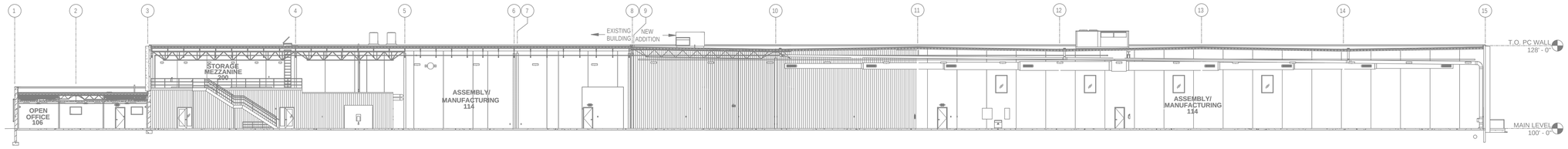
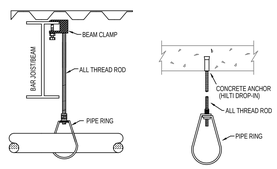


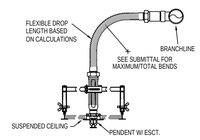
A BUILDING SECTION
SCALE= 1/16" : 1'-0"

SYM	CNT	POSITION	FINISH	TEMP	K	NPT	SIN	MFG.	MODEL#	ESCUTCHEON	MAX SPACING
	368	UPRIGHT	BRASS	200	14.00	3/4"	TY6137	Tyco	EC-14	N/A	16X16 UNO
	21	PENDENT	CHROME	200	5.60	1/2"	TY323	Tyco	TY-FRB	SEMI-RECESS	225 S.F. UNO
	50	PENDENT	CHROME	200	11.20	3/4"	TY5237	Tyco	EC-11	SEMI-RECESS	18X18 UNO
	5	SPRIG	CHROME	200	14.00	3/4"	TY6137	Tyco	EC-14	N/A	16X16 UNO
	112	UPRIGHT	BRASS	214	25.20	1"	TY9128	Tyco	EC-25	N/A	14X14
	5	UPRIGHT	BRASS	200	5.60	1/2"	TY313	Tyco	TY-FRB	N/A	130 S.F.
	561 TOTAL HEADS										

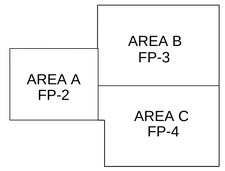
SPRINKLER HEAD LEGEND



HANGER DETAILS



INSTALLATION DETAIL



KEY PLAN

NFPA 13 STEEL PIPE HANGER SPACING (EXCEPT LIGHT WALL THRD PIPING)	
NOMINAL SIZE inches	MAX SPACING feet
1"	12'-0"
1-1/4"	12'-0"
1-1/2"	15'-0"
2"	15'-0"
2-1/2"	15'-0"
3"	15'-0"
4" & LARGER	15'-0"

PIPING LEGEND
WET SYSTEM BLACK STEEL PIPING
EXISTING SPRINKLER PIPE

GENERAL NOTES

1. MINNESOTA STATE BUILDING CODE (2020)

   1.1. OCCUPANCY: B, **F2, S2, A2**
   1.2. TYPE OF CONSTRUCTION: **II-B (UNPROTECTED, NON-COMBUSTIBLE CONSTRUCTION)**
   1.3. SPRINKLERED AREAS (APPROXIMATE - SEE ARCHITECTURAL PLANS FOR ACTUAL)
   BUILDING ADDITION = 108,061 S.F
   BREAK ROOM = 2,417 S.F.
   REMODEL = 4,291 S.F. (ZONE)
   EXSITING SPRINKLER ZONE #1 â 34,912 S.F.
   SPRINKLER ZONE #2 **â55,441 S.F.**
   SPRINKLER ZONE #3 **â52,620 S.F.**
   THE SIZE OF SPRINKLER ZONES #2 AND #3 ARE OVER 52,000 S.F. THIS HAS BEEN DISCUSSED WITH THE STATE FIRE MARSHALLS OFFICE AND 2 SPRINKLER ZONES HAVE BEEN ALLOWED FOR THIS INSTALL

   1.4. INSTALLATION STANDARDS:
   SPRINKLER SYSTEM DESIGNED AND INSTALLED PER **NFPA-13 (2016)**

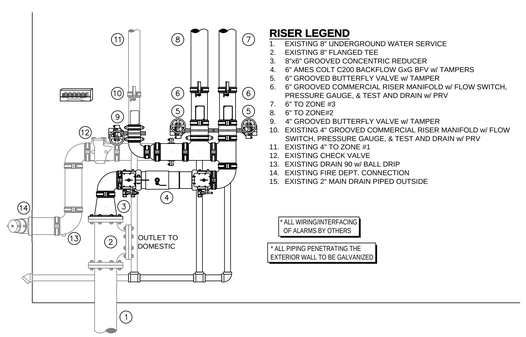
2. SPRINKLER PIPE TYPES:
   -WET-
   2.1. 1" BRANCH LINES TO BE BLK **SCHEDULE 40** PIPING WITH THREADED FITTINGS
   2.2. 1¼" THROUGH 6" MAIN & BRANCH LINES TO BE BLK **SCHEDULE 10** PIPING WITH GROOVED FITTINGS
   2.3. MAINS & BRANCH LINES TO BE ROLL-GROOVED BLK **SCHEDULE 10** PIPING

