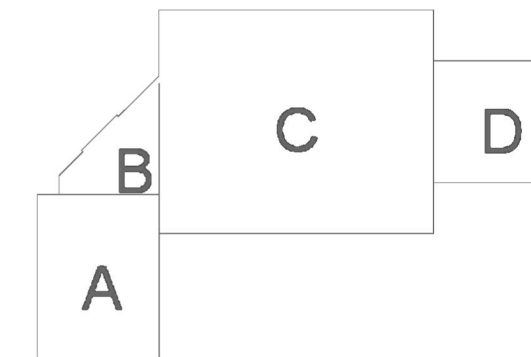
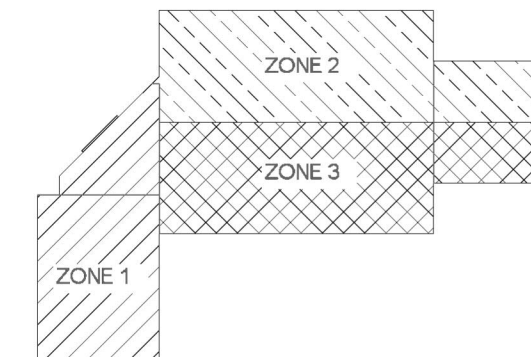


GENERAL INFORMATION

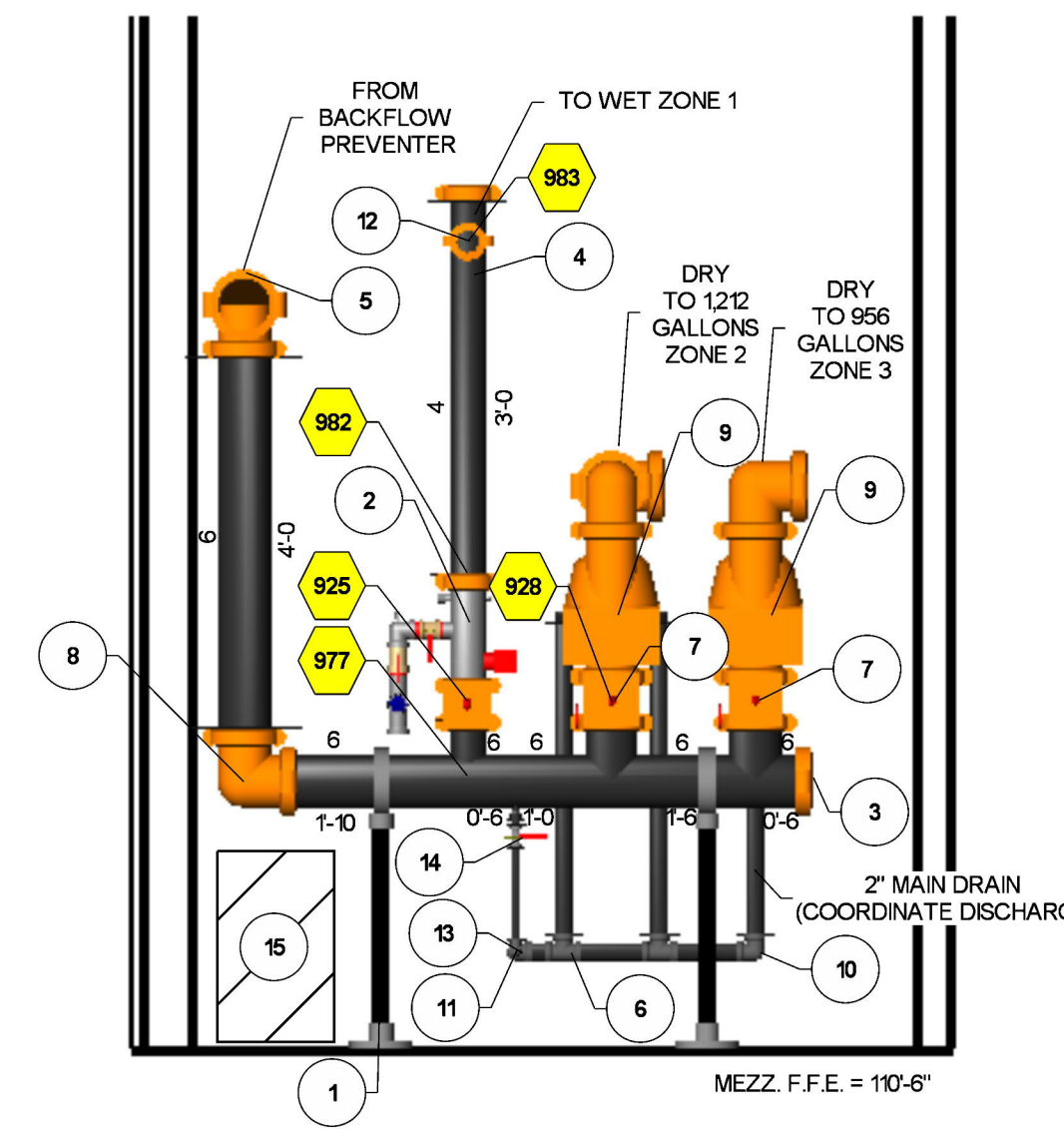
1. MINNESOTA BUILDING CODE (2020) & MINNESOTA FIRE CODE (2020)
 - 1.1 OCCUPANCY TYPE S-1B
 - 1.2 TYPE OF CONSTRUCTION V-B
 - 1.3 SPRINKLER AREAS (APPROXIMATE - SEE ARCHITECTURAL PLANS FOR ACTUAL)
 - ZONE 1 (WET) = 28,146 S.F.
 - ZONE 2 (DRY) = 37,218 S.F.
 - ZONE 3 (DRY) = 37,081 S.F.
 - BUILDING TOTAL = 102,453 S.F.
 - 1.4 DESIGN & INSTALLATION STANDARDS: NFPA-13 (2016)
2. SPRINKLER PIPE TYPES:
 - WET-
 - 2.1 1" PIPE TO BE MEGA-FLOW BLACK STEEL w/ THREADED FITTINGS
 - 2.2 1 1/4" THROUGH 6" MAINS & BRANCH LINES TO BE BLK MEGA-FLOW w/ GROOVED FITTINGS
 - 2.3 MAINS & BRANCH LINES TO BE ROLL-GROOVED BLK MEGA-FLOW
 - 2.4 2" AND LARGER TO USE GROOVED SHORT RADIUS FITTINGS
 - 2.5 PIPE IN WASH BAY TO BE GALVANIZED SCH 40 w/ GALVANIZED GROOVED FITTINGS
 - DRY-
 - 2.6 1" PIPE TO BE SCHEDULE 40 BLACK STEEL w/ THREADED FITTINGS
 - 2.7 1 1/4" THROUGH 6" MAINS & BRANCH LINES TO BE BLK SCHEDULE 40 w/ GROOVED FITTINGS
 - 2.8 2" AND LARGER TO USE GROOVED SHORT RADIUS FITTINGS
3. DESIGN CRITERIA:
 - 3.1 LIGHT HAZARD AREAS INCLUDE OFFICE, CONCEALED COMBUSTIBLE SPACE ABOVE AND RESTROOMS.
 - 3.2 ORDINARY HAZARD GROUP I AREAS INCLUDE WASH BAY 101, SHOWROOM 103, BUS STORAGE 11, AND COACH BUS STORAGE 102.
