PUMP ROOM NOTES:

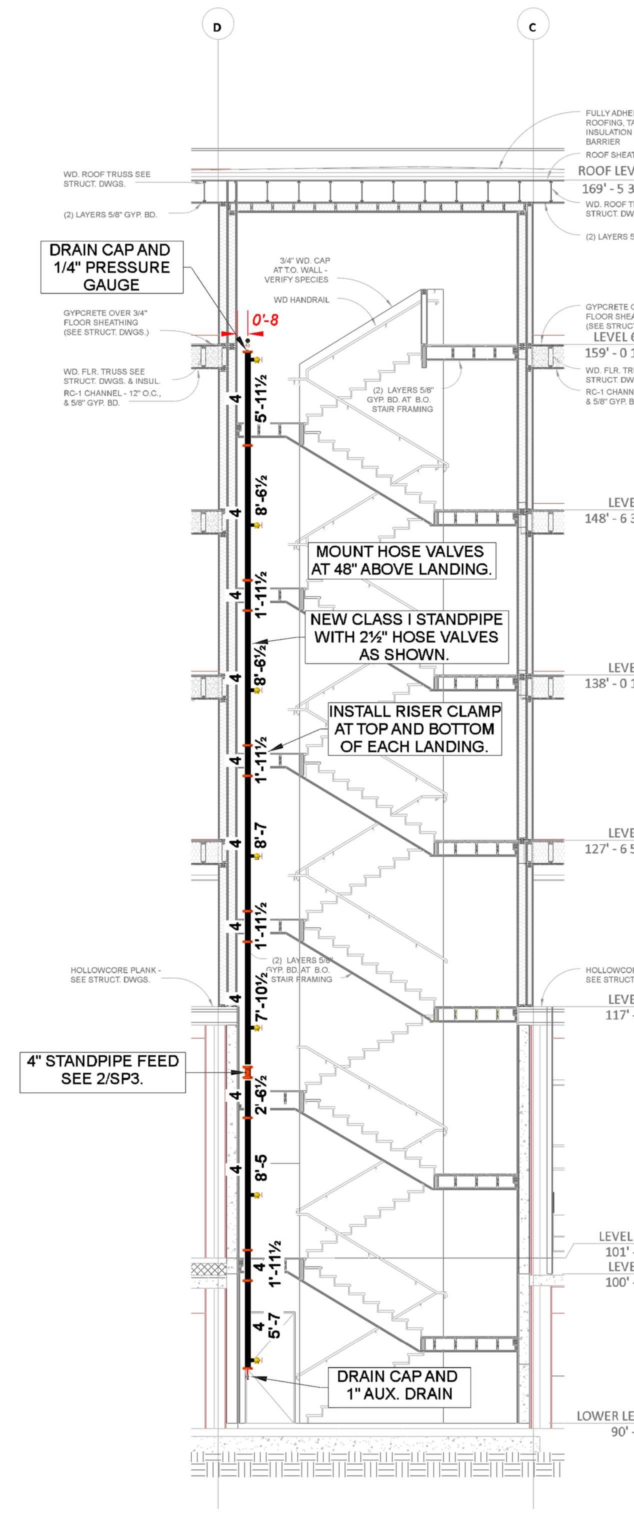
1. THE BUTTERFLY VALVE FOR THE TEST CONNECTION TO BE MONITORED "NORMALLY CLOSED".
2. PROVIDE AND INSTALL JOCKEY PUMP AND FIRE PUMP SENSING LINES PER NFPA 20.
3. SEE PUMP SUBMITTAL FOR ADDITIONAL INFORMATION ON THE FIRE PUMP AND JOCKEY PUMP.
4. INSTALL AND MOUNT FIRE AND JOCKEY PUMPS. HOUSEKEEPING PADS BY OTHERS.
5. PROVIDE AND INSTALL HANGERS AND RISER CLAMPS AS REQUIRED.
6. PROVIDE TAMPER SWITCHES ON JOCKEY PUMP LINE CONTROL VALVES.
7. ALL WIRING BY OTHERS.
8. FIRE PUMP ROOM PROVIDED BY OTHERS.

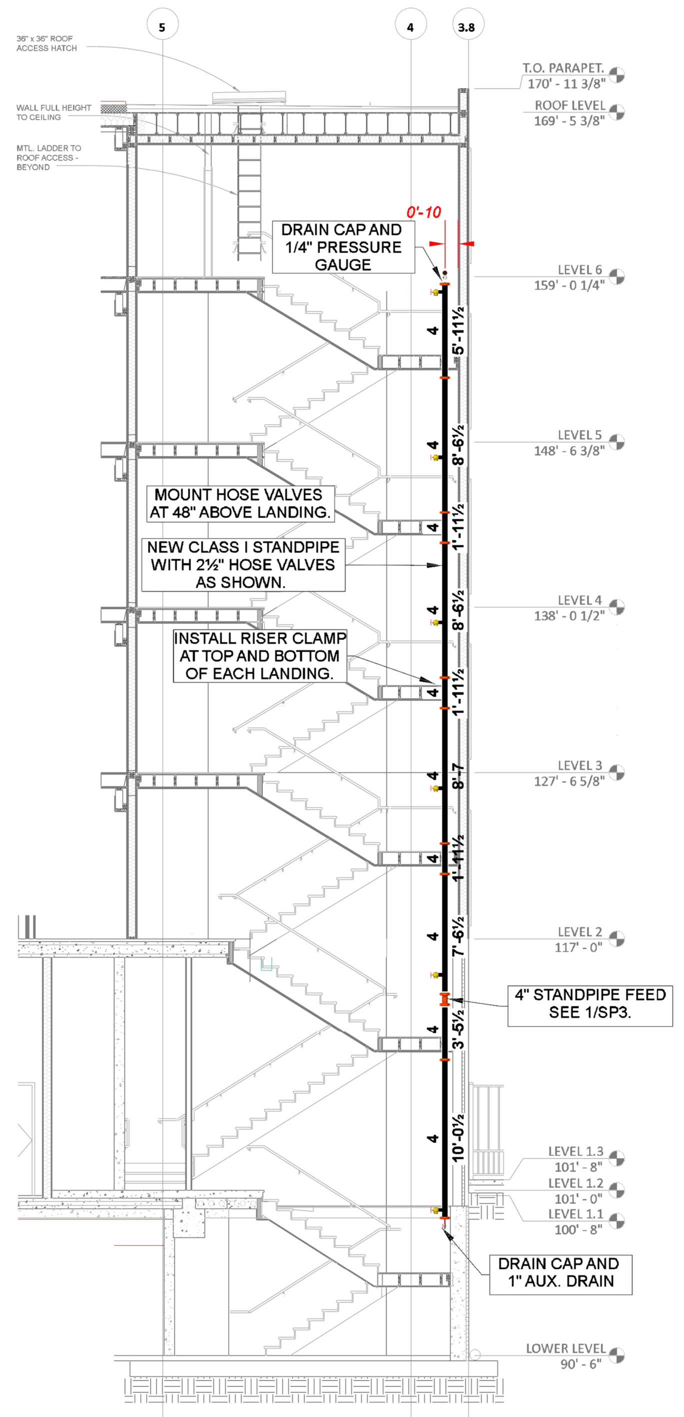
Fire Pump Assembly

Key Note	Size	Description
1	6	New C900 Und-By Others
2	4	Ames 2000ss FF OS&Y Backflow Preventor
3	4	MegaFlow Black Pipe GG x 2'-7 1/2"
4	4	GG 90 Ell
5	4	MegaFlow Black Pipe GG x 1'-6 1/2"
6	4	GG Tee
7	4	FF 90 Ell
8	4	GG Butterfly Valve w/ Tamper
9	4	GG Check Valve
10	4	MegaFlow Black Pipe-Bypass
11	4	GG 90 Ell
12	4	GG Tee
13	4	GG OS&Y Valve w/ Tamper
14	1/2	Automatic Ball Drip Valve from Check
15	4	FG OS&Y Valve w/ Tamper
16	6	6" X 4" FF 90 Ell
17	5	4" x 5" FF Eccentric Increaser
18	-	New 400 GPM 80 psi Electric Fire Pump
19	-	Pump Relief Valve
20	-	New Jockey Pump
21	4	MegaFlow Black Pipe GG x 1'-1"