3. DESIGN CRITERIA
   3.1. OFFICES, RECEPTION, BATHROOMS AND SIMILAR AREAS DESIGNED TO LIGHT HAZARD **.**
   3.2. ELECTRICAL LAB, PROGRAM LAB, AND STORAGE ROOMS AREA DESIGNED TO ORDINARY HAZARD GROUP 1.
   3.3. ASSEMBLY/MANUFACTURING IS DESIGNED TO ORDINARY HAZARD GROUP 2
   3.4. RACK STOAGE AREA HAS BEEN DESIGNED TO A DESITY OF 0.30/2000 S.F. PER TABLE 16.2.1.3.2. CLASS III COMMODITY MAX STORAGE HEIGHT OF 18', NONENCAPSULATED, 8' AISLES, AND HIGH TEMP SPRINKLERS. WE CAN USE FIGURE 16.2.1.3.2(C) CURVE "E" (0.37/2000 S.F.) AND REDUCE THE DENSITY PER FIGURE 16.2.1.3.4.1 BY 20%
   3.5. REMOTE AREA REDUCTIONS HAVE BEEN TAKEN WHERE APPLICABLE PER **NFPA 13 SEC. 11.2.3.2.3**

4. NOTES:
   4.1. ALL MATERIAL TO BE NEW AND MEET U.L. STANDARDS
   4.2. HANGERS TO BE INSTALLED IN ACCORDANCE WITH NFPA 13 (2016) - **SEE PLAN FOR HANGING REQ.**

5. SYMBOLS USED ON DRAWINGS:
   - 10' PIPE ELEVATION A.F.F
   - 12" PIPE ELEVATION BELOW B.O.D
   - OH1 ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD UNLESS NOTED)
   - HYDRAULIC CALCULATION JUNCTION POINT
   - 9' - 6" CEILING HEIGHT

6. SCOPE OF WORK:
   6.1. INSTALL 2 WET SPRINKLER ZONES TO COVER THE NEW BUILDING ADDITION
   6.2. TIE INTO EXISTING SYSTEM TO COVER NEW BREAK ROOM ADDITION
   6.3. ADD NEW SPRINKLERS IN REMODEL AREAS IN EXISITING OFFICE
   6.4. ALL AREAS OF THE BUILDING TO BE INSTALLED AND COVERED IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PER NFPA 13 (2016)

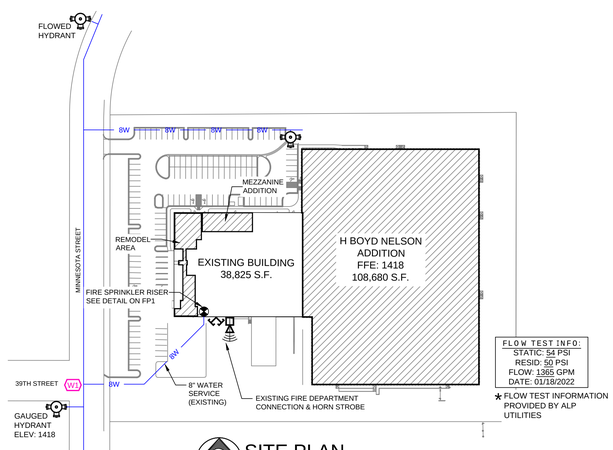


RISER LEGEND
1. EXISTING 8" UNDERGROUND WATER SERVICE
2. EXISTING 8" FLANGED TEE
3. 8"x6" GROOVED CONCENTRIC REDUCER
4. 6" AMES COLT C200 BACKFLOW GvG BFV w/ TAMPERS
5. 6" GROOVED BUTTERFLY VALVE w/ TAMPER
6. 6" GROOVED COMMERCIAL RISER MANIFOLD w/ FLOW SWITCH, PRESSURE GAUGE, & TEST AND DRAIN w/ PRV
7. 6" TO ZONE #3
8. 6" TO ZONE#2
9. 4" GROOVED BUTTERFLY VALVE w/ TAMPER
10. EXISTING 4" GROOVED COMMERCIAL RISER MANIFOLD w/ FLOW SWITCH, PRESSURE GAUGE, & TEST AND DRAIN w/ PRV
11. EXISTING 4" TO ZONE #1
12. EXISTING CHECK VALVE
13. EXISTING DRAIN 90 w/ BALL DRIP
14. EXISTING FIRE DEPT. CONNECTION
15. EXISTING 2" MAIN DRAIN PIPED OUTSIDE

* ALL WIRING/INTERFACING OF ALARMS BY OTHERS

* ALL PIPING PENETRATING THE EXTERIOR WALL TO BE GALVANIZED

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



SITE PLAN
SCALE: 1" = 100'-0"

