GENERAL NOTES

1. MN BUILDING CODE (2015)

   1.1. OCCUPANCY: S-1
   1.2. TYPE OF CONSTRUCTION: II-B
   1.3. SPRINKLERED AREA (APPROXIMATE - SEE ARCHITECTURAL PLANS FOR ACTUAL)
   TOTAL AREA = 79,181 S.F.
   ZONE 1 ESFR = 39,186 S.F.
   ZONE 2 ESFR = 39,995 S.F.

   1.4. INSTALLATION STANDARDS:
   1.4.1. SPRINKLER SYSTEM DESIGNED AND INSTALLED PER NFPA-13 (2016)
   1.4.2. FIRE PUMP DESIGNED AND INSTALLED PER NFPA-20 (2016)

2. SPRINKLER PIPE TYPES:
   <u>WET:</u>
   2.1. 1" BRANCH LINES TO BE BLK MEGA THREAD PIPING WITH THREADED FITTINGS
   2.2. 1½" THROUGH 4" MAIN & BRANCH LINES TO BE BLK LIGHTWALL PIPING WITH GROOVED FITTINGS
   2.3. 6" THROUGH 8" MAIN TO BE BLK SCH 10 PIPING WITH GROOVED FITTINGS

3. DESIGN CRITERIA
   3.1. LIGHT HAZARD AREAS DESIGNED TO DELIVER 0.10 GPM/S.F. OVER THE MOST DEMANDING 1500 S.F.
   3.2. ORDINARY HAZARD GROUP II AREAS DESIGNED TO DELIVER 0.20 GPM/S.F. OVER THE MOST DEMANDING 1500 S.F.
   3.3. REMOTE AREA REDUCTIONS HAVE BEEN TAKEN WHERE APPLICABLE PER NFPA 13 SEC. 11.2.3.2.3
   3.5. STORAGE DESIGN CRITERIA:
   3.5.1. NFPA 13 = 12 - K16.8 SPRINKLERS @ 35 PSI PER NFPA 13 TABLES:
   3.5.1.1. 14.4.1 ALLOWS FOR THE STORAGE OF CLASS I - IV COMMODITIES TO A HEIGHT OF 25' WITH A 30' MAX ROOF HEIGHT IN SOLID PILES.
   3.5.1.2. 15.4.1 ALLOWS FOR THE STORAGE OF CARTONED EXPANDED, CARTONED UNEXPANDED AND EXPOSED UNEXPANDED GROUP "A" PLASTICS TO A HEIGHT OF 25' WITH A 30' MAX ROOF HEIGHT IN SOLID PILES
   3.5.1.3. 16.2.3.1 ALLOWS FOR THE STORAGE CLASS I - IV COMMODITIES TO A HEIGHT OF 25' WITH A 30' MAX ROOF HEIGHT IN RACKS
   3.5.1.4. 17.2.3.1 ALLOWS FOR THE STORAGE OF CARTONED EXPANDED, CARTONED UNEXPANDED AND EXPOSED UNEXPANDED GROUP "A" PLASTICS TO A HEIGHT OF 25' WITH A 30' MAX ROOF HEIGHT IN RACKS
   3.5.1.5. NO STORAGE OF EXPOSED EXPANDED GROUP "A" PLASTICS IN RACKS OR SOLID PILES
   3.5.2. NOTES:
   - OPEN-FRAME RACK STORAGE
   - 25'-0" MAX TO THE TOP OF STORAGE
   - 30'-0" MAX CEILING HEIGHT
   - NO OPEN TOP CONTAINERS

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 REQUIREMENTS
5. SYMBOLS USED ON DRAWINGS:

   +9'6" PIPE ELEVATION A.F.F
   +12" PIPE ELEVATION BELOW B.O.D
   OHT ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD UNLESS NOTED)
   FT HYDRAULIC CALCULATION JUNCTION POINT
   18'-0" CEILING HEIGHT

6. SCOPE OF WORK:
   6.1. ALL AREAS OF THE NEW FACILITY TO BE INSTALLED AND COVERED IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PER NFPA 13 (2016)
   6.2. ALL AREAS OF THE "SHELL" AREA TO BE PROTECTED WITH ESFR WET PIPE SYSTEMS
   6.3. FIRE PUMP TO BE INSTALLED IN ACCORDANCE WITH NFPA 20 (2016)

NEW ESFR ZONE #1 39,186 SF.	NEW ESFR ZONE #2 39,995 SF.