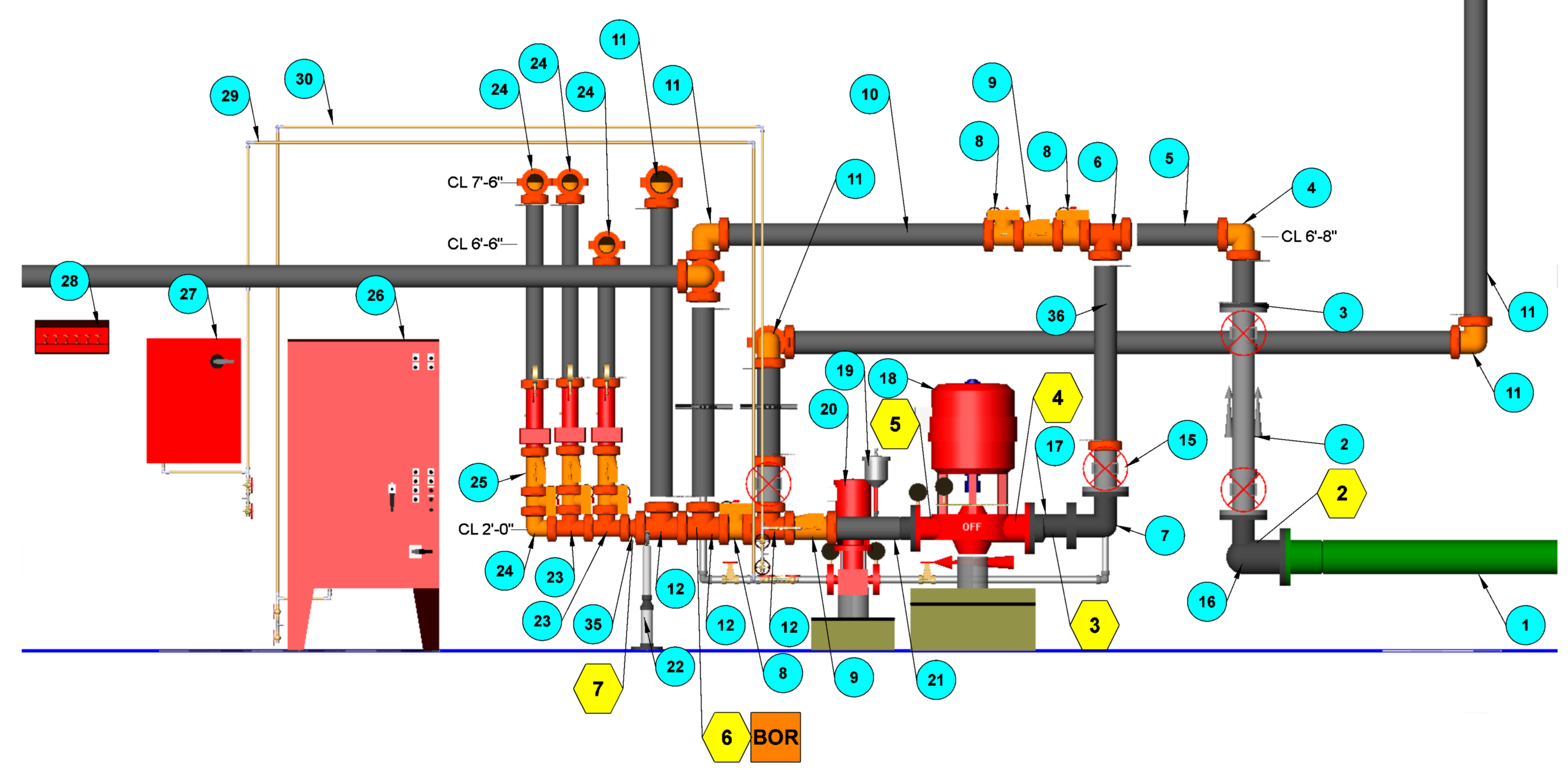
-

Key Note	Size	Description
22	4	4" x 2" Pipe Stand
23	3	GG Tee
24	3	GG 90 Ell
25	3	Typical Wet System Riser- GG Butterfly Valve
		w/ Tamper, GG Check Valve and GG
		Riser Manifold w/ Test and Drain and
		Pressure Relief Valve
26	-	Fire Pump Controller
27	-	Jockey Pump Controller
28	-	24 Spare Sprinkler Cabinet
29	-	Jockey Pump Sensing Line
30	-	Fire Pump Sensing Line
31	1.25	Jockey Pump Suction
32	1.25	Jockey Pump Discharge
33	4	4 x (2) 2 1/2" Fire Pump Test Connection with
		Valves, Caps and Chains
34	4	4 x 2 1/2" Rough Brass Siamese Fire Dept. Connection
		"Auto Spkr and Standpipe"- See Sheet SP3
35	4	4" x 3" GG Bell Reducer
36	4	MegaFlow Black Pipe GF x 3'-6 1/2"

