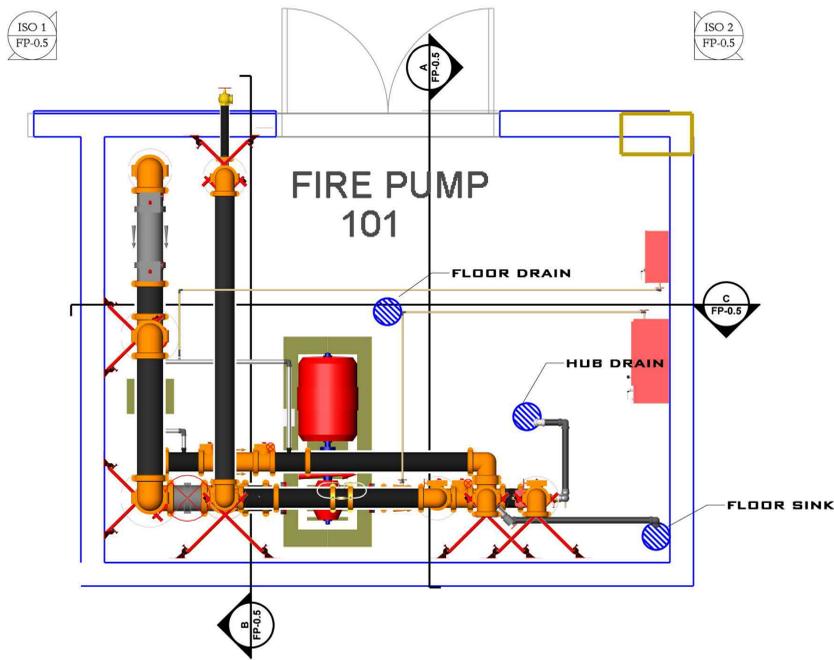
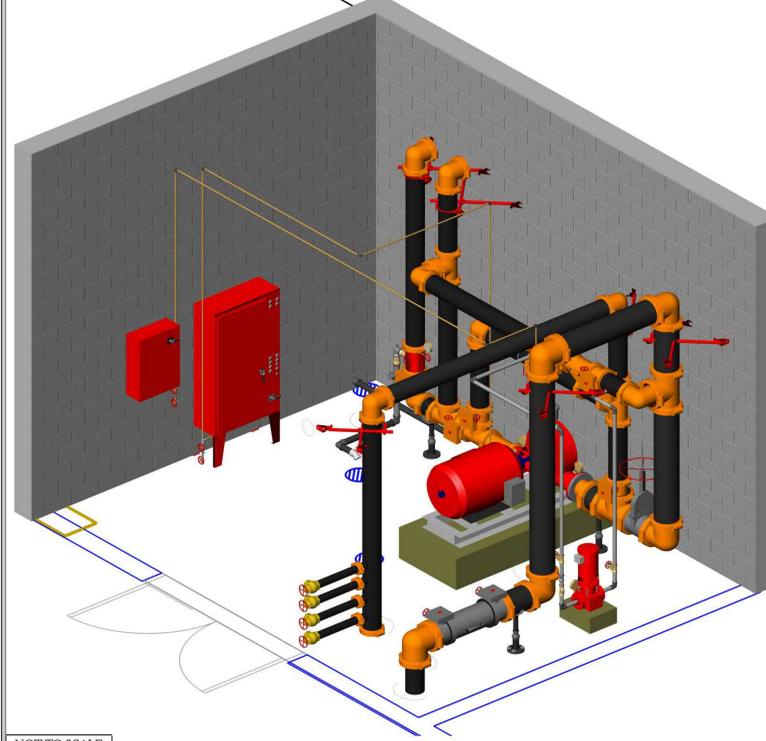


