

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK CITY OF PORTLAND

Please Read
Application And
Notes, If Any,
Attached

BUILDING INSPECTION

PERMIT

Permit Number: 091011

This is to certify that 500 RIVERSIDE ASSOCIATES Sprinkler, Inc
has permission to Envirologix - install a fire suppression system Permit
AT 524 RIVERSIDE IND PKWY CE 370A A012001

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of buildings and structures, and of the application on file in this department.

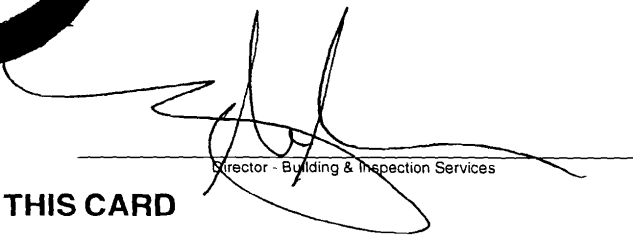
Apply to Public Works for street line and grade if nature of work requires such information.

Notification of inspection must be given and written permission procured before this building or part thereof is lath or otherwise closed-in. 24 HOUR NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS

Fire Dept. CAPT. R. Gauthier
Health Dept. _____
Appeal Board _____
Other _____
Department Name


Director - Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

PERMIT ISSUED

SEP 16 2009

City of Portland

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 09-1011	Issue Date:	CBL: 370A A012001
-----------------------	-------------	----------------------

Location of Construction: 524 RIVERSIDE IND PKWY	Owner Name: 500 RIVERSIDE ASSOCIATES	Owner Address: PO BOX 382	Phone:
Business Name:	Contractor Name: Sprinkler System, Inc	Contractor Address: P.O. Box 1285 Lewiston	Phone 2077820104
Lessee/Buyer's Name	Phone:	Permit Type: Fire Suppression System	Zone: I-M

Past Use: Commercial - Envirologix	Proposed Use: Commercial - Envirologix - install a fire suppression system Permit	Permit Fee: \$100.00	Cost of Work: \$8,000.00	CEO District: 5
Proposed Project Description: Envirologix - install a fire suppression system Permit		FIRE DEPT: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied <i>*See Conditions</i>	INSPECTION: Use Group: <i>Mixed</i> Type: <i>SR</i> <i>Alarm System</i>	
		Signature: <i>(Signature)</i>	Signature: <i>(Signature)</i>	
PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)				
Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied				
Signature: _____ Date: _____				

Permit Taken By: Ldobson	Date Applied For: 09/15/2009	Zoning Approval		
<ol style="list-style-type: none"> This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. Building permits do not include plumbing, septic or electrical work. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work.. 	Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> Date: <i>9/16/09</i>	Zoning Appeal <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date: _____	Historic Preservation <input checked="" type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date: <i>(Signature)</i>	

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

PERMIT ISSUED

SIGNATURE OF APPLICANT	ADDRESS	DATE SEP 16 2009	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE

City of Portland

City of Portland, Maine - Building or Use Permit

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 09-1011	Date Applied For: 09/15/2009	CBL: 370A A012001
------------------------------	--	-----------------------------

Location of Construction: 524 RIVERSIDE IND PKWY	Owner Name: 500 RIVERSIDE ASSOCIATES	Owner Address: PO BOX 382	Phone:
Business Name:	Contractor Name: Sprinkler System, Inc	Contractor Address: P.O. Box 1285 Lewiston	Phone (207) 782-0104
Lessee/Buyer's Name	Phone:	Permit Type: Fire Suppression System	

Proposed Use: Commercial - Enviroligix - install a fire suppression system Permit	Proposed Project Description: Enviroligix - install a fire suppression system Permit
---	--

Dept: Zoning **Status:** Approved **Reviewer:** Marge Schmuckal **Approval Date:** 09/16/2009
Note: **Ok to Issue:**

Dept: Building **Status:** Approved **Reviewer:** **Approval Date:** **Ok to Issue:**

Dept: Fire **Status:** Approved with Conditions **Reviewer:** Capt Keith Gautreau **Approval Date:** 09/18/2009
Note: **Ok to Issue:**

- 1) Sprinkler protection shall be maintained.
Where the system is to be shut down for maintenance or repair, the system shall be checked at the end of each day to insure the system has been placed back in service.
- 2) The Fire alarm and Sprinkler systems shall be reviewed by a licensed contractor[s] for code compliance.
Compliance letters are required.
- 3) The sprinkler system shall be installed in accordance with NFPA 13.
- 4) Application requires State Fire Marshal approval.
- 5) The Fire Department will require Knox locking caps on all Fire Department Connections on the exterior of the building.

PERMIT ISSUED

SEP 16 2009

City of Portland

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

to schedule your inspections as agreed upon

Permits expire in 6 months, if the project is not started or ceases for 6 months.

The Owner or their designee is required to notify the inspections office for the following inspections and provide adequate notice. Notice must be called in 48-72 hours in advance in order to schedule an inspection:

By initializing at each inspection time, you are agreeing that you understand the inspection procedure and additional fees from a "Stop Work Order" and "Stop Work Order Release" will be incurred if the procedure is not followed as stated below.

A Pre-construction Meeting will take place upon receipt of your building permit.

 X **Final inspection required at completion of work performed by the Fire Department.**

Certificate of Occupancy is not required for certain projects. Your inspector can advise you if your project requires a Certificate of Occupancy. All projects DO require a final inspection.

If any of the inspections do not occur, the project cannot go on to the next phase, REGARDLESS OF THE NOTICE OR CIRCUMSTANCES.

CERIFICATE OF OCCUPANICES MUST BE ISSUED AND PAID FOR, BEFORE THE SPACE MAY BE OCCUPIED.

Signature of Applicant/Designee

Date

Signature of Inspections Official

Date

PERMIT ISSUED

SEP 16 2009

City of Portland



Fire Suppression System Permit

If you or the property owner owes real estate or property taxes or user charges on any property within the city, payment arrangements must be made before permits of any kind are accepted.

Installation address: 530 Riverside Industrial Parkway CBL: 370A A 12
 Exact location: (within structure) North End, First & Second Floors
 Type of occupancy(s) (NFPA & ICC): Warehouse, offices, Lab's
 Building owner: Envirologix 500 Riverside Industrial Parkway
 Managing Supervisor: Lloyd D. Akers, PE License No: 284
 Supervisor phone: 207-775-1521 E-mail: lloydssi@maine.rf.com
 Installing contractor: Sprinkler Systems, Inc. License No: 093
 Contractor phone: 207-782-0104 E-mail: marc@sprinklersysteminc.com
 The suppression work to be done will be: New: Renovation: Addition to existing system:
 This is an amendment to an existing permit: Yes: NO Permit no: _____
 NFPA Standard will this system is designed to: 13 Edition: 2007

*Non-NFPA systems are not approved for use within the City of Portland.

Attach all design information and complete approved submittals as may be required by the State Fire Marshal's Office.

Contractor shall verify location and type of all FDCs shall be approved in writing by the Fire Prevention Bureau.

COST OF WORK:	<u>\$ 8,000</u>
PERMIT FEE:	<u>\$ 100</u>
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)	

Download a new copy of this document from www.portlandmaine.gov for every submittal. Submit all information to the Building Inspections Department, 389 Congress Street, Room 315, Portland, Maine 04101.