 - 3.3 ORDINARY HAZARD GROUP II AREAS INCLUDE MAINTENANCE 102, PARTS 104, AND MEZZ 201.
 - 3.4 REMOTE AREA REDUCTIONS HAVE BEEN TAKEN WHERE APPLICABLE PER NFPA 13 SEC. 11.2.3.2.3
 - 3.5 REMOTE AREA INCREASE OF 30% FOR DRY SYSTEM PER NFPA 13 SEC. 11.2.3.2.5
4. NOTES:
 - 4.1 ALL MATERIAL TO BE NEW AND MEET UL STANDARDS
 - 4.2 HANGERS TO BE INSTALLED IN ACCORDANCE WITH NFPA 13 - SEE PLAN FOR HANGING REQUIREMENTS
 - 4.3 DRY SYSTEM REQUIREMENTS:
 - DRY SYSTEM PIPE SLOPE INSTALLATION
 - SPRINKLER MAINS TO BE 1/4" PER 10'-0"
 - SPRINKLER BRANCH LINES TO BE 1/4" PER 10'-0"
 - DRY SYSTEM CAPACITY
 - DRY ZONE 2 = 1212 GALLONS
 - DRY ZONE 3 = 966 GALLONS
5. SYMBOLS USED ON DRAWINGS:
 - *XX FF C PIPE ELEVATION ABOVE FINISH FLOOR
 - *XX BS C PIPE ELEVATION BELOW TOP OF STEEL
 - OHM ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD UNO.)
 - HYDRAULIC CALCULATION JUNCTION POINT
 - 9'-0" CEILING HEIGHT
 - FIRE RATED WALL
 - WET BLACK STEEL PIPE
 - DRY BLACK STEEL PIPE
6. SCOPE OF WORK:
 - 6.1 INSTALL A COMPLETE THREE ZONE SYSTEM W/ ONE WET ZONE AND TWO DRY ZONES TO COVER ENTIRE NEW BUILDING AREAS A & B PROTECTED W/ WET SYSTEM, AREAS C & D PROTECTED W/ DRY SYSTEMS.
 - 6.2 ALL AREAS OF THE BUILDING TO BE INSTALLED AND COVERED IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PER NFPA 13