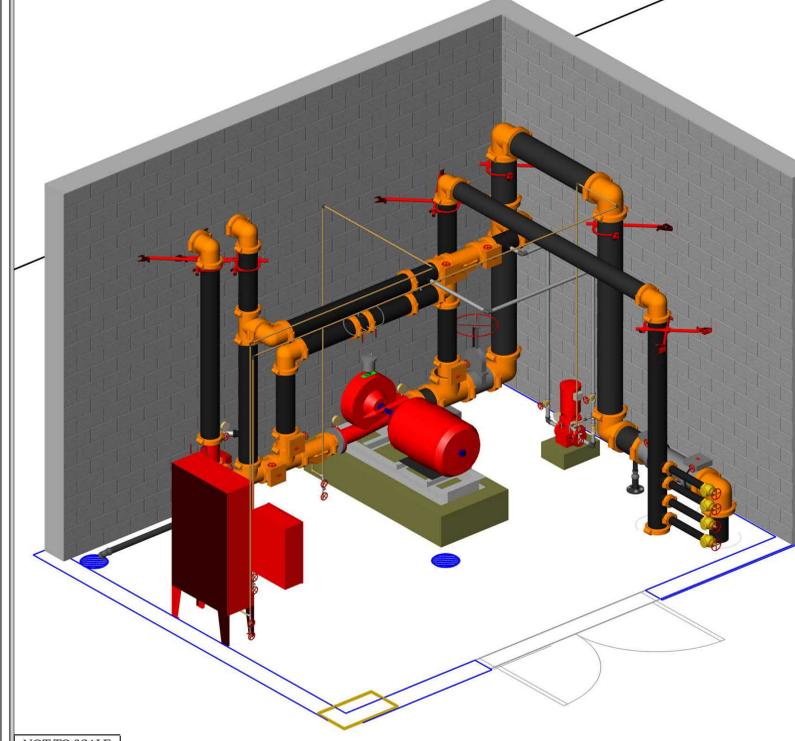
PUMP ROOM FLOOR PLAN



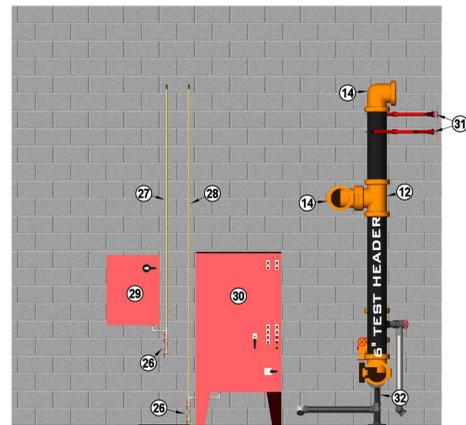
PUMP ROOM ISOMETRIC 1



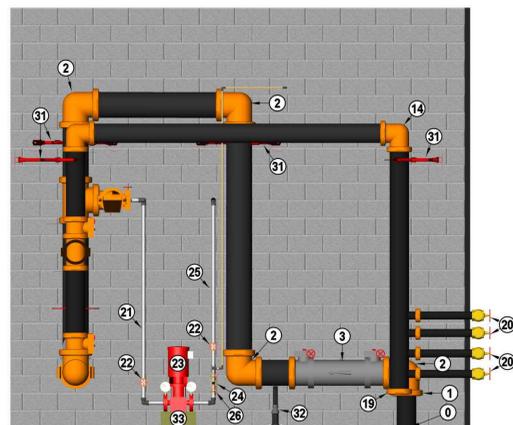
PUMP ROOM ISOMETRIC 2



PUMP ROOM SECTION A



PUMP ROOM SECTION B



PUMP ROOM LEGEND

#	DESCRIPTION	REMARKS
0	6" FROM UNDERGROUND	
1	8" X 6" REDUCING COUPLING	
2	8" GROOVED ELBOW 90	
3	8" GROOVED DERINGER 30 BACKFLOW	
4	8" GROOVED OS&Y VALVE WITH TAMPER	
5	8" GROOVED TEE	
6	8" X 6" GROOVED ECCENTRIC REDUCER	
7	6" GROOVED FLANGE	
8	FIRE PUMP, SEE INFORMATION TABLE	
9	5" GROOVED FLANGE	
10	5" X 6" GROOVED CONCENTRIC REDUCER	
11	6" GROOVED CHECK VALVE	
12	6" GROOVED TEE	
13	6" GROOVED BUTTERFLY CONTROL VALVE, NORMALLY OPEN	
14	6" GROOVED ELBOW 90	
15	6" GROOVED RISER MANIFOLD	
16	6" GROOVED BUTTERFLY CONTROL VALVE, NORMALLY CLOSED	
17	1/2" BALL VALVE	
18	FIRE PUMP TEST METER	
19	6" GROOVED DRAIN CAP	
20	2-1/2" HOSE VALVE	
21	1-1/4" JOCKEY PUMP SUCTION PIPING	
22	1-1/4" OS&Y VALVE WITH TAMPER	
23	JOCKEY PUMP, SEE INFORMATION TABLE	
24	1-1/4" CHECK VALVE	
25	1-1/4" JOCKEY PUMP DISCHARGE LINE	
26	TEST ASSEMBLY PER NFPA 20	
27	JOCKEY PUMP SENSING LINE	
28	FIRE PUMP SENSING LINE	
29	JOCKEY PUMP CONTROLLER	
30	FIRE PUMP CONTROLLER	
31	SEISMIC BRACE	
32	PIPE STAND	
33	CONCRETE PAD, BY OTHERS	
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TEST HEADER GREATER THAN 15' - 0"

TEST HEADER HAS BEEN SIZED PER HYDRAULIC CALCULATIONS PER NFPA 20, SECTION 4.21.3.4 (2).

TEST HEADER CALCULATION INFORMATION	
PUMP RATING IN GPM	1000
150% OF PUMP RATING	1500
NUMBER OF TEST HOSE STREAMS	4
SIZE OF FIRE HOSE	2.5"

**DISCHARGE NOZZLE**

WHERE: P = PITOT PRESSURE IN PSI  
 Q = FLOW RATE IN GPM  
 C = NOZZLE DISCHARGE COEFFICIENT  
 D = NOZZLE DIAMETER IN INCHES

$$P = \left( \frac{Q}{29.84 \cdot C \cdot D^2} \right)^2$$

FLOW RATE IN GPM (150% RATING / NUMBER OF STREAMS)	Q = 375
NOZZLE DISCHARGE COEFFICIENT	C = 0.97
NOZZLE DIAMETER IN INCHES	D = 1.75
PITOT PRESSURE REQUIRED	P = 17.90

**FIRE HOSE FRICTION LOSS**

WHERE: FL = FRICTION LOSS IN PSI  
 C = FRICTION LOSS COEFFICIENT  
 Q = FLOW RATE IN GPM  
 L = HOSE LENGTH

$$FL = C \cdot \left( \frac{Q}{100} \right)^2 \cdot \left( \frac{L}{100} \right)$$

