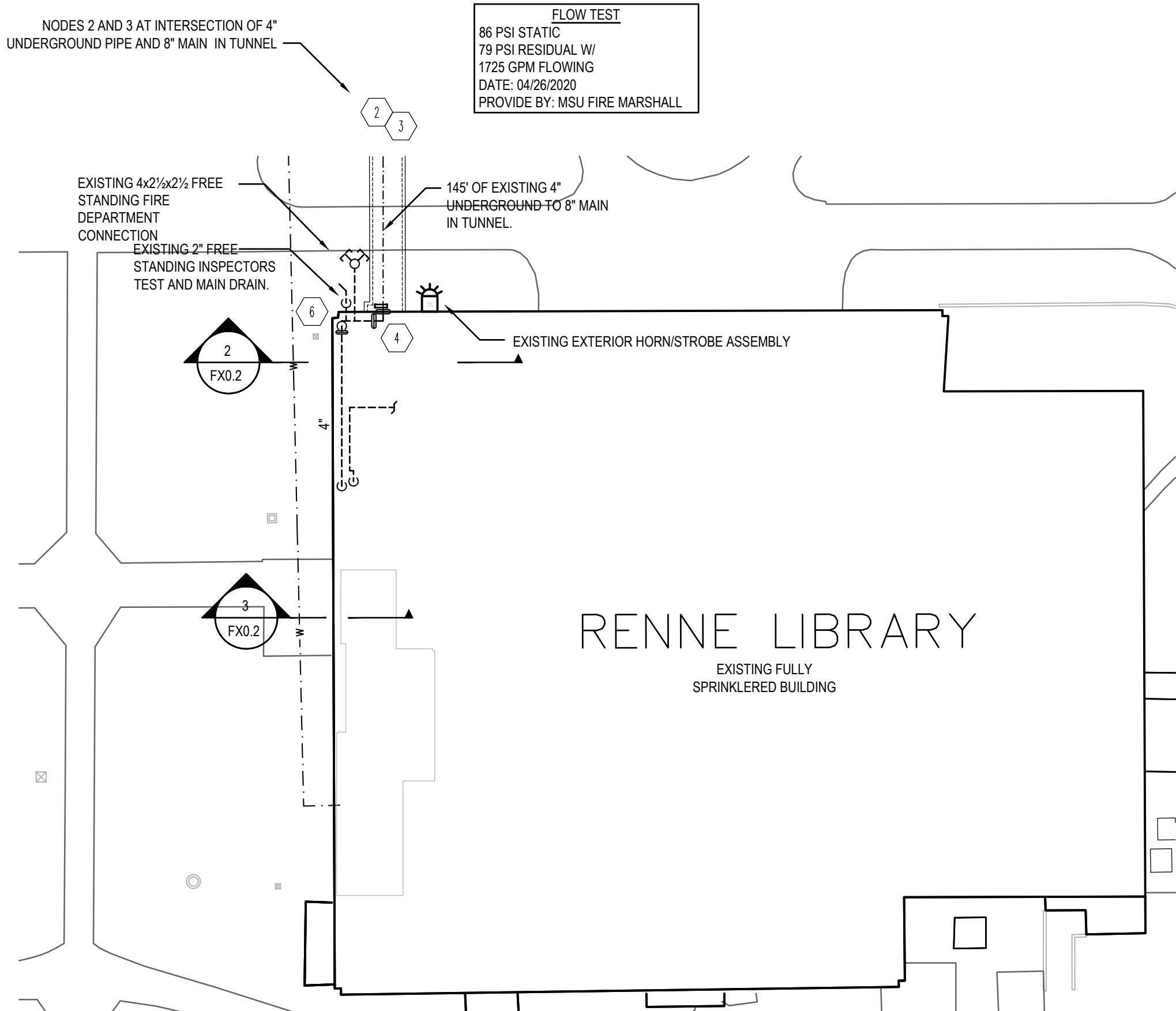
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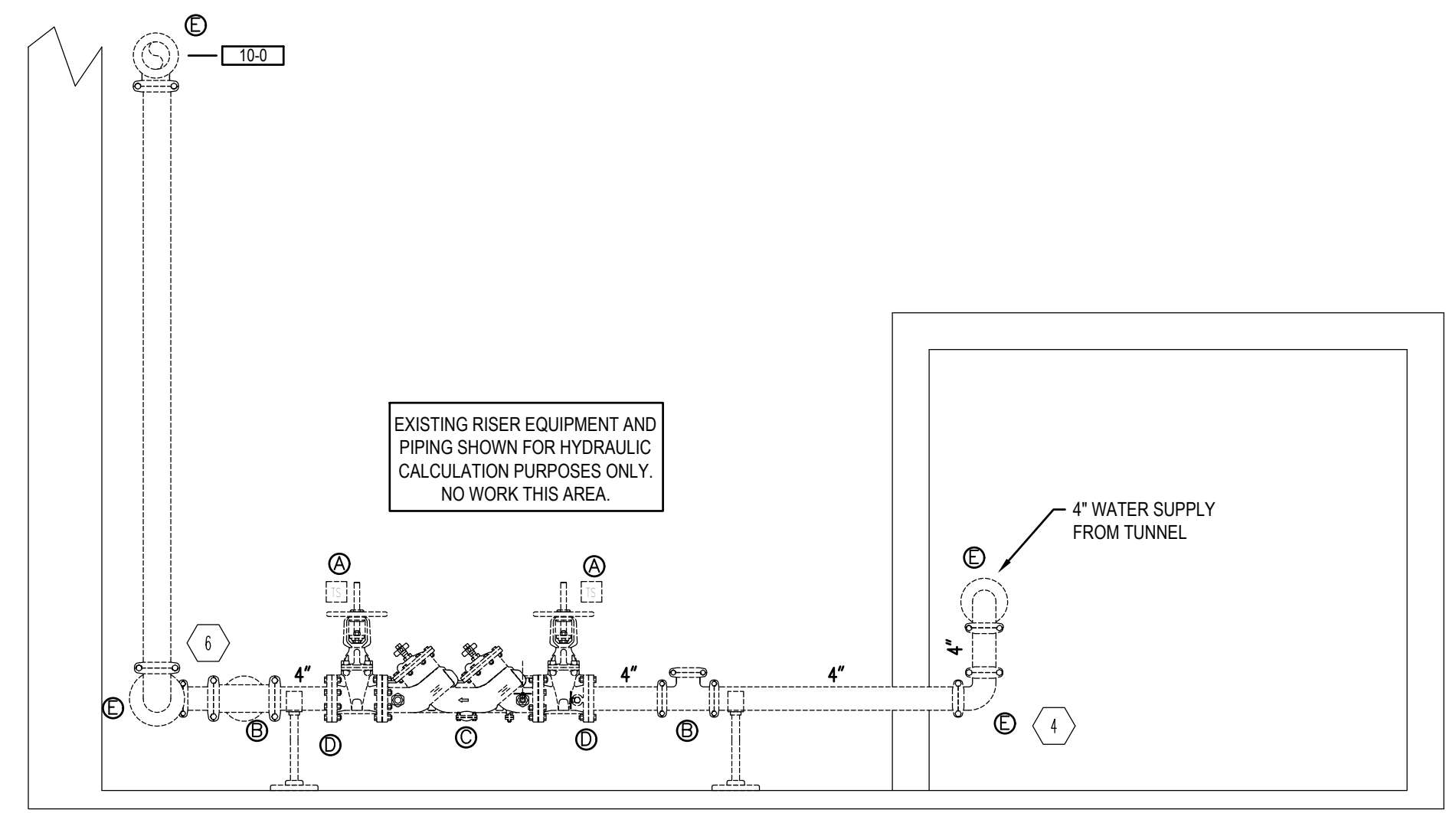
GENERAL
PROJECT NOTES

SHEET
FX0.1

DATE
01-17-2021

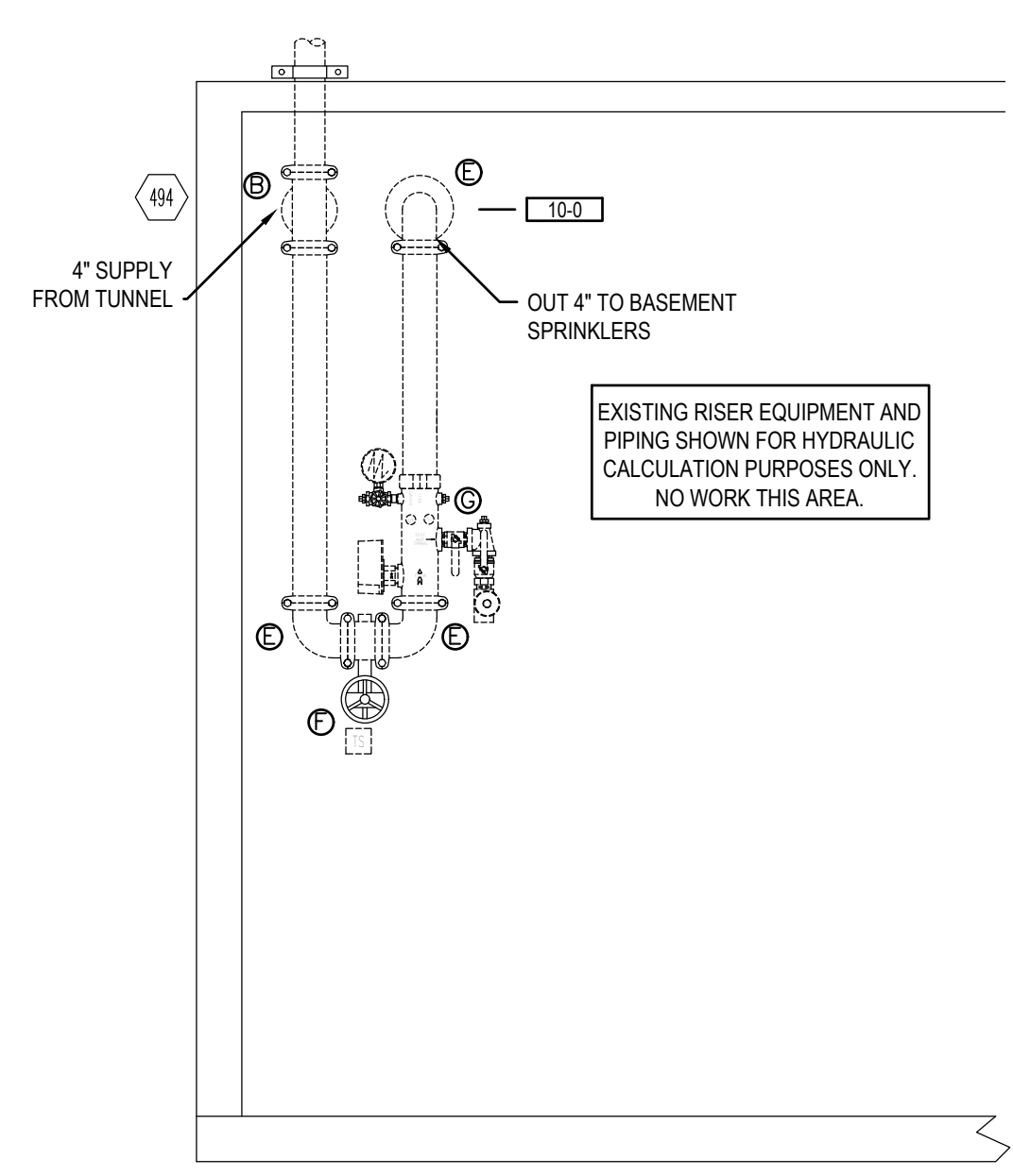


1 FIRE SPRINKLER REFERENCE SITE PLAN
1" = 30'-0"



- EXISTING RISER LEGEND**
- Ⓐ TAMPER SWITCH
 - Ⓑ 4" GROOVED TEE
 - Ⓒ 4" DOUBLE CHECK VALVE ASSEMBLY
 - Ⓓ 4" GROOVED FLANGE
 - Ⓔ 4" GROOVED ELBOW
 - Ⓕ 4" GROOVED BUTTERFLY VALVE
 - Ⓖ 4" RISER ASSEMBLY WITH FLOW SWITCH

2 EXISTING FIRE SPRINKLER RISER DETAIL
1/2" = 1'-0"



3 EXISTING FIRE SPRINKLER BASEMENT RISER DETAIL
1/2" = 1'-0"

SEISMIC BRACING REQUIREMENTS
EARTHQUAKE BRACING SHALL CONFORM WITH N.F.P.A. #13 (2016 EDITION), I.B.C. (2018 EDITION), NEHRP, AND ASCE/SEI 7-16 (2016 EDITION) CRITERIA.

DESCRIPTION OF SITE CONDITIONS

MAPPED SPECTRAL ACCELERATION FOR SHORT PERIODS	$S_s = 0.683$	
MAPPED SPECTRAL ACCELERATION FOR A 1-SECOND PERIOD	$S_1 = 0.215$	
SITE CLASS	D	
SEISMIC OCCUPANCY CATEGORY OF BUILDING	II	
MAXIMUM SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS	$S_{RS} = 0.571$	
MAXIMUM SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIODS	$S_{RH} = -$	
SEISMIC DESIGN CATEGORY BASED ON S_{RS}	D	
SEE CALCULATIONS BELOW FOR DETERMINATION OF FORCE FACTOR FOR SEISMIC DESIGN CATEGORY 'C' & 'D'		
COMPONENT IMPORTANCE FACTOR	$I_p = 1.50$	
COMPONENT RESPONSE MODIFICATION FACTOR	$R_p = 4.50$	
COMPONENT AMPLIFICATION FACTOR	$A_p = 2.50$	
HEIGHT IN STRUCTURE OF POINT OF ATTACHMENT W/ RESPECT TO THE BASE	$Z = 1$	
AVERAGE ROOF HEIGHT OF STRUCTURE WITH RESPECT TO THE BASE	$H = 1$	
$F_p = 0.4 * A_s * S_{RS} * W_p * (1+2Z)$	$F_p = C_p * W_p$	$F_p = 0.571 * W_p$
$R_p = 1.15 * W_p$		
ASCE 7-05 ALLOWS A REDUCTION FACTOR OF 1.4 FOR STRESS BASED DESIGN:	$F_p = 0.407 * W_p$	

- FIRE SPRINKLER GENERAL NOTES**
- FIRE PROTECTION SYSTEM SHALL BE DESIGNED, INSTALLED, TESTED, AND FLUSHED IN ACCORDANCE WITH:
 - INTERNATIONAL BUILDING CODE (IBC) - 2018 EDITION WITH LOCALLY ADOPTED MODIFICATIONS
 - NFPA 13 (STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS) - 2016 EDITION
 - NO INSTALLATION OF ANY PIPING OR EQUIPMENT IS TO BEGIN PRIOR TO APPROVAL OF PLANS BY THE AUTHORITY HAVING JURISDICTION AND THE OWNER'S REPRESENTATIVE.
 - ALL PAINTING OF FIRE PROTECTION PIPING AND RELATED COMPONENTS TO BE PERFORMED UNDER THIS CONTRACT AS REQUIRED.
 - ALL ELECTRICAL WIRING OF FIRE ALARM SYSTEM AND FIRE SPRINKLER ELECTRICAL COMPONENTS TO BE PERFORMED BY LICENSED ELECTRICIAN AND SHALL BE SUPERVISED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE AND NFPA 72 (NATIONAL FIRE ALARM CODE).
 - SYSTEM DESIGN ACCOUNTS FOR NO PENETRATIONS IN STRUCTURAL MEMBERS UNLESS OTHERWISE NOTED. OBTAIN APPROVALS FROM THE STRUCTURAL ENGINEER PRIOR TO PENETRATING ANY STRUCTURAL MEMBERS DUE TO FIELD CHANGES.
 - IT IS THE OWNERS RESPONSIBILITY TO PROVIDE ADEQUATE HEAT TO PREVENT FREEZING THROUGHOUT WET PIPE SPRINKLER SYSTEM AREAS AND IN ENCLOSURES FOR DRY PIPE AND OTHER TYPES OF VALVES CONTROLLING WATER SUPPLIES TO SPRINKLER SYSTEMS.