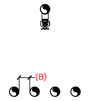
ZONE MAP
N.T.S

FP 3 OF 3	FP 2 OF 3

SHEET MAP
N.T.S

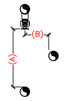
ESFR DETAILS

ALL OBSTRUCTIONS TO THE DISCHARGE OF ESFR SPRINKLERS SHALL COMPLY WITH THESE OBSTRUCTION RULES



GROUPS OF PIPES, CONDUITS, CABLE TRAYS, OR SIMILAR OBSTRUCTIONS SHALL BE CONSIDERED SEPARATE IF (B) IS EQUAL TO 3X THE WIDTH OF THE OBSTRUCTION, OTHERWISE ALL OBSTRUCTIONS SHALL BE TREATED AS ONE.

GROUPS OF PIPE, CONDUIT, ETC.

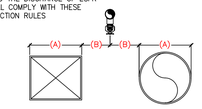


CONTINUOUS OBSTRUCTIONS 2" OR LESS IN DIAMETER LOCATED DIRECTLY BENEATH SPRINKLER DIMENSION 'A' SHALL BE A MINIMUM 24" BELOW. IF DIMENSION "A" IS ≤24" THE OBSTRUCTION DIMENSION 'B' SHALL BE A MINIMUM OF 12"

PIPE, CONDUIT, ETC.

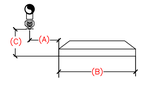
VERTICAL OBSTRUCTIONS WERE (A) IS ≤12" (B) SHALL BE A MINIMUM OF 12",WERE (A) IS 12"–24" (B) SHALL BE A MINIMUM OF 24", FOR VERTICAL OBSTRUCTIONS OR COLUMNS >24" A SPRINKLER SHALL BE INSTALLED ON OPPOSITE SIDES OF THE OBSTRUCTION

COLUMNS



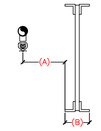
CONTINUOUS OBSTRUCTIONS SHALL NOT REQUIRE ADDITIONAL SPRINKLERS WHERE (A) IS ≤12" (B) SHALL BE A MINIMUM OF 12", WHERE (A) IS 12"–24" (B) SHALL BE A MINIMUM OF 24"

DUCT, PIPE, ETC.



ISOLATED OBSTRUCTIONS WHERE (B) IS ≤24" A SPRINKLER SHALL BE A MINIMUM OF 12" FROM THE NEAREST EDGE OF THE OBSTRUCTION WILL NOT REQUIRE ADDITIONAL SPRINKLERS. DIMENSION (C) HAS NO MIN OR MAX DISTANCE.

NON-CONT. LIGHTS (2x4)



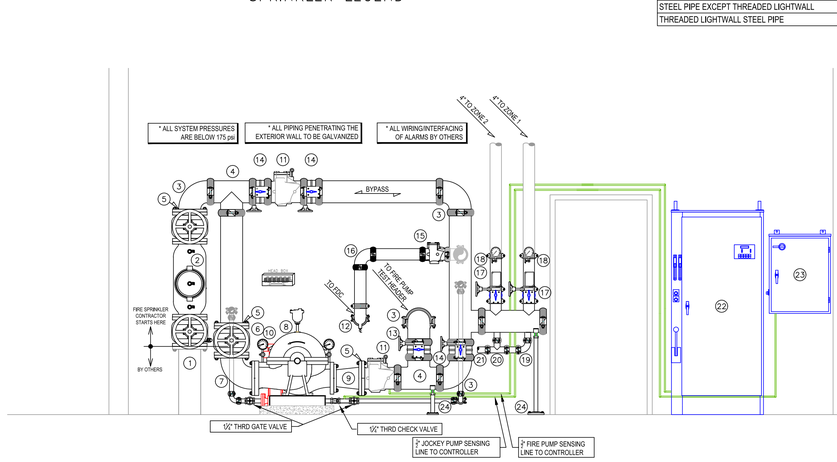
ESFR SPRINKLERS SHALL BE POSITIONED A MINIMUM 12" HORIZONTALLY (A) FROM EDGE OF BAR JOIST UNLESS (B) IS ≤4" IN WIDTH

