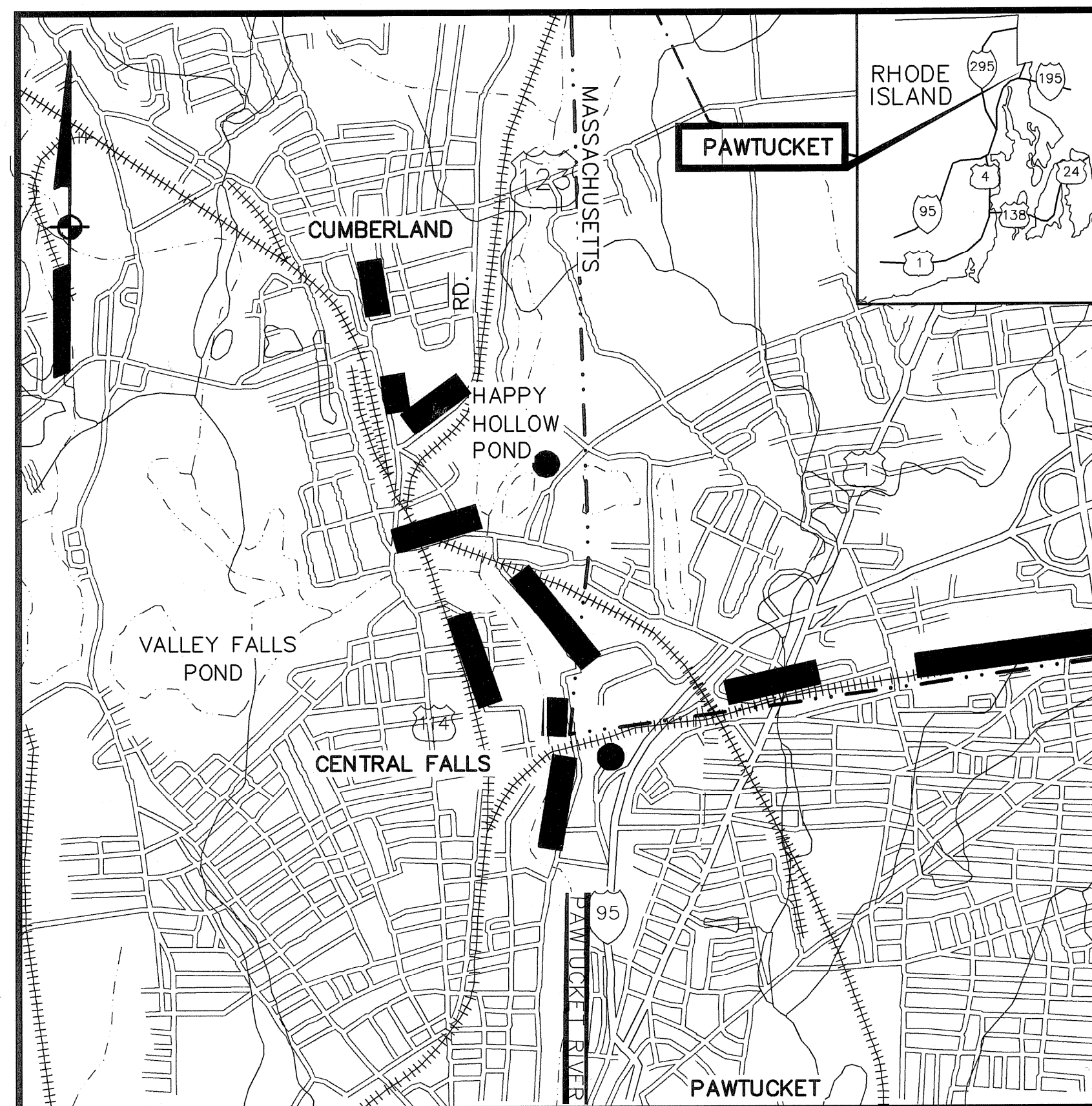


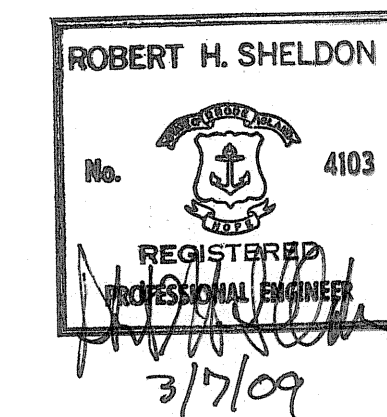
CONTRACT DRAWINGS - FOR - Pawtucket Regional Water Treatment Facility PKG 7 - Mechanical - H/P/FP Pawtucket, Rhode Island

OCTOBER 31, 2006

INDEX



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EarthTech
A Tyco International Ltd. Company

300 Baker Avenue Suite 290 Concord, Mass.

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	<u>HEATING AND VENTILATION</u>
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H-2	LOWER LEVEL PLAN
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GENERAL NOTES

LOCATIONS OF ALL UTILITIES AND SUB-SURFACE STRUCTURES ARE FROM SURVEY AND RECORDS OF TOWN, CORPORATIONS, ETC., AND ARE CONSIDERED APPROXIMATE BOTH AS TO SIZE AND LOCATION AND ARE INDICATED ON THESE DRAWINGS TO GIVE BIDDERS A GENERAL IDEA OF EXISTING CONDITIONS TO BE INVESTIGATED BY THE BIDDER. IT IS UNDERSTOOD AND AGREED THAT EACH BIDDER WILL NOT RELY UPON THESE DRAWINGS FOR SUCH INFORMATION, BUT THAT EACH BIDDER SHALL MAKE EXAMINATIONS IN THE FIELD BY VARIOUS AVAILABLE METHODS AND SHALL OBTAIN INFORMATION FROM UTILITY CORPORATIONS AND INDIVIDUALS AS TO THE LOCATION OF ALL SUB-SURFACE STRUCTURES.

ALL ELEVATIONS REFER TO NATIONAL GEODETIC VERTICAL DATUM OF 1929.

FITTINGS & MISCELLANEOUS ACCESSORIES

- T_h THERMOSTAT HEATING
- T_c THERMOSTAT COOLING
- I PLAN NOTE DESIGNATION

STANDARD KEY

- XX
X EQUIPMENT NUMBER
- XX
X EQUIPMENT NUMBER
- XXX
EQUIPMENT NUMBER
- XX
CFM
- XX
NECK SIZE

MECHANICAL ABBREVIATIONS

- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- BDD BACK DRAFT DAMPER
- BHP BRAKE HORSEPOWER
- BLDG BUILDING
- BOD BOTTOM OF DUCT
- BOS BOTTOM OF STEEL
- BTU BRITISH THERMAL UNIT
- DIA DIAMETER
- DN DOWN
- EF EXHAUST FAN
- FLA FULL LOAD AMPS
- FT FEET/FOOT
- NC NORMALLY CLOSED
- NO NORMALLY OPEN
- PSIA POUNDS PER SQUARE INCH ABSOLUTE
- PSIG POUNDS PER SQUARE INCH GAUGE
- RAG RETURN AIR GRILLE
- SQ SQUARE
- TSP TOTAL STATIC PRESSURE
- VD VOLUME DAMPER

DUCTWORK

- SUPPLY ARROW
- RETURN/EXHAUST ARROW
- DG DOOR GRILLE
- COMBUSTION AIR SUPPLY DOWN
- ROUND UP
- ROUND DOWN
- SUPPLY ARROWS INDICATE SUPPLY DOWN
- SQUARE DIFFUSER WITH ROUND INLET
- 90° MITERED ELBOW WITH TURNING VANES
- ELBOW
- TRANSITION FROM SQ. OR RECTANGLE TO ROUND
- ACCESS DOOR
- DUCT CAP
- INSULATED DUCT
- DUCT INSULATION

HVAC GENERAL NOTES

1. THE FOLLOWING ABBREVIATED CONSTRUCTION NOTES AND SPECIFICATIONS HEREINAFTER ARE INCLUDED AS PART OF THE CONTRACT, AND ARE NOT TO BE INTERPRETED AS REQUIRING ANYTHING LESS THAN THE FURNISHING OF SKILLED TRADESMEN ADEQUATELY TRAINED AND EXPERIENCED IN PERFORMING THERE WORK TO STANDARD CONSTRUCTION PRACTICES OF THEIR INDUSTRY AND TRADE COUNCILS, AND TO PROVIDE ALL LABOR, EQUIPMENT, TOOLS, AND MATERIALS NECESSARY TO COMPLETE THE WORK SPECIFIED AND IMPLIED ON THE FOLLOWING CONTRACT DRAWINGS.

CONSTRUCTION NOTES

2. A. THE DRAWINGS ARE DIAGRAMMATIC ONLY TO SHOW THE SCOPE OF THE WORK INVOLVED. ANY WORK INSTALLED CONTRARY TO OR WITHOUT APPROVAL SHALL BE SUBJECT TO CHANGE. NO EXTRA COMPENSATION WILL BE ALLOWED. DO NOT SCALE DRAWINGS FOR FABRICATION PURPOSES.
- B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, PATCHING AND DRILLING, AND ALL NECESSARY MISCELLANEOUS STEEL FOR THE SUPPORT OF HIS MATERIAL AND EQUIPMENT.
- C. THE ENTIRE INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH ANY AND ALL STATE AND LOCAL CODES, LAWS ORDINANCES AND INSURANCE REQUIREMENTS.
- D. NO CUTTING OR WELDING OF STRUCTURE WILL BE PERFORMED WITHOUT PRIOR APPROVAL FROM THE EARTH TECH CONSTRUCTION MANAGER.
3. PERFORM ALL WORK IN STRICT ACCORDANCE WITH RULES, REGULATIONS, STANDARDS, CODES AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENTS.
4. GIVE ALL NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACKCHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES HAVING JURISDICTION AS REQUIRED TO PERFORM WORK.
5. COOPERATE AND COORDINATE WITH OTHER TRADES IN EXECUTING THE WORK. PERFORM WORK SO THAT PROGRESS OF ENTIRE PROJECT SHALL NOT BE DELAYED. PROVIDE INFORMATION TO OTHER TRADES, AS REQUESTED. OBTAIN FINAL ROUGHING DIMENSIONS AS REQUIRED TO COMPLETE WORK.
6. PERFORM WORK REQUIRED SO AS TO PROVIDE PROPER ACCESS MATERIAL AND EQUIPMENT REQUIRING INSPECTION, MAINTENANCE OR SERVICE.
7. DUCTWORK, PIPING AND EQUIPMENT LAYOUT SHOWN IS DIAGRAMMATIC, LOCATION SHALL BE DETERMINED IN FIELD. CONTRACTOR SHALL SUBMIT COORDINATION DRAWINGS TO EARTH TECH FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
8. CEILING EXHAUST REGISTERS SHALL BE BUILDING STANDARD UNLESS SPECIFIED OTHERWISE.
9. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND PRODUCT INFORMATION TO EARTH TECH. NO WORK SHALL PROCEED WITHOUT WRITTEN APPROVAL ON EACH ITEM SCHEDULED, SPECIFIED OR SHOWN ON PLAN.
10. CONTRACTOR SHALL SUBMIT (2) COPIES OF A CERTIFIED AIR BALANCING REPORT, PREPARED BY AN INDEPENDENT AIR BALANCING CONTRACTOR, NOT THE INSTALLATION CONTRACTOR.
11. ALL HVAC EQUIPMENT SHALL BE AS SHOWN ON EQUIPMENT SCHEDULES OR APPROVED EQUAL.

DUCTWORK AND ACCESSORIES

12. A. ALL NEW GALVANIZED SHEET METAL DUCTWORK, UNLESS AS NOTED, SHALL BE FABRICATED, SIZED TO GAUGE, AND INSTALLED AS PER SMACNA AND ASHRAE LATEST RECOMMENDATIONS.
- B. ALL DUCTWORK SHALL BE FIELD MEASURED PRIOR TO FABRICATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL REQUIRED DIMENSIONS PRIOR TO FABRICATION OR INSTALLATION. DUCT SIZES MAY BE ALTERED TO ACCOMMODATE CONSTRUCTION AS LONG AS CROSS SECTIONAL AREA OF DUCT IS MAINTAINED.
- C. EQUIPMENT SCHEDULE REGISTERS SHALL BE OF THE SIZE AND PATTERN AS INDICATED ON THE DRAWINGS
- D. PROVIDE VOLUME DAMPERS AT EACH DUCT BRANCH AND EACH REGISTER DUCT TAKE-OFF.
- E. DUCTWORK SHALL BE FREE FROM VIBRATION. MAKE AND SEAL DUCT JOINTS PROPERLY.
- F. ALL RECTANGULAR DUCT ELBOWS (SHEET METAL) SHALL HAVE TURNING VANES.

EQUIPMENT

13. A. CONTRACTOR SHALL PROVIDE LOCAL THERMOSTATS WHERE SHOWN ON THE DRAWINGS.
- B. PROVIDE COMPLETE AUTOMATIC TEMPERATURE CONTROL SYSTEM AS INDICATED ON DRAWINGS AND AS REQUIRED.
14. ALL FRESH AIR DUCTWORK SHALL BE INSULATED WITH 1 1/2" THICK FIBERGLASS WITH NON-COMBUSTIBLE 25/50 RATED ALL SERVICE JACKET.
15. PROVIDE INSULATED BACKINGS ON THERMOSTATS MOUNTED ON EXTERIOR WALLS.
16. FOR FURTHER REFERENCE SEE SPECIFICATION 15500 WHICH ARE PART OF THE DRAWINGS.

SEQUENCE OF OPERATIONS

1A. MAKE UP AIR UNITS - GENERAL

1. MAKE-UP AIR UNIT FANS SHALL RUN CONTINUOUSLY. DETERMINE FAN STATUS THROUGH AUXILIARY CONTACTS IN MOTOR STARTER.
2. IF FAN FAILS TO ENERGIZE, OUTSIDE DAMPERS SHALL CLOSE, GAS VALVE SHALL CLOSE, AND ALARM SIGNAL SHALL BE SENT TO SCADA .
3. SAFE DEVICES:
 - A. DUCT SMOKE DETECTOR: IF SMOKE IS DETECTED WITHIN THE MAU SUPPLY AIR DUCTWORK THE MAU FAN SHALL DE-ENERGIZE, OUTSIDE DAMPERS SHALL CLOSE, GAS VALVE SHALL CLOSE, AND ALARM SIGNAL SHALL BE SENT TO SCADA .

1B. MAKE-UP AIR UNITS (MAU-1,2,3,4,5,6,&7) SHALL BE INTERLOCKED WITH EXHAUST FANS AS FOLLOWS SUCH THAT ASSOCIATED EXHAUST FAN(S) SHALL RUN WHEN MAU FANS RUN.

MAU-1	EF-3,4,5, AND 6 (SEE FLUORIDE AND ACID ROOM SEQUENCE BELOW FOR ADDITIONAL INTERLOCKS)
MAU-2	EF-7 AND 8
MAU-3	EF-10, AND 12
MAU-4	EF-11 AND 13
MAU-5	EF-14
MAU-6	EF-15 AND 16
MAU-7	EF-18,22, AND 23 (SEE SAMPLE LABORATORY SEQUENCE BELOW FOR ADDITIONAL INTERLOCKS)

MAU SUPPLY AIR TEMPERATURE SHALL BE SENSED BY A DUCTSTAT LOCATED WITHIN THE UNIT AND CONTROLLED BY REMOTE CONSOLE LOCATED IN THE CONTROL ROOM.

2. FLUORIDE AND ACID ROOMS

EXHAUST FANS EF-3 AND EF-6 SHALL BE INTERLOCKED WITH MOTORIZED DAMPERS AS FOLLOWS. WHEN MOTORIZED DAMPERS MD-3 AND MD-5 FULLY OPEN, EXHAUST FANS EF-3 AND EF-6, RESPECTIVELY, SHALL START, AND MD-3A AND MD-5A, RESPECTIVELY, SHALL FULLY CLOSE. WHEN THE RESPECTIVE EXHAUST FAN STOPS, THE RESPECTIVE MOTORIZED DAMPERS MD-3 AND MD-5 SHALL FULLY CLOSE AND THE RESPECTIVE MOTORIZED DAMPERS MD-3A AND MD-5A SHALL FULLY OPEN.

IF EITHER EXHAUST FAN FAILS, AUXILIARY CONTACTS IN THE RESPECTIVE MOTOR STARTER SHALL SEND ALARM SIGNAL TO SCADA. MD-3A AND MD-5A ARE INTENDED TO REDIRECT THE MAKEUP AIR TO PREVENT OVER PRESSURIZATION OF THE ROOMS.

3. SODIUM HYPOCHLORITE ROOM

EXHAUST FAN EF-1 SHALL BE INTERLOCKED WITH MD-1 AS SHOWN ON THE DRAWINGS AND SHALL RUN CONTINUOUSLY. WHEN THE MOTORIZED DAMPER FULLY OPENS, THE EXHAUST FAN SHALL RUN. WHEN EXHAUST FAN STOPS, MOTORIZED DAMPER SHALL FULLY CLOSE. IF EXHAUST FAN FAILS, AUXILIARY CONTACTS IN THE MOTOR STARTER SHALL SEND ALARM SIGNAL TO SCADA.

4. SAMPLE LABORATORY

EXHAUST FAN EF-21 SHALL BE INTERLOCKED WITH SUPPLY FAN SF-1 AND SHALL BE CONTROLLED WITH ON/OFF SWITCH LOCATED ON THE LABORATORY HOOD (FURNISHED AND INSTALLED BY OTHERS IN SPECIFICATION 12300).

WHEN EF-21/SF-1 ARE ON, EF-22 SHALL BE OFF, AND VICE VERSA.

5. CONTROL ROOM (AC-1 AND HP-1)

AC-1 SHALL RUN CONTINUOUSLY. THERMOSTAT SHALL CYCLE HP-1 ON/OFF TO MAINTAIN ROOM TEMPERATURE.

6. COOLING (VFD ROOM, ELECTRICAL ROOM, MECHANICAL ROOM AND WORK AREA)

A. EXHAUST FANS (EF-9,EF-17,EF-19 AND EF-20) AND MOTORIZED DAMPERS (MD-4, MD-6, MD-7 AND MD-8, RESPECTIVELY)

B. EXHAUST FANS SHALL BE INTERLOCKED WITH THEIR RESPECTIVE MOTORIZED DAMPERS AS SHOWN ON THE DRAWINGS AND SHALL BE CONTROLLED WITH REVERSE ACTING ROOM THERMOSTATS.

C. THE MOTORIZED DAMPERS SHALL FULLY OPEN, THEN THE EXHAUST FANS SHALL START TO MAINTAIN ROOM TEMPERATURE.

7. TOILET EXHAUST FAN EF-18 SHALL CONTINUOUSLY OPERATE IN CONJUNCTION WITH MAU-7.

8. COMBUSTION AIR DAMPER SHALL BE INTERLOCKED WITH THE GAS FIRED HOT WATER HEATER. UPON A CALL FOR HEAT THE COMBUSTION AIR DAMPER SHALL BE PROVED FULLY OPEN PRIOR TO THE GAS BURNER IGNITION. IF DAMPER DOES NOT FULLY OPEN AN ALARM SHALL BE SENT TO SCADA.

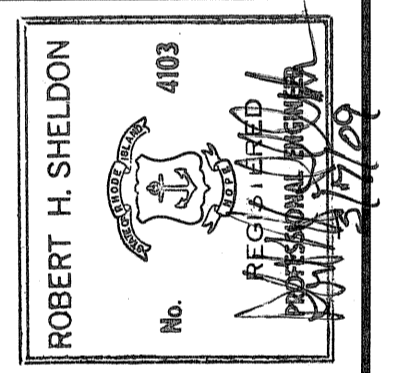
9. ELECTRIC UNIT HEATERS (EUH-1 THRU EUH-8)

UNIT HEATERS SHALL CYCLE ON/OFF UPON CALL FOR HEAT FROM THERMOSTAT.

10. GAS FIRED UNIT HEATERS (GUH-1)

UNIT HEATERS SHALL CYCLE ON/OFF UPON CALL FOR HEAT FROM THERMOSTAT.

FULL SIZE DRAWING = 4"	
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1	ISSUED FOR RT POSTED SET
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DATE	DATE
04/05	04/05
SC	SC
AM	AM
DPB	DPB
JULY 2008	JULY 2008



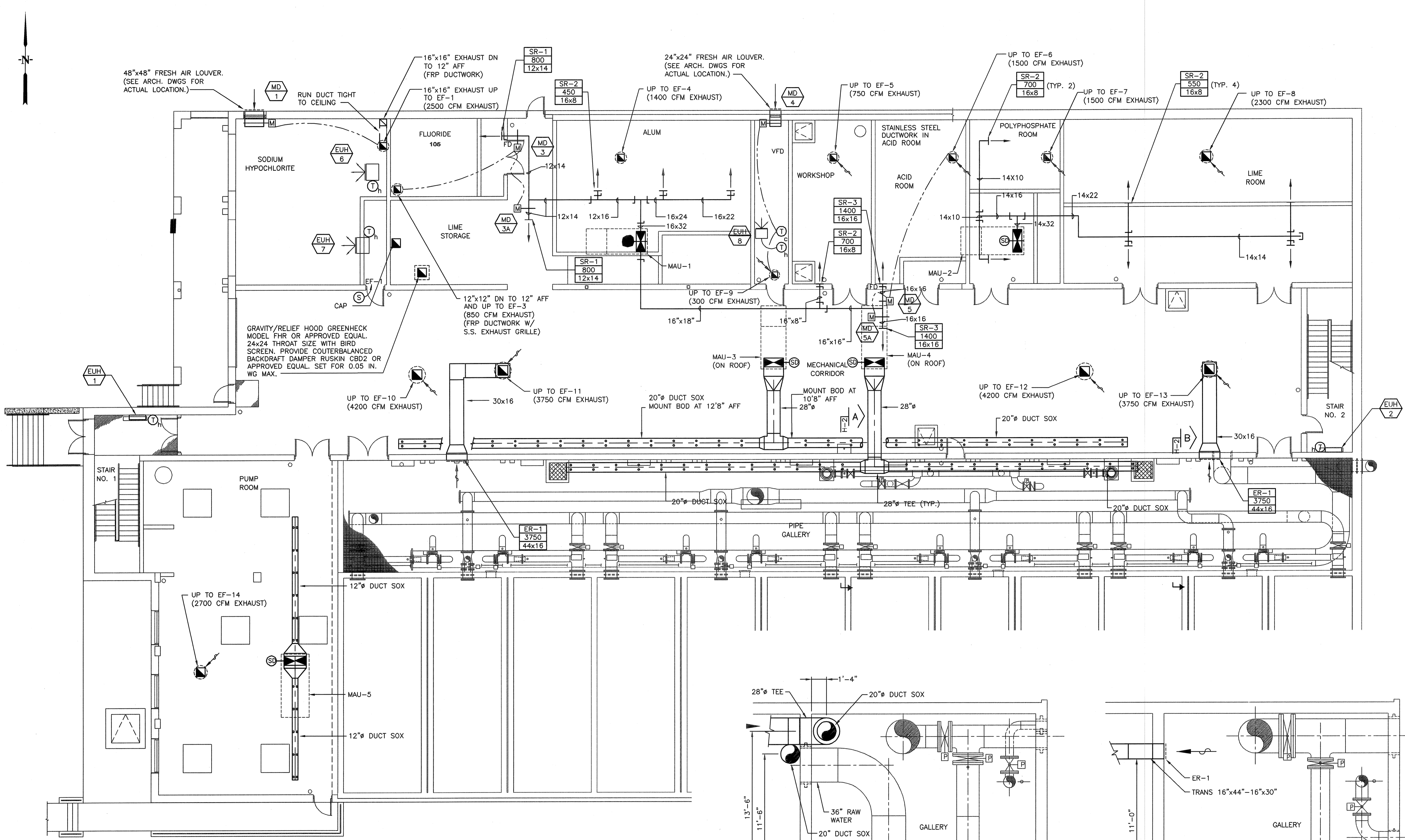
PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 7 - MECHANICAL - H/P/FP
GENERAL NOTES AND SYMBOLS - HVAC

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SC	AS NOTED
DRAWN BY	CONTRACT NO.
MJC	
CHECKED BY	DATE
SC	OCTOBER 31, 2008