FRICTION LOSS COEFFICIENT	C = 2
FLOW RATE IN GPM (150% RATING / NUMBER OF STREAMS)	Q = 375
HOSE LENGTH	L = 50
FRICTION LOSS IN PSI	FL = 14.06
TEST HEADER HOSE VALVE DISCHARGE:	375 GPM @ 31.96 PSI

FIRE PUMP DATA

MAKE & MODEL	PENTAIR 5-481-15
TYPE	HORIZONTAL SPLITCASE
SIZE	5" X 6" X 15"
RATING	1000 GPM @ 70 PSI
RPM	1770
ROTATION	LEFT HANDED
SUCTION SIZE	8" X 6"
DISCHARGE SIZE	5" X 6"
IMPELLER	13.63 INCH
ESTIMATED WEIGHT	730 LBS
START PRESSURE (FIELD VERIFY)	142 PSI
STOP PRESSURE (FIELD VERIFY)	157 PSI

DRIVER DATA

TYPE	ELECTRIC
POWER	75.00 HP
PHASE	3 PHASE
HERTZ	60 Hz
VOLTS	208 V
RPM	1800
ESTIMATED WEIGHT	660 LBS

JOCKEY PUMP DATA

MAKE & MODEL	TORNATECH JPLT
RATING	10 GPM @ 80 PSI
SUCTION & DISCHARGE SIZE	1.25 INCH
POWER	7.50 HP
PHASE	3 PHASE
VOLTS	208 V
START PRESSURE (FIELD VERIFY)	147 PSI
STOP PRESSURE (FIELD VERIFY)	157 PSI

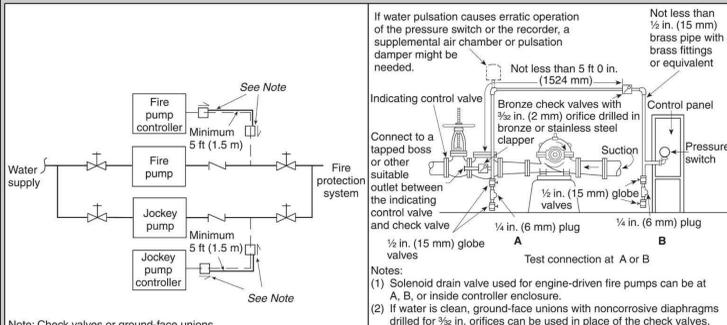
FIRE PUMP CONTROL PANEL DATA

MAKE & MODEL	EATON CUTLER HAMMER
VOLTAGE	208V
HP RANGE	5-400V
SOFT START	NO
AUTOMATIC TRANSFER SWITCH	NO
REMOTE ALARMS	PHASE REVERSAL, MOTOR RUN, FAIL TO START

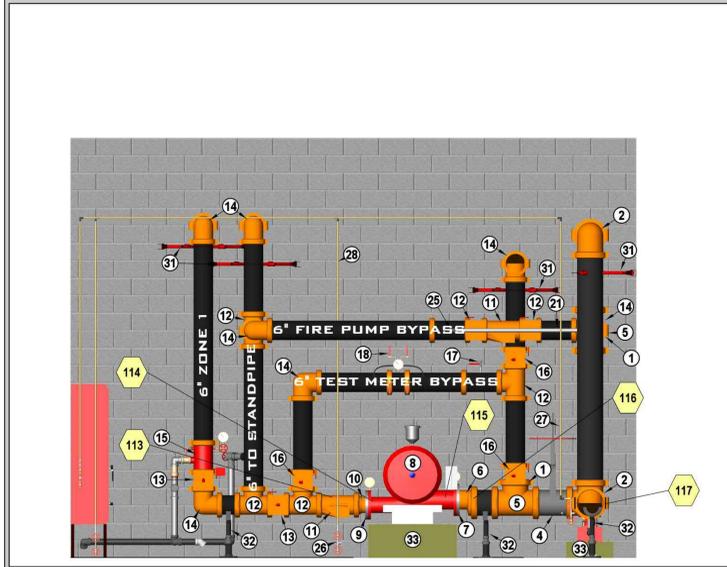
SYSTEM MONITORING

VALVE MONITORING, WATER-FLOW ALARM, AND TROUBLE SIGNALS SHALL BE AUTOMATICALLY TRANSMITTED TO AN APPROVED CENTRAL STATION. THIS WORK IS BY OTHERS.

SENSING LINE DETAIL



PUMP ROOM SECTION C



STAMP

PROJECT  
**RICHMOND METRO**  
 NEVIN AVE & 19TH ST,  
 RICHMOND, CA 94804

CUSTOMER  
**PACIFIC WEST COMMUNITIES**  
 430 E STATE STREET, SUITE 100  
 EAGLE, ID 83616

MOD. FACTORY  
**AUTOVOL**  
 16379 STAR ROAD, NAMPA, ID  
 PHONE: 208-606-7500  
 EMAIL: INFO@AUTOVOL.COM

APPROVALS  
**RICHMOND FIRE DEPARTMENT**  
 440 CIVIC CENTER PLAZA (2ND FLOOR)  
 RICHMOND, CA 94804  
 (510) 307-8031

INSPECTIONS  
 PHONE: (510) 307-8037  
 WELD INSPECTION: YES

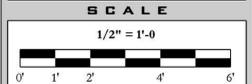
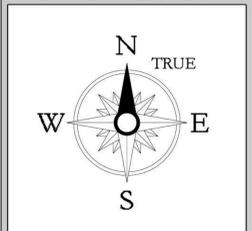
REVISIONS