BAR JOIST

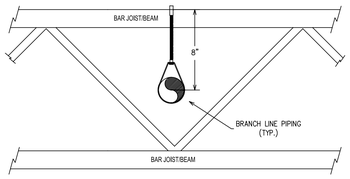
SYM	CNT	POSITION	FINISH	TEMP	K	NPT	SIN	MFG.	MODEL#
	864	PEND	BRASS	205	16.80	3/4"	VK503	VIKING	VK-ESFR
	864	TOTAL HEADS							

SPRINKLER LEGEND

MAXIMUM DISTANCE BETWEEN HANGERS (FT.-IN.)										
	NOMINAL PIPE SIZE (IN.)									
	¾"	1"	1 ¼"	1 ½"	2"	2 ½"	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



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

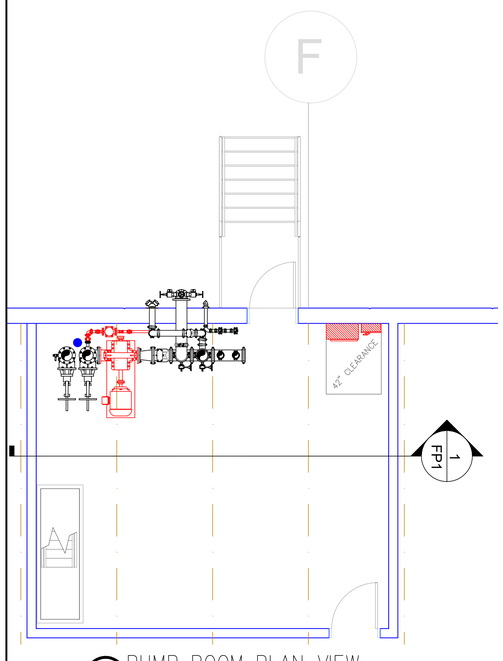


HANGER DETAILS

1 PUMP ROOM SECTION
SCALE: 1/2" = 1'-0"

RISER LEGEND

1. 8" WATER UNDERGROUND SERVICE (BY OTHERS)
   (FLUSHING & TESTING OF THE UNDERGROUND SHALL BE COMPLETED PRIOR TO THE SPRINKLER SYSTEM HOOKUP. UNDERGROUND PAPERS ARE TO BE SUPPLIED TO THE "FP" CONTRACTOR BY THE G.C.)
2. 8" AMES 2000SS BACKFLOW w/ OS&Y (TAMPERED)
3. 8" GROOVED 90 ELBOW
4. 8" GROOVED TEE
5. 8" FLANGED x GROOVED ADAPTER
6. 8" FLANGED OS&Y GATE VALVE (TAMPERED)
7. 8" FLANGED 90 ELBOW
8. AURORA FIRE PUMP 1,500gpm @ 75psi (100HP, 480v/3 PHASE)
9. 8"x6" CONCENTRIC INCREASER
10. AURORA JOCKEY PUMP (1.5HP)
11. 6" GROOVED CHECK VALVE
12. 4" GROOVED DRAIN 90 w/BALL DRIP
13. 8" BUTTERFLY VALVE w/ TAMPER NORMALLY CLOSED
14. 8" BUTTERFLY VALVE w/ TAMPER NORMALLY OPEN
15. 4" GROOVED CHECK VALVE
16. 4" GROOVED 90 ELBOW
17. 4" BUTTERFLY VALVE w/ TAMPER NORMALLY OPEN
18. 4" GROOVED COMMERCIAL RISER MANIFOLD w/ 2" TEST & DRAIN, PRESSURE GAUGE, AND FLOW SWITCH
19. 2" GROOVED 90
20. 2" GROOVED TEE
21. MAIN DRAIN TO FLOOR DRAIN OR OUTSIDE
22. FIRE PUMP CONTROLLER
23. JOCKEY PUMP CONTROLLER
24. PIPE STAND



