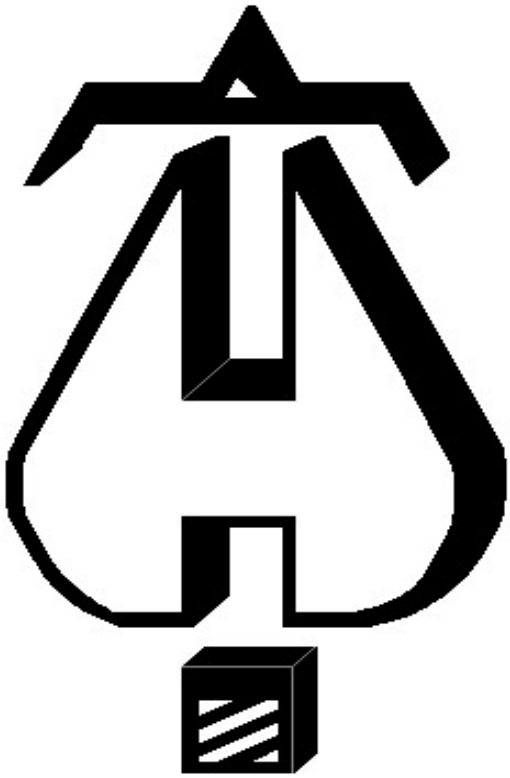


. . . Fire Protection by Computer Design

EASTERN FIRE PROTECTION
170 KITTY HAWK AVE
LEW/AUB IND PARK
AUBURN, MAINE 04210
207-784-1508

| | | |
|---|---|---|
| Job Name | : | 593 WASHINGTON AVE |
| Drawing | : | 3RD FLOOR |
| Location | : | PORTLAND, MAINE |
| Remote Area | : | WET |
| Contract | : | 1-05652-SPN |
| Data File | : | WASH AVE CALC.WXF |