NO.	DATE	DESCRIPTION

CITY SUPPLY  
 STATIC PRESSURE: 59 PSI  
 RESIDUAL PRESSURE: 40 PSI

FLOW @ RESIDUAL: 1000 GPM  
 TEST LOCATION: 18TH STREET  
 295 FEET SOUTH OF BARRETT AVE  
 TEST DATE: 03-26-2024  
 TESTING AGENCY: EBMUD  
 HYDRANT #: N/A

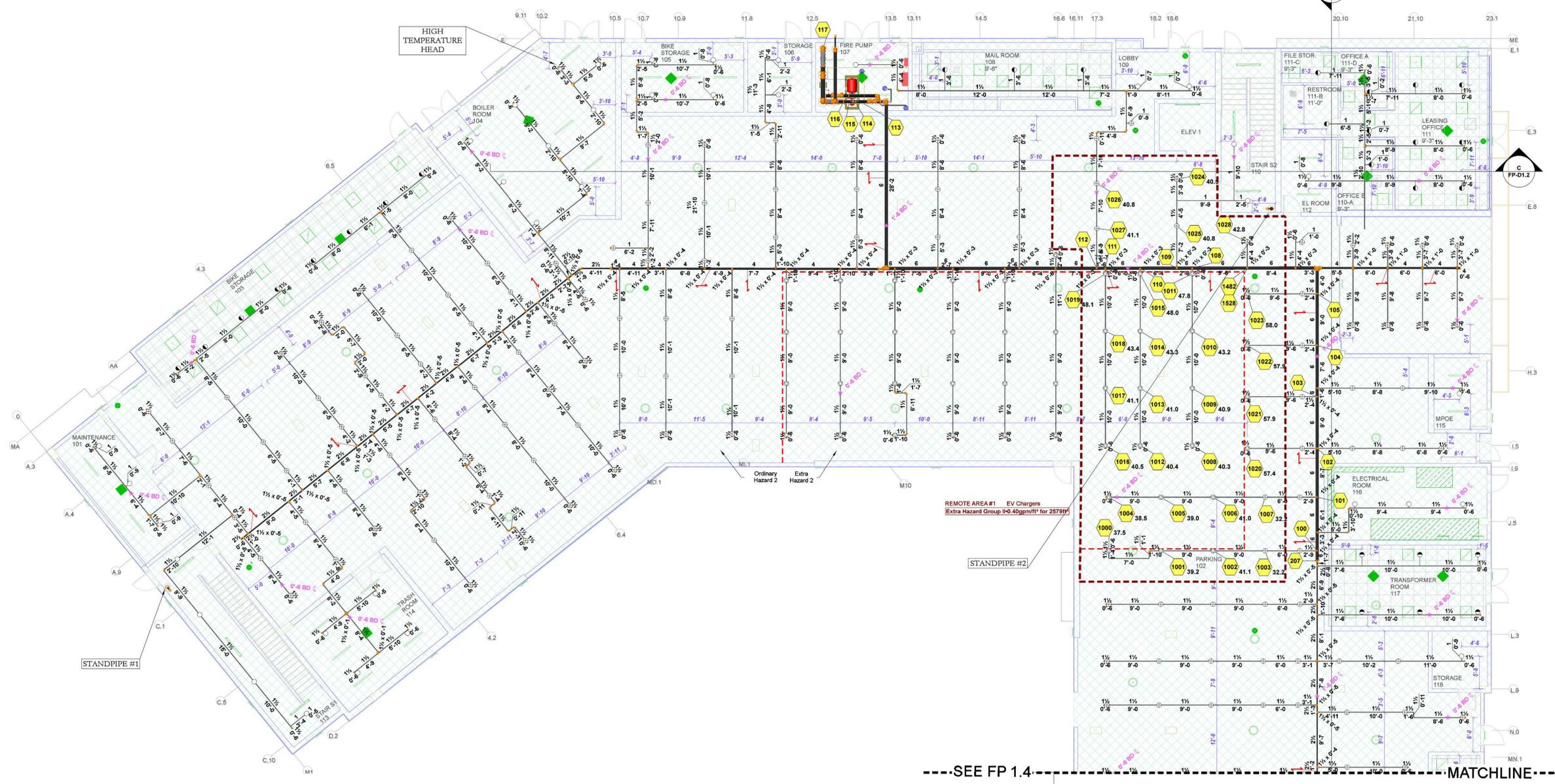
ORIENTATION



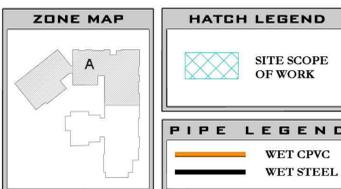
DESCRIPTION  
**ENLARGED FIRE PUMP ROOM**