2 PUMP ROOM PLAN VIEW
SCALE: 1/4" = 1'-0"

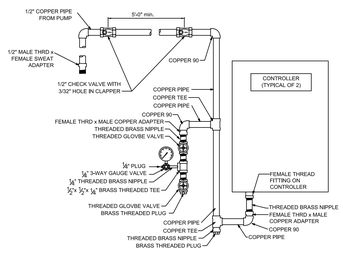
SPRINKLER SPACING DETAILS

ESFR PENDENT SPRINKLER, K=16.8, 3/4" NPT, SIN VK503

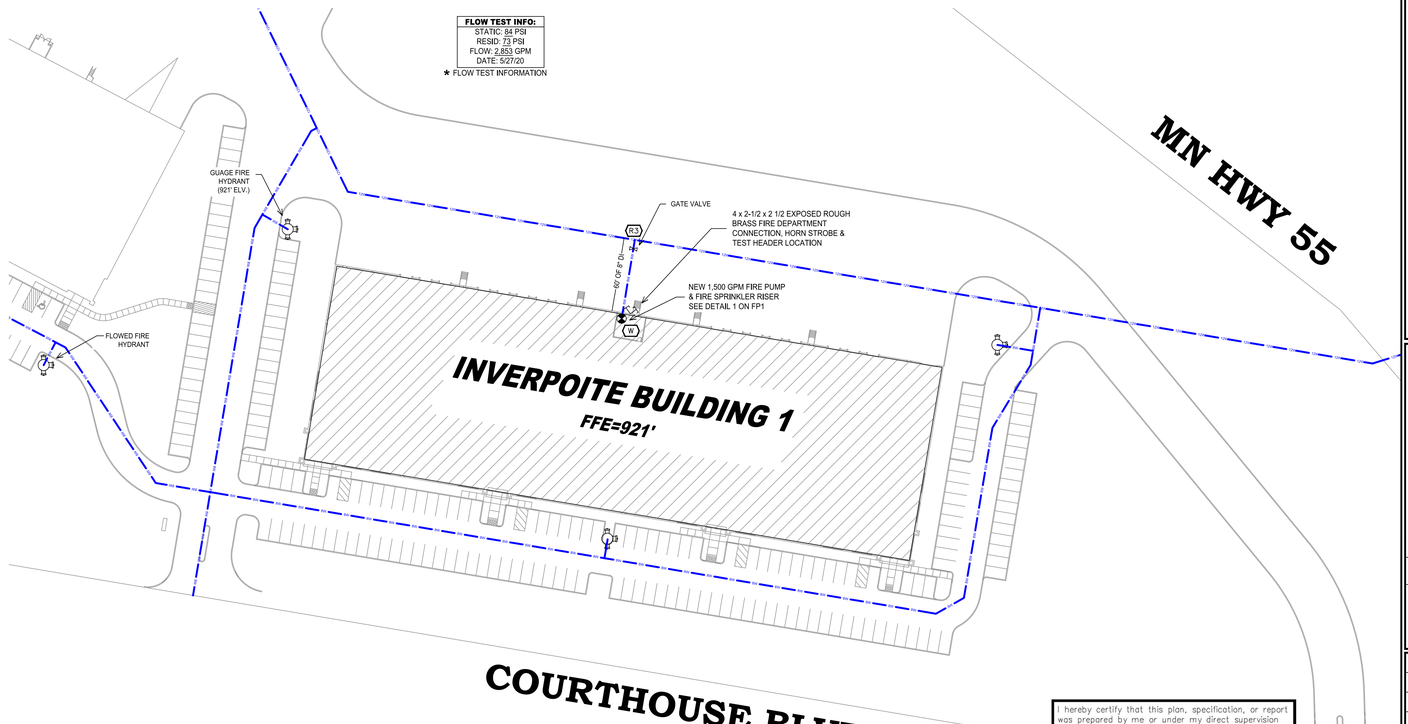
TYP. ESFR-17 DETAIL

MIN DISTANCE BETWEEN HEADS: 8'-0"
MAX DISTANCE BETWEEN HEAD: 12'-0"
MAX DISTANCE FROM DECK: 6" - 14"
MAX COVERAGE AREA: 100 SQ. FT.
MIN COVERAGE AREA: 64 SQ. FT.

SYMBOLS ON PLAN



SENSING LINE DETAILS



SITE PLAN
N.T.S.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota.