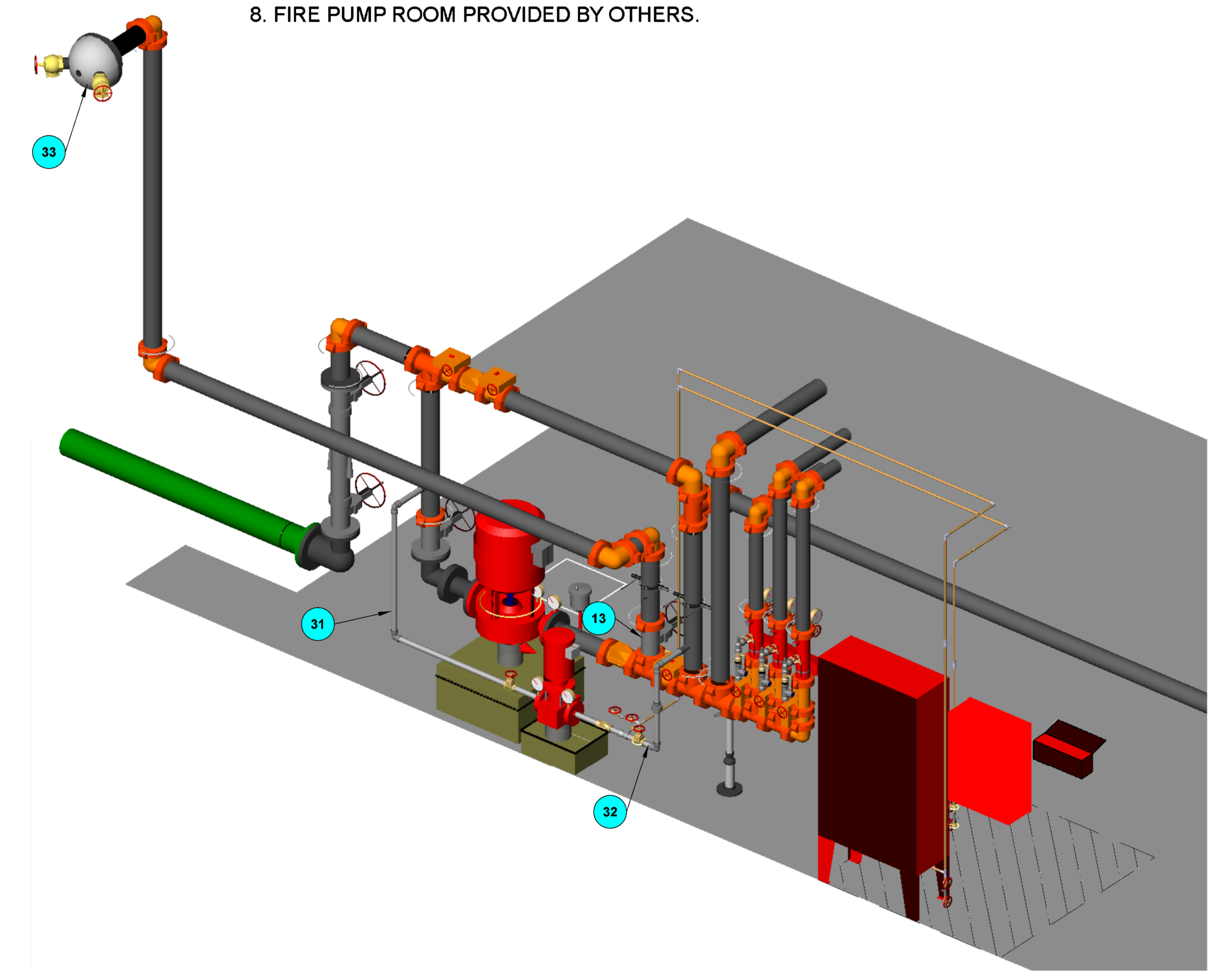




4 SP1 STAIR SECTIONS/STANDPIPE DETAILS
SCALE 1/8"=1'-0"



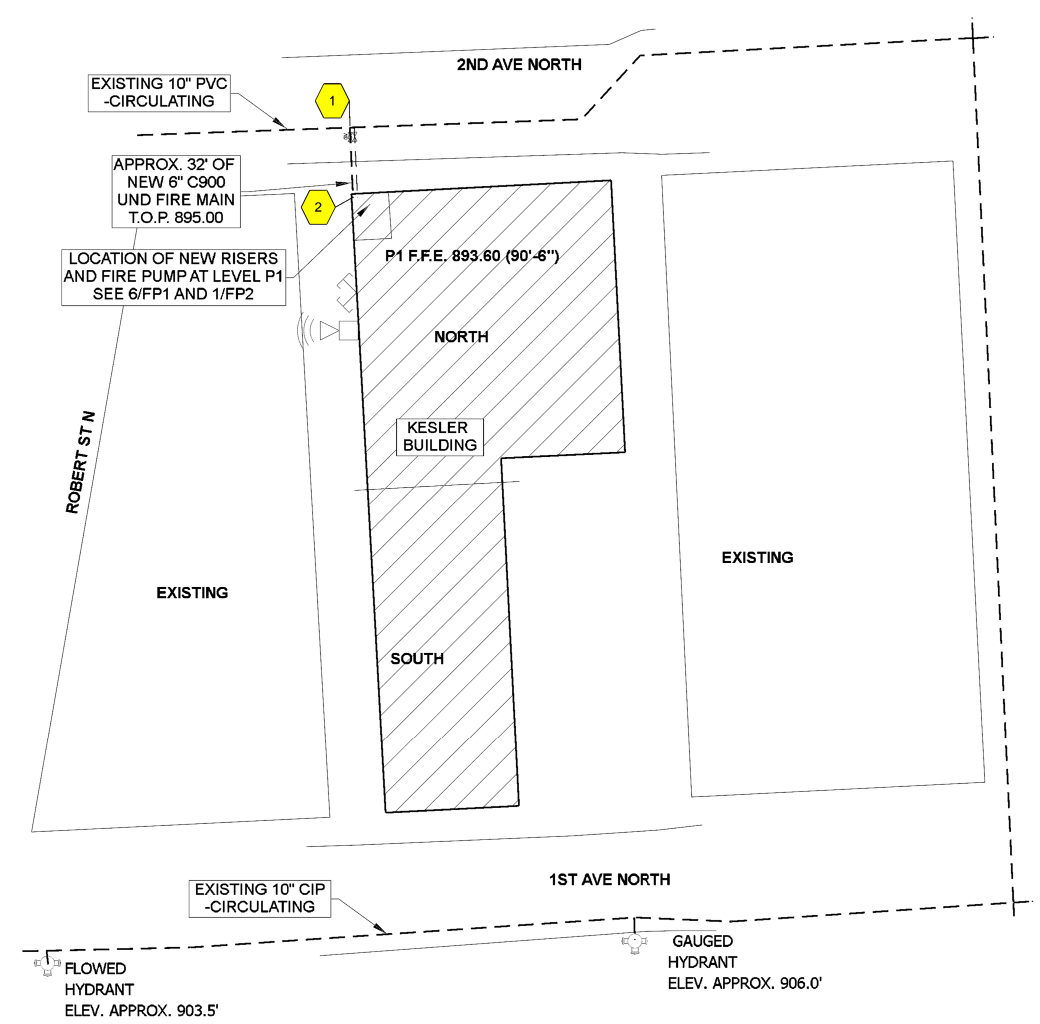
5 SP1 FIRE PUMP SECTION DETAIL
SCALE: NONE



6 SP1 FIRE PUMP ISO DETAIL
SCALE: NONE

Sprinkler Legend

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
	Reliable	R3622	F1FR LO	123	8	Upright	¾	Quick	Bronze	200°F	
	Reliable	RA3415	G5-56	151	5.6	Pendent	½	Quick	White	212°F	CONCEALED
	Reliable	R7326	JL112	96	11.2	Upright	¾	Standard	Bronze	212°F	
	Reliable	R1722	F1 LO	16	8	Upright	¾	Standard	Bronze	200°F	
	Reliable	RA1425	F1FR56	74	5.6	Upright	½	Quick	Bronze	200°F	
	Reliable	R7326	JL112	31	11.2	Upright	¾	Standard	Bronze	212°F	SPRIG
	Reliable	R1722	F1 LO	4	8	Upright	¾	Standard	Bronze	200°F	SPRIG
	Reliable	RA1435	F1FR56	9	5.6	Sidewall	½	Quick	Bronze	200°F	
	Reliable	R3531	F1Res44	754	4.4	Sidewall	½	Fast	Chrome	155°F	403 ESC
	Reliable	R3531	F1Res44	219	4.4	Sidewall	½	Fast	Chrome	175°F	403 ESC
	Reliable	R3516	F1Res49	30	4.9	Pendent	½	Fast	Chrome	155°F	SEMI-REC
				Total = 1507							



3 SP1 KEY PLAN/SITE SCHEMATIC
SCALE: NONE

SYSTEM NOTES:

SYSTEM TYPE: 3 WET PIPE SYSTEMS AND 1 STANDPIPE SYSTEM
DESIGN STANDARD: NFPA 13, 2016 EDITION
CONSTRUCTION: APARTMENT LEVELS: TYPE IIIA WOOD TRUSS
PARKING/RETAIL LEVELS: TYPE IA CONCRETE PLANK
SYSTEM AREA: LEVEL P1: 18,088 SQFT
LEVEL 1: 21,934 SQFT
LEVEL 2: 17,834 SQFT
LEVELS 3-6: 16,897 SQFT EACH
OCCUPANCY: GROUP S-2 PARKING, GROUP M RETAIL, GROUP B OFFICE
GROUP A-3 ASSEMBLY AND GROUP R2 APARTMENTS
ALL AREAS TO BE LIGHT HAZARD OCCUPANCY CLASS U.N.O.
ALARM: ELECTRIC HORN/STROBE
DRY VOLUME: N/A

HANGER SPACING:

HANGER SPACING AS PER 2016 ED. OF NFPA 13.
1. GROOVED LIGHTWALL STEEL PIPE: 1 1/2 " TO 8" MAX SPACING 15'-0"
2. THREADED LIGHTWALL STEEL PIPE: 1" TO 3" MAX SPACING 12'-0"
3. CPVC: 3/4 " MAX SPACING 5'-6"; 1" MAX SPACING 6'-0"; 1 1/4 " MAX SPACING 6'-6";
1 1/2 " MAX SPACING 7'-0"; 2" MAX SPACING 8'-0";
* HANGERS ARE NOT SHOWN FOR CLARITY

WATER SUPPLY:

FLOW TEST INFORMATION SUPPLIED BY:
FLOW TEST LOCATION: 625 2ND AVE N.
STATIC: 53 PSI
RESIDUAL: 51 PSI
FLOW: 1074 GPM
TEST DATE: SEP 9, 2020

MATERIAL NOTES:

1. MAIN PIPING THROUGHOUT SHALL BE SCH. 7 TYPE JOINED BY GRV FITTINGS.
2. WELDED BRANCHLINES THROUGHOUT SHALL BE SCH. 7 TYPE JOINED BY GRV FITTINGS. THREADED BRANCHLINES SHALL BE SCH. 30 BLACK JOINED BY THREADED FITTINGS.
3. APARTMENT LEVEL PIPING SHALL BE CPVC (PLASTIC) TYPE JOINED BY CPVC SLIP FITTINGS.