Prior to acceptance of any fire protection system, a complete commissioning and acceptance test must be coordinated with all fire system contractors and the Fire Department, and proper documentation of such test(s) provided.

All installation(s) must comply with NFPA and the Fire Department Technical Standard(s).

Applicant signature: Lloyd D. Akers for SSI.
Lloyd D. Akers Date: 9-15-09



State of Maine
Department of Public Safety
Fire Sprinkler System Permit



8771

Envirologix

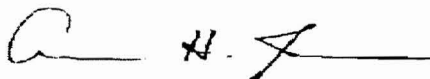
Located at: 530 Riverside Industrial Parkway
 In the Town of: Portland
 Occupancy/Use: Warehouse, Office, Lab's
 Type of System: NFPA 13

Permission is hereby given to:

Sprinkler Systems, Inc.
 PO Box 1285
 Lewiston, ME 042431285
 Contractor License # **93**

according to plans submittal filed with the Licensing and Inspections Unit and are now approved. This application form/plans are filed under log # **2091330**, and no departure from application form/plans shall be made without prior approval in writing. This permit is issued under the provisions of Title 32, Chapter 20, Section 12004-I. Nothing herein shall excuse the holder of this permit for failure to comply with local ordinances, zoning laws, or other pertinent legal restrictions. Each permit issued shall be displayed/available at the site of construction.

This permit was issued on **9/8/2009** for a fee paid of **\$125.00**
 This permit will expire at midnight on *Sunday, March 07, 2010*



Anne H. Jordan
 Commissioner

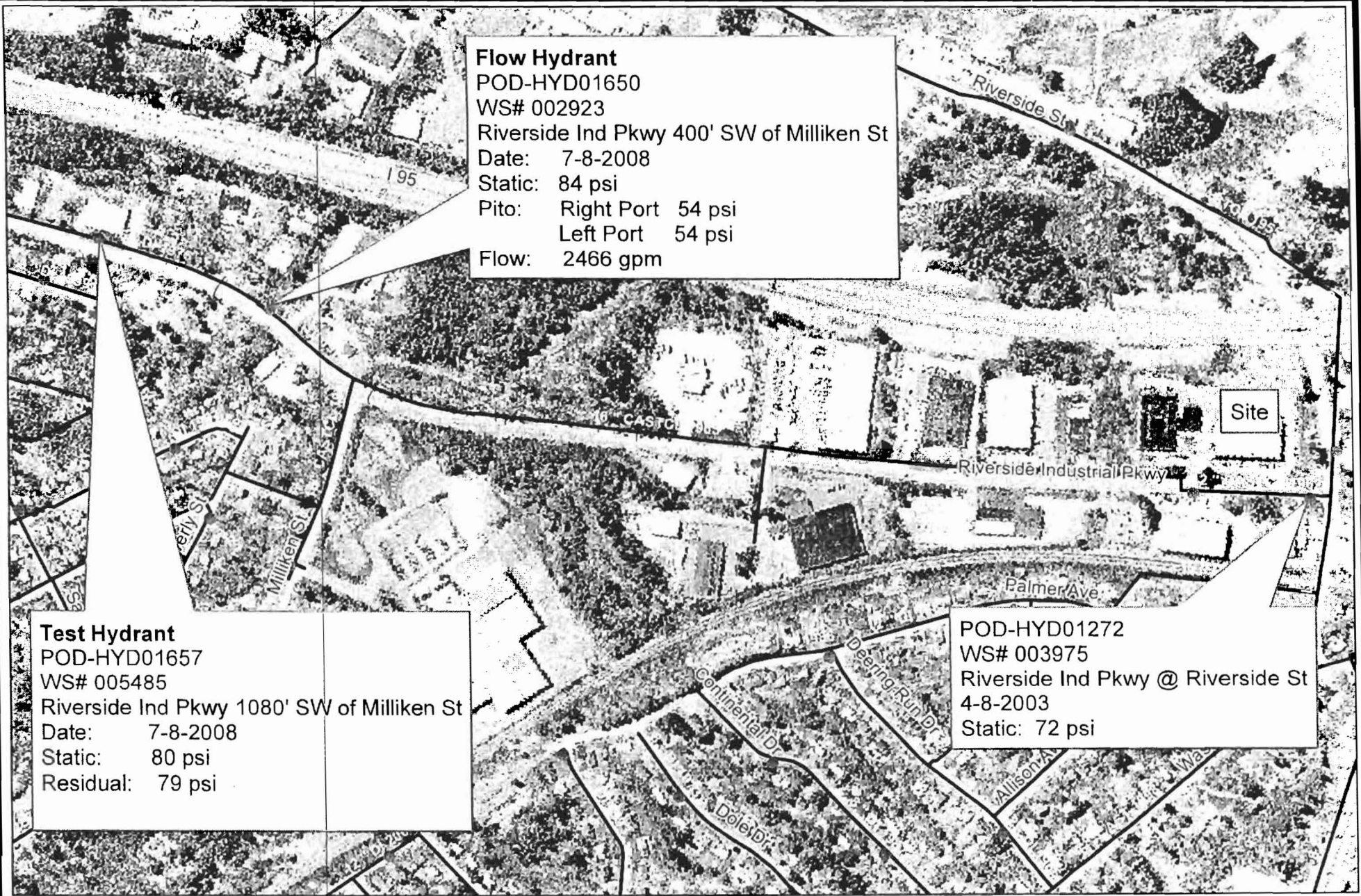
Fire Department Connection Location/Type per Local Fire Department

Within 30 days of the completion of a new fire sprinkler system or an addition to an existing fire sprinkler system, a fire sprinkler system contractor shall provide to the Licensing and Inspections Unit a copy of this permit signed and dated by the certified responsible managing supervisor representing that the fire sprinkler system has been installed according to specifications of the approved plan to the best of the supervisor's knowledge, information, and belief. This requirement is part of the sprinkler law, and neglect of this duty is grounds to not renew the contractor's license to do work in the State of Maine. All sprinkler licenses expire June 30th every year.

Job completed, tested and verified on date of _____

RMS for this job: Akers, P.E. Lloyd D.

RMS Signature: _____




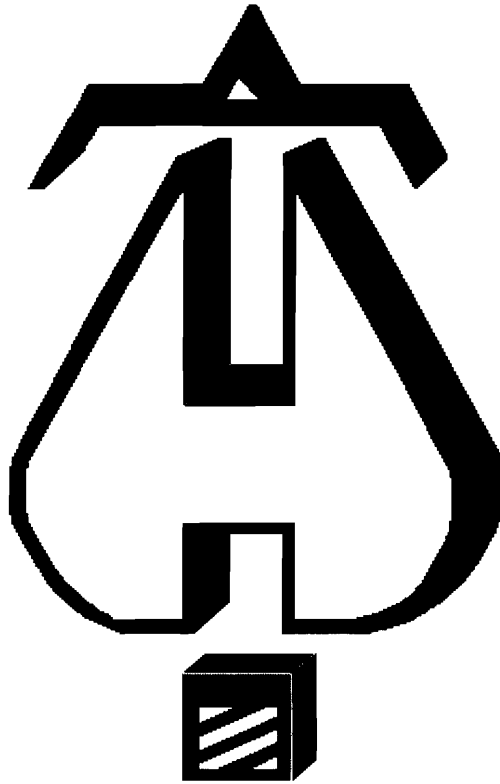
Flow Hydrant
 POD-HYD01650
 WS# 002923
 Riverside Ind Pkwy 400' SW of Milliken St
 Date: 7-8-2008
 Static: 84 psi
 Pito: Right Port 54 psi
 Left Port 54 psi
 Flow: 2466 gpm