DARIN T. SYVERSON LICENSE NO. 55450 DATE: 6/15/2020

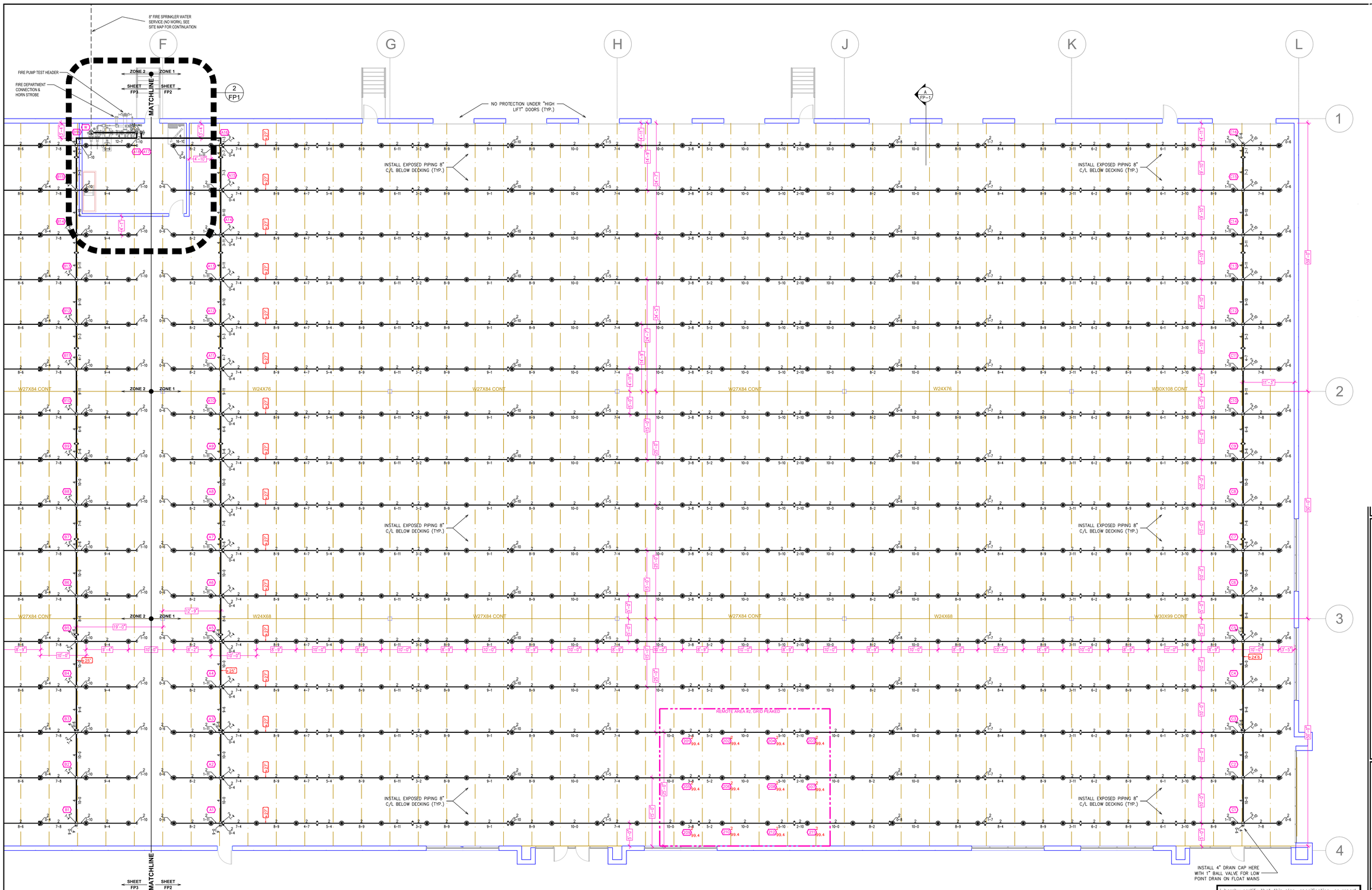
DRIVEN FIRE CONSULTANTS
910 N. SYCAMORE AVENUE; SIOUX FALLS, SD 57110 PHONE: (605)-444-9290