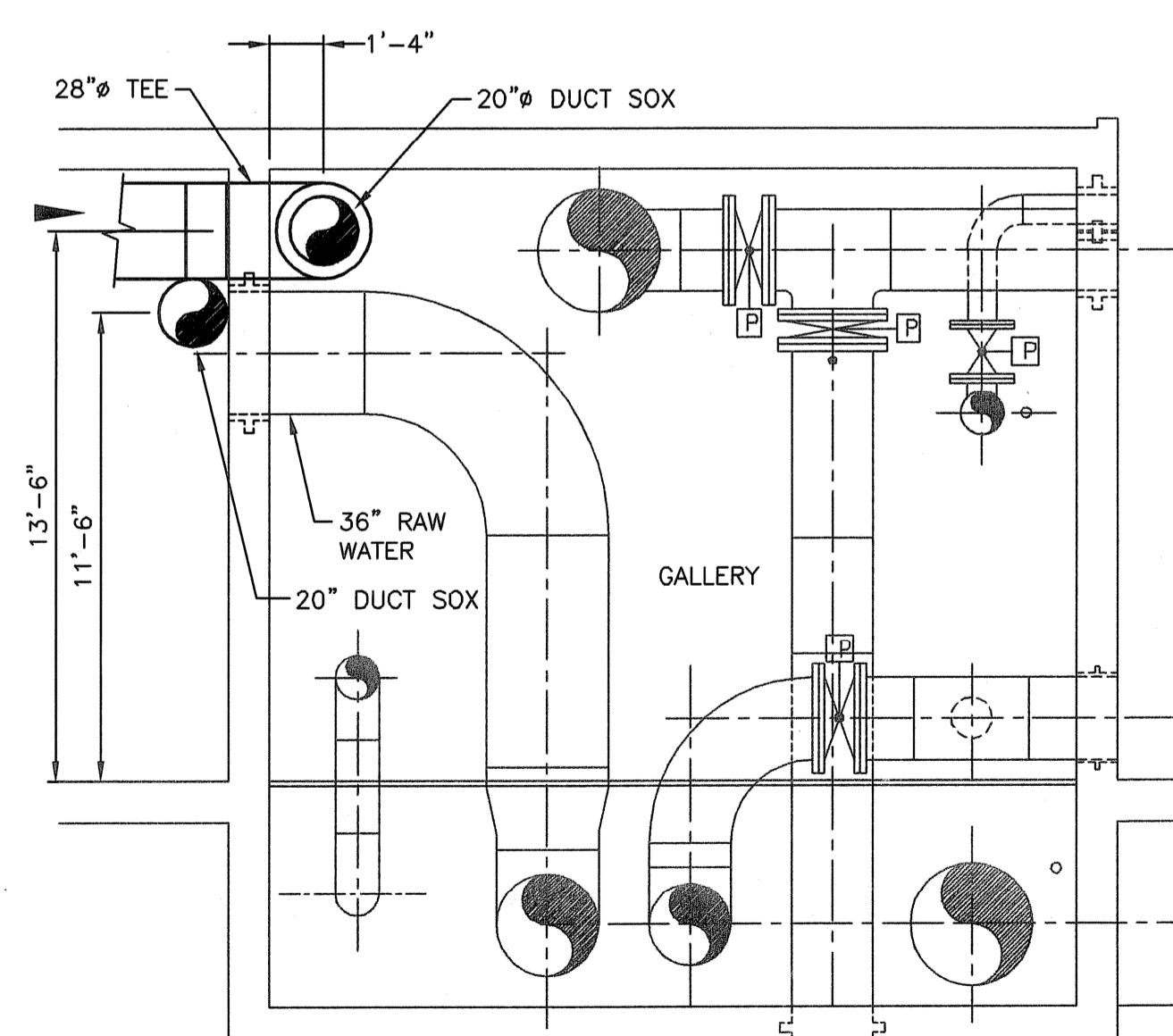
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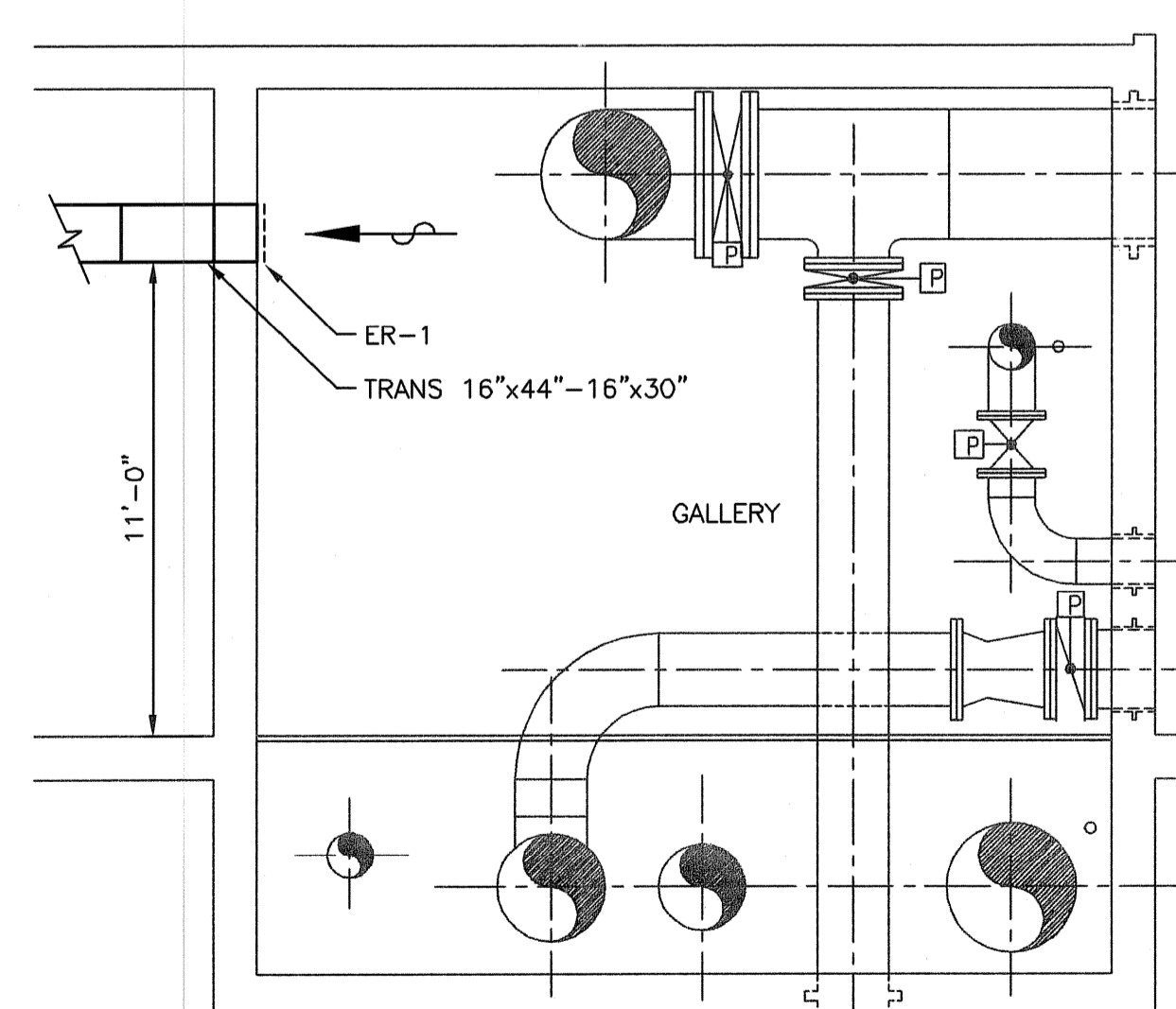
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HVAC-LOWER LEVEL FLOOR PLAN
 SCALE: 1/8" = 1'-0"



SECTION A-H-2
 SCALE: 1/4" = 1'-0"



SECTION B-H-2
 SCALE: 1/4" = 1'-0"

NOTES:
 1. ALL FRESH AIR INTAKES SHOWN SHALL HAVE BIRD SCREENS.

EARTH TECH
 AS-BUILT FILE
 JULY 2008

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 300 BAKER AVENUE, SUITE 200 CONCORD, MA 01742 (978) 371-4000

NO.	DATE	BY	REVISIONS
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2			
3	DPB JULY 2008		AS-BUILT DRAWING FILE ISSUED FOR RFI POSTED SET

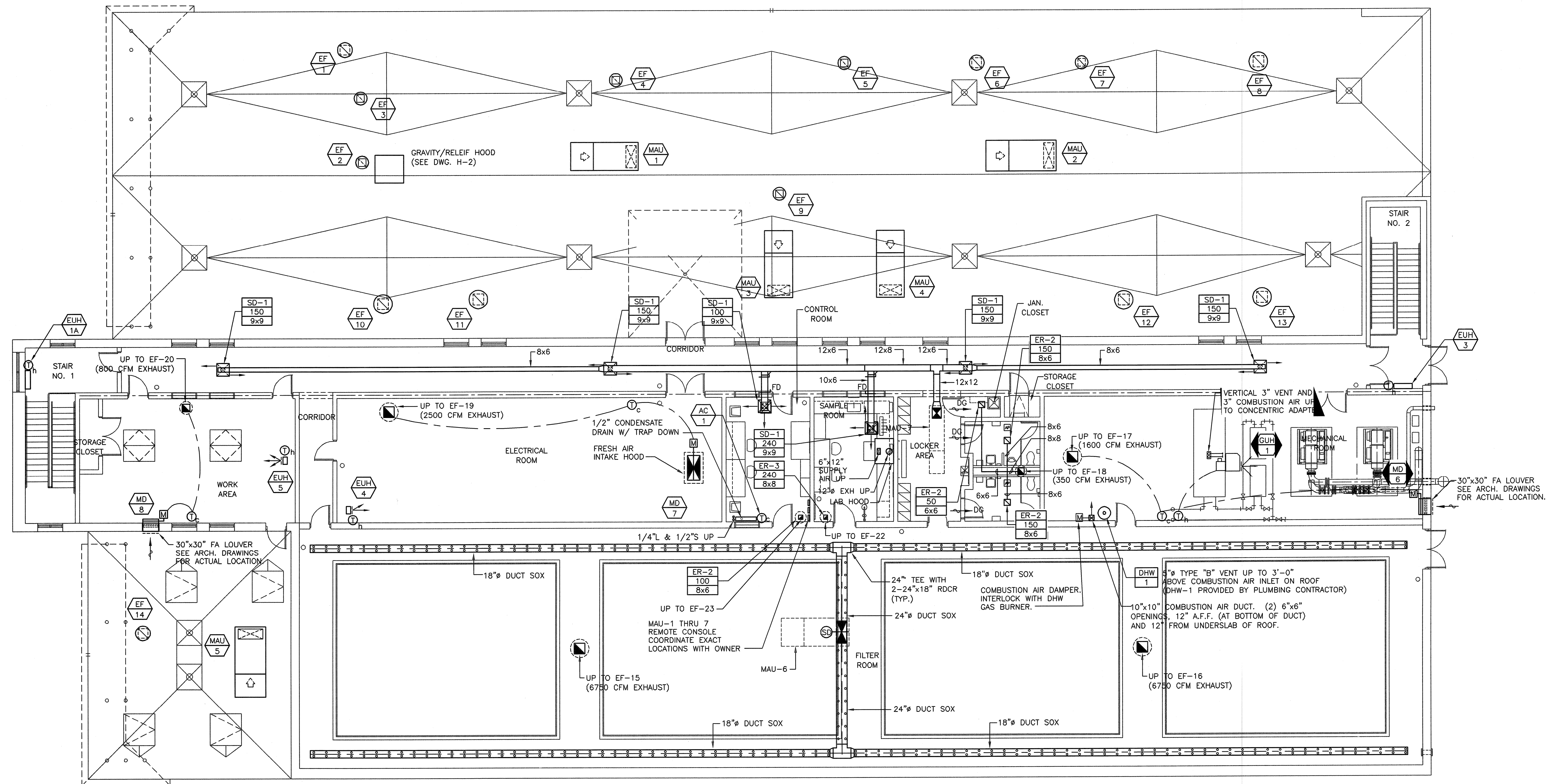
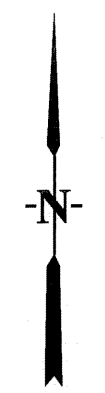
ROBERT H. SHELDON
 No. 4003
 10/21/08

PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY**
PKG 7 - MECHANICAL - H/P/FP
 LOWER LEVEL PLAN AND SECTIONS - HVAC

DESIGNED BY	DWG SCALE
DRAWN BY	1/8" = 1'-0"
CHECKED BY	CONTRACT NO.
SC	DATE
	OCTOBER 31, 2008

H-2
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HVAC-UPPER LEVEL FLOOR PLAN
 SCALE: 1/8" = 1'-0"

NOTES:
 1. ALL FRESH AIR INTAKES SHOWN SHALL HAVE BIRD SCREENS.

EARTH TECH
 AS-BUILT FILE
 JULY 2008

NO.	BY	DATE	REVISIONS
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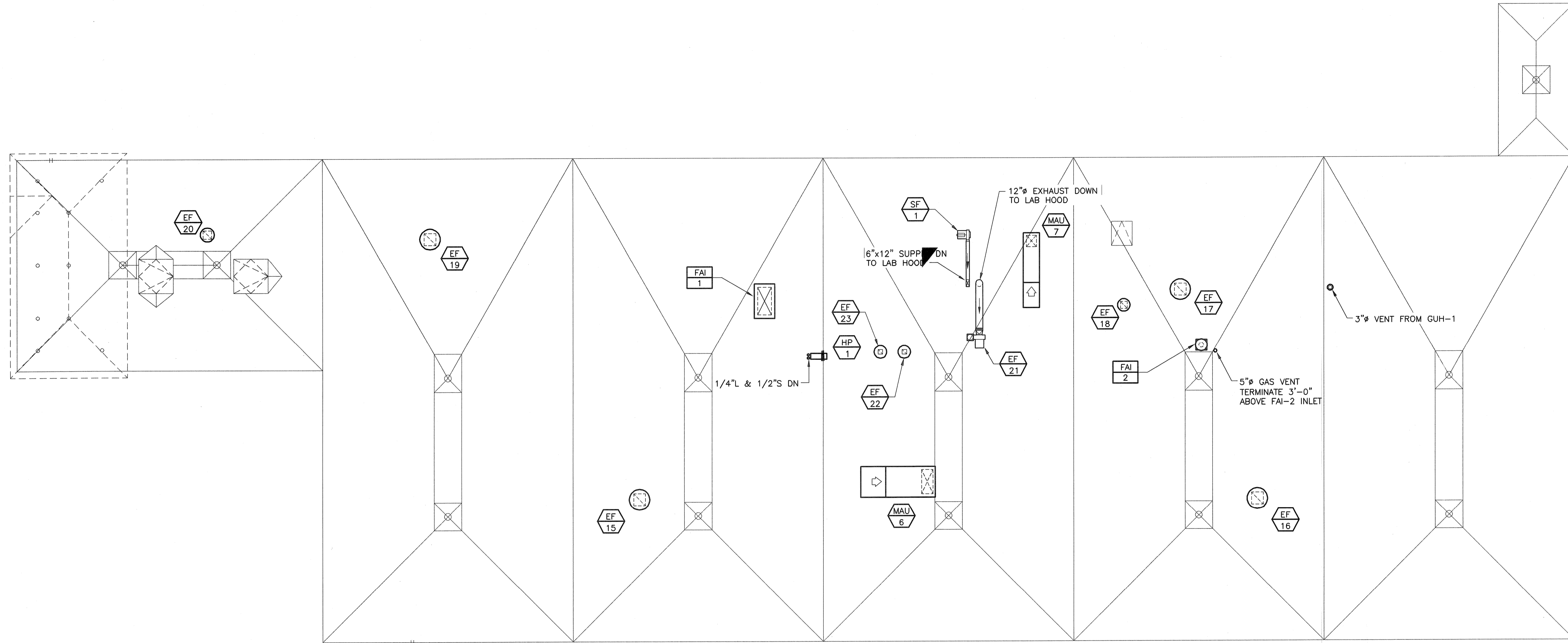
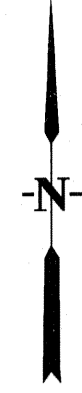
ROBERT H. SHELDON
 No. 4103
 State of Rhode Island
 Professional Engineer
 License No. 4103

PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY**
PKG 7 - MECHANICAL - H/P/FP
 UPPER LEVEL PLAN - HVAC

DESIGNED BY	DWG SCALE
SC	1/8" = 1'-0"
DRAWN BY	CONTRACT NO
MAC	
CHECKED BY	DATE
SC	OCTOBER 31, 2008

H-3
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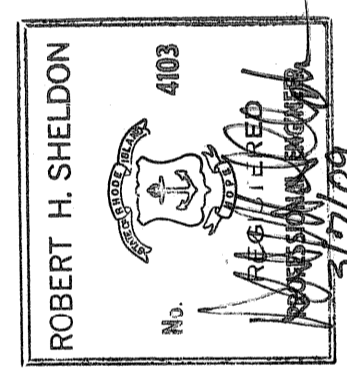
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ROOF LEVEL PLAN - HVAC
 SCALE: 1/8" = 1'-0"

FULL SIZE DRAWING = 4"

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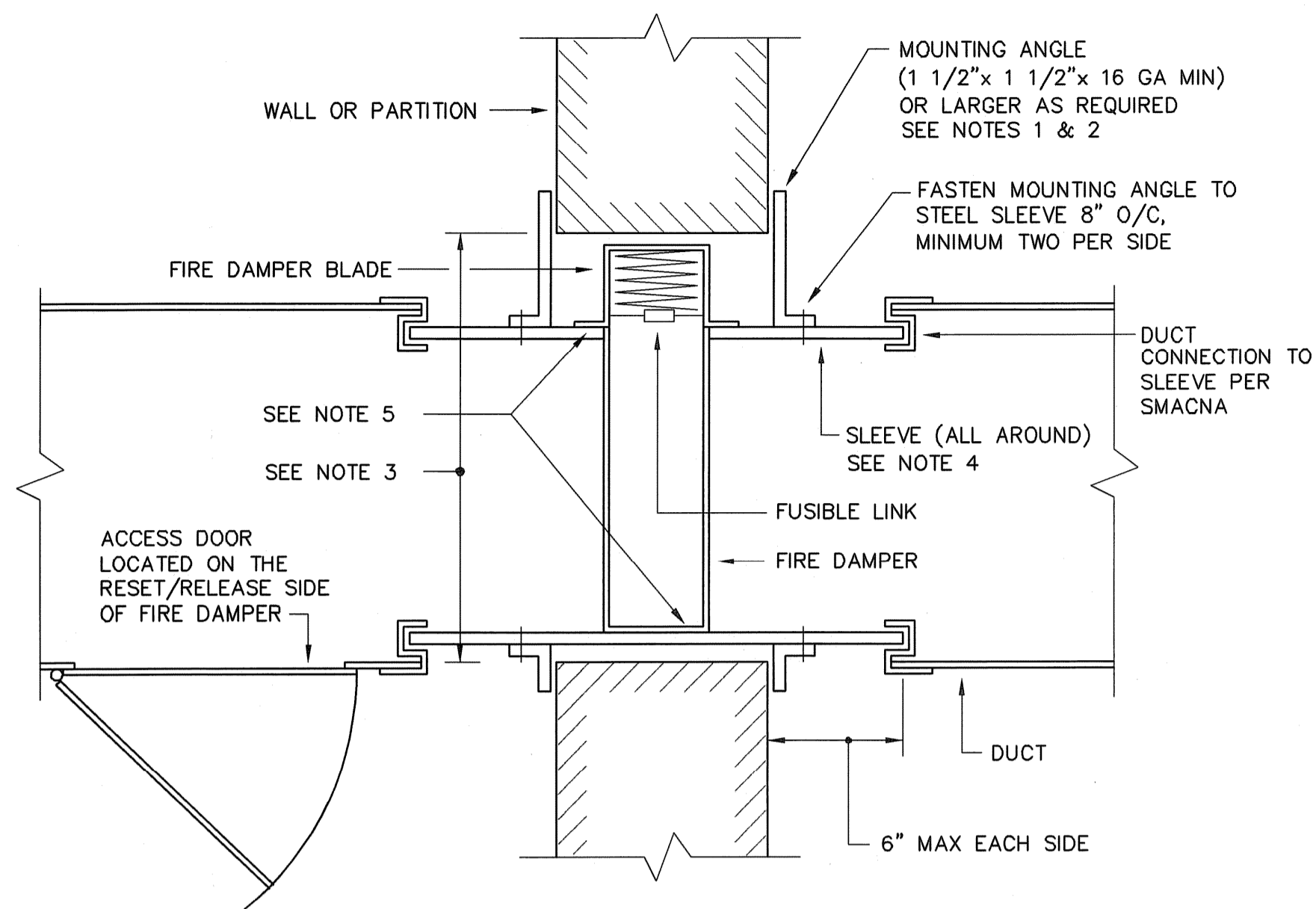


PAWTUCKET, RHODE ISLAND
 PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY
PKG 7 - MECHANICAL - H/P/FP
 ROOF LEVEL PLAN - HVAC

DESIGNED BY	SC	DWG SCALE	AS NOTED
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CHECKED BY		DATE	OCTOBER 31, 2006

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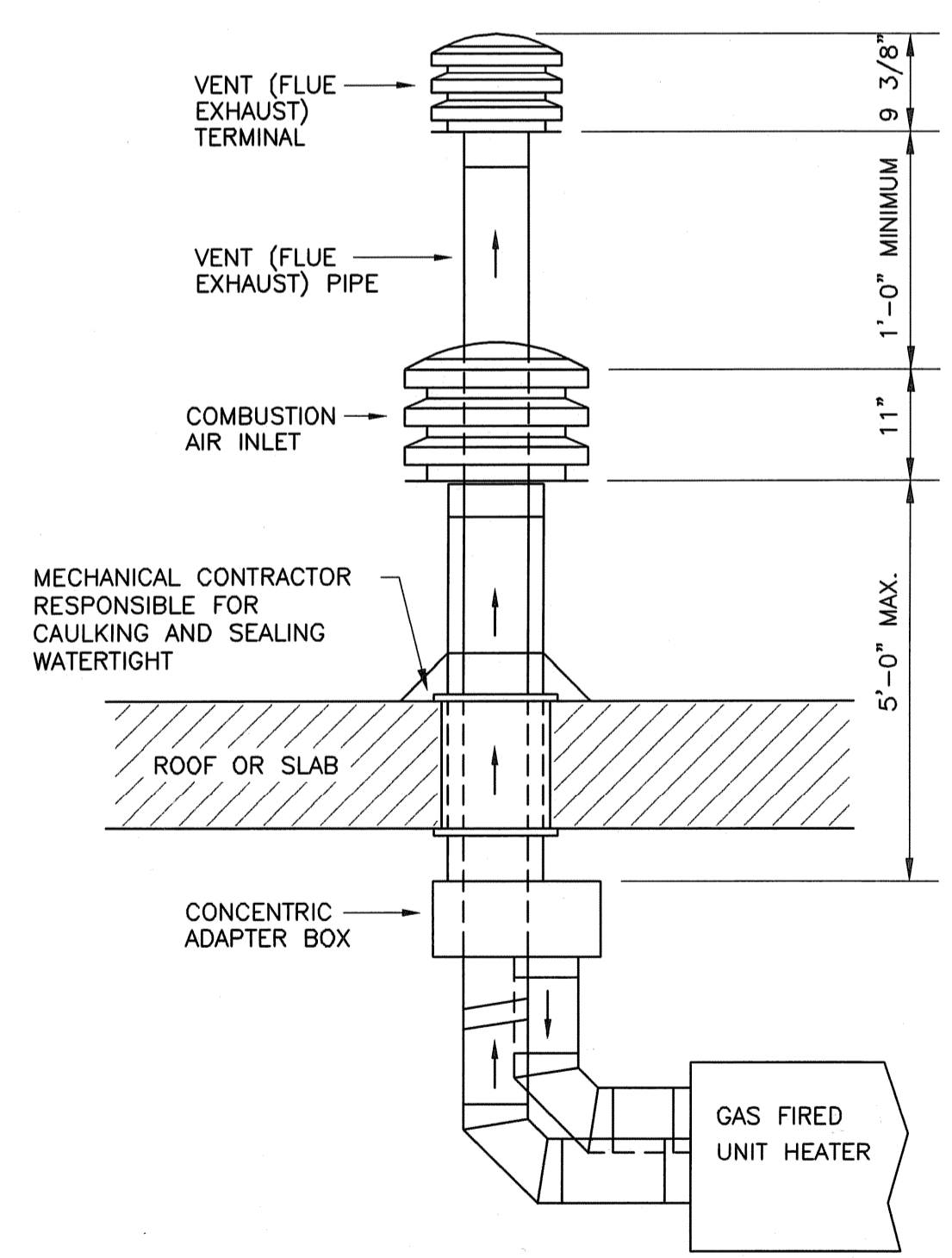
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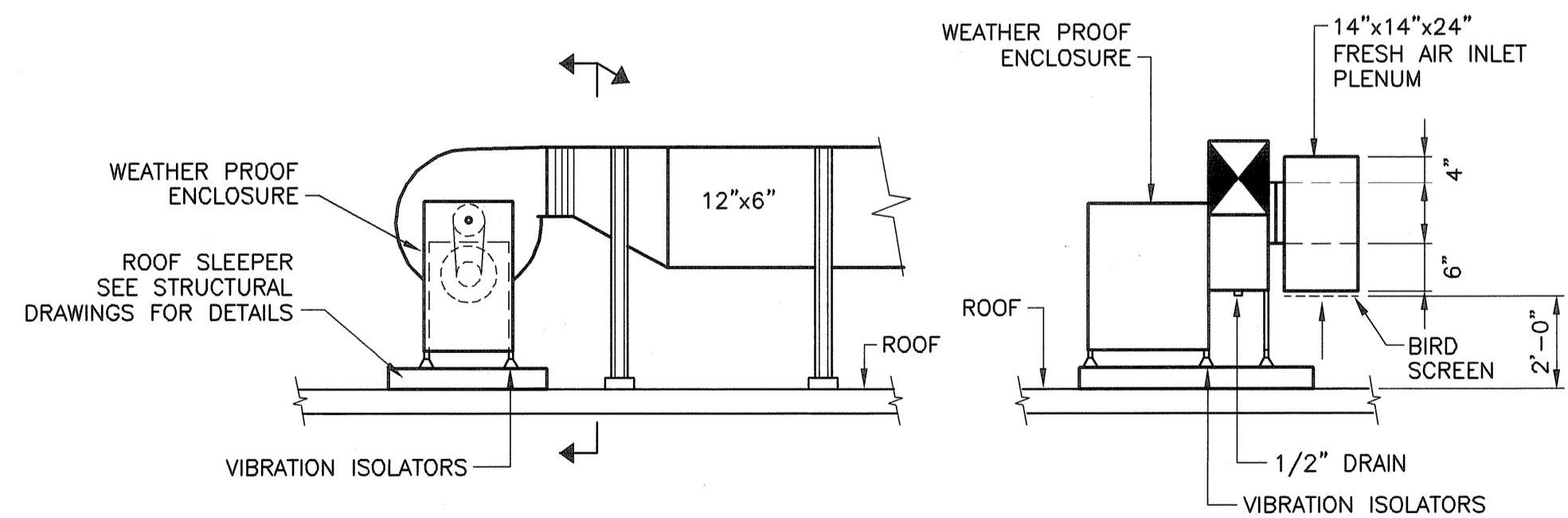
NOTES:

- DO NOT FASTEN MOUNTING ANGLES TO WALL OR PARTITION.
- MOUNTING ANGLES SHALL OVERLAP THE WALL/PARTITION A MINIMUM OF ONE INCH ALL AROUND AND AT CORNERS.
- WALL/PARTITION OPENING SHALL BE MADE TO PROVIDE 1/8" CLEARANCE PER FOOT OF SLEEVE HEIGHT OR WIDTH.
- STEEL SLEEVE GAGE: FOR ROUND DUCTS UP TO 24" DIA. AND RECTANGULAR DUCTS UP TO 24" HIGH AND 36" WIDE; 16 GAGE. ALL OTHERS; 14 GAGE.
- FASTEN FIRE DAMPER TO STEEL SLEEVE 8" O/C. MINIMUM TWO PER SIDE.
- VERTICAL POSITION DAMPER IS SHOWN. DETAIL FOR HORIZONTAL POSITION IS SIMILAR.