N
W E S

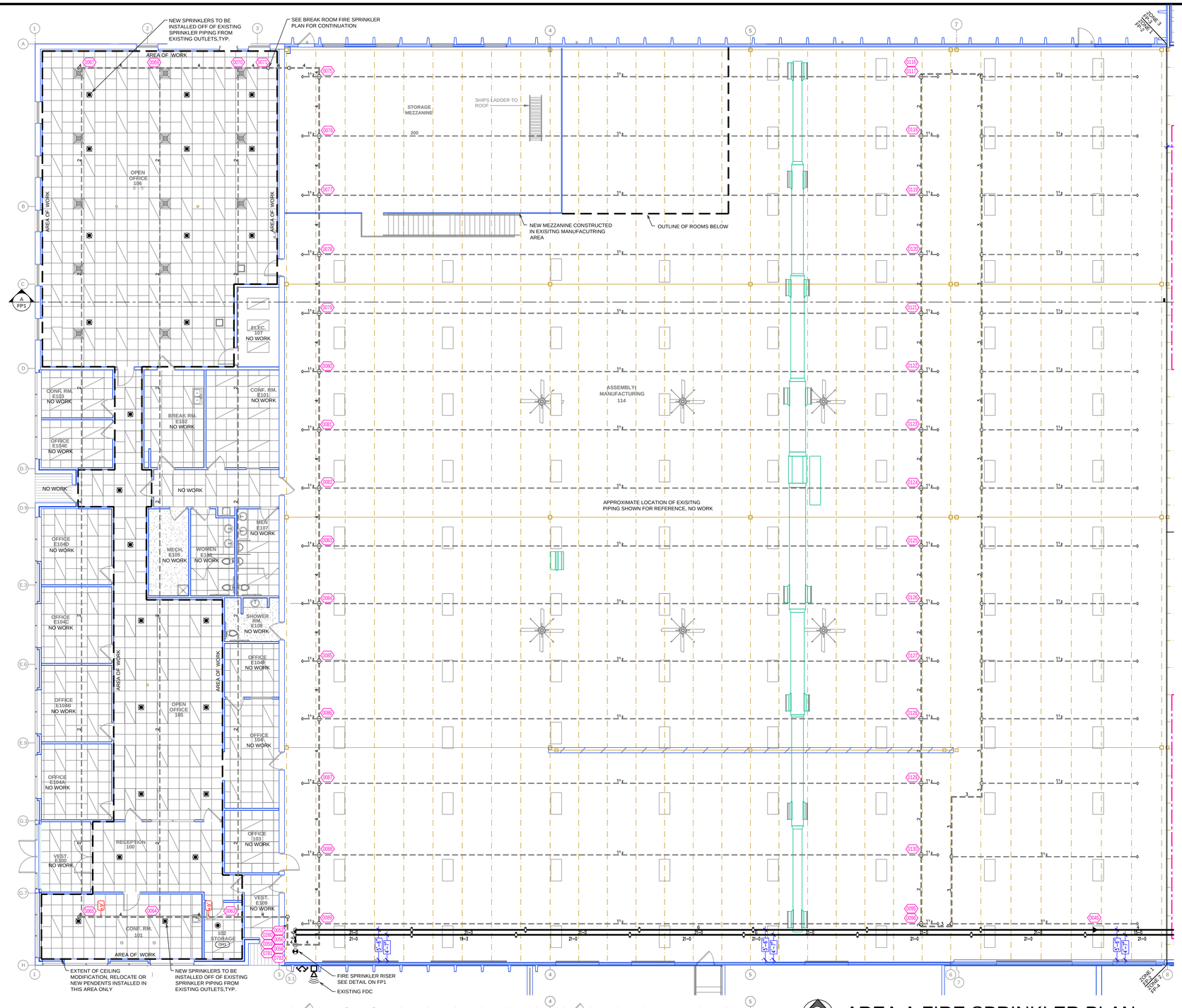
GENERAL NOTES
1. SYSTEM INSTALLED PER NFPA 13 (2016 EDITION) AND STATE FIRE MARSHAL.
2. ALL EQUIPEMENT FOR THIS SYSTEM SHALL BE U.L. LISTED
3. PIPING MATERIAL TO BE ASTM A-53 SCHEDULE 40 STEEL
4. ALL SCH 10 & LIGHTWALL PIPING HAS WELDED OUTLETS & GROOVED PIPE ENDS FOR MECHANICAL JOINTS
5. ALL WELDING PER NFPA 13(3-4.2)
6. WELDING PROCEDURE SPECIFICATION TO BEGIN WITHOUT APPROVED SHOP DRAWINGS.
7. ALL DIMENSIONS SHOWN ARE CENTER TO CENTER
8. AND INSTALLATION BY SPRINKLER CONTRACTOR
9. PROVIDE ON SPARE HEAD CABINET with HEADS & 1 HEAD WRENCH
10. ALL HEADS TO BE RATED FOR 200 DEGREES F UNLESS NOTED
11. ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISORY BY OWNER
12. ALL PIPE HANGERS TO BE INSTALLED IN ACCORDANCE WITH NFPA 13
13. WET SYSTEM PIPING FROM FREEZING. ADEQUATE HEATING TO PREVENT