SPRINKLER PIPE AND FITTINGS TABLE

MATERIALS MAY BE OF DOMESTIC OR IMPORT ORIGIN
ALL MATERIALS SHALL BE OF "DOMESTIC" OR "DESIGNATED COUNTRY" ORIGIN (FEDERAL PROJECT)

PIPE SIZE	PIPE	FITTINGS AND OUTLETS
1" TO 2"	GALV SCH-40 DRAIN PIPING	GALVANIZED CLASS-150 MALLEABLE IRON THREADED FITTINGS
1" TO 2"	GALVANIZED SCH-40 PA SYSTEM	BLACK CLASS-125 CAST IRON THREADED FITTINGS (175 PSI RATED)
2 1/2" PREACTION SYSTEM	GALVANIZED SCH-10	WELDED OUTLETS WITH ROLL GROOVED ENDS AND PAINTED DUCTILE IRON GROOVED FITTINGS (300 PSI RATED) (SHORT TAKEOUT I.E. 4" ELL = 4')

BRANCHLINE RESTRAINT REQUIREMENTS
PER N.F.P.A.#13 2016, CHAPTER 9.3.6

SEISMIC COEFFICIENT, $C_p = 0.407$
SEE SEISMIC CALCULATIONS FOR C_p VALUES

MAXIMUM SPACING OF BRANCH LINE RESTRAINTS	STEEL BRANCH LINE SIZE			
	1"	1 1/2"	2"	2 1/2"
	43"	46"	49"	53"

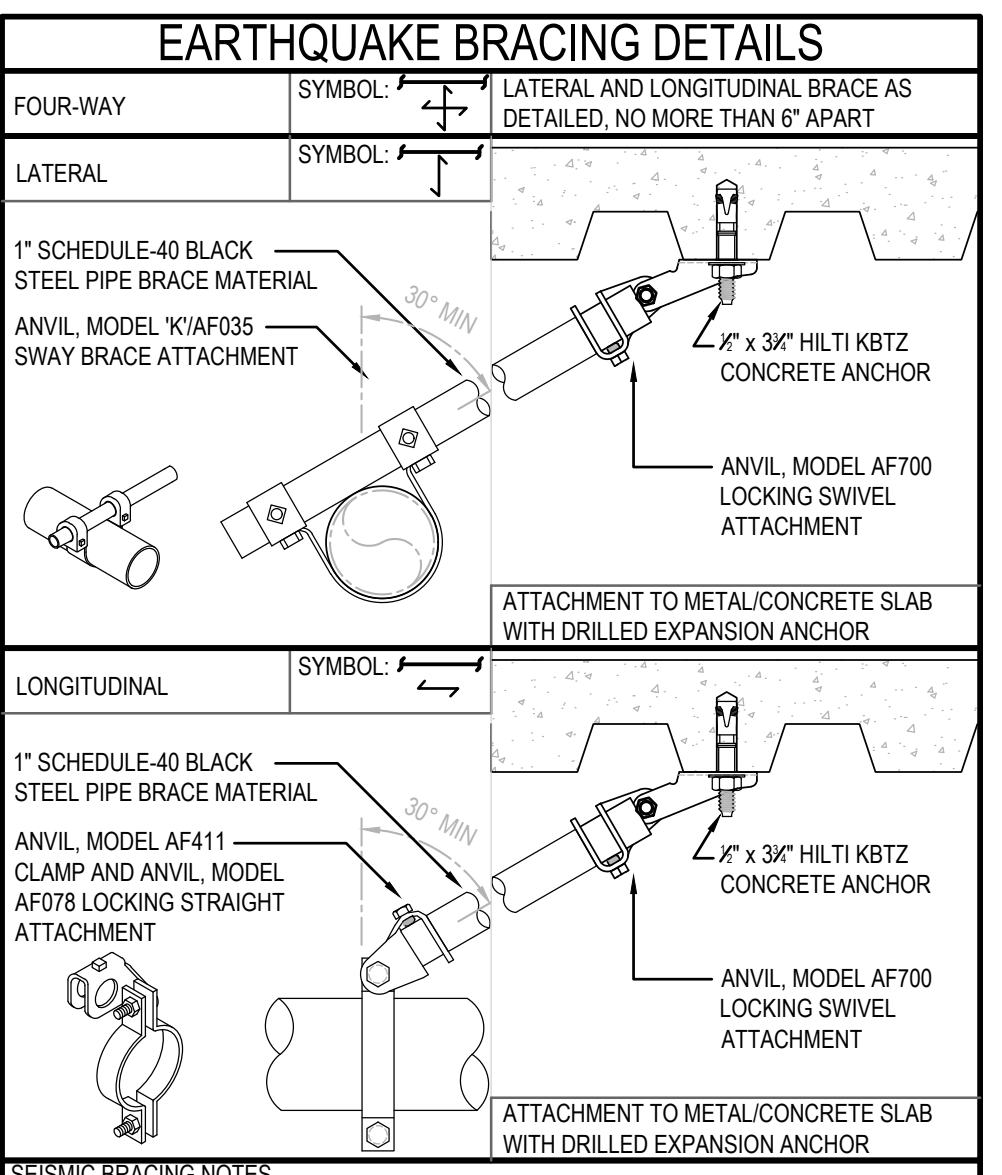
WHERE NOT REQUIRED:
NO RESTRAINT REQUIRED IF HANGER ROD IS LESS THAN 6" LONG MEASURED BETWEEN THE TOP OF THE PIPE AND THE POINT OF ATTACHMENT TO THE BUILDING STRUCTURE.

WHERE REQUIRED:
ON ALL BRANCH LINES (WITH HANGER ROD > 6") AT INTERVALS NOT EXCEEDING THOSE SPECIFIED IN TABLE ABOVE BASED ON BRANCH LINE DIAMETER AND THE VALUE OF C_p .
-SPRIG-UPS 4'-0" OR LONGER SHALL BE RESTRAINED AGAINST LATERAL MOVEMENT.

RESTRAINT SHALL BE PROVIDED BY USE OF ONE OF THE FOLLOWING:
1) A LISTED SWAY BRACE ASSEMBLY
2) A WRAPAROUND U-HOOK
3) #12, 440-LB WIRE INSTALLED AT LEAST 45° FROM THE VERTICAL PLANE AND ANCHORED ON BOTH SIDES OF THE PIPE.
4) A HANGER NOT LESS THAN 45° FROM VERTICAL INSTALLED WITHIN 6" OF THE VERTICAL HANGER ARRANGED FOR RESTRAINT AGAINST UPWARD MOVEMENT, PROVIDED IT IS UTILIZED SUCH THAT LR DOES NOT EXCEED 300, WHERE THE ROD SHALL EXTEND TO THE PIPE OR HAVE A SURGE CLIP RESTRAINT.
5) OTHER APPROVED MEANS

WIRES USED FOR PIPING RESTRAINTS SHOULD BE ATTACHED TO THE BRANCH LINE WITH TWO TIGHT TURNS AROUND THE PIPE AND FASTENED WITH FOUR TIGHT TURNS WITHIN 1-1/2"(SEE DETAIL), AND ATTACHED TO THE STRUCTURE WITH MEANS APPROVED BY NFPA.

RESTRAINT SHALL BE LOCATED WITHIN 2 FT OF A HANGER. THE HANGER CLOSEST TO THE RESTRAINT SHALL BE OF A TYPE THAT RESISTS UPWARD MOVEMENT OF A BRANCH LINE SUCH AS A SURGE CLIP.



- SEISMIC BRACING NOTES**
- ALL BRACE PIPING SHALL BE SCHEDULE 40 BLACK STEEL.
 - MAX BRACE PIPE LENGTH = 7'-0" (PROVIDE 40" PER BRACE FOR LISTING)
 - MAX LATERAL BRACE SPACING FOR 2 1/2" PIPE = 30'-0" U.O.N.
 - MAX LONGITUDINAL BRACE SPACING FOR 2 1/2" PIPE = 80'-0" U.O.N.

HANGER SPACING REQUIREMENTS

MAXIMUM DISTANCE BETWEEN HANGERS (FT-IN.) - N.F.P.A. #13

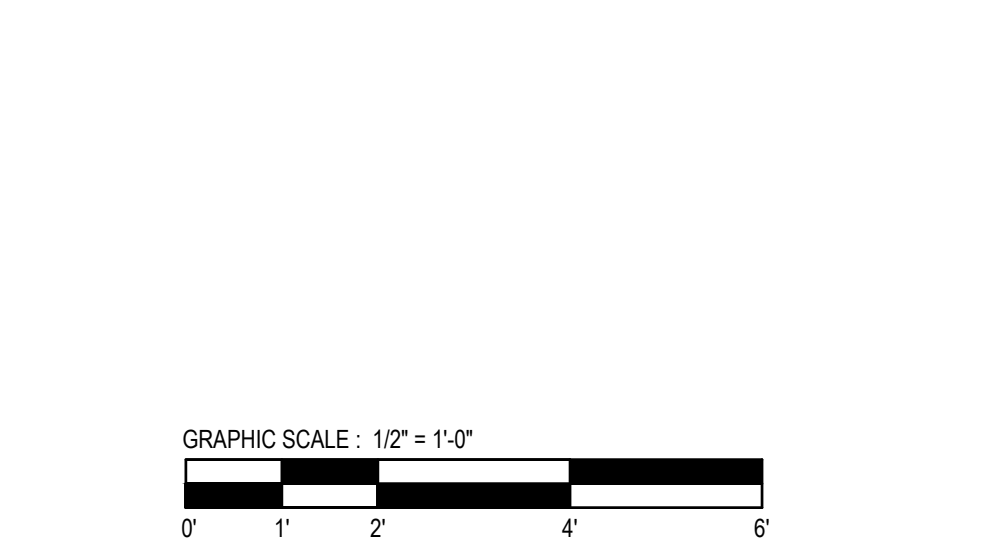
NOMINAL PIPE SIZE	1/2"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
STEEL PIPE	N/A	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0

NOTE:
TYPICAL HANGER SYMBOLS AS SHOWN ON PIPING PLAN MAY NOT REFLECT ACTUAL FIELD INSTALLATION. FINAL HANGER INSTALLATION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF N.F.P.A. #13.

DISTANCE FROM SPRINKLER TO HANGER - N.F.P.A. #13 - MAX PRESSURES ≤ 100 PSI (ALL SPRINKLER TYPES)

SPRINKLER HEADS - PROJECT TOTAL

MANUFACTURER	MODEL	TYPE	SIN	FINISH	THREAD	K-FACTOR	CANOPY	ESCUTCH	TEMP	WRENCH	SYMBOL	QUANTITY
TYCO	TY-FRB	PEND	TY323	WHITE	1/2"	5.6	RECD	STY15	200°	W7	⊙	49
TYCO	TYFRB	UP	TY313	BRASS	1/2"	5.6	ON-LINE	N/A	200°	W7	⊙	2
TYCO	TYFRB	UP	TY313	BRASS	1/2"	5.6	SPRIG	N/A	200°	W7	⊙	1
TOTAL												52



FIRE SPRINKLER LEGEND

SYMBOL	DESCRIPTION
⊙	STANDARD SPRAY PENDENT SPRINKLER ON - DROP
⊙	STANDARD SPRAY UPRIGHT SPRINKLER ON - LINE
⊙	STANDARD SPRAY UPRIGHT SPRINKLER ON - SPRIG
⊙	EXISTING PENDENT SPRINKLER
⊙	EXISTING UPRIGHT SPRINKLER
⊙	LATERAL OR LONGITUDINAL SWAY BRACE
⊙	COMBINATION LATERAL AND LONGITUDINAL SWAY BRACE
⊙	FLOW SWITCH
⊙	TAMPER SWITCH
⊙	LOW AIR ALARM
⊙	PRESSURE REDUCING VALVE
⊙	PRESSURE SWITCH
⊙	CHECK VALVE
⊙	BUTTERFLY VALVE (GROOVED OR THREADED)
⊙	GLOBE VALVE
⊙	HORNSTROBE ASSEMBLY
⊙	FREE STANDING FIRE DEPARTMENT CONNECTION
⊙	PIPE CENTERLINE FROM FINISHED FLOOR
⊙	HYDRAULIC NODE POINT
⊙	CEILING HEIGHT
⊙	RISER
⊙	DISTANCE PIPE FROM DECK
⊙	GROOVED ELBOW UP
⊙	GROOVED ELBOW DOWN
⊙	FLEXIBLE GROOVED COUPLING
⊙	GROOVED COUPLING
⊙	SCREWED ELBOW DOWN
⊙	SCREWED ELBOW UP
⊙	HANGER SYMBOL - SEE DETAIL FOR TYPE
⊙	HANGER SYMBOL - SEE DETAIL FOR TYPE
⊙	HANGER SYMBOL - SEE DETAIL FOR TYPE
⊙	HANGER SYMBOL - SEE DETAIL FOR TYPE
⊙	HANGER SYMBOL - SEE DETAIL FOR TYPE
⊙	SEISMIC RESTRAINT #1
⊙	SEISMIC RESTRAINT #2
⊙	HEAD BOX
⊙	TAPPING VALVE
⊙	THRUST BLOCKING/PLUG
⊙	NEW PREACTION SPRINKLER PIPE
⊙	EXISTING SPRINKLER PIPE
⊙	DEMO SPRINKLER PIPE
⊙	EXISTING UNDERGROUND WATER MAIN/FIRE MAIN
⊙	ABOVE FINISHED FLOOR
⊙	ALL THREAD ROD
⊙	AUTOMATIC SPRINKLER
⊙	CUT IN FIELD
⊙	DOWN
⊙	FIRE DEPARTMENT CONNECTION
⊙	FINISHED GRADE
⊙	GALVANIZED
⊙	GROOVE BOTH ENDS
⊙	GROOVE ONE END
⊙	GALVANIZED MALLEABLE IRON
⊙	OUTSIDE STEM & YOKE
⊙	PRE-ACTION
⊙	RISER NIPPLE
⊙	THREAD BOTH ENDS
⊙	THREAD ONE END
⊙	THREAD AND GROOVE
⊙	UNLESS OTHERWISE NOTED

SEISMIC CLEARANCE REQUIREMENTS

PROVIDE CLEARANCE AT ALL PIPING EXTENDING THROUGH WALLS, FLOORS, FOUNDATIONS. NO CLEARANCE REQUIRED AT GYPSUM BOARD OR EQUALLY FRANGIBLE CONSTRUCTION THAT IS NOT REQUIRED TO HAVE A FIRE RESISTANCE RATING.

