

2. INTERNATIONAL BUILDING CODE (2018)
 1. OCCUPANCY: 12 (INSTITUTIONAL, INCARCERATED)
 - 1.2 TYPE OF CONSTRUCTION: 1B (NON-COMBUSTIBLE)
- 3.1. SPRINKLERED AREA (SEE ARCHITECTURAL PLANS FOR ACTUAL)
 - FIRST FLOOR = 56,250 S.F.
 - 2ND FLOOR = 20,400 S.F.
 - 3RD FLOOR = 20,400 S.F.
 - TOTAL = 99,050 S.F.
- 2.1. INSTALLATION STANDARDS:
SPRINKLER SYSTEM DESIGNED AND INSTALLED PER NFPA-13 (2016), NFPA-14 (2016), FMG
2. SPRINKLER PIPE TYPES:
 - WET
 - 2.1. 1"-1 1/2" ARMORS TO BE BLACK SCHEDULE 40 PIPING WITH THREADED FITTINGS
 - 2.2. 1 1/2" - 2" BRANCH LINES TO BE BLACK SCHEDULE 10 PIPING WITH ROLL-GROOVED FITTINGS
 - 2.3. 2 1/2" - 4" MAINS TO BE BLACK SCHEDULE 10 PIPING WITH ROLL-GROOVED FITTINGS
- DRY & PRE-ACTION:
 - 2.4. MAINS & BRANCH LINES TO BE ROLL-GROOVED GALVANIZED SCHEDULE 10 PIPING
 - 2.5. 1" - 1 1/2" ARMORS TO BE THREADED GALVANIZED SCHEDULE 40 WITH THREADED FITTINGS
 - 2.6. 1 1/2" - 4" MAIN & BRANCH LINES TO BE GROOVED GALVANIZED SCHEDULE 10 WITH GROOVED FITTINGS
- DRY SYSTEM & PRE-ACTION PIPE SLOPE INSTALLATION
SPRINKLER MAINS & HORIZONTAL DRY STANDPIPES RUNS TO BE 1/2" PER 10'-0"
SPRINKLER BRANCH LINES TO BE 1/2" PER 10'-0"
3. DESIGN CRITERIA
 - 3.1 LIGHT HAZARD 1.0 GPM/SF OVER MOST REMOTE 1,500 SF.
 - 3.2 ORDINARY HAZARD GROUP 1 AREAS 0.5 LPM/SF OVER MOST REMOTE 1,500 SF
 - 3.3 ORDINARY HAZARD GROUP 2 AREAS 0.20 GPM/SF OVER MOST REMOTE 1,500 SF
 - 3.4 STANDPIPE FLOWING 150 GPM PER NFPA 14
 - 3.5 NO REMOTE AREA REDUCTIONS.
4. NOTES:
 - 4.1 ALL MATERIALS TO BE NEW AND MEET U.L. STANDARDS
 - 4.2 HANGERS TO BE INSTALLED IN ACCORDANCE WITH NFPA 13 - SEE PLAN FOR HANGING RIG
 - 4.3 INSTITUTIONAL SUPPLER TO BE INSTALLED IN PATIENT RISKS AND INPATIENT AREAS IN THE THREE STORY PORTION OF BUILDING.
5. SYMBOLS USED ON DRAWINGS:

WET

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PIPE ELEVATION ABOVE FINISHED FLOOR

GL

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ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD UNLESS NOTED)

HYD

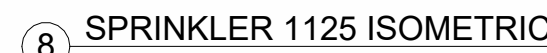
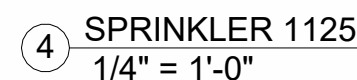
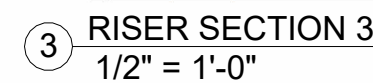
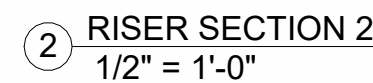
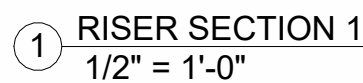
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HYDRAULIC CALCULATION JUNCTION POINT