NO	REVISIONS	DATE	APPROVAL STAMPS

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

Drawing Title: FIRE PROTECTION PLAN
H BOYD NELSON ADDITION
3800 42ND AVE W.
ALEXANDRIA, MN 56308

Contract No. C22-33
Drawing Date: 10/05/2022
Scale: 1/8" = 1'-0"
Drawn By: JGB
Approval By: STATE FIRE MARSHAL DIV.
SHEET NO. FP 1 of 4



AREA A FIRE SPRINKLER PLAN

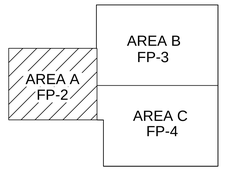
SCALE= 1/8" : 1'-0"

SYM	CNT	POSITION	FINISH	TEMP	K	NPT	S/N	MF'G.	MODEL#	ESCUTCHEON	MAX SPACING
⊠	368	UPRIGHT	BRASS	200	14.00	3/4"	TY6137	Tyco	EC-14	N/A	16X16 UNO
◉	21	PENDENT	CHROME	200	5.60	1/2"	TY323	Tyco	TY-FRB	SEMI-RECESS	225 S.F. UNO
◉	50	PENDENT	CHROME	200	11.20	3/4"	TYS237	Tyco	EC-11	SEMI-RECESS	18X18 UNO
⊠	5	SPRIG	CHROME	200	14.00	3/4"	TY6137	Tyco	EC-14	N/A	16X16 UNO
◇	112	UPRIGHT	BRASS	214	25.20	1"	TY9128	Tyco	EC-25	N/A	14X14
○	5	UPRIGHT	BRASS	200	5.60	1/2"	TY313	Tyco	TY-FRB	N/A	130 S.F.
561 TOTAL HEADS											

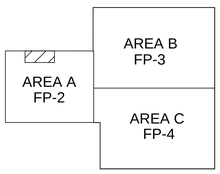
SPRINKLER HEAD LEGEND

PIPING LEGEND

- WET SYSTEM BLACK STEEL PIPING
- EXISTING SPRINKLER PIPE



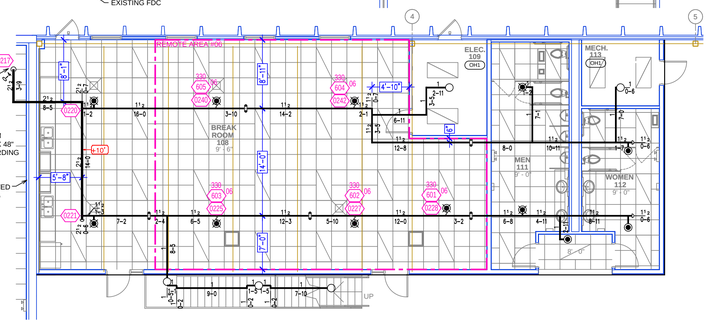
KEY PLAN



KEY PLAN

NOTE:
PENDENT SPRINKLERS FED FROM FLEXIBLE SPRINKLER DROPS MAX 48" LONG, SYSTEM DESIGNED ACCORDING TO LENGTH

NEW MEZZANINE CONSTRUCTED IN EXISITNG MANUFACUTRING AREA



BREAK ROOM FIRE SPRINKLER PLAN

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

CALC PLACARD

Design Area #: **06** HAZARD: **LIGHT**
Zone: **1** System Type: **WET**
Location: **BREAK ROOM 108**

Flowing Outlets: **5**
Density: **0.10** Remote Area: **1165**
Flow: **277.3** gpm @ **40.4** psi
Calculation Safety: **13.4** psi
Includes **100** gpm Hose allowance

NOTE:
5 SPRINKLERS CALCULATED PER DENSITY/AREA METHOD SEC. 11.2.3.2.2.3
EXTENDED COVERAGE SPRINKLERS HAVE BEEN DESIGNED TO A MAX SPACING OF 18X18 IN LIGHT HAZARD ROOMS

N W E S

GENERAL NOTES

1. SYSTEM INSTALLED PER NFPA 13 (2016 EDITION) AND STATE FIRE MARSHAL.
2. ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED
3. OWNER'S MANUAL SHALL BE PROVIDED.
4. ALL SCH 10 & LIGHTWALL PIPING HAS WELDED OUTLETS & GROOVED ENDS UNLESS OTHERWISE NOTED.
5. ALL WELDING PER NFPA 13(6.5.4.2)
6. NO VALVE SHALL BE SHUT OFF OR TO BEGIN WITHOUT APPROVED SHOP DRAWINGS.
7. SPRINKLER LOCATIONS ARE TO BE FIELD MEASURED PRIOR TO FABRICATION AND INSTALLATION BY SPRINKLER CONTRACTOR.
8. ALL HANGERS SHALL BE PROVIDED BY SPRINKLER CONTRACTOR.
9. ALL THERMOMETERS SHALL BE TO BE FIELD LOCATED WHERE REQUIRED
10. PROVIDE ON SPARE HEAD CABINET 4x6 HEADS & 1 HEAD WRENCH
11. ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISORY BY OWNER
12. PROVIDE CLEARANCE TO ALL DETECTION DEVICES, EQUIPMENT & SEATING TO PREVENT WET SYSTEM PIPING FROM FREEZING.

