

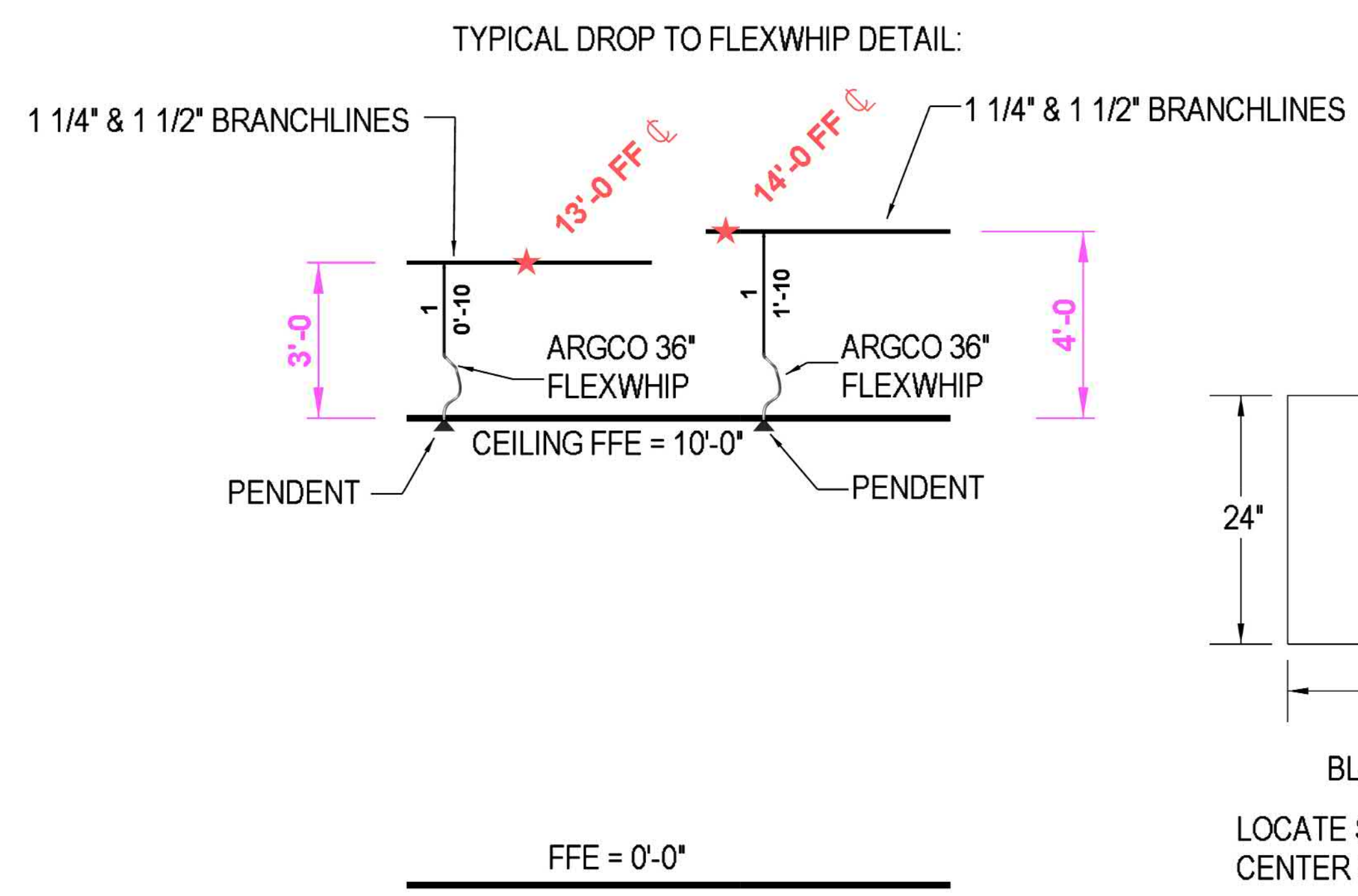


FLOW TEST INFO:  
 STATIC: 65 PSI  
 RESID: 55 PSI  
 FLOW: 840 GPM  
 ELEV: 1220'  
 DATE: 2024

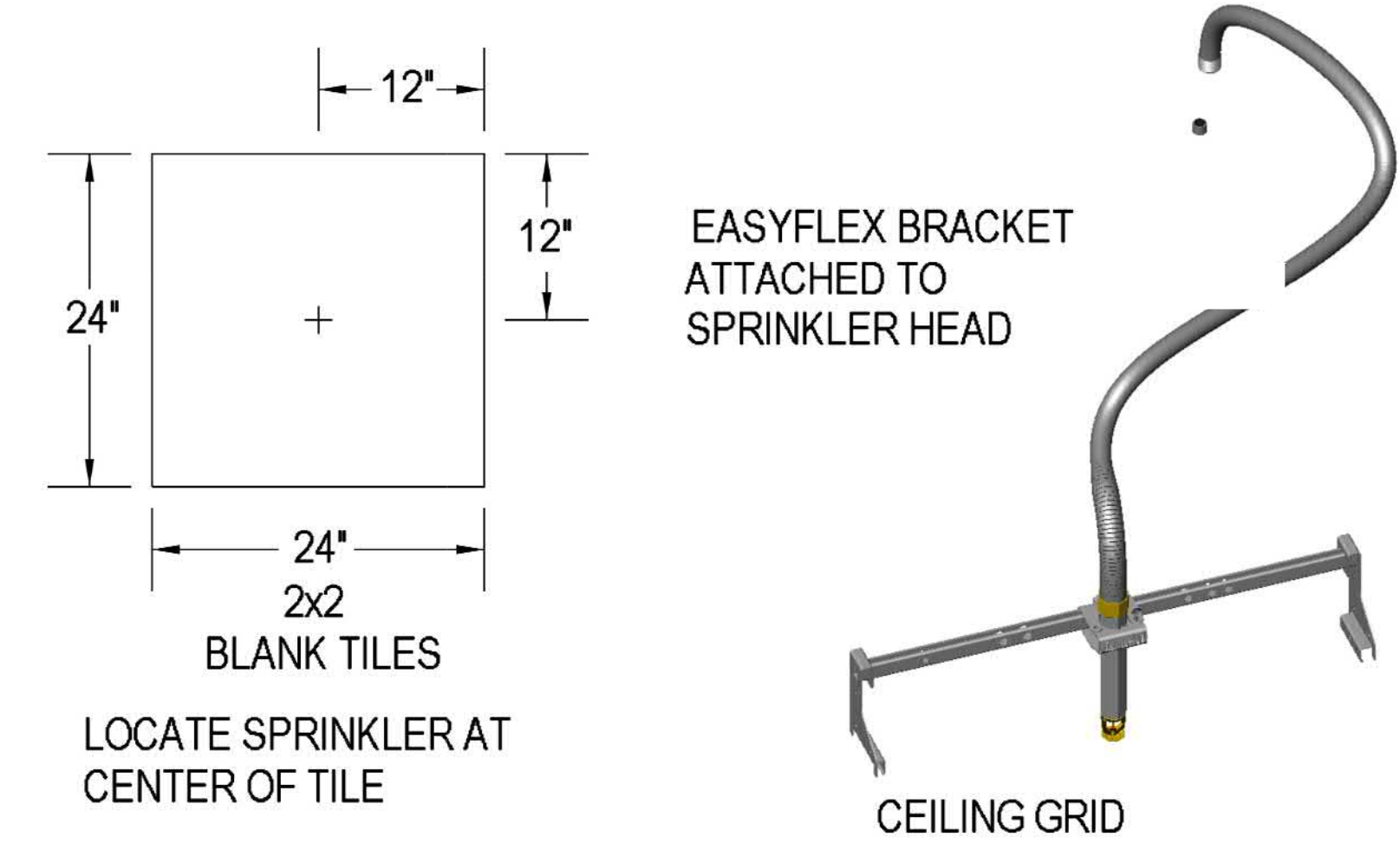
\* FLOW TEST INFORMATION PROVIDED BY CITY OF VERMILLION ON 4-24-2024



2 VICINITY MAP  
 F101 NTS

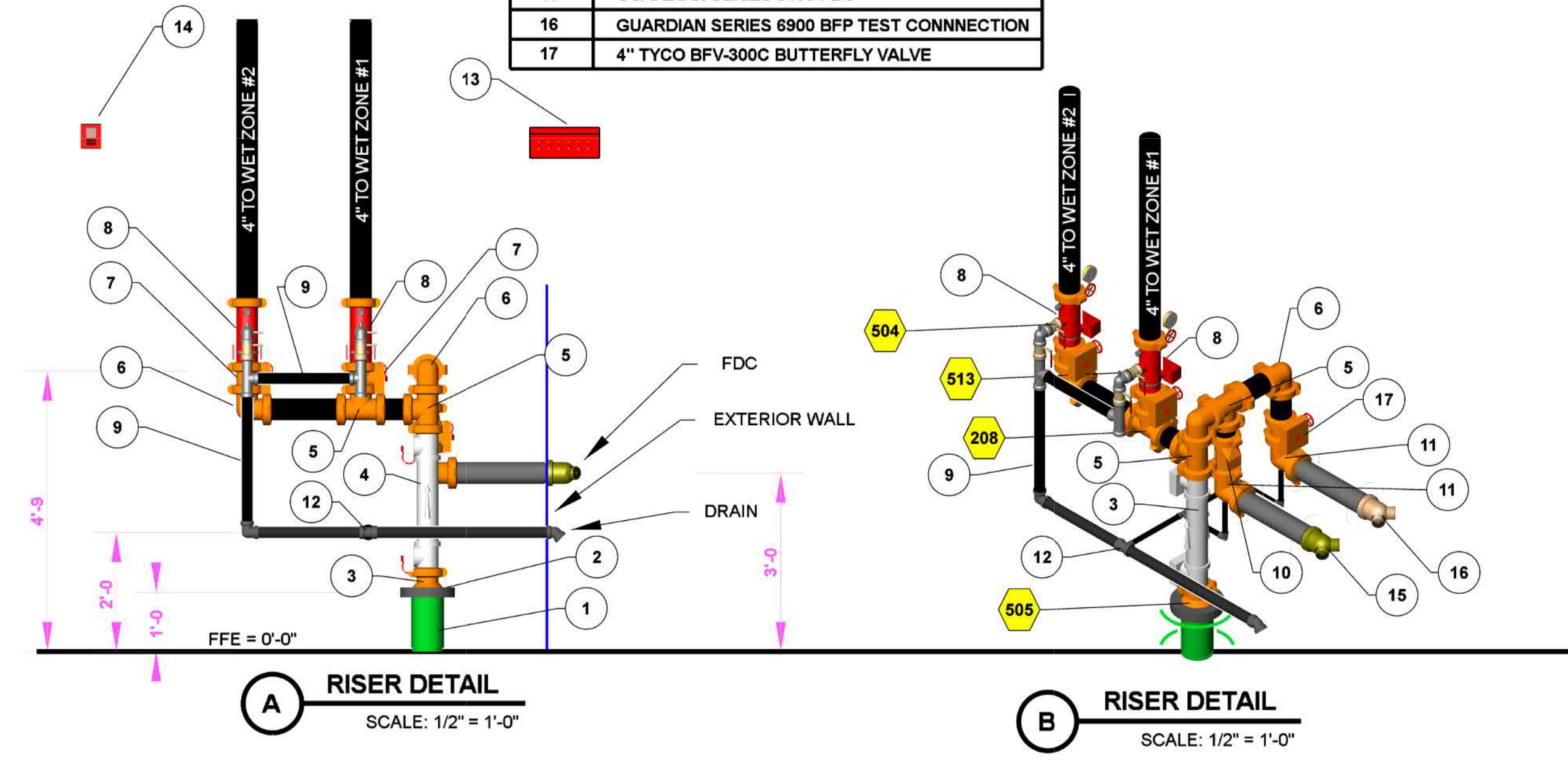


FLEX DROP DETAIL:  
 36\"/>



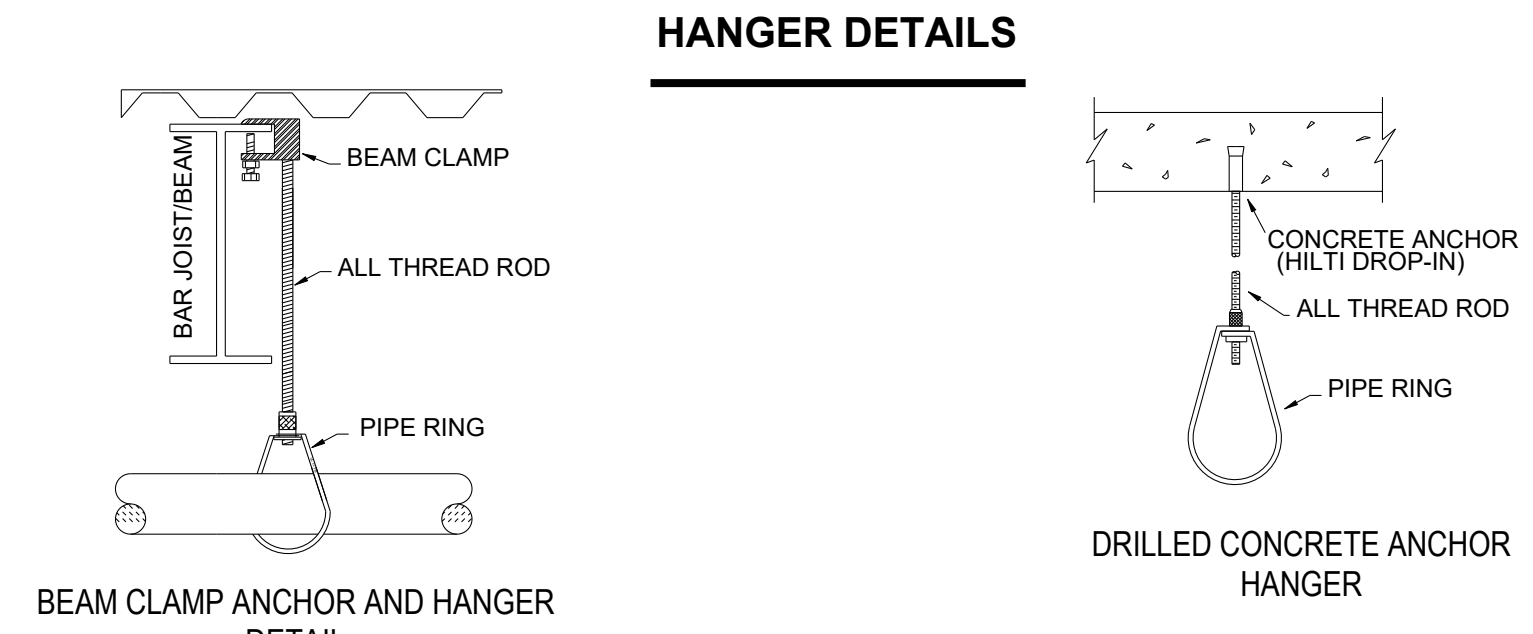
1 SITE PLAN - CLAY COUNTY LAW ENFORCEMENT CENTER  
 F101 SCALE: 1" = 50'-0"

#	DESCRIPTION
1	6" UNDERGROUND STUB IN
2	6" GRVD. FLANGE
3	6" x 4" GRVD. CONCENTRIC REDUCER
4	4" GRVD. COLT C200BFG
5	4" GRVD. TEE
6	4" GRVD. 90
7	4" TYCO BFV-300 BUTTERFLY VALVE
8	TYCO RM-1 RISER MANIFOLD