NOMINAL PIPE SIZE	CORE DRILL HOLE OR PIPE SLEEVE SIZE	
	INCH	MM
1"	25	80
1 1/2"	32	100
2"	40	125
2 1/2"	50	150
3"	65	200
4"	80	250
6"	100	300

AT CONTRACTORS OPTION FLEXIBLE COUPLINGS MAY BE INSTALLED WITHIN 12" OF THE WALL SURFACE ON EACH SIDE, OR WITHIN 12" ABOVE FLOOR AND 24" BELOW FLOOR, AND THE CLEARANCES NOTED ARE NOT REQUIRED.

FIRE CAULK HOLE AND PROVIDE SPLIT CHROME WALL PLATES AT ALL EXPOSED WALL LOCATIONS.

(NOTE THAT AT NON-RATED FRANGIBLE GYPSUM BOARD WALLS NO CLEARANCE IS REQUIRED)

MONTANA STATE UNIVERSITY

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RENNE LIBRARY
DATA CENTER - FIRE PROTECTION UPGRADES

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DRAWN BY: BMH
REVIEWED BY: JAA

REV.	DESCRIPTION	DATE

JASON ANDERSON
No. 11805PE
LICENSED PROFESSIONAL ENGINEER

PPA#20-0036

SHEET TITLE

F.S. GENERAL NOTES & SITE PLAN

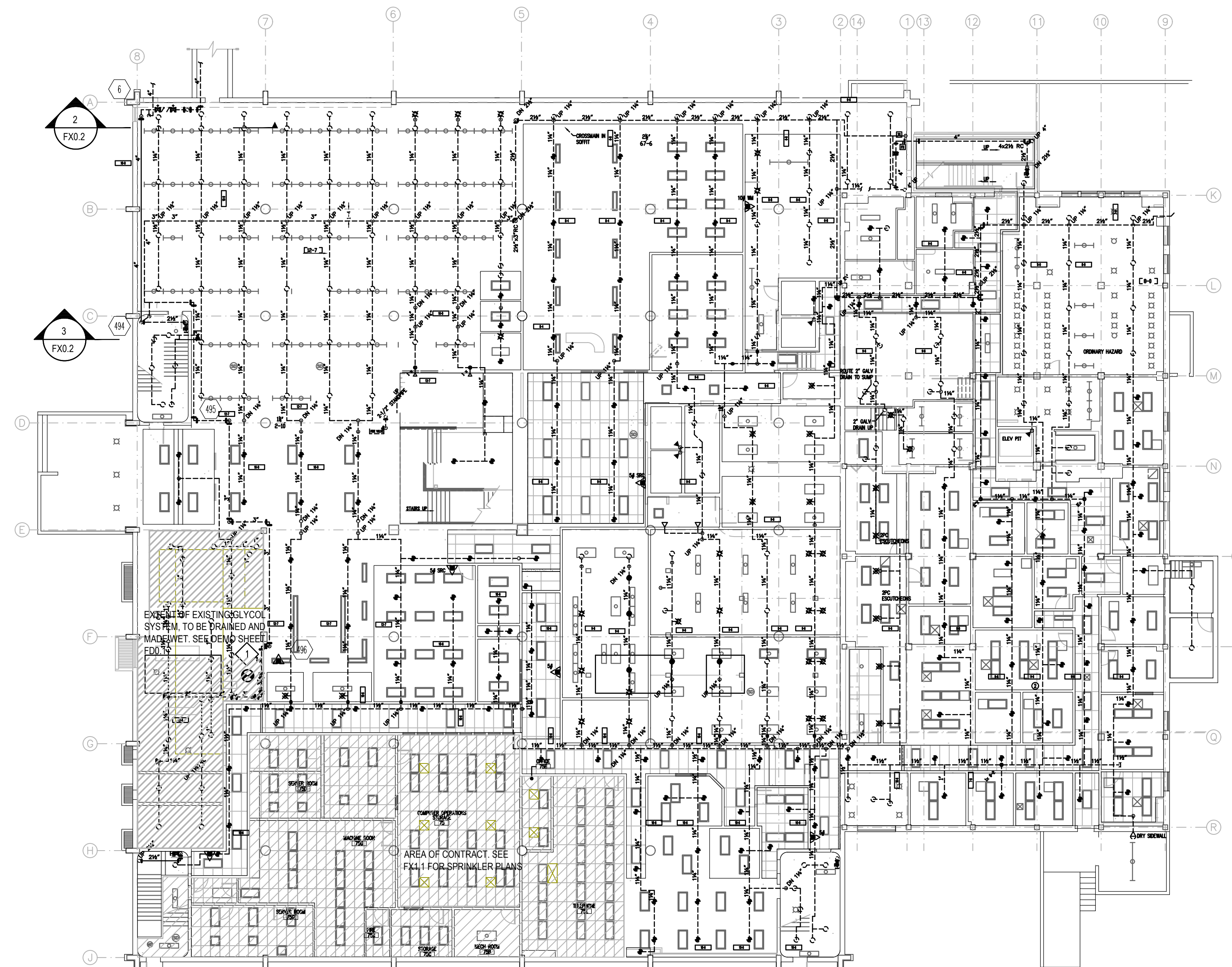
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DATE **01-17-2021**

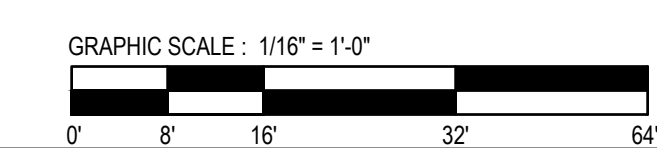
PLAN KEY NOTES

- 1. LOCATION OF NEW PRE-ACTION VALVE FOR DATA CENTER

ENTIRE BASEMENT PLAN SHOWN FOR HYDRAULIC
NODE REFERENCES ONLY.



1 BASEMENT - FIRE SPRINKLER REF. PLAN
FX1.0 1/16" = 1'-0"



PLAN 2021-0036 - RENNE LIBRARY DATA CENTER FIRE SUPPRESSION DRAWINGS.dwg
 DATE PLOTTED: 01/17/2021 10:58:00 AM
 PLOTTER: HP DesignJet T1100e



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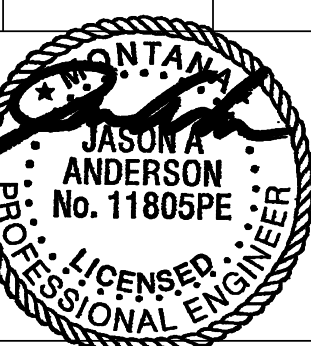
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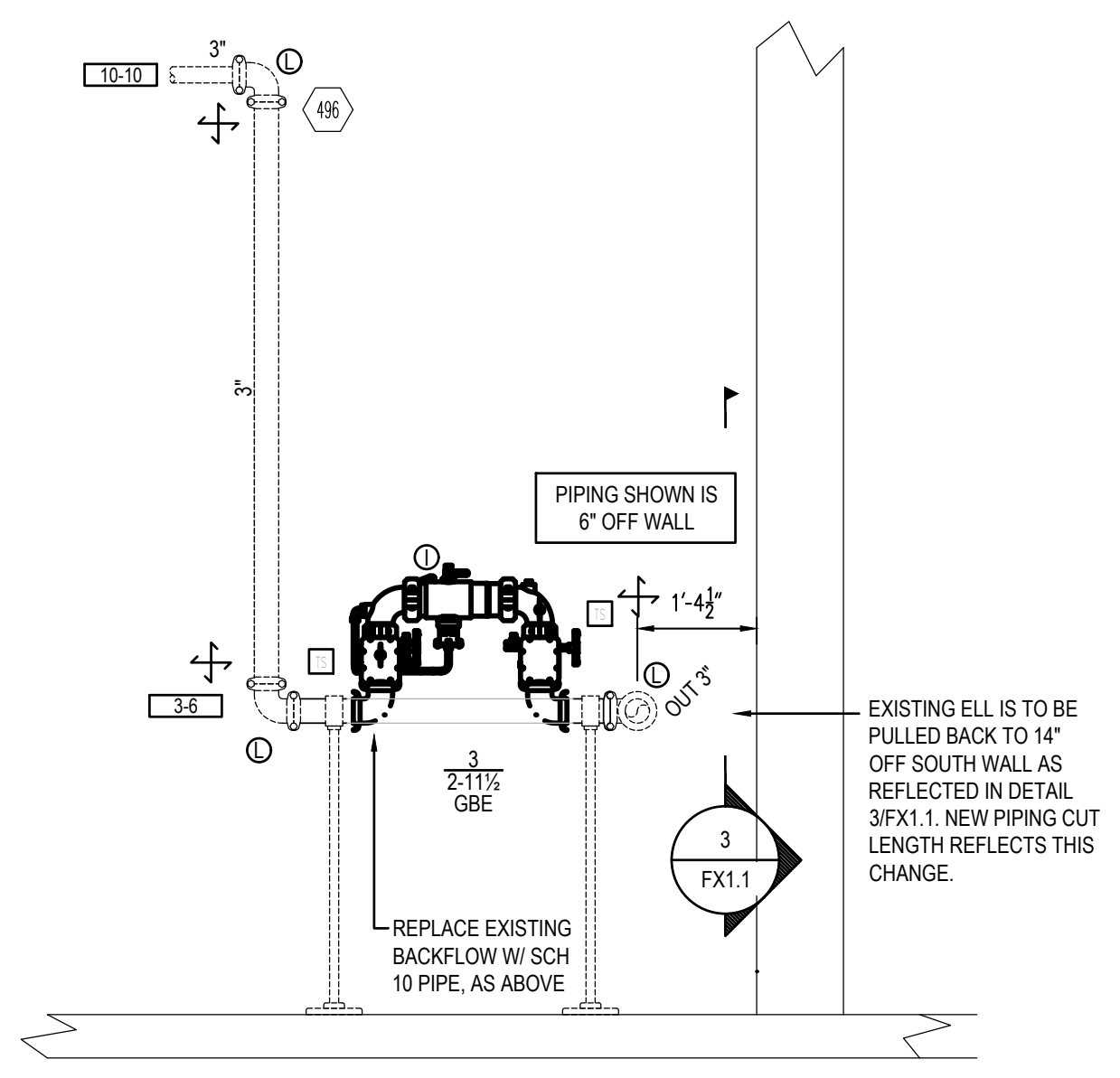
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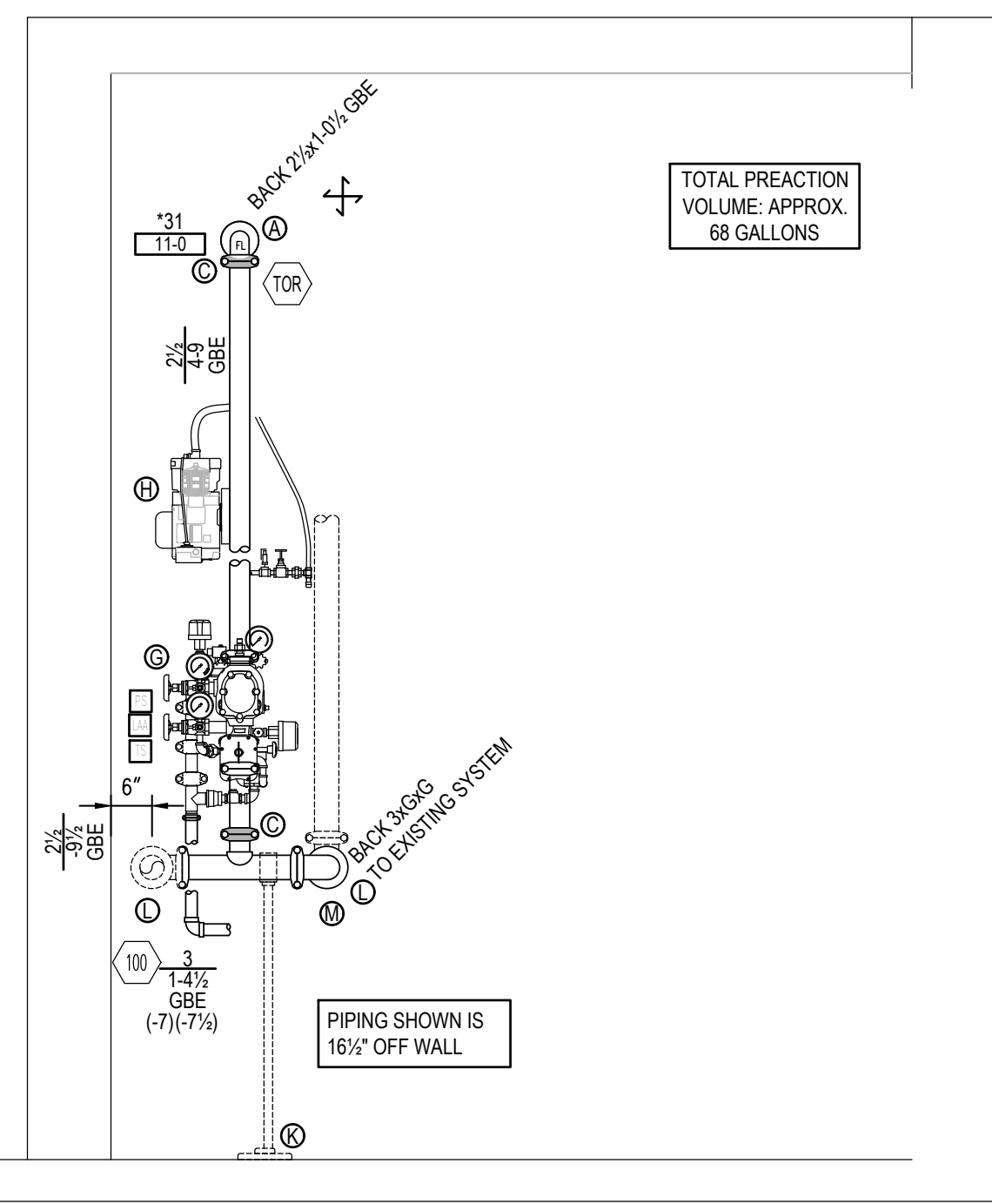
EXISTING
BASEMENT LEVEL
F.S. PLAN

SHEET
FX1.0

DATE
01-17-2021



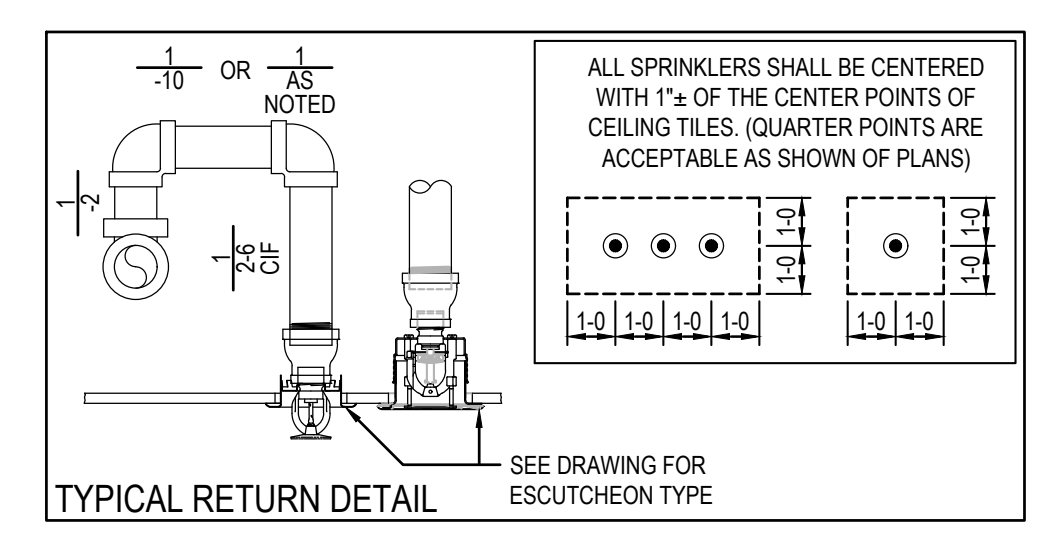
2 EXISTING/DEMOLISH ANTI-FREEZE RISER DETAIL
 1/2" = 1'-0"