APPROVAL STAMPS

NO	REVISIONS	DATE

DRIVEN FIRE CONSULTANTS
910 N. SYCAMORE AVENUE, SIOUX FALLS, SD 57110 PHONE: (605)-444-9250

Drawing Title: FIRE PROTECTION PLAN

H BOYD NELSON ADDITION
3800 42ND AVE W.
ALEXANDRIA, MN 56308

Contract No. C22-33

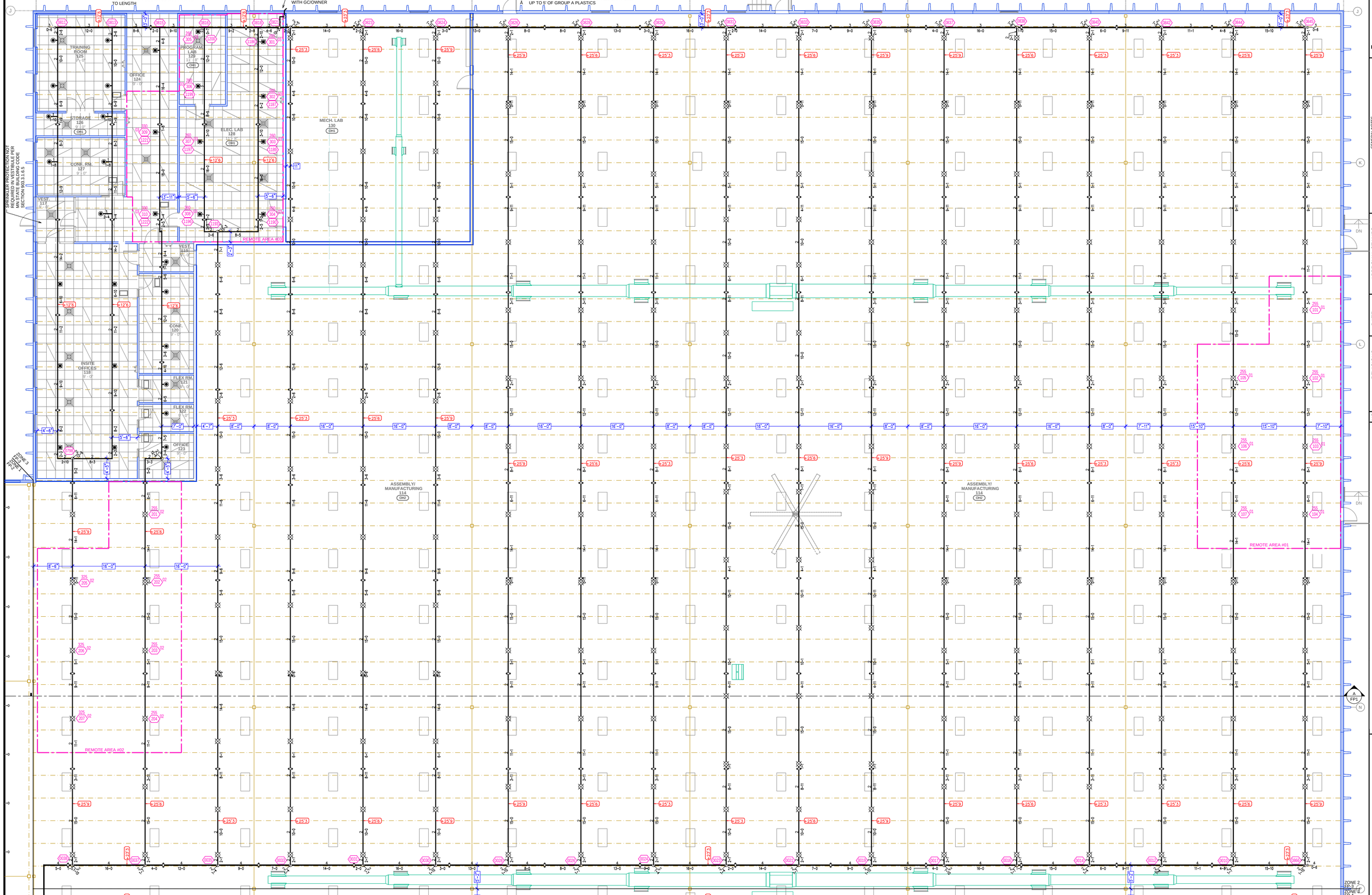
Drawing Date:	10/05/2022
Scale:	1/8" = 1'-0"
Drawn By:	JGB
Approval By:	STATE FIRE MARSHAL DIV.
SHEET NO.	FP 2 of 4