PROJECT
INVERPOINTE BUILDING #1
Courtyard Blvd.
Inner Grove Heights, MN 55077

REVISIONS:	NO:	DATE:

DATE:	6-15-2020
DRAWN BY:	JARED V.G.
DESIGNED BY:	JARED V.G.
SCALE:	1/8"=1'-0"
JOB NUMBER:	

SHEET 1 OF 3



INVERPOINTE BUILDING 1 FIRE SPRINKLER PLAN

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

SPRINKLER LEGEND

SYM	CNT	POSITION	FINISH	TEMP	K	NPT	SIN	MFG.	MODEL#
●	864	PEND	BRASS	205	16.80	3/4"	VK503	VIKING	VK-ESFR
	864	TOTAL HEADS							

CALC PLACARD

Design Area #: **2** HAZARD: **ESFR**
Zone: **2** System Type: **WET**
Location: **WAREHOUSE**
Flowing Outlets: **12**
Head PSI: **52** Remote Area:**1132**
Req. @ Pump Discharge (BOR):
Flow:**1199** gpm @ **125.9**psi
Req. @ City Supply
Flow:**1449** gpm @ **50.7** psi
Calculation Safety: **30.1** psi
Includes **250** gpm Hose allowance

ESFR PENDENT SPRINKLER, K=16.8, 3/4" NPT, SIN VK503

TYP. ESFR-17 DETAIL

MIN DISTANCE BETWEEN HEADS: 8'-0"
MAX DISTANCE BETWEEN HEAD: 12'-0"
MAX DISTANCE FROM DECK: 6" - 14"
MAX COVERAGE AREA: 100 SQ. FT.
MIN COVERAGE AREA: 64 SQ. FT.

SYMBOLS ON PLAN

NOTE: ALL JOISTS, WEBBING, WIND BRACING, LIGHTING, HVAC EQUIPMENT ETC. SHALL BE SPACED IN COMPLIANCE WITH ESFR SPRINKLER DETAILS ON PAGE FP1 OF THIS SUBMITTAL

FP 3 OF 3 | **FP 2 OF 3**

SHEET MAP
N.T.S

NEW ESFR ZONE #1 39,186 SF.	NEW ESFR ZONE #2 39,995 SF.

ZONE MAP
N.T.S

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REVISIONS:

NO:	DATE:

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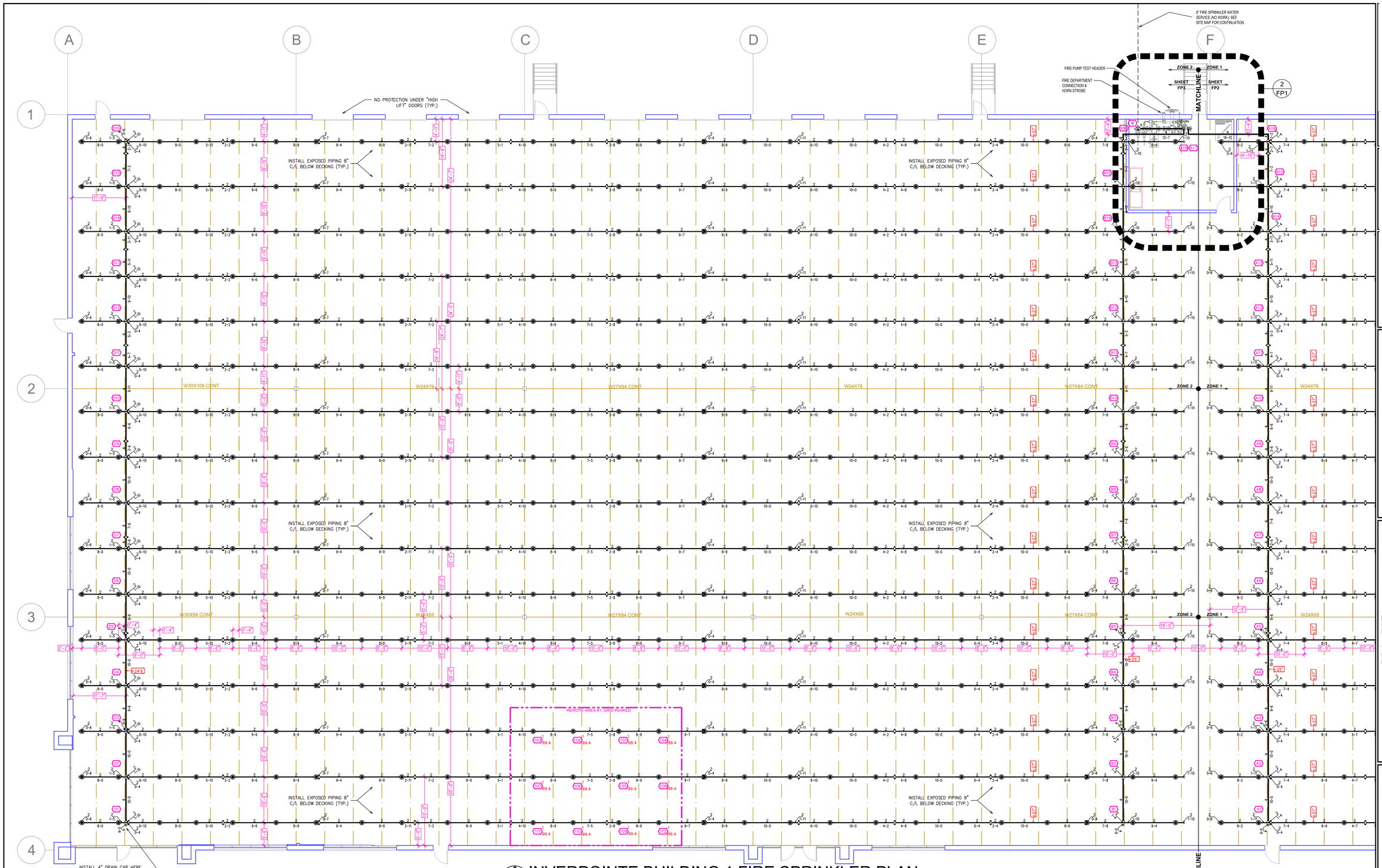
SCALE:	1/8"=1'-0"
JOB NUMBER:	

SHEET 2 OF 3



INVERPOINTE BUILDING 1 FIRE SPRINKLER PLAN

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

CALC PLACARD

Design Area #: **1**	HAZARD: **ESFR**
Zone: **1**	System Type: **WET**
Location: **WAREHOUSE**	
Flowing Outlets: **12**	
Head PSI: **35**	Remote Area:**1132**
Req. @ Pump Discharge (BOR): Flow:**1199** gpm @ **123.9**psi	
Req. @ City Supply Flow:**1449** gpm @ **48.7** psi	
Calculation Safety: **32.1** psi	
Includes **250** gpm Hose allowance	

ESFR PENDENT SPRINKLER, K=16.8, 3/4" NPT, SIN VK503

TYP. ESFR - 17 DETAIL

MIN DISTANCE BETWEEN HEADS: 8'-0"
MAX DISTANCE BETWEEN HEAD: 12'-0"
MAX DISTANCE FROM DECK: 6" - 14"
MAX COVERAGE AREA: 100 SQ. FT.
MIN COVERAGE AREA: 64 SQ. FT.

SYMBOLS ON PLAN

NEW ESFR ZONE #1 39,186 SF.	***NEW ESFR ZONE #2 39,995 SF.***

ZONE MAP
N.T.S

FP 3 OF 3	***FP 2 OF 3***

SHEET MAP
N.T.S

SPRINKLER LEGEND

SYM	CNT	POSITION	FINISH	TEMP	K	NPT	SIN	MFG.	MODEL#
●	864	PEND	BRASS	205	16.80	3/4"	VK503	VIKING	VK-ESFR
	864	TOTAL HEADS							

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DARIN T. SYVERSON LICENSE NO. 55450 DATE: 6/15/2020

NOTE: ALL JOISTS, WEBBING, WIND BRACING, LIGHTING, HVAC EQUIPMENT ETC. SHALL BE SPACED IN COMPLIANCE WITH ESFR SPRINKLER DETAILS ON PAGE FP1 OF THIS SUBMITTAL

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

CLIENT

PROJECT

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SHEET
3 OF 3