9	2" TEST AND DRAIN
10	4" TYCO CV-1F SWING CHECK VALVE
11	4"x1"x4" DRAIN 90
12	2"x2"x1" THRD. REDUCING TEE
13	SPARE HEAD CABINET
14	HORN AND STROBE
15	GUARDIAN SERIES 6100 FDC
16	GUARDIAN SERIES 6900 BFP TEST CONNECTION
17	4" TYCO BFV-300C BUTTERFLY VALVE

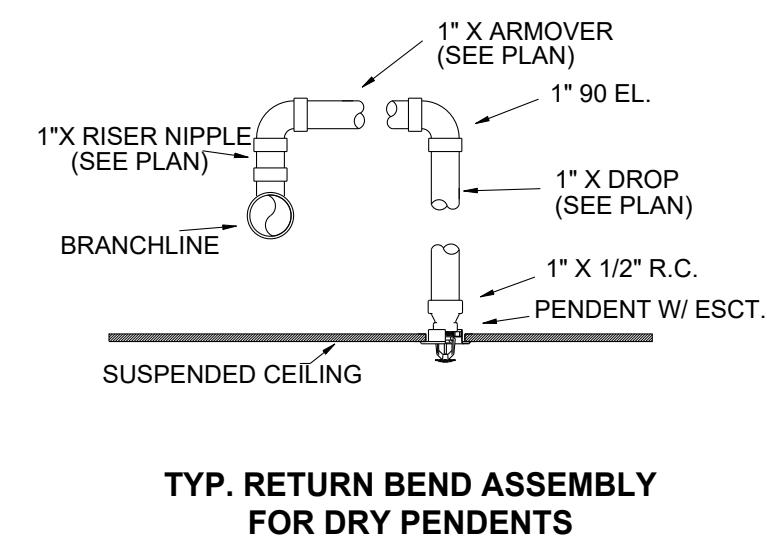


3 RISER DETAIL  
 F101 SCALE: 1/8" = 1'-0"

4 TYPICAL DROP TO FLEXWHIP DETAIL  
 F101 NTS



	MAXIMUM DISTANCE BETWEEN HANGERS (FT.-IN.)									
	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
STEEL PIPE EXCEPT THREADED LIGHTWALL	NA	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0
THREADED LIGHTWALL STEEL PIPE	NA	12-0	12-0	12-0	12-0	NA	NA	NA	NA	NA