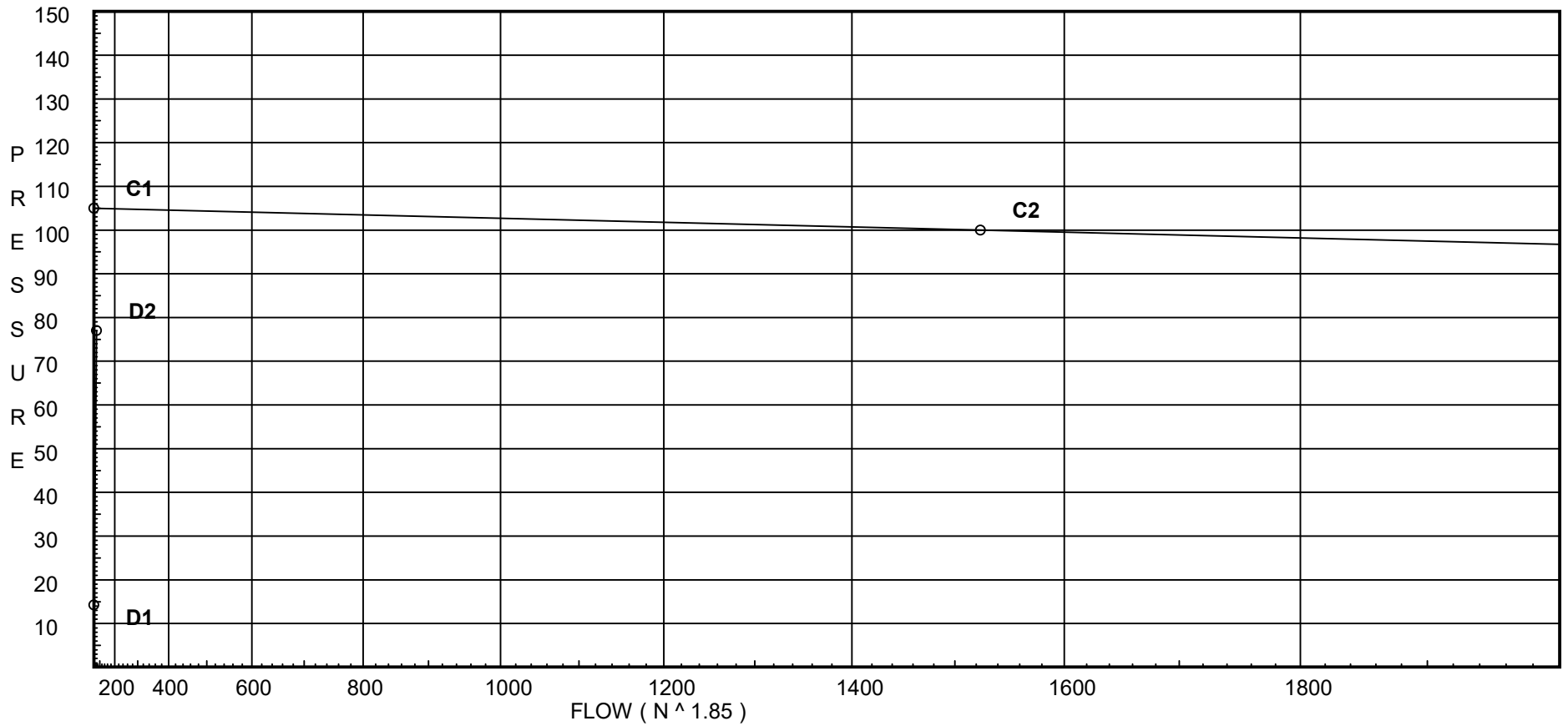
# Water Supply Curve C

EASTERN FIRE PROTECTION
593 WASHINGTON AVE


Date 8/28/2017

City Water Supply:
- C1 - Static Pressure : 105
- C2 - Residual Pressure: 100
- C2 - Residual Flow : 1524

Demand:
- D1 - Elevation : 14.220
- D2 - System Flow : 64.701
- D2 - System Pressure : 76.988
- Hose ( Demand ) : _____
- D3 - System Demand : 64.701
- Safety Margin : 27.997



# Fittings Used Summary



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 | NFPA 13 90' Standard Elbow | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 12 | 14 | 18 | 22 | 27 | 35 | 40 | 45 | 50 | 61 |
| G | NFPA 13 Gate Valve | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 11 | 13 |
| T | NFPA 13 90' Flow thru Tee | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 15 | 17 | 20 | 25 | 30 | 35 | 50 | 60 | 71 | 81 | 91 | 101 | 121 |

Units Summary

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

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

### *SUPPLY ANALYSIS*

| *Node at Source* | *Static Pressure* | *Residual Pressure* | *Flow* | *Available Pressure* | *Total Demand* | *Required Pressure* |
|---|---|---|---|---|---|---|
| TEST | 105.0 | 100 | 1524.0 | 104.986 | 64.7 | 76.988 |

### *NODE ANALYSIS*

| *Node Tag* | *Elevation* | *Node Type* | *Pressure at Node* | *Discharge at Node* | *Notes* |
|---|---|---|---|---|---|
| 1A | 0.0 | 4.9 | 8.2 | 14.03 | |
| 2A | 0.0 | 4.9 | 8.2 | 14.03 | |
| 1 | 127.0 | 4.4 | 16.61 | 17.93 | |
| 2 | 127.0 | 4.78 | 8.61 | 14.03 | K=K @ 1B |
| 3 | 127.0 | 4.78 | 9.69 | 14.89 | K=K @ 1B |
| 4 | 127.0 | 4.78 | 13.93 | 17.85 | K=K @ 2B |
| 5 | 127.0 | | 14.92 | | |
| 1C | 117.0 | | 22.11 | | |
| 6 | 117.0 | | 28.02 | | |
| 7 | 117.0 | | 31.58 | | |
| 8 | 108.0 | | 39.98 | | |
| 9 | 98.666 | | 47.73 | | |
| TOR | 98.666 | | 66.99 | | |
| BFP | 97.166 | | 68.09 | | |
| UDG | 94.166 | | 74.29 | | |
| TEST | 94.166 | | 76.99 | | |

