



. . . Fire Protection by Computer Design

FREEDOM FIRE PROTECTION INC.
209 QUAKER RIDGE ROAD
CASCO, MAINE 04015
207-627-4109

Job Name : 35 BAY STREET
Building : 35 BAY STREET
Location : PORTLAND, MAINE 04103
System : #1 AREA #1
Contract :
Data File : 35 BAY STREET HC.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - 35 BAY STREET Date - 11/12/12
Location - PORTLAND, MAINE 04103
Building - 35 BAY STREET System No. - #1 AREA #1
Contractor - FREEDOM FIRE PROTECTION Contract No. -
Calculated By - MICHAEL NOBLIT Drawing No. - FP-1
Construction: (X) Combustible () Non-Combustible Ceiling Height 8'-0"
OCCUPANCY - HOUSE

S Type of Calculation: (X)NFPA 13 Residential ()NFPA 13R (X)NFPA 13D
Y Number of Sprinklers Flowing: ()1 (X)2 ()4 ()
S ()Other
T ()Specific Ruling Made by Date
E
M Listed Flow at Start Point - 14 Gpm System Type
Listed Pres. at Start Point - 10.1 Psi (X) Wet () Dry
D MAXIMUM LISTED SPACING 14' x 14' () Deluge () PreAction
E Domestic Flow Added - 0 Gpm Sprinkler or Nozzle
S Additional Flow Added - 0 Gpm Make TYCO Model LFII
I Elevation at Highest Outlet - 26'-6"Feet Size 1/2" K-Factor 4.4
G Note: Temperature Rating 155
N

Calculation Gpm Required 28.197 Psi Required 84.630 At Test
Summary C-Factor Used: Overhead 150 Underground 140

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - 2/14/2012 Rated Cap. Cap.
T Time of Test - @ Psi Elev.
E Static (Psi) - 90 Elev.
R Residual (Psi) - 0 Other Well
Flow (Gpm) - 1038 Proof Flow Gpm
S Elevation -

P Location:
P
L Source of Information: PORTLAND WATER DISTRICT
Y

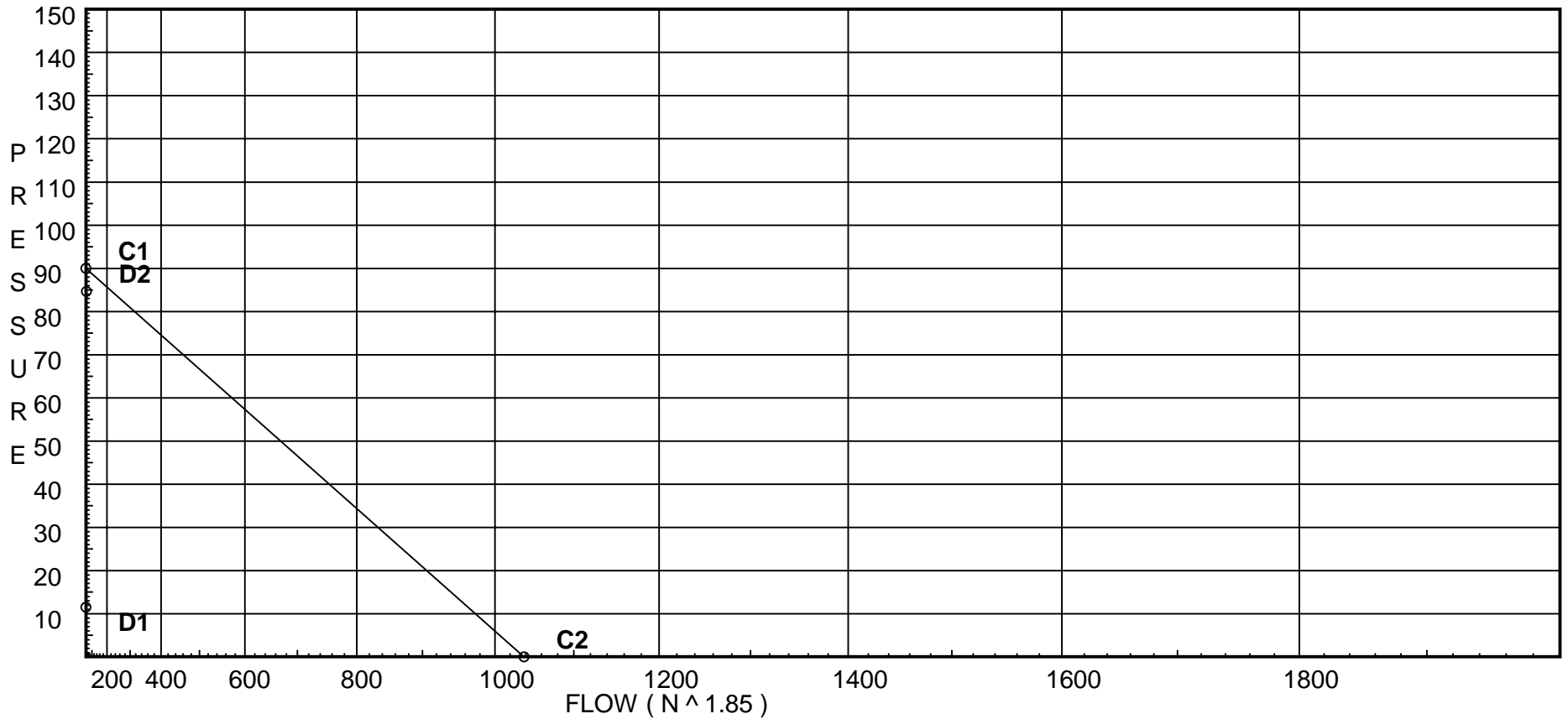
Water Supply Curve (C)