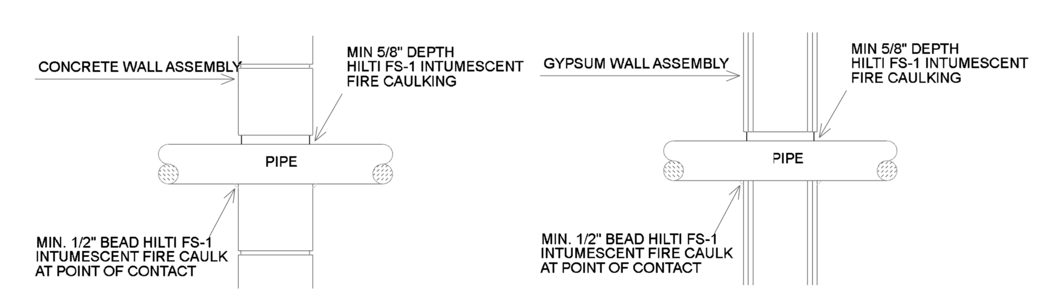
DESIGN NOTES:

1. SPRINKLERS SHALL NOT BE REQUIRED IN BATHROOMS WHERE THE AREA DOES NOT EXCEED 55 SQ.FT. AND THE WALLS AND CEILING ARE OF NON-COMBUSTIBLE OR LIMITED-COMBUSTIBLE MATERIAL PROVIDING A 15 MINUTE THERMAL BARRIER PER NFPA 13 SECTION 8.15.8.1

GENERAL NOTES:

1. ALL PIPING SHALL BE HYDRAULICALLY TESTED FOR 2 HOURS AT 200 PSI OR 50 PSI EXCESS OF SYSTEM PRESSURE, WHICHEVER IS GREATER.
2. SIGNED COPIES OF TEST CERTIFICATES SHALL BE FORWARDED TO APPROPRIATE OFFICES.
3. CALCULATIONS SUMMARY STICKERS SHALL BE PLACED ON SYSTEM RISER.
4. SPRINKLER HEADS SHALL BE INSTALLED UNDER EXPOSED DUCTWORK OVER 4'-0" IN WIDTH OR OTHER OBSTRUCTIONS AS REQUIRED.
5. PAINTING OF EXPOSED PIPING SHALL BE DONE BY OTHERS.
6. SPARE SPRINKLER HEADS AND CABINET SHALL BE PROVIDED.
7. PIPE PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE FIRE CAULKED.
8. PERMANENT SIGNS SHALL BE PLACED ON CONTROL VALVES AND SYSTEM RISERS, TEST VALVES, AND DRAINS.
9. MONITORING OF SYSTEM TO BE PROVIDED BY OTHERS.

1 SP1 BUILDING SECTION SCHEMATIC
SCALE 1/8"=1'-0"



FIRE RATED CONCRETE PENETRATION ASSEMBLY W-J-1067
Use Hilti FS-1 Fire Stop

FIRE RATED GYPSUM PENETRATION ASSEMBLY W-L-1054
Use Hilti FS-1 Fire Stop

2 SP1 FIRESTOPPING DETAILS
SCALE: NONE

DRAWING LEGEND:

4	HYDRAULIC REFERENCE POINT
★ 4'-0 FF℄	FINISHED FLOOR CENTERLINE OF PIPE
★ 4'-0 TS℄	TOP OF STRUCTURE CENTERLINE OF PIPE
OH1	ORDINARY GROUP I HAZARD
OH2	ORDINARY GROUP II HAZARD
EH1	EXTRA HAZARD GROUP I HAZARD
EH1	EXTRA HAZARD GROUP II HAZARD
2 / 4'-0	TYPICAL STEEL PIPE APPEARANCE
1½ / 4'-0	TYPICAL CPVC PIPE APPEARANCE
1 / 4'-0	TYPICAL STEEL PIPE ARM OVER APPEARANCE

CONSTRUCTION (FIRE RESISTIVE REQUIREMENTS)		
	I-A	III-A
EXTERIOR BEARING WALLS	3 Hr.	2 Hr.
INTERIOR BEARING WALLS	3 Hr.	1 Hr.
EXTERIOR NON-BEARING WALLS	1 Hour >/= 30 Ft.	1 Hour >/= 30 Ft.
STRUCTURAL FRAME	3 Hr.	1 Hr.
INTERIOR NONBEAR'G WALLS & PARTITIONS	0 Hr.	0 Hr.
SHAFT ENCLOSURES	2 Hr.	2 Hr.
FLOORS/CEILINGS	2 Hr.	1 Hr.
ROOF CEILINGS	1 1/2 Hr.	1 Hr.
EXTERIOR DOORS & WINDOWS	NA	NA
AREA SEPARATION WALLS	NA	NA
EXIT ENCLOSURES (Stairway Construction)	1 Hr. @ 3 Stories & 2 Hr. @ 4 Story	
EXIT CORRIDORS	2 Hr.	NA
OCCUPANCY SEPARATION WALLS	1 HR. BETWEEN B & A-3 1 HR. BETWEEN M & A-3	

DATE: 5/10/2021
SCALE: 1/8" = 1'-0"
REVIEWED BY: DS
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FARGO, ND 58102

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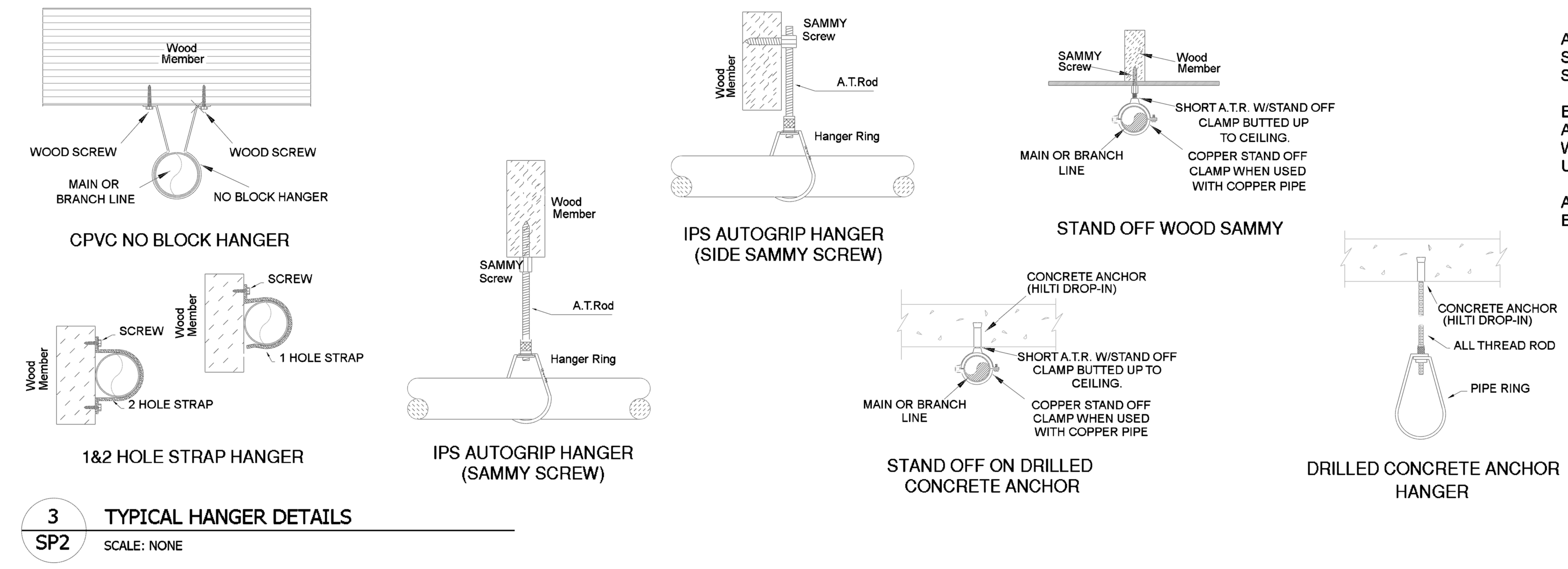
JOB NO.: 2113