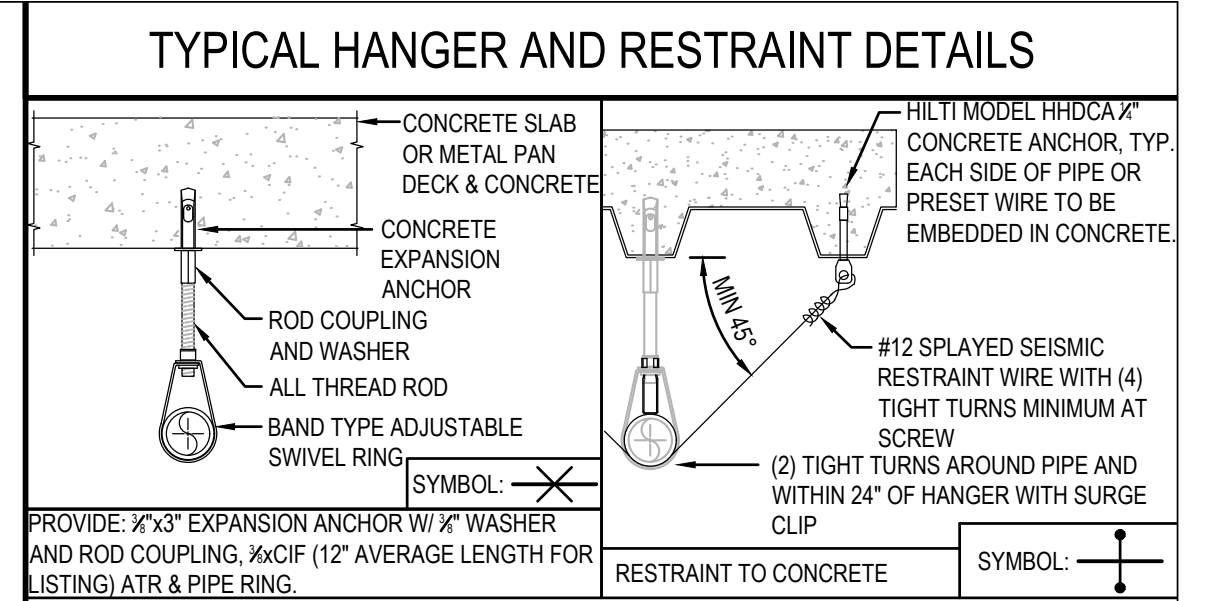
3 PRE-ACTION RISER DETAIL
 1/2" = 1'-0"

RISER LEGEND

- A. 2 1/2" GROOVED ELL - SHORT TAKEOUT
- B. 2 1/2" GROOVED TEE - SHORT TAKEOUT
- C. 2 1/2" GROOVED FLEXIBLE COUPLING
- D. NOT USED
- E. 2" DIAMETER PIPESTAND WITH THREADED COMPANION FLANGE BOLTED TO FLOOR W/ (4) 3/8" DRILL ANCHORS, 3/8" X 1/2" HEX BOLTS AND LOCK WASHERS, AND PIPE CLAMP WITH WELDED-THREADED CONNECTION AT TOP
- F. 1 1/4" NIPPLE, 1" BALL VALVE, 1" PLUG WITH "AUXILIARY DRAIN" SIGN AND CHAIN
- G. 2 1/2" GROOVED-END "VIC-QUICK RISER" SELF-RESETTING SINGLE-INTERLOCK PREACTION VALVE ASSEMBLY WITH THE FOLLOWING OPTIONS WITH PRE-TRIMMED COMPONENTS:
 - G.A. PREACTION VALVE BODY WITH GALVANIZED TRIM - VICTAULIC FIRELOCK NXT SERIES 769
 - G.B. PRE-SET SWITCHES
 - G.C. DRAIN CONNECTION KIT
 - G.D. 24V NORMALLY CLOSED SOLENOID VALVE - VICTAULIC, MODEL 753-E
 - G.E. SERIES 757 AIR MAINTENANCE TRIM ASSEMBLY
- H. 320 GALLON MAX SYSTEM CAPACITY LOW-AIR PRESSURE OIL-LESS TANK-LESS RISER-MOUNTED AIR COMPRESSOR WITH RISER MOUNTING KIT AND PRESSURE RELIEF VALVE - GENERAL AIR, MODEL OL12516AC-1P (1/6 HP / 115 / SINGLE PHASE) WITH THE FOLLOWING ADDITIONAL PARTS FOR AIR LINES:
 - NO AIR MAINTENANCE DEVICE REQUIRED FOR COMPRESSORS PRODUCING LESS THAN 5.5 CFM PER NFPA 13 (2019) SECTION 7.2.6.5.2
 - 2" 4' LONG 30 STAINLESS STEEL FLEXIBLE HOSE FOR VIBRATION
 - (4) 1/2" ELBOWS, (1) 1/2" TEE, (1) 1/2" CAP, (1) 1/2" UNION
 - 5'-0" OF 1/2" GALVANIZED PIPE
- I. EXISTING REDUCED PRESSURE BACKFLOW PREVENTION DEVICE
- J. EXISTING GLYCOL EXPANSION TANK
- K. EXISTING PIPE STAND
- L. EXISTING 3" ELL
- M. 3" GROOVED ELL - STANDARD TAKEOUT

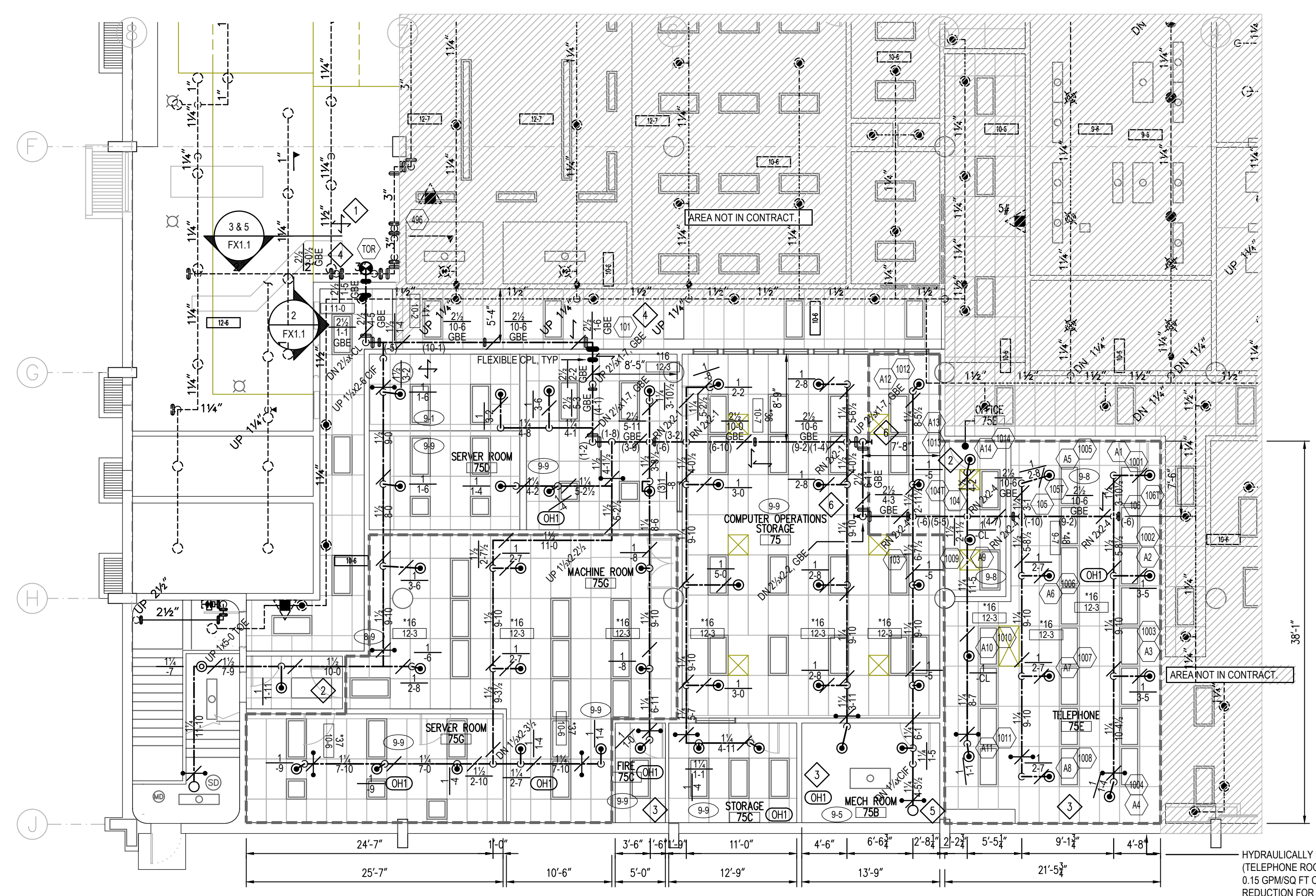


4 TYPICAL RETURN BEND DETAIL
 NO SCALE

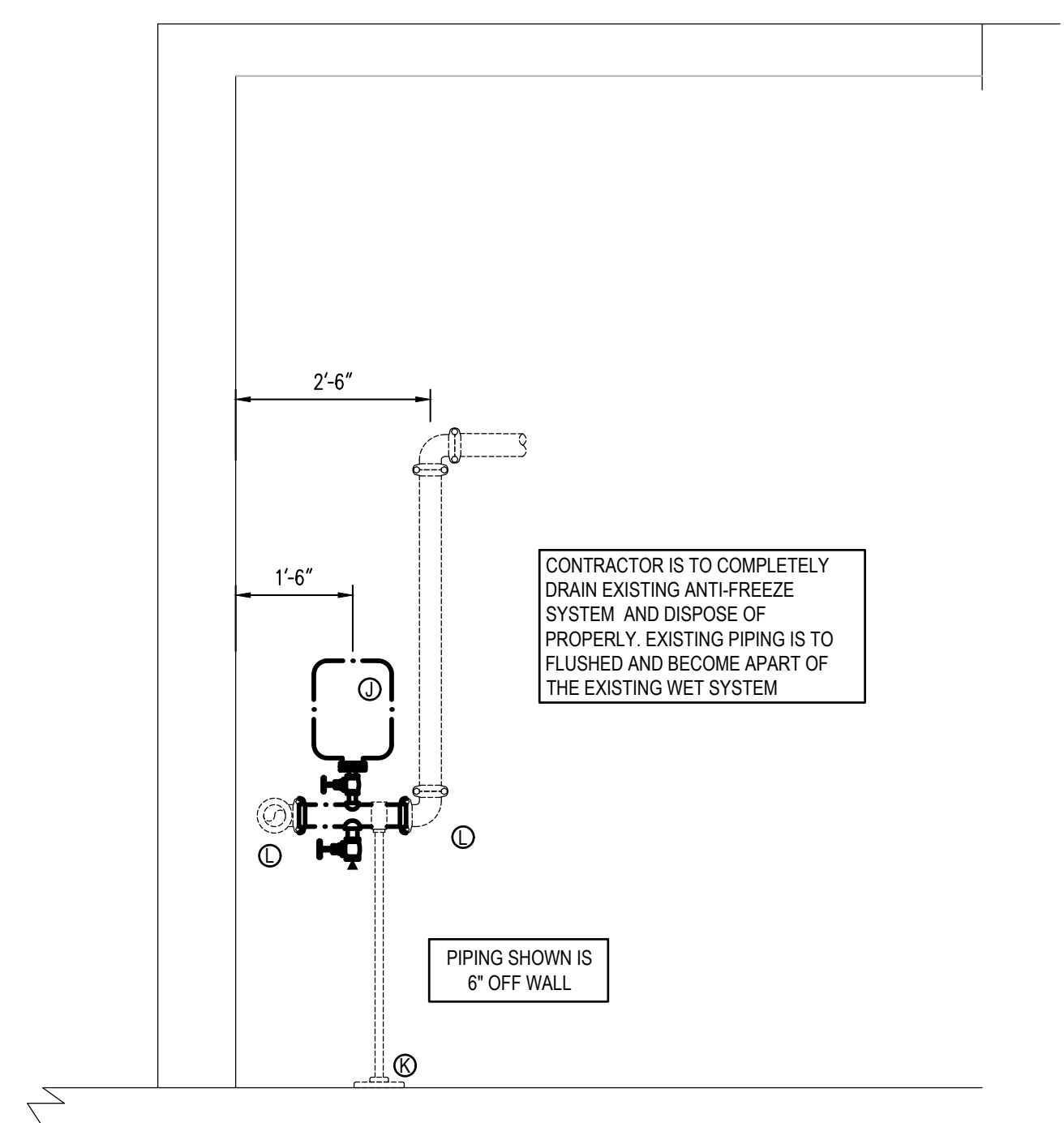


GENERAL HANGER NOTES
 HANG PREACTION SYSTEM PIPING W/ ASSEMBLIES AS DETAILED ABOVE PITCHED AT HEIGHTS NOTED AS REQUIRED PER NFPA 13:
 - PITCH MAINS AT MINIMUM 1/8" PER 10'-0"
 - PITCH BRANCH LINES AT MINIMUM 1/8" PER 10'-0"
 *ALL-THREAD-ROD SHALL BE CADMIUM-ZINC PLATED OR EQUAL.
 *SEND ATR IN FULL 10' LENGTHS (I.E. NOT CUT AT FABRICATOR).
 *SEND STRUT IN FULL 20' LENGTHS (I.E. NOT CUT AT FABRICATOR).