Test Hydrant
 POD-HYD01657
 WS# 005485
 Riverside Ind Pkwy 1080' SW of Milliken St
 Date: 7-8-2008
 Static: 80 psi
 Residual: 79 psi

POD-HYD01272
 WS# 003975
 Riverside Ind Pkwy @ Riverside St
 4-8-2003
 Static: 72 psi

1 inch = 500 feet

 <p>PORTLAND WATER DISTRICT 225 Douglass Street Portland, ME 04104</p>	<p>Drawn By: DPW Date: 8/4/2009</p>	<p>Scale: As Noted</p>	<p>520 Riverside Ind Pkwy Portland</p>	<p>Disclaimer: This map is suitable for preliminary study and analysis and is based on PWD record information. PWD is not liable for any damages whatsoever resulting from inaccurate data or from errors made in the location and marking of its infrastructure.</p>	<p>Prepared for: Sprinkler Systems, Inc. Sheet No. 1 of 1</p>
--	--	------------------------	--	---	--



... Fire Protection by Computer Design

Sprinkler Systems, Inc.
2-4 Avon Street
P.O. Box 1285
Lewiston, Maine 04240
207-782-0104

Job Name : ENVIROLOGIX
Building :
Location : 530 RIVERSIDE INDUSTRIAL PARKWAY PORTLAND, ME 04103
System : 1 OF 2
Contract : 09045
Data File : ENVIROLOGIX1.WXF

Hydraulic Design Information Sheet

Name - ENVIROLOGIX Date - 8-14-09
 Location - 530 RIVERSIDE INDUSTRIAL PARKWAY PORTLAND, ME 04103
 Building - System No. - 1 OF 2
 Contractor - WARREN CONSTRUCTION GROUP Contract No. - 09045
 Calculated By - LLOYD D. AKERS, PE Drawing No. - 1 OF 2
 Construction: () Combustible (X) Non-Combustible Ceiling Height - 9'-10"
 Occupancy - PRODUCT HOLDING AREA - ORDINARY GP.2

S (X) NFPA 13 () Lt. Haz. Ord.Haz.Gp. () 1 (X) 2 () 3 () Ex.Haz.
 Y () NFPA 231 () NFPA 231C () Figure Curve

S Other

T Specific Ruling Made By Date

E
 M Area of Sprinkler Operation - 900 SF System Type Sprinkler/Nozzle
 Density - .20 (X) Wet Make RELIABLE
 D Area Per Sprinkler - 110 () Dry Model FIFR-QR
 E Elevation at Highest Outlet - 109.5 () Deluge Size 1/2 X 1/2
 S Hose Allowance - Inside - () Preaction K-Factor 5.6
 I Rack Sprinkler Allowance - () Other Temp.Rat.155
 G Hose Allowance - Outside - 250
 N

Note DESIGN AREA NO. 1 - OPEN HOLDING AREA

Calculation Flow Required - 504.259 Press Required - 69.918
 Summary C-Factor Used: 120 Overhead 140 Underground

W Water Flow Test: Pump Data: Tank or Reservoir:
 A Date of Test - 7-8-08 Cap. -
 T Time of Test - Rated Cap.- Elev.-
 E Static Press - 80 @ Press -
 R Residual Press - 79 Elev. - Well
 Flow - 2466 Proof Flow
 S Elevation - 90

U
 P Location - FLOW HYDRANT (#1650) AND GAUGE HYDRANT (#1657) ARE LOCATED ON
 P A 16" MAIN IN RIVERSIDE PARKWAY APPROX 3430 FEET SOUTH OF THE BUILDING
 L Source of Information - PORTLAND WATER DISTRICT (207-774-5961)
 Y

C Commodity Class Location
 O Storage Ht. Area Aisle W.
 M Storage Method: Solid Piled % Palletized % Rack
 M () Single Row () Conven. Pallet () Auto. Storage () Encap.
 S R () Double Row () Slave Pallet () Solid Shelf () Non
 T A () Mult. Row () Open Shelf

O C
 R K Flue Spacing Clearance:Storage to Ceiling
 A Longitudinal Transverse

G
 E Horizontal Barriers Provided:

Fittings Used Summary

Sprinkler Systems, Inc.
ENVIROLOGIX

Page 2
Date 8-14-09

Fitting Legend		½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24	
Abbrev.	Name																					
A	Generic Alarm Valve	0	0	0	0	0	0	7.7	21.5	0	17	17	27	29	0	0	0	0	0	0	0	0
B	Generic Butterfly Valve	0	0	0	0	0	0	7	10	0	12	9	10	12	19	21	0	0	0	0	0	0
E	90' Standard Elbow	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61	
F	45' Elbow	1	1	1	1	2	2	3	3	3	4	5	7	9	11	13	17	19	21	24	28	
G	Generic Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13	
T	90' Flow Thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121	
Z	Generic Flow Switch	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61	

Units Summary

Diameter Units Inches
 Length Units Feet
 Flow Units US Gallons per Minute
 Pressure Units Pounds per Square Inch

Pressure / Flow Summary - STANDARD

Sprinkler Systems, Inc.
 ENVIROLOGIX

Page 3
 Date 8-14-09

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
1	109.5	5.6	15.43	na	22.0	0.2	110	15.434
2	109.5	5.6	17.14	na	23.19	0.2	110	15.434
3	109.5	5.6	17.51	na	23.43	0.2	110	15.434
4	109.5		18.73	na				
5	109.5	5.6	20.15	na	25.14	0.2	105	14.065
6	109.5		21.74	na				
7	109.5	5.6	21.8	na	26.14	0.2	110	15.434
8	109.5	5.6	24.15	na	27.52	0.2	110	15.434
9	109.5	5.6	21.3	na	25.85	0.2	110	15.434
10	109.5	5.6	23.6	na	27.21	0.2	110	15.434
11	109.5	5.6	21.9	na	26.21	0.2	110	15.434
12	109.5	5.6	24.26	na	27.58	0.2	110	15.434
A	108.458		31.88	na				
B	108.458		32.14	na				
C	108.458		32.69	na				
D	108.458		33.57	na				
E	108.458		48.66	na				
F	120.417		52.58	na				
RT	118.5		55.39	na				
RB	101.0		64.51	na				
X1	94.5		67.8	na				
X2	89.5		70.09	na				
X3	85.5		71.85	na				
X4	85.5		71.87	na	250.0			
TEST	90.0		69.92	na				