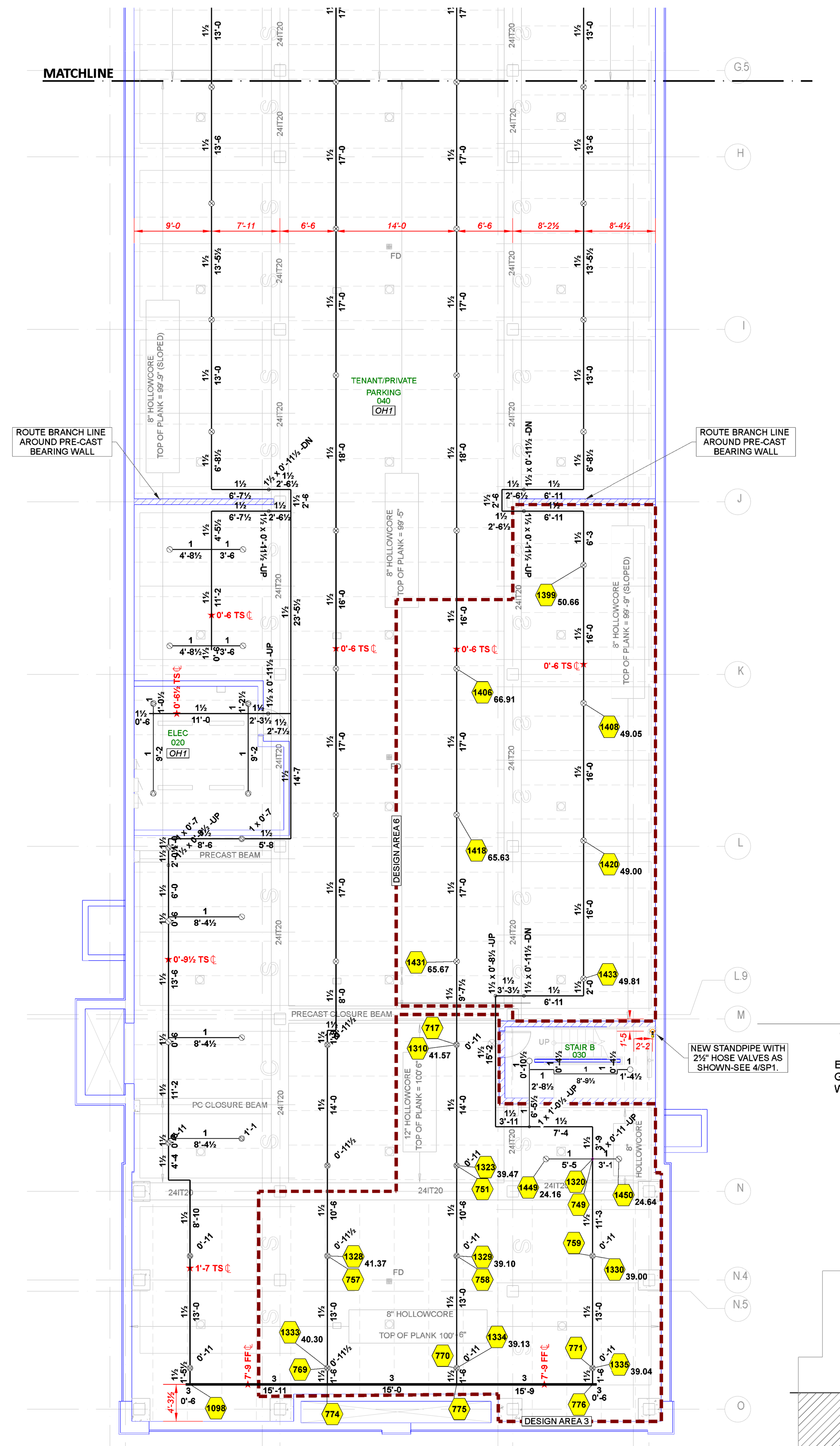


3
SP2
TYPICAL HANGER DETAILS
SCALE: NONE

ALL RETAIL AREAS PROTECTED WITH STANDARD COVERAGE QUICK RESPONSE SPRINKLERS SPACED PER NFPA 13.

EXTENDED COVERAGE UPRIGHTS SPACED AT 18' X 18' MAX. AND 8' MIN. AT OH1 AREAS WITH DEFLECTORS 1"-12" BELOW CEILING. U.N.O.-SEE 1/SP2.

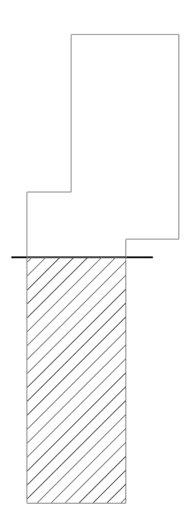
ALL F.F. ELEVATIONS TAKEN FROM BENCHMARK 90'-6"



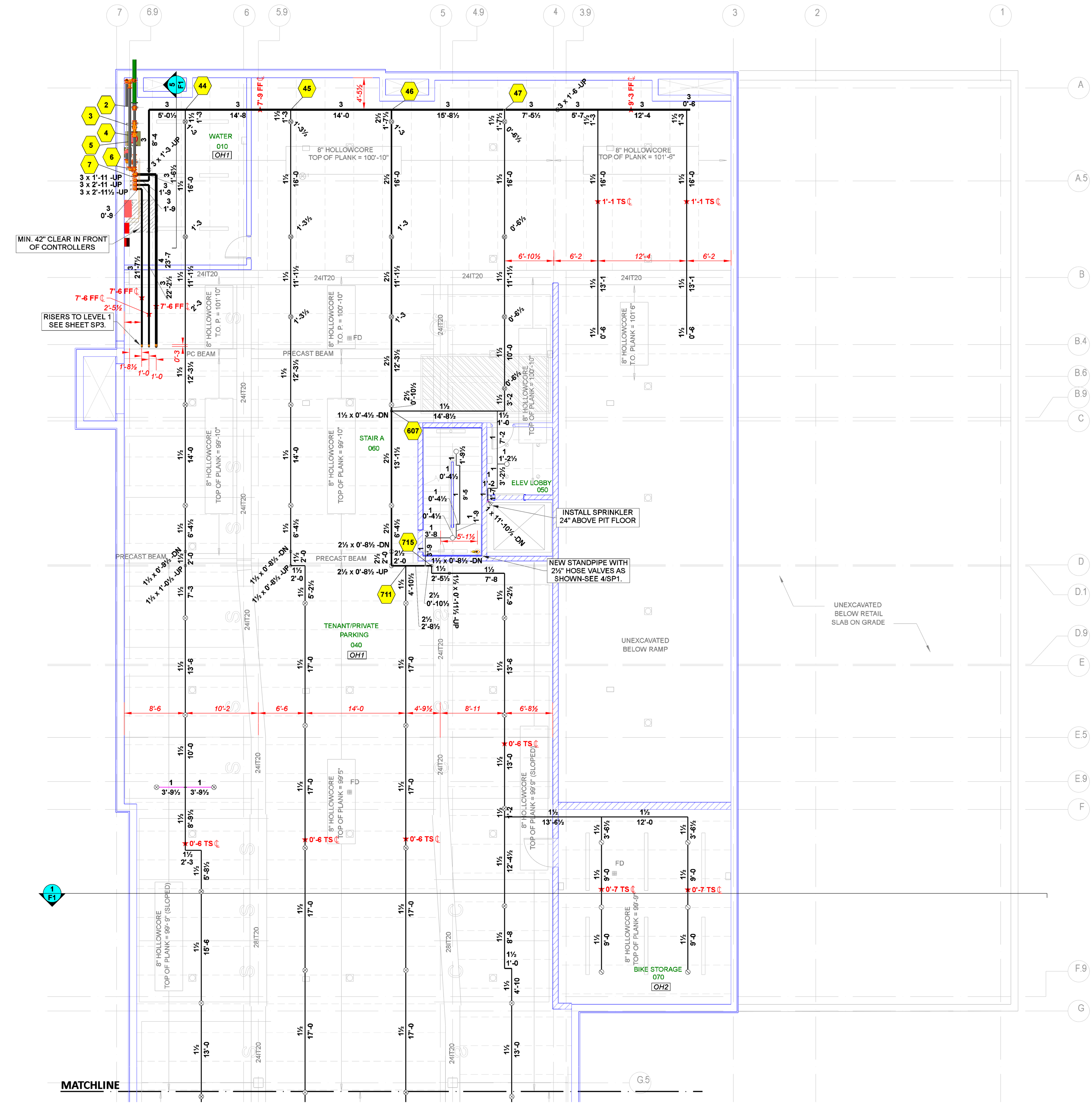
EXTENDED COVERAGE PENDENTS SOUTH OF GRID M SPACED AT 16' X 16' MAX. AND 8' MIN. WITH DEFLECTORS 1"-12" BELOW CEILING.