- GENERAL NOTES**
1. ALL CEILING HEIGHTS AT 9'-9" U.O.N.
 2. ALL GROOVED COUPLINGS SHALL BE ZERO FLEX/RIGID U.O.N AND/OR REQUIRED BY CODE.
 3. ALL DOWNS TO FLEX PIPE 1x3-1 U.O.N. TERMINATE W/ 1" THREADED ELL U.O.N.
 4. SPRINKLER HEADS ARE CENTER LINE OF CEILING TILE. ALL PENDENT SPRINKLERS IN SUSPENDED ACoustICAL TILE CEILINGS SHALL BE INSTALLED ON A RETURN BEND. SEE DETAIL 4FX1.1.
 5. PITCH PREACTION SYSTEM PIPING IN ACCORDANCE WITH NFPA 13 REQUIREMENTS:
 - 5.1 PITCH MAINS AT MINIMUM 1/8" PER 10'-0"
 - 5.2 PITCH BRANCH LINES AT MINIMUM 1/8" PER 10'-0"
 6. ALL GASKETS FOR DRY-PIPE SYSTEM GROOVED COUPLINGS ARE PROVIDED W/ THE VIC. FIG. 009 COUPLING AND ARE APPROVED FOR DRY PIPE SYSTEMS AND SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. REDUCING COUPLINGS SHALL NOT BE USED ON DRY SYSTEMS.
 7. ALL PIPE HEIGHTS ARE FROM BASE FLOOR, I.E. THEY DO NOT RECOGNIZE THE 9" RAISED FLOOR IN THE DATA CENTER.
 8. ALL EQUIPMENT WITHIN THE DATA ROOMS SHALL BE ADEQUATELY PROTECTED FROM DUST AND DEBRIS DURING INSTALLATION. DATA CENTER MANAGERS SHALL APPROVE PROTECTION BEFORE INSTALLATION OF DEMOLITION WITHIN THE AREA.
 9. ALL ROOMS ARE CLASSIFIED AS LIGHT HAZARD OCCUPANCY (0.10 GPM/SQ FT OVER REMOTE AREA - 100 GPM HOSE) PER NFPA 13 UNLESS OTHERWISE NOTED WITH SYMBOLS BELOW. SEE REMOTE AREA NOTES FOR REMOTE AREA MODIFICATIONS AS APPLICABLE.
 - (OH1) ORDINARY HAZARD GROUP 1 - 0.15 GPM/SQ FT OVER REMOTE AREA - 250 GPM HOSE
 - (OH2) ORDINARY HAZARD GROUP 2 - 0.20 GPM/SQ FT OVER REMOTE AREA - 250 GPM HOSE

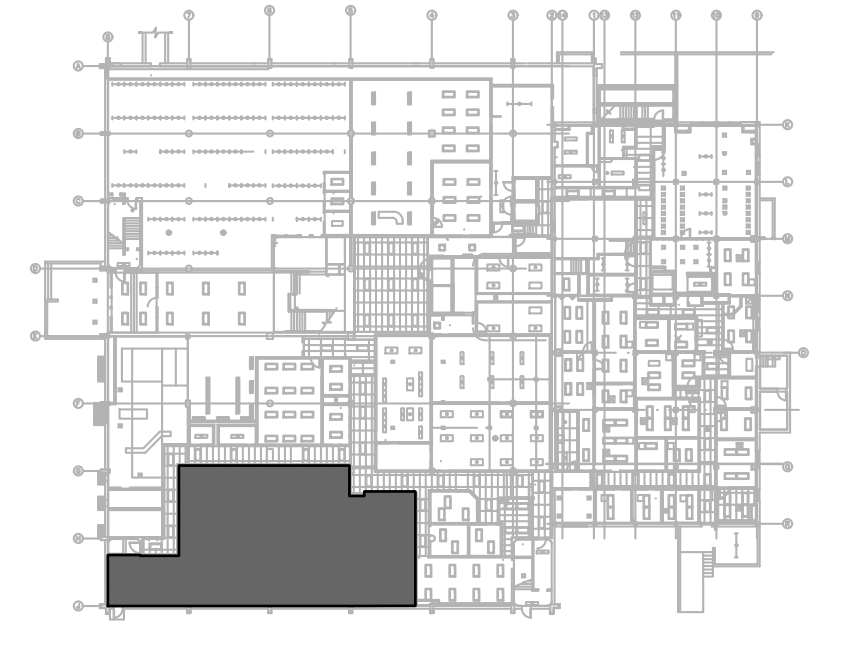


1 BASEMENT FLOOR - FIRE SPRINKLER PLAN - PREACTION
 1/2" = 1'-0"

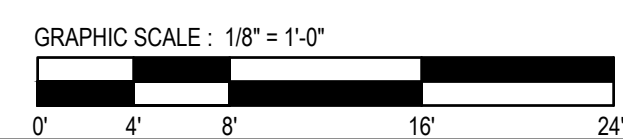
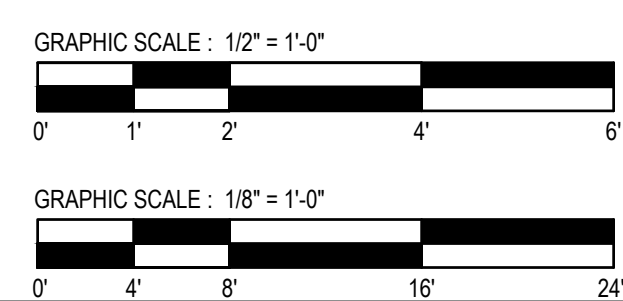


5 EXISTING/DEMOLISH ANTI-FREEZE LOOP DETAIL
 1/2" = 1'-0"

- PLAN KEY NOTES**
1. LOCATION OF NEW PRE-ACTION VALVE FOR DATA CENTER
 2. SMALL ROOM RULE HAS BEEN APPLIED PER NFPA 13-2010 PARAGRAPH 8.6.3.2.4 AND SPRINKLERS ARE PERMITTED TO BE LOCATED NOT MORE THAN 9'-0" FROM ANY SINGLE WALL (LIGHT HAZARD OCCUPANCIES ONLY)
 3. AS PART OF THIS CONTRACT THE CONTRACTOR IS TO REPLACE PREVIOUSLY DAMAGED OR MISSING CEILING TILES.
 4. NO CLEARANCE REQUIRED THROUGH CMU WALL WITH FLEXIBLE COUPLINGS INSTALLED 1'-0" OF EITHER SIDE OF WALL AS PER NFPA 13-2016 9.3.4.5
 5. INSTALL UPRIGHT SPRINKLER BELOW ACT CEILING TO AVOID OBSTRUCTIONS ABOVE.
 6. INSTALL DRAIN ELL W/ 1x4, 1" GLOBE VALVE & PLUG. MARK "AUXILIARY DRAIN"



KEYPLAN



REV.	DESCRIPTION	DATE

FIRE ALARM NOTES:

- 1. FIRE ALARM SYSTEM SHALL COMPLY WITH: A. NFPA 13 (FIRE SPRINKLER CODE), 2016 B. NFPA 70 (NATIONAL ELECTRICAL CODE), 2018 C. NFPA 72 (FIRE ALARM CODE), 2016 D. IBC (INTERNATIONAL BUILDING CODE), 2018 E. IFB (INTERNATIONAL FIRE CODE), 2018 F. IMC (INTERNATIONAL MECHANICAL CODE), 2018 G. ADA/ABA, 2004 H. PROJECT SPECIFICATIONS I. LOCAL AND STATE AHJ REQUIREMENTS
2. THESE DRAWINGS REPRESENT ENGINEERED FINALIZED SHOP DRAWINGS READY FOR INSTALLATION. THE CONTRACTOR SHALL PROVIDE RED-LINE FIELD ASBULTS TO THE FIRE PROTECTION ENGINEER. THE FIRE PROTECTION ENGINEER WILL PREPARE AND PROVIDE RECORD DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COMPLETED NFPA 72 INSPECTION & TESTING, RECORD OF COMPLETION FORMS AND AND PROVIDE OPERATION & MAINTENANCE MANUALS TO THE OWNER REPRESENTATIVE.
3. COORDINATE THE EXACT DEVICE LOCATIONS WITH ELECTRICAL AND MECHANICAL SYSTEM EQUIPMENT AND BUILDING ARCHITECTURAL FEATURES. INSTALLING CONTRACTOR SHALL CONSULT/CONFIRM ANY NECESSARY DEVIATION OF DEVICE BOX PLACEMENT OR CONDUIT/CIRCUIT ROUTING WITH THE DESIGNER OF RECORD PRIOR TO IMPLEMENTING CHANGES IN THE FIELD.
4. CONDUIT SHALL BE USED AT ALL LOCATIONS. FIRE ALARM CONDUIT SHALL BE FACTORY RED 3/4" MINIMUM UNLESS OTHERWISE NOTED. CONCEAL CONDUITS IN WALL AND CEILING SPACES WHEREVER FEASIBLE. SURFACE CONDUIT IN FINISHED AREAS SHALL BE 3/4" MINIMUM UNLESS OTHERWISE NOTED AND PAINTED TO MATCH SURROUNDINGS.
5. MINIMUM CIRCUIT PERFORMANCE REQUIREMENTS: IDC - INITIATING DEVICE CIRCUIT SHALL BE CLASS B. NAC - NOTIFICATION APPLICATION CIRCUIT SHALL BE CLASS B. SLC - SIGNALING LINE CIRCUIT SHALL BE CLASS B. KEEP T-TAPS TO A MINIMUM.
6. "T" TAPPING OF ANY NAC OR IDC CIRCUIT IS PROHIBITED.
7. ALL NOTIFICATION APPLIANCES SHALL OPERATE IN SYNCHRONIZATION AS REQUIRED BY NFPA 72.
8. PANT FIRE ALARM JUNCTION BOXES AND COVERS RED. BOTH SIDES OF COVER PLATES SHALL BE PAINTED RED. ALL CONDUIT/RACEWAY SHALL BE PAINTED RED.
9. FIRE ALARM EQUIPMENT CABINETS, BOXES, AND DEVICES SHALL HAVE TAGS PERMANENTLY AFFIXED TO THE FACE. LABEL EACH DEVICE USING SELF-ADHESIVE LASER PRINTED COMMERCIALY AVAILABE ID TAGS. ADDRESSABLE DEVICES SHALL BE LABELED WITH ADDRESS. NOTIFICATION APPLIANCES SHALL BE LABELED WITH THEIR ASSOCIATED NAC IDENTIFIER MATCHING THAT ON THESE PLANS. LABEL ALL MONITOR AND RELAY MODULES WITH ASSOCIATED FUNCTION. LABEL REMOTE TEST SWITCHES WITH ASSOCIATED DUCT DETECTOR ADDRESS AND AIR HANDLER DESIGNATION.
10. DO NOT SPLICE FIRE ALARM CONDUCTORS EXCEPT WHERE INDICATED ON THESE DRAWINGS. ALL FIRE ALARM WIRING SHALL ONLY BE TERMINATED AT A DEVICE OR APPROVED TERMINAL BLOCK LOCATION ONLY.

ELECTRICAL NOTES:

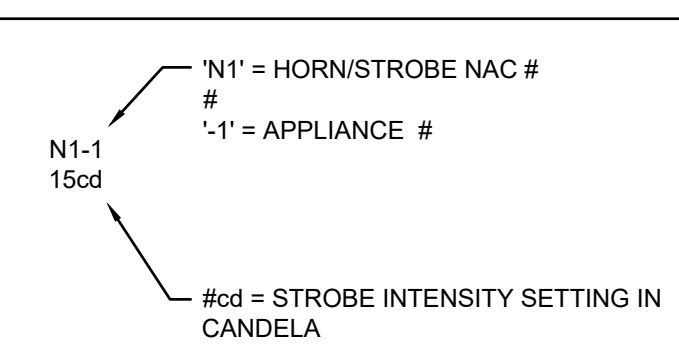
- 1. THE CONTRACTOR SHALL COMPLY WITH THE CONSTRUCTION PRACTICES AND REQUIREMENTS OF THE REFERENCED EDITION OF THE NATIONAL ELECTRIC CODE (2011 NFPA 70), CURRENT NATIONAL ELECTRICAL SAFETY CODE, AND INSTRUCTIONS OF MANUFACTURERS OF EQUIPMENT AND MATERIALS SUPPLIED FOR THE PROJECT.
2. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL JUNCTION AND PULL BOXES REQUIRED FOR THE INSTALLATION OF ELECTRICAL DEVICES AND EQUIPMENT. WHETHER OR NOT SPECIFICALLY INDICATED ON THE PLANS. SIZING OF THESE BOXES SHALL BE PER THE NATIONAL ELECTRICAL CODE.
3. ALL PENETRATIONS THROUGH FIRE BARRIERS SHALL BE FIRE STOPPED TO MAINTAIN THE INTEGRITY OF THE FIRE BARRIER. FIRE STOPPING MATERIAL SHALL BE U.L. LISTED.
4. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE GENERAL CONTRACTOR QUALITY CONTROL REPRESENTATIVE PRIOR TO MAKING ANY PENETRATIONS THROUGH STRUCTURAL MEMBERS.
5. SHOULD PROJECT CONDITIONS REQUIRE REARRANGEMENT OF WORK, THE CONTRACTOR SHALL MARK SUCH CHANGES ON THE AS-BUILT DRAWINGS. IF THESE CHANGES REQUIRE ALTERNATE METHODS TO THOSE SPECIFIED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING THE PROPOSED ALTERNATE METHODS TO THE GENERAL CONTRACTOR. THE CONTRACTOR SHALL NOT PROCEED UNTIL APPROVAL IS OBTAINED. REARRANGEMENT OF WORK FOR THE PURPOSE OF COORDINATION SHALL NOT BE CONSIDERED AN ITEM FOR EXTRA COST.
6. REPAIR ANY DAMAGE TO EXISTING CONSTRUCTION RESULTING FROM THE INSTALLATION OF ELECTRICAL ITEMS. THE AREAS REPAIRED SHALL MATCH THE ADJACENT SURFACES IN TEXTURE AND COLOR.
7. ALL EXPOSED AND CONCEALED CONDUITS SHALL BE EMT (ELECTRICAL METALLIC TUBING). ALL UNDERGROUND CONDUIT SHALL BE PVC CONDUIT SCHEDULE 40, UNLESS NOTED OTHERWISE. USE FLEXIBLE METAL CONDUIT AND SEAL-TIGHT WHERE APPLICABLE.
8. ALL EQUIPMENT SHALL BE CAPABLE OF FITTING IN THE SPACES LOCATED WHILE MEETING THE MANUFACTURER'S RECOMMENDED ACCESS REQUIREMENTS. REVIEW ALL PLACES WHERE EQUIPMENT IS TO BE INSTALLED PRIOR TO ORDERING OF EQUIPMENT AND NOTIFY THE CONTRACTING OFFICER OF ANY INADEQUATE CLEARANCES OR CONDITIONS THAT WILL PREVENT THE PROPER INSTALLATION, MAINTENANCE, AND OPERATIONS OF THE EQUIPMENT.
9. PROVIDE ACCESS PANELS TO ALL CONCEALED TRANSFORMERS, DEVICES, JUNCTION BOXES AND EQUIPMENT. COORDINATE THE LOCATION OF ACCESS PANELS TO INSURE THAT THE EQUIPMENT CAN BE MAINTAINED ADEQUATELY.
10. ALL EQUIPMENT AND CABLE SHALL BE PROPERLY RATED FOR THE CONDITIONS IN WHICH IT IS INSTALLED.
11. ALL 120VAC CIRCUIT BREAKERS SERVING FIRE ALARM EQUIPMENT SHALL BE RED AND LOCKABLE.
12. ANY PENETRATION OF THE BUILDING VAPOR BARRIER SYSTEM SHALL BE APPROPRIATELY SEALED TO RETAIN THE INTEGRITY OF THE SYSTEM. THIS INCLUDES BUT IS NOT LIMITED TO CONDUITS AND BACKS OF ELECTRICAL BOXES.

WIRE & CABLE LEGEND

Table with 3 columns: TAG, TYPE, CIRCUIT DESCRIPTION. Rows include: B 16-2 UTP-FPL SIGNALING LINE CIRCUIT, N 2 #14 THHN NOTIFICATION APPLIANCE CIRCUIT - STROBES, P 2 #14 THHN AUXILIARY 24VDC RISER, Y 2 #14 THHN INITIATING DEVICE CIRCUIT 'CLASS B', Z 3 #12 THHN 120VAC POWER CIRCUIT

INSTALLING CONTRACTOR SHALL PROVIDE COLOR CODED CABLING FOR DIFFERENT CIRCUIT TYPES. MAINTAIN COLOR CODE THROUGHOUT EACH CIRCUIT.