KEY PLAN



ZONE MAP

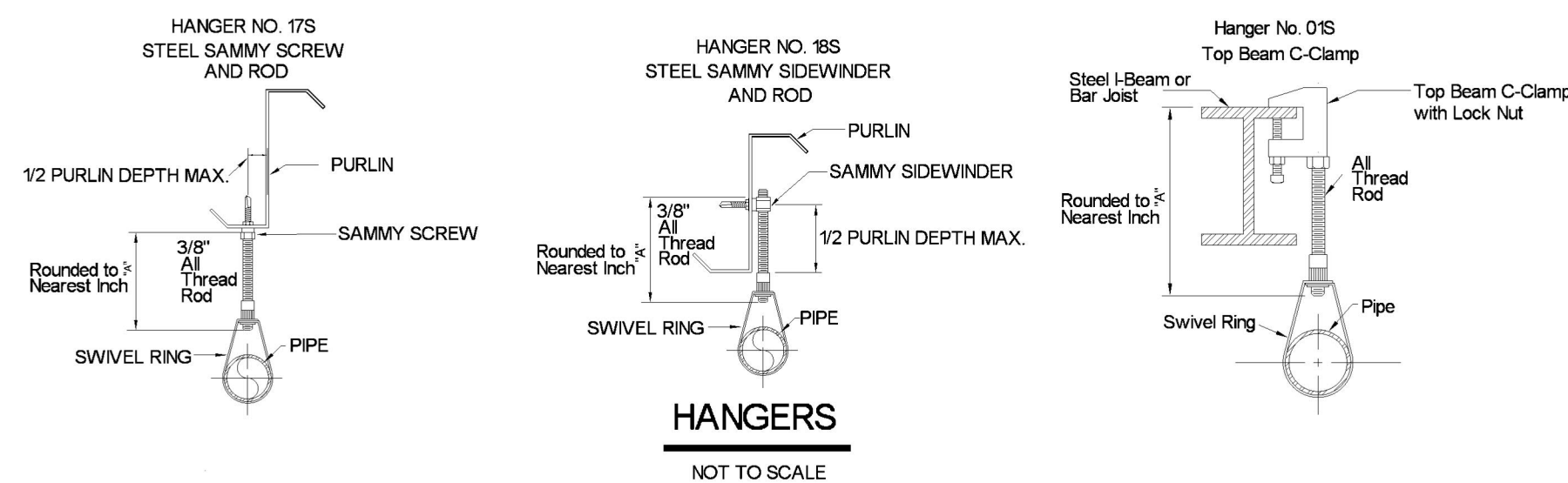


2 RISER DETAIL
SCALE = 1/2" = 1'-0"

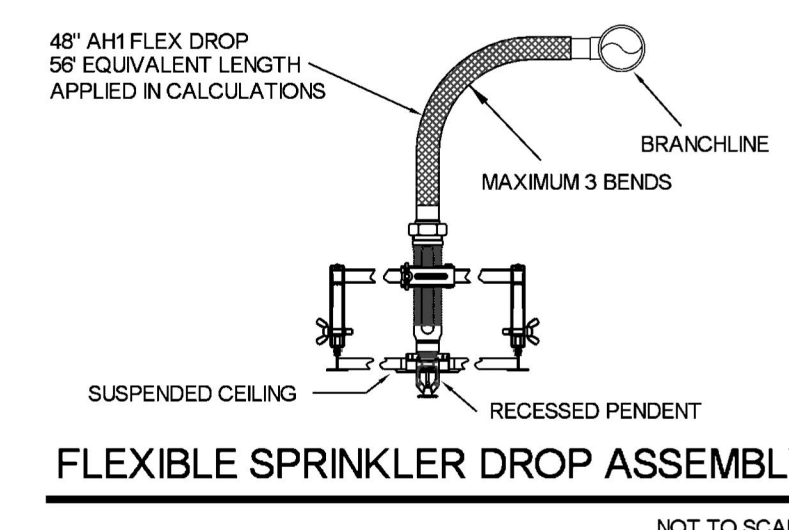
RISER LEGEND			
Key Note	Size	Description	Quantity
1	6"	Adjustable Pipe Stand	2
2	4"	Victaulic UM Assembly: Butterfly Valve w/ Tamper, Flow Switch, Pressure Gauge, Pressure Relief, Test & Drain	1
3	6"	Victaulic FireLock Cap #006 Org	1
4	4"	Victaulic Installation Ready Coupling 009N Org	5
5	6"	Victaulic Installation Ready Coupling 009N Org	14
6	2"	Threaded Straight Tee, DI	2
7	6"	Valve, G-G Butterfly w/ Tamper	2
8	6"	Victaulic FireLock 90° Elbow #001 Org	5
9	6"	Tyco DRV-1 Dry Pipe Valve w/ Accelerator	2
10	2"	Threaded 90° Elbow, DI	1
11	1"	Threaded 90° Elbow, DI	1
12	4"	Victaulic FireLock Tee #002 Org	1
13	2 x 1"	Threaded 90° Reducing Elbow, DI	1
14	1"	Valve, T-T Ball	1
15		Air Compressor w/ Air maintenance Device For Each Dry System	

Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
⊗	Tyco	TY451	TY-B	3	8	Upright	1/2"	Standard	Natural Brass	200°F	N/A
⊗	Tyco	TY507	EC-11	316	112	Upright	1/2"	Standard	Natural Brass	200°F	N/A
⊗	Tyco	TY323	TY-FRB	133	5.6	Pendent	1/2"	Quick	Chrome	200°F	RECESSED
⊗	Tyco	TY451	TY-B	140	8	Upright	1/2"	Standard	Natural Brass	200°F	SPRIG
⊗	Tyco	TY399	CC3	78	5.6	Upright	1/2"	Quick	Natural Brass	200°F	SPRIG
⊗	Tyco	TY451	TY-B	24	8	Upright	1/2"	Standard	White RAL 9003	200°F	SPRIG
⊗	Tyco	TY3311	TY-L	46	5.6	Sidewall	1/2"	Standard	Natural Brass	200°F	N/A
⊗	Tyco	TY3351	TY-B	2	5.6	Sidewall	1/2"	Standard	White RAL 9003	200°F	N/A
				Total = 750							

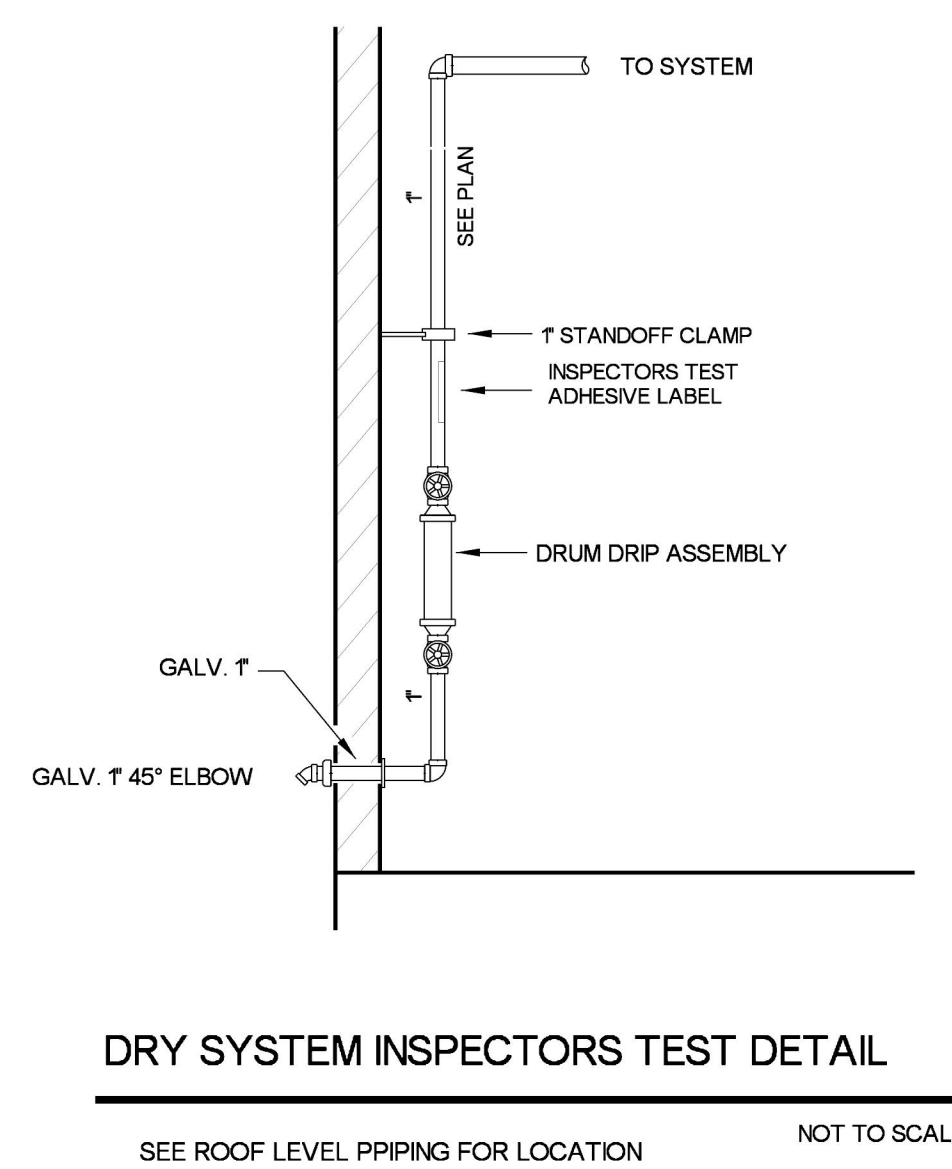
MAXIMUM DISTANCE BETWEEN HANGERS (FT.-IN.)										
	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
STEEL PIPE EXCEPT THREADED LIGHTWALL	NA	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0