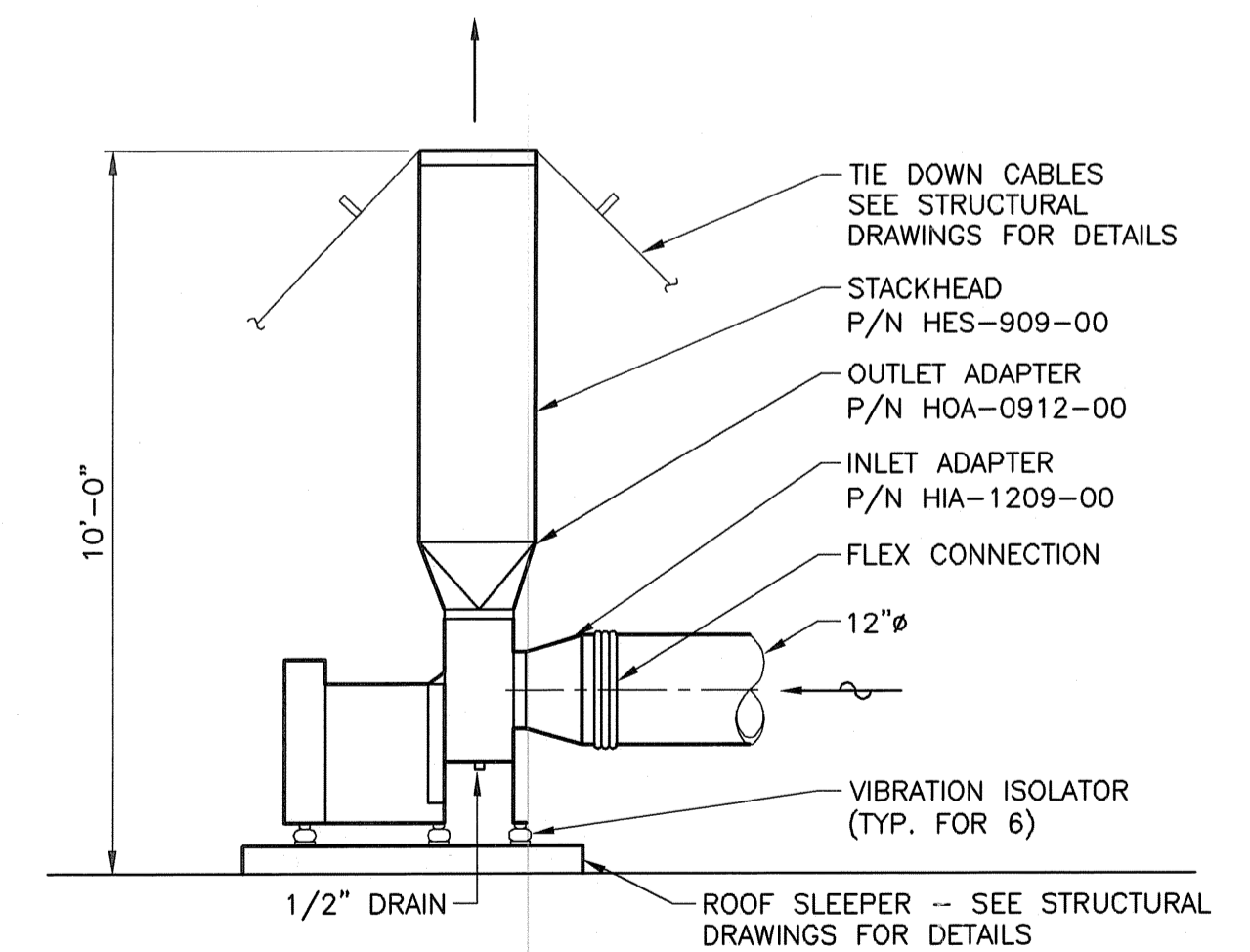
TYPICAL WALL MOUNTED FIRE DAMPER DETAIL
NOT TO SCALE



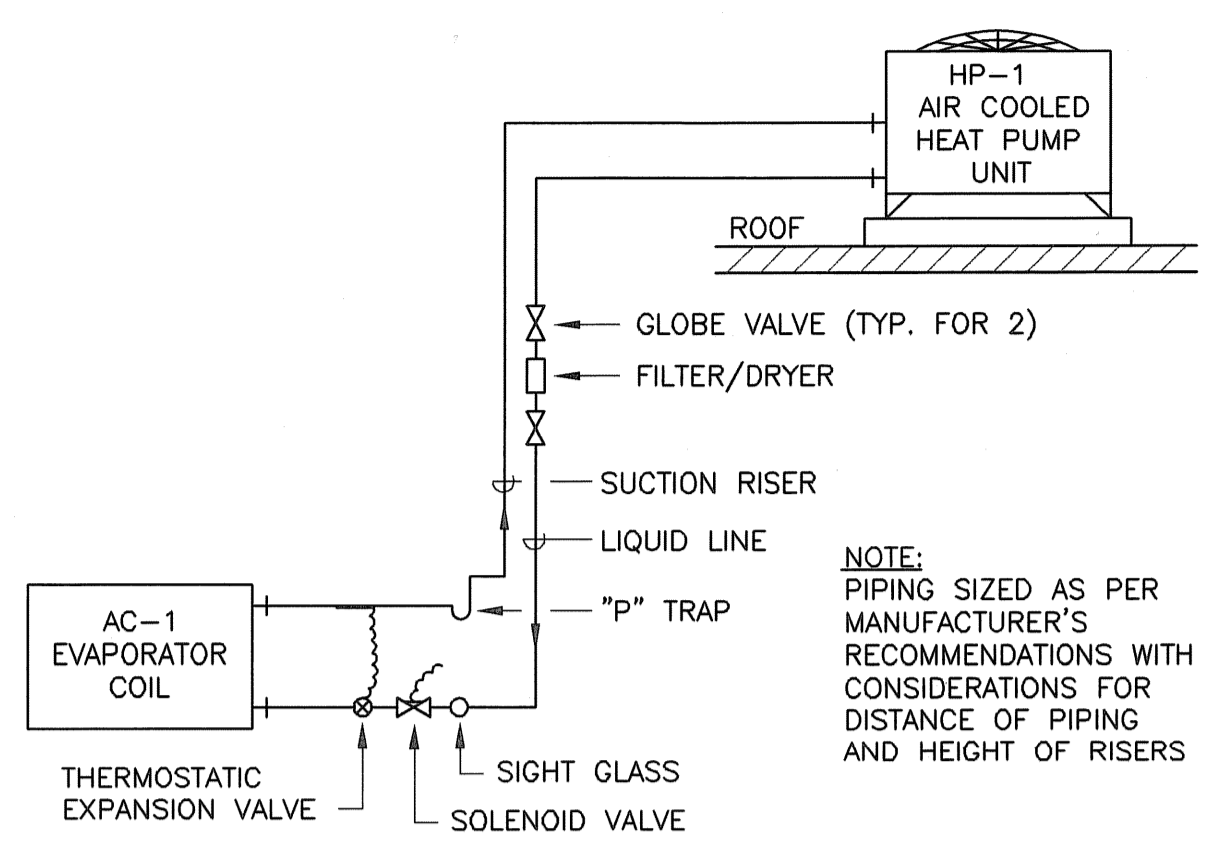
VERTICAL VENT/COMBUSTION SYSTEM DETAIL
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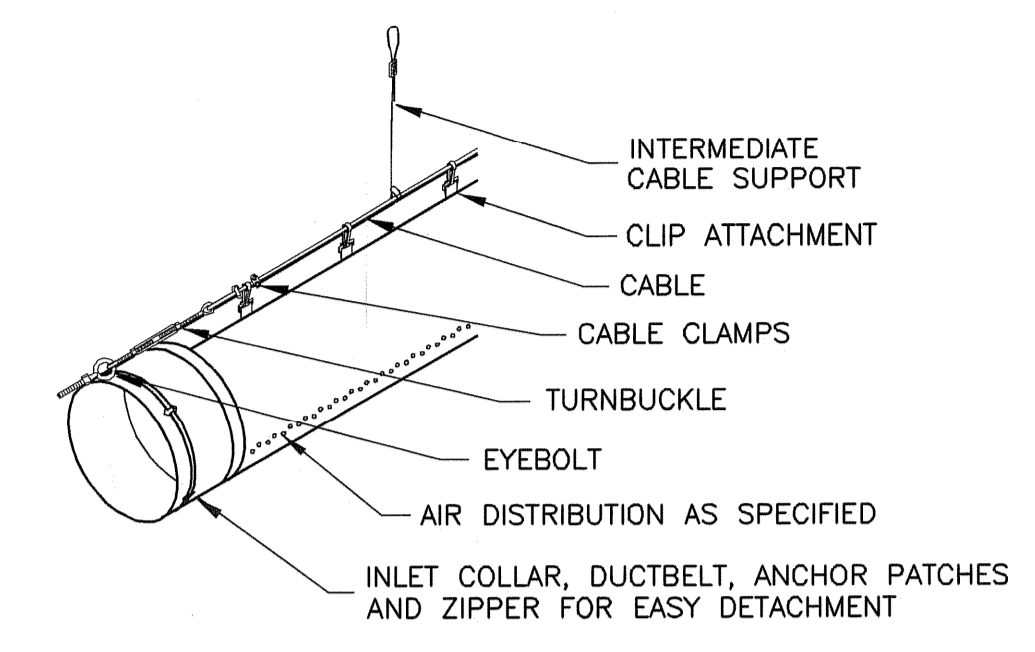
LABORATORY HOOD SUPPLY AIR FAN (SF-1) DETAIL
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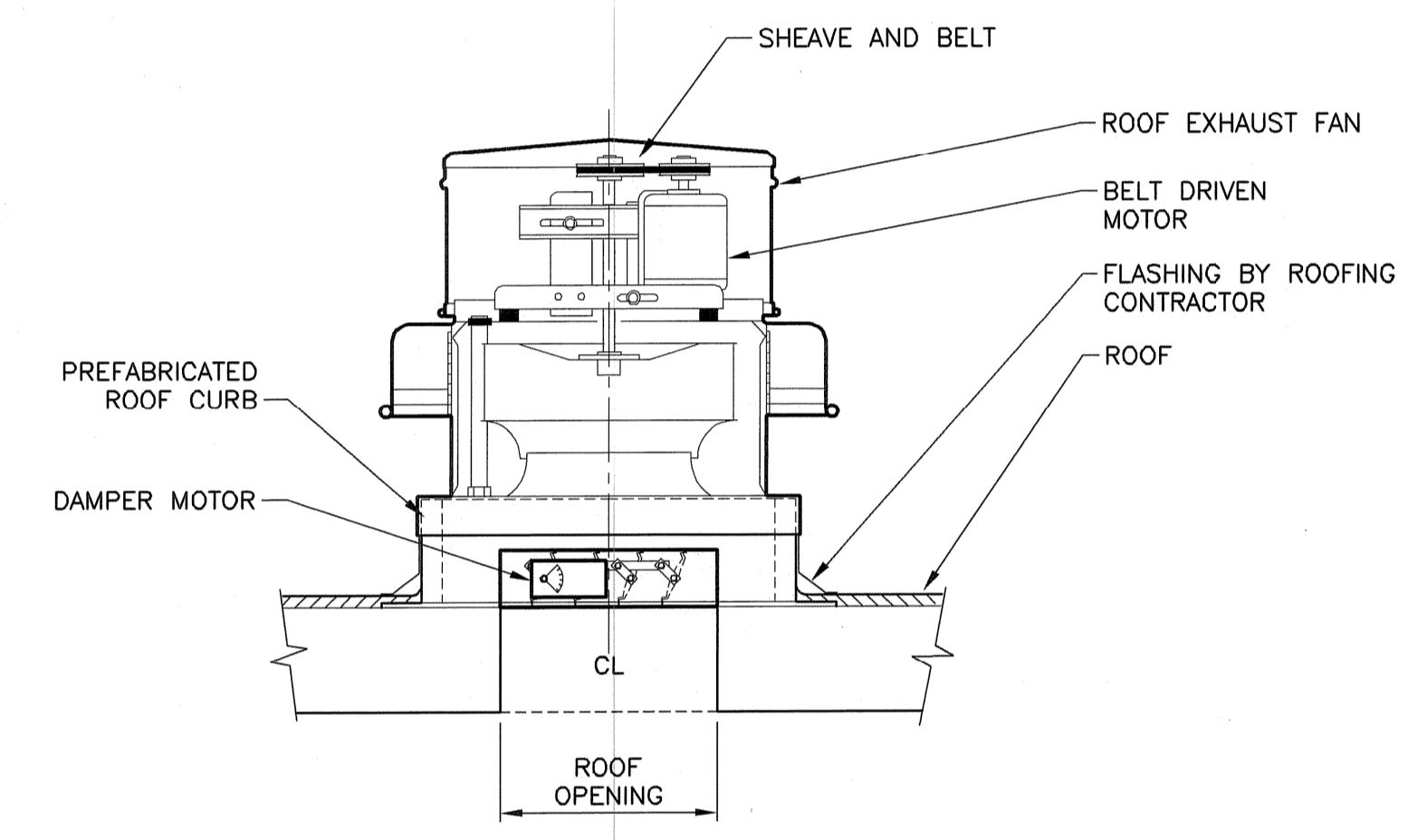
LABORATORY HOOD EXHAUST FAN (EF-21) DETAIL
NOT TO SCALE



AC-1 SPLIT SYSTEM PIPING DETAIL
NOT TO SCALE



DUCTSOX SUSPENSION DETAIL
1 ROW CABLE SUSPENSION AT 12 O'CLOCK
NOT TO SCALE



ROOF EXHAUST FAN DETAIL
NOT TO SCALE

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1	SC	04/05	ISSUED FOR RFI POSTED SET
0	SC	04/05	ISSUED FOR CONSTRUCTION

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 State of Massachusetts
 License No. 10000

PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY**
PKG 7 - MECHANICAL - H/P/FP
 DETAILS - HVAC

DESIGNED BY	DWG SCALE
SC	AS NOTED
DRAWN BY	CONTRACT NO.
MAC	
CHECKED BY	DATE
	OCTOBER 31, 2008

EARTH TECH
AS-BUILT FILE
 JULY 2008

GENERAL FAN SCHEDULE

EF-01	EF-02	EF-03	EF-04	EF-05	EF-06	EF-07	EF-08	EF-09	EF-10 & 12	EF-11 & 13	EF-14	EF-15 & 16	EF-17	EF-18	EF-19	EF-20	EF-21	EF-22	EF-23	EF-24			
<p>Product Line: Furnace, Ductwork, Motor, etc.</p> <p>Model, Drive, Flow Rate (CFM), SP (in Hg), Temperature (F), Altitude (ft), RPM, BHP/Watts, Motor, To Speed (RPM), Inlet Vel (ft/min), Outlet Vel (ft/min), SE%, ME%, Noise, dBA, Mounting Position, Application, Fan Notes, Rotating (in), Drop (in), Shipping Wt (lb), Accessories.</p>																							

DIFFUSER AND REGISTER SCHEDULE

TAG NO.	NECK SIZE	N.C. LEVEL	CFM	FUNCTION	TYPE	DAMPER	MANUFACTURER MODEL NO. OR EQUAL	REMARKS
SD-1	9 x 9	15-20	-150	SUPPLY AIR	CEILING DIFFUSER	OB	METAL AIRE 5000-1	
SR-1	12 x 14	20-25	800	SUPPLY AIR	SIDEWALL REGISTER	OB	METAL AIRE VM4002	
SR-2	16 x 8	20-25	450-800	SUPPLY AIR	SIDEWALL REGISTER	OB	METAL AIRE VM4002	
ER-1	44 x 16	35	3750	EXHAUST AIR	SIDEWALL REGISTER	-	METAL AIRE VM4002R	
ER-2	8 x 6	25	-150	EXHAUST AIR	CEILING EXHAUST	-	METAL AIRE V4002R	
ER-3	8 x 8	25-30	240	EXHAUST AIR	CEILING EXHAUST	-	METAL AIRE CC-1TB	
SR-3	16 x 16	20-25	1400	SUPPLY AIR	SIDEWALL REGISTER	OB	METAL AIRE VH4002	

MAKE UP AIR UNIT SCHEDULE

TAG NO.	MANUFACTURER MODEL NO. OR EQUAL	ESP (IN. W.C.)	CFM	GAS INPUT (BTUH)	HEATING OUTPUT (BTUH)	GAS PRESS. (IN. W.C.)	GAS CONN. (IN.)	MOTOR DATA			REMARKS
								HP	VOLT	PHASE	
MAU-1	REZNOR HRPB350	.25	4250	350,000	280,000	5	3/4	2	480	3	1 2 4 5 6
MAU-2	REZNOR HRPB350	.25	3600	350,000	280,000	5	3/4	1.5	480	3	1 2 4 5 6
MAU-3	REZNOR RPBL800	.50	8200	800,000	640,000	5	1 1/4	7 1/2	480	3	1 2 4 5 6
MAU-4	REZNOR RPBL700	.50	7500	700,000	560,000	5	1 1/4	7 1/2	480	3	1 2 4 5 6
MAU-5	REZNOR RPB300	.25	2700	300,000	240,000	5	3/4	1	480	3	1 2 4 5 6
MAU-6	REZNOR RPBL1200	.50	12,000	1,200,000	960,000	5	1 1/4	20	480	3	1 2 4 5 6
MAU-7	REZNOR HCRGB100	.50	940	90,000	72,000	5	1/2	1/3	120	1	1 3 4 5 6

- 1 ROOF CURBS, 100% OUTSIDE AIR INLET HOOD, DOWNTURN PLENUM AND 2", 30% DISPOSABLE FILTER.
- 2 POWER VENTED
- 3 GRAVITY VENTED
- 4 SUMMER/WINTER CONTROL
- 5 ELECTRONIC MODULATION WITH ELECTRONIC THERMOSTAT
- 6 SHUT OFF DAMPER

MOTORIZED WALL DAMPER SCHEDULE

TAG NO.	MANUFACTURER MODEL NO. OR EQUAL	SERVICE	DIMENSION (INCHES)	BLADE DEPTH (INCHES)	REMARKS
MD-1	RUSKIN CD-50	SODIUM HYPOCHLORITE	48" x 48"	4"	1 INTERLOCKED WITH EF-1
MD-3	RUSKIN CD-50	FLOURIDE ROOM	12" x 14"	4"	1 INTERLOCKED WITH EF-3
MD-4	RUSKIN CD-50	VFD ROOM	24" x 24"	4"	1 INTERLOCKED WITH EF-9
MD-5	RUSKIN CD-50	ACID ROOM	16" x 16"	4"	1 INTERLOCKED WITH EF-6
MD-6	RUSKIN CD-50	MECH ROOM	30" x 30"	4"	1 INTERLOCKED WITH EF-17
MD-7	RUSKIN CD-50	ELECTRICAL ROOM	48" x 24"	4"	1 INTERLOCKED WITH EF-19
MD-8	RUSKIN CD-50	WORK AREA	30" x 30"	4"	1 INTERLOCKED WITH EF-20

- 1 MOTORIZED ACTUATORS SHALL BE BELIMO MODEL AF120US OR APPROVED EQUAL, 120 V, 1Ø MOTOR.

ELECTRIC UNIT HEATER SCHEDULE

UNIT NO.	MANUFACTURER	MODEL	BTUH	CFM	TYPE	ELECTRICAL			SERVICE	REMARKS
						KW	V	PH		
EUH-1	BERKO	CUH935	10230	250	WALL MTD	3	480	3	LOWER LEVEL WEST STAIRWAY	1
EUH-1A	BERKO	CUH935	6820	250	WALL MTD	2	480	3	UPPER LEVEL WEST STAIRWAY	1
EUH-2	BERKO	CUH935	6820	250	WALL MTD	2	480	3	LOWER LEVEL EAST STAIRWAY	1
EUH-3	BERKO	CUH935	6820	250	WALL MTD	2	480	3	UPPER LEVEL EAST STAIRWAY	1
EUH-4	BERKO	HUHA348	10230	350	CEILING	3	480	3	ELECTRIC ROOM	1
EUH-5	BERKO	HUHA348	10230	350	CEILING	3	480	3	STORAGE ROOM	1
EUH-6	RUFFNECK CRI	ORI-480360-250	85250	2100	CEILING	25	480	3	SODIUM HYPOCHLORITE	1
EUH-7	RUFFNECK CRI	ORI-480360-250	85250	2100	CEILING	25	480	3	SODIUM HYPOCHLORITE	1
EUH-8	BERKO	HUHA348	10230	350	CEILING	3	480	3	VFD ROOM	1

- 1 INCLUDES UNIT MOUNTED THERMOSTATS

GAS FIRED UNIT HEATER SCHEDULE

TAG NO.	MANUFACTURER MODEL NO. OR EQUAL	GAS INPUT (BTUH)	HEATING OUTPUT (BTUH)	GAS PRESS. (IN. W.C.)	GAS CONNECTION (NOM. IN.)	COMBUSTION AIR INLET (IN. DIA.)	VENT CONNECTION (IN. DIA.)	MOTOR DATA		
								HP	VOLT	PHASE
GUH-1	REZNOR UDAS-30	30,000	24,600	5	1/2	4	4	.02	120	1

GAS FIRED UNIT HEATERS SHALL INCLUDE PERMISSIONS TO BURN PROPANE GAS, 2 STAGE PROPANE GAS VALVE, 316 SS HEAT EXCHANGER, VERTICAL COMBUSTION AIR/VENT KIT INCLUDING CONCENTRIC ADAPTER, THERMOSTAT, VERTICAL LOUVERS, WITH DOWN TURN NOZZLE.

HEAT PUMP SCHEDULE

TAG NO.	MANUFACTURER	MODEL NO. OR EQUAL	TYPE	CFM	COOLING (BTUH)	HEATING (BTUH)	MOTOR DATA			MINIMUM AMPS	REMARKS
							VOLT	PHASE	COP		
AC-1	MITSUBISHI	MSZ12UN	DUCTLESS		360	11400	120	1	2.95	15	
HP-1		MUZ12UN			395						
					450						

ROOF MOUNTED SUPPLY AIR INTAKE

UNIT NO.	MANUFACTURER AND MODEL	THROAT SIZE	REMARKS
FAI-1	GREENHECK FABRA HOOD	48" x 24"	1 2
FAI-2	GREENHECK GRS-810	10" x 10"	1 2

- 1 WITH ROOF CURB AND BIRD SCREEN
- 2 ROOF CURB FRESH AIR INLET TO BE MOUNTED 2'-0" ABOVE FINISHED ROOF

EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 200 CONCORD MA 01742 (978) 371-4000

DESIGNED BY: SC DWG SCALE: N/A
DRAWN BY: MIC CONTRACT NO:
CHECKED BY: DATE: OCTOBER 31, 2008

REVISIONS
NO. DATE
1 04/05
2 10/31/06
3 04/05

AS-BUILT DRAWING FILE
ISSUED FOR RFI POSTED SET
ISSUED FOR CONSTRUCTION

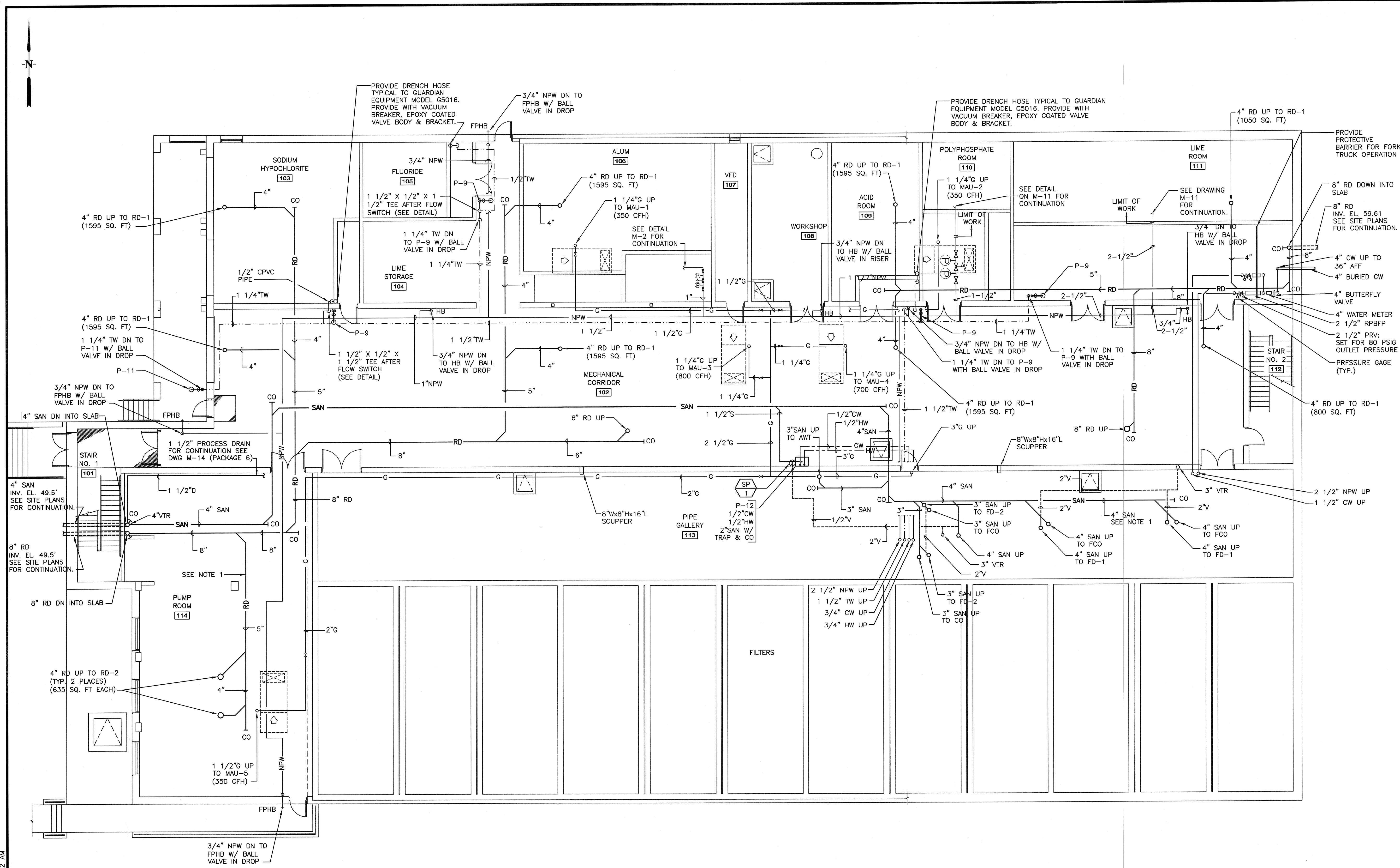
PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKG 7 - MECHANICAL - H/P/FP
SCHEDULES - HVAC

EARTH TECH
AS-BUILT FILE
JULY 2008

H-6
SHEET OF

Filename: L:\WORK\69993\CAD\AS-BUILT\7) WTP\HVAC\69993-H6.DWG
Plot File Date Created: Sep/22/2008 11:02 AM

Filename: L:\WORK\69993\CAD\AS-BUILT\7) WTP\PLUMB\69993-P2.DWG
 Plot File Date Created: Sep/22/2008 11:02 AM



NOTE:
 1. ALL COLD WATER, HOT WATER, GAS, SANITARY AND STORM PIPING SHALL RUN AS HIGH AS POSSIBLE TO AVOID PROCESS PIPING MAINS. SEE MECHANICAL DRAWINGS FOR ELEVATIONS AND COORDINATION OF PROCESS PIPING.