The maximum velocity is 20.11 and it occurs in the pipe between nodes 6 and A

Final Calculations - Hazen-Williams

Sprinkler Systems, Inc.
 ENVIROLOGIX

Page 4
 Date 8-14-09

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftnng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
1	22.00	1.049		11.000	15.434			K Factor = 5.60	
to		120		0.0	0.0				
2	22.0	0.1553		11.000	1.708			Vel = 8.17	
2	23.19	1.38		10.250	17.142			K Factor = 5.60	
to		120		0.0	0.0				
4	45.19	0.1545		10.250	1.584			Vel = 9.69	
	0.0								
	45.19				18.726			K Factor = 10.44	
3	23.43	1.049	1T 5.0	2.000	17.505			K Factor = 5.60	
to		120		0.0	5.000	0.0			
4	23.43	0.1744		7.000	1.221			Vel = 8.70	
4	45.19	1.38		9.000	18.726				
to		120		0.0	0.0	0.0			
6	68.62	0.3349		9.000	3.014			Vel = 14.72	
	0.0								
	68.62				21.740			K Factor = 14.72	
5	25.14	1.049	1T 5.0	3.000	20.150			K Factor = 5.60	
to		120		0.0	5.000	0.0			
6	25.14	0.1988		8.000	1.590			Vel = 9.33	
6	68.61	1.38	1E 3.0	7.250	21.740				
to		120	1T 6.0	9.000	0.451				
A	93.75	0.5965		16.250	9.693			Vel = 20.11	
	0.0								
	93.75				31.884			K Factor = 16.60	
7	26.14	1.049		11.000	21.796			K Factor = 5.60	
to		120		0.0	0.0				
8	26.14	0.2136		11.000	2.350			Vel = 9.70	
8	27.52	1.38	1E 3.0	26.500	24.146			K Factor = 5.60	
to		120	1T 6.0	9.000	0.451				
B	53.66	0.2125		35.500	7.543			Vel = 11.51	
	0.0								
	53.66				32.140			K Factor = 9.47	
9	25.85	1.049		11.000	21.301			K Factor = 5.60	
to		120		0.0	0.0				
10	25.85	0.2091		11.000	2.300			Vel = 9.60	
10	27.20	1.38	3E 9.0	26.500	23.601			K Factor = 5.60	
to		120	1T 6.0	15.000	0.451				
C	53.05	0.2080		41.500	8.634			Vel = 11.38	
	0.0								
	53.05				32.686			K Factor = 9.28	
11	26.21	1.049		11.000	21.903			K Factor = 5.60	
to		120		0.0	0.0				
12	26.21	0.2145		11.000	2.360			Vel = 9.73	

Final Calculations - Standard

Sprinkler Systems, Inc.
ENVIROLOGIX

Page 5
Date 8-14-09

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
12 to D	27.58 53.79	1.38 120 0.2134	3E 9.0 1T 6.0 0.0	26.500 15.000 41.500	24.263 0.451 8.858		K Factor = 5.60 Vel = 11.54
	0.0 53.79					33.572	K Factor = 9.28
A to B	93.75	2.635 120 0.0256	0.0 0.0 0.0	10.000 0.0 10.000	31.884 0.0 0.256		Vel = 5.52
B to C	53.67	2.635 120 0.0590	0.0 0.0 0.0	9.250 0.0 9.250	32.140 0.0 0.546		Vel = 8.67
C to D	53.05	2.635 120 0.1042	0.0 0.0 0.0	8.500 0.0 8.500	32.686 0.0 0.886		Vel = 11.79
D to E	53.79	2.635 120 0.1619	4E 32.948 0.0 0.0	60.250 32.948 93.198	33.572 0.0 15.088		Vel = 14.96
E to F	0.0	2.635 120 0.1619	2T 32.948 1E 8.237 0.0	15.000 41.185 56.185	48.660 -5.179 9.095		Vel = 14.96
F to RT	0.0	4.26 120 0.0156	2E 26.334 1T 26.334 0.0	74.250 52.668 126.918	52.576 0.830 1.981		Vel = 5.72
RT to RB	0.0	4.26 120 0.0156	2E 26.334 1Z 13.167 1A 22.384 1B 15.8	21.167 77.685 98.852	55.387 7.579 1.542		Vel = 5.72
RB to X1	0.0	6.16 140 0.0019	1T 43.037 1G 4.304 0.0	200.000 47.341 247.341	64.508 2.815 0.482		Vel = 2.74
X1 to X2	0.0	12.34 140 0.0001	0.0 0.0 0.0	1750.000 0.0 1750.000	67.805 2.166 0.115		Vel = 0.68
X2 to X3	0.0	16.41 140 0.0	2F 78.28 0.0 0.0	2000.000 78.280 2078.280	70.086 1.732 0.035		Vel = 0.39
X3 to X4	0.0	16.41 140 0.0	1T 166.859 0.0 0.0	680.000 166.860 846.860	71.853 0.0 0.014		Vel = 0.39
X4 to TEST	250.00	16.41 140 0.0	0.0 0.0 0.0	0.001 0.0 0.001	71.867 -1.949 0.0		Qa = 250 Vel = 0.76

Final Calculations - Standard

Sprinkler Systems, Inc.
 ENVIROLOGIX

Page 6
 Date 8-14-09

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
-----------------------	--------------	----------------------	---------------------------	-------------------------	----------------	----------------	-------	-------	-------

	0.0								
	504.26				69.918			K Factor = 60.31	

Water Supply Curve (C)