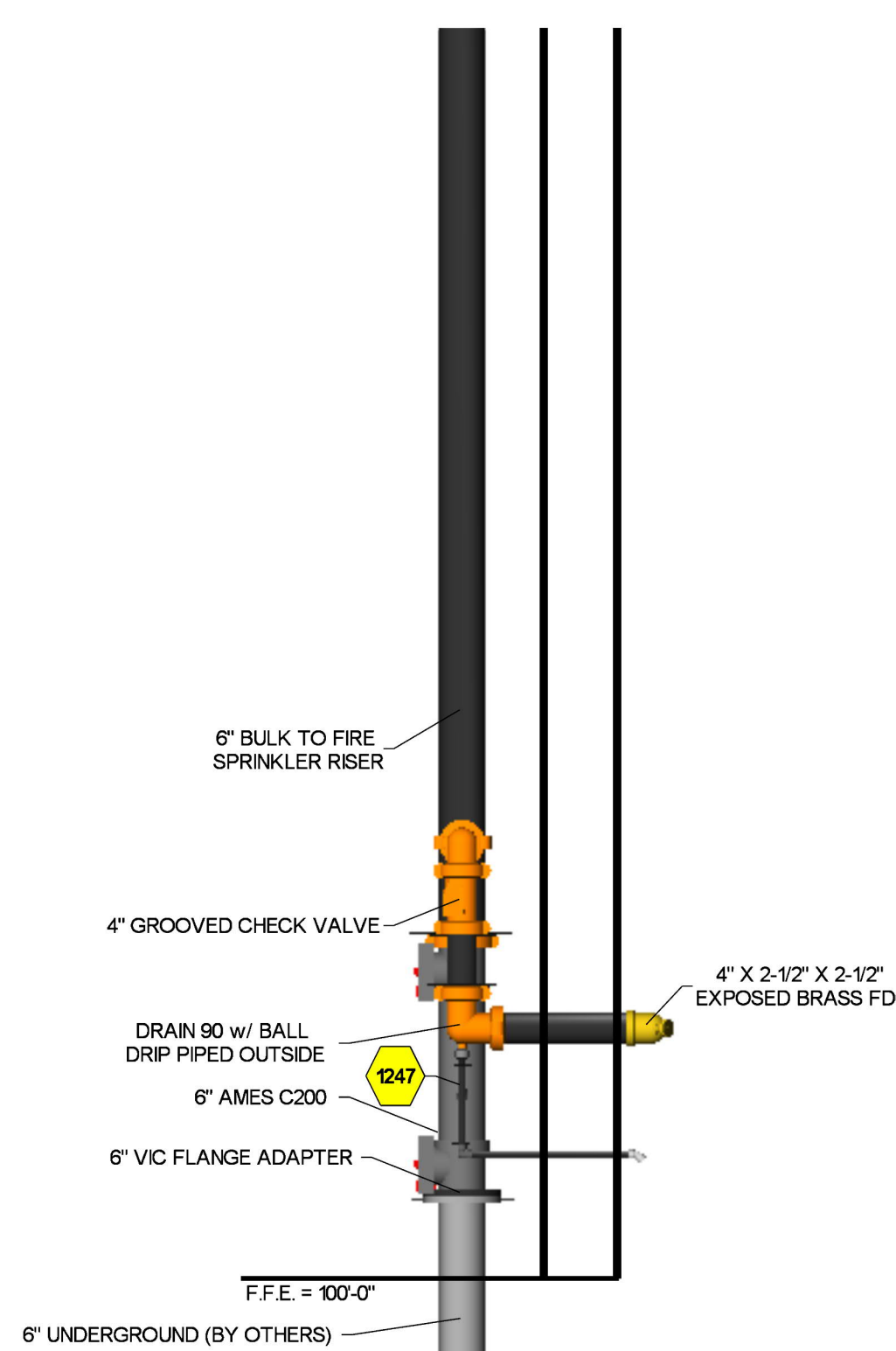
HANGERS
NOT TO SCALE



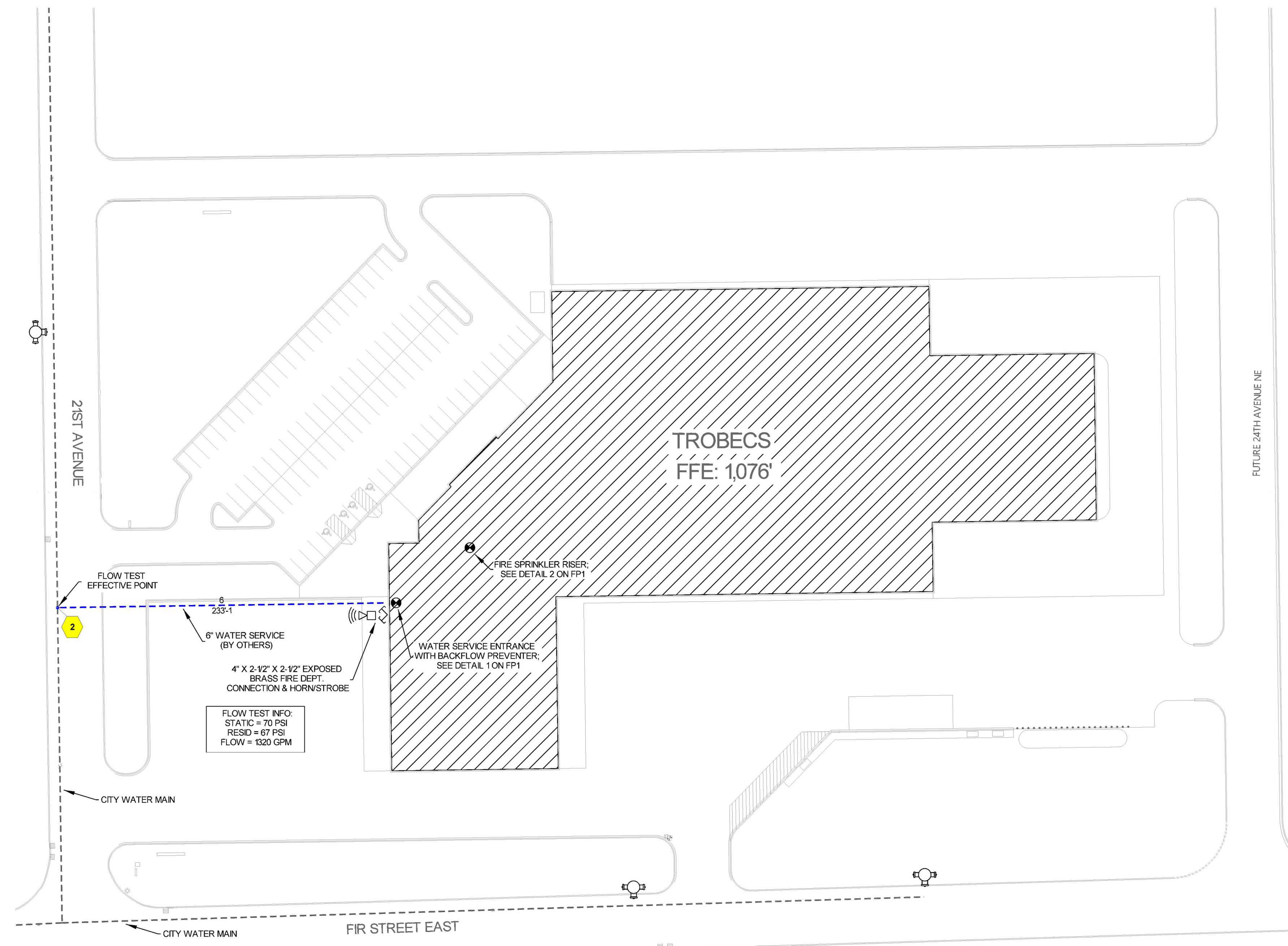
FLEXIBLE SPRINKLER DROP ASSEMBLY
NOT TO SCALE



DRY SYSTEM INSPECTORS TEST DETAIL
SEE ROOF LEVEL PIPING FOR LOCATION NOT TO SCALE



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



SITE PLAN
SCALE: 1" = 50'-0"

N

2 4 6 8 10 12 14 16 18'

General Notes:
 1. System installed per NFPA 13 (2016) Edition and Minnesota State Fire Marshal.
 2. All equipment for the system shall be U.L. listed.
 3. All piping shall be installed in accordance with NFPA 13 (2016) Edition and Minnesota State Fire Marshal.
 4. All pipe and branch line piping has welded outlets & grooved fittings.
 5. All piping shall be installed in accordance with NFPA 13 (2016) Edition and Minnesota State Fire Marshal.
 6. All pipe locations are to be field measured prior to fabrication.
 7. All pipe locations are to be field measured prior to fabrication.
 8. High temperature heads are to be field measured prior to fabrication.
 9. All piping shall be U.L. listed and approved by the authority having jurisdiction.
 10. Electrical wiring, alarm, detection and supervisory by owner.
 11. System shall be tested and approved by authority having jurisdiction.
 12. System shall be tested and approved by authority having jurisdiction.