NOTIFICATION APPLIANCE DEVICE ANNOTATION



SCOPE OF WORK

- THE EXISTING EST-3X SYSTEM WILL REMAIN IN PLACE
1. A NEW CIRCUIT WITH NEW HORN/STROBES WILL BE INSTALLED FROM THE EXISTING FIRE PANEL.
2. HEAT DETECTORS REQUIRED FOR A PREACTION FIRE SPRINKLER SYSTEM WILL BE INSTALLED FROM THE EXISTING SLC CIRCUIT

ACRONYMS/ABBREVIATIONS:

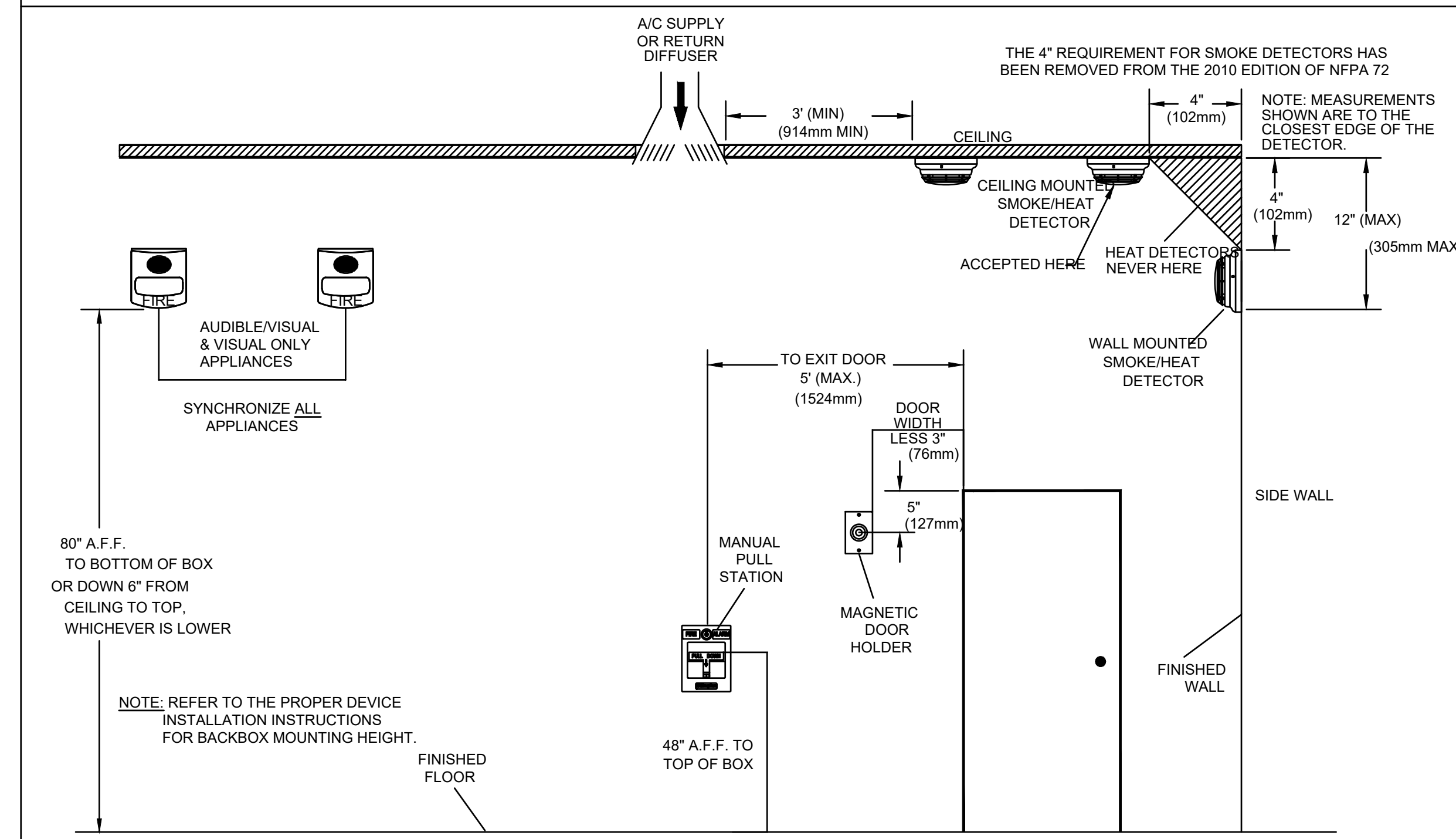
- 1. AFF ABOVE FINISHED FLOOR
2. AC ALTERNATING CURRENT
3. AWG AMERICAN WIRE GAGE
4. BFC BELOW FINISHED CEILING
5. CD CANDELA
6. CKT CIRCUIT BREAKER
7. C CONDUIT
8. DB DECIBEL
9. DED DEDICATED
10. DC DIRECT CURRENT
11. EMT ELECTRICAL METALLIC TUBING
12. EOL END OF LINE RESISTOR
13. EOLR END OF LINE RELAY
14. ETR EXISTING TO REMAIN
15. XP EXPLOSION PROOF
16. FA FIRE ALARM
17. FPL FIRE ALARM POWER LIMITED
18. HVAC HEATING VENTILATING AIR CONDITIONING
19. HZ HERTZ
20. IAW IN ACCORDANCE WITH
21. IDC INITIATING DEVICE CIRCUIT
22. LV LOW VOLTAGE
23. NAC NOTIFICATION APPLIANCE CIRCUIT
24. NEMA NATIONAL ELECTRICAL MANUFACTURER ASSOC.
25. NEC NATIONAL ELECTRIC CODE
26. NIC NOT IN CONTRACT
27. NTS NOT TO SCALE
28. RGS RIGID GALVANIZED STEEL CONDUIT
29. SLC SIGNALING LINE CIRCUIT
30. SPDT SINGLE THROW DOUBLE THROW
31. SPST SINGLE THROW SINGLE THROW
32. TSP TWISTED SHIELDED PAIR
33. UTP UNSHIELDED TWISTED PAIR
34. UL UNDERWRITERS LABORATORIES
35. V VOLT
36. WP WEATHERPROOF
37. W WITH
38. W/O WITHOUT

FIRE ALARM DEVICE LEGEND

Table with 5 columns: SYMBOL, QTY, DESCRIPTION, MODEL, ROUGH-IN. Rows include: FIRE ALARM MASS NOTIFICATION CONTROL PANEL (EST3 X), PREACTION RELEASING PANEL (SIGA-REL), ADDRESSABLE FIXED TEMPERATURE HEAT DETECTOR W/STANDARD BASE (SIGA-HFD W/SIGA-SB), ADDRESSABLE MONITOR MODULE (SIGA-CT1), PRESSURE SWITCH (BY OTHERS), LOW AIR ALARM (BY OTHERS), VALVE TAMPER SWITCH (BY OTHERS), WATERFLOW SWITCH (BY OTHERS), HORN STROBE - WALL - CLEAR LENS, RED BODY, MARKED 'FIRE' (GENESIS G4AVRF), STROBE - WALL - CLEAR LENS, RED BODY, MARKED 'FIRE' (GENESIS G4ARF), JUNCTION BOX (VARIES AS NEEDED), SOLENOID (BY OTHERS)

Matrix table for device compatibility. Columns: ANNUNCIATION, NOTIFICATION, CONTROL, OFF-SITE TRANSMITTED SIGNALS (A.1-A.4, B.1-B.2, C.1-C.2, D.1-D.4). Rows: INITIALING DEVICES (MANUAL PULL STATION, DATA CENTER HEAT DETECTOR, DUCT DETECTOR), FIRE SPRINK (WATERFLOW / PRESSURE SWITCH, TAMPER SWITCH, PRE-ACTION LOW AIR, CONCURRENT HEAT DET), CONTROL EQUIP (LOW BATTERY VOLTAGE, GROUND FAULT / OPEN / SHORT CIRCUIT, AC POWER LOSS)

DEVICE MOUNTING HEIGHT REFERENCE (PER NFPA 72)