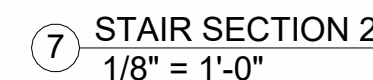
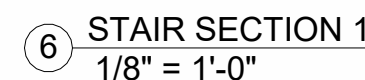
1 HOUR FIRE BARRIER

2 HOUR FIRE BARRIER

- 5. SCOPE OF WORK:
 - 5.1 WILL BE INSTALLING A 5 ZONE SPRINKLER SYSTEM AND STANDPIPES IN NEW THREE STORY BEHAVIORAL HEALTH HOSPITAL. SYSTEMS TO INCLUDE A WET SYSTEM TO PROTECT THE FIRST FLOOR OF THE BUILDING TO BE INSTALLED IN THE DRY SYSTEM TO PROTECT THE CANOPES ON THE SINGLE STORY PORTION OF BUILDING AND 3 DOUBLE-INTERLOCK PREACTION SYSTEMS TO PROTECT THE THREE STORY PORTION OF BUILDING ZONED ON FLOOR 0.
 - 5.2 ALL AREAS OF THE BUILDING TO BE 3 DOUBLE-INTERLOCK AND COVERED IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PER NFPA 13, NFPA 14 AND FMG.



- 1 6" UNDERGROUND WATER SERVICE (BY OTHERS)
- 2 (FLUSHING & TESTING OF THE UNDERGROUND SHALL BE COMPLETED PRIOR TO THE SPRINKLER SYSTEM
- 3 HOOKUP. UNDERGROUND PAPERS ARE TO BE SUPPLIED TO THE "FP" CONTRACTOR BY THE G.C.)
- 4 6" FLANGED X GROOVE ADAPTER
- 5 6" GROOVED GO
- 6 6" GROOVED DRAINER 30X BACKFLOW PREVENTER w/TAMPERS
- 7 6" GROOVED TEE
- 8 4" DRY VALVE w/BUTTERFLY VALVE & ACCELERATOR
- 9 RISER MOUNTED AIR COMPRESSOR
- 10 6" GROOVED TEE
- 11 4" GROOVED GO
- 12 6" GROOVED UMC RISER MANIFOLD w/ BUTTERFLY VALVE
- 13 6" BUTTERFLY VALVE (NORMALLY CLOSED)
- 14 6" CHECK VALVE



DRY SYSTEM PIPE SLOPE INSTALLATION

PIPE TYPE	SLOPE
SPRINKLER MAINS (NONREFRIGERATED AREAS)	1/4" PER 10'-0"
SPRINKLER MAINS (REFRIGERATED AREAS)	1/8" PER 10'-0"
SPRINKLER BRANCHLINES	1/2" PER 10'-0"
HORIZONTAL DRY & SEMIAUTOMATIC STANDPIPE RISERS (NONREFRIGERATED AREAS)	1/4" PER 10'-0"
HORIZONTAL DRY & SEMIAUTOMATIC STANDPIPE RISERS (REFRIGERATED AREAS)	1/2" PER 10'-0"

24" x 24" BLANK TILES

48" F1000 FLEXIBLE DROP LENGTH BASED ON CALCULATIONS EQUIVALENT 38.7 FT LENGTH

1.5" O.D. PIPE

3/4" NPT MALE

3/4" NPT FEMALE

3 MAXIMUM TOTAL 90° BENDS

BRANCHLINE

SUSPENDED CEILING

PENDENT W/ ESOT.