APPROVAL STAMPS

DATE

REVISIONS

NO

DRIVEN
FIRE CONSULTANTS
910 N. SYCAMORE AVENUE, SIOUX FALLS, SD 57110 PHONE: (605) 444-9200

Drawing Title: FIRE PROTECTION PLAN

Contract No: **C22-66**

Drawing Date: 10/8/2022

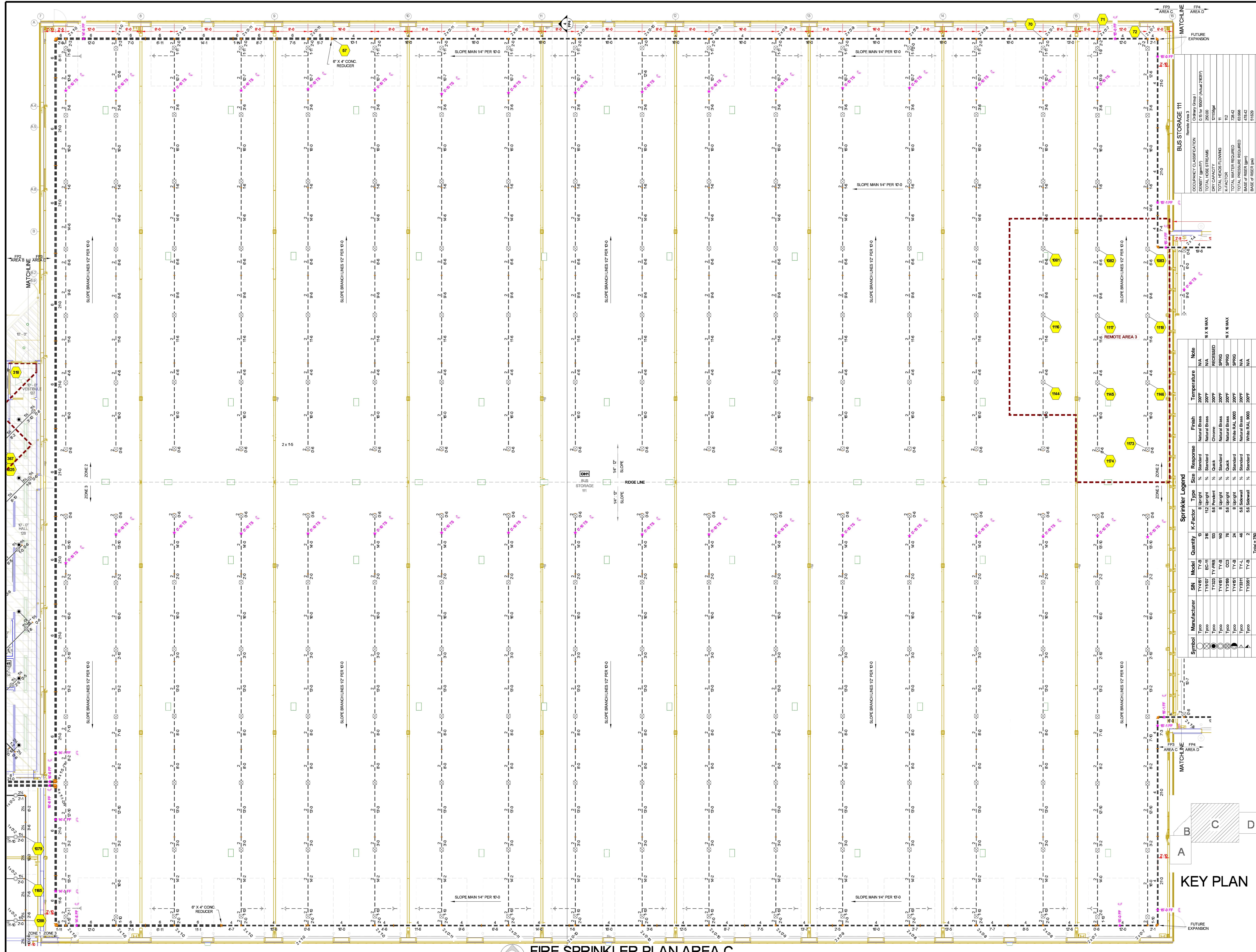
Scale: 1/8" = 1'-0"

Drawn By:

Approval By: LOCAL AHJ

SHEET NO. **FP 1 of 4**

TROBECS BUS SERVICE
618 21ST AVE NE
ST. JOSEPH, MN 56374



BUS STORAGE 111

OCCUPANCY CLASSIFICATION	Group 1
DENSITY (SFM/FT)	0.5 for 6500' (Actual 2837)
TOTAL HOSE STREAMS	2500
DRY CAPACITY	12159gal
TOTAL HEADS FLOWING	11
K-FACTOR	112
TOTAL PRESSURE LOSS (PSI)	133.00
TOTAL PRESSURE REQUIRED	133.00
BASE OF RISER (ft)	47.42
SAFETY MARGIN (ft)	51.00
SAFETY MARGIN (psi)	+5.04 (2.7%)

Remotes

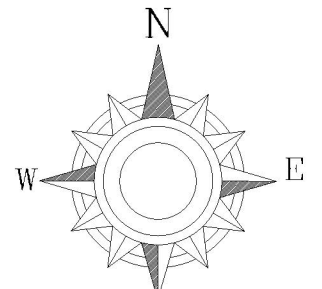
NO	TEMPERATURE	FINISH	RESPONSE	TYPE	SIZE	QUANTITY	K-FACTOR	SYMBOL	NOTE
114	200F	Natural Brass	Standard	8 Upright	1/2"	36	3/8	TY-B	N/A
115	200F	Natural Brass	Standard	112 Upright	3/4"	10	3/8	TY-B	N/A
116	200F	Chrome	Quick	58 Pendant	3/4"	10	3/8	TY-RB	RECESSED
117	200F	Natural Brass	Standard	8 Upright	1/2"	10	3/8	TY-B	SPRIG
118	200F	Natural Brass	Standard	58 Upright	3/4"	24	3/8	TY-B	SPRIG
119	200F	White RAL 9003	Standard	8 Upright	1/2"	46	3/8	TY-L	N/A
120	200F	White RAL 9003	Standard	58 Sidewall	3/4"	2	3/8	TY-L	N/A
Total = 756									

Sprinkler Legend

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Response	Finish	Temperature	Note
○	TY-B	TY-B	TY-B	36	3/8	8 Upright	Standard	Natural Brass	200F	N/A
○	TY-RB	TY-RB	TY-RB	10	3/8	58 Pendant	Quick	Chrome	200F	RECESSED
○	TY-B	TY-B	TY-B	10	3/8	8 Upright	Standard	Natural Brass	200F	SPRIG
○	TY-B	TY-B	TY-B	24	3/8	58 Upright	Quick	Natural Brass	200F	SPRIG
○	TY-L	TY-L	TY-L	46	3/8	8 Upright	Standard	White RAL 9003	200F	N/A
○	TY-L	TY-L	TY-L	2	3/8	58 Sidewall	Standard	White RAL 9003	200F	N/A

General Notes

- System installed per NFPA 13 (2016 Edition) and Minnesota State Fire Marshal.
- All equipment for the system shall be U.L. listed.
- Water supply shall be provided by a public water supply.
- All main and branch piping has welded joints & ground fittings.
- 5 All pipe locations are to be field measured for fit & fabrication.
- 6 All pipe locations are to be field measured for fit & fabrication.
- 7 All pipe locations are to be field measured for fit & fabrication.
- 8 High temperature heads are to be field located (Where Required).
- 9 High temperature heads are to be field located (Where Required).
- 10 High temperature heads are to be field located (Where Required).
- 11 Electrical wiring, alarm, detection and supervisory by owner.
- 12 System shall be installed in accordance with the approved wet system design form/spacing.