LOWER LEVEL FLOOR PLAN - PLUMBING
 SCALE: 1/8" = 1'-0"

NO.	DATE	BY	REVISIONS
1	04/05	SC	ISSUED FOR CONSTRUCTION
2	10/21/08	AN	ISSUED FOR REPOST SET
3	JULY 2008	DRS	AS-BUILT DRAWING FILE

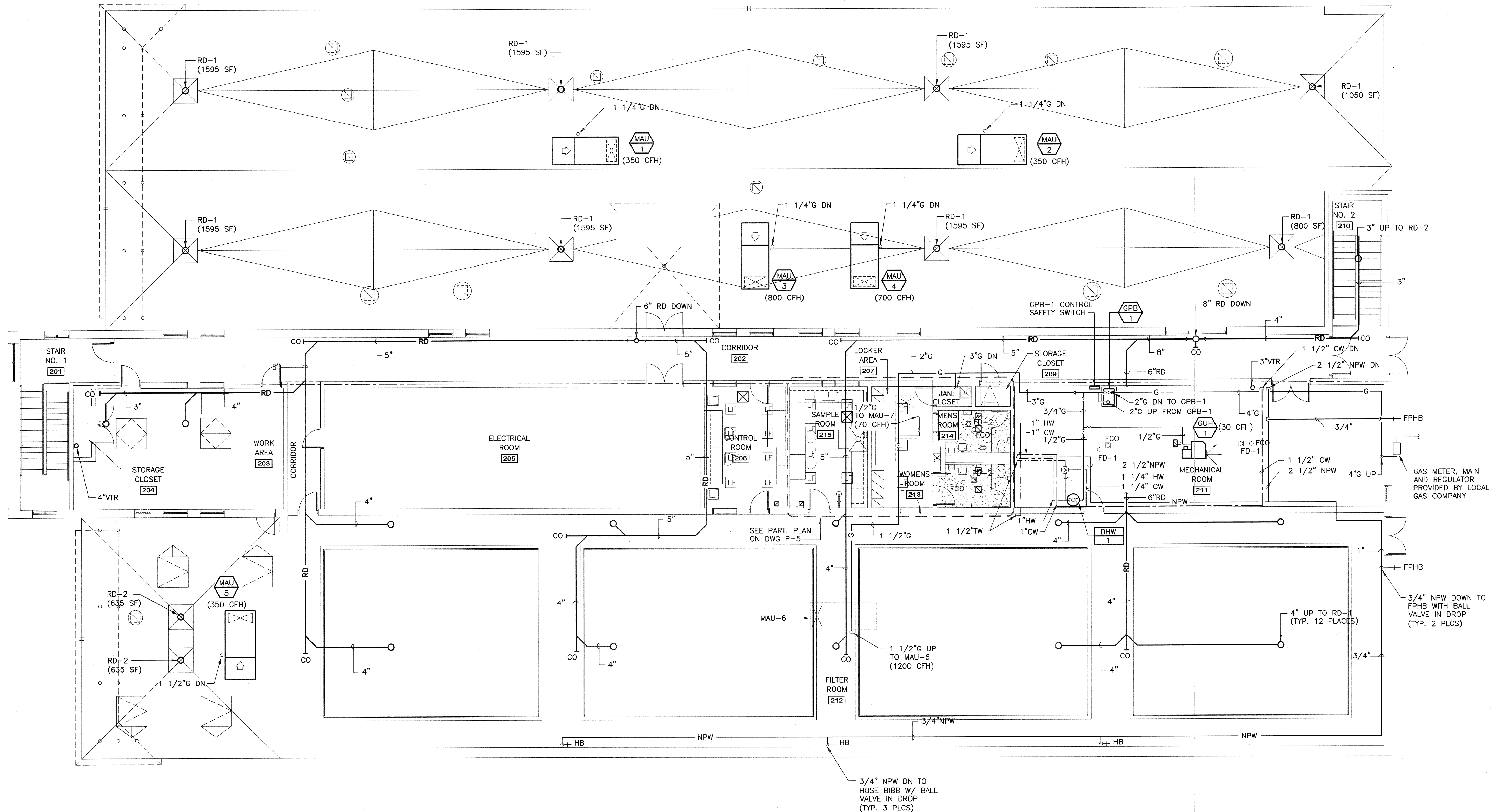
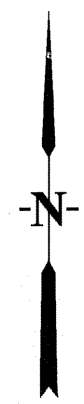
ROBERT H. SHELDON
 No. 4003
 P.L.L.C.
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF RHODE ISLAND
 License No. 00000000

PAWUCKET, RHODE ISLAND
PAWUCKET REGIONAL WATER TREATMENT FACILITY
PKG 7 - MECHANICAL - H/P/FP
 LOWER LEVEL PLAN - PLUMBING

DESIGNED BY	DWG SCALE
SC	AS NOTED
DRAWN BY	CONTRACT NO.
HAC	
CHECKED BY	DATE
	OCTOBER 31, 2008

EARTH TECH
AS-BUILT FILE
 JULY 2008

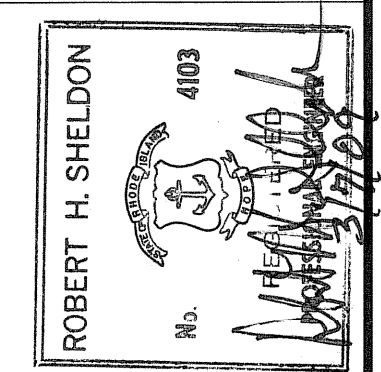
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 Plot File Date Created: Sep/22/2008 11:02 AM



UPPER LEVEL FLOOR PLAN - PLUMBING
 SCALE: 1/8" = 1'-0"

FULL SIZE DRAWING = 4"

NO.	BY	DATE	REVISIONS
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0	SC	04/05	ISSUED FOR CONSTRUCTION

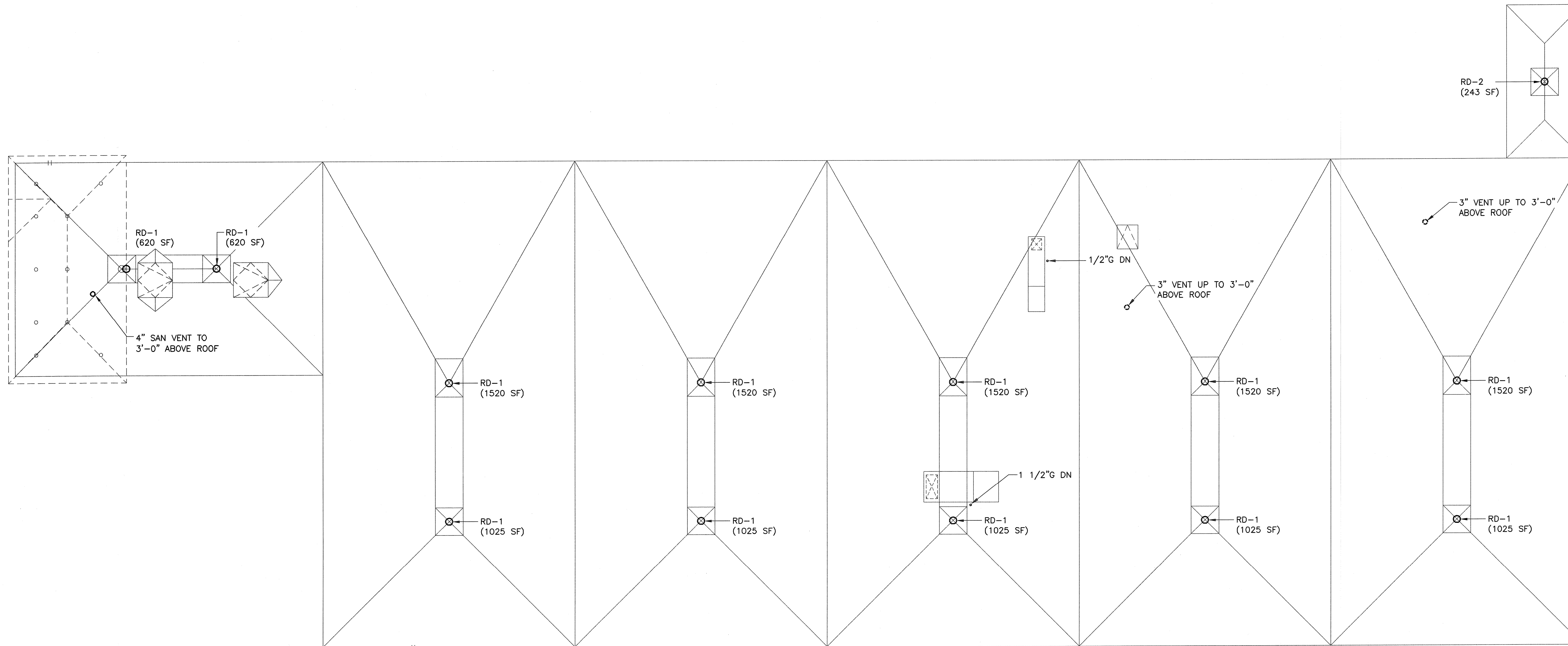
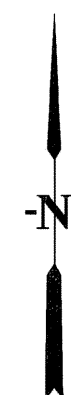


PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY**
PKG 7 - MECHANICAL - H/P/FP
 UPPER LEVEL PLAN - PLUMBING

DESIGNED BY SC	DWG SCALE AS NOTED
DRAWN BY MJC	CONTRACT NO.
CHECKED BY	DATE OCTOBER 31, 2008

EARTH TECH
 AS-BUILT FILE
 JULY 2008

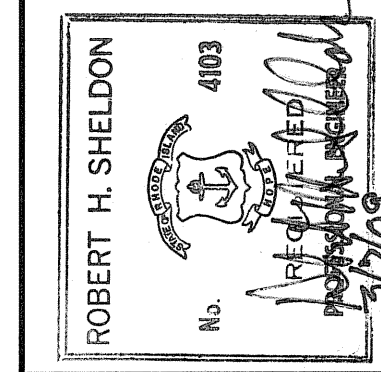
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ROOF LEVEL PLAN -- PLUMBING
 SCALE: 1/8" = 1'-0"

FULL SIZE DRAWING = 4"

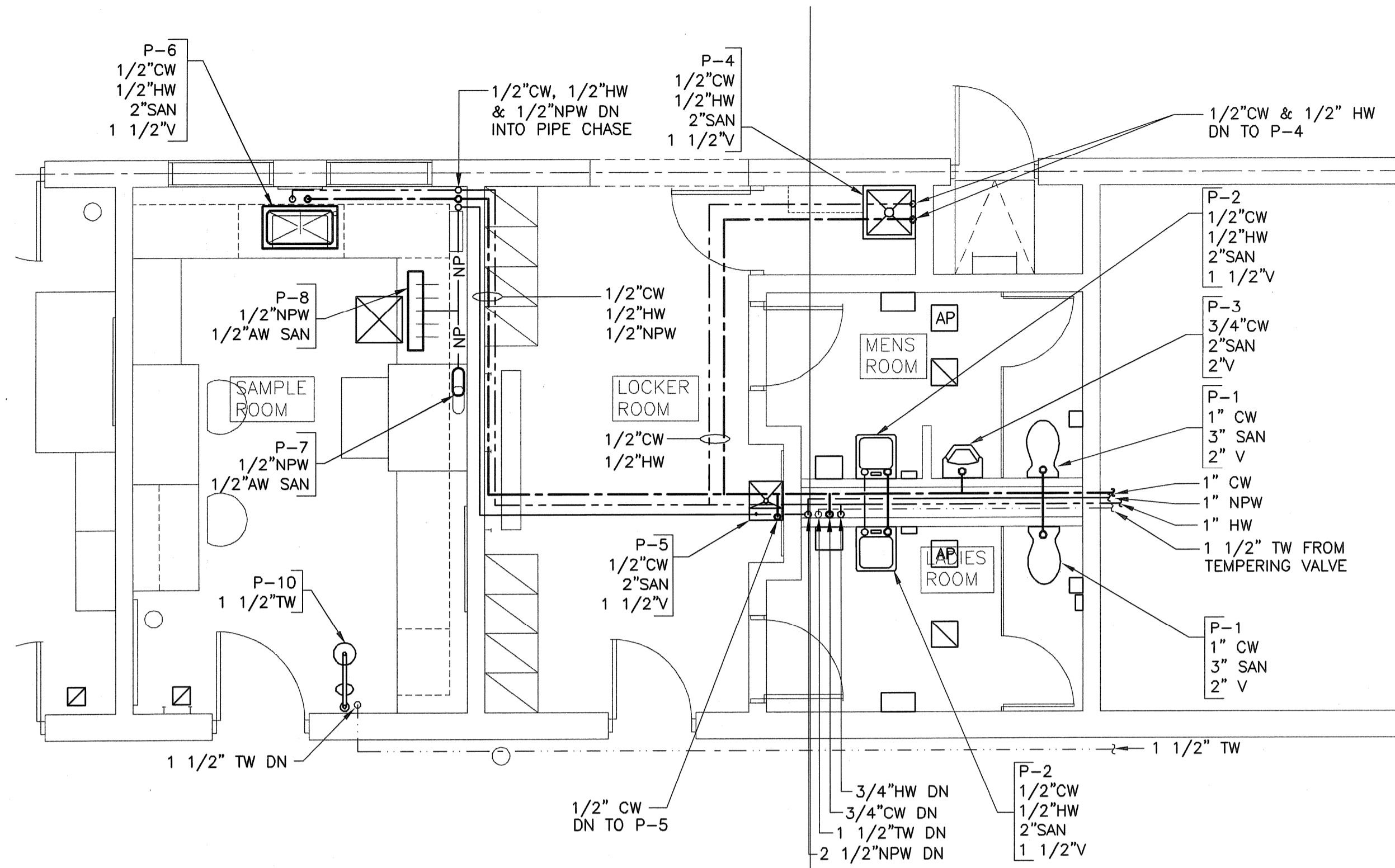
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1	ISSUED FOR RFP POSTED SET	10/31/06	
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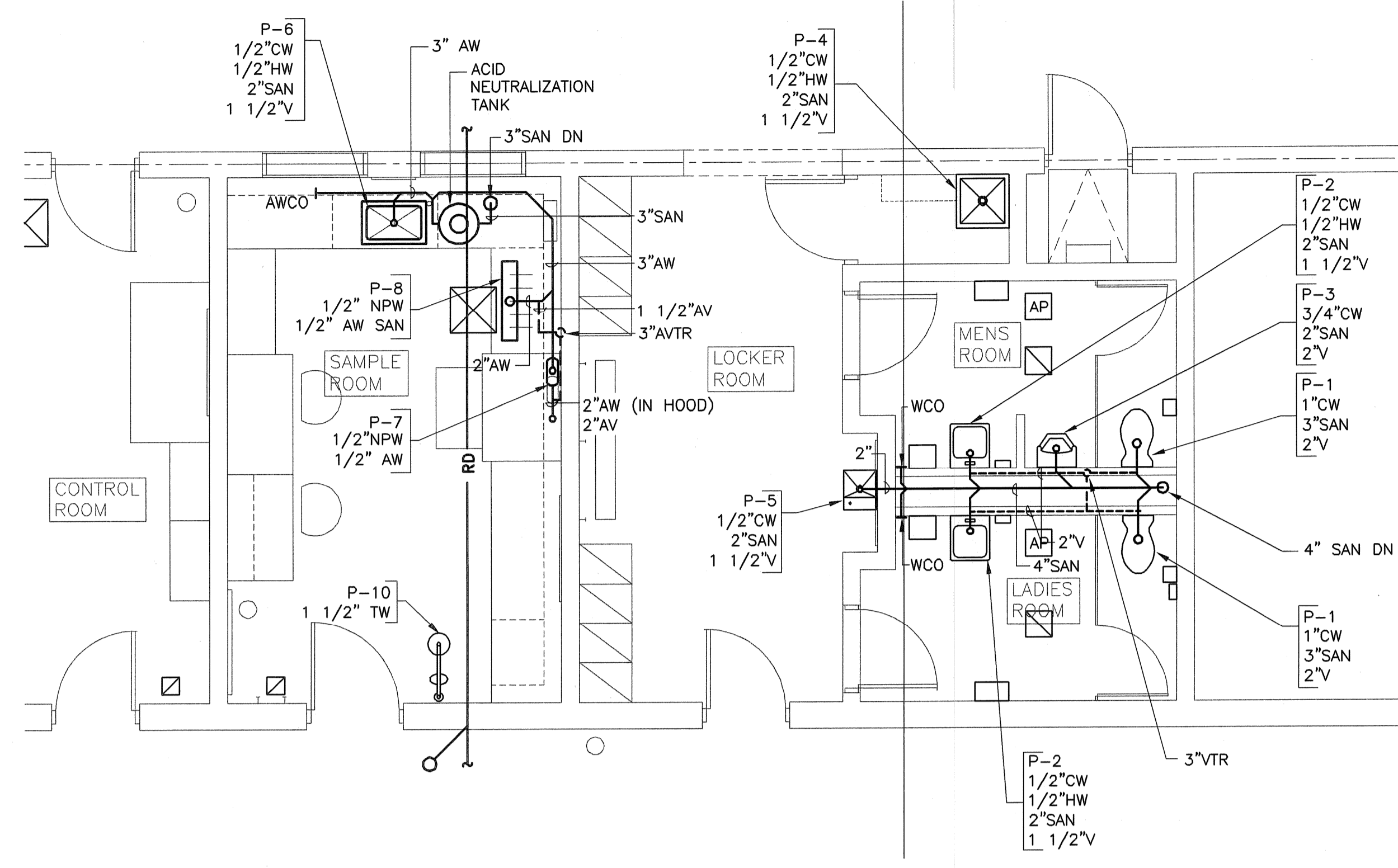
PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY**
PKG 7 - MECHANICAL - H/P/FP
 ROOF LEVEL PLAN - PLUMBING

DESIGNED BY SC	DWG SCALE AS NOTED
DRAWN BY MJC	CONTRACT NO.
CHECKED BY	DATE OCTOBER 31, 2008

EARTH TECH
 AS-BUILT FILE
 JULY 2008

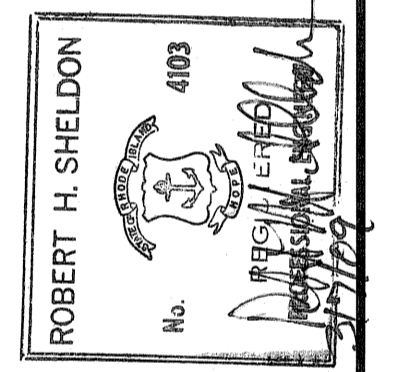


UPPER LEVEL PART. PLAN - SERVICE WATER
 SCALE: 1/4" = 1'-0"



UPPER LEVEL PART. PLAN - DRAINS
 SCALE: 1/4" = 1'-0"

FULL SIZE DRAWING = 4"	
AS-BUILT DRAWING FILE	DPB JULY 2008
ISSUED FOR RF POSTED SET	AM 10/31/06
ISSUED FOR CONSTRUCTION	SC 04/09
REVISIONS	NO. BY DATE
	0 SC 04/09

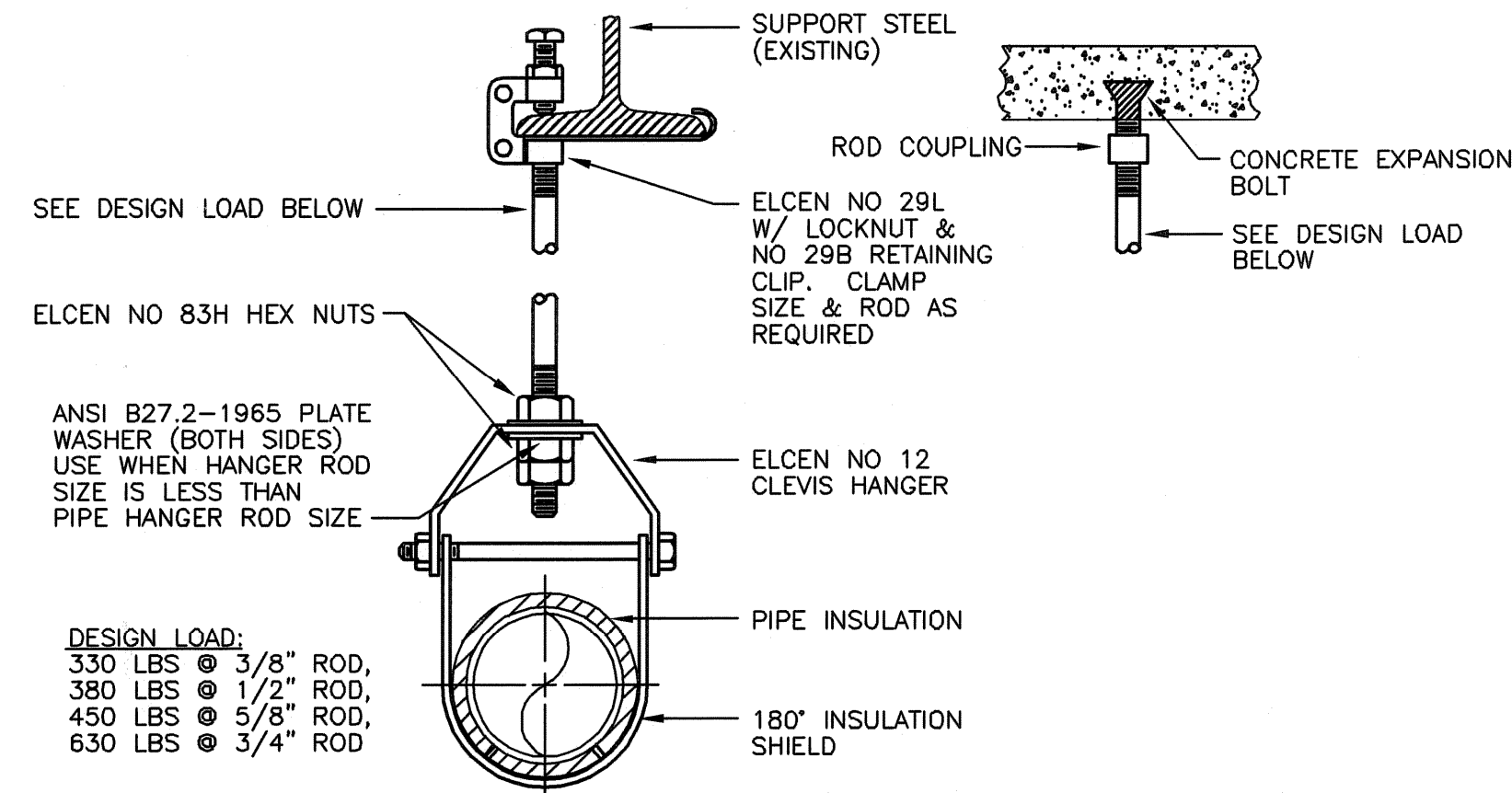


PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY**
PKG 7 - MECHANICAL - H/P/FP
 UPPER LEVEL PART. PLANS - PLUMBING

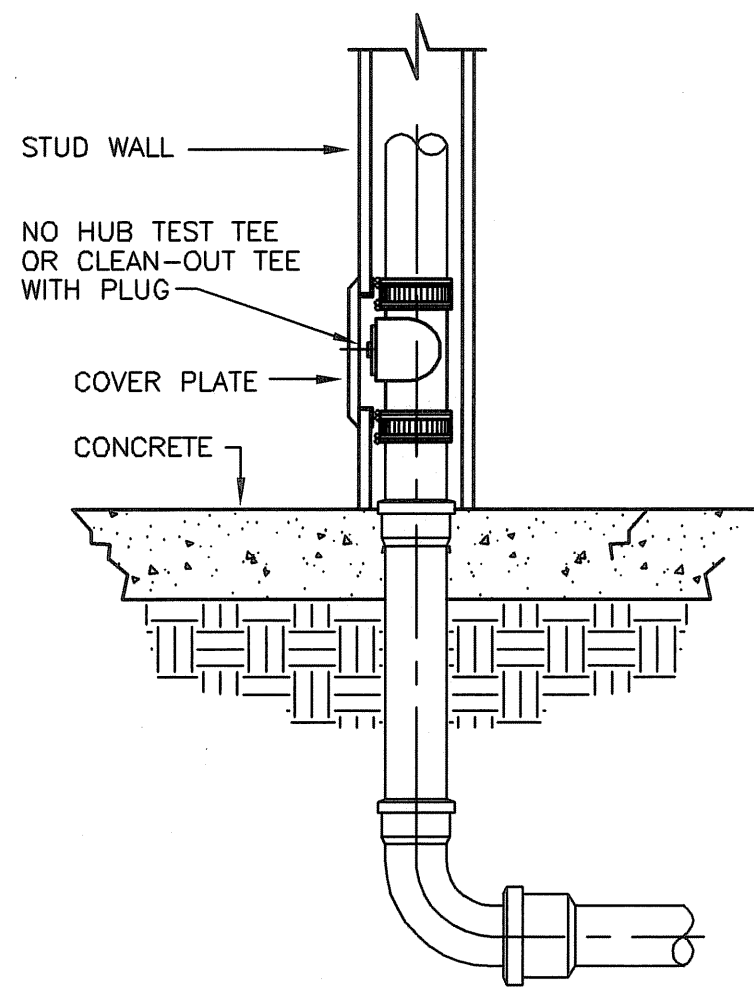
DESIGNED BY	SC	DWG SCALE	AS NOTED
DRAWN BY	MJC	CONTRACT NO.	
CHECKED BY		DATE	OCTOBER 31, 2006