GENERAL INFORMATION

- INTERNATIONAL BUILDING CODE (2018)
  - OCCUPANCY: TYPE I-3 CONDITION 5
  - TYPE OF CONSTRUCTION: II-B
  - SPRINKLERED AREAS (APPROXIMATE - SEE ARCHITECTURAL PLANS FOR ACTUAL)
    - MAIN FLOOR = 62,000 S.F.
    - MECHANICAL PENTHOUSE = 2,800 S.F.
- DESIGN & INSTALLATION STANDARDS: NFPA-13 (2022)
  - SPRINKLER PIPE TYPES:
    - WET-
    - 2.1 1" PIPE TO BE SCHEDULE 40 BLACK STEEL W/ THREADED FITTINGS
    - 2.2 1-1/4" AND LARGER PIPE TO BE BLK SCHEDULE 10 W/ GROOVED FITTINGS
    - 2.3 MAINS & BRANCH LINES TO BE ROLL-GROOVED BLK SCHEDULE 10
    - 2.4 2" AND LARGER TO USE GROOVED SHORT RADIUS FITTINGS
  - DESIGN CRITERIA:
    - 3.1 LIGHT HAZARD AREAS INCLUDE ALL AREAS NOT OTHERWISE NOTED
    - 3.2 ORDINARY HAZARD GROUP I AREAS NOTED ON DRAWINGS
    - 3.3 ORDINARY HAZARD GROUP II AREAS NOTED ON DRAWINGS
    - 3.4 REMOTE AREA REDUCTIONS HAVE BEEN TAKEN WHERE APPLICABLE PER NFPA 13 SEC. 19.3.3.2.3
- NOTES:
  - ALL MATERIAL TO BE NEW AND MEET U.L. STANDARDS
  - HANGERS TO BE INSTALLED IN ACCORDANCE WITH NFPA 13 - SEE PLAN FOR HANGING
- SYMBOLS USED ON DRAWINGS:
  - \*x\*x FF C PIPE ELEVATION ABOVE FINISH FLOOR
  - \*x\*x TS C PIPE ELEVATION BELOW TOP OF STEEL
  - OH11 ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD U.N.O.)
  - HYDRAULIC CALCULATION JUNCTION POINT
  - 9'-0" CEILING HEIGHT
  - WET BLACK STEEL PIPE
  - GROOVED COUPLING LOCATION
  - INVERTED TEE
  - W I BEAM
- SCOPE OF WORK:
  - INSTALL A COMPLETE TWO ZONE WET FIRE SPRINKLER SYSTEM TO COVER ALL AREAS OF BUILDING
  - ALL AREAS OF THE BUILDING TO BE INSTALLED AND COVERED IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PER NFPA 13

CLAY COUNTY  
 LAW ENFORCEMENT CENTER

1250 STANFORD STREET,  
 VERMILLION, SD 57069

FIRE PROTECTION PLANS

PROJECT NUMBER: S24001  
 DRAWN BY: NDM

DATE: 08/14/24  
 CHECKED BY: DS

SHEET NUMBER:

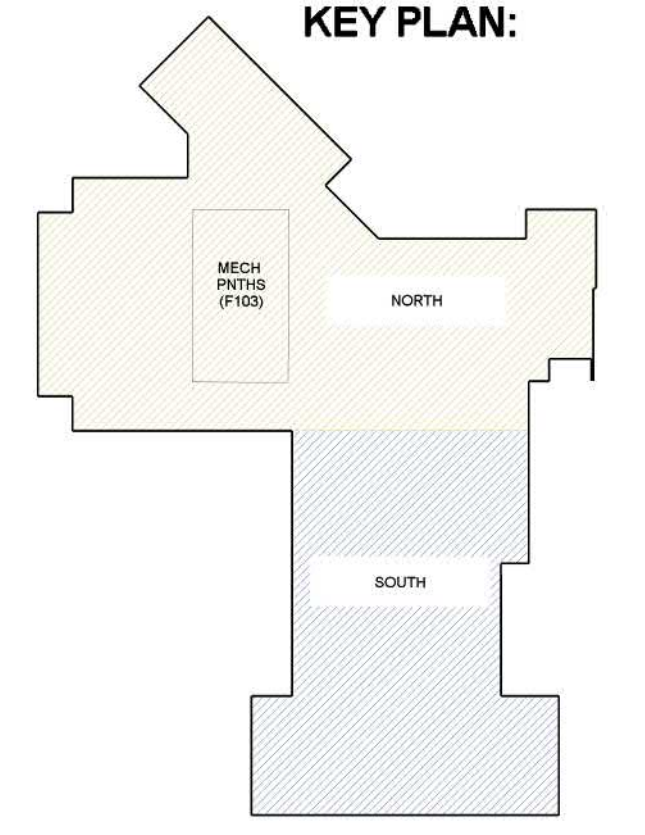
F101



1 GROUND LEVEL FIRE PROTECTION PLANS - NORTH  
 F102 SCALE: 1/8" = 1'-0"



CLAY COUNTY LAW  
 KEY PLAN:



**Hydraulic Information**

Remote Area 2

OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft <sup>2</sup> )	0.10 for 1500ft <sup>2</sup> (Actual 1007ft <sup>2</sup> )
QUICK RESPONSE REDUCTION	12'-0" Ceiling (87.0%) 845ft <sup>2</sup>
TOTAL HOSE STREAMS	100.0
TOTAL HEADS FLOWING	9
K-FACTOR	5.6
TOTAL WATER REQUIRED	276.2
TOTAL PRESSURE REQUIRED	48.3
BASE OF RISER (gpm)	276.2
BASE OF RISER (psi)	48.3
SAFETY MARGIN (psi)	+15.5 (24.3%)

\*AREA / DENSITY METHOD USED FOR CALCULATIONS\*  
 \*QR REDUCTION USED PER NFPA 13 (2022)\*  
 12 FT CEILING CRITERIA - AREA: 945 SQ FT - WIDTH: 36.9 FT

**Hydraulic Information**

Remote Area 3

OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft <sup>2</sup> )	0.15 for 1500ft <sup>2</sup> (Actual 1020ft <sup>2</sup> )
QUICK RESPONSE REDUCTION	9'-6" Ceiling (40.0%) 900ft <sup>2</sup>
TOTAL HOSE STREAMS	250.0
TOTAL HEADS FLOWING	13
K-FACTOR	5.6
TOTAL WATER REQUIRED	664.7
TOTAL PRESSURE REQUIRED	49.0
BASE OF RISER (gpm)	504.7
BASE OF RISER (psi)	49.0
SAFETY MARGIN (psi)	+12.1 (19.7%)

\*AREA / DENSITY METHOD USED FOR CALCULATIONS\*  
 \*QR REDUCTION USED PER NFPA 13 (2022)\*  
 10 FT CEILING CRITERIA - AREA: 900 SQ FT - WIDTH: 36 FT

**Hydraulic Information**

Remote Area 1

OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft <sup>2</sup> )	0.20 for 1500ft <sup>2</sup> (Actual 1087ft <sup>2</sup> )
QUICK RESPONSE REDUCTION	18'-0" Ceiling (28.0%) 1080ft <sup>2</sup>
TOTAL HOSE STREAMS	250.0
TOTAL HEADS FLOWING	10
K-FACTOR	8
TOTAL WATER REQUIRED	475.4
TOTAL PRESSURE REQUIRED	44.3
BASE OF RISER (gpm)	475.4
BASE OF RISER (psi)	44.3
SAFETY MARGIN (psi)	+17.3 (28.1%)

\*AREA / DENSITY METHOD USED FOR CALCULATIONS\*  
 \*QR REDUCTION USED PER NFPA 13 (2022)\*  
 18FT CEILING CRITERIA - AREA: 1080 SQ FT - WIDTH: 39.4 FT