MSU-CPDC

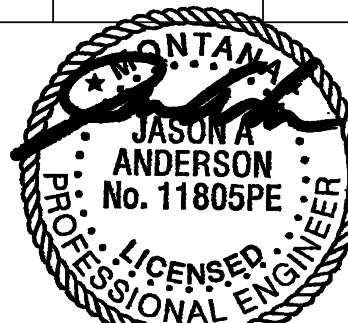
MONTANA STATE UNIVERSITY
BOZEMAN, MONTANA
PHONE: 406.994.5413
FAX: 406.994.5665

RENNE LIBRARY
DATA CENTER - FIRE PROTECTION
UPGRADES



DRAWN BY: BMH
REVIEWED BY: JAA

Table with 3 columns: REV., DESCRIPTION, DATE



PPA#20-0036

SHEET TITLE

FA GENERAL NOTES & MATRIX

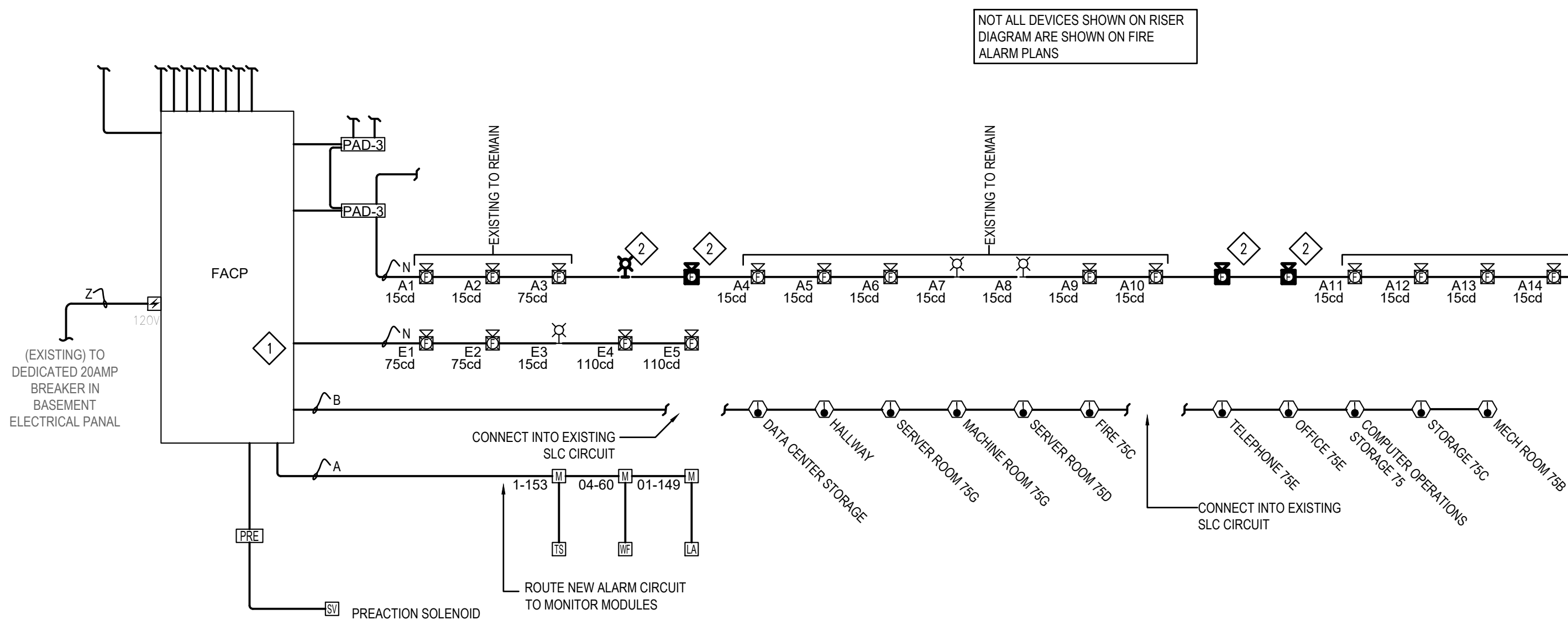
SHEET

FA0.1

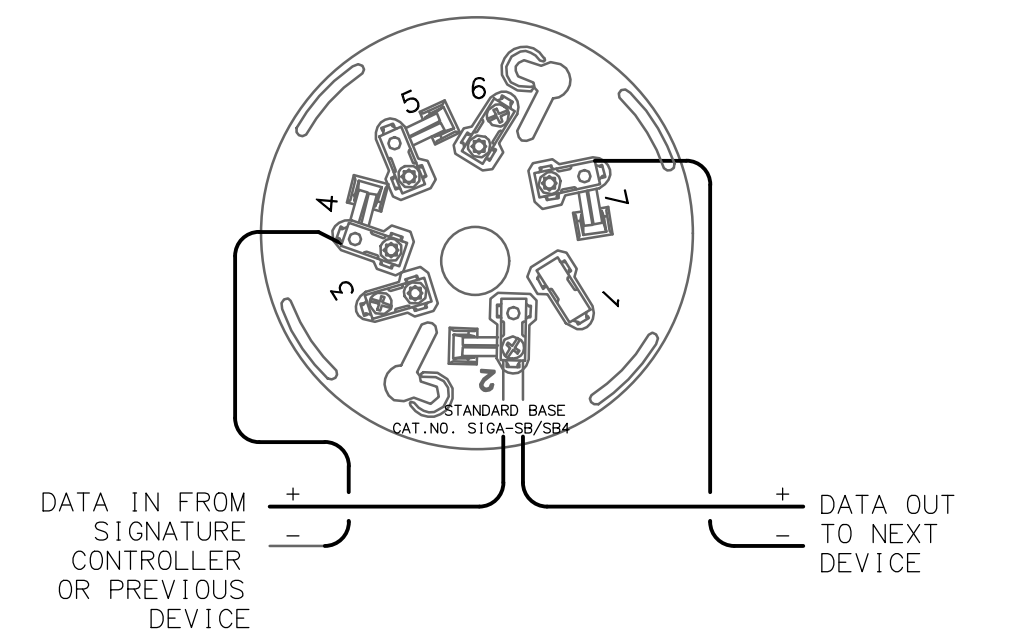
DATE
01-17-2021

RISER DIAGRAM KEY NOTES

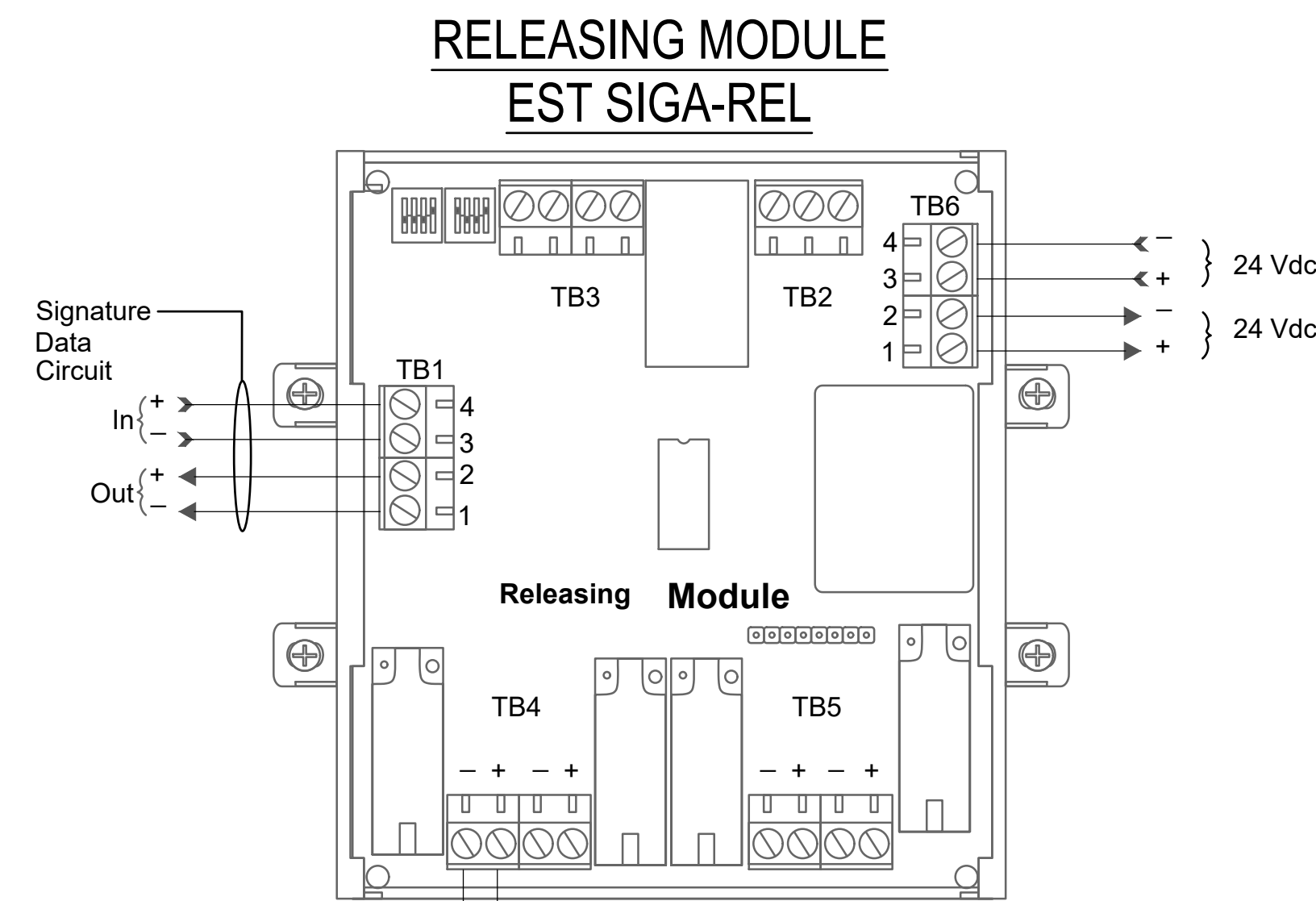
- TIE NEW CIRCUIT INTO AN EXISTING NAC OUTPUT DEVICE TO BE REMOVED AND CIRCUIT TIED THROUGH. SHOWN ON RISER DIAGRAM FOR REFERENCE ONLY. RE-ADDRESS DEVICE AS SHOWN.



4 RISER DIAGRAM
FA1.0 NO SCALE



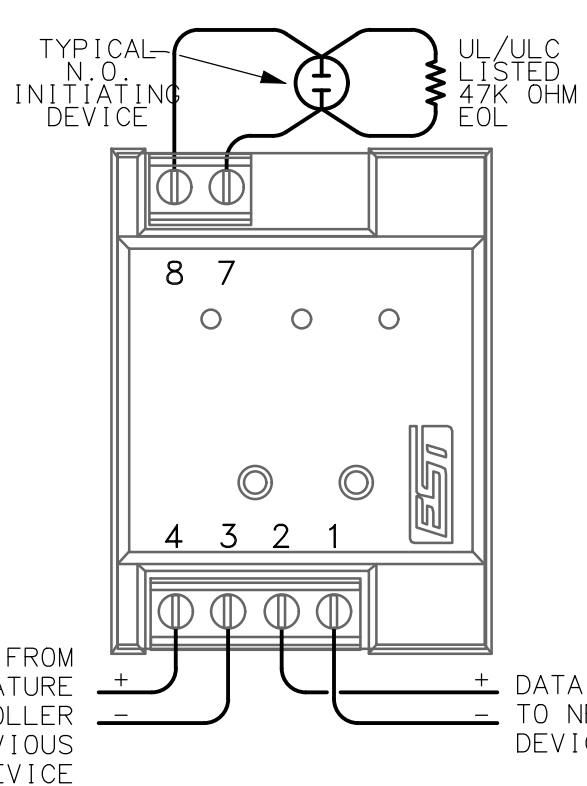
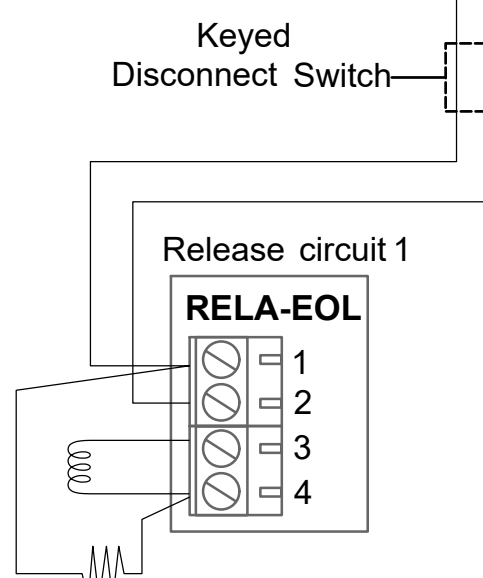
5 STANDARD BASE EST SIGA-SB4
FA1.0 NO SCALE



2 RELEASING MODULE EST SIGA-REL
FA1.0 NO SCALE

Project Name				Point to Point Method			
Date				CIRCUIT IS WITHIN LIMITS			
Area Covered	0.228	250	0.18	Totals	Current	Distance	Voltage Drop
Minimum Allowed Device Voltage	20.21	15	0.93%	End of Line Voltage	20.21		
Total Circuit Current	0.228	Wire Gauge	Per 1000	Percent Drop	0.93%		
Distance from source to 1st device	30	14	3.07	Standard Wire Resistance in Ohms per 1000 feet	16-4.89	14-3.07	
Wire Gauge for balance of circuit		14	3.07	Note: Wire resistance is doubled in the calculations for two wires (Positive and Negative)			
Device Number	Device Current	Distance from previous device	Voltage Drop	Drop from source	Percent Drop	Device Manufacturer	Device Manufacturer
Device 1	0.050	30	0.042	0.042	0.21%		
Device 2	0.050	40	0.086	0.086	0.42%		
Device 3	0.028	50	0.129	0.129	0.63%	Edwards EST	Edwards EST
Device 4	0.050	75	0.175	0.175	0.86%	SAVVR	UL Max
Device 5	0.050	50	0.190	0.190	0.93%	SAVVR	Current
END		20.21	0.190	0.93%		Candela	@18VDC
END		20.21	0.190	0.93%		HORN/STROBE	15-110
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
END		20.21	0.190	0.93%			
Totals	0.228	250	End of Line Voltage	20.21			

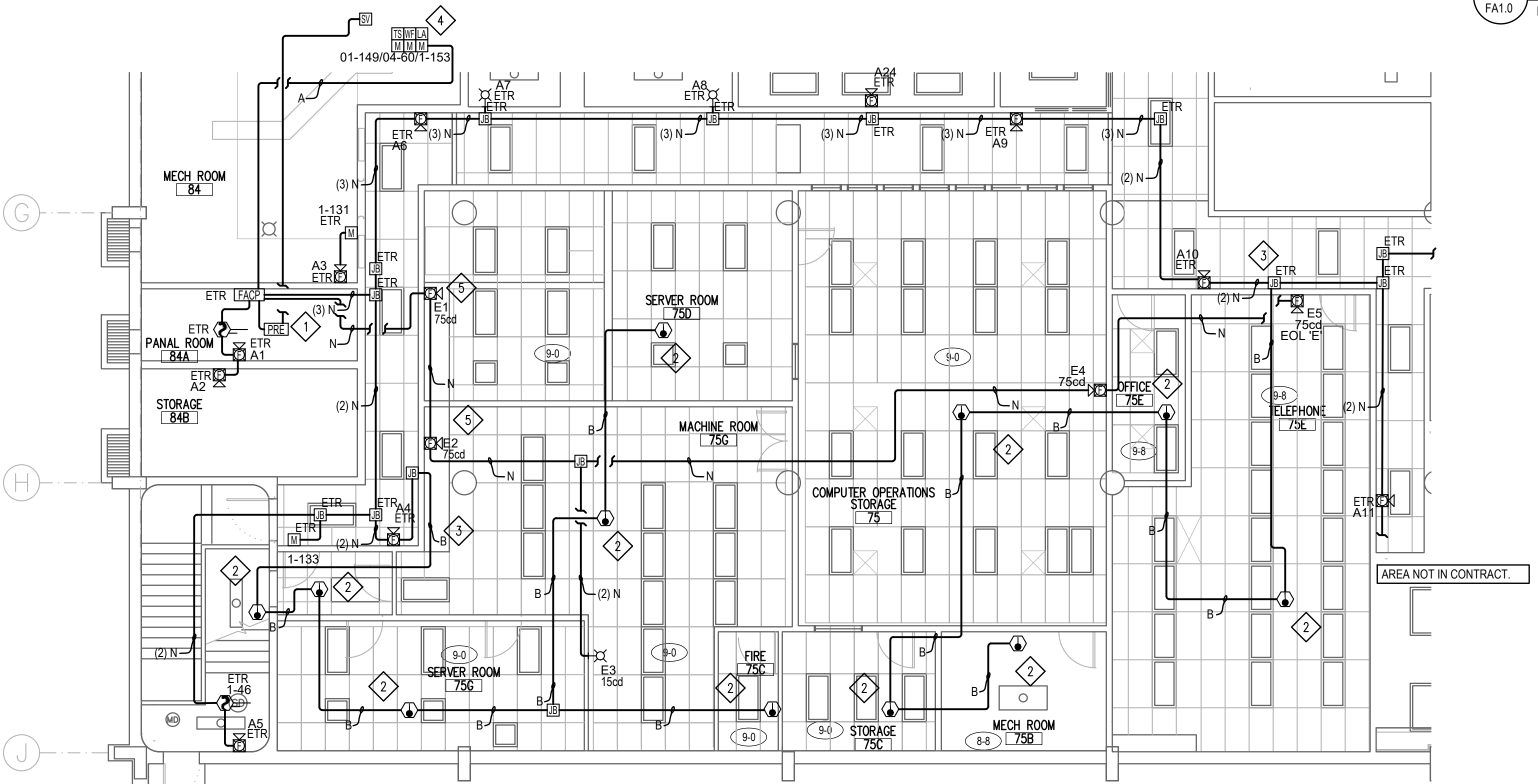
6 CIRCUIT 'E' LOAD/LOSS CALCULATION
FA1.0 NO SCALE



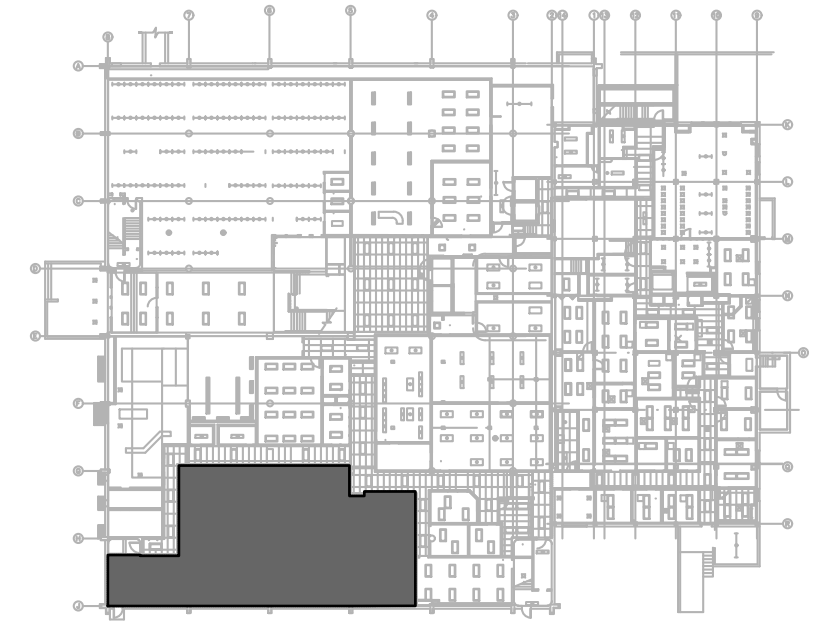
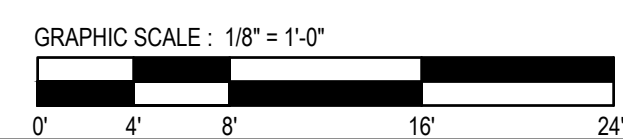
3 INPUT MODULE EST SIGA-CT1
FA1.0 NO SCALE

- GENERAL NOTES**
- PLANS CREATED FROM AS-BUILT DRAWINGS AS PROVIDED BY MSU-BOZEMAN
 - DEVICE ADDRESSES TO BE FIELD COORDINATED BASED ON PANEL PROGRAM AVAILABILITY. CONTRACTOR TO PROVIDE REELINES OF ADDRESSES USED FOR ALL NEW WORK TO BE INCORPORATED IN RECORD DOCUMENTS.
 - 'A' CIRCUIT HORN/STROBES SHALL HAVE NEW ADDRESSES AS NOTED
 - ALL EQUIPMENT WITHIN THE DATA ROOMS SHALL BE ADEQUATELY PROTECTED FROM DUST AND DEBRIS DURING INSTALLATION. DATA CENTER MANAGERS SHALL APPROVE PROTECTION BEFORE INSTALLATION OF DEMOLITION WITHIN THE AREA.