**FLEXIBLE SPRINKLER
DROP ASSEMBLY**

NFPA 13 STEEL PIPE HANGER SPACING

NOMINAL SIZE INCHES	MAX SPACING FEET
1"	12'-0"
1-1/4"	12'-0"
1-1/2"	15'-0"
2"	19'-0"
2-1/2"	15'-0"
3"	15'-0"
4" & LARGER	15'-0"

Concrete Anchor (Direct)

All Thread Rod

Concrete Construction

Swivel Ring

Pipe

TYP. CONCRETE ANCHOR

BEAM CLAMP

STEEL I-BEAM OR BAR JOIST

ALL THREAD ROD

SWIVEL RING

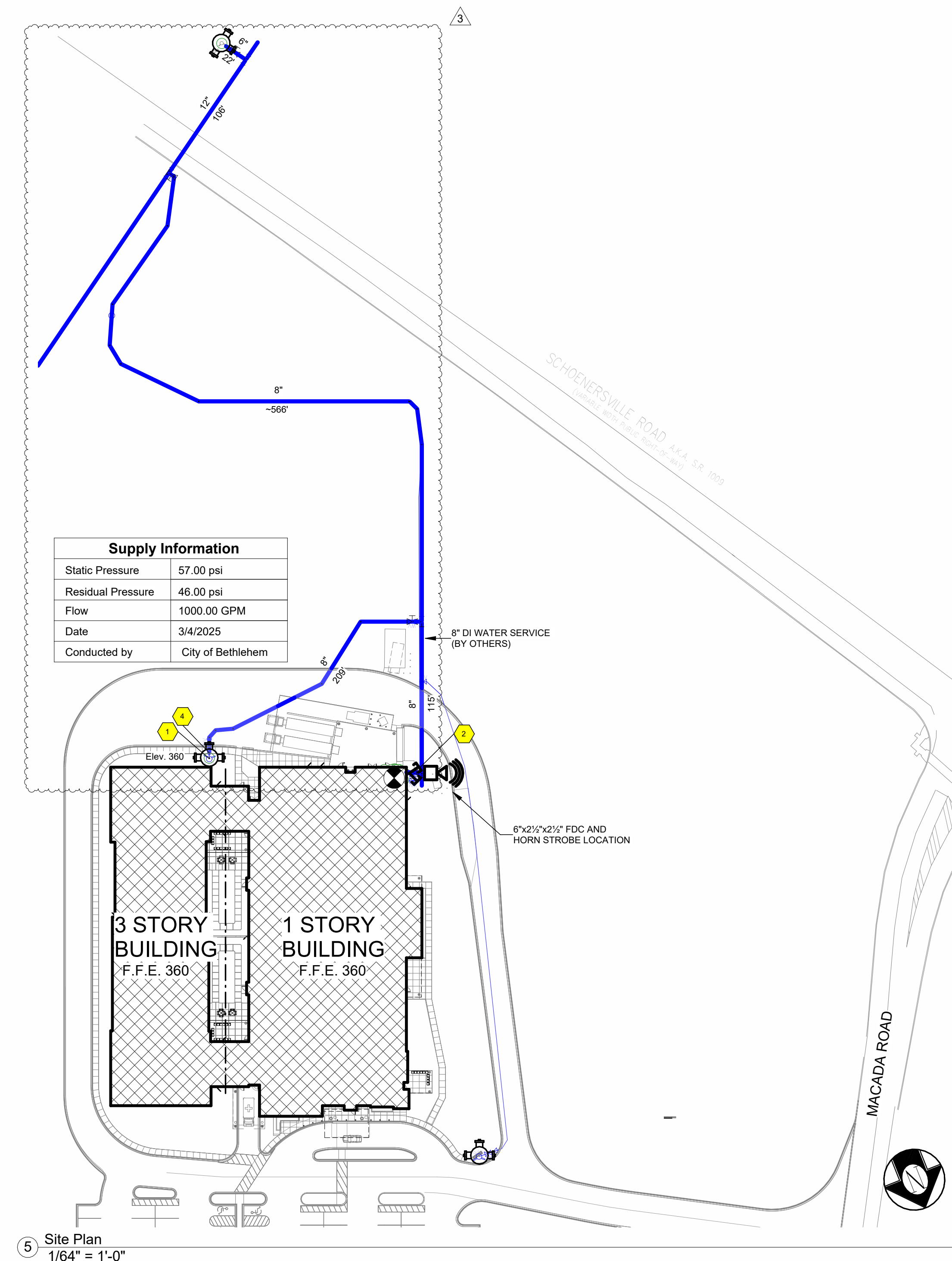
PIPE

BEAM CLAMP ASSEMBLY

Sprinkler Legend Overall											
Quantity	Symbol	Manuf.	S.I.N.	Model	K-Factor	Type	Size	Response	Finish	Temp.	Escutcheon
464	●	VIKING	VK462	MIRAGE	5.6	PENDENT	1/2"	Quick	WHITE	200 °F	CONCEALED
500	TV	VIKING	TV428N	RAVEN	5.6	PENDENT	1/2"	Quick	WHITE	163 °F	INSTITUTIONAL
50	●	VIKING	VK194	QR-CON DRY	5.6	PENDENT	1"	Quick	WHITE	175 °F	CONCEALED
44	○	VIKING	VK300	MICROFAST	5.6	Upright	1/2"	Quick	WHITE	200 °F	N/A
16	⊗	VIKING	VK300	MICROFAST	5.6	Upright	1/2"	Quick	WHITE	200 °F	HEAD CAGE
Total: 1134											

No.	Date	Job No.	Description
1	2/5/2025	24-5822	REVIEW COMMENTS
2	2/24/2025	24-5822	RFI #158
3	3/5/2025	24-5822	Updated Flow Test

SPRINKLER LEGEND											
SYMBOL	MANUF.	MODEL	SIN	THREAD	FACT.	TEMP.	FINISH	ESCAT.	TYPE	QTY.	QTY. IN HEAD BOX
SEE SHEET											
TOTAL (THIS SHEET):											