EARTH TECH
 AS-BUILT FILE
 JULY 2008

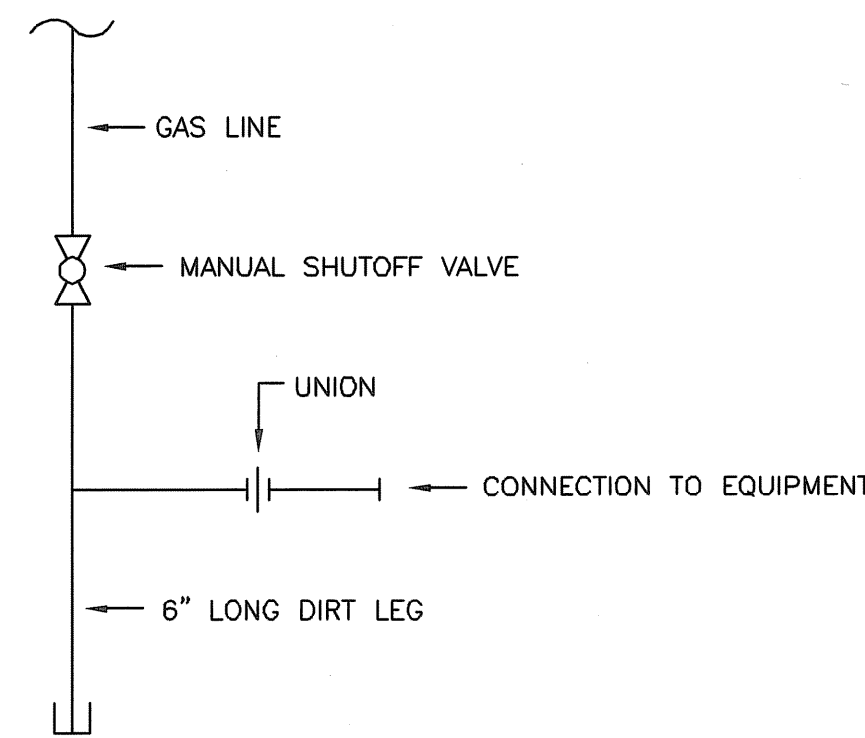
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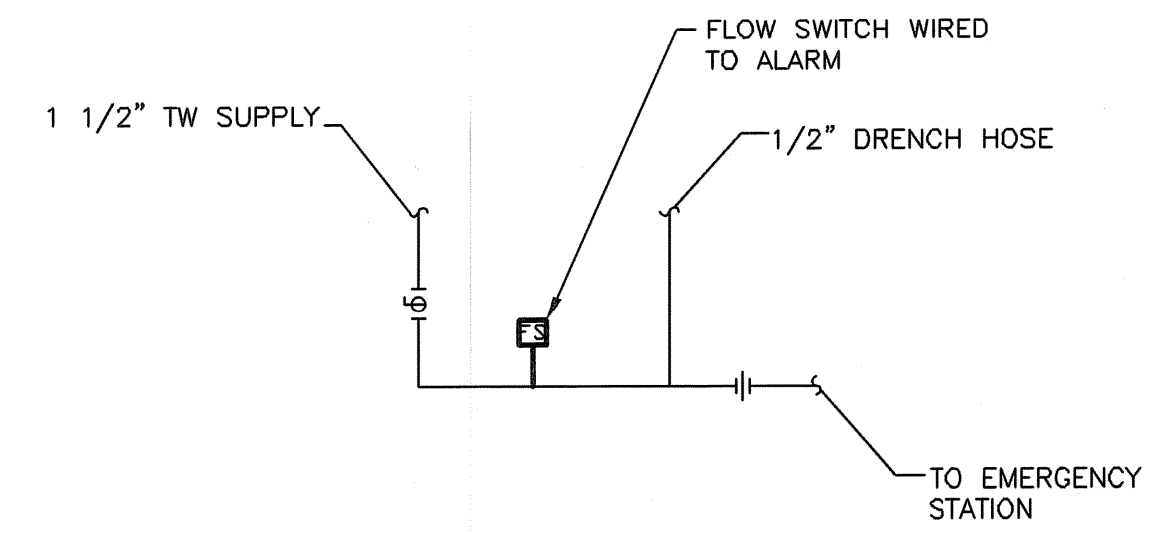
TYPICAL PIPE SUPPORT DETAIL
NOT TO SCALE



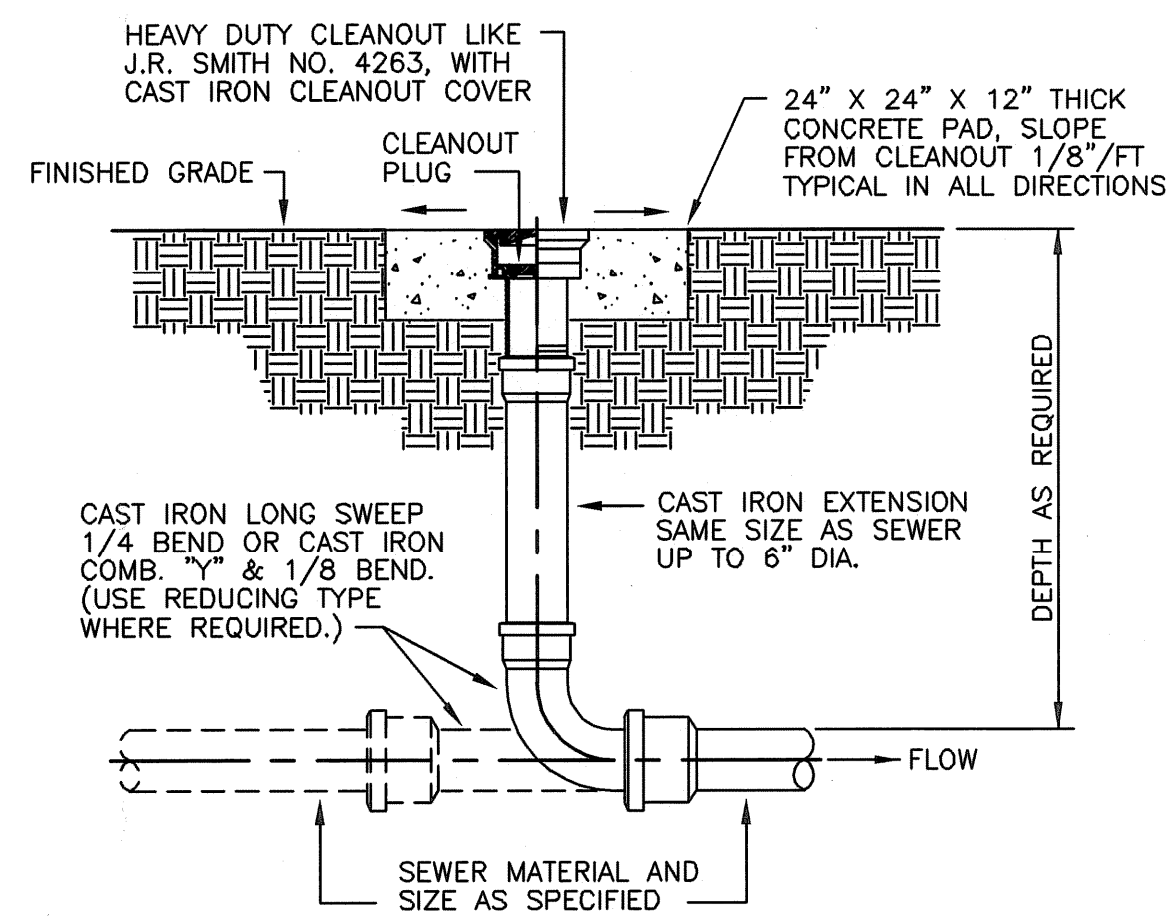
TYPICAL WALL CLEANOUT DETAIL
NOT TO SCALE



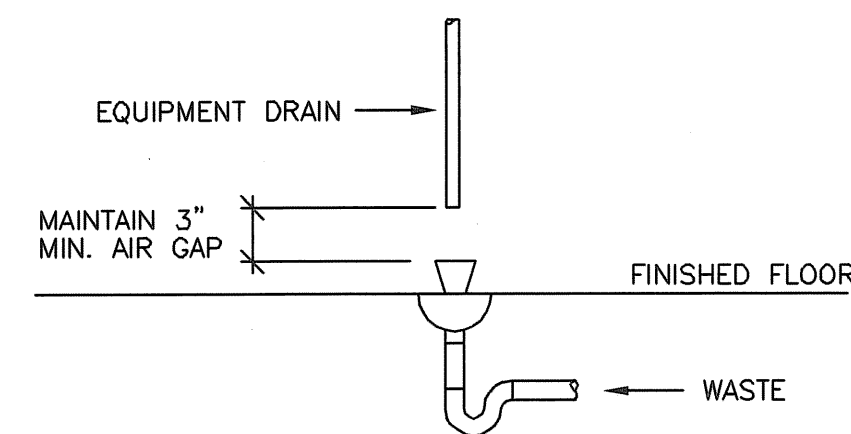
GAS PIPING CONNECTION DETAIL
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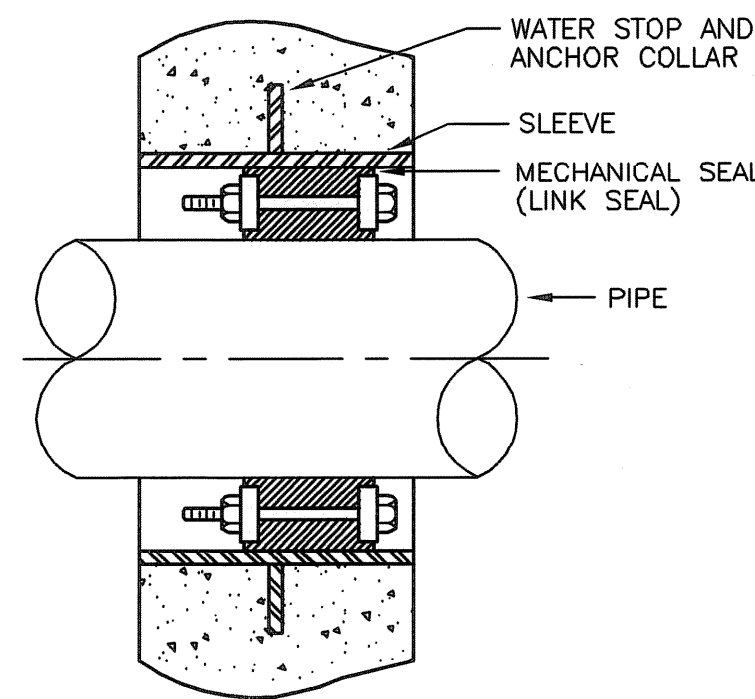
EMERGENCY STATION SCHEMATIC PIPING DETAIL
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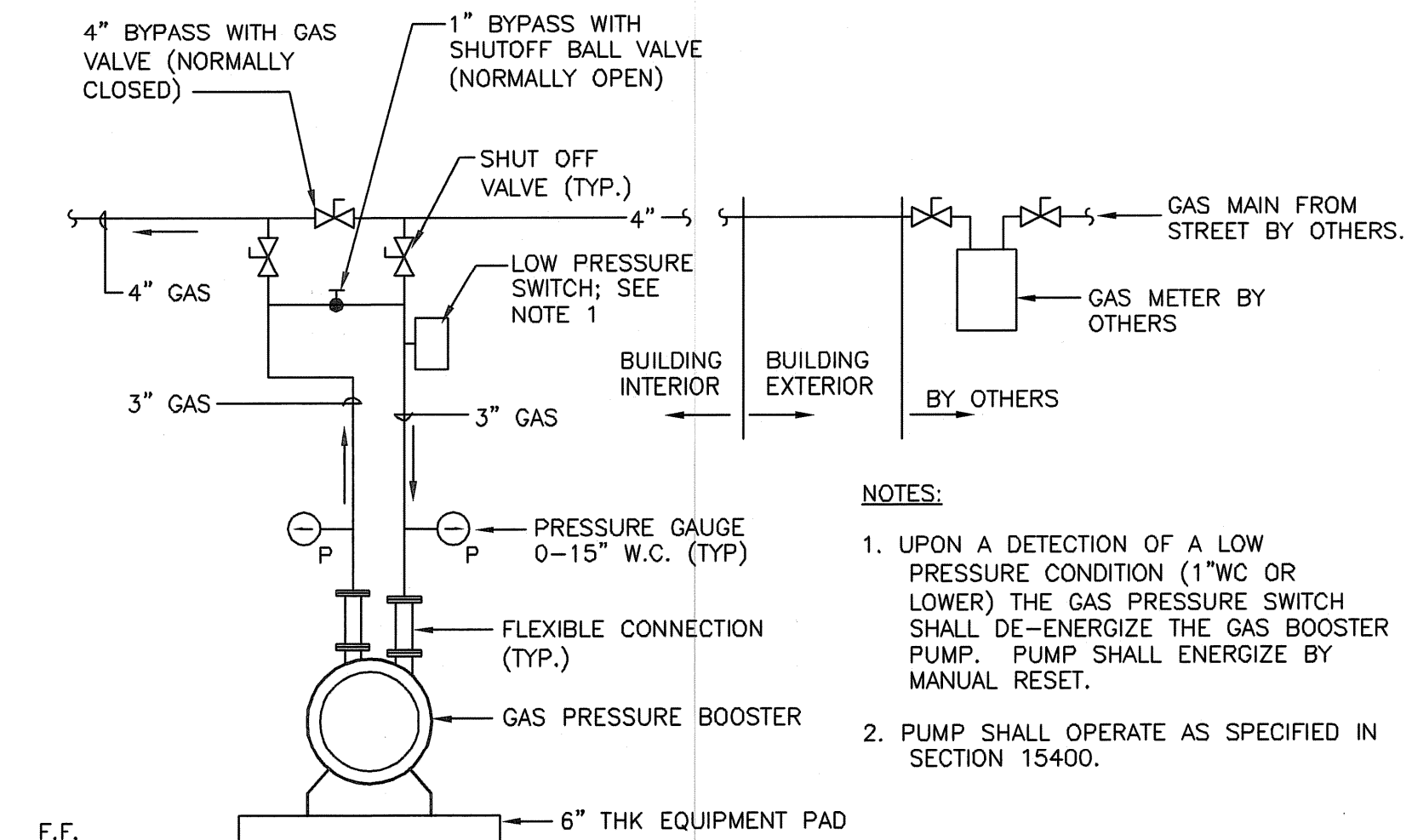
EXTERIOR CLEANOUT DETAIL
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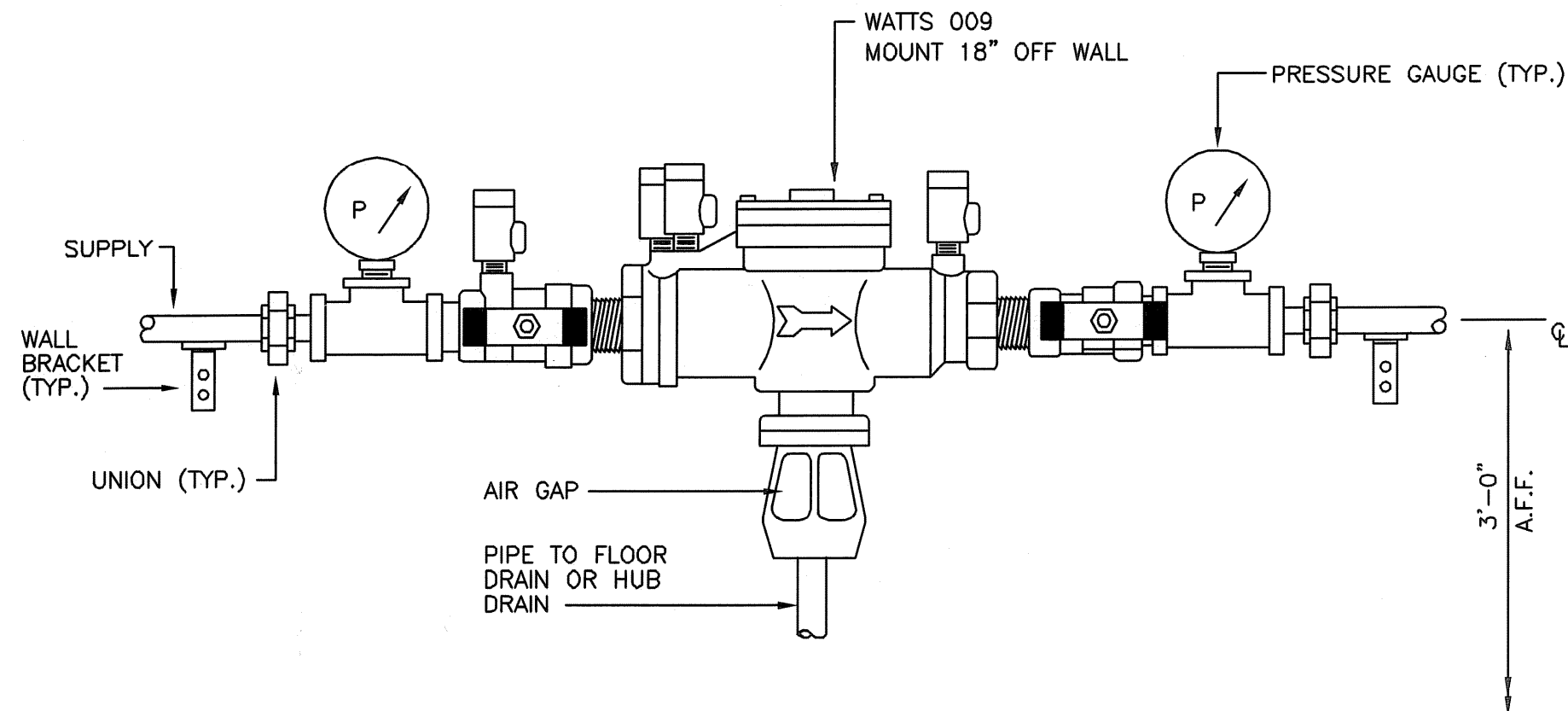
FLOOR DRAIN DETAIL
NOT TO SCALE



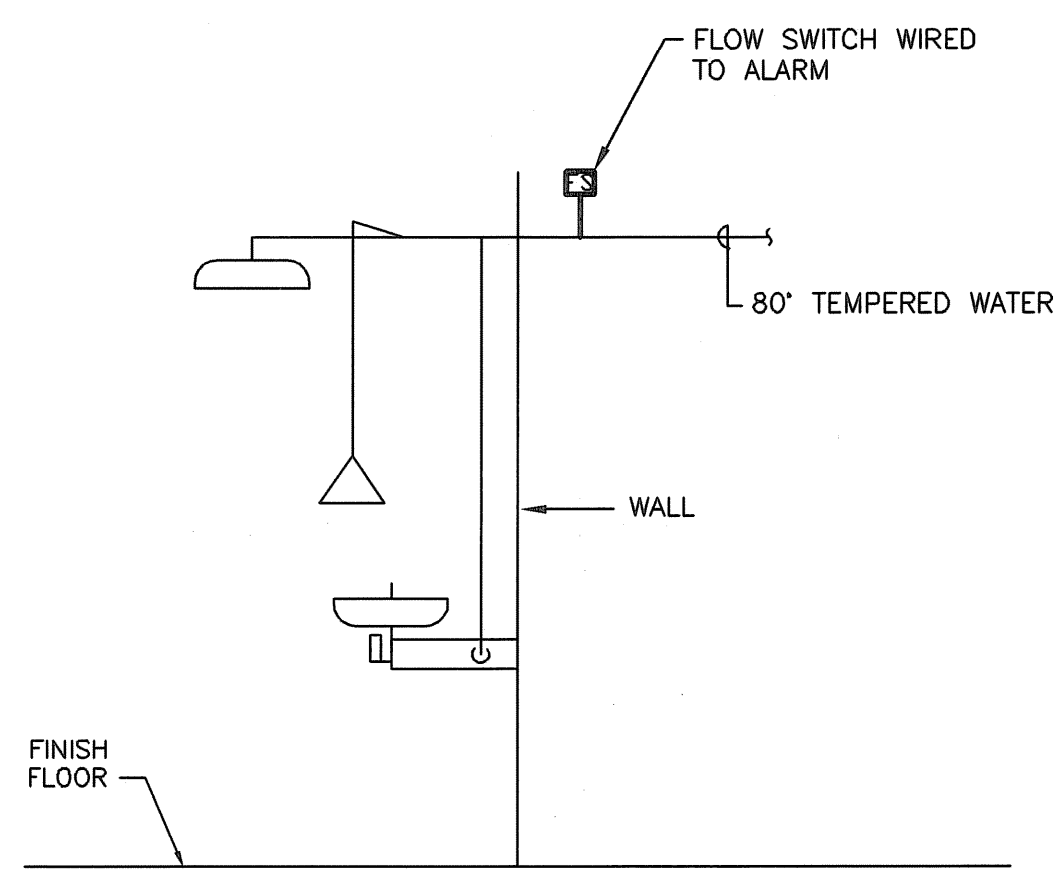
PIPE SLEEVE THROUGH FLOOR/WALL DETAIL
NOT TO SCALE



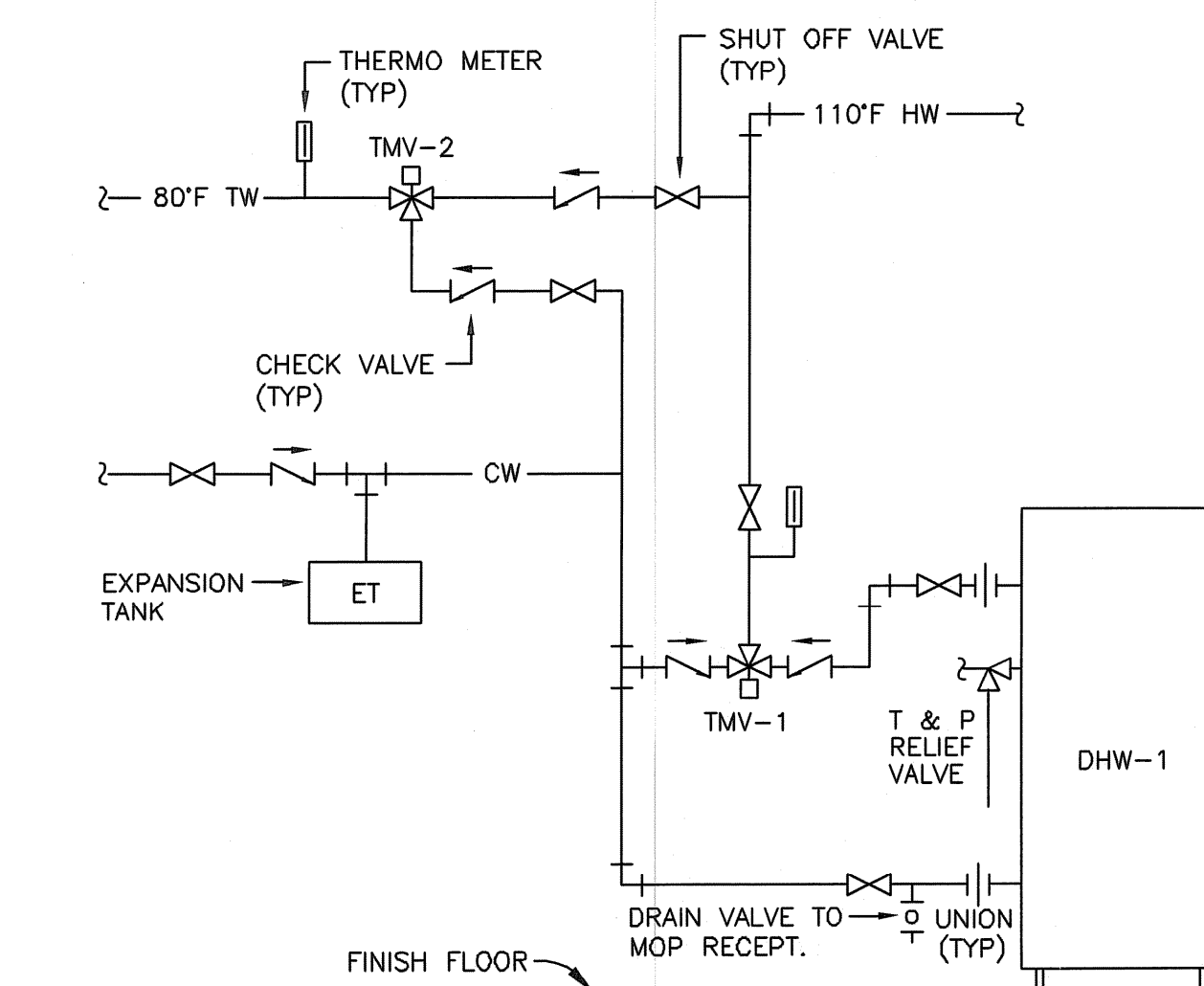
GAS BOOSTER DETAIL
NOT TO SCALE



REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER DETAIL
NOT TO SCALE



EYEWASH/SHOWER PIPING DETAIL
NOT TO SCALE



WATER HEATER DETAIL
NOT TO SCALE

NO.	DATE	BY	REVISION
1	04/05	SC	ISSUED FOR CONSTRUCTION
2	10/27/06	AM	AS-BUILT DRAWING FILE
3	JULY 2008	DPB	ISSUED FOR RFI POSTED SET

ROBERT H. SHELDON
No. 4103
Professional Seal
3/17/08

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 7 - MECHANICAL - H/P/FP
DETAILS - PLUMBING

DESIGNED BY	DWG SCALE
SC	AS NOTED
DRAWN BY	CONTRACT NO.
MJC	
CHECKED BY	DATE
	OCTOBER 31, 2006

EARTH TECH
AS-BUILT FILE
JULY 2008

Filename: L:\WORK\68993\CAO\AS-BUILT\7) WTP\PLUMB\68993-P6.DWG
Plot File Date Created: Sep/22/2008 11:02 AM

NOTES:

- ALL FIRE PROTECTION SYSTEMS SHALL BE SEISMICALLY BRACED ACCORDING TO THE APPLICABLE SECTIONS OF THE RHODE ISLAND STATE BUILDING CODE LATEST EDITION AND NFPA 13 LATEST ACCEPTED EDITION.
- ALL FIRE PROTECTION SYSTEMS, EQUIPMENT AND PIPING SHALL BE DESIGNED, INSTALLED AND TESTED BY A SPRINKLER CONTRACTOR LICENSED AND EXPERIENCED IN THE STATE OF RHODE ISLAND IN THE DESIGN, INSTALLATION AND TESTING OF STANDARD AND RESIDENTIAL SPRINKLER SYSTEMS.
- ALL WORK PERFORMED SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE RHODE ISLAND STATE BUILDING CODE AND NFPA 13, 14, AND 24 LATEST ACCEPTED EDITIONS AS WELL AS ALL RULES AND REGULATIONS OF THE AUTHORITY HAVING JURISDICTION.
- ALL PIPING IN EXPOSED AREAS SHALL BE OF A TYPE SUITABLE FOR PAINTING. ALL PIPING SHALL BE RUN CONCEALED WHEREVER POSSIBLE.
- CONTRACTOR SHALL PROVIDE FIRE STOPPING FOR ALL PENETRATIONS THROUGH FIRE WALLS AND FIRE RATED SEPARATIONS.
- ALL SPRINKLER PIPING AND HEADS ARE SHOWN DIAGRAMMATICALLY. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES BEFORE WORK BEGINS TO INSURE THAT NO INTERFERENCES EXIST AND THAT ALL COMPONENTS OF THE SPRINKLER SYSTEM WILL FIT INTO THE SPACE.
- SPRINKLER CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS OF DUCTWORK, DIFFUSERS AND LIGHT FIXTURES. SPRINKLER CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR CEILINGS, CEILING SPACES AND ROOMS.
- SPRINKLER CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN ALL SCAFFOLDING, HOISTING EQUIPMENT AND DERRICKS NECESSARY FOR INSTALLATION OF WORK.
- THE SPRINKLER CONTRACTOR SHALL PRODUCE A COMPLETE SET OF WORKING FIRE PROTECTION DRAWINGS IN ACCORDANCE WITH NFPA 13 & 14. THE SYSTEM SHALL BE HYDRAULICALLY CALCULATED PER THE DESIGN CRITERIA PROVIDED AND REQUIRED. ALL DRAWINGS AND CALCULATIONS SHALL BE STAMPED AND SIGNED BY THE CONTRACTORS REGISTERED FIRE PROTECTION ENGINEER AND SHALL BE SUBMITTED TO THE LOCAL FIRE DEPARTMENT FOR APPROVAL AND PERMIT. THIS SHALL BE DONE PRIOR TO THE COMMENCEMENT OF ANY SPRINKLER WORK. AN ADDITIONAL SET OF PLANS AND CALCULATIONS AS DESCRIBED ABOVE SHALL BE SUBMITTED TO THE LOCAL BUILDING DEPARTMENT FOR APPROVAL PRIOR TO THE COMMENCEMENT OF ANY SPRINKLER WORK.
- PLANS AND HYDRAULIC CALCULATIONS AS DESCRIBED ABOVE SHALL ALSO BE SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO THE COMMENCEMENT OF ANY SPRINKLER WORK.
- ALL DRAWING SUBMITTALS SHALL INCLUDE COMPLETE SYSTEM RISER DIAGRAMS.
- ALL SUBMITTALS SHALL INCLUDE MANUFACTURERS ORIGINAL CATALOG DATA AND DESCRIPTIVE INFORMATION FOR ALL MAJOR COMPONENTS OF THE EQUIPMENT TO BE SUPPLIED.
- ALL DRAWINGS SUBMITTALS SHALL INDICATE ALL CONTROL VALVES, SUPERVISORY AND ALARM SWITCHES, ALL TEST AND DRAIN VALVES.
- PROVIDE WIRE CAGE GUARD PROTECTION FOR ALL SPRINKLER HEADS INSTALLED IN MECHANICAL ROOMS.
- THE DRAWINGS ARE NOT INTENDED TO SHOW EXACT SPRINKLER HEADS LOCATIONS, NUMBER OF SPRINKLER HEADS, OR THE EXACT ROUTING OF PIPING. THIS SHALL BE THE RESPONSIBILITY OF THE SPRINKLER CONTRACTOR. THE SPRINKLER CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
- CONTRACTOR SHALL PROVIDE A KNOX BOX IN AN ACCESSIBLE AND VISIBLE LOCATION. TYPE AND LOCATION OF THE BOX SHALL BE APPROVED BY THE LOCAL FIRE DEPARTMENT.
- SPRINKLER CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING IN ORDER TO ACCOMMODATE THE SPRINKLER WORK.
- THE CONTRACTOR SHALL MAKE REASONABLE CHANGES TO THE SPRINKLER HEAD LOCATIONS AS A RESULT OF HIS COORDINATION WITH THE MECHANICAL AND ELECTRICAL DRAWINGS AND AT NO EXTRA COST TO THE CONTRACT.
- THE SPRINKLER CONTRACTOR SHALL PROVIDE A FIRE DEPARTMENT PERSONNEL STAFFED "FIRE WATCH" DURING ALL WELDING OPERATIONS.
- THE FIRE DEPARTMENT CONNECTION TYPE AND LOCATION SHALL BE APPROVED BY THE LOCAL FIRE DEPARTMENT PRIOR TO INSTALLATION.
- ALL ABOVE AND BELOW GROUND PIPING SYSTEMS SHALL BE FLUSHED IN ACCORDANCE WITH NFPA-13, NFPA-24. NO CONNECTION OF THE ABOVE GROUND PIPING SYSTEMS SHALL BE MADE UNTIL ALL BELOW GROUND PIPING HAS BEEN FLUSHED AND FLUSHING REPORTS HAVE BEEN FILLED OUT AND SIGNED AND ARE IN ACCORDANCE WITH NFPA-24. FLUSHING REPORTS OF THE SITE WATER MAINS SHALL BE OBTAINED BY THE SPRINKLER CONTRACTOR FROM THE SITE CONTRACTOR SHOWING FLUSHING OF THE SITE WATER MAINS IN ACCORDANCE WITH NFPA-24 BEFORE ANY CONNECTIONS TO THE BUILDING FIRE PROTECTION PIPING SYSTEMS ARE MADE.
- THE SPRINKLER CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS ADVANCE NOTICE TO THE LOCAL FIRE DEPARTMENT PRIOR TO THE FINAL SPRINKLER SYSTEMS ACCEPTANCE TEST. THE FINAL ACCEPTANCE TEST SHALL BE WITNESSED BY THE LOCAL FIRE DEPARTMENT. ANY DEFECTS FOUND DURING THE ACCEPTANCE TEST SHALL BE REPAIRED BY THE SPRINKLER CONTRACTOR AND THE ENTIRE SPRINKLER SYSTEM RETESTED AS DESCRIBED ABOVE. THIS SHALL BE REPEATED UNTIL THE SPRINKLER SYSTEM IS FREE OF ALL DEFECTS AND ENTIRE SPRINKLER SYSTEM IS ACCEPTED BY THE LOCAL FIRE DEPARTMENT.
- THE SPRINKLER CONTRACTOR SHALL COORDINATE WITH THE LOCAL FIRE DEPARTMENT FOR A MINIMUM OF TWO SPRINKLER SYSTEMS INSPECTIONS, ONE PRIOR TO THE CEILING ROUGH INSTALLATION AND ONE AFTER FINISH CEILINGS HAVE BEEN INSTALLED.
- THE SPRINKLER CONTRACTOR SHALL PROVIDE THE LOCAL FIRE DEPARTMENT WITH A COPY OF THE SPRINKLER SYSTEMS TEST RESULTS.
- THE SPRINKLER CONTRACTOR SHALL COORDINATE WITH THE LOCAL FIRE DEPARTMENT FOR ALL REQUIREMENTS FOR APPROVAL AND ACCEPTANCE OF THE SPRINKLER SYSTEMS AND DESIGN DRAWINGS PRIOR TO THE COMMENCEMENT OF ANY SPRINKLER DESIGN OR INSTALLATION WORK.
- THE SPRINKLER CONTRACTOR SHALL CAREFULLY COORDINATE ALL UNDERGROUND PIPING WITH THE PLUMBING CONTRACTOR TO DETERMINE THE BEST ROUTE OF ALL UNDERGROUND PIPING.
- ALL SPRINKLER HEADS SHALL BE LISTED QUICK RESPONSE TYPE.
- ALL FIRE DEPARTMENT HOSE VALVES AND FIRE DEPARTMENT CONNECTIONS SHALL BE APPROVED BY THE FIRE DEPARTMENT PRIOR TO PURCHASE.
- THE SPRINKLER CONTRACTOR SHALL PROVIDE SIGNAGE AT ALL FIRE DEPARTMENT CONNECTIONS. THE CONTRACTOR SHALL COORDINATE WITH THE FIRE DEPARTMENT FOR ACCEPTABLE SIGNAGE TYPES AND TERMINOLOGIES.
- ALL SPRINKLER SYSTEMS, EQUIPMENT AND MATERIAL SHALL BE UL LISTED AND / OR FM APPROVED AND SHALL BE RATED AT 175 PSI WORKING PRESSURE AS A MINIMUM.
- THE SPRINKLER CONTRACTOR SHALL PROVIDE DROPS REQUIRED FOR FINAL CONNECTIONS TO SPRINKLER HEADS.
- THE SPRINKLER CONTRACTORS WORK SHALL TERMINATE AT A POINT 10'-0" BEYOND THE OUTSIDE OF THE BUILDING.
- WHERE LISTED QUICK RESPONSE SPRINKLERS ARE USED THROUGHOUT, THE SYSTEM AREA OF OPERATION IS PERMITTED TO BE REDUCED WITHOUT REVISING THE DESIGN DENSITY AS INDICATED IN NFPA-13 LATEST ACCEPTED EDITION. THE CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR ALL CEILING HEIGHTS.
- THE DESIGN AREAS AND DENSITIES INDICATED ON THE DRAWINGS SHALL NOT BE USED BY THE SPRINKLER CONTRACTOR TO PERFORM HIS HYDRAULIC CALCULATIONS AND TO CREATE HIS SPRINKLER SYSTEM SHOP DRAWINGS. THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL REMOTE AREAS AND DESIGN DENSITIES. THE DESIGN AREAS AND DENSITIES INDICATED ON THE DRAWINGS ARE FOR REFERENCE ONLY. ALL DESIGN AREAS AND DENSITIES SHALL BE SELECTED BY THE SPRINKLER CONTRACTOR IN STRICT ACCORDANCE WITH NFPA-13.
- ALL PIPE OPENINGS IN WALLS, CEILINGS AND SLAB REQUIRED BY THE WORK AS SHOWN ON THESE DRAWINGS SHALL BE COORDINATED BY THE GENERAL CONTRACTOR WITH LOCATIONS AS SHOWN ON THE STRUCTURAL DRAWINGS.
- BASIS OF DESIGN SHALL BE BASED ON THE FOLLOWING ANTICIPATED WATER FLOW DATA
 STATIC PRESSURE: 136 PSI
 RESIDUAL PRESSURE: 134 PSI
 WATER FLOW: 1500 GPM
 CONTRACTOR SHALL PERFORM HYDRANT FLOW TEST UPON COMPLETION OF THE NEW RAW WATER PUMP STATION TO CONFIRM HYDRANT FLOW DATA. CONTRACTOR SHALL ADJUST HYDRAULIC CALCULATIONS TO ENSURE SYSTEM REQUIREMENTS ARE MET AND SUBMIT ADJUSTED DRAWINGS AND HYDRAULIC CALCULATIONS AS A SHOP DRAWING FOR RECORD PURPOSES.

STATIC PRESSURE: 136 PSI
 RESIDUAL PRESSURE: 134 PSI
 WATER FLOW: 1500 GPM

CONTRACTOR SHALL PERFORM HYDRANT FLOW TEST UPON COMPLETION OF THE NEW RAW WATER PUMP STATION TO CONFIRM HYDRANT FLOW DATA. CONTRACTOR SHALL ADJUST HYDRAULIC CALCULATIONS TO ENSURE SYSTEM REQUIREMENTS ARE MET AND SUBMIT ADJUSTED DRAWINGS AND HYDRAULIC CALCULATIONS AS A SHOP DRAWING FOR RECORD PURPOSES.

FLOW CRITERIA

SHOULD THE ABOVE FLOW AND PRESSURE DATA BE MORE THAN 6 MONTHS OLD AT THE TIME OF THE CONTRACTORS SPRINKLER SYSTEM DESIGNS, THEN THE SPRINKLER CONTRACTOR SHALL PERFORM A NEW HYDRANT FLOW TEST TO OBTAIN CURRENT FLOW AND PRESSURE DATA. THE SPRINKLER CONTRACTOR SHALL USE HIS NEWLY OBTAINED FLOW AND PRESSURE DATA TO PERFORM HIS HYDRAULIC CALCULATIONS FOR THE SPRINKLER SYSTEM DESIGN. THE HYDRANT FLOW TEST SHALL BE PERFORMED IN ACCORDANCE WITH NFPA-13. THE SPRINKLER CONTRACTOR SHALL PERFORM ALL COORDINATION WITH THE LOCAL WATER AUTHORITIES IN ORDER TO PERFORM THE HYDRANT FLOW TEST. CONTRACTOR SHALL REVIEW THE SYSTEM REQUIREMENTS AND MAKE PROVISIONS FOR A FIRE PUMP IF REQUIRED.

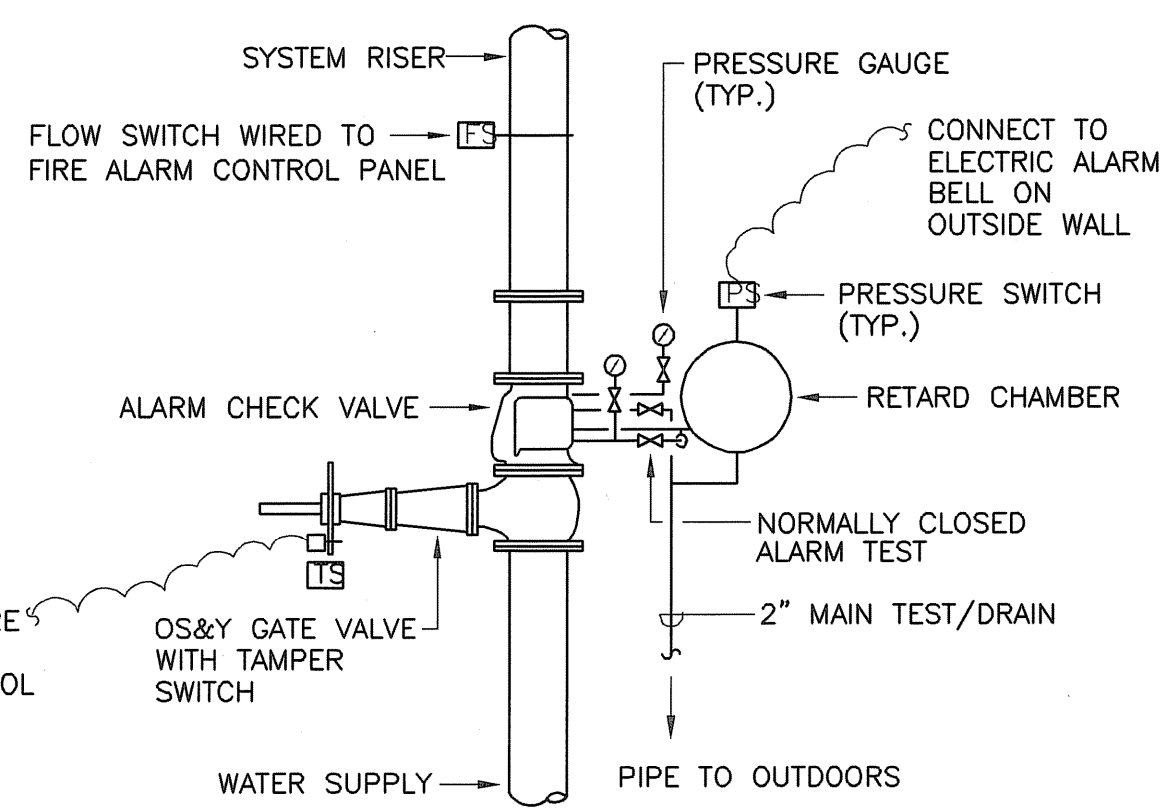
DESIGN CRITERIA

LOWER LEVEL AREAS

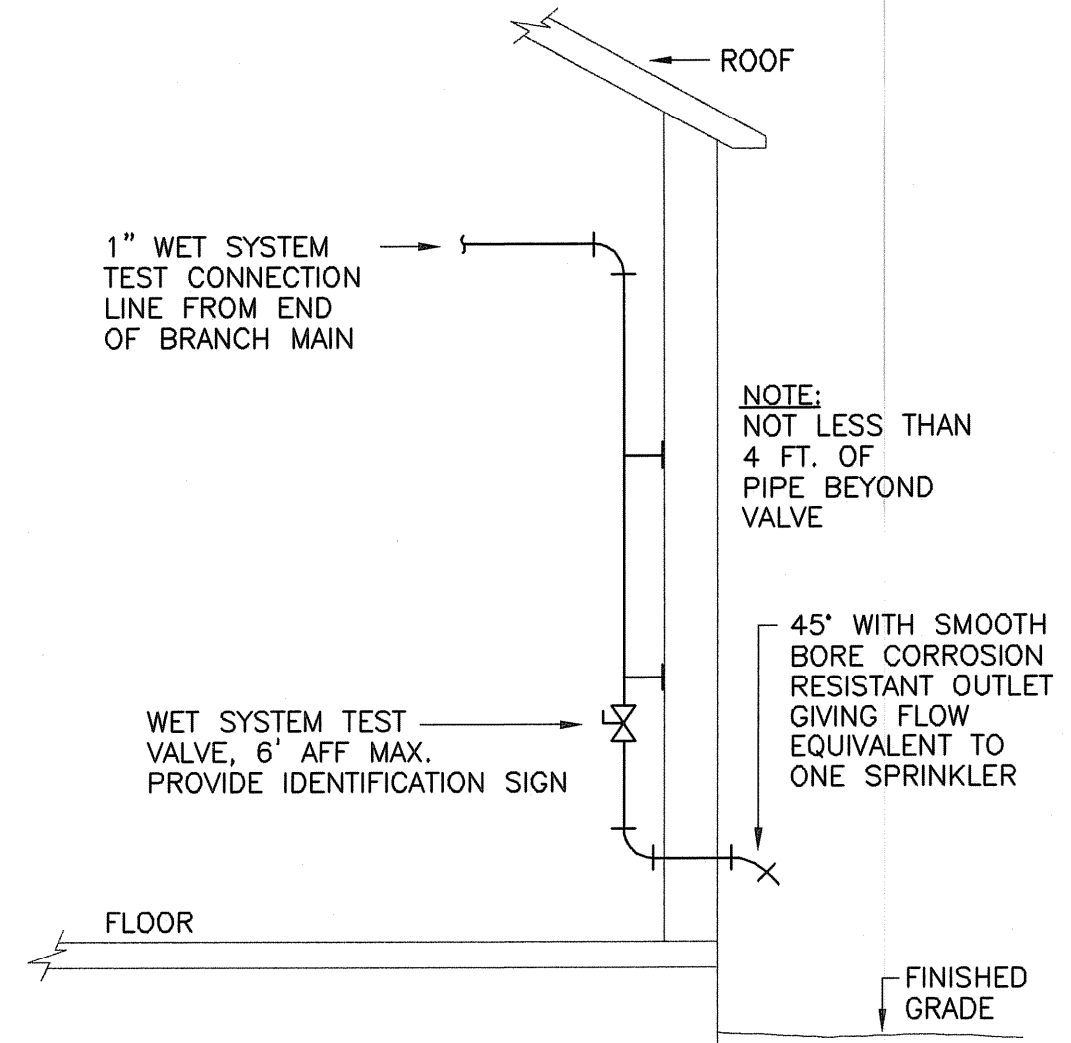
ORDINARY HAZARD GROUP 1
 .15 GPM PER 1500 SQUARE FEET
 250 GPM HOSE STREAM ALLOWANCE
 ALL SPRINKLER HEADS USED SHALL BE LISTED QUICK RESPONSE TYPE.

FIRE PROTECTION LEGEND

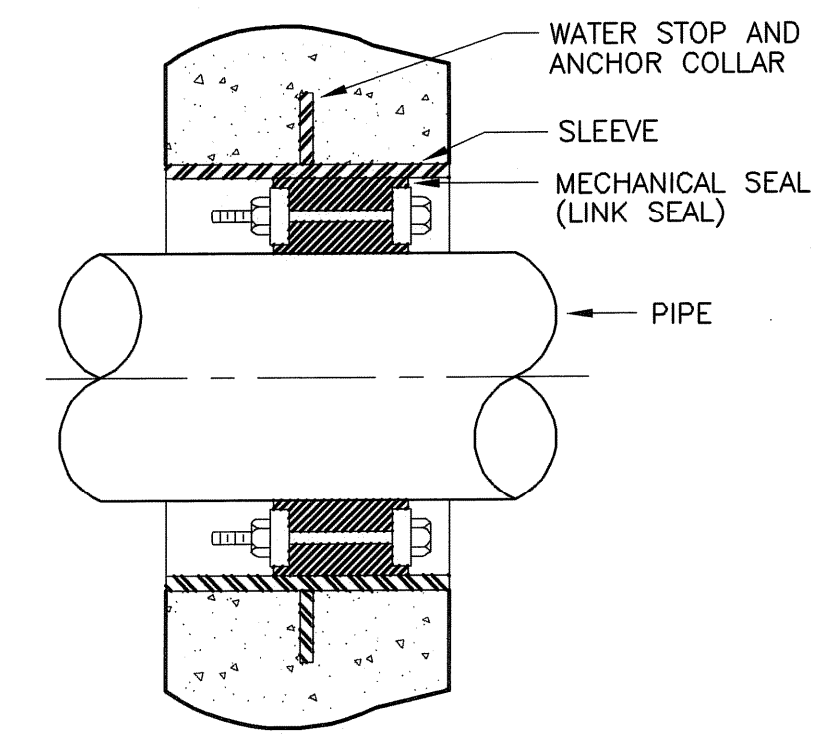
SYMBOL	TEXT	DESCRIPTION
	F	UNDERGROUND FIRE PROTECTION MAIN - BUILDING SERVICE
	OS&Y	SUPERVISED OUTSIDE SCREW & YOKE VALVE WITH TAMPER SWITCH
	CV	CHECK VALVE
	FS	FLOW SWITCH
	ITDA	INSPECTORS TEST AND DRAIN ASSEMBLY



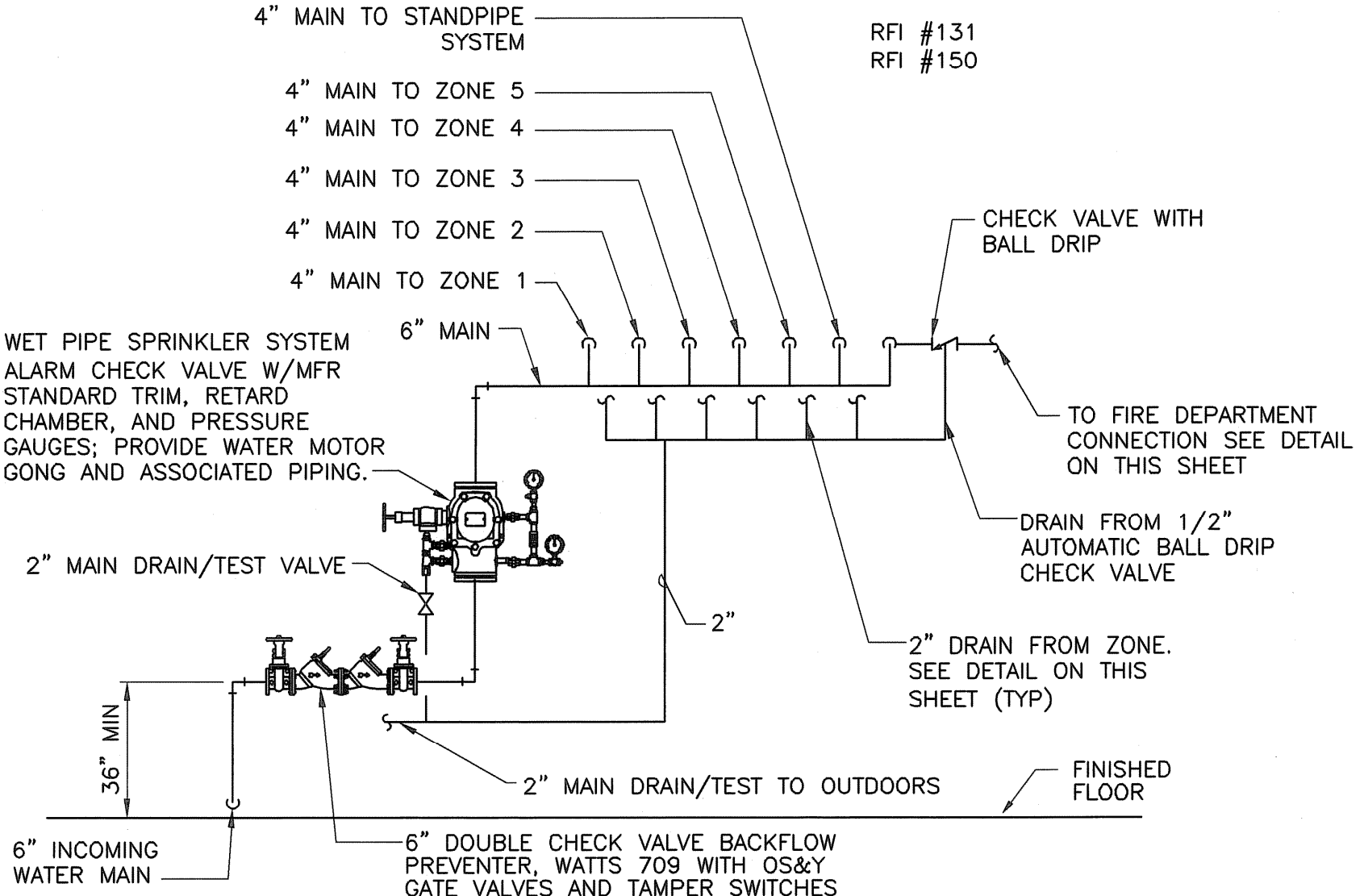
ALARM CHECK VALVE ASSEMBLY DETAIL
NOT TO SCALE