NOTE:
PENDENT SPRINKLERS FED FROM FLEXIBLE SPRINKLER DROPS MAX 48" LONG. SYSTEM DESIGNED ACCORDING TO LENGTH

LOW POINT DRAIN COORDINATE LOCATION WITH GC/OWNER

ASSEMBLY/MANUFACTURING AREAS DESIGNED TO ORDINARY GROUP 2 PER NFPA 13 TABLE 13.2.1
- UP TO 12' OF CLASS I-IV COMMODITIES SOLID-PILED OR ON FLOOR
- UP TO 12' OF CLASS I-III COMMODITIES ON RACKS
- UP TO 10' OF CLASS I-IV COMMODITIES ON RACKS
- UP TO 5' OF GROUP A PLASTICS

SPRINKLER PROTECTION NOT REQUIRED IN ACCORDANCE PER MN STATE BUILDING CODE SECTION 903.3.1.6.5



AREA B FIRE SPRINKLER PLAN

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

Design Area #: **01** HAZARD: **OH2**
Zone: **3** System Type: **WET**
Location: **ASSEMBLY/ MANUFACTURING 114**
Flowing Outlets: **7**
Density: **0.20** Remote Area: **1654**
Flow: **621.3** gpm @ **43.5** psi
Calculation Safety: **9.5** psi
Includes **250** gpm Hose allowance

NOTE:
1500 S.F. REMOTE AREA NOT REDUCE DUE TO CEILING HEIGHT OVER 20'-0"
EXTENDED COVERAGE SPRINKLERS HAVE BEEN DESIGNED TO A MAX SPACING OF 16X16

CALC PLACARD

Design Area #: **02** HAZARD: **OH2**
Zone: **3** System Type: **WET**
Location: **ASSEMBLY/ MANUFACTURING 114**
Flowing Outlets: **7**
Density: **0.20** Remote Area: **1664**
Flow: **682** gpm @ **47.6** psi
Calculation Safety: **5.3** psi
Includes **250** gpm Hose allowance

NOTE:
1500 S.F. REMOTE AREA NOT REDUCE DUE TO CEILING HEIGHT OVER 20'-0"
EXTENDED COVERAGE SPRINKLERS HAVE BEEN DESIGNED TO A MAX SPACING OF 16X16
BRANCHLINE CLOSEST TO THE NEW ADDITION HAS BEEN DESIGN TO 18X18

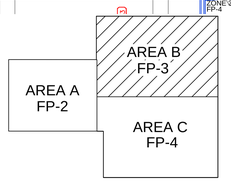
Design Area #: **03** HAZARD: **OH1**
Zone: **3** System Type: **WET**
Location: **ELEV LAB 128**
Flowing Outlets: **10**
Density: **0.15** Remote Area: **1517**
Flow: **646.7** gpm @ **45.7** psi
Calculation Safety: **7.3** psi
Includes **250** gpm Hose allowance

NOTE:
CALCULATED PER ROOM DESIGN METHOD SEC. 11.2.3.3
EXTENDED COVERAGE SPRINKLERS HAVE BEEN DESIGNED TO A MAX SPACING OF 16X16 IN ORDINARY HAZARD ROOMS AND TO 18X18 IN LIGHT HAZARD ROOMS

SYM	CNT	POSITION	FINISH	TEMP	K	NPT	SIN	MFG.	MODEL#	ESCUTCHEON	MAX SPACING
	368	UPRIGHT	BRASS	200	14.00	3/4"	TY6137	Tyco	EC-14	N/A	16X16 UNO
	21	PENDENT	CHROME	200	5.60	1/2"	TY323	Tyco	TY-FRB	SEMI-RECESS	225 S.F. UNO
	50	PENDENT	CHROME	200	11.20	3/4"	TY5237	Tyco	EC-11	SEMI-RECESS	16X18 UNO
	5	SPRIG	CHROME	200	14.00	3/4"	TY6137	Tyco	EC-14	N/A	16X16 UNO
	112	UPRIGHT	BRASS	214	25.20	1"	TY9128	Tyco	EC-25	N/A	14X14
	5	UPRIGHT	BRASS	200	5.60	1/2"	TY313	Tyco	TY-FRB	N/A	130 S.F.
	561 TOTAL HEADS										

SPRINKLER HEAD LEGEND

PIPING LEGEND
- WET SYSTEM BLACK STEEL PIPING
- EXISTING SPRINKLER PIPE



KEY PLAN

GENERAL NOTES
1. SYSTEM INSTALLED PER NFPA 13 (2016 EDITION) AND STATE FIRE MARSHAL.
2. ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED
3. ALL PIPE SHALL BE U.L. OR F.M. APPROVED
4. ALL SCH 10 & LIGHTWALL PIPING HAS WELDED OUTLETS & GROOVED ALL WELDING PER NFPA 13/10.5.2
5. NO WELDING OR CUTTING OF PIPE TO BEGIN WITHOUT APPROVED SHOP DRAWINGS
6. ALL WELDING OPERATIONS ARE TO BE FIELD INSPECTED PRIOR TO FABRICATION AND INSTALLATION BY SPRINKLER CONTRACTOR
7. ALL PIPE SHALL BE SUPPORTED PER NFPA 13 AND SUPPLEMENTARY SUPPORTS ADDED AS TO BE FIELD LOCATED WHERE REQUIRED
8. PROVIDE ON SPARE HEAD CABINET 4x6 HEADS & 1 HEAD WRENCH
9. PROVIDE ALL FLOW SWITCHES, TAMPER SWITCHES, ETC.
10. ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISION BY OWNER
11. ALL PIPE SHALL BE INSTALLED TO MAINTAIN A MINIMUM OF 2" CLEARANCE TO WET SYSTEM PIPING FROM FREEZING.