| Node1<br>to<br>Node2 | Elev1<br><br>Elev2 | K<br><br>Fact | Qa<br><br>Qt | Nom<br><br>Act | Fitting<br>or<br>Eqv. | Ln. | Pipe<br>Ftng's<br>Total | CFact<br><br>Pf/Ft | Pt<br>Pe<br>Pf | ******* Notes ****** |
|---|---|---|---|---|---|---|---|---|---|---|
| 1A | 0 | 4.90 | 14.03 | 1 | T | 5.0 | 1.000 | 120 | 8.200 | |
| to | | | | | | 0.0 | 5.000 | | 0.0 | |
| 1B | 0 | | 14.03 | 1.049 | | 0.0 | 6.000 | 0.0675 | 0.405 | Vel = 5.21 |
| | | | 0.0 | | | | | | | |
| 1B | | | 14.03 | | | | | | 8.605 | K Factor = 4.78 |
| 2A | 0 | 4.90 | 14.03 | 1 | T | 5.0 | 1.000 | 120 | 8.200 | |
| to | | | | | | 0.0 | 5.000 | | 0.0 | |
| 2B | 0 | | 14.03 | 1.049 | | 0.0 | 6.000 | 0.0675 | 0.405 | Vel = 5.21 |
| | | | 0.0 | | | | | | | |
| 2B | | | 14.03 | | | | | | 8.605 | K Factor = 4.78 |
| 1 | 127 | 4.40 | 17.93 | 1 | E | 2.0 | 9.000 | 120 | 16.610 | |
| to | | | | | | 0.0 | 2.000 | | 4.331 | |
| 1C | 117 | | 17.93 | 1.049 | | 0.0 | 11.000 | 0.1064 | 1.170 | Vel = 6.66 |
| | | | 0.0 | | | | | | | |
| 1C | | | 17.93 | | | | | | 22.111 | K Factor = 3.81 |
| 2 | 127 | 4.78 | 14.03 | 1 | | 0.0 | 16.000 | 120 | 8.605 | K = K @ 1B |
| to | | | | | | 0.0 | 0.0 | | 0.0 | |
| 3 | 127 | | 14.03 | 1.049 | | 0.0 | 16.000 | 0.0676 | 1.081 | Vel = 5.21 |
| 3 | 127 | 4.78 | 14.89 | 1 | E | 2.0 | 13.333 | 120 | 9.686 | K = K @ 1B |
| to | | | | | T | 5.0 | 7.000 | | 0.0 | |
| 5 | 127 | | 28.92 | 1.049 | | 0.0 | 20.333 | 0.2574 | 5.234 | Vel = 10.74 |
| | | | 0.0 | | | | | | | |
| 5 | | | 28.92 | | | | | | 14.920 | K Factor = 7.49 |
| 4 | 127 | 4.78 | 17.85 | 1 | T | 5.0 | 4.416 | 120 | 13.927 | K = K @ 2B |
| to | | | | | | 0.0 | 5.000 | | 0.0 | |
| 5 | 127 | | 17.85 | 1.049 | | 0.0 | 9.416 | 0.1055 | 0.993 | Vel = 6.63 |
| 5 | 127 | | 28.92 | 1 | T | 5.0 | 9.000 | 120 | 14.920 | |
| to | | | | | | 0.0 | 5.000 | | 4.331 | |
| 6 | 117 | | 46.77 | 1.049 | | 0.0 | 14.000 | 0.6265 | 8.771 | Vel = 17.36 |
| | | | 0.0 | | | | | | | |
| 6 | | | 46.77 | | | | | | 28.022 | K Factor = 8.84 |
| 1C | 117 | | 17.93 | 1 | E | 2.0 | 48.583 | 120 | 22.111 | |
| to | | | | | T | 5.0 | 7.000 | | 0.0 | |
| 6 | 117 | | 17.93 | 1.049 | | 0.0 | 55.583 | 0.1063 | 5.911 | Vel = 6.66 |
| 6 | 117 | | 46.77 | 1.25 | T | 6.0 | 5.833 | 120 | 28.022 | |
| to | | | | | | 0.0 | 6.000 | | 0.0 | |
| 7 | 117 | | 64.7 | 1.38 | | 0.0 | 11.833 | 0.3003 | 3.554 | Vel = 13.88 |
| 7 | 117 | | 0.0 | 1.25 | T | 6.0 | 9.000 | 120 | 31.576 | |
| to | | | | | | 0.0 | 6.000 | | 3.898 | |
| 8 | 108 | | 64.7 | 1.38 | | 0.0 | 15.000 | 0.3003 | 4.505 | Vel = 13.88 |
| 8 | 108 | | 0.0 | 1.25 | E | 3.0 | 9.333 | 120 | 39.979 | |
| to | | | | | | 0.0 | 3.000 | | 4.043 | |
| 9 | 98.666 | | 64.7 | 1.38 | | 0.0 | 12.333 | 0.3003 | 3.704 | Vel = 13.88 |
| 9 | 98.666 | | 0.0 | 1.25 | 3E | 9.0 | 49.125 | 120 | 47.726 | |
| to | | | | | T | 6.0 | 15.000 | | 0.0 | |
| TOR | 98.666 | | 64.7 | 1.38 | | 0.0 | 64.125 | 0.3003 | 19.259 | Vel = 13.88 |
| TOR | 98.666 | | 0.0 | 1.25 | | 0.0 | 1.500 | 120 | 66.985 | |
| to | | | | | | 0.0 | 0.0 | | 0.650 | |
| BFP | 97.166 | | 64.7 | 1.38 | | 0.0 | 1.500 | 0.3007 | 0.451 | Vel = 13.88 |

| Node1 / to / Node2 | Elev1 / Elev2 | K Fact | Qa / Qt | Nom / Act | Fitting or Eqv. | Ln. | Pipe Ftng's Total | CFact Pf/Ft | Pt / Pe / Pf | ******* Notes ****** |
|---|---|---|---|---|---|---|---|---|---|---|
| BFP | 97.166 | | 0.0 | 1.25 | | 0.0 | 3.000 | 120 | 68.086 | |
| to | | | | | | 0.0 | 0.0 | | 5.299 | * * Fixed Loss = 4 |
| UDG | 94.166 | | 64.7 | 1.38 | | 0.0 | 3.000 | 0.3003 | 0.901 | Vel = 13.88 |
| UDG | 94.166 | | 0.0 | 2 | E | 6.204 | 60.000 | 150 | 74.286 | |
| to | | | | | T | 12.407 | 19.851 | | 0.0 | |
| TEST | 94.166 | | 64.7 | 1.985 | G | 1.241 | 79.851 | 0.0338 | 2.702 | Vel = 6.71 |
| | | | 0.0 | | | | | | | |
| TEST | | | 64.70 | | | | | | 76.988 | K Factor = 7.37 |