Sprinkler Systems, Inc.
ENVIROLOGIX

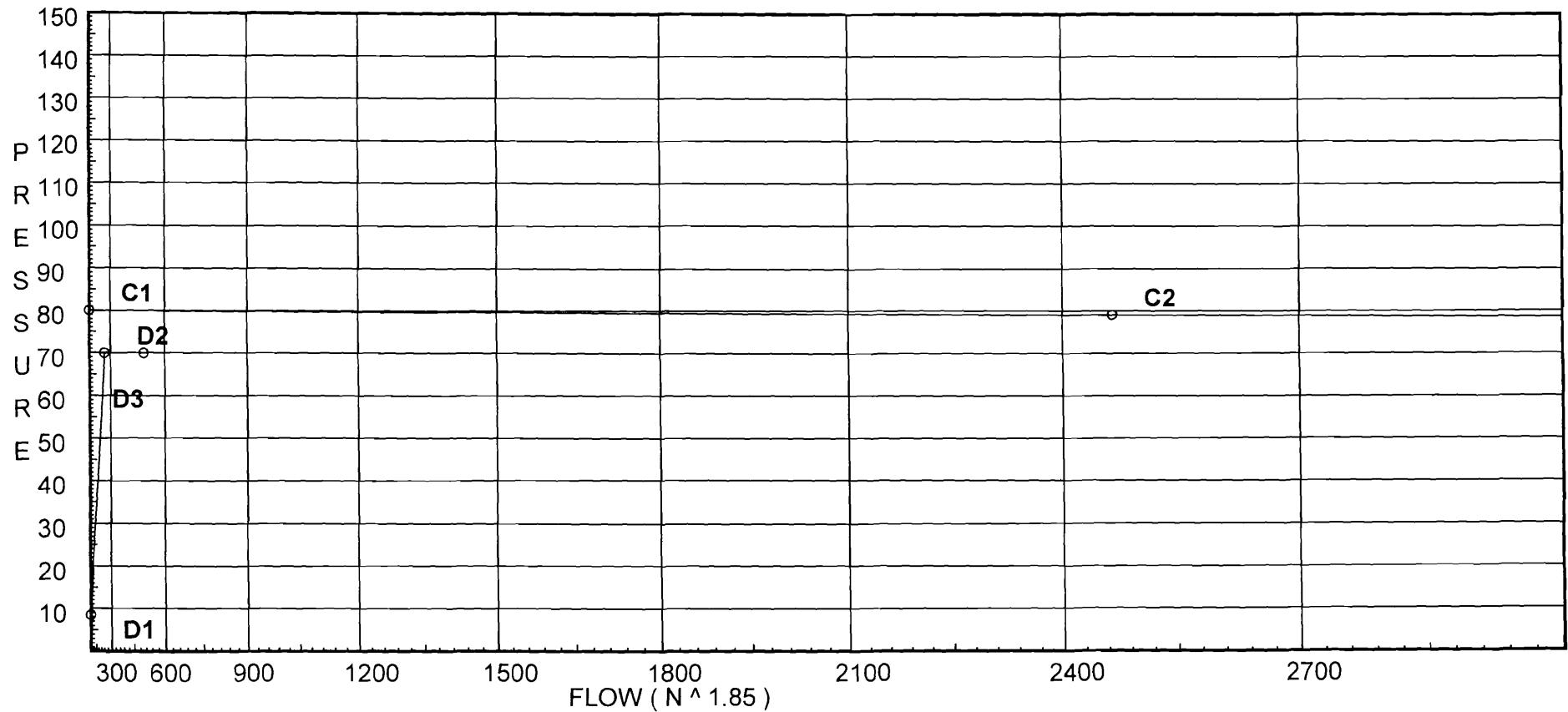
Page 7
Date 8-14-09

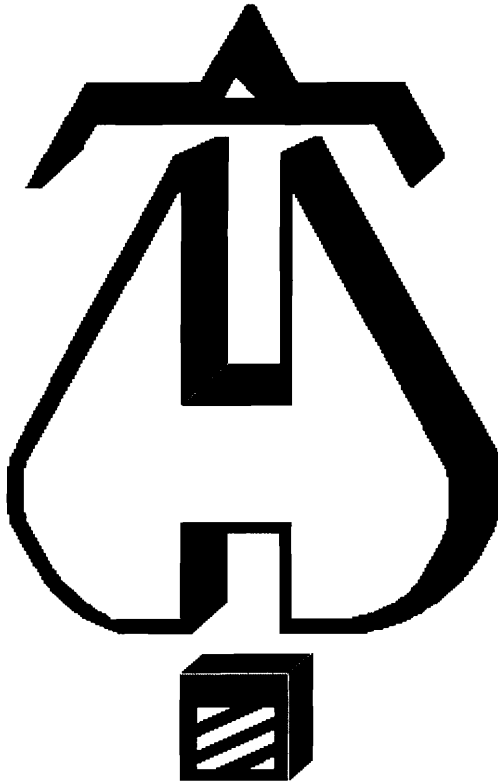
City Water Supply:

C1 - Static Pressure : 80
C2 - Residual Pressure: 79
C2 - Residual Flow : 2466

Demand:

D1 - Elevation : 8.445
D2 - System Flow : 254.259
D2 - System Pressure : 69.918
Hose (Adj City) :
Hose (Demand) : 250
D3 - System Demand : 504.259
Safety Margin : 10.029





... Fire Protection by Computer Design

Sprinkler Systems, Inc.
2-4 Avon Street
P.O. Box 1285
Lewiston, Maine 04240
207-782-0104

Job Name : ENVIROLOGIX
Building :
Location : 530 RIVERSIDE INDUSTRIAL PARKWAY PORTLAND, ME 04103
System : 2 OF 2
Contract : 09045
Data File : ENVIROLOGIX2.WXF

Hydraulic Design Information Sheet

Name - ENVIROLOGIX Date - 8-14-09
 Location - 530 RIVERSIDE INDUSTRIAL PARKWAY PORTLAND, ME 04103
 Building - System No. - 2 OF 2
 Contractor - WARREN CONSTRUCTION GROUP Contract No. - 09045
 Calculated By - LLOYD D. AKERS, PE Drawing No. - 2 OF 2
 Construction: () Combustible (X) Non-Combustible Ceiling Height - 9'-0"
 Occupancy - OFFICE SPACES - LIGHT HAZARD

S (X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. () 1 () 2 () 3 () Ex.Haz.
 Y () NFPA 231 () NFPA 231C () Figure Curve

S Other

T Specific Ruling Made By Date

E
 M Area of Sprinkler Operation - 900 SF System Type Sprinkler/Nozzle
 Density - .10 (X) Wet Make RELIABLE
 D Area Per Sprinkler - 168 SF () Dry Model FIFR-QR
 E Elevation at Highest Outlet - 120.333 () Deluge Size 1/2 X 1/2
 S Hose Allowance - Inside - () Preaction K-Factor 5.6
 I Rack Sprinkler Allowance - () Other Temp.Rat.155
 G Hose Allowance - Outside - 100

N Note DESIGN AREA NO. 2 - SECOND FLOOR OFFICE SPACES

Calculation Flow Required - 302.808 Press Required - 64.865
 Summary C-Factor Used: 120 Overhead 140 Underground

W Water Flow Test: Pump Data: Tank or Reservoir:
 A Date of Test - 7-8-08 Cap. -
 T Time of Test - Rated Cap.- Elev.-
 E Static Press - 80 @ Press -
 R Residual Press - 79 Elev. - Well
 Flow - 2466 Proof Flow
 S Elevation - 90

U
 P Location - FLOW HYDRANT (#1650) AND GAUGE HYDRANT (#1657) ARE LOCATED ON
 A 16" MAIN IN RIVERSIDE PARKWAY APPROX 3430 FEET SOUTH OF THE BUILDING
 L Source of Information - PORTLAND WATER DISTRICT (207-774-5961)
 Y

C Commodity Class Location
 O Storage Ht. Area Aisle W.
 M Storage Method: Solid Piled % Palletized % Rack
 () Single Row () Conven. Pallet () Auto. Storage () Encap.
 S R () Double Row () Slave Pallet () Solid Shelf () Non
 T A () Mult. Row () Open Shelf

O C
 R K Flue Spacing Clearance:Storage to Ceiling
 A Longitudinal Transverse

G
 E Horizontal Barriers Provided:

Pressure / Flow Summary - STANDARD

Sprinkler Systems, Inc.
 ENVIROLOGIX

Page 9
 Date 8-14-09

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
TYP	0.0	5.6	9.0	na	16.8	0.1	168	9.0
TYP1	0.0	5.6	7.0	na	14.82	0.1	148.2	7.0
TYP2	0.0	5.6	12.25	na	19.6	0.1	196	12.25
20	120.333	K = K @ DRO	9.75	na	16.8			
21	120.333	K = K @ DRO	11.07	na	17.9			
22	120.333	K = K @ DRO	16.12	na	21.6			
23	120.333		30.69	na				
24	120.333	K = K @ DRO	9.84	na	16.87			
25	120.333	K = K @ DRO	11.17	na	17.98			
26	120.333	K = K @ DRO	16.26	na	21.69			
27	120.333		30.95	na				
28	120.333	K = K @ DRO1	10.61	na	17.42			
29	120.333	K = K @ DRO1	12.02	na	18.55			
30	120.333	K = K @ DRO1	17.42	na	22.32			
31	120.333		31.07	na				
32	120.333	K = K @ DRO2	32.79	na	31.67			
33	120.333		36.14	na				
G	119.833		34.97	na				
H	119.833		35.26	na				
J	119.833		36.12	na				
K	119.833		39.24	na				
L	119.833		39.38	na				
F	120.417		48.95	na				
RT	118.5		51.08	na				
RB	101.0		59.68	na				
X1	94.5		62.81	na				
X2	89.5		65.05	na				
X3	85.5		66.8	na				
X4	85.5		66.81	na	100.0			
TEST	90.0		64.86	na				