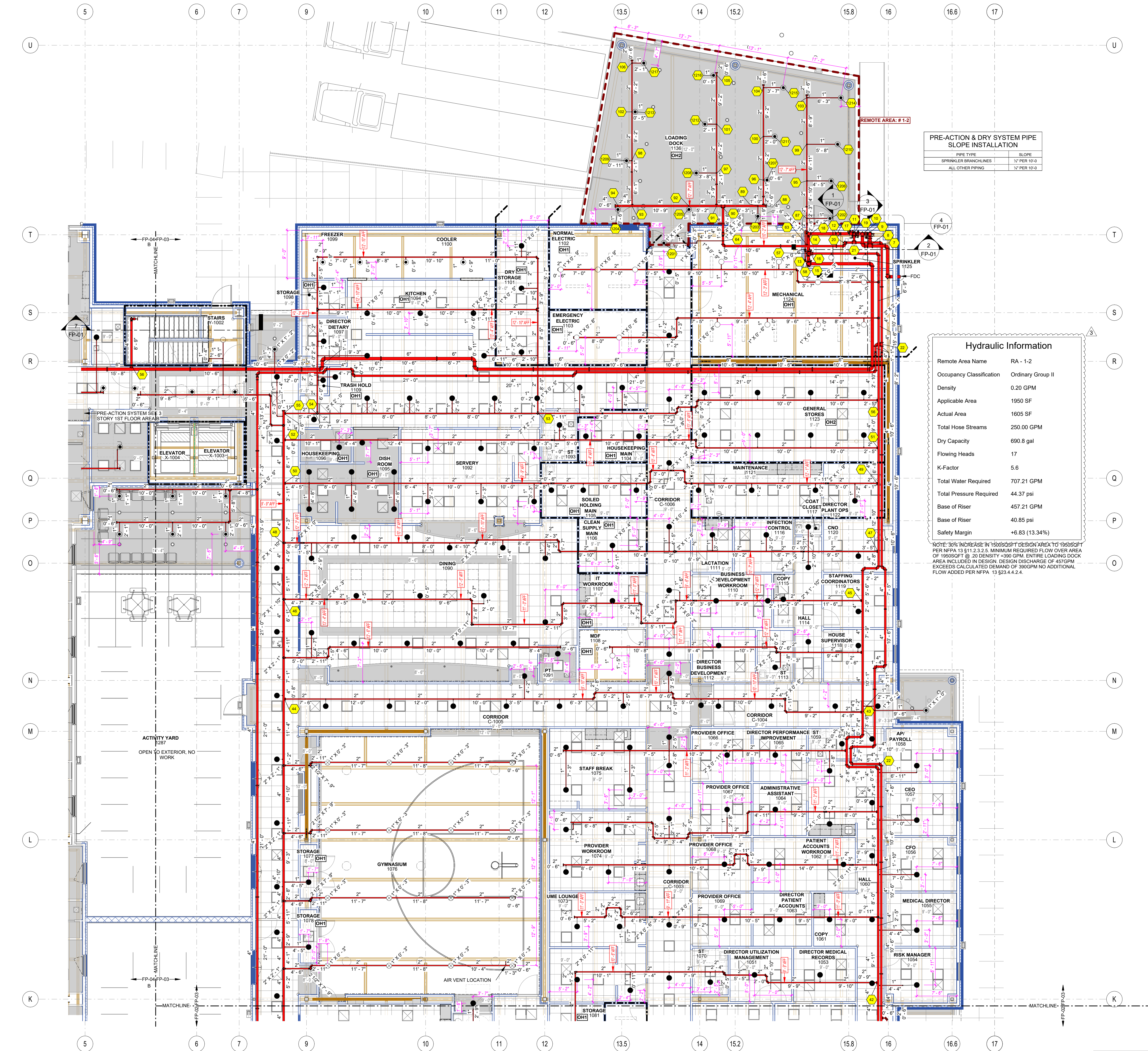


SEE SHEET

OWNER TO SUPPLY ADEQUATE
HEAT IN ALL AREAS WHERE
SPRINKLER PIPING MAY FREEZE.

LVHN BHH
1755 W. MACADA RD
BETHLEHEM, PA 18017

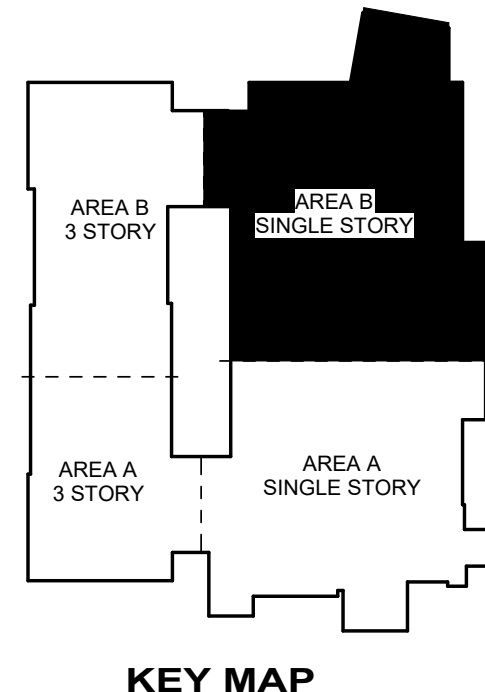
SCALE: As indicated	DRAWN BY: JCG	DATE: 3/5/2025	JOB NUMBER: 24-5822
INS. REVIEW:	CHECKED: Approver	AREA SHOWN: GENERAL NOTES	SHEET NO.: EP-1 of 6



PRE-ACTION & DRY SYSTEM PIPE SLOPE INSTALLATION	
PIPE TYPE	SLOPE
SPRINKLER BRANCHLINES	1" PER 10'-0"
ALL OTHER PIPING	1" PER 10'-0"