SHEET NUMBER  
**FP-0.5**





- KEY NOTES**
- 1 TYPICAL SYSTEM RISER  
SEE DETAIL ON SHEET FP-D2
  - 2 TYPICAL COMBINATION STANDPIPE  
SEE DETAIL ON SHEET FP-D2
  - 3 TYPICAL STANDPIPE  
SEE DETAIL ON SHEET FP-D2
  - 4 6" TYPICAL STANDPIPE & HOSE VALVE CABINET  
SEE DETAIL ON SHEET FP-D2
  - 5 6" DOWN TO FLOOR BELOW  
ANNULAR CLEARANCE PER NFPA 13
  - 6 6" UP TO FLOOR ABOVE  
ANNULAR CLEARANCE PER NFPA 13
  - 7 2" DRAIN UP TO FLOOR ABOVE  
ANNULAR CLEARANCE PER NFPA 13
  - 8 2" DRAIN DOWN TO FLOOR BELOW  
ANNULAR CLEARANCE PER NFPA 13
  - 9 2" DRAIN TO SANITARY CONNECTION
  - 10 1" AUXILIARY DRAIN  
NIPPLE, VALVE & PLUG
  - 11 1" AUXILIARY DRAIN  
PIPE TO SANITARY DRAIN
  - 12 9'-0" MAX. IN SMALL ROOMS  
SEE DESIGN NOTE #1 ON SHEET FP-0.1
  - 13 SPRINKLER OMITTED FROM BATHROOM  
SEE DESIGN NOTE #2 ON SHEET FP-0.1
  - 14 SPRINKLER OMITTED FROM OVERHANG  
SEE DESIGN NOTE #3 ON SHEET FP-0.1
  - 15 SPRINKLER OMITTED FROM VERTICAL SHAFT  
SEE DESIGN NOTE #4 ON SHEET FP-0.1
  - 16 LAUNDRY OR GARBAGE CHUTE SPRINKLER  
PRE-INSTALLED & CONNECTED BY AEGIS
  - 17 CPVC TO STEEL PIPE ADAPTER  
THREADED OR GROOVED AS APPLICABLE



- PIPING NOTES**
- 1 BRANCHLINE PIPING TO BE INSTALLED 6" FROM BOTTOM OF SLAB TO CENTER OF PIPE, TYPICAL.
  - 2 BULK MAINS TO BE INSTALLED 1'-0" FROM BOTTOM OF DECK TO CENTER OF PIPE, TYPICAL.
  - 3 SYSTEM MAINS TO BE INSTALLED 1'-8" FROM BOTTOM OF DECK TO CENTER OF PIPE, TYPICAL.
  - 4 ALL EXPOSED PIPING SHALL BE STEEL PIPE PER GENERAL NOTE # 17 ON SHEET FP-0.1.

- CONCEALED SPACES**
- 1 ALL CONCEALED COMBUSTIBLE SPACES SHALL BE ENTIRELY FILLED WITH NONCOMBUSTIBLE INSULATION.
  - 2 SPRINKLERS SHALL BE OMITTED FROM CONCEALED COMBUSTIBLE SPACES ENTIRELY FILLED WITH NONCOMBUSTIBLE INSULATION PER NFPA 13, 9.2.1.7.

**SPRINKLER LEGEND**

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Escutcheons
	Tyco	TY3131	TY-FRB	36	5.6	Upright	1/2"	Quick	White	200°F	N/A
	Tyco	TY3231	TY-FRB	28	5.6	Pendent	1/2"	Quick	White	200°F	Recessed
	Tyco	TY4151	TY-B	125	8	Upright	3/4"	Standard	White	200°F	N/A
	Tyco	TY5151	ELO-231B	46	11.2	Upright	3/4"	Standard	Brass	200°F	N/A
	Tyco	TY3131	TY-FRB	1	5.6	Upright	1/2"	Quick	White	286°F	N/A
				Total = 236							

**HYDRAULIC INFORMATION #1**

Remote Area 1

OCCUPANCY CLASSIFICATION	Extra Hazard Group II
DENSITY (gpm/ft²)	0.40 for 2500ft² (Actual 2579ft²)
TOTAL HOSE STREAMS	600.0
TOTAL HEADS FLOWING	29
K-FACTOR	11.2
TOTAL WATER REQUIRED	1755.9
TOTAL PRESSURE REQUIRED	-1.3
BASE OF RISER (gpm)	1755.9
BASE OF RISER (psi)	-1.3
SAFETY MARGIN (psi)	+6.4 (124.3%)



**STAMP**

**PROJECT**  
**RICHMOND METRO**  
 NEVIN AVE & 19TH ST,  
 RICHMOND, CA 94804

**CUSTOMER**  
**PACIFIC ANTI-COMMUNITIES COMMUNITIES**  
 430 EAST 19TH STREET, SUITE 100  
 RICHMOND, CA 94804

**MOD. FACTORY**  
**AUTOVOL**  
 16379 STAR ROAD, NAMPA, ID  
 PHONE: 208-606-7500  
 EMAIL: INFO@AUTOVOL.COM

**APPROVALS**  
**RICHMOND FIRE DEPARTMENT**  
 440 CIVIC CENTER PLAZA (2ND FLOOR)  
 RICHMOND, CA 94804  
 (510) 307-8031

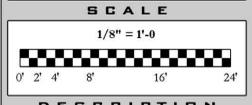
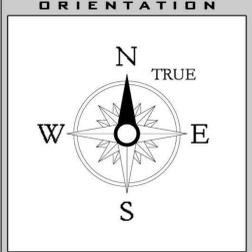
**INSPECTIONS**  
 PHONE: (510) 307-8037  
 WELD INSPECTION: YES