The maximum velocity is 21.64 and it occurs in the pipe between nodes 30 and 31

Final Calculations - Hazen-Williams

Sprinkler Systems, Inc.
ENVIROLOGIX

Page 10
Date 8-14-09

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
TYP to DRO	16.80 16.8	1.049 120 0.0942	1E 2.0 1T 5.0 0.0	1.000 7.000 8.000	9.000 0.0 0.754		K Factor = 5.60 Vel = 6.24
	0.0 16.80				9.754		K Factor = 5.38
TYP1 to DRO1	14.82 14.82	1.049 120 0.0747	1E 2.0 1T 5.0 0.0	2.000 7.000 9.000	7.004 0.0 0.672		K Factor = 5.60 Vel = 5.50
	0.0 14.82				7.676		K Factor = 5.35
TYP2 to DRO2	19.60 19.6	1.049 120 0.1252	1E 2.0 0.0 0.0	0.500 2.000 2.500	12.250 0.0 0.313		K Factor = 5.60 Vel = 7.28
	0.0 19.60				12.563		K Factor = 5.53
20 to 21	16.80 16.8	1.049 120 0.0943	0.0 0.0 0.0	14.000 0.0 14.000	9.754 0.0 1.320		K Factor @ node DRO Vel = 6.24
21 to 22	17.90 34.7	1.049 120 0.3606	0.0 0.0 0.0	14.000 0.0 14.000	11.074 0.0 5.049		K Factor @ node DRO Vel = 12.88
22 to 23	21.60 56.3	1.049 120 0.8829	2E 4.0 0.0 0.0	12.500 4.000 16.500	16.123 0.0 14.568		K Factor @ node DRO Vel = 20.90
23 to G	0.0 56.3	1.38 120 0.2322	1T 6.0 0.0 0.0	11.500 6.000 17.500	30.691 0.217 4.063		Vel = 12.08
	0.0 56.30				34.971		K Factor = 9.52
24 to 25	16.87 16.87	1.049 120 0.0950	0.0 0.0 0.0	14.000 0.0 14.000	9.841 0.0 1.330		K Factor @ node DRO Vel = 6.26
25 to 26	17.98 34.85	1.049 120 0.3636	0.0 0.0 0.0	14.000 0.0 14.000	11.171 0.0 5.091		K Factor @ node DRO Vel = 12.94
26 to 27	21.70 56.55	1.049 120 0.8901	2E 4.0 0.0 0.0	12.500 4.000 16.500	16.262 0.0 14.686		K Factor @ node DRO Vel = 20.99
27 to H	0.0 56.55	1.38 120 0.2341	1T 6.0 0.0 0.0	11.500 6.000 17.500	30.948 0.217 4.096		Vel = 12.13

Final Calculations - Standard

Sprinkler Systems, Inc.
ENVIROLOGIX

Page 11
Date 8-14-09

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	0.0 56.55					35.261		K Factor = 9.52	
28 to 29	17.42	1.049 120	0.0 0.0	14.000 0.0	10.611 0.0			K Factor @ node DRO1	
29 to 30	17.42	0.1009	0.0	14.000	1.412			Vel = 6.47	
29 to 30	18.55	1.049 120	0.0 0.0	14.000 0.0	12.023 0.0			K Factor @ node DRO1	
30 to 31	35.97	0.3854	0.0	14.000	5.396			Vel = 13.35	
30 to 31	22.33	1.049 120	2E 4.0 0.0	10.500 4.000	17.419 0.0			K Factor @ node DRO1	
31 to J	58.3	0.9417	0.0	14.500	13.655			Vel = 21.64	
31 to J	0.0	1.38 120	1T 6.0 0.0	13.500 6.000	31.074 0.217				
J	58.3	0.2476	0.0	19.500	4.829			Vel = 12.51	
	0.0 58.30					36.120		K Factor = 9.70	
32 to 33	31.67	1.049 120	1E 2.0 1T 5.0	4.000 7.000	32.793 0.0			K Factor @ node DRO2	
33 to K	31.67	0.3045	0.0	11.000	3.349			Vel = 11.76	
33 to K	0.0	1.38 120	2E 6.0 1T 6.0	24.000 12.000	36.142 0.217				
K	31.67	0.0801	0.0	36.000	2.883			Vel = 6.79	
	0.0 31.67					39.242		K Factor = 5.06	
G to H	56.30	2.157 120	0.0 0.0	11.000 0.0	34.971 0.0				
H to J	56.3	0.0264	0.0	11.000	0.290			Vel = 4.94	
H to J	56.54	2.157 120	0.0 0.0	9.000 0.0	35.261 0.0				
J to L	112.84	0.0954	0.0	9.000	0.859			Vel = 9.91	
J to L	58.30	2.157 120	1T 12.307 0.0	3.500 12.307	36.120 0.0				
L	171.14	0.2063	0.0	15.807	3.261			Vel = 15.03	
	0.0 171.14					39.381		K Factor = 27.27	
K to L	31.67	2.157 120	1T 12.307 0.0	3.000 12.307	39.242 0.0				
L to F	31.67	0.0091	0.0	15.307	0.139			Vel = 2.78	
L to F	171.14	2.157 120	1F 2.461 1T 12.307	20.000 14.768	39.381 -0.253				
F	202.81	0.2824	0.0	34.768	9.820			Vel = 17.81	

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
F to RT	0.0 202.81	4.26 120 0.0103	2E 26.334 1T 26.334 0.0	74.250 52.668 126.918	48.948 0.830 1.303		Vel = 4.57		
RT to RB	0.0 202.81	4.26 120 0.0103	2E 26.334 1Z 13.167 1A 22.384 1B 15.8	21.167 77.685 98.852	51.081 7.579 1.016		Vel = 4.57		
RB to X1	0.0 202.81	6.16 140 0.0013	1T 43.037 1G 4.304 0.0	200.000 47.341 247.341	59.676 2.815 0.317		Vel = 2.18		
X1 to X2	0.0 202.81	12.34 140 0.0	0.0 0.0 0.0	1750.000 0.0 1750.000	62.808 2.166 0.075		Vel = 0.54		
X2 to X3	0.0 202.81	16.41 140 0.0	2F 78.28 0.0 0.0	2000.000 78.280 2078.280	65.049 1.732 0.023		Vel = 0.31		
X3 to X4	0.0 202.81	16.41 140 0.0	1T 166.859 0.0 0.0	680.000 166.860 846.860	66.804 0.0 0.010		Vel = 0.31		
X4 to TEST	100.00 302.81	16.41 140 0.0	0.0 0.0 0.0	0.001 0.0 0.001	66.814 -1.949 0.0		Qa = 100 Vel = 0.46		
	0.0 302.81				64.865		K Factor = 37.60		