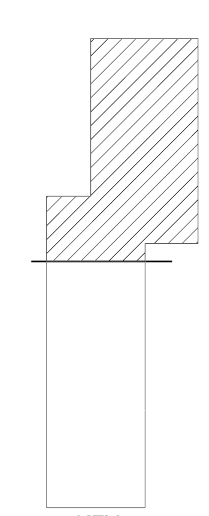
Hydraulic Information	
Remote Area 3	
OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft²)	0.15 for 1500ft² (Actual 1593ft²)
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	10
K-FACTOR	11.2
TOTAL WATER REQUIRED	617.79
TOTAL PRESSURE REQUIRED	17.344
BASE of RISER (gpm)	367.79
BASE of RISER (psi)	97.241
SAFETY MARGIN (psi)	+34.937 (66.8%)

Hydraulic Information	
Remote Area 6	
OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft²)	0.15 for 1500ft² (Actual 1632ft²)
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	7
K-FACTOR	11.2
TOTAL WATER REQUIRED	646.73
TOTAL PRESSURE REQUIRED	41.034
BASE of RISER (gpm)	396.73
BASE of RISER (psi)	118.667
SAFETY MARGIN (psi)	+11.183 (21.4%)



1
SP2
AUTOMATIC SPRINKLER PLAN-LEVEL P1 SOUTH
SCALE 1/8"=1'-0"





2
SP2
AUTOMATIC SPRINKLER PLAN-LEVEL P1 NORTH
SCALE 1/8"=1'-0"

Sprinkler Legend-LEVEL P1 TOTALS											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
	Reliable	RA1425	F1FR56	22	5.6	Upright	½	Quick	Bronze	200°F	
	Reliable	RA1435	F1FR56	3	5.6	Sidewall	½	Quick	Bronze	200°F	
	Reliable	R7326	JL112	96	11.2	Upright	¾	Standard	Bronze	212°F	
	Reliable	RA3415	G5-56	15	5.6	Pendent	½	Quick	White	212°F	CONCEALED
	Reliable	R3622	F1FR LO	123	8	Upright	¾	Quick	Bronze	200°F	
	Reliable	R7326	JL112	31	11.2	Upright	¾	Standard	Bronze	212°F	SPRIG
	Reliable	R1722	F1 LO	4	8	Upright	¾	Standard	Bronze	200°F	SPRIG
	Reliable	R1722	F1 LO	16	8	Upright	¾	Standard	Bronze	200°F	
				Total = 310							

DATE: 5/10/2021

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

REVIEWED BY: DS

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FARGO, ND 58102

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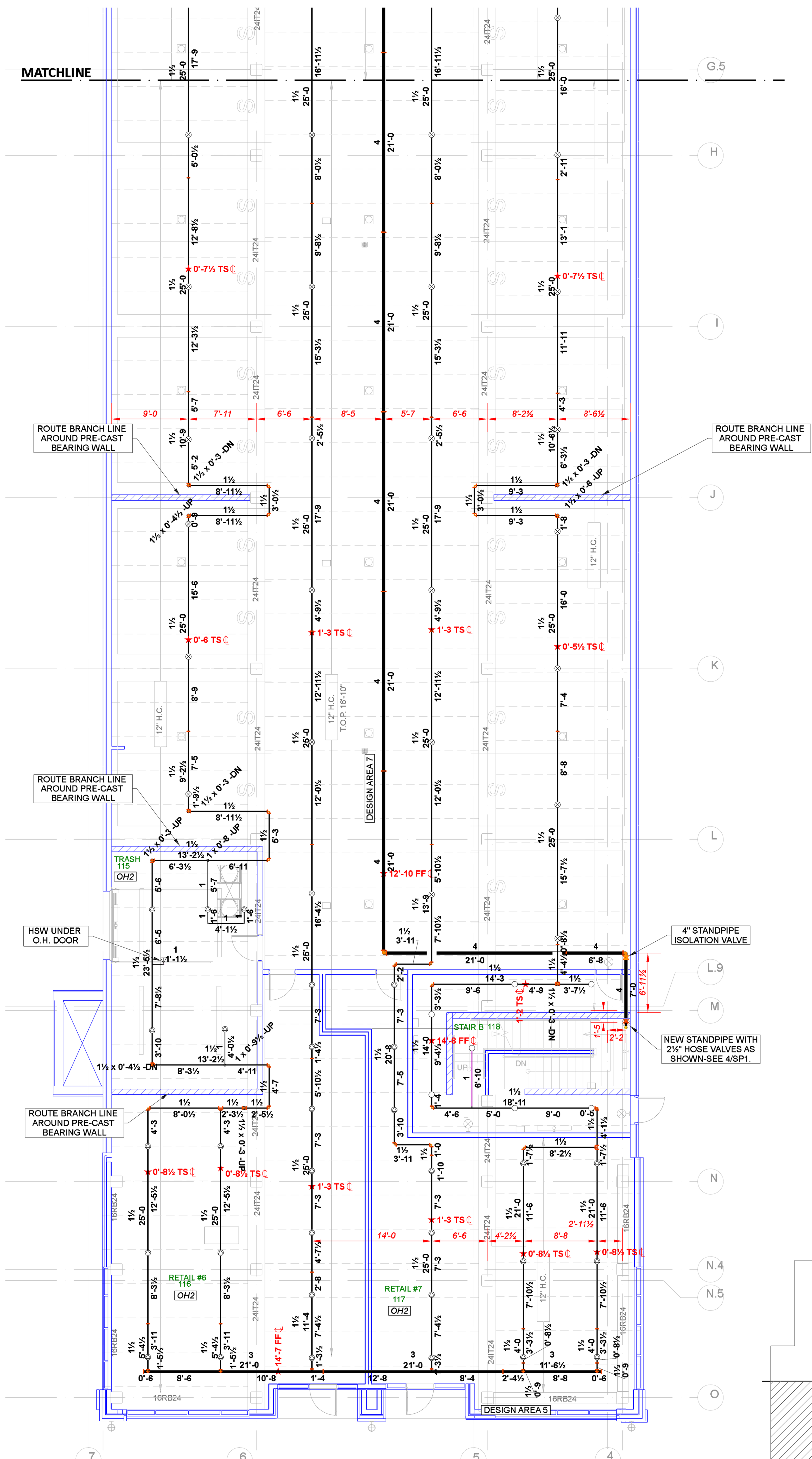
JOB NO.: 2113

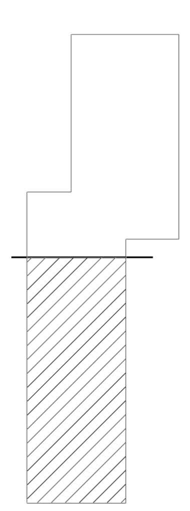
ALL RETAIL AREAS PROTECTED WITH STANDARD COVERAGE QUICK RESPONSE SPRINKLERS SPACED PER NFPA 13.

EXTENDED COVERAGE UPRIGHTS SPACED AT 18' X 18' MAX. AND 8' MIN. AT OH1 AREAS WITH DEFLECTORS 1"-12" BELOW CEILING.