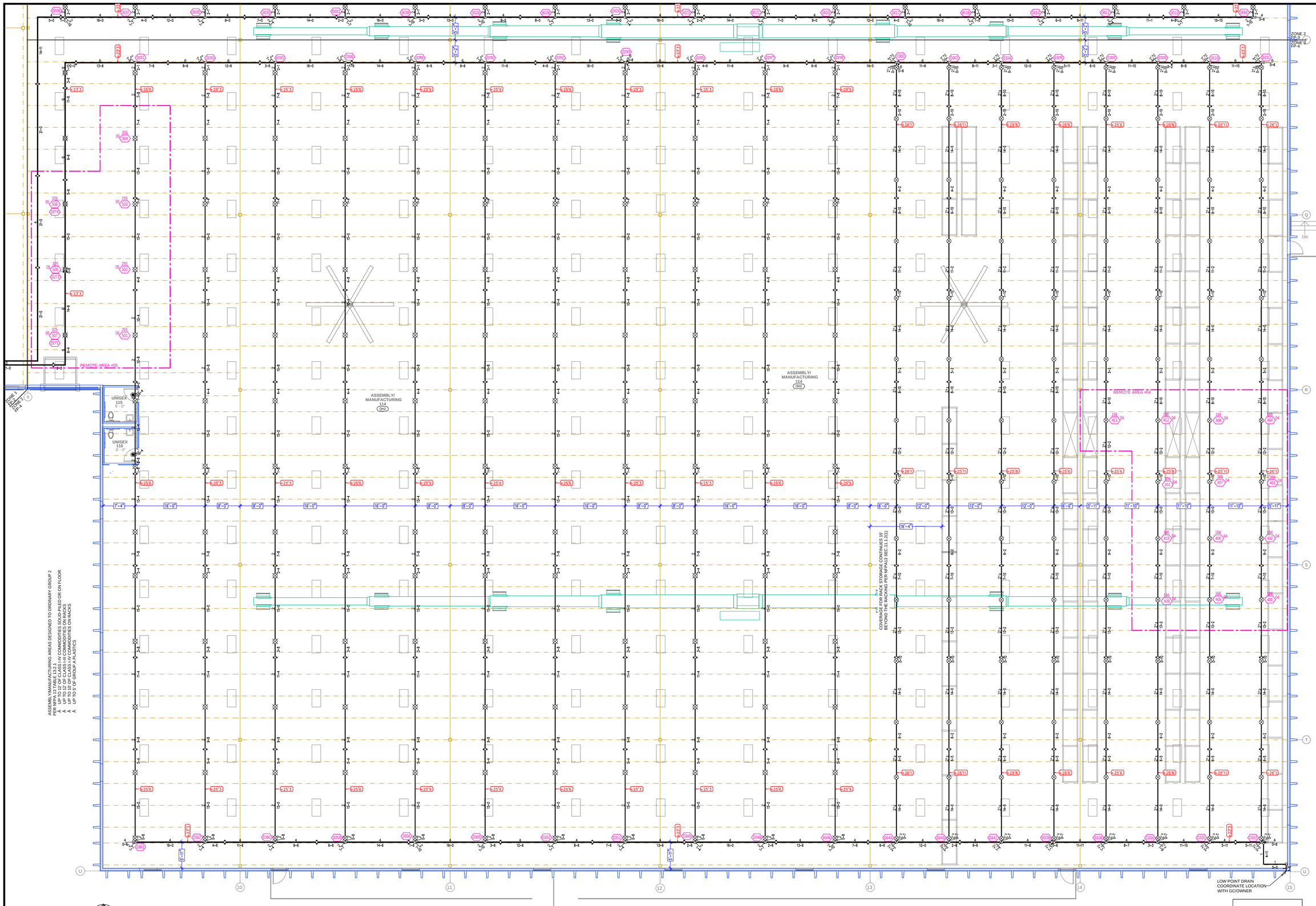
NO	REVISIONS	DATE	APPROVAL STAMPS

DRIVEN FIRE CONSULTANTS
910 N. SYCAMORE AVENUE, SIOUX FALLS, SD 57110 PHONE: (605) 444-3230

Drawing Title: FIRE PROTECTION PLAN

H BOYD NELSON ADDITION
3800 42ND AVE W.
ALEXANDRIA, MN 56308

Contract No.	C22-33
Drawing Date:	10/05/2022
Scale:	1/8" = 1'-0"
Drawn By:	JGB
Approval By:	STATE FIRE MARSHAL DIV.
SHEET NO.	FP 3 of 4