**Sprinkler Legend**

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temp	Escutcheon	Coverage
⊗	Tyco	TY4131	TY-FRB	2	8	Upright	3/4"	Quick	Natural Brass	200°F	NONE	STANDARD
⊗	Tyco	TY4131	TY-FRB	133	8	Upright	3/4"	Quick	Natural Brass	200°F	NONE	STANDARD
⊗	Tyco	TY3281	RAVEN	165	5.6	Pendent	3/4"	Quick	Off White	165°F	STYLE F	STANDARD
⊗	Tyco	TY3231	TY-FRB	131	5.6	Pendent	3/4"	Quick	Chrome	155°F	RECESSED	STANDARD
⊗	Tyco	TY5237	EC-11	70	11.2	Pendent	3/4"	Standard	Chrome	155°F	RECESSED	EXTENDED 20X20
⊗	Tyco	TY3381	RAVEN	30	5.6	Horizontal Sidewall	3/4"	Quick	Off White	165°F	STYLE F	STANDARD
⊗	Tyco	TY3151	TY-FRB	56	5.6	Upright	3/4"	Quick	Natural Brass	200°F	NONE	STANDARD
⊗	Tyco	TY3255	DS-1	6	5.6	Pendent	1"	Standard	Chrome	200°F	RECESSED	STANDARD
⊗	Tyco	TY4332	TY-FRB	6	8	Horizontal Sidewall	3/4"	Quick	Natural Brass	175°F	NONE	STANDARD
					Total =							
					599							

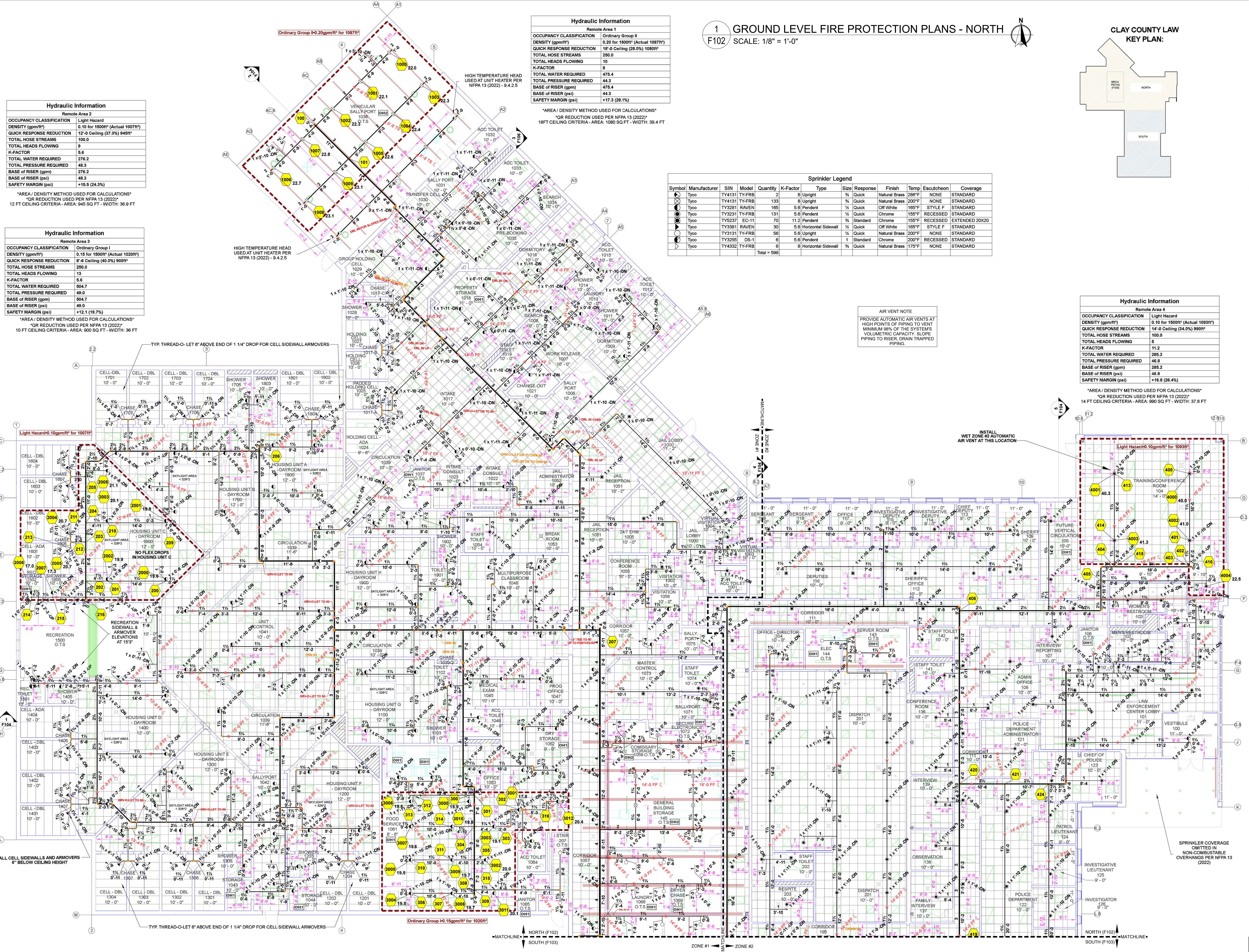
**Hydraulic Information**

Remote Area 4

OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft <sup>2</sup> )	0.10 for 1500ft <sup>2</sup> (Actual 1093ft <sup>2</sup> )
QUICK RESPONSE REDUCTION	14'-0" Ceiling (34.0%) 990ft <sup>2</sup>
TOTAL HOSE STREAMS	100.0
TOTAL HEADS FLOWING	5
K-FACTOR	11.2
TOTAL WATER REQUIRED	285.2
TOTAL PRESSURE REQUIRED	46.8
BASE OF RISER (gpm)	285.2
BASE OF RISER (psi)	46.8
SAFETY MARGIN (psi)	+16.8 (26.4%)

\*AREA / DENSITY METHOD USED FOR CALCULATIONS\*  
 \*QR REDUCTION USED PER NFPA 13 (2022)\*  
 14 FT CEILING CRITERIA - AREA: 990 SQ FT - WIDTH: 37.8 FT

**AIR VENT NOTE**  
 PROVIDE AUTOMATIC AIR VENTS AT HIGH POINTS OF PIPING TO VENT MINIMUM 98% OF THE SYSTEMS VOLUMETRIC CAPACITY. SLOPE PIPING TO RISER, DRAIN TRAPPED PIPING.



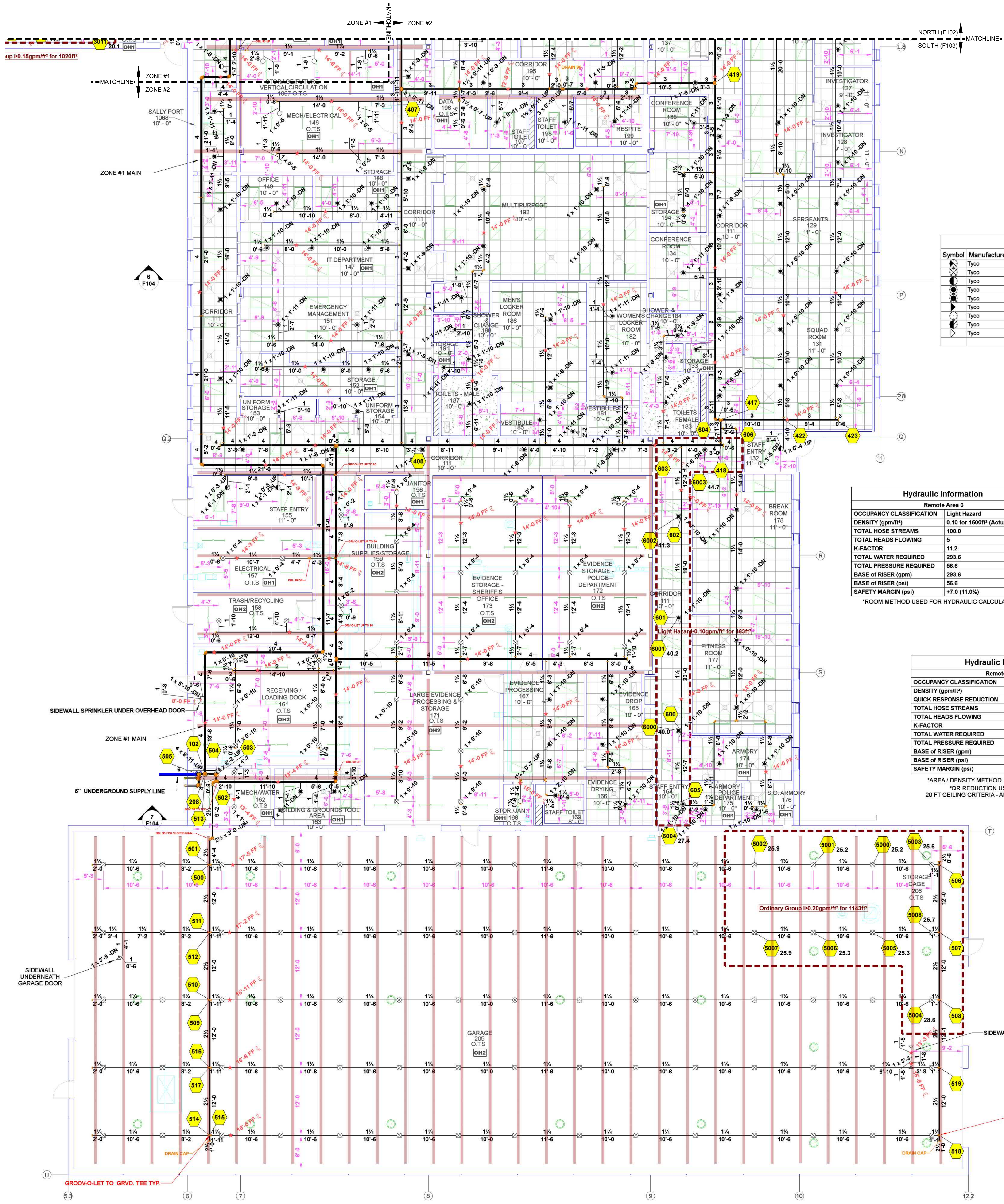
CLAY COUNTY  
 LAW ENFORCEMENT CENTER  
 1250 STANFORD STREET,  
 VERMILLION, SD 57069

FIRE PROTECTION PLANS

PROJECT NUMBER: S24001  
 DATE: 08/14/24  
 SHEET NUMBER:

DRAWN BY: NDM  
 CHECKED BY: DS





**AIR VENT NOTE**  
 PROVIDE AUTOMATIC AIR VENTS AT HIGH POINTS OF PIPING TO VENT MINIMUM 98% OF THE SYSTEM'S VOLUMETRIC CAPACITY. SLOPE PIPING TO RISER, DRAIN TRAPPED PIPING.

**Sprinkler Legend**

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temp	Escutcheon	Coverage
⊗	Tyco	TY4131	TY-FRB	2	8	Upright	1/2"	Quick	Natural Brass	288°F	NONE	STANDARD
⊗	Tyco	TY4131	TY-FRB	133	8	Upright	3/4"	Quick	Natural Brass	200°F	NONE	STANDARD
⊗	Tyco	TY3281	RAVEN	165	5.6	Pendent	1/2"	Quick	Off White	165°F	STYLE F	STANDARD
⊗	Tyco	TY3231	TY-FRB	131	5.6	Pendent	1/2"	Quick	Chrome	155°F	RECESSED	STANDARD
⊗	Tyco	TY5237	EC-11	70	11.2	Pendent	3/4"	Standard	Chrome	155°F	RECESSED	EXTENDED 20X20
⊗	Tyco	TY3381	RAVEN	30	5.6	Horizontal Sidewall	1/2"	Quick	Off White	165°F	STYLE F	STANDARD
⊗	Tyco	TY3131	TY-FRB	56	5.6	Upright	1/2"	Quick	Natural Brass	200°F	NONE	STANDARD
⊗	Tyco	TY3255	DS-1	6	5.6	Pendent	1"	Standard	Chrome	200°F	RECESSED	STANDARD
⊗	Tyco	TY4332	TY-FRB	6	8	Horizontal Sidewall	3/4"	Quick	Natural Brass	175°F	NONE	STANDARD
				Total = 599								

**Hydraulic Information**

Remote Area 6

OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft <sup>2</sup> )	0.10 for 1500ft <sup>2</sup> (Actual 463ft <sup>2</sup> )
TOTAL HOSE STREAMS	100.0
TOTAL HEADS FLOWING	5
K-FACTOR	11.2
TOTAL WATER REQUIRED	293.6
TOTAL PRESSURE REQUIRED	56.6
BASE OF RISER (gpm)	293.6
BASE OF RISER (psi)	56.6
SAFETY MARGIN (psi)	+7.0 (11.0%)

\*ROOM METHOD USED FOR HYDRAULIC CALCULATIONS\*

**Hydraulic Information**

Remote Area 5

OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft <sup>2</sup> )	D.20 for 1500ft <sup>2</sup> (Actual 1143ft <sup>2</sup> )
QUICK RESPONSE REDUCTION	20' Ceiling (25.0%) 1126ft <sup>2</sup>
TOTAL HOSE STREAMS	250.0
TOTAL HEADS FLOWING	9
K-FACTOR	8
TOTAL WATER REQUIRED	482.7
TOTAL PRESSURE REQUIRED	52.5
BASE OF RISER (gpm)	482.7
BASE OF RISER (psi)	52.5
SAFETY MARGIN (psi)	+8.9 (14.5%)

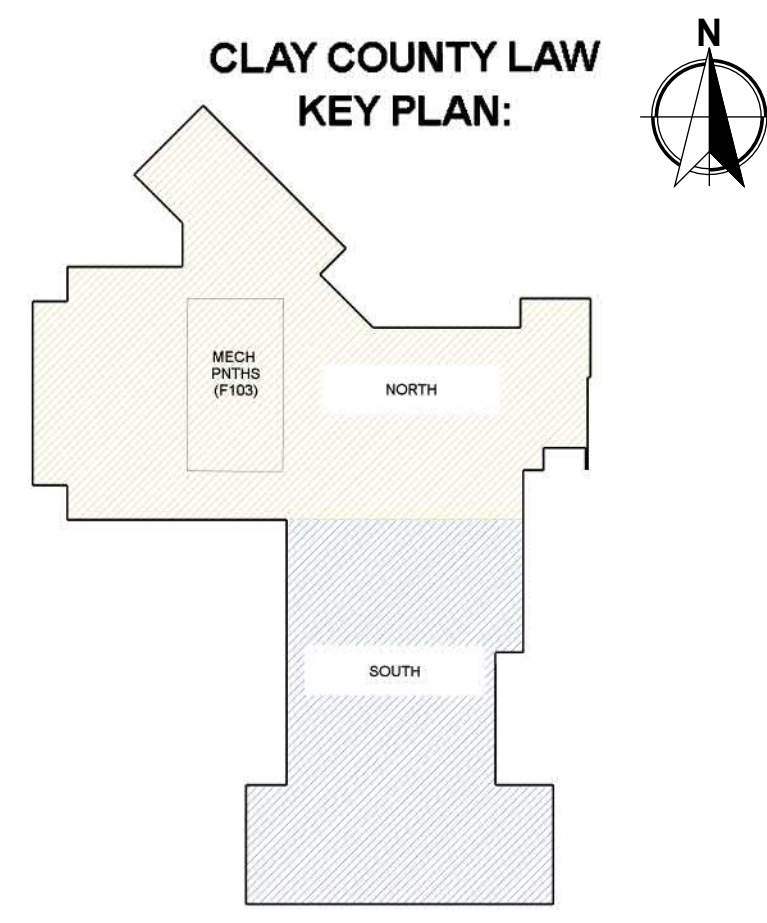
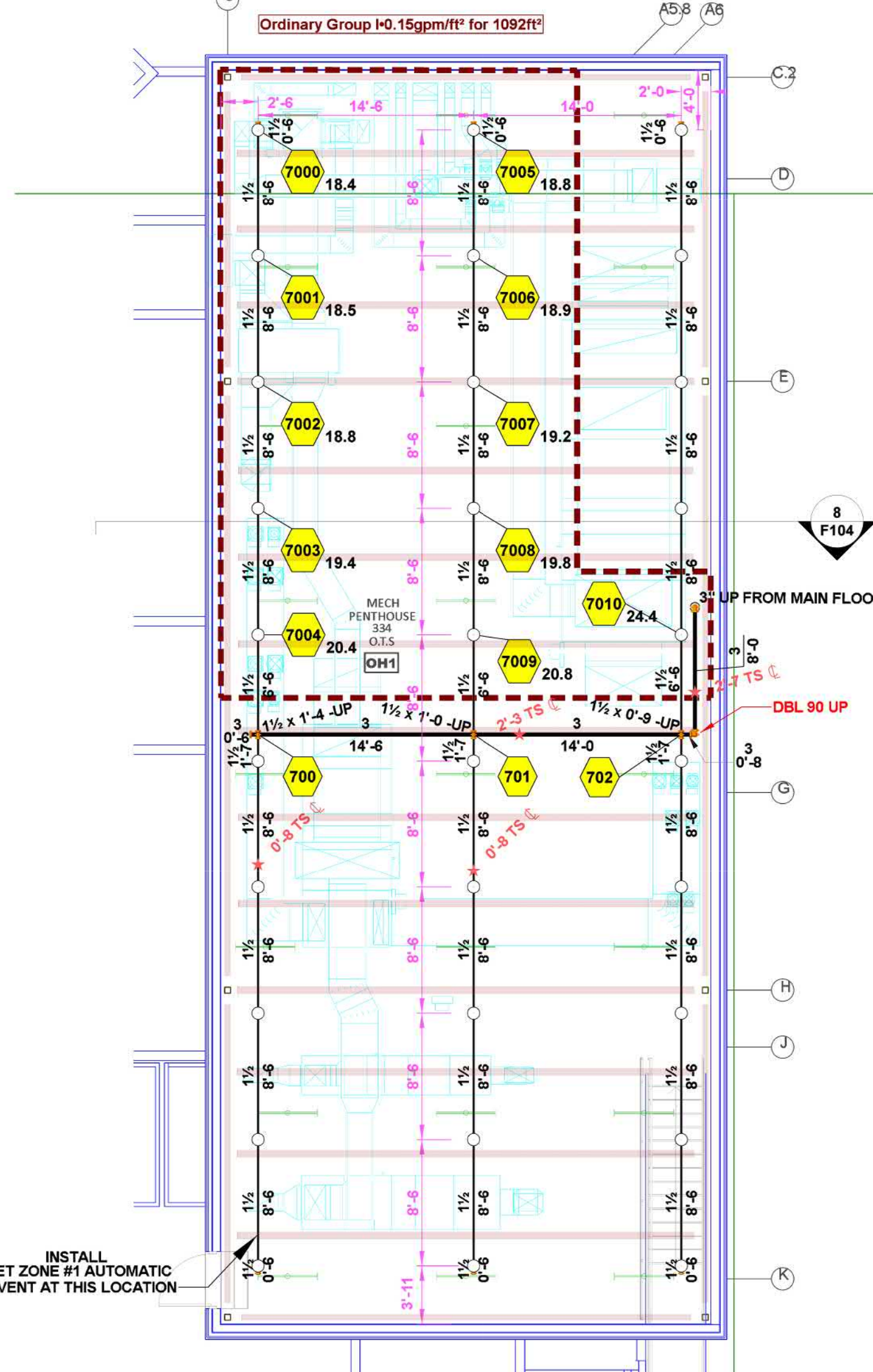
\*AREA / DENSITY METHOD USED FOR CALCULATIONS\*  
 \*OR REDUCTION USED PER NFPA 13 (2022)\*  
 20 FT CEILING CRITERIA - AREA: 1125 SQ FT - WIDTH: 40.2 FT