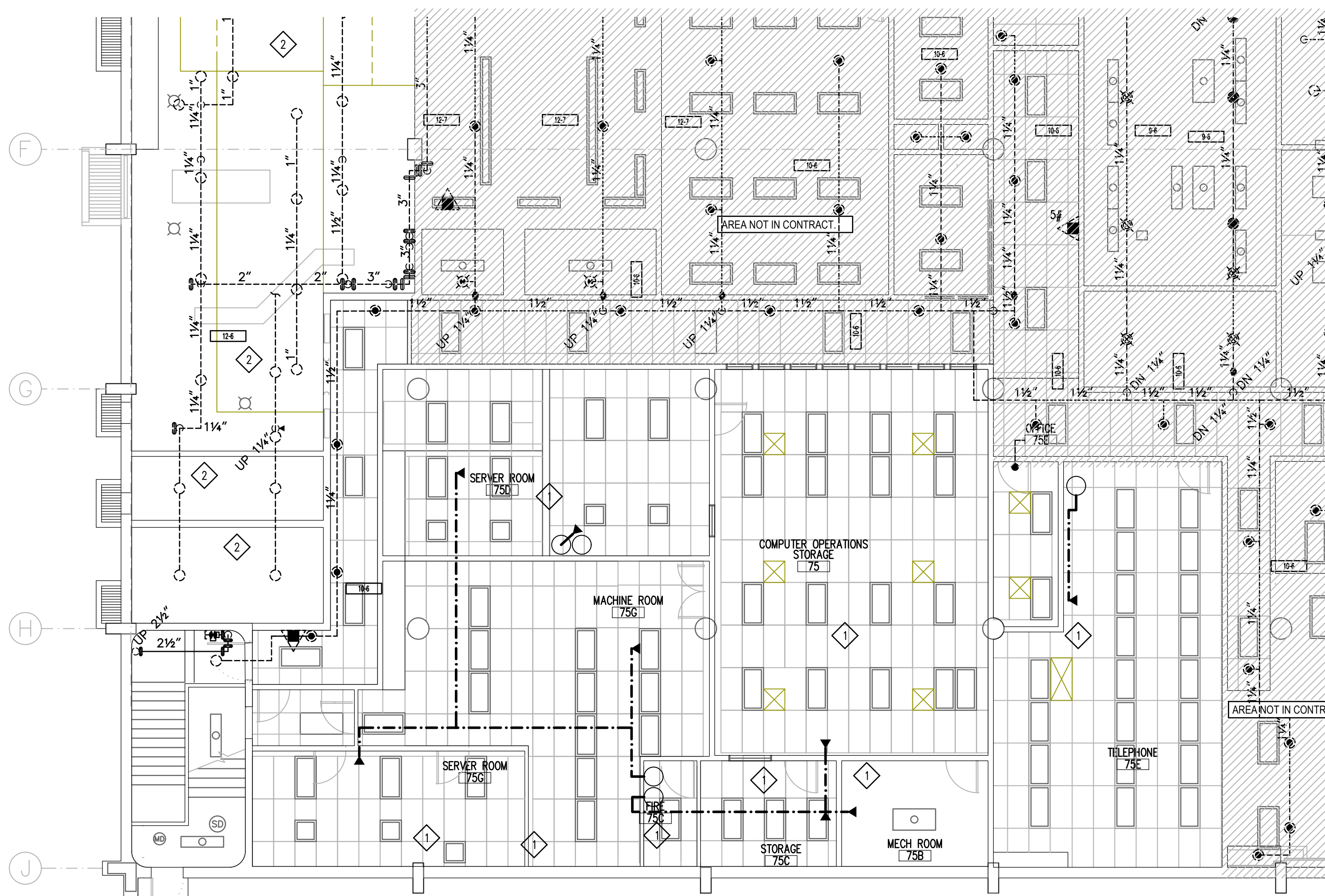
- PLAN KEY NOTES**
- LOCATION OF EXISTING EST3X FIRE ALARM CONTROL PANEL. CONTRACTOR TO INSTALL NEW RELEASING MODULE FOR NEW FIRE SPRINKLER PREACTION SYSTEM. SEE SCHEDULE
 - NEW HEAT DETECTORS FOR ACTUATION OF NEW PREACTION ZONE
 - TIE INTO EXISTING SLC CIRCUIT TO PROVIDE WIRING FOR NEW HEAT DETECTORS
 - RE-USE EXISTING MONITOR MODULES AS SHOWN ON FA DEMO SHEET FD0.2
 - CONTRACTOR TO PLACE NEW FIRE ALARM DEVICES DIRECTLY ADJACENT TO EXISTING DEVICES. NOW COVERED WITH BLANKS, AS PER THE DEMO SHEET FX0.2



1 BASEMENT FLOOR - FIRE ALARM PLAN
FA1.0 1/8" = 1'-0"



KEYPLAN

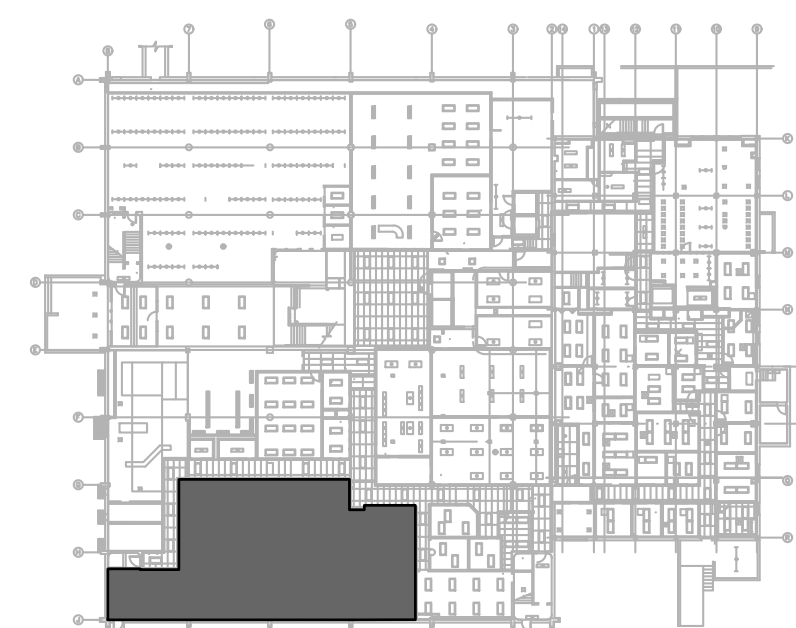


GENERAL NOTES

1. ALL EQUIPMENT WITHIN THE DATA ROOMS SHALL BE ADEQUATELY PROTECTED FROM DUST AND DEBRIS DURING INSTALLATION. DATA CENTER MANAGERS SHALL APPROVE PROTECTION BEFORE INSTALLATION OF DEMOLITION WITHIN THE AREA.
2. NOTE THAT HALON SYSTEMS ARE TO BE HANDLED BY QUALIFIED PERSONS AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS. FEDERAL GUIDELINES CAN BE FOUND AT "HTTPS://WWW.EPA.GOV/OZONE-LAYER-PROTECTION/HALONS-PROGRAM". THIS SHOULD ALSO BE DISCUSSED AT PRE-BID, PRE-CONSTRUCTION, AND CONSTRUCTION MEETINGS.

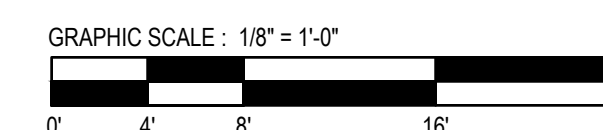
PLAN KEY NOTES

1. DEMOLISH ALL PIPING, NOZZLES, AND TANKS ASSOCIATED WITH THE EXISTING HALON FIRE SUPPRESSION SYSTEM (BOTH ABOVE CEILING AND BELOW FLOOR).
2. CONTRACTOR IS TO COMPLETELY DRAIN EXISTING ANTI-FREEZE SYSTEM AND DISPOSE OF PROPERLY. EXISTING PIPING IS TO BE FLUSHED AND BECOME APART OF THE EXISTING WET SYSTEM



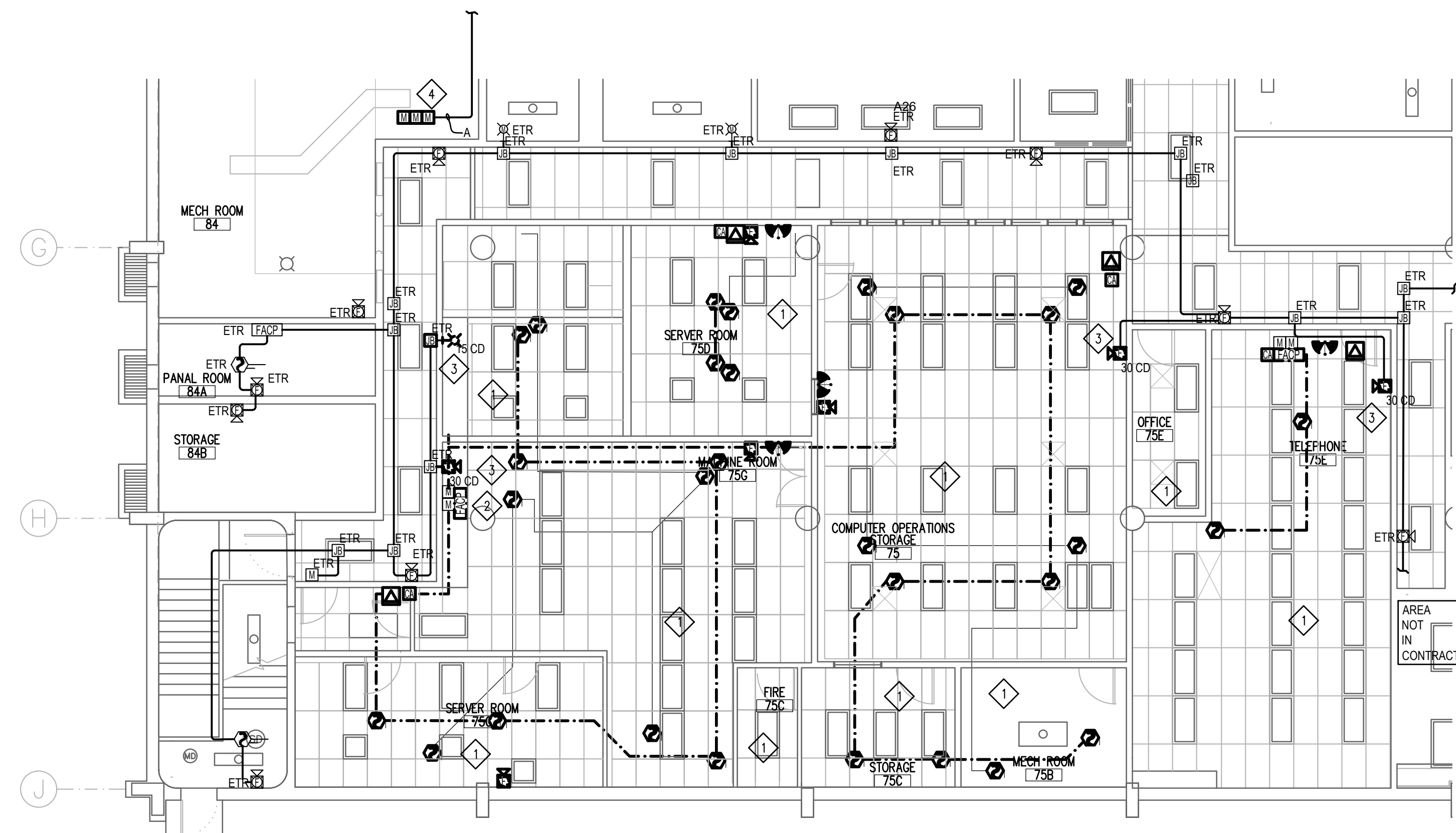
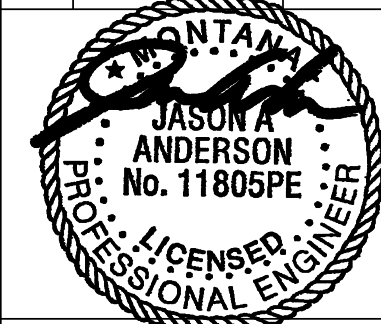
KEYPLAN

1 BASEMENT FLOOR - DEMOLITION PIPING PLAN
FD0.1 1/8" = 1'-0"



PPA#20-0036 - RENNE LIBRARY DATA CENTER FIRE SUPPRESSION UPGRADES
 DRAWN BY: BMH
 REVIEWED BY: JAA
 DATE: 01-17-2021

REV.	DESCRIPTION	DATE



1 BASEMENT FLOOR - DEMOLITION FIRE ALARM PLAN
FD0.2 1/8" = 1'-0"

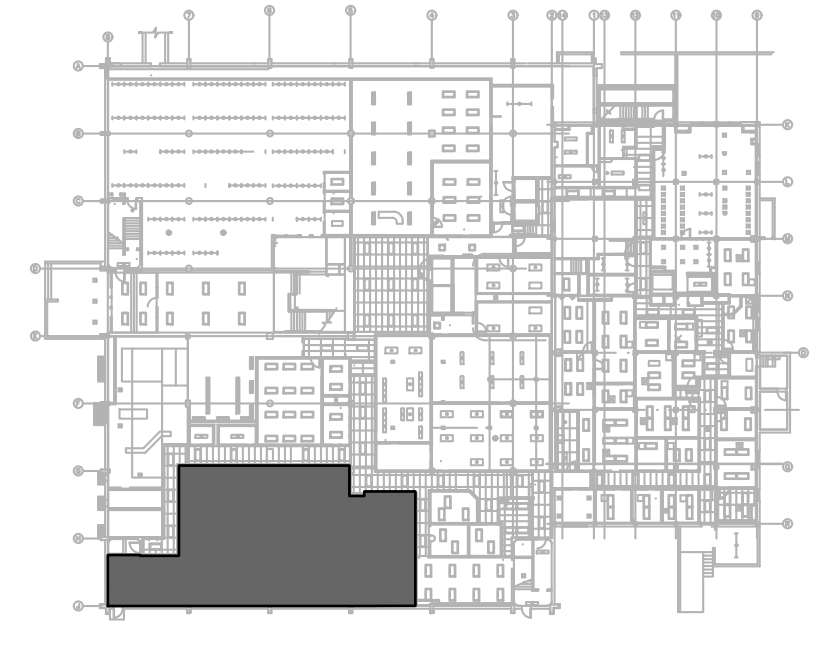
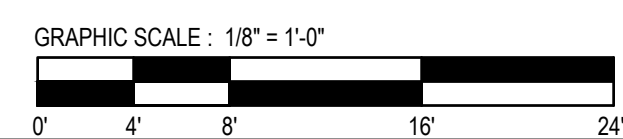
GENERAL NOTES

- PLANS CREATED FROM AS-BUILT DRAWINGS AS PROVIDED BY MSU-BOZEMAN
- ALL EQUIPMENT WITHIN THE DATA ROOMS SHALL BE ADEQUATELY PROTECTED FROM DUST AND DEBRIS DURING INSTALLATION. DATA CENTER MANAGERS SHALL APPROVE PROTECTION BEFORE INSTALLATION OF DEMOLITION WITHIN THE AREA.

FIRE ALARM DEMO LEGEND	
SYMBOL	DESCRIPTION
	ABOVE CEILING CONDUIT
	BELOW FLOOR CONDUIT
	EXISTING SMOKE DETECTOR (TO BE DEMOLISHED)

PLAN KEY NOTES

- DEMOLISH ALL CONDUIT AND DEVICES IN THEIR ENTIRETY IN ASSOCIATION WITH THE EXISTING HALON FIRE SUPPRESSION SYSTEM
- REMOVE EXISTING FACP FOR THE HALON SYSTEM. EACH SIGA-C11 (2) TOTAL ARE TO BE RE-USED. SEE NEW FIRE ALARM PLAN FA1.0
- BUILDING HORN/STROBES AND STROBES TO BE REMOVED. CONNECT WIRES WITH WIRE NUTS TO COMPLETE EXISTING CIRCUIT. PROVIDE RED BLANK COVER MARKED FIRE ALARM
- REMOVE ALL EXISTING BOXES AND ASSOCIATED WIRING WITH THE EXISTING. TO BE DEMOLISHED. GLYCOL SPRINKLER SYSTEM



KEYPLAN

PPA#20-0036 - RENNE LIBRARY DATA CENTER FIRE ALARM DEMOLITION PLAN
 DRAWN BY: BMH, REVIEWED BY: JAA, DATE: 01-17-2021