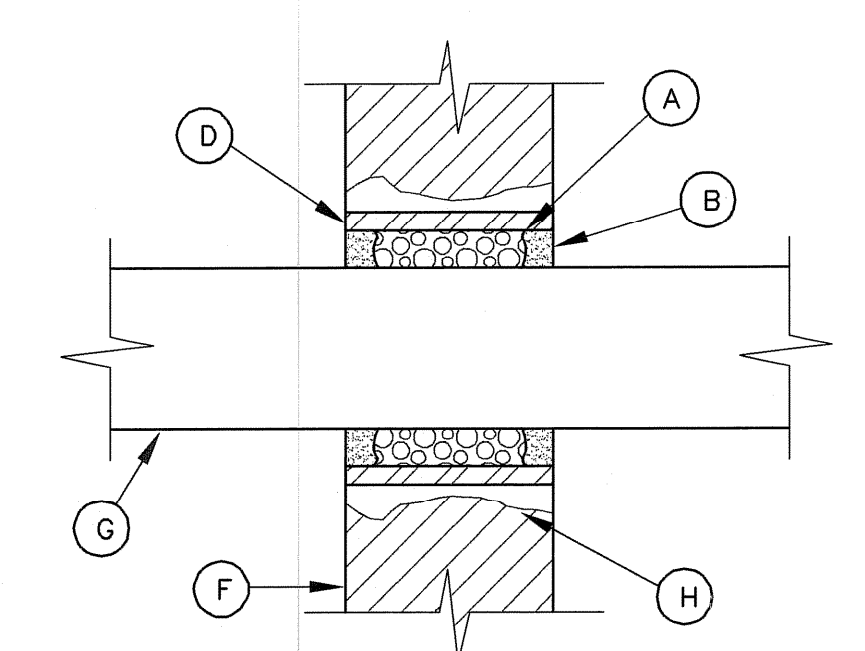
INSPECTOR'S TEST CONNECTION DETAIL
NOT TO SCALE



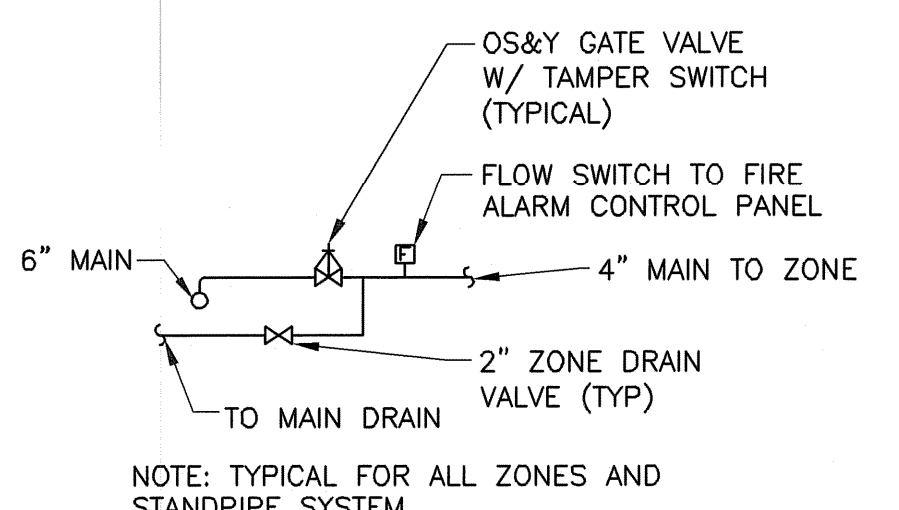
PIPE SLEEVE THROUGH FLOOR/EXTERIOR WALL DETAIL
NOT TO SCALE



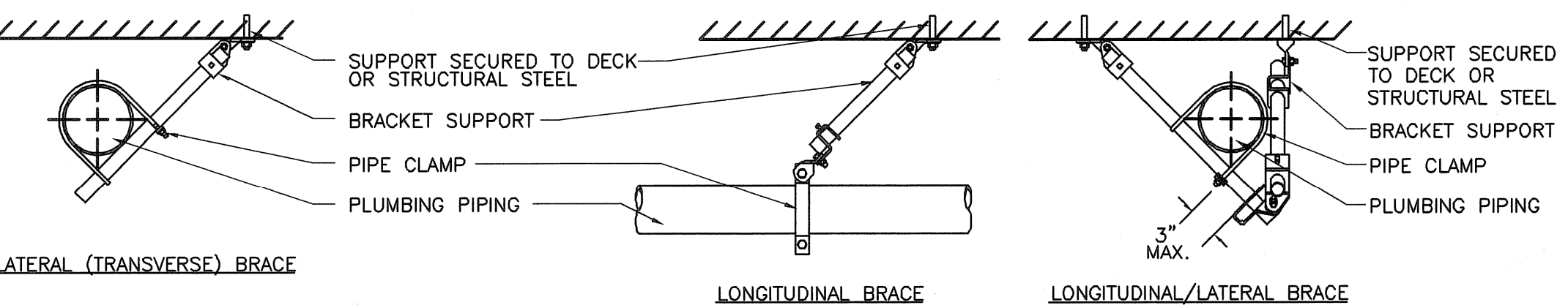
SPRINKLER ENTRANCE PIPING DETAIL
NOT TO SCALE



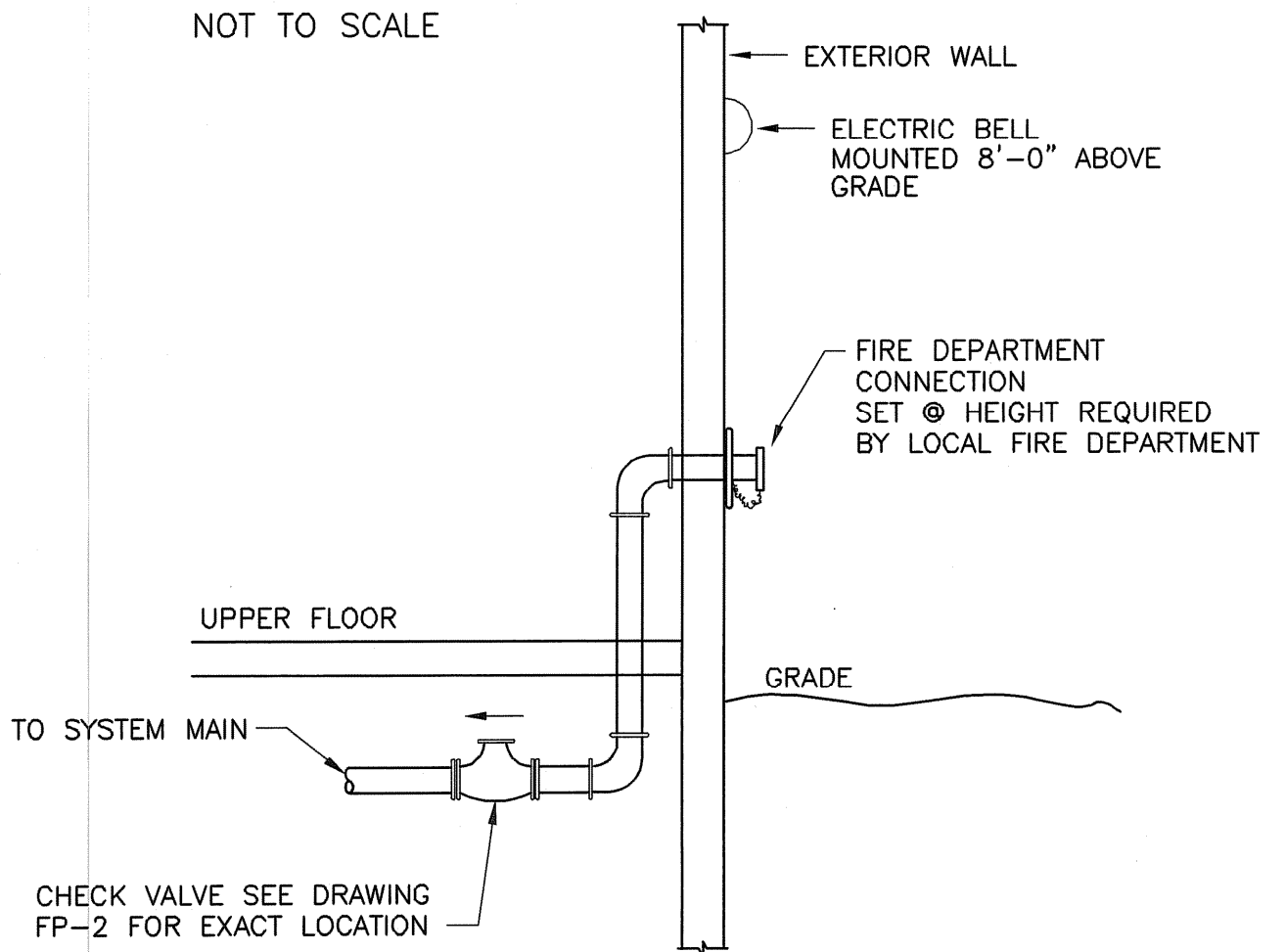
PIPE PENETRATION DETAIL (NOT FOR WATER TIGHT CONSTRUCTION)
NOT TO SCALE



ZONE PIPING DETAIL
NOT TO SCALE



SEISMIC PIPE BRACING DETAILS
NOT TO SCALE



FIRE DEPARTMENT CONNECTION DETAIL
NOT TO SCALE

EARTH TECH AS-BUILT FILE JULY 2008

REV	DATE	DESCRIPTION
3	07/01/08	AS-BUILT DRAWING FILE
2	10/21/08	ISSUED FOR RFI PORTED SET
1	12/01/05	CHANGES DUE TO FIRE MISHAL REVIEW
0	04/05	ISSUED FOR CONSTRUCTION

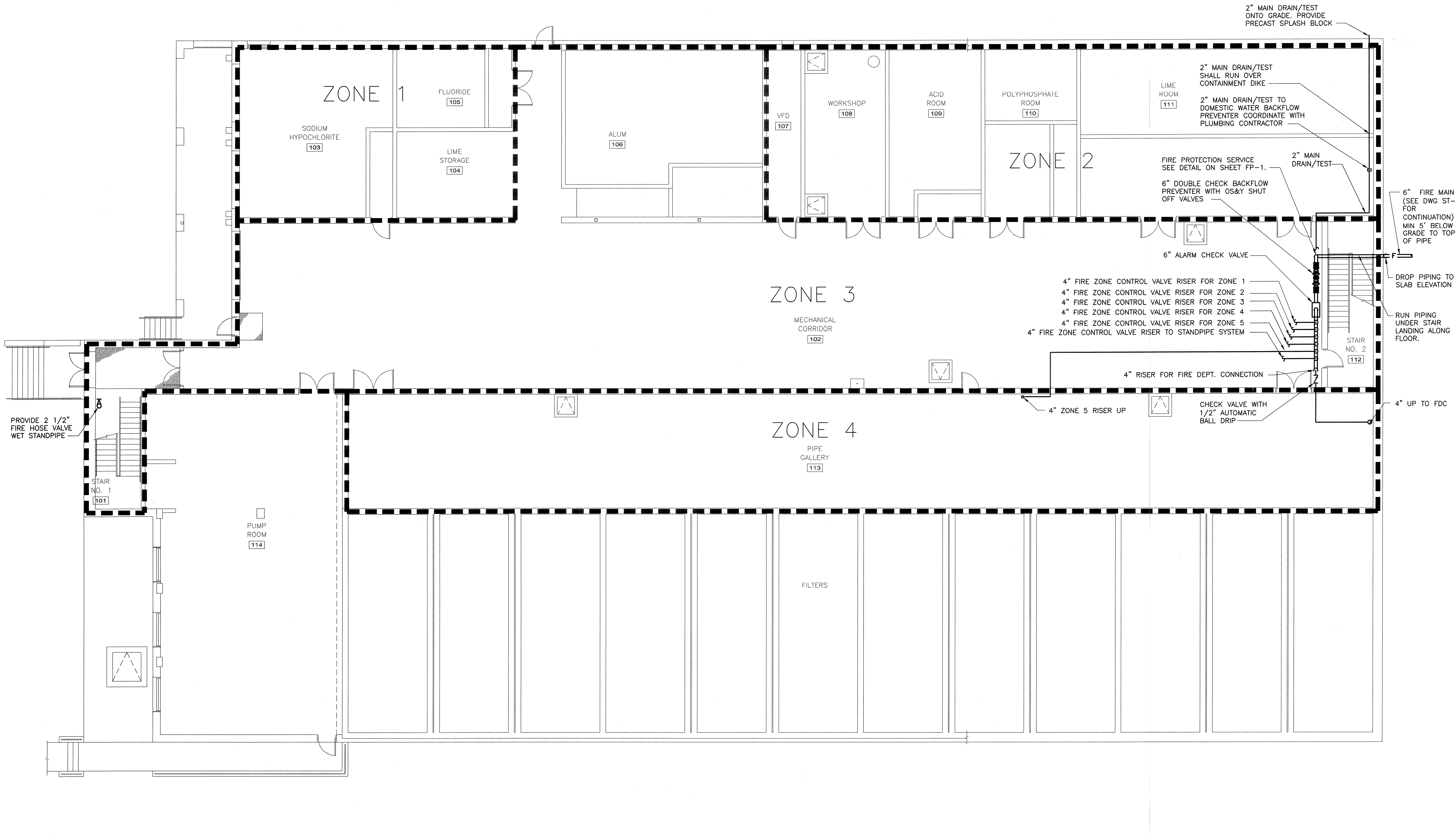
ROBERT H. SHELDON
 No. 4103
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF RHODE ISLAND
 3/12/83

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKG 7 - MECHANICAL - H/P/FP
 FIRE PROTECTION
 GENERAL NOTES, LEGENDS AND SPECIFICATIONS

DESIGNED BY	SC	DWG SCALE	AS NOTED
DRAWN BY	MAC	CONTRACT NO.	
CHECKED BY		DATE	OCTOBER 31, 2008

Filename: L:\WORK\69993\CAD\AS-BUILT\7) WTP\FIREPRO\69993-FP1.DWG
 Plot File Date Created: Sep/22/2008 11:02 AM

Filename: L:\WORK\69993\CAD\AS-BUILT\7) WTP\FIREPRO\69993-FP2.DWG
 Plot File Date Created: Sep/22/2008 11:02 AM



LOWER LEVEL PLAN - FIRE PROTECTION
 SCALE: 1/8" = 1'-0"

NO.	REVISIONS	DATE	BY
3	AS-BUILT DRAWING FILE	JULY 2008	DPS
2	ISSUED FOR RFI POSTED SET	10/21/08	ADH
1	CHANGES DUE TO FIRE MARSHAL REVIEW	8/28/08	AS

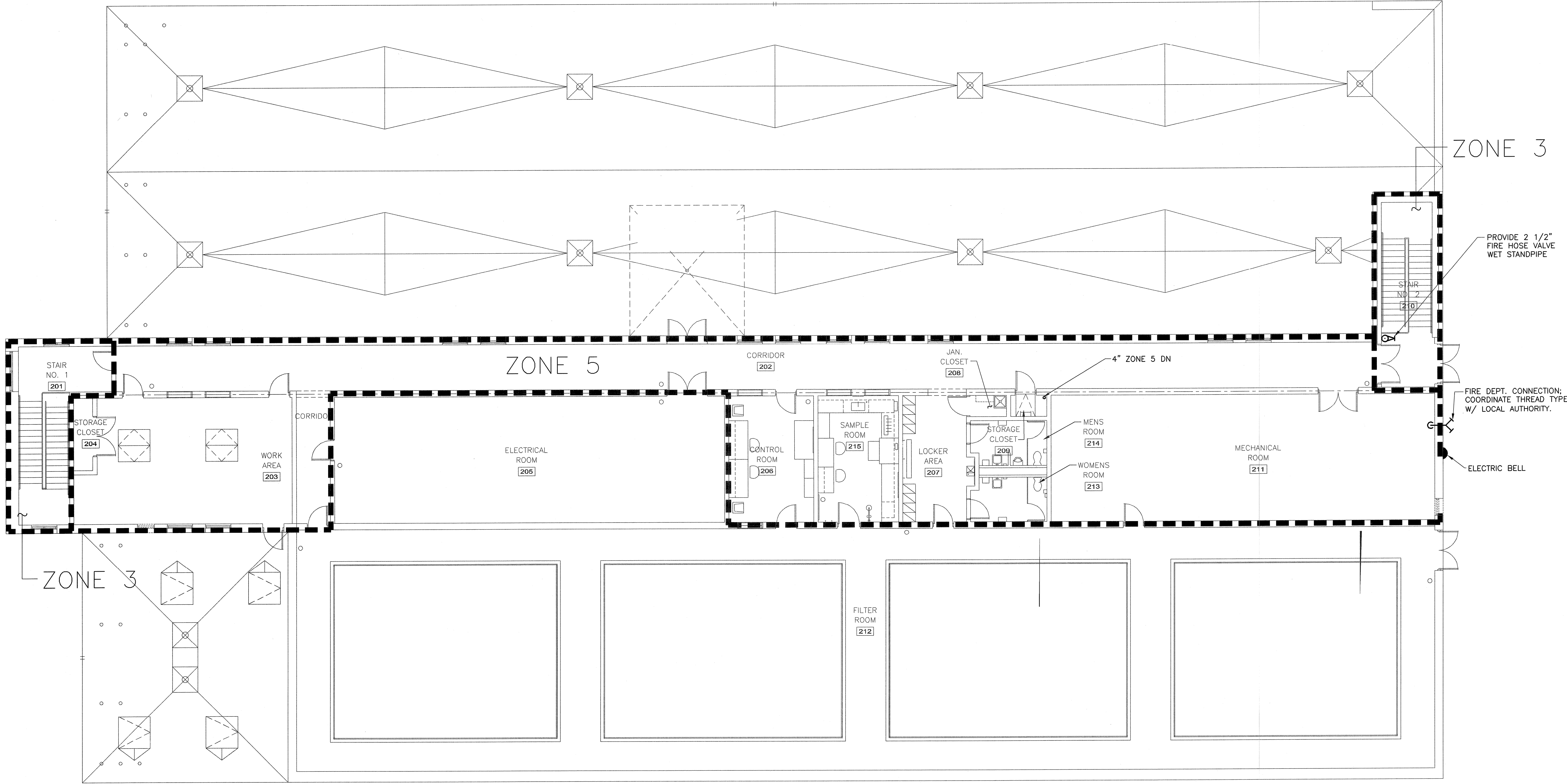
ROBERT H. SHELDON
 No. 4103
 [Signature]

PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY**
PKG 7 - MECHANICAL - H/P/FP
 LOWER LEVEL PLAN - FIRE PROTECTION

DESIGNED BY SC	DWG SCALE AS NOTED
DRAWN BY MJC	CONTRACT NO.
CHECKED BY	DATE OCTOBER 31, 2008

EARTH TECH
 AS-BUILT FILE
 JULY 2008

Filename: L:\WORK\69993\CAD\AS-BUILT\7) WTP\FIREPRO\69993-FP3.DWG
 Plot File Date: Created: Sep/22/2008 11:02 AM



UPPER LEVEL PLAN - FIRE PROTECTION
 SCALE: 1/8" = 1'-0"

NO.	BY	DATE	REVISIONS
3	DBP	JULY 2008	AS-BUILT DRAWING FILE
2	ASH	10/31/08	ISSUED FOR RIT POSTED SET
1	AG	9/29/05	CHANGES DUE TO FIRE MARSHAL REVIEW

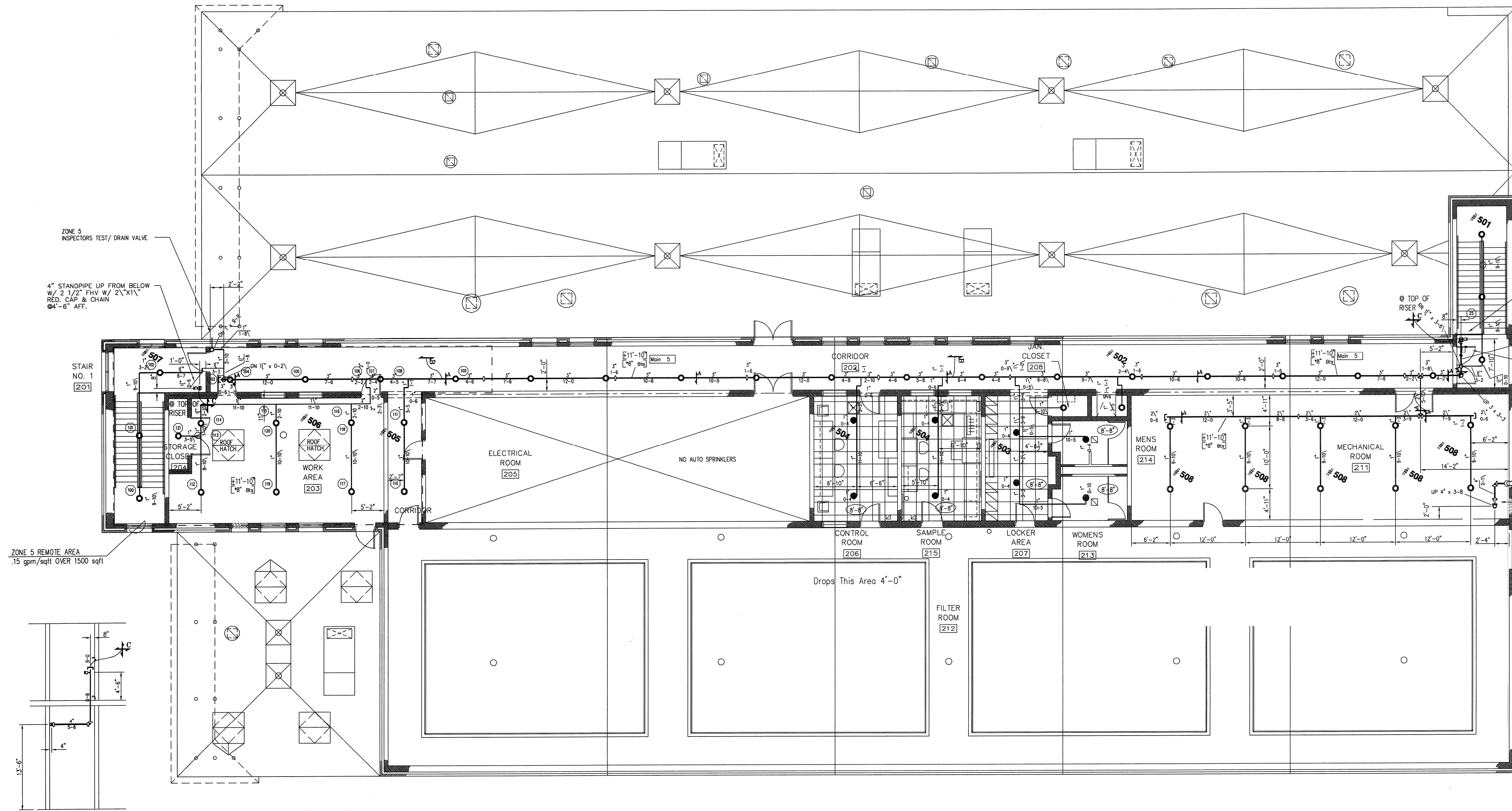
ROBERT H. SHELDON
 No. 4103
 State of Rhode Island
 Professional Engineer
 No. 51702

PAWTUCKET, RHODE ISLAND
**PAWTUCKET REGIONAL
 WATER TREATMENT FACILITY**
PKG 7 - MECHANICAL - H/P/FP
 UPPER LEVEL PLAN - FIRE PROTECTION

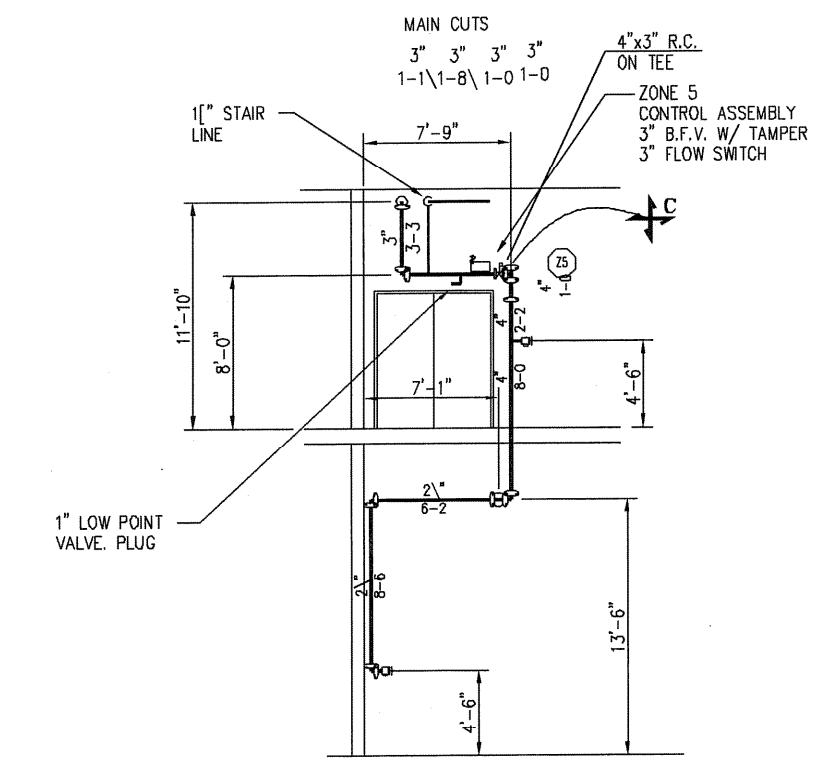
DESIGNED BY SC	DWG SCALE AS NOTED
DRAWN BY MJC	CONTRACT NO.
CHECKED BY	DATE OCTOBER 31, 2008

EARTH TECH
 AS-BUILT FILE
 JULY 2008

FP-3
 SHEET OF



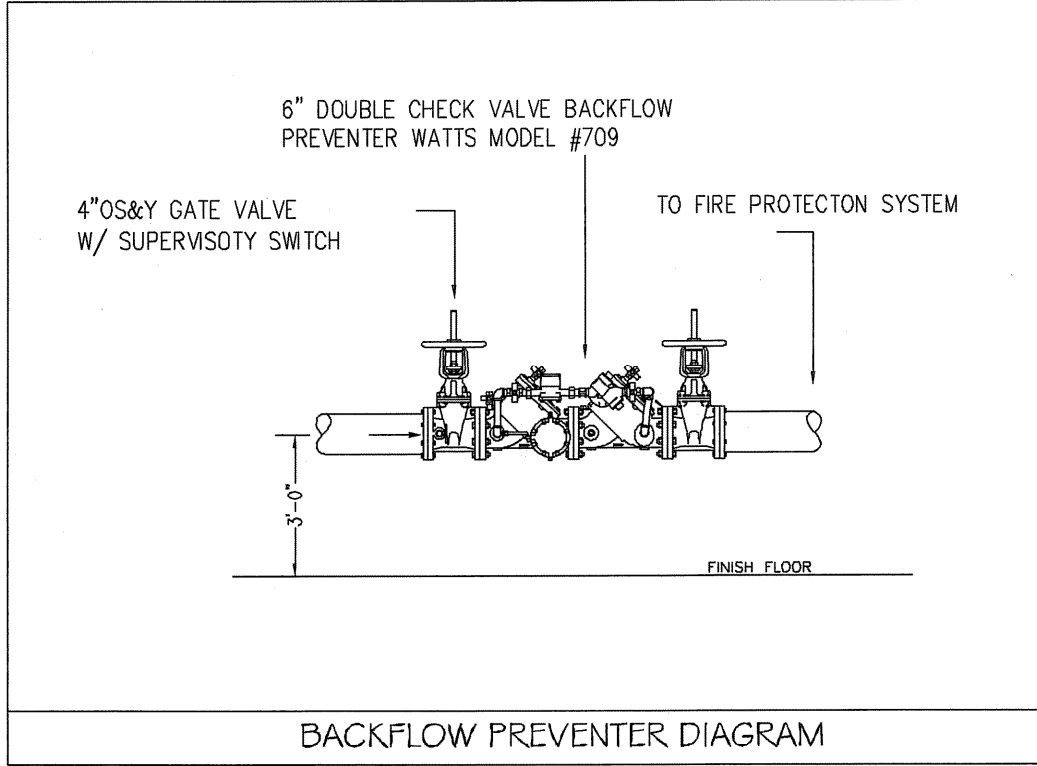
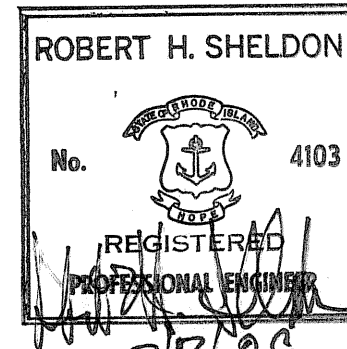
UPPER LEVEL PLAN
1/8"=1'-0"