Hydraulic Information	
Remote Area Name	RA - 1-2
Occupancy Classification	Ordinary Group II
Density	0.20 GPM
Applicable Area	1950 SF
Actual Area	1605 SF
Total Hose Streams	250.00 GPM
Dry Capacity	690.8 gal
Flowing Heads	17
K-Factor	5.6
Total Water Required	707.21 GPM
Total Pressure Required	44.37 psi
Base of Riser	457.21 GPM
Base of Riser	40.85 psi
Safety Margin	+6.83 (13.34%)

NOTE: 30% INCREASE IN FLOW REQUIRED FOR DESIGN DENSITY OF 0.20 GPM PER NFPA 13 5.11.2.3.2.5. MINIMUM REQUIRED FLOW OVER AREA OF 1950 SQ FT @ 20 DENSITY = 390 GPM. ENTIRE LOADING DOCK AREA INCLUDED IN DESIGN. DESIGN DISCHARGE OF 450 GPM EXCEEDS CALCULATED DEMAND OF 390 GPM NO ADDITIONAL FLOW ADDED PER NFPA 13 5.2.4.4.2.4.



DRY SYSTEM PIPE SLOPE INSTALLATION

PIPE TYPE	SLOPE
SPRINKLER MAINS (NONREFRIGERATED AREAS)	1" PER 10'-0"
SPRINKLER MAINS (REFRIGERATED AREAS)	1" PER 10'-0"
SPRINKLER BRANCHLINES	1" PER 10'-0"
HORIZONTAL DRY & SEMIAUTOMATIC STANDPIPE RINGS (NONREFRIGERATED AREAS)	1" PER 10'-0"
HORIZONTAL DRY & SEMIAUTOMATIC STANDPIPE RINGS (REFRIGERATED AREAS)	1" PER 10'-0"

NFPA 13 STEEL PIPE HANGER SPACING

NOMINAL SIZE inches	MAX SPACING feet
1"	12'-0"
1-1/2"	15'-0"
2"	18'-0"
2-1/2"	18'-0"
3"	18'-0"
4" & LARGER	15'-0"

LOCATE SPRINKLER AT CENTER OF TILE

TYP. CONCRETE ANCHOR

FLEXIBLE SPRINKLER DROP ASSEMBLY

BEAM CLAMP ASSEMBLY

② Lvl 1 Single Story - Area B Fire Sprinkler Plan
1/8" = 1'-0"

Sprinkler Legend										
Quantity	Symbol	Manuf.	S.I.N.	Model	K-Factor	Type	Size	Response	Finish	Temp.
161	●	VIKING	VK462	MIRAGE	5.6	PENDENT	1/2"	Quick	WHITE	200 °F
15	●	TYCO	TY3281	RAVEN	5.6	PENDENT	1/2"	Quick	WHITE	165 °F
29	●	VIKING	VK194	QR-CON DRY	5.6	PENDENT	1"	Quick	WHITE	175 °F
17	○	VIKING	VK300	MICROFAST	5.6	Upright	1/2"	Quick	WHITE	200 °F
16	○	VIKING	VK300	MICROFAST	5.6	Upright	1/2"	Quick	WHITE	200 °F
Total: 228										HEAD CAGE

REVISIONS				SPRINKLER LEGEND			
No.	Date	Job No.	Description	SYMBOL	MANUF.	MODEL	QTY IN HEAD BOX
1	2/5/2025	24-5822	REVIEW COMMENTS				
2	2/24/2025	24-5822	RFI #158				
3	3/5/2025	24-5822	Updated Flow Test				

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

OWNER TO SUPPLY ADEQUATE HEAT IN ALL AREAS WHERE SPRINKLER PIPING MAY FREEZE.

SEE SHEET

TOTAL (THIS SHEET):

LVHN BHH
1755 W. MACADA RD
BETHLEHEM, PA 18017

SCALE: As indicated
DRAWN BY: JCG
DATE: 3/5/2025
JOB NUMBER: 24-5822
SHEET NO.: LVL 1 - SINGLE STORY AREA B
FP-3 of 6