ALL F.F. ELEVATIONS TAKEN FROM BENCHMARK 100'-0"



1
SP3
AUTOMATIC SPRINKLER PLAN-LEVEL 1 SOUTH
SCALE 1/8"=1'-0"

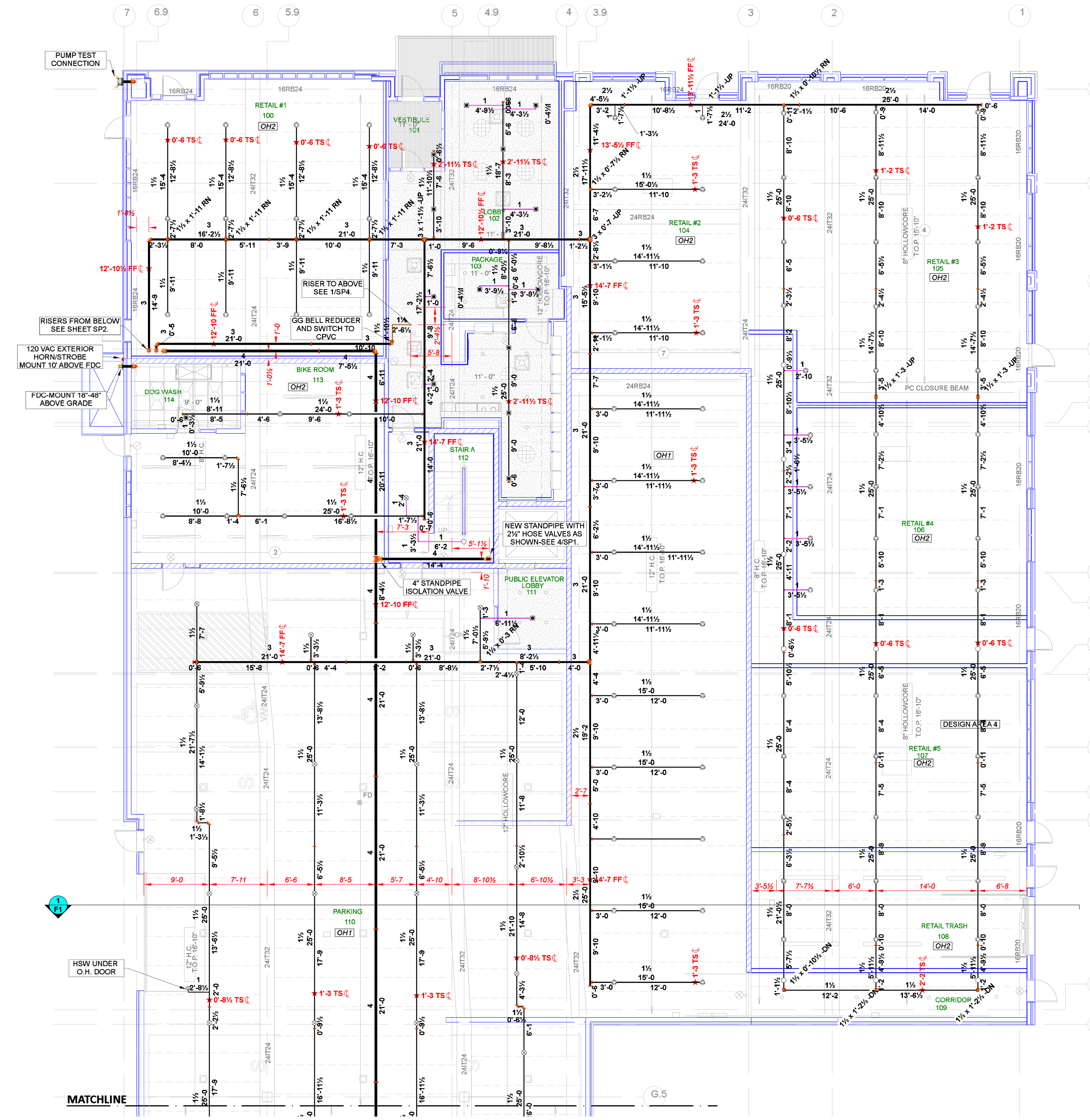


KEY

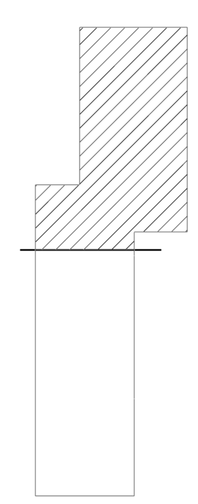
Hydraulic Information	
Remote Area 4	
OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft²)	0.20 for 1500ft² (Actual 1143ft²)
QUICK RESPONSE REDUCTION	16'-2 Ceiling (30.8%) 1039ft²
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	11
K-FACTOR	5.6
TOTAL WATER REQUIRED	583.39
TOTAL PRESSURE REQUIRED	18.689
BASE of RISER (gpm)	333.39
BASE of RISER (psi)	101.087
SAFETY MARGIN (psi)	+33.665 (64.3%)

Hydraulic Information	
Remote Area 5	
OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft²)	0.20 for 1500ft² (Actual 1099ft²)
QUICK RESPONSE REDUCTION	15'-10 Ceiling (31.3%) 1031ft²
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	14
K-FACTOR	8
TOTAL WATER REQUIRED	614.49
TOTAL PRESSURE REQUIRED	27.225
BASE of RISER (gpm)	364.49
BASE of RISER (psi)	107.372
SAFETY MARGIN (psi)	+25.063 (47.9%)

Hydraulic Information	
Remote Area 7	
OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft²)	0.15 for 1500ft² (Actual 1638ft²)
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	7
K-FACTOR	11.2
TOTAL WATER REQUIRED	634.73
TOTAL PRESSURE REQUIRED	44.460
BASE of RISER (gpm)	384.73
BASE of RISER (psi)	123.049
SAFETY MARGIN (psi)	+7.784 (14.9%)



2
SP3
AUTOMATIC SPRINKLER PLAN-LEVEL 1 NORTH
SCALE 1/8"=1'-0"



KEY

Sprinkler Legend-LEVEL 1 TOTALS

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
	Reliable	RA1425	F1FR56	22	5.6	Upright	½	Quick	Bronze	200°F	
	Reliable	RA1435	F1FR56	3	5.6	Sidewall	½	Quick	Bronze	200°F	
	Reliable	R7326	JL112	96	11.2	Upright	¾	Standard	Bronze	212°F	
	Reliable	RA3415	G5-56	15	5.6	Pendent	½	Quick	White	212°F	CONCEALED
	Reliable	R3622	F1FR LO	123	8	Upright	¾	Quick	Bronze	200°F	
	Reliable	R7326	JL112	31	11.2	Upright	¾	Standard	Bronze	212°F	SPRIG
	Reliable	R1722	F1 LO	4	8	Upright	¾	Standard	Bronze	200°F	SPRIG
	Reliable	R1722	F1 LO	16	8	Upright	¾	Standard	Bronze	200°F	
				Total = 310							

DATE: 5/10/2021
SCALE: 1/8" = 1'-0"
REVIEWED BY: DS
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FARGO, ND 58102

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JOB NO.: 2113

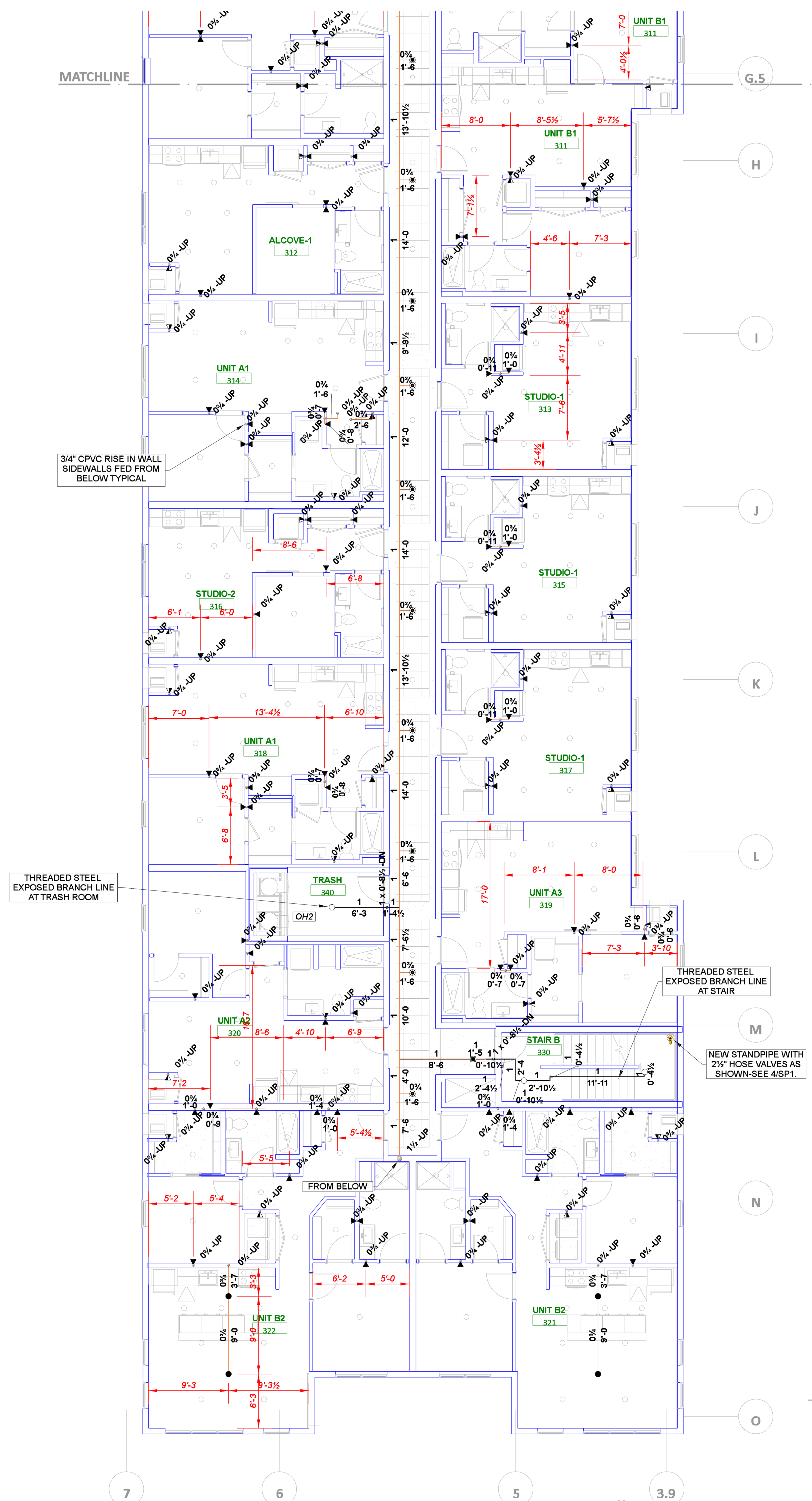
RESIDENTIAL PENDENTS SPACED AT 20' X 20' MAX. AND 8' MIN.