**Hydraulic Information**

Remote Area 7

OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft <sup>2</sup> )	0.15 for 1500ft <sup>2</sup> (Actual 1092ft <sup>2</sup> )
QUICK RESPONSE REDUCTION	13' Ceiling (35.9%) 968ft <sup>2</sup>
TOTAL HOSE STREAMS	250.0
TOTAL HEADS FLOWING	11
K-FACTOR	5.6
TOTAL WATER REQUIRED	467.2
TOTAL PRESSURE REQUIRED	51.0
BASE OF RISER (gpm)	467.2
BASE OF RISER (psi)	51.0
SAFETY MARGIN (psi)	+10.6 (17.2%)

\*AREA / DENSITY METHOD USED FOR CALCULATIONS\*  
 \*OR REDUCTION USED PER NFPA 13 (2022)\*  
 13 FT CEILING CRITERIA - AREA: 968 SQ FT - WIDTH: 37.3 FT



CLAY COUNTY  
 LAW ENFORCEMENT CENTER

1250 STANFORD STREET,  
 VERMILION, SD 57069

FIRE PROTECTION PLANS

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 SHEET NUMBER:

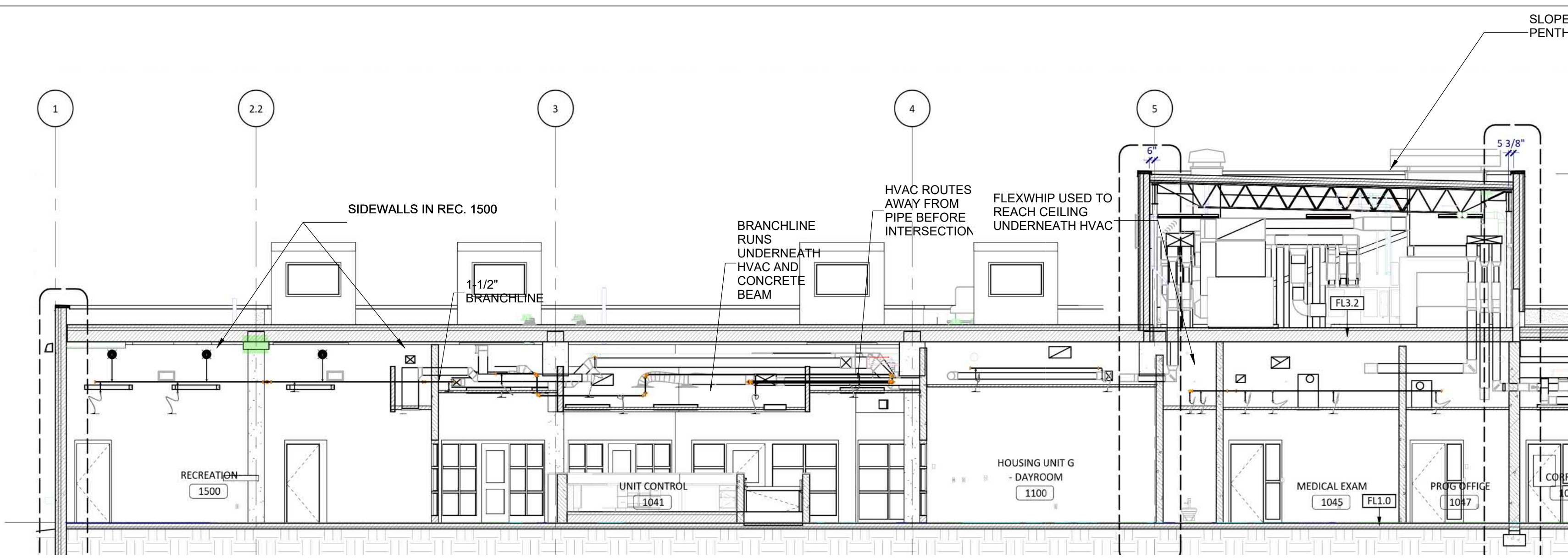
DRAWN BY: NDM  
 CHECKED BY: DS

1 GROUND LEVEL FIRE PROTECTION PLANS - SOUTH  
 F102 SCALE: 1/8" = 1'-0"

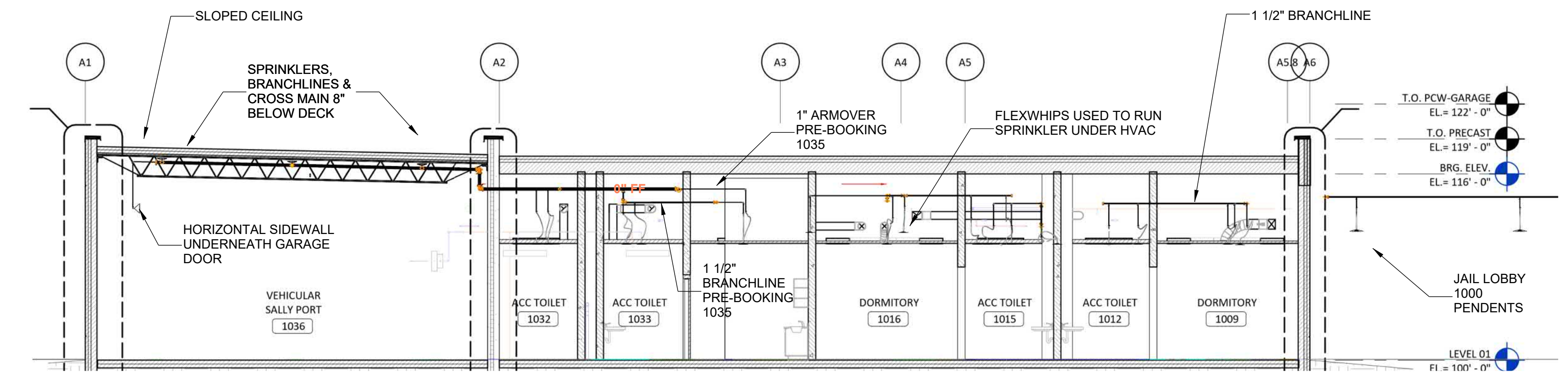
2 PENTHOUSE LEVEL FIRE PROTECTION PLANS  
 F103 SCALE: 1/8" = 1'-0"