DRIVEN
FIRE CONSULTANTS
910 N. SYCAMORE AVENUE, STOUX FALLS, SD 57110 PHONE: (605) 444-9290

NO	REVISIONS	DATE	APPROVAL STAMPS

FIRE PROTECTION PLAN

TROBEC'S BUS SERVICE
618 21ST AVE NE
ST. JOSEPH, MN 56374

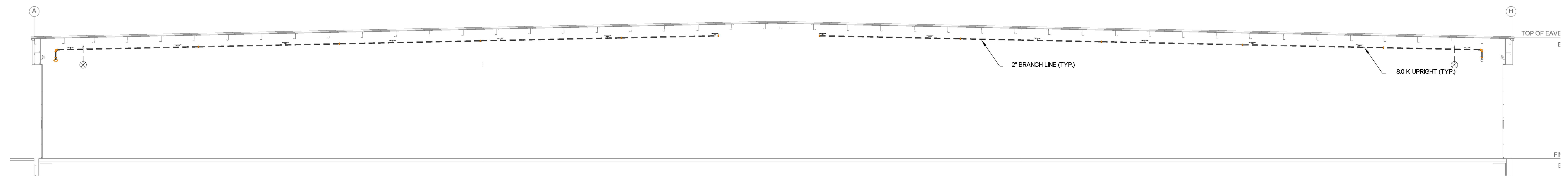
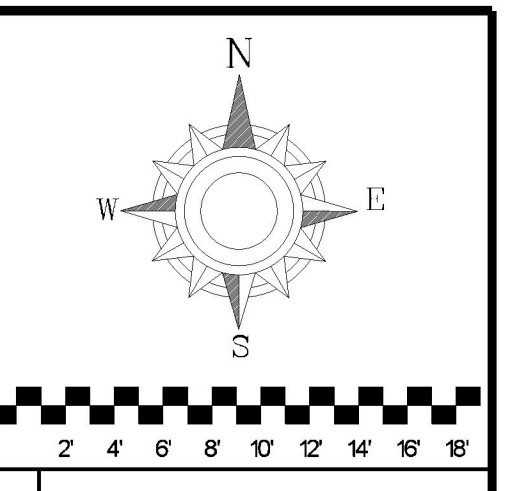
Contract No: **C22-66**

Drawing Date: 10/8/2022
Scale: 1/8" = 1'-0"

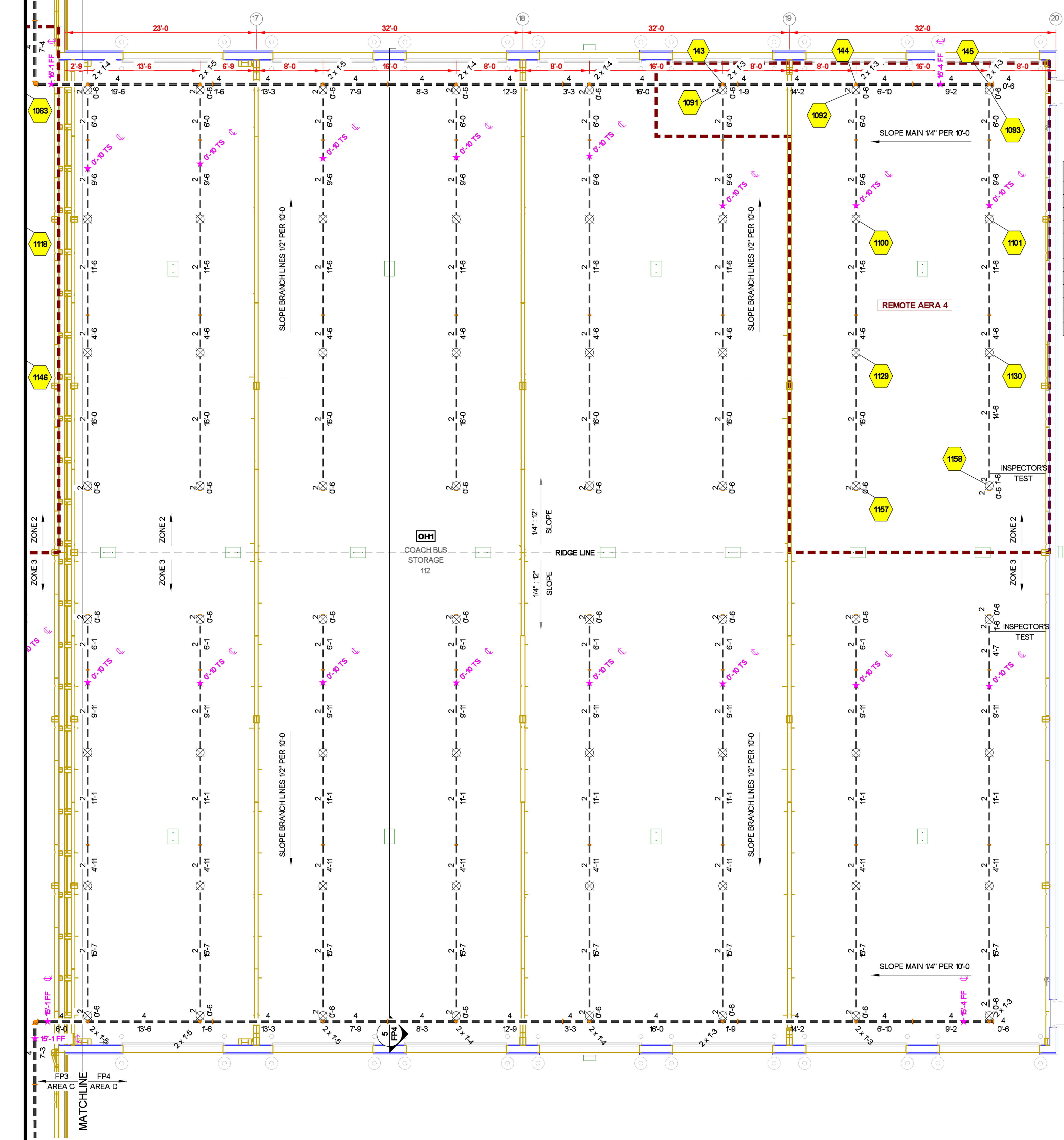
Drawn By: LOCAL AHJ
Approval By: LOCAL AHJ