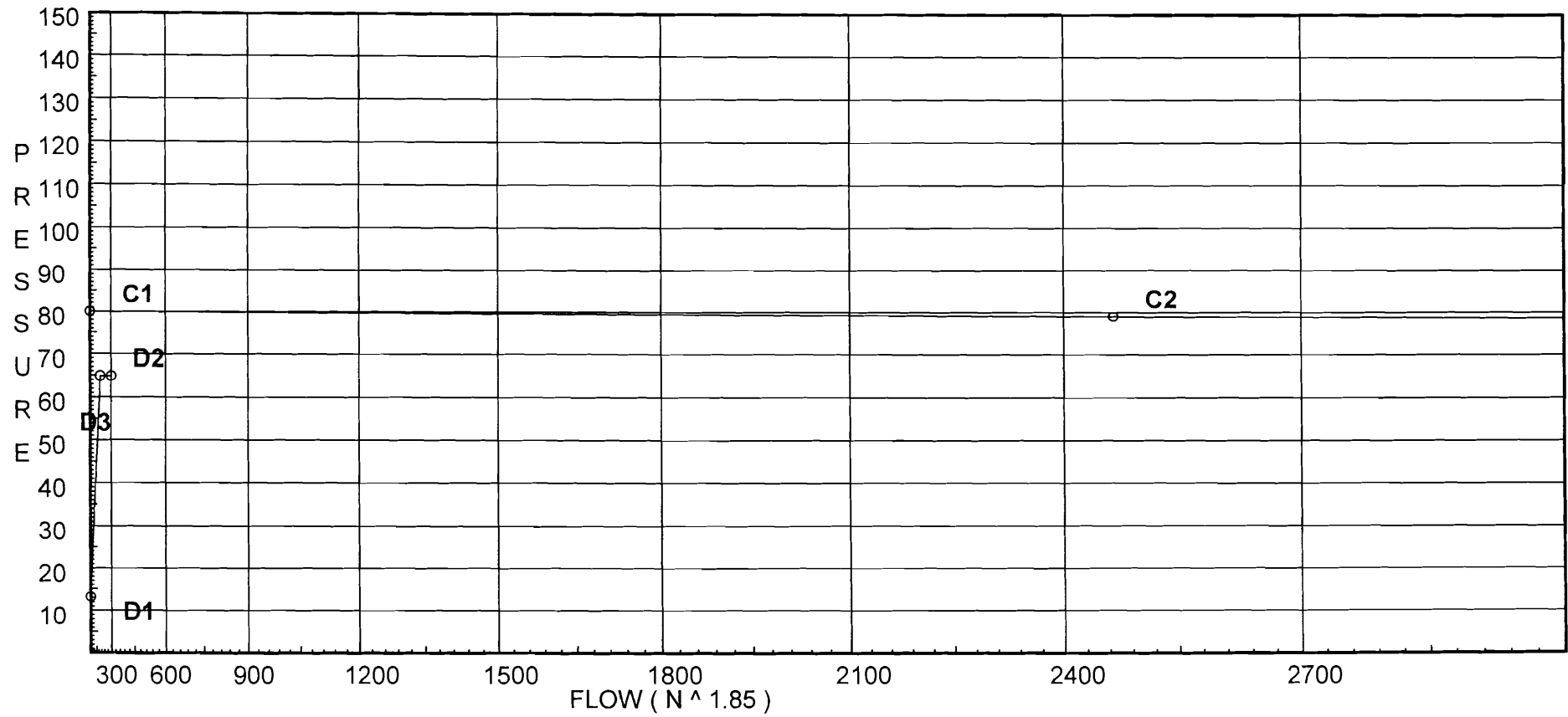
Water Supply Curve (C)

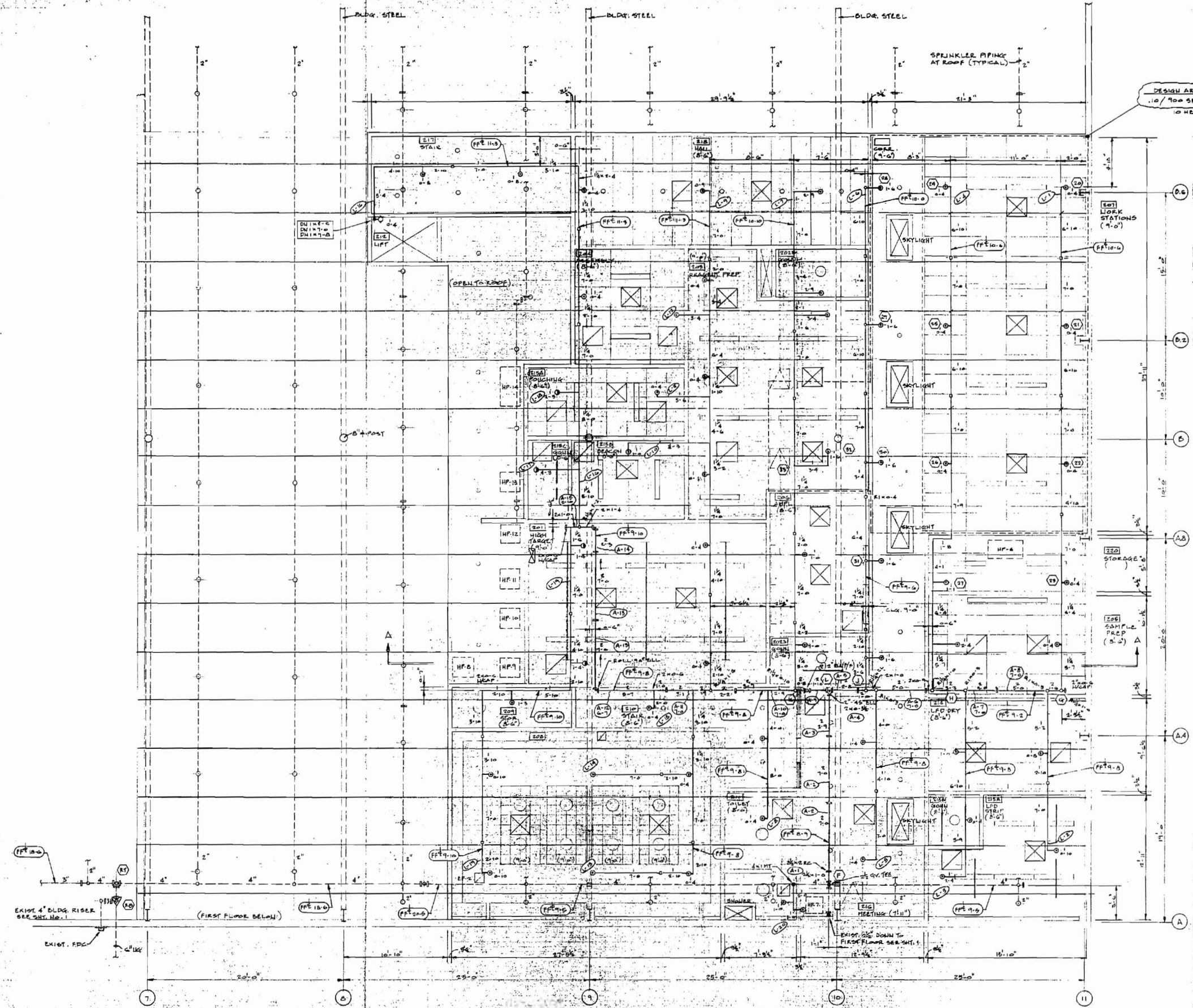
Sprinkler Systems, Inc.
ENVIROLOGIX

Page 13
Date 8-14-09

City Water Supply:
C1 - Static Pressure : 80
C2 - Residual Pressure: 79
C2 - Residual Flow : 2466