**REVISIONS**

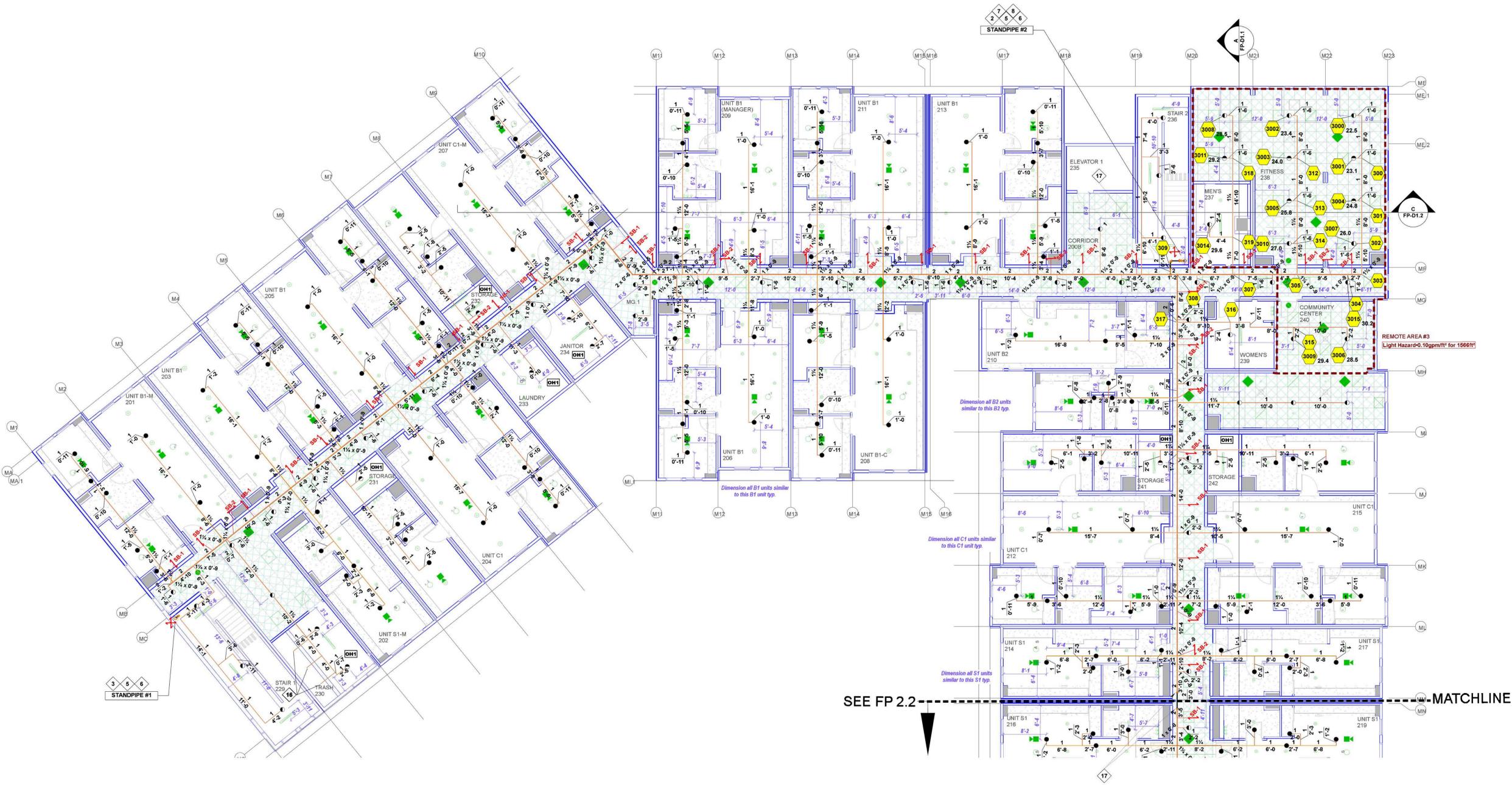
NO.	DATE	DESCRIPTION

**CITY SUPPLY**

STATIC PRESSURE: 59 PSI  
 RESIDUAL PRESSURE: 40 PSI  
 FLOW @ RESIDUAL: 1000 GPM  
 TEST LOCATION: 18TH STREET  
 295 FEET SOUTH OF BARRETT AVE  
 TEST DATE: 03-26-2024  
 TESTING AGENCY: EBMUD  
 HYDRANT #: N/A



**DESCRIPTION**  
 FLOOR 1 SYSTEM PIPING PLAN  
 -A  
**SHEET NUMBER**  
**FP-1.3**



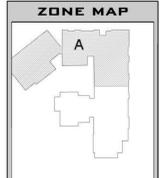
SEE FP 2.2

MATCHLINE

- KEY NOTES**
- 1 TYPICAL SYSTEM RISER  
SEE DETAIL ON SHEET FP-D2
  - 2 TYPICAL COMBINATION STANDPIPE  
SEE DETAIL ON SHEET FP-D2
  - 3 TYPICAL STANDPIPE  
SEE DETAIL ON SHEET FP-D2
  - 4 6" TYPICAL STANDPIPE & HOSE VALVE CABINET  
SEE DETAIL ON SHEET FP-D2
  - 5 6" DOWN TO FLOOR BELOW  
ANNULAR CLEARANCE PER NFPA 13
  - 6 6" UP TO FLOOR ABOVE  
ANNULAR CLEARANCE PER NFPA 13
  - 7 2" DRAIN UP TO FLOOR ABOVE  
ANNULAR CLEARANCE PER NFPA 13
  - 8 2" DRAIN DOWN TO FLOOR BELOW  
ANNULAR CLEARANCE PER NFPA 13
  - 9 2" DRAIN TO SANITARY CONNECTION
  - 10 1" AUXILIARY DRAIN  
NIPPLE, VALVE & PLUG
  - 11 1" AUXILIARY DRAIN  
PIPE TO SANITARY DRAIN
  - 12 9'-0" MAX. IN SMALL ROOMS  
SEE DESIGN NOTE #1 ON SHEET FP-0.1
  - 13 SPRINKLER OMITTED FROM BATHROOM  
SEE DESIGN NOTE #2 ON SHEET FP-0.1
  - 14 SPRINKLERS OMITTED FROM OVERHANG  
SEE DESIGN NOTE #3 ON SHEET FP-0.1
  - 15 SPRINKLERS OMITTED FROM VERTICAL SHAFT  
SEE DESIGN NOTE #4 ON SHEET FP-0.1
  - 16 LAUNDRY OR GARBAGE CHUTE SPRINKLER  
PRE-INSTALLED & CONNECTED BY AEGIS
  - 17 CPVC TO STEEL PIPE ADAPTER  
THREADED OR GROOVED AS APPLICABLE