F103

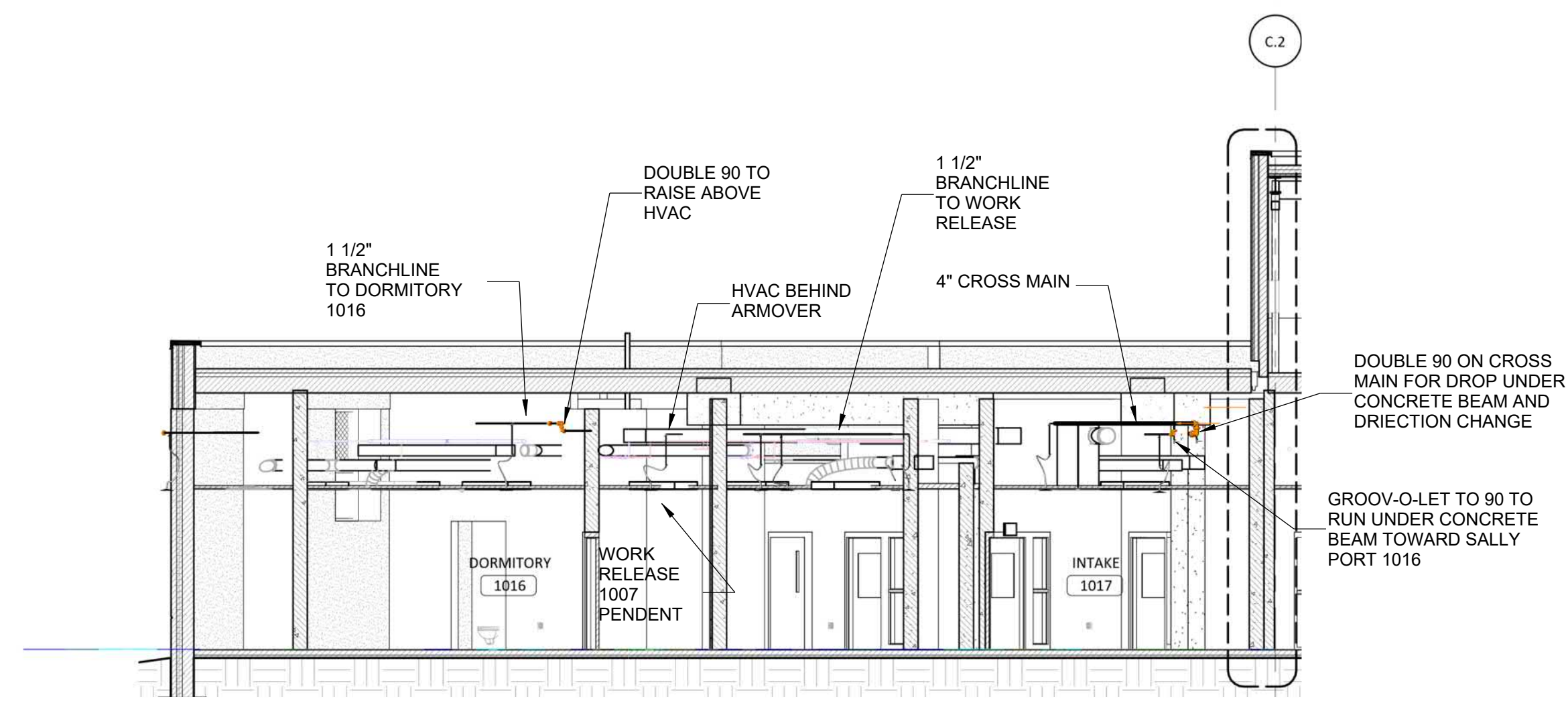




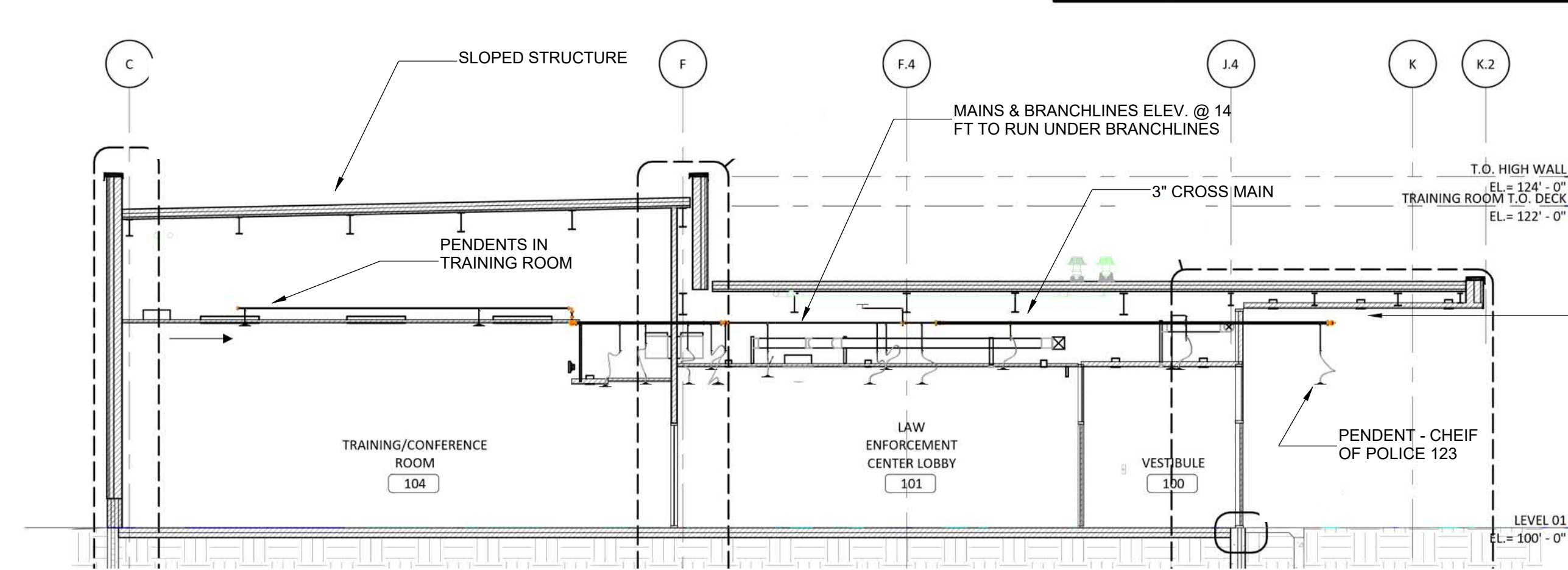
1 BUILDING SECTION - NORTH ZONE - VIEW 1  
F104 SCALE: 1/8" = 1'-0"