FREEDOM FIRE PROTECTION INC.
35 BAY STREET

Page 2
Date 11/9/12

City Water Supply:
C1 - Static Pressure : 90
C2 - Residual Pressure: 0
C2 - Residual Flow : 1038

Demand:
D1 - Elevation : 11.477
D2 - System Flow : 28.1969
D2 - System Pressure : 84.630
Hose (Adj City) : _____
Hose (Demand) : _____
D3 - System Demand : 28.1969
Safety Margin : 5.256



Fittings Used Summary

FREEDOM FIRE PROTECTION INC.
35 BAY STREET

Page 3
Date 11/9/12

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
E	90' Standard Elbow	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
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
Zaa	Ames 2000B	Fitting generates a Fixed Loss Based on Flow																			

Pressure / Flow Summary - STANDARD

FREEDOM FIRE PROTECTION INC.
35 BAY STREET

Page 4
Date 11/9/12

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
101	26.5	4.4	10.1	na	13.98	0.05	0.001	10.1
102	26.5	4.4	10.44	na	14.21	0.05	0.001	10.1
10	26.5		10.45	na				
9	16.5		17.3	na				
8	16.5		18.72	na				
7	16.5		21.08	na				
6	16.5		21.64	na				
5	6.5		29.65	na				
4	6.5		32.47	na				
3	6.5		34.4	na				
2	0.0		42.81	na				
1	0.0		76.74	na				
0	0.0		84.63	na				
TEST	0.0		84.63	na				

The maximum velocity is 20.76 and it occurs in the pipe between nodes 2 and 1

Final Calculations - Hazen-Williams

FREEDOM FIRE PROTECTION INC.
35 BAY STREET

Page 5
Date 11/9/12

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
101 to 10	13.98	1.101 150 0.0351	1T 9.563 0.0 0.0	0.500 9.562 10.062	10.100 0.0 0.353		K Factor = 4.40 Vel = 4.71
	0.0 13.98					10.453	K Factor = 4.32
102 to 10	14.21	1.101 150 0.0360	0.0 0.0 0.0	0.500 0.0 0.500	10.435 0.0 0.018		K Factor = 4.40 Vel = 4.79
10 to 9	13.99	1.101 150 0.1285	1T 9.563 0.0 0.0	10.000 9.562 19.562	10.453 4.331 2.513		Vel = 9.50
9 to 8	0.0	1.101 150 0.1285	1T 9.563 0.0 0.0	1.500 9.562 11.062	17.297 0.0 1.421		Vel = 9.50
8 to 7	0.0	1.101 150 0.1284	1T 9.563 0.0 0.0	8.830 9.562 18.392	18.718 0.0 2.362		Vel = 9.50
7 to 6	0.0	1.101 150 0.1286	1E 3.825 0.0 0.0	0.500 3.825 4.325	21.080 0.0 0.556		Vel = 9.50
6 to 5	0.0	1.049 120 0.2457	1T 5.0 0.0 0.0	10.000 5.000 15.000	21.636 4.331 3.685		Vel = 10.47
5 to 4	0.0	1.049 120 0.2457	1E 2.0 0.0 0.0	9.483 2.000 11.483	29.652 0.0 2.821		Vel = 10.47
4 to 3	0.0	1.049 120 0.2456	1E 2.0 0.0 0.0	5.830 2.000 7.830	32.473 0.0 1.923		Vel = 10.47
3 to 2	0.0	1.049 120 0.2457	1Zaa 0.0 0.0 0.0	6.500 0.0 6.500	34.396 6.815 1.597		* Fixed loss = 4 Vel = 10.47
2 to 1	0.0	0.745 140 0.9779	1E 1.628 0.0 0.0	30.000 1.628 31.628	42.808 3.000 30.928		* Fixed loss = 3 Vel = 20.76
1 to 0	0.0	0.745 140 0.9778	0.0 0.0 0.0	5.000 0.0 5.000	76.736 3.000 4.889		* Fixed loss = 3 Vel = 20.76
0 to TEST	0.0	6.16 140 0.0	0.0 0.0 0.0	150.000 0.0 150.000	84.625 0.0 0.005		Vel = 0.30
	0.0						

Final Calculations - Standard

FREEDOM FIRE PROTECTION INC.
35 BAY STREET

Page 6
Date 11/9/12

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	28.20				84.630			K Factor =	3.07