- PIPING NOTES**
- 1 BRANCHLINE PIPING TO BE INSTALLED 6" FROM BOTTOM OF SLAB TO CENTER OF PIPE, TYPICAL.
  - 2 BULK MAINS TO BE INSTALLED 1'-0" FROM BOTTOM OF DECK TO CENTER OF PIPE, TYPICAL.
  - 3 SYSTEM MAINS TO BE INSTALLED 1'-8" FROM BOTTOM OF DECK TO CENTER OF PIPE, TYPICAL.
  - 4 ALL EXPOSED PIPING SHALL BE STEEL PIPE PER GENERAL NOTE # 17 ON SHEET FP-0.1.

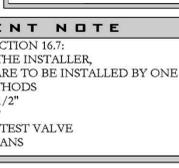
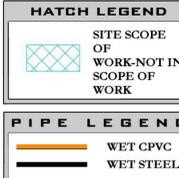
- CONCEALED SPACES**
- 1 ALL CONCEALED COMBUSTIBLE SPACES SHALL BE ENTIRELY FILLED WITH NONCOMBUSTIBLE INSULATION.
  - 2 SPRINKLERS SHALL BE OMITTED FROM CONCEALED COMBUSTIBLE SPACES ENTIRELY FILLED WITH NONCOMBUSTIBLE INSULATION PER NFPA 13, 9.2.1.7.



**AIR VENT NOTE**

AS STATED IN NFPA 13 SECTION 16.7: AT THE DISCRETION OF THE INSTALLER, AUTOMATIC AIR VENTS ARE TO BE INSTALLED BY ONE OF THE FOLLOWING METHODS

- 1) MANUAL VALVE, MIN 1/2"
- 2) AUTOMATIC AIR VENT
- 3) REMOTE INSPECTOR'S TEST VALVE
- 4) OTHER APPROVED MEANS



**SPRINKLER LEGEND**

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note	Escutcheons
●	Tyco	TY2236	LFII	119	4.9	Pendent	1/2"	Fast	White	175°F	Max spacing 18x18	Recessed
●	Tyco	TY3231	TY-FRB	62	5.6	Pendent	1/2"	Quick	White	200°F	N/A	Recessed
				Total =	181							

**HYDRAULIC INFORMATION #3**

Remote Area 3

OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft²)	0.10 for 1500ft² (Actual 1568ft²)
TOTAL HOSE STREAMS	100.0
TOTAL HEADS FLOWING	14
K-FACTOR	5.6
TOTAL WATER REQUIRED	471.9
TOTAL PRESSURE REQUIRED	17.7
BASE OF RISER (gpm)	471.9
BASE OF RISER (psi)	17.7
SAFETY MARGIN (psi)	+36.6 (67.5%)

**STAMP**

**PROJECT**  
**RICHMOND METRO**  
 NEVIN AVE & 19TH ST,  
 RICHMOND, CA 94804

**CUSTOMER**  
**PACIFIC WEST COMMUNITIES**  
 430 E State Street, Suite 100  
 Eagle, ID 83616

**MOD. FACTORY**  
**AUTOVOL**  
 16379 STAR ROAD, NAMPA, ID  
 PHONE: 208-606-7500  
 EMAIL: INFO@AUTOVOL.COM

**APPROVALS**  
**RICHMOND FIRE DEPARTMENT**  
 440 CIVIC CENTER PLAZA (2ND FLOOR)  
 RICHMOND, CA 94804  
 (510) 307-8031

**INSPECTIONS**  
 PHONE: (510) 307-8037  
 WELD INSPECTION: YES

**REVISIONS**

NO.	DATE	DESCRIPTION

**CITY SUPPLY**

STATIC PRESSURE: 59 PSI  
 RESIDUAL PRESSURE: 40 PSI  
 FLOW @ RESIDUAL: 1000 GPM  
 TEST LOCATION: 18TH STREET  
 295 FEET SOUTH OF BARRETT AVE  
 TEST DATE: 03-26-2024  
 TESTING AGENCY: EBMUD  
 HYDRANT #: N/A