AREA C FIRE SPRINKLER PLAN

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

CALC PLACARD

Design Area #: **04** HAZARD: **STOR**
Zone: **2** System Type: **WET**
Location: **ASSEMBLY/ MANUFACTURING 114**
Flowing Outlets: **13**
Density: **0.30** Remote Area: **2118**
Flow: **1396.9** gpm @ **43.7** psi
Calculation Safety: **6.2** psi
Includes **500** gpm Hose allowance

NOTE:
RACK STOAGE AREA HAS BEEN DESIGNED TO A DESITY OF 0.30/2000 S.F. PER TABLE 16.2.1.3.2.
Â CLASS III COMMODITY
Â MAX STORAGE HEIGHT OF 18'
Â NONENCAPSULATED
Â 9' AISLES
Â HIGH TEMP SPRINKLERS
Â USED FIGURE 16.2.1.3.2(C) CURVE "E" (0.37/2000 S.F.)
Â REDUCED THE DENSITY PER FIGURE 16.2.1.3.4.1 BY 20% DUE TO STORAGE HEIGHT BELOW 20'

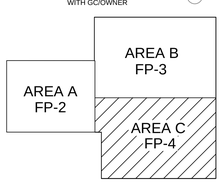
Design Area #: **05** HAZARD: **OH2**
Zone: **2** System Type: **WET**
Location: **ASSEMBLY/ MANUFACTURING 114**
Flowing Outlets: **7**
Density: **0.20** Remote Area: **1666**
Flow: **679.3** gpm @ **39.9** psi
Calculation Safety: **13** psi
Includes **250** gpm Hose allowance

NOTE:
1500 S.F. REMOTE AREA NOT REDUCE DUE TO CEILING HEIGHT OVER 20'-0"
EXTENDED COVERAGE SPRINKLERS HAVE BEEN DESIGNED TO A MAX SPACING OF 16X16 IN ORDINARY HAZARD ROOMS AND TO 18X18 IN LIGHT HAZARD ROOMS

SYM	CNT	POSITION	FINISH	TEMP	K	NPT	SIN	MFG.	MODEL#	ESCUTCHEON	MAX SPACING
	368	UPRIGHT	BRASS	200	14.00	3/4"	TY6137	Tyco	EC-14	N/A	16X16 UNO
	21	PENDENT	CHROME	200	5.60	1/2"	TY323	Tyco	TY-FRB	SEMI-RECESS	225 S.F. UNO
	50	PENDENT	CHROME	200	11.20	3/4"	TY5237	Tyco	EC-11	SEMI-RECESS	16X18 UNO
	5	SPRIG	CHROME	200	14.00	3/4"	TY6137	Tyco	EC-14	N/A	16X16 UNO
	112	UPRIGHT	BRASS	214	25.20	1"	TY9128	Tyco	EC-25	N/A	14X14
	5	UPRIGHT	BRASS	200	5.60	1/2"	TY313	Tyco	TY-FRB	N/A	130 S.F.
	561 TOTAL HEADS										

SPRINKLER HEAD LEGEND

PIPING LEGEND
WET SYSTEM BLACK STEEL PIPING
EXISTING SPRINKLER PIPE



KEY PLAN

GENERAL NOTES
1. SYSTEM INSTALLED PER NFPA 13 (2016 EDITION) AND STATE FIRE MARSHAL.
2. ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED
3. ALL PIPE SHALL BE U.L. LISTED FOR FIRE PROTECTION.
4. ALL SCH 10 & LIGHTWALL PIPING HAS WELDED OUTLETS & GROOVED ENDS UNLESS NOTED.
5. ALL WELDING PER NFPA 13/5.5.21.
6. NO WORK SHALL BE CONCEALED TO BEGIN WITHOUT APPROVED SHOP DRAWINGS.
7. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD & ADJUSTED PRIOR TO FABRICATION AND INSTALLATION BY SPRINKLER CONTRACTOR.
8. ALL DIMENSIONS SHOWN ARE CENTER TO CENTER.
9. PROVIDE ON SPARE HEAD CABINET AS HEADS & 1 HEAD WRENCH
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11. ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISORY BY OWNER
12. ALL PIPE SHALL BE SUPPORTED & SEISMICALLY BRACED AS REQUIRED
13. WET SYSTEM SPRINGS FROM FREEZING.

NO	REVISIONS	DATE	APPROVAL STAMPS

DRIVEN FIRE CONSULTANTS
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Drawing Title: FIRE PROTECTION PLAN
H BOYD NELSON ADDITION
3800 42ND AVE W.
ALEXANDRIA, MN 56308

Contract No.	C22-33
Drawing Date:	10/05/2022
Scale:	1/8" = 1'-0"
Drawn By:	JGB
Approval By:	STATE FIRE MARSHAL DIV.
SHEET NO.	FP 4 of 4