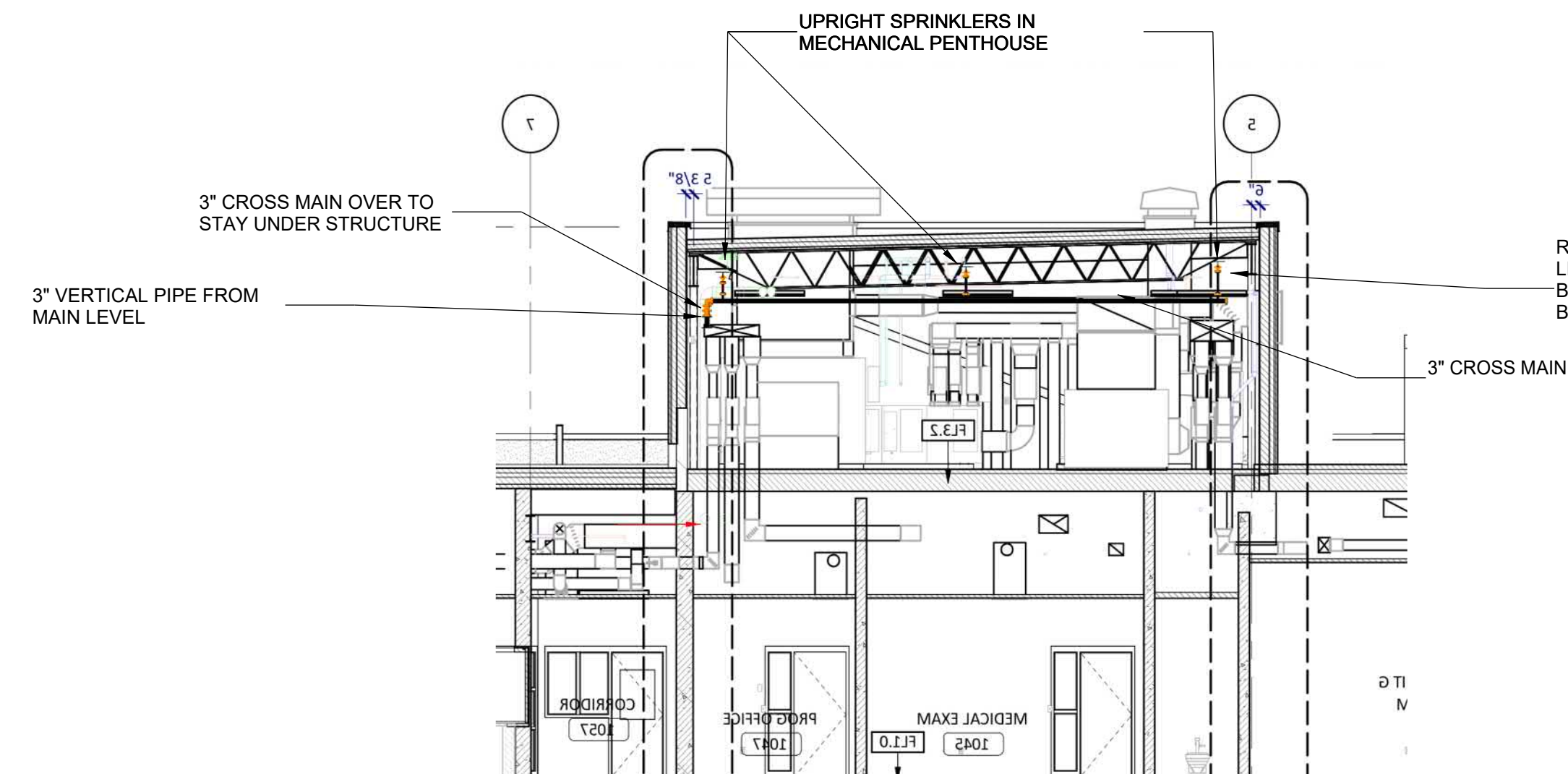
2 BUILDING SECTION - NORTH ZONE - VIEW 2  
F104 SCALE: 1/8" = 1'-0"



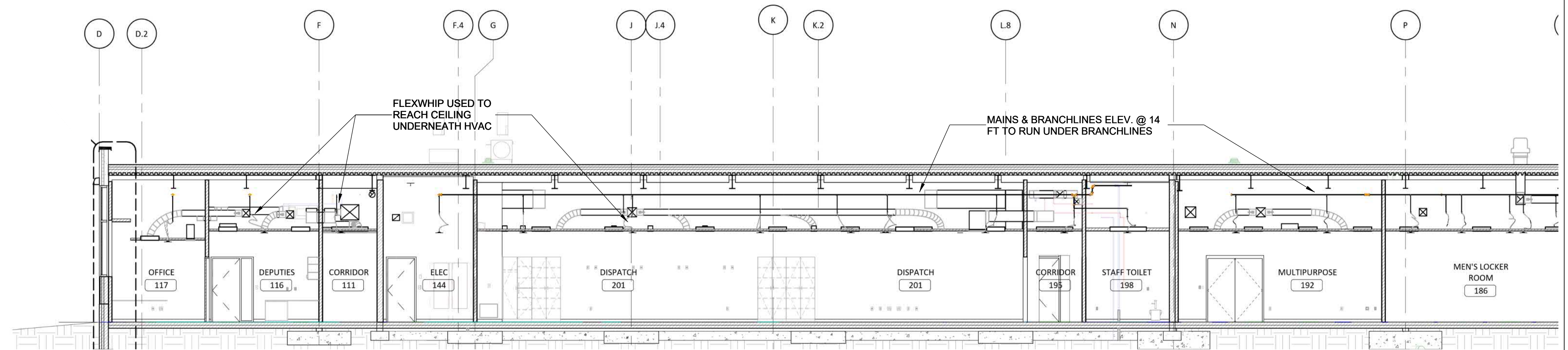
3 BUILDING SECTION - NORTH ZONE - VIEW 3  
F104 SCALE: 1/8" = 1'-0"



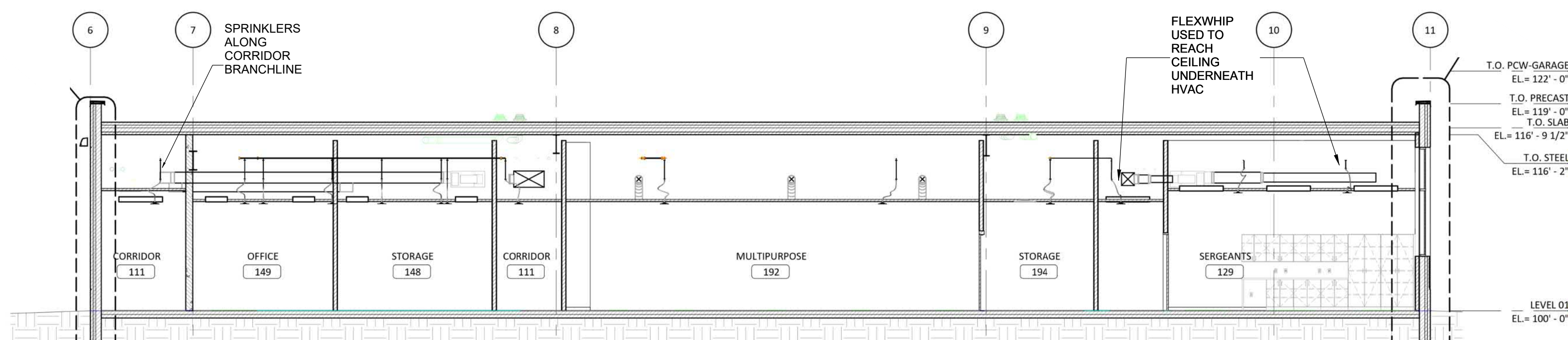
4 BUILDING SECTION - NORTH ZONE - VIEW 6D  
F104 SCALE: 1/8" = 1'-0"



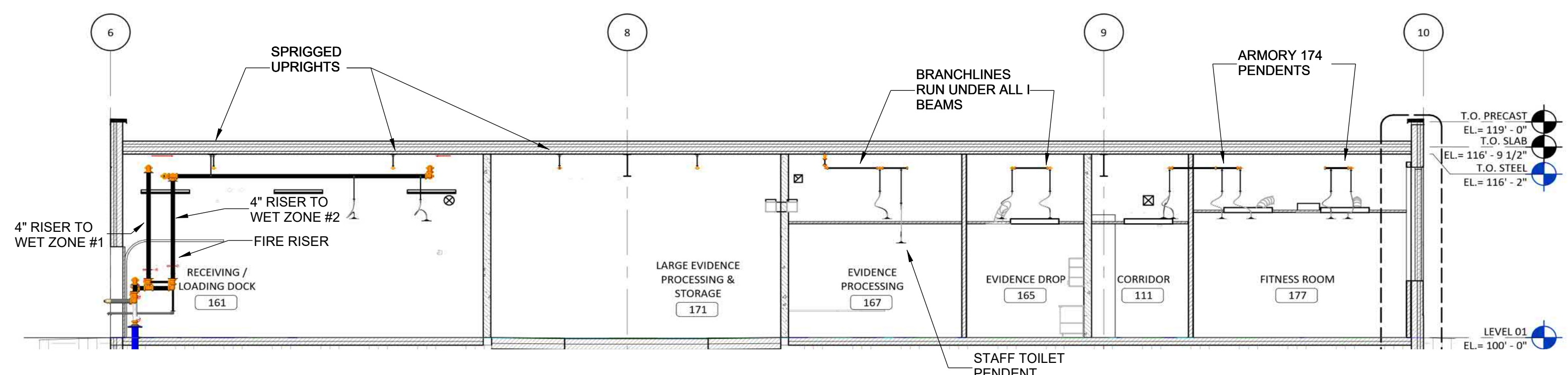
8 BUILDING SECTION - PENTHOUSE - VIEW 8  
F104 SCALE: 1/8" = 1'-0"



5 BUILDING SECTION - BOTH ZONES - VIEW 5  
F104 SCALE: 1/8" = 1'-0"



6 BUILDING SECTION - SOUTH ZONE - VIEW 6  
F104 SCALE: 1/8" = 1'-0"



7 BUILDING SECTION - SOUTH ZONE - VIEW 7  
F104 SCALE: 1/8" = 1'-0"

CLAY COUNTY  
LAW ENFORCEMENT CENTER

1250 STANFORD STREET,  
VERMILLION, SD 57069

FIRE PROTECTION PLANS

PROJECT NUMBER: S24001  
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DATE: 08/14/24  
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SHEET NUMBER:

F104