Sheet No: **FP 3 of 4**

FIRE SPRINKLER PLAN AREA C
SCALE= 1/8" = 1'-0"

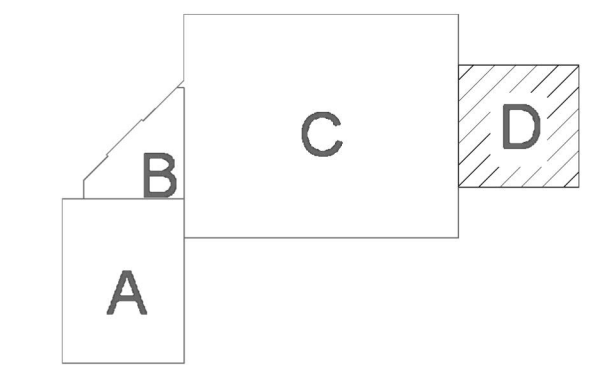


4 BUILDING SECTION
SCALE= 1/8" : 1'-0"

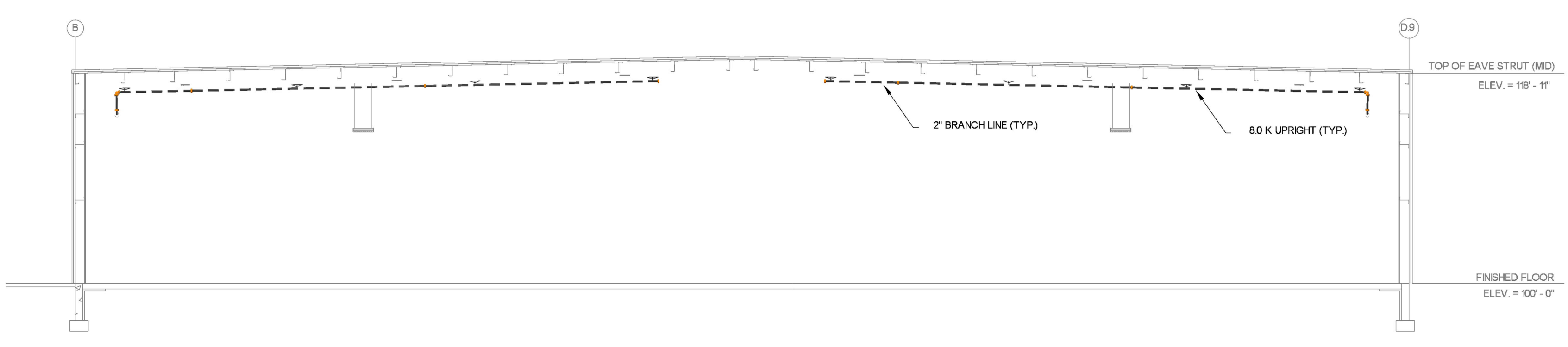


FIRE SPRINKLER PLAN - AREA D
SCALE= 1/8" : 1'-0"

COACH BUS STORAGE 12	
Remote Area 4	
OCCUPANCY CLASSIFICATION	Ordinary Group 1
DENSITY (gm/ft ³)	0.15 for 1500ft ³ (Actual 974ft ³)
TOTAL HOSE STREAMS	250.00
DRY CAPACITY	511.00gal
TOTAL HEADS FLOWING	9
K-FACTOR	112
TOTAL WATER REQUIRED	632.44
TOTAL PRESSURE REQUIRED	52.99
BASE OF RISER (gpm)	382.44
BASE OF RISER (psi)	40.330
SAFETY MARGIN (psi)	+17.032 (24.6%)



KEY PLAN



5 BUILDING SECTION
SCALE= 1/8" : 1'-0"

Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
○	Tyco	TY4151	TY-B	3	8	Upright	3/4"	Standard	Natural Brass	200°F	N/A
○	Tyco	TY3137	EC-11	318	112	Upright	3/4"	Standard	Natural Brass	200°F	N/A
○	Tyco	TY3231	TY-FRB	133	5.6	Pendent	3/4"	Quick	Chrome	200°F	RECESSED
○	Tyco	TY4151	TY-B	64	8	Upright	3/4"	Standard	Natural Brass	200°F	SPRIG
○	Tyco	TY3199	CC3	76	5.6	Upright	3/4"	Quick	Natural Brass	200°F	SPRIG
				Total = 702							

- General Notes**
1. System installed per NFPA 13 (2016 Edition) and Minnesota State Fire Marshal.
 2. All equipment for the system shall be U.L. listed.
 3. All piping shall be installed in accordance with the manufacturer's instructions.
 4. All main and branch piping has welded routes & ground fittings.
 5. All piping shall be installed in accordance with the manufacturer's instructions.
 6. All pipe locations are to be field measured prior to fabrication.
 7. All piping shall be installed in accordance with the manufacturer's instructions.
 8. High temperature heads are to be field located where required.
 9. All piping shall be U.L. listed and U.L. approved.
 10. Electrical wiring, alarm, detection and supervisory by owner.
 11. System shall be installed in accordance with the manufacturer's instructions.
 12. System shall be installed in accordance with the manufacturer's instructions.

APPROVAL STAMPS	DATE	REVISIONS	NO.



TROBEC'S BUS SERVICE
618 21ST AVE NE
ST. JOSEPH, MN 56374

Drawing Title: FIRE PROTECTION PLAN
Contract No: **C22-66**
Drawing Date: 10/6/2022
Scale: 1/8" = 1'-0"
Drawn By:
Approval By: LOCAL AHJ
SHEET NO: **FP 4 of 4**