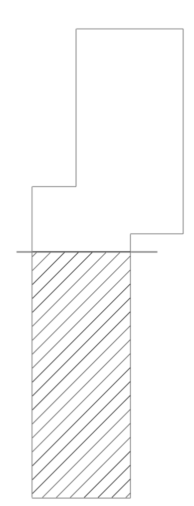
RESIDENTIAL SIDEWALLS SPACED AT 16' X 18' MAX. AND 8' MIN.
WITH DEFLECTORS 6"-12" BELOW CEILING.

CORRIDOR SPRINKLERS SPACED AT 15' X 15' MAX. AND 6' MIN.
WITH DEFLECTORS 1"-12" DOWN FROM CEILING.

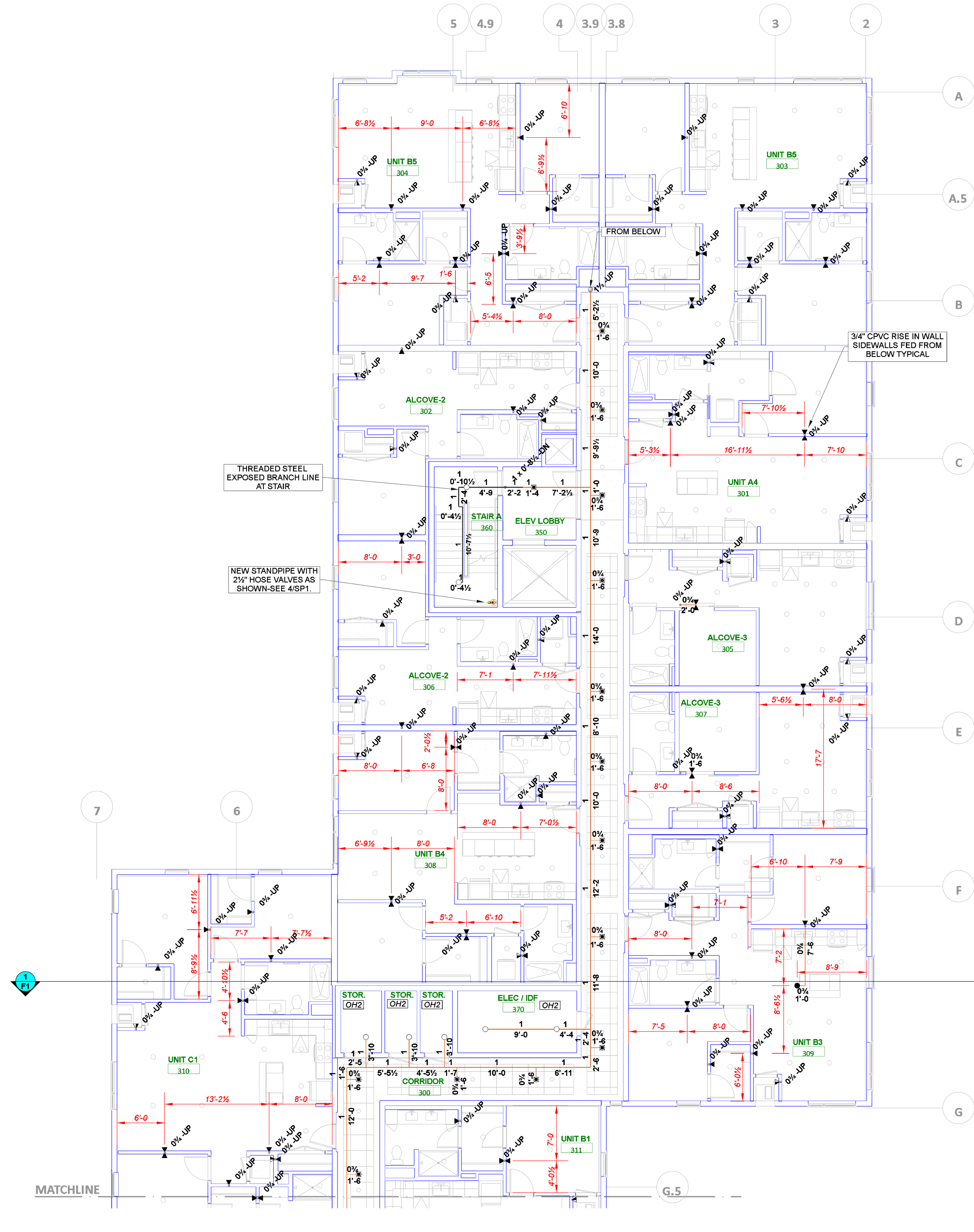
ALL CORRIDOR FINISHED GYP. CEILINGS AT 8'-0" U.N.O.
ALL CORRIDOR FINISHED ACT CEILINGS AT 8'-4" U.N.O.
AT UNITS ALL CEILINGS TO BE 9'-0" EXCEPT SHADED CEILINGS
AND SOFFITS TO BE AT 8'-0" U.N.O.

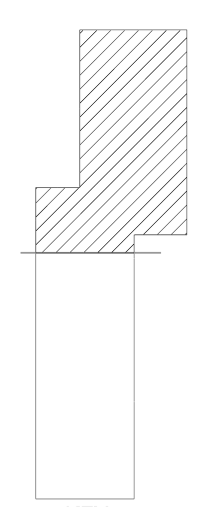
FOR AREAS PROTECTED WITH RESIDENTIAL SPRINKLERS:
-NO ADDITIONAL SPRINKLERS ARE REQUIRED UNDER OBSTRUCTIONS
AGAINST THE WALL THAT ARE 2FT WIDE OR LESS.





1 SP5 AUTOMATIC SPRINKLER PLAN-LEVEL 3 SOUTH
SCALE 1/8"=1'-0"





2 SP5 AUTOMATIC SPRINKLER PLAN-LEVEL 3 NORTH
SCALE 1/8"=1'-0"

Sprinkler Legend-LEVEL 3 TOTALS

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
▶	Reliable	R3531	F1Res44	155	4.4	Sidewall	½	Fast	Chrome	155°F	403 ESC
◉	Reliable	RA3415	G5-56	24	5.6	Pendent	½	Quick	White	212°F	CONCEALED
○	Reliable	RA1425	F1FR56	10	5.6	Upright	½	Quick	Bronze	200°F	
◣	Reliable	R3531	F1Res44	44	4.4	Sidewall	½	Fast	Chrome	175°F	403 ESC
●	Reliable	R3516	F1Res49	5	4.9	Pendent	½	Fast	Chrome	155°F	SEMI-REC
				Total = 238							

DRAWN BY:

REVIEWED BY: DS

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

DATE: 5/10/2021

KESLER PROJECT
2ND STREET N.
FARGO, ND 58102

SP
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JOB NO.:
2113