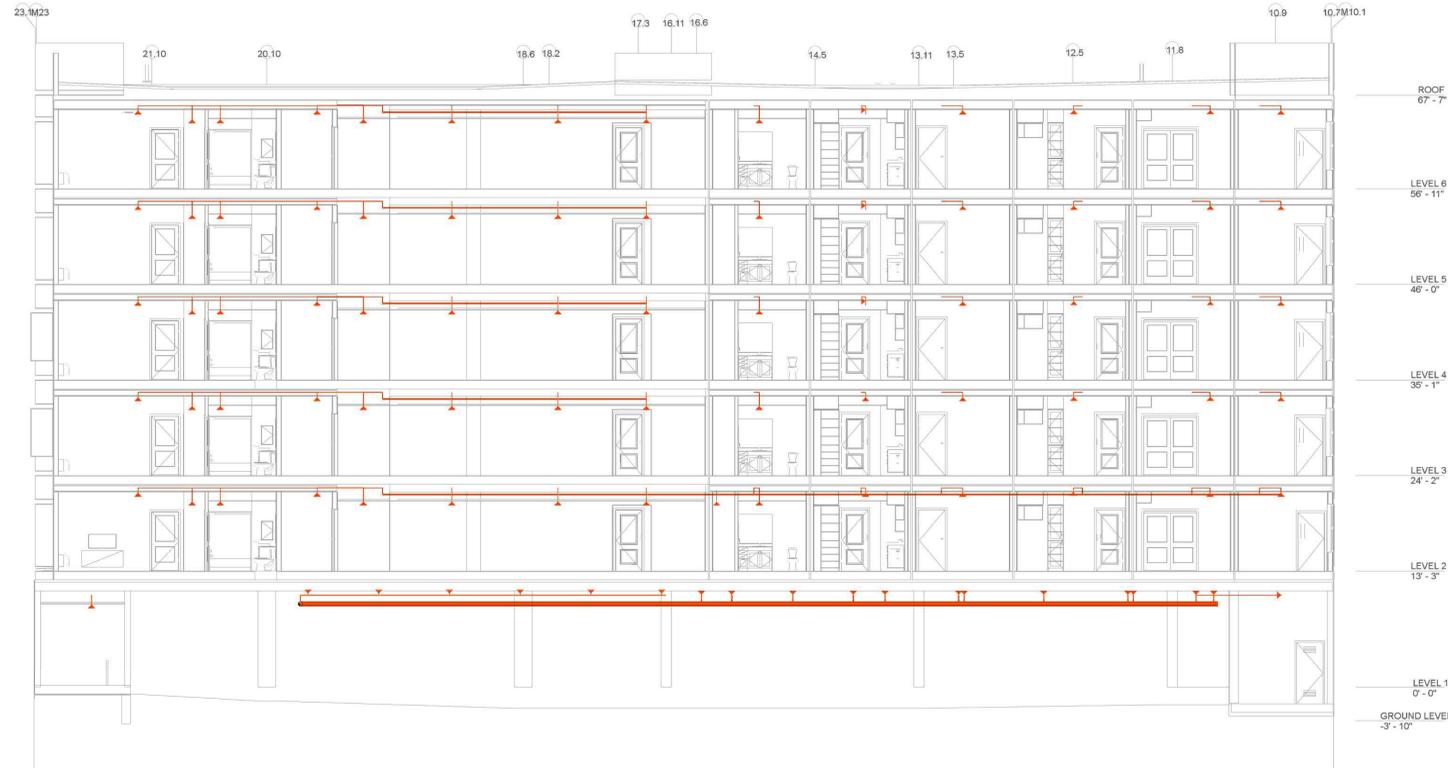
**ORIENTATION**

**SCALE**  
 1/8" = 1'-0"  
 0' 2' 4' 8' 16' 24'

**DESCRIPTION**  
 FLOOR 2 SYSTEM PIPING PLAN  
 -A

**SHEET NUMBER**  
**FP-2.1**

BUILDING SECTION



**CONCEALED SPACES**

- 1 ALL CONCEALED COMBUSTIBLE SPACES SHALL BE ENTIRELY FILLED WITH NONCOMBUSTIBLE INSULATION.
- 2 SPRINKLERS SHALL BE OMITTED FROM CONCEALED COMBUSTIBLE SPACES ENTIRELY FILLED WITH NONCOMBUSTIBLE INSULATION PER NFPA 13, 9.2.1.7.

SECTION B

BUILDING SECTION



SECTION C

**STAMP**

---

**PROJECT**  
**RICHMOND METRO**  
 NEVIN AVE & 19TH ST,  
 RICHMOND, CA 94804

**CUSTOMER**  
**PACIFIC WEST COMMUNITIES**  
 430 E State Street, Suite 100  
 Eagle, ID 83616

**MOD. FACTORY**  
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 16379 STAR ROAD, NAMPA, ID  
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**APPROVALS**  
**RICHMOND FIRE DEPARTMENT**  
 440 CIVIC CENTER PLAZA (2ND FLOOR)  
 RICHMOND, CA 94804  
 (510) 307-8031

**INSPECTIONS**  
 PHONE: (510) 307-8037  
 WELD INSPECTION: YES

**REVISIONS**

NO.	DATE	DESCRIPTION

**CITY SUPPLY**  
 STATIC PRESSURE: 59 PSI  
 RESIDUAL PRESSURE: 40 PSI  
 FLOW @ RESIDUAL: 1000 GPM  
 TEST LOCATION: 18TH STREET  
 295 FEET SOUTH OF BARRETT AVE  
 TEST DATE: 03-26-2024  
 TESTING AGENCY: EBMUD  
 HYDRANT #: N/A

**ORIENTATION**

**SCALE**  
 1/8" = 1'-0"  
 0' 2' 4' 8' 16' 24'

**DESCRIPTION**  
 BUILDING SECTIONS

**SHEET NUMBER**  
**FP-D1.2**