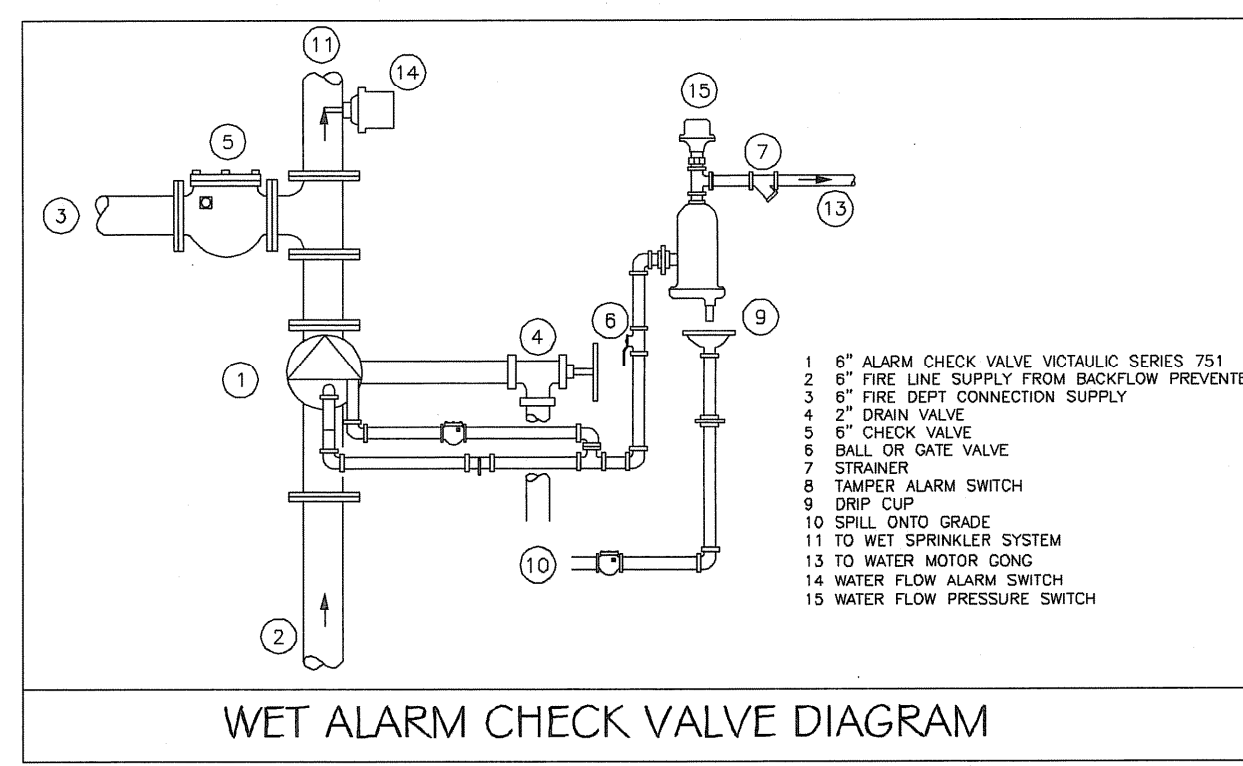
STAIR 2 STANDPIPE
1/8"=1'-0"

STAIR 1 STANDPIPE
1/8"=1'-0"

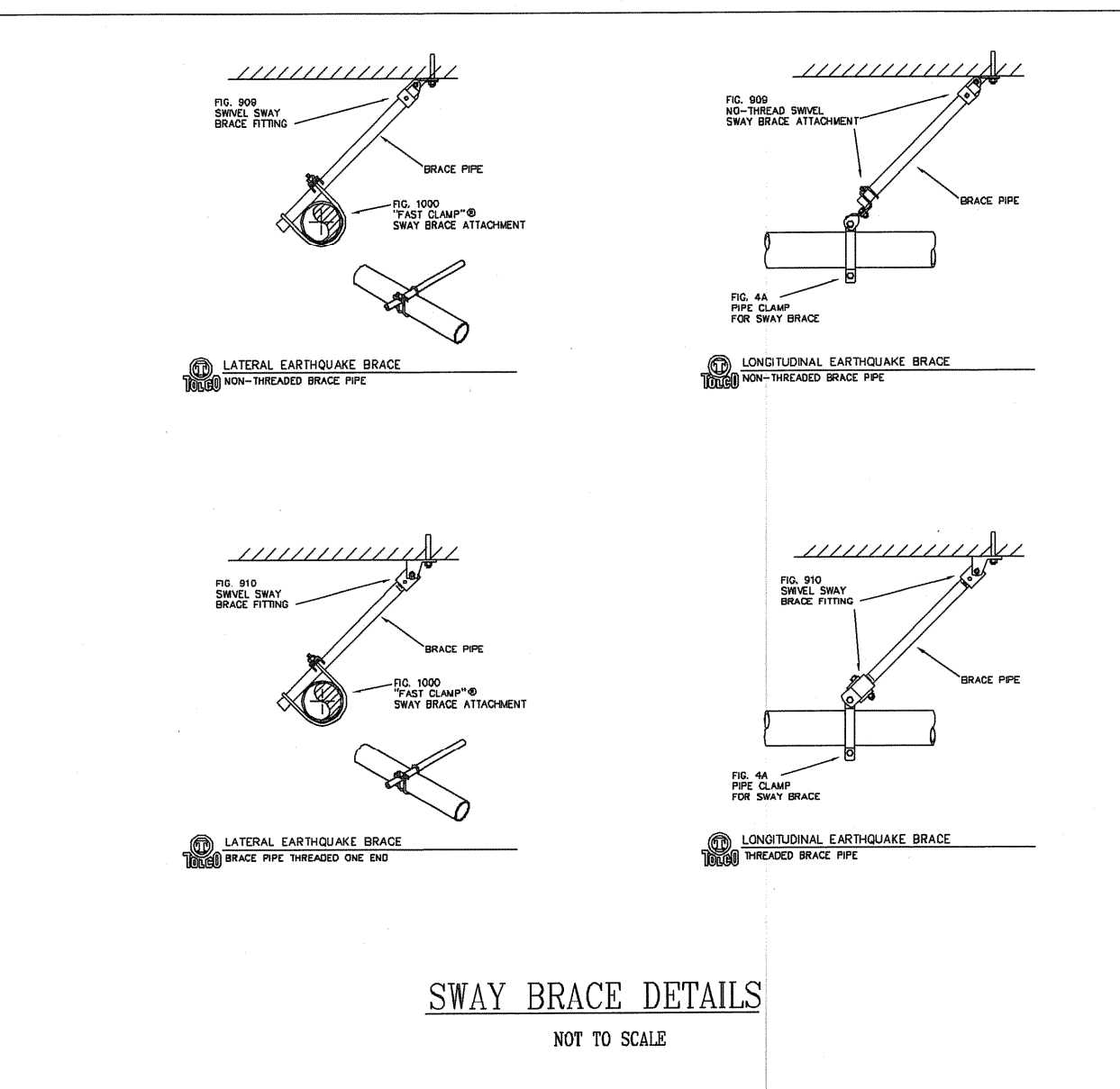
HYDRALIC DESIGN INFO.
CALC # 1455-7 ZONE 5
THIS SYSTEM HAS BEEN HYDRALICALLY CALCULATED BASED ON N.F.P.A. 13 ORDINARY HAZARD GROUP 1 THIS SYSTEM WILL DELIVER A DENSITY OF .15 GPM/SQFT OF FLOOR AREA OVER A MAX. AREA OF 1500 SQFT WHEN SUPPLIED WITH WATER AT A RATE OF 614.6 GPM AT 79.7 PSI AT THE BASE OF THE RISER.
REF. POINT # TEST
TOTAL HOSE ALLOWANCE = 250 GPM



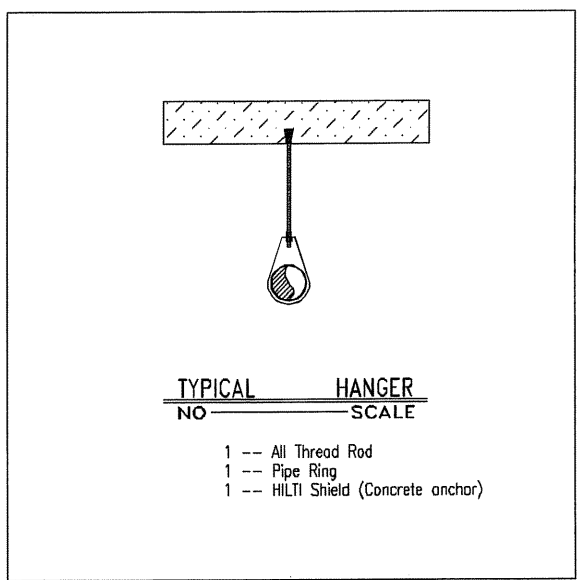
BACKFLOW PREVENTER DIAGRAM



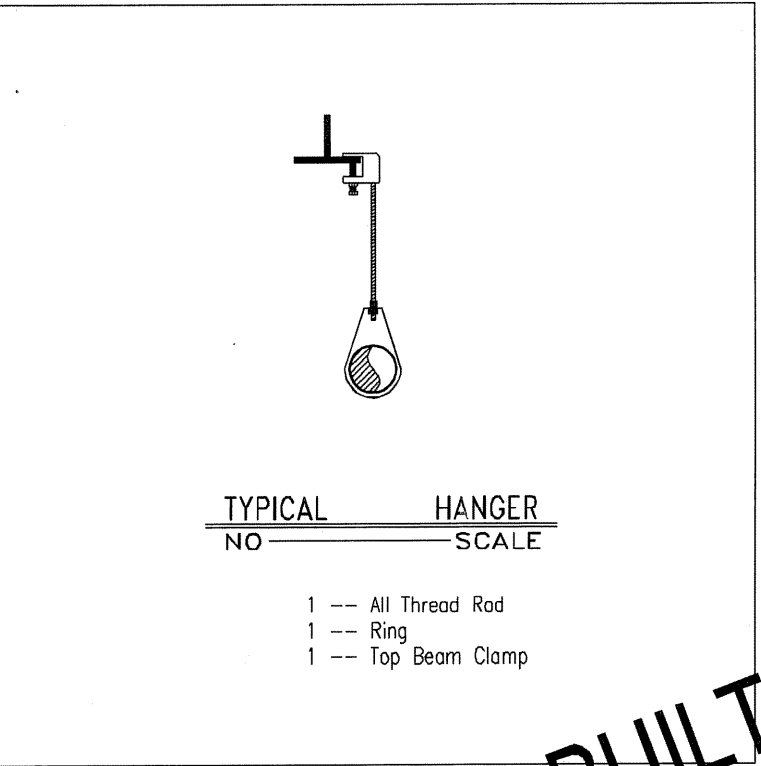
WET ALARM CHECK VALVE DIAGRAM



SWAY BRACE DETAILS
NOT TO SCALE



TYPICAL HANGER SCALE



TYPICAL HANGER SCALE

AS BUILT DRAWING

PKG 7

HYDRALIC DESIGN CRITERIA

Density	.15 GPM / 1500 SQ. FT.
Spacing	SEE PLAN
K Factor	5.6 Head Size 1/2"
Hose Allowance	250 GPM
Water Supply	
Static	136 PSI
Residual	134 PSI
Water Flowing	1500 GPM
Size of Supply	6"

SYSTEM DESIGN CRITERIA

1.Type of Hazard	ORDINARY GRP 1	2.Deflector Distance	Varies
3.Pipe Schedule Used	N/A	4.Maximum Spacing	130 SQ.FT.
5.Type of Construction	OBSTRUCTED & UNOBSTRUCTED	6.Maximum Square Footage Allowed	130 SQ.FT. OR SPRK. LISTING
7.Hazard Group or hydraulically Calculated.		8.Sprinklers in this system are designed to be in the center of the ceiling tile	
9.Owner is to provide heat throughout the building to prevent water in the system from freezing			

GENERAL NOTES

- (*) Denotes distance down in inches from deck to center line of pipe
- (0'-0") Denotes distance in feet and inches from floor up to center line of pipe
- Denotes Hydraulic Reference Points.
- This system has been designed based on N.F.P.A. 13 2002 ed. and all State & Local codes.
- Denotes pipe sleeve locations.
- ↖ Denotes seismic brace location.

REVISIONS

No.	Date	Description
1	3/3/06	FIRE MARSHAL REVISIONS

NUMBER OF SPRINKLERS					
Total This Sheet: 52	Total This Job:				
Symbol	Size	Degree	Make	Model	No. Req'd
○	1/2"	155	VC	V2703 Q.R. BRASS UPRIGHT	44
●	1/2"	155	VC	V2708 Q.R. RECESSED PENDENT	8

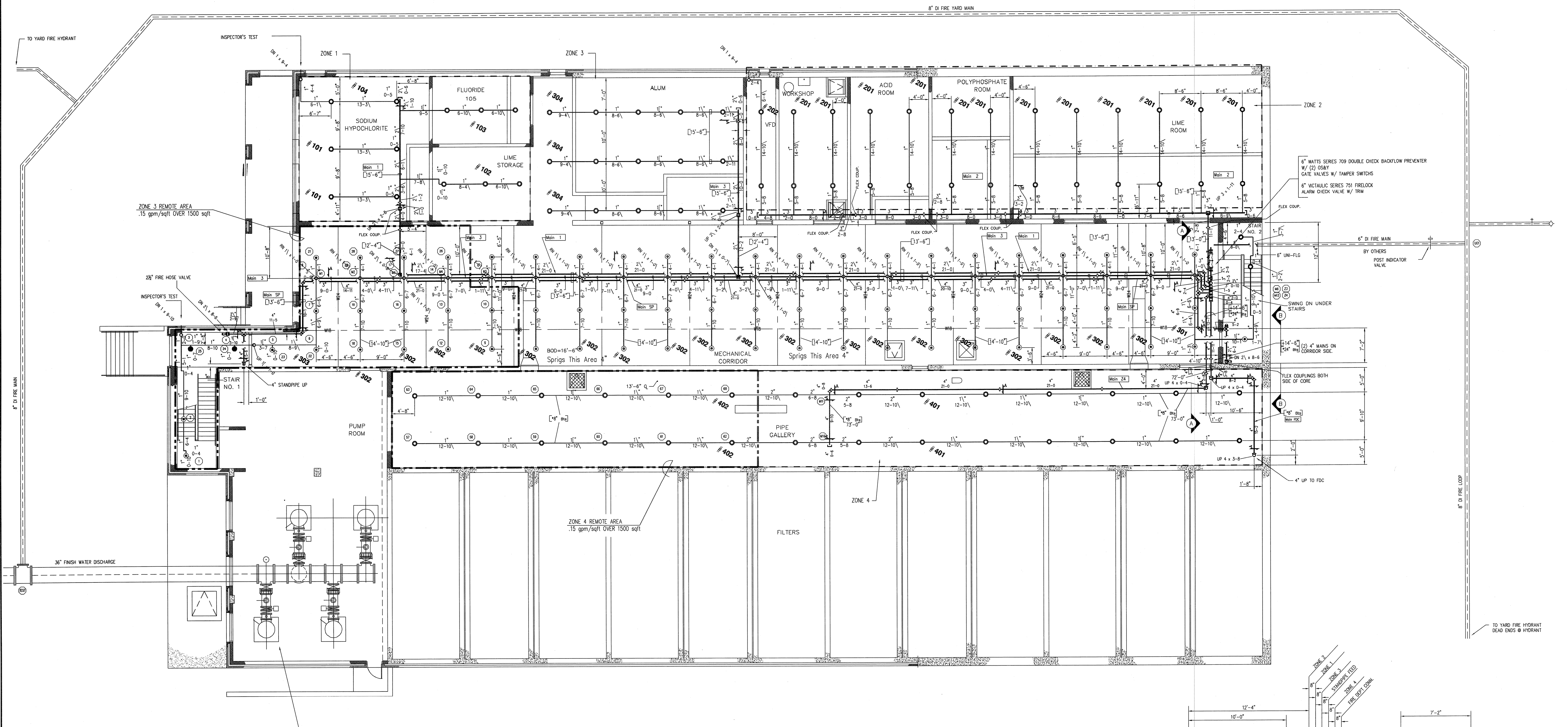
ENGINEERED BY
CPL
NICET LEVEL IV
93848
DATE
09/02/05
SCALE
1/8"=1'-0"
DRAWING NUMBER
FP-7.1

JOB NAME
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
85 BRANCH STREET
PAWTUCKET, RHODE ISLAND

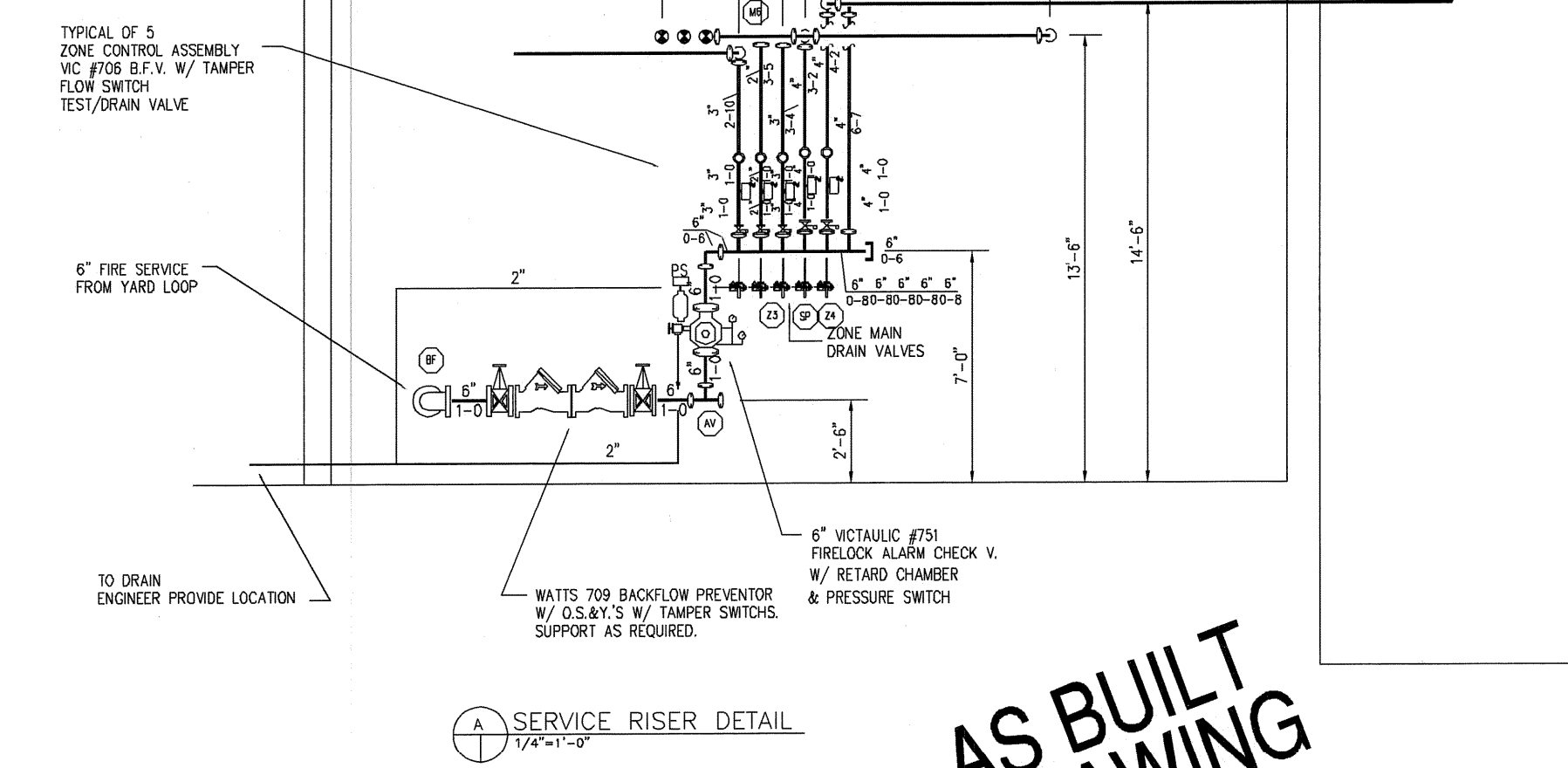
STORIES 3 LEVELS
CONSTR.

CONTRACT No. 1455

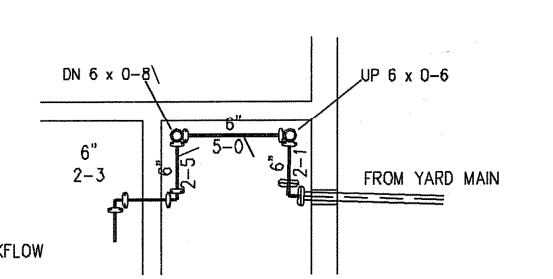




LOWER LEVEL PLAN
SCALE: 1/8"=1'-0"



SERVICE RISER DETAIL
SCALE: 1/8"=1'-0"



FIRE MAIN ENTRANCE DETAIL
SCALE: 1/8"=1'-0"

ROBERT H. SHELDON
No. 4103
3/7/09

HYDRAULIC DESIGN INFO.
CALC # 1455-7 ZONE 3
THIS SYSTEM HAS BEEN HYDRAULICALLY CALCULATED BASED ON N.F.P.A. 13 ORDINARY HAZARD GROUP 1. THIS SYSTEM WILL DELIVER A DENSITY OF .15 GPM/SQFT OF FLOOR AREA OVER A MAX. AREA OF 1500 SQFT WHEN SUPPLIED WITH WATER AT A RATE OF 721.3 GPM AT 94.3 PSI AT THE BASE OF THE RISER.
REF. POINT # TEST
TOTAL HOSE ALLOWANCE = 250 GPM

HYDRAULIC DESIGN INFO.
CALC # 1455-7 ZONE 4
THIS SYSTEM HAS BEEN HYDRAULICALLY CALCULATED BASED ON N.F.P.A. 13 ORDINARY HAZARD GROUP 1. THIS SYSTEM WILL DELIVER A DENSITY OF .15 GPM/SQFT OF FLOOR AREA OVER A MAX. AREA OF 1500 SQFT WHEN SUPPLIED WITH WATER AT A RATE OF 558.7 GPM AT 94.3 PSI AT THE BASE OF THE RISER.
REF. POINT # TEST
TOTAL HOSE ALLOWANCE = 250 GPM

GENERAL NOTES

- IT IS THE SOLE RESPONSIBILITY OF THE OWNER TO PROVIDE ADEQUATE HEAT TO THE BUILDING TO PREVENT DAMAGE TO THE SPRINKLER SYSTEM DUE TO FREEZING.
- THIS SPRINKLER SYSTEM SHALL BE DESIGNED, TESTED AND INSTALLED PER NFPA 13 STANDARD.
- ALL PENETRATIONS THRU FIRE RATED WALLS SHALL BE SEALED WITH A RATED FIRE STOP SYSTEM.
- WET SPRINKLER PIPE 4" AND LARGER SHALL BE BLACK PIPE SCH 40, ROLLED GROOVE. FITTINGS SHALL BE MECHANICAL GROOVED COUPLINGS W/ MALLEABLE IRON HOUSING CLAMPS, SEALING GASKET, STEEL NUTS, BOLTS AND WASHERS.
- WET SPRINKLER PIPE 2" AND SMALLER SHALL BE BLACK PIPE SCH 40. FITTINGS SHALL BE MALLEABLE IRON CLASS 150, THREADED.
- HANGERS SHALL BE INSTALLED PER NFPA 13 STANDARD. SEE DETAILS SHEET 1 FOR HANGER ASSY. AND SWAY BRACE ASSY.
- SPRINKLER HEADS INSTALLED IN MECHANICAL ROOMS SHALL HAVE WIRE HEADS GUARDS.
- ADDITIONAL SPRINKLER HEADS SHALL BE INSTALLED WHERE NEEDED UNDER DUCTS OR PIPE BACKS PER NFPA STANDARD NO. 13, 2000.

HYDRAULIC DESIGN CRITERIA

Density	.15 GPM / 1500 SQ. FT.
Spacing	SEE PLAN
K Factor	5.6 Head Size 1/2"
Hose Allowance	250 GPM
Water Supply	
Static	136 PSI
Residual	134 PSI
Water Flowing	1500 GPM
Size of Supply	6"

SYSTEM DESIGN CRITERIA

1.Type of Hazard	ORDINARY GRP 1	2.Deflector Distance	Varies
3.Pipe Schedule Used	N/A	4.Maximum Spacing	130 SQ.FT.
5.Type of Construction	OBSTRUCTED & UNOBSTRUCTED		
6.Maximum Square Footage Allowed	130 SQ.FT. OR SPRK. LISTING		
7.Hazard Group or Hydraulically Calculated			
8.Sprinklers in this system are designed to be in the center of the ceiling tile			
9.Owner is to provide heat throughout the building to prevent water in the system from freezing			

- GENERAL NOTES**
- (-)- Denotes distance down in inches from each to center line of pipe
 - ('-0") Denotes distance in feet and inches from floor up to center line of pipe
 - Denotes Hydraulic Reference Points.
 - This system has been designed based on N.F.P.A. 13 2002 ed. and all State & Local codes.
 - Denotes pipe sleeve locations.
 - ⊥ Denotes seismic brace location.

REVISIONS

No.	Date	Description
1	3/3/06	FIRE MARSHAL REVISIONS

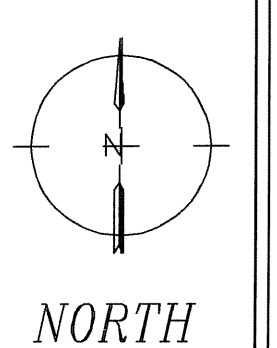
NUMBER OF SPRINKLERS

Symbol	Size	Degree	Make	Model	No./Per'd
○	1/2"	155	WC	V2703 Q.R. BRASS UPRIGHT ON SPRING	96
●	1/2"	155	WC	V2703 Q.R. BRASS UPRIGHT	56

ENGINEERED BY
CPL
NICET LEVEL IV
93648
DATE
09/02/05
SCALE
1/8"=1'-0"
DRAWING NUMBER
FP-7.2

AS BUILT DRAWING

PKG 7



KEY PLAN

JOB NAME
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
85 BRANCH STREET
PAWTUCKET, RHODE ISLAND

STORES 3 LEVELS
CONST.

CONTRACT No. 1455

ARDEN
FM
FM FIRE PROTECTION SYSTEMS CO.
DIVISION OF ARDEN ENGINEERING CONSTRUCTORS LLC
505 WARRENSETT PARK DRIVE
PAWTUCKET, RI 02881
(401) 727-3500