Demand:
D1 - Elevation : 13.137
D2 - System Flow : 202.808
D2 - System Pressure : 64.865
Hose (Adj City) :
Hose (Demand) : 100
D3 - System Demand : 302.808
Safety Margin : 15.115





NOT MOST REMOTE
 HYDRAULIC DATA NAMEPLATE
 This Building is protected
 by a hydraulically designed
 Automatic Sprinkler System.
 Location: OFFICE BUILDING
 No. of Barriers: 10
 Basis of design:
 1. Density .10 GPM/FT²
 2. Design area 700 SF
 System Demand:
 1. Water Flow Rate 302.000 GPM
 2. Residual Pressure 6.2, 0.50 PSI
 Calculation: 1511
 DESIGN AREA NO. 2

SECOND FLOOR PLAN (20'-0" x 20'-0")
 BUILDING ASSIGNMENT: BL-111.0

- 2" or 1 1/2" or 1" RECESSED PENDENT (WHITE)
- 1" RECESSED PENDENT (WHITE)
- 1/2" RECESSED PENDENT (WHITE)
- 1/4" RECESSED PENDENT (WHITE)

SPRINKLER
SYSTEMS, INC.

ENVIRONMENTAL (RENOVATIONS)
 590 RIVERSIDE PARKWAY
 PORTLAND, ME 04105

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

DRAWN BY: J.P.A.
 CHECKED BY: J.E.C.
 DATE: 11-16-09

CONTRACT WITH HARRIS CONSTRUCTION GROUP		REVISIONS	
NO.	DATE	DESCRIPTION	
1	11-16-09	ISSUE FOR PERMIT	
2	11-16-09	REVISED PERMIT	
3	11-16-09	REVISED PERMIT	
4	11-16-09	REVISED PERMIT	
5	11-16-09	REVISED PERMIT	

Sprinkler Systems, Inc.

P.O. Box 1285

Lewiston, Maine 04243-1285

Ph. (207) 782-0104 Fax (207) 783-4865

Fire Protection Professionals Since 1973

November 3, 2009

Warren Construction
P.O. Box 362
So. Freeport, ME 04078

Re: Envirologix

To whom it may concern,

This letter is to certify that the renovation of the sprinkler system at the aforementioned building is designed and installed in accordance with NFPA-13, Light Hazard and all other state and local codes.

If there are any questions or concerns please do not hesitate to call.

Very truly yours,
Sprinkler Systems, Inc.


Michael Lahey
General Manager

Sprinkler Systems, Inc.

Contractor's Material & Test Certificate for Aboveground Pipe

Procedure

Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by an owner's representative. All defects shall be corrected and system left in service before contractor's personnel finally leave the job.

A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners, and contractor. It is understood the owner's representative signature in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving authority's requirements or local ordinances.

Property Name ENVUROLOGIX **Date** 10-30-09

Property Address 530 INDUSTRIAL PARKWAY WESTBROOK, ME

Plans
 Accepted by approving authorities (Names)
 Address
 Installation conforms to accepted plans Yes No
 Equipment used is approved, if no, explain deviations Yes No

Instructions
 Has person in charge of fire equipment been instructed as to location of control valve and care and maintenance of this new equipment? Yes No
 If no, explain:
 Have copies of the following been left on the premises?
 1. System components instructions Yes No
 2. Care and maintenance instructions Yes No
 3. NFPA 25 Yes No

Location of System
 Supplies Buildings: **Entire Building**

Sprinklers	Make	Model	Year of Mfg.	Orifice Size	Quantity	Temp Rating
	Reliable	FIFR	2007	1/2"		155 DEG.
	Reliable	FIFR	2007	1/2"		155 DEG.
	Reliable	FIFR	2007	1/2"		155 DEG.
	Reliable	FIFR	2007	1/2"		155 DEG.

Pipe and Fittings
 Type of pipe As Per N.F.P.A.-13 Type of fittings As Per N.F.P.A.-13

Alarm Valve or Flow Indicator	Alarm Device			Maximum time to operate through test connection	
	Type	Make	Model	Min	Sec
	Flow Switch	System Sensor	WFD		

Dry Pipe Operating Test NA	Dry Valve			QOD		
	Make	Model	Serial #	Make	Model	Serial #
	Time to trip through test connection	Water Pressure	Air Pressure	Trip Point Air Pressure	Time Water Reached Test Outlet	Alarm Operated Properly
	With QOD	MIN SEC	PSI	PSI	PSI	MIN SEC
	YES					NO
W/O QOD	MIN SEC	PSI	PSI	PSI	MIN SEC	
YES					NO	
If no, explain:						

Operation: Circle One: Pneumatic Electric Hydraulic

Deluge & Preaction Valve NA	Piping Supervised Yes No		Detecting Media Supervised Yes No			
	Does valve operate from the manual trip, remote, or both control stations?			Yes	No	
	Is there an accessible facility in each circuit for testing? If no, explain.			Yes	No	
	Make	Model	Does each circuit operate supervision loss alarm?	Does each circuit operate valve release?	Maximum time to operate release	
		Yes No	Yes No	Min Sec		
Pressure Reducing Valve NA	Location & Floor	Make & Model	Setting	Static Pressure Inlet (psi) Outlet (psi)	Residual Pressure Inlet (psi) Outlet (psi)	Flow Rate Flow (gpm)
Test Description	HYDROSTATIC: Hydrostatic tests shall be made at not less than 200 psi (13.6 bars for 2 hours or 50 psi (3.4 bars) above static pressure in excess of 150 psi (10.2 bars) for 2 hours. Differential dry-pipe valve clappers shall be left open during the test to prevent damage. All aboveground piping leakage shall be stopped.					
	PNEUMATIC: Establish 40 psi (2.7 bars) air pressure and drop, which will not exceed 1 1/2 psi (.01 bars) in 24 hours. Test pressure tanks at normal water level and air pressure and measure air pressure drop, which shall not exceed 1 1/2 psi (.01 bars) in 24 hours.					
Tests	All piping hydrostatically tested at <u>200</u> psi (<u> </u> bars) for <u>2</u> hours Dry piping pneumatically tested (<i>check one</i>) NA <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Equipment operates properly (<i>check one</i>) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				If no, state reason:	
	Do you certify as the sprinkler contractor that additives and corrosive chemicals, sodium silicate or derivatives or sodium silicate, brine, or other corrosive chemicals were not used for testing systems or stopping leaks?				Check one: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	Drain Test: Reading of gauge located near water supply test connection: <u>75</u> psi (<u> </u> bars)				Residual pressure with valve in test connection open wide: <u>65</u> psi (<u> </u> bars)	
Hydraulic Data Nameplate	Nameplate provided: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		If no, explain:			
Remarks	Date left in service with all control valves open:					
Signatures	Sprinkler Contractor: Sprinkler Systems, Inc. P.O. Box 1285 Lewiston, Maine 04243-1285 Phone: 207-782-0104 Fax: 207-783-4865					
	Property Owner Signature		Title		Date	
			Super Warren Const. Group		11/4/09	
Sprinkler Contractor Signature		Title		Date		
		Pipefitter		10-30-09		

Additional Explanations and Notes:
