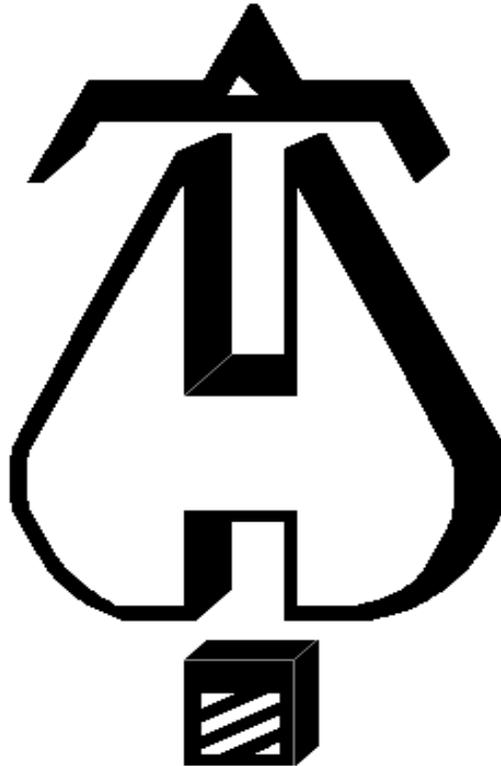




Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/05/16



. . . Fire Protection by Computer Design

SPRINKLER SYSTEMS INC.
4 AVON STREET
P O BOX 1285
LEWISTON, ME. 04243
207-782-0104

Job Name : 89 Anderson Street Wet System Area 1
Building : NEW
Location : 89 ANDERSON STREET PORTLAND, MAINE
System : 1 WET
Contract : 15-126
Data File : 89 Anderson Street Wet System Area 1.WXF

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 1



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Hydraulic Design Information Sheet

Name - 89 ANDERSON STREET APARTMENTS Date - 3/1
 Location - 89 ANDERSON STREET PORTLAND, MAINE
 Building - NEW System No. - 1 WE
 Contractor - SPRINKLER SYSTEMS INC Contract No. - 15- Date: 05/05/16
 Calculated By - CDS Drawing No. - 1-3
 Construction: (X) Combustible () Non-Combustible Ceiling Height - VARIES
 Occupancy - APARTMENTS

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

S Other NFPA 13R

T Specific Ruling Made By Date

| | Specific Ruling | Made By | Date |
|---|---------------------------------------|---------------|-------------------|
| M | Area of Sprinkler Operation - 4 HEADS | System Type | Sprinkler/Nozzle |
| | Density - .05 | (X) Wet | Make RELIABLE |
| D | Area Per Sprinkler - 324 | () Dry | Model F1RES44 |
| E | Elevation at Highest Outlet - 143 | () Deluge | Size 3/8" X 1/2" |
| S | Hose Allowance - Inside - 0 | () Preaction | K-Factor 4.4 |
| I | Rack Sprinkler Allowance - 0 | () Other | Temp.Rat.155 DEG. |
| G | Hose Allowance - Outside - 0 | | |

N Note

Calculation Flow Required - 80.69 Press Required - 69.547 AT BASE
 Summary C-Factor Used: 150 Overhead 150 Underground

W Water Flow Test: Pump Data: Tank or Reservoir:
 A Date of Test - 5-23-15 Cap. -
 T Time of Test - AM Rated Cap.- Elev.-
 E Static Press - 86 @ Press -
 R Residual Press - 78 Elev. - Well
 Flow - 1299 Proof Flow
 S Elevation - 160.0'

U Location - ON SITE

P Source of Information - OWNER AND WATER DISTRICT

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

E Horizontal Barriers Provided:

Pressure / Flow Summary - STANDARD

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 1



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/05/16

| Node No. | Elevation | K-Fact | Pt Actual | Pn | Flow Actual | Density |
|----------|-----------|---------------------|-----------|----|-------------|---------|
| TYP | 0.0 | 4.9 | 12.03 | na | 17.0 | 0.05 |
| 31 | 143.0 | 4.4 | 19.3 | na | 19.33 | 0.05 |
| 32 | 143.0 | 4.4 | 18.7 | na | 19.03 | 0.05 |
| 33 | 143.0 | | 19.98 | na | | |
| 34 | 133.25 | | 30.42 | na | | |
| 35 | 133.25 | | 35.31 | na | | |
| 36 | 133.25 | | 40.66 | na | | |
| 3F | 133.25 | | 46.75 | na | | |
| 9 | 143.0 | K = K @ DROP 4.4 | 21.1 | na | 21.99 | |
| 8 | 143.0 | | 21.39 | na | 20.35 | 0.05 |
| 10 | 143.0 | | 22.92 | na | | |
| 11 | 143.0 | | 26.89 | na | | |
| 12 | 143.0 | | 35.67 | na | | |
| 13 | 143.0 | | 35.89 | na | | |
| 14 | 143.0 | | 36.72 | na | | |
| 15 | 143.0 | | 37.56 | na | | |
| 18 | 143.0 | | 39.23 | na | | |
| 21 | 143.0 | | 39.86 | na | | |
| 22 | 143.0 | | 42.52 | na | | |
| A | 143.0 | | 42.97 | na | | |
| B | 133.25 | | 47.35 | na | | |
| C | 123.0 | | 52.31 | na | | |
| D | 123.0 | | 52.84 | na | | |
| E | 111.5 | | 58.19 | na | | |
| TWR1 | 111.5 | | 58.53 | na | | |
| BWR1 | 104.0 | | 65.0 | na | | |
| H | 104.0 | | 65.05 | na | | |
| BKFL | 103.5 | | 65.27 | na | | |
| BASE | 100.0 | | 69.55 | na | | |
| HOSE | 100.0 | | 69.83 | na | | |
| TEST | 160.0 | | 43.84 | na | | |

324 18.7

The maximum velocity is 14.27 and it occurs in the pipe between nodes 10 and 11

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 1



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------|----------------|--------------------------|---------------------------------|------------------------------|--------------------------|----------|------------------------------------|
| TYP to DROP | 17.00 17.0 | 1.049 120.0 0.0963 | T 5.0 0.0 | 1.000 5.000 6.000 | 12.030 0.0 0.578 | | K Factor = 4.90 Vel = 6.31 |
| | 0.0 17.00 | | | | 12.608 | | K Factor = 4.79 |
| 31 to 33 | 19.33 19.33 | 1.101 150.0 0.0639 | T 9.563 0.0 | 1.000 9.562 10.562 | 19.305 0.0 0.675 | | K Factor = 4.40 Vel = 6.51 |
| | 0.0 19.33 | | | | 19.980 | | K Factor = 4.32 |
| 32 to 33 | 19.03 19.03 | 1.101 150.0 0.0621 | 2T 19.125 0.0 | 1.500 19.126 20.626 | 18.700 0.0 1.280 | | K Factor = 4.40 Vel = 6.41 |
| 33 to 34 | 19.33 38.36 | 1.101 150.0 0.2270 | E T 3.825 9.563 0.0 | 14.000 13.387 27.387 | 19.980 4.223 6.216 | | Vel = 12.93 |
| 34 to 35 | 0.0 38.36 | 1.101 150.0 0.2270 | T 9.563 0.0 | 12.000 9.562 21.562 | 30.419 0.0 4.895 | | Vel = 12.93 |
| 35 to 36 | 0.0 38.36 | 1.101 150.0 0.2270 | T 9.563 0.0 | 14.000 9.562 23.562 | 35.314 0.0 5.349 | | Vel = 12.93 |
| 36 to 3F | 0.0 38.36 | 1.682 120.0 0.0436 | E T 4.95 9.9 0.0 | 125.000 14.850 139.850 | 40.663 0.0 6.091 | | Vel = 5.54 |
| 3F to B | 0.0 38.36 | 1.682 120.0 0.0435 | T 9.9 0.0 | 3.750 9.900 13.650 | 46.754 0.0 0.594 | | Vel = 5.54 |
| | 0.0 38.36 | | | | 47.348 | | K Factor = 5.57 |
| 9 to 10 | 21.99 21.99 | 1.101 120.0 0.1225 | E T 2.531 6.328 0.0 | 6.000 8.859 14.859 | 21.103 0.0 1.820 | | K Factor @ node DROP Vel = 7.41 |
| | 0.0 21.99 | | | | 22.923 | | K Factor = 4.59 |
| 8 to 10 | 20.35 20.35 | 1.101 150.0 0.0702 | E T 3.825 9.563 0.0 | 8.500 13.387 21.887 | 21.386 0.0 1.537 | | K Factor = 4.40 Vel = 6.86 |
| 10 to 11 | 21.99 42.34 | 1.101 150.0 0.2724 | T 9.563 0.0 | 5.000 9.562 14.562 | 22.923 0.0 3.967 | | Vel = 14.27 |
| 11 to 12 | 0.0 42.34 | 1.101 150.0 0.2724 | T 9.563 0.0 | 15.000 7.65 32.212 | 26.890 0.0 8.776 | | Vel = 14.27 |
| 12 to 13 | 0.0 42.34 | 1.682 120.0 0.0522 | 0.0 0.0 0.0 | 4.250 0.0 4.250 | 35.666 0.0 0.222 | | Vel = 6.11 |

Date: 05/05/16

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 1



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------|-------|----------------|---------------------|-------------------|----------|----------|----------------------|
| 13 | 0.0 | 1.682 | 0.0 | 16.000 | 35.888 | | |
| to | | 120.0 | 0.0 | 0.0 | 0.0 | | |
| 14 | 42.34 | 0.0523 | 0.0 | 16.000 | 0.837 | | Vel = 6.11 |
| 14 | 0.0 | 1.682 | 0.0 | 16.000 | 36.725 | | |
| to | | 120.0 | 0.0 | 0.0 | 0.0 | | |
| 15 | 42.34 | 0.0522 | 0.0 | 16.000 | 0.836 | | Vel = 6.11 |
| 15 | 0.0 | 1.682 | 0.0 | 32.000 | 37.561 | | |
| to | | 120.0 | 0.0 | 0.0 | 0.0 | | |
| 18 | 42.34 | 0.0523 | 0.0 | 32.000 | 1.673 | | Vel = 6.11 |
| 18 | 0.0 | 1.682 | 0.0 | 12.000 | 39.234 | | |
| to | | 120.0 | 0.0 | 0.0 | 0.0 | | |
| 21 | 42.34 | 0.0522 | 0.0 | 12.000 | 0.627 | | Vel = 6.11 |
| 21 | 0.0 | 1.682 | E 4.95 | 36.000 | 39.861 | | |
| to | | 120.0 | T 9.9 | 14.850 | 0.0 | | |
| 22 | 42.34 | 0.0523 | 0.0 | 50.850 | 2.658 | | Vel = 6.11 |
| 22 | 0.0 | 1.682 | E 4.95 | 3.750 | 42.519 | | |
| to | | 120.0 | 0.0 | 4.950 | 0.0 | | |
| A | 42.34 | 0.0523 | 0.0 | 8.700 | 0.455 | | Vel = 6.11 |
| A | 0.0 | 2.157 | 0.0 | 9.750 | 42.974 | | |
| to | | 120.0 | 0.0 | 0.0 | 4.223 | | |
| B | 42.34 | 0.0155 | 0.0 | 9.750 | 0.151 | | Vel = 3.72 |
| B | 38.35 | 2.157 | 0.0 | 10.250 | 47.348 | | |
| to | | 120.0 | 0.0 | 0.0 | 4.439 | | |
| C | 80.69 | 0.0514 | 0.0 | 10.250 | 0.527 | | Vel = 7.08 |
| C | 0.0 | 2.157 | 0.0 | 10.250 | 52.314 | | |
| to | | 120.0 | 0.0 | 0.0 | 0.0 | | |
| D | 80.69 | 0.0513 | 0.0 | 10.250 | 0.526 | | Vel = 7.08 |
| D | 0.0 | 2.157 | E 6.153 | 1.000 | 52.840 | | |
| to | | 120.0 | 0.0 | 6.153 | 4.981 | | |
| E | 80.69 | 0.0513 | 0.0 | 7.153 | 0.367 | | Vel = 7.08 |
| E | 0.0 | 3.26 | 4E 37.631 | 12.000 | 58.188 | | |
| to | | 120.0 | 0.0 | 37.631 | 0.0 | | |
| TWR1 | 80.69 | 0.0069 | 0.0 | 49.631 | 0.341 | | Vel = 3.10 |
| TWR1 | 0.0 | 3.26 | Fsp 0.0 | 5.500 | 58.529 | | |
| to | | 120.0 | Bvcb 6.72 | 26.879 | 6.248 | | ** Fixed Loss = 3 |
| BWR1 | 80.69 | 0.0069 | T 20.159 | 32.379 | 0.223 | | Vel = 3.10 |
| BWR1 | 0.0 | 4.26 | T 26.334 | 2.000 | 65.000 | | |
| to | | 120.0 | 0.0 | 26.334 | 0.0 | | |
| H | 80.69 | 0.0019 | 0.0 | 28.334 | 0.053 | | Vel = 1.82 |
| H | 0.0 | 4.26 | 0.0 | 0.500 | 65.053 | | |
| to | | 120.0 | 0.0 | 0.0 | 0.217 | | |
| BKFL | 80.69 | 0.0 | 0.0 | 0.500 | 0.0 | | Vel = 1.82 |
| BKFL | 0.0 | 4.026 | Zac 0.0 | 0.500 | 65.270 | | |
| to | | 120.0 | 0.0 | 0.0 | 4.276 | | ** Fixed Loss = 2.76 |
| BASE | 80.69 | 0.0020 | 0.0 | 0.500 | 0.001 | | Vel = 2.03 |

Date: 05/05/16

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 1



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------------|--------------|----------------------|---------------------------|-------------------------|----------------|----------------|------------------|
| BASE | 0.0 | 4.07 | 2E | 31.864 | 115.000 | 69.547 | |
| to | | 150.0 | T | 31.864 | 66.914 | 0.0 | |
| HOSE | 80.69 | 0.0015 | G | 3.186 | 181.914 | 0.281 | Vel = 1.99 |
| HOSE | 0.0 | 20.57 | | 0.0 | 685.000 | 69.828 | |
| to | | 140.0 | | 0.0 | 0.0 | -25.986 | |
| TEST | 80.69 | 0.0 | | 0.0 | 685.000 | 0.0 | Vel = 0.08 |
| | 0.0 | | | | | | |
| | 80.69 | | | | | 43.842 | K Factor = 12.19 |

Date: 05/05/16

Water Supply Curve C

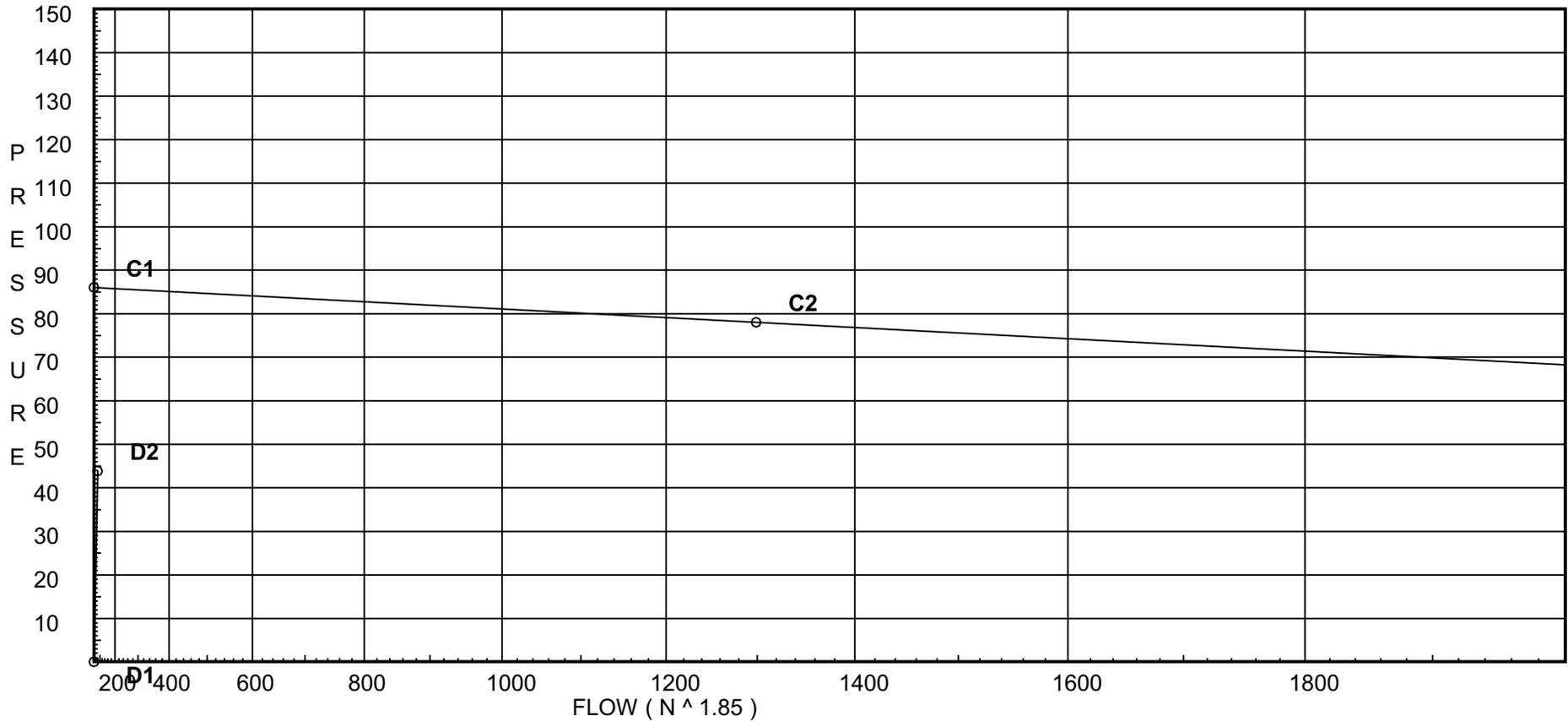
SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 1



City Water Supply:
C1 - Static Pressure : 86
C2 - Residual Pressure: 78
C2 - Residual Flow : 1299

Demand:
D1 - El
D2 - Sy
D2 - Sy
Hose (Date: 05/05/16
D3 - Sy
Safety Margin : 42.111

Reviewed for Code Compliance
Inspections Division
Approved with Conditions



SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 2



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Hydraulic Design Information Sheet

Name - 89 ANDERSON STREET APARTMENTS AREA 2 Date - 3/1
 Location - 89 ANDERSON STREET PORTLAND, MAINE
 Building - NEW System No. - 1 WE
 Contractor - SPRINKLER SYSTEMS INC Contract No. - 15- Date: 05/05/16
 Calculated By - CDS Drawing No. - 1-3
 Construction: (X) Combustible () Non-Combustible Ceiling Height - VARIES
 Occupancy - APARTMENTS

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

S Other NFPA 13R
 T Specific Ruling

Made By Date

| | | | | |
|---|-----------------------------|-----------|---------------|-------------------|
| M | Area of Sprinkler Operation | - 4 HEADS | System Type | Sprinkler/Nozzle |
| | Density | - .05 | (X) Wet | Make RELIABLE |
| D | Area Per Sprinkler | - 324 | () Dry | Model F1RES49 |
| E | Elevation at Highest Outlet | - 143 | () Deluge | Size 7/16" X 1/2" |
| S | Hose Allowance - Inside | - 0 | () Preaction | K-Factor 4.9 |
| I | Rack Sprinkler Allowance | - 0 | () Other | Temp.Rat.155 DEG. |
| G | Hose Allowance - Outside | - 0 | | |

N Note

Calculation Flow Required - 69.70 Press Required - 55.149 AT BASE
 Summary C-Factor Used: 120 Overhead 150 Underground

| | | | |
|---|------------------------|-------------|--------------------|
| W | Water Flow Test: | Pump Data: | Tank or Reservoir: |
| A | Date of Test - 5-23-15 | | Cap. - |
| T | Time of Test - AM | Rated Cap.- | Elev.- |
| E | Static Press - 86 | @ Press - | |
| R | Residual Press - 78 | Elev. - | Well |
| | Flow - 1299 | | Proof Flow |
| S | Elevation - 160.0' | | |

U Location - ON SITE

L Source of Information - OWNER AND WATER DISTRICT

| | | | |
|---|-----------------|--------------------|------------------------------|
| 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 | () Double Row | () Slave Pallet | () Solid Shelf () Non |
| T | () Mult. Row | | () Open Shelf |

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

E Horizontal Barriers Provided:

Pressure / Flow Summary - STANDARD

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 2



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/05/16

| Node No. | Elevation | K-Fact | Pt Actual | Pn | Flow Actual | Density |
|----------|-----------|-------------|-----------|----|-------------|---------|
| TYP | 0.0 | 4.9 | 12.03 | na | 17.0 | 0.05 |
| 1 | 143.0 | K = K @ ARM | 12.9 | na | 17.0 | |
| 7 | 143.0 | | 12.9 | na | | |
| 12 | 143.0 | | 12.97 | na | | |
| 13 | 143.0 | K = K @ ARM | 13.02 | na | 17.07 | |
| 14 | 143.0 | K = K @ ARM | 13.57 | na | 17.44 | |
| 15 | 143.0 | K = K @ ARM | 14.78 | na | 18.19 | |
| 18 | 143.0 | | 18.98 | na | | |
| 21 | 143.0 | | 20.56 | na | | |
| 22 | 143.0 | | 27.25 | na | | |
| A | 143.0 | | 28.39 | na | | |
| B | 133.25 | | 32.99 | na | | |
| C | 123.0 | | 37.84 | na | | |
| D | 123.0 | | 38.24 | na | | |
| E | 111.5 | | 43.5 | na | | |
| TWR1 | 111.5 | | 43.76 | na | | |
| BWR1 | 104.0 | | 50.18 | na | | |
| H | 104.0 | | 50.22 | na | | |
| BKFL | 103.5 | | 50.43 | na | | |
| BASE | 100.0 | | 55.15 | na | | |
| HOSE | 100.0 | | 55.36 | na | | |
| TEST | 160.0 | | 29.38 | na | | |

The maximum velocity is 10.06 and it occurs in the pipe between nodes 15 and 18

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 2



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------|----------------|--------------------------|-------------------------|----------------------------|--------------------------|-------------|------------------------------------|
| TYP to ARM | 17.00 17.0 | 1.049 120.0 0.0963 | E 2.0 T 5.0 0.0 | 2.000 7.000 9.000 | 12.030 0.0 0.867 | | K Factor = 4.90 Vel = 6.31 |
| | 0.0 17.00 | | | | 12.897 | | K Factor = 4.73 |
| 1 to 7 | 17.00 17.0 | 1.682 120.0 0.0080 | 0.0 0.0 0.0 | 0.500 0.0 0.500 | 12.897 0.0 0.004 | | K Factor @ node ARM Vel = 2.45 |
| 7 to 12 | 0.0 17.0 | 1.682 120.0 0.0097 | 0.0 0.0 0.0 | 7.500 0.0 7.500 | 12.901 0.0 0.073 | | Vel = 2.45 |
| 12 to 13 | 0.0 17.0 | 1.682 120.0 0.0096 | 0.0 0.0 0.0 | 4.250 0.0 4.250 | 12.974 0.0 0.041 | | Vel = 2.45 |
| 13 to 14 | 17.07 34.07 | 1.682 120.0 0.0349 | 0.0 0.0 0.0 | 16.000 0.0 16.000 | 13.015 0.0 0.559 | | K Factor @ node ARM Vel = 4.92 |
| 14 to 15 | 17.43 51.5 | 1.682 120.0 0.0752 | 0.0 0.0 0.0 | 16.000 0.0 16.000 | 13.574 0.0 1.203 | | K Factor @ node ARM Vel = 7.44 |
| 15 to 18 | 18.20 69.7 | 1.682 120.0 0.1315 | 0.0 0.0 0.0 | 32.000 0.0 32.000 | 14.777 0.0 4.207 | | K Factor @ node ARM Vel = 10.06 |
| 18 to 21 | 0.0 69.7 | 1.682 120.0 0.1314 | 0.0 0.0 0.0 | 12.000 0.0 12.000 | 18.984 0.0 1.577 | | Vel = 10.06 |
| 21 to 22 | 0.0 69.7 | 1.682 120.0 0.1315 | E 4.95 T 9.9 0.0 | 36.000 14.850 50.850 | 20.561 0.0 6.685 | | Vel = 10.06 |
| 22 to A | 0.0 69.7 | 1.682 120.0 0.1315 | E 4.95 0.0 0.0 | 3.750 4.950 8.700 | 27.246 0.0 1.144 | | Vel = 10.06 |
| A to B | 0.0 69.7 | 2.157 120.0 0.0392 | 0.0 0.0 0.0 | 9.750 0.0 9.750 | 28.390 4.223 0.382 | | Vel = 6.12 |
| B to C | 0.0 69.7 | 2.157 120.0 0.0391 | 0.0 0.0 0.0 | 10.250 0.0 10.250 | 32.995 4.439 0.401 | | Vel = 6.12 |
| C to D | 0.0 69.7 | 2.157 120.0 0.0391 | 0.0 0.0 0.0 | 10.250 0.0 10.250 | 37.835 0.0 0.401 | | Vel = 6.12 |
| D to E | 0.0 69.7 | 2.157 120.0 0.0391 | E 6.153 0.0 0.0 | 1.000 6.153 7.153 | 38.236 4.981 0.280 | | Vel = 6.12 |
| E to TWR1 | 0.0 69.7 | 3.26 120.0 0.0052 | 4E 37.631 0.0 0.0 | 12.000 37.631 49.631 | 43.497 0.0 0.260 | | Vel = 2.68 |

Date: 05/05/16

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 2



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------|--------------|-------------------|-----------------------|----------------------|------------------|-------------|-----------------------------------|
| TWR1 | 0.0 | 3.26 | Fsp 0.0 | 5.500 | 43.757 | | |
| to BWR1 | 69.7 | 120.0 0.0053 | Bvcb 6.72 T 20.159 | 26.879 32.379 | 6.248 0.170 | | ** Fixed Loss = 3 Vel = 2.68 |
| BWR1 | 0.0 | 4.26 | T 26.334 | 2.000 | 50.175 | | |
| to H | 69.7 | 120.0 0.0014 | 0.0 0.0 | 26.334 28.334 | 0.0 0.040 | | Vel = 1.57 |
| H | 0.0 | 4.26 | 0.0 | 0.500 | 50.215 | | |
| to BKFL | 69.7 | 120.0 0.0020 | 0.0 0.0 | 0.0 0.500 | 0.217 0.001 | | Vel = 1.57 |
| BKFL | 0.0 | 4.026 | Zac 0.0 | 0.500 | 50.433 | | |
| to BASE | 69.7 | 120.0 0.0 | 0.0 0.0 | 0.0 0.500 | 4.716 0.0 | | ** Fixed Loss = 3.2 Vel = 1.76 |
| BASE | 0.0 | 4.07 | 2E 31.864 | 115.000 | 55.149 | | |
| to HOSE | 69.7 | 150.0 0.0012 | T 31.864 G 3.186 | 66.914 181.914 | 0.0 0.214 | | Vel = 1.72 |
| HOSE | 0.0 | 20.57 | 0.0 | 685.000 | 55.363 | | |
| to TEST | 69.7 | 140.0 0.0 | 0.0 0.0 | 0.0 685.000 | -25.986 0.001 | | Vel = 0.07 |
| | 0.0 69.70 | | | | | 29.378 | K Factor = 12.86 |

Date: 05/05/16

Water Supply Curve C

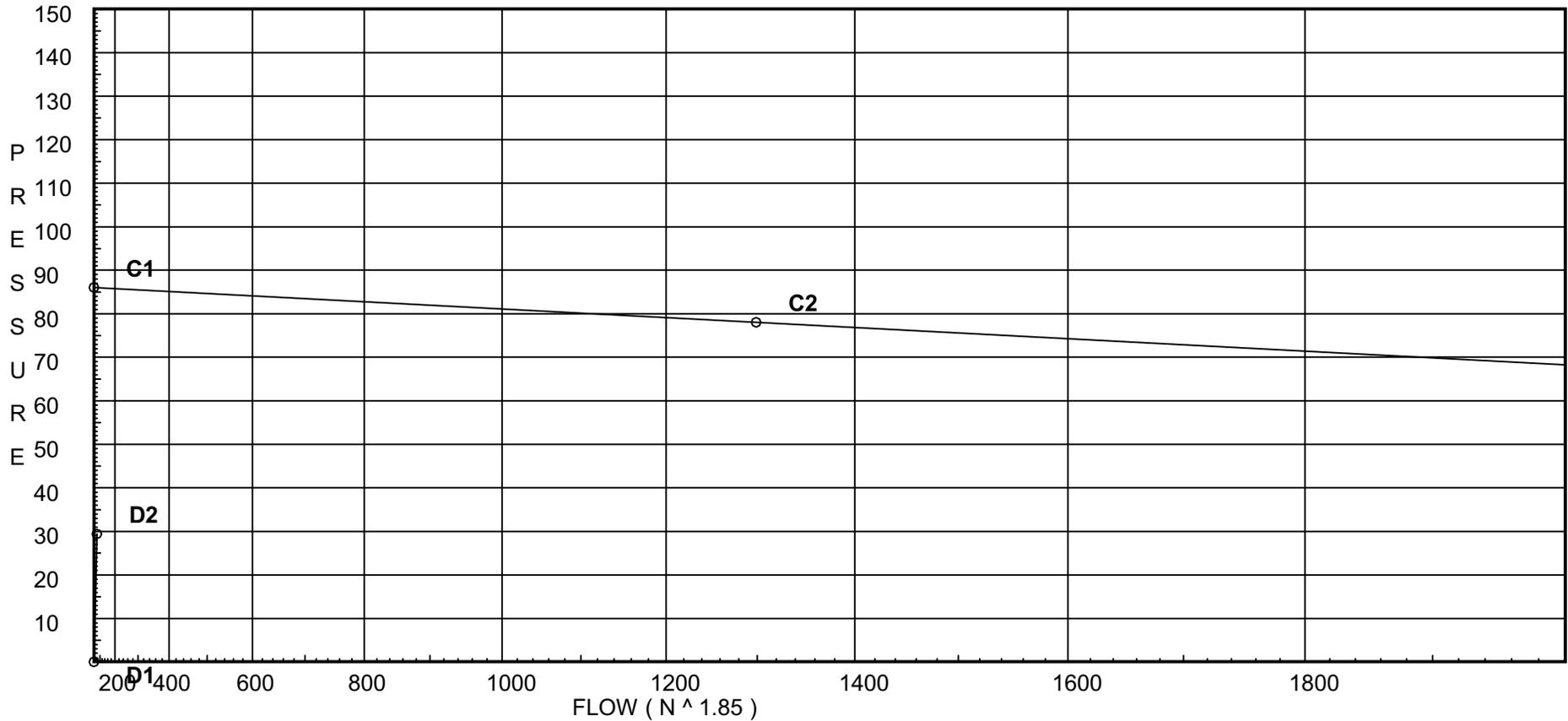
SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 2



City Water Supply:
C1 - Static Pressure : 86
C2 - Residual Pressure: 78
C2 - Residual Flow : 1299

Demand:
D1 - El
D2 - Sy
D2 - Sy
Hose (Date: 05/05/16
D3 - Sy
Safety Margin : 56.586

Reviewed for Code Compliance
Inspections Division
Approved with Conditions



SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 3



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Hydraulic Design Information Sheet

Name - 89 ANDERSON STREET APARTMENTS AREA 3 Date - 3/1
 Location - 89 ANDERSON STREET PORTLAND, MAINE
 Building - NEW System No. - 1 WE
 Contractor - SPRINKLER SYSTEMS INC Contract No. - 15- Date: 05/05/16
 Calculated By - CDS Drawing No. - 1-3
 Construction: (X) Combustible () Non-Combustible Ceiling Height - VARIES
 Occupancy - APARTMENTS

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

S Other NFPA 13R

T Specific Ruling Made By Date

| M | Area of Sprinkler Operation | - 4 HEADS | System Type | Sprinkler/Nozzle |
|---|-----------------------------|-----------|---------------|-------------------|
| | Density | - .05 | (X) Wet | Make RELIABLE |
| D | Area Per Sprinkler | - 324 | () Dry | Model F1RES44 |
| E | Elevation at Highest Outlet | - 143 | () Deluge | Size 3/8" X 1/2" |
| S | Hose Allowance - Inside | - 0 | () Preaction | K-Factor 4.4 |
| I | Rack Sprinkler Allowance | - 0 | () Other | Temp.Rat.155 DEG. |
| G | Hose Allowance - Outside | - 0 | | |

N Note

Calculation Flow Required - 62.03 Press Required - 77.191 AT BASE
 Summary C-Factor Used: 150 Overhead 150 Underground

| W | Water Flow Test: | Pump Data: | Tank or Reservoir: |
|---|------------------------|-------------|--------------------|
| A | Date of Test - 5-23-15 | | Cap. - |
| T | Time of Test - AM | Rated Cap.- | Elev.- |
| E | Static Press - 86 | @ Press - | |
| R | Residual Press - 78 | Elev. - | Well |
| | Flow - 1299 | | Proof Flow |
| S | Elevation - 160.0' | | |

U Location - ON SITE

L Source of Information - OWNER AND WATER DISTRICT

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

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

E Horizontal Barriers Provided:

Pressure / Flow Summary - STANDARD

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 3



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/05/16

| Node No. | Elevation | K-Fact | Pt Actual | Pn | Flow Actual | Density |
|----------|-----------|--------------|-----------|----|-------------|---------|
| TYP | 0.0 | 4.9 | 12.03 | na | 17.0 | 0.05 |
| 4 | 143.0 | 4.4 | 21.02 | na | 20.18 | 0.05 |
| 2 | 143.0 | 4.4 | 18.7 | na | 19.03 | 0.05 |
| 3 | 143.0 | | 20.85 | na | | |
| 5 | 143.0 | | 21.57 | na | | |
| 6 | 143.0 | K = K @ DROP | 22.75 | na | 22.83 | |
| 7 | 143.0 | | 34.88 | na | | |
| 12 | 143.0 | | 35.67 | na | | |
| 13 | 143.0 | | 36.12 | na | | |
| 14 | 143.0 | | 37.82 | na | | |
| 15 | 143.0 | | 39.51 | na | | |
| 18 | 143.0 | | 42.9 | na | | |
| 21 | 143.0 | | 44.18 | na | | |
| 22 | 143.0 | | 49.57 | na | | |
| A | 143.0 | | 50.49 | na | | |
| B | 133.25 | | 55.02 | na | | |
| C | 123.0 | | 59.78 | na | | |
| D | 123.0 | | 60.1 | na | | |
| E | 111.5 | | 65.31 | na | | |
| TWR1 | 111.5 | | 65.52 | na | | |
| BWR1 | 104.0 | | 71.9 | na | | |
| H | 104.0 | | 71.94 | na | | |
| BKFL | 103.5 | | 72.15 | na | | |
| BASE | 100.0 | | 77.19 | na | | |
| HOSE | 100.0 | | 77.36 | na | | |
| TEST | 160.0 | | 51.38 | na | | |

The maximum velocity is 20.9 and it occurs in the pipe between nodes 6 and 7

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 3



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftnng's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------|----------------|--------------------------|---------------------------------|----------------------------|-------------------------|----------|-------------------------------------|
| TYP to DROP | 17.00 17.0 | 1.049 120.0 0.0963 | T 5.0 0.0 0.0 | 1.000 5.000 6.000 | 12.030 0.0 0.578 | | K Factor = 4.90 Vel = 6.31 |
| | 0.0 17.00 | | | | 12.608 | | K Factor = 4.79 |
| 4 to 5 | 20.18 20.18 | 1.101 150.0 0.0691 | E 3.825 0.0 0.0 | 4.000 3.825 7.825 | 21.025 0.0 0.541 | | K Factor = 4.40 Vel = 6.80 |
| | 0.0 20.18 | | | | 21.566 | | K Factor = 4.35 |
| 2 to 3 | 19.03 19.03 | 1.101 150.0 0.0620 | 2T 19.125 0.0 0.0 | 15.500 19.126 34.626 | 18.700 0.0 2.148 | | K Factor = 4.40 Vel = 6.41 |
| 3 to 5 | 0.0 19.03 | 1.101 150.0 0.0621 | T 9.563 0.0 0.0 | 2.000 9.562 11.562 | 20.848 0.0 0.718 | | Vel = 6.41 |
| 5 to 6 | 20.17 39.2 | 1.101 150.0 0.2362 | 0.0 0.0 0.0 | 5.000 0.0 5.000 | 21.566 0.0 1.181 | | Vel = 13.21 |
| 6 to 7 | 22.83 62.03 | 1.101 150.0 0.5523 | T 9.563 2E 7.65 0.0 | 4.750 17.212 21.962 | 22.747 0.0 12.130 | | K Factor @ node DROP Vel = 20.90 |
| 7 to 12 | 0.0 62.03 | 1.682 120.0 0.1060 | 0.0 0.0 0.0 | 7.500 0.0 7.500 | 34.877 0.0 0.795 | | Vel = 8.96 |
| 12 to 13 | 0.0 62.03 | 1.682 120.0 0.1059 | 0.0 0.0 0.0 | 4.250 0.0 4.250 | 35.672 0.0 0.450 | | Vel = 8.96 |
| 13 to 14 | 0.0 62.03 | 1.682 120.0 0.1060 | 0.0 0.0 0.0 | 16.000 0.0 16.000 | 36.122 0.0 1.696 | | Vel = 8.96 |
| 14 to 15 | 0.0 62.03 | 1.682 120.0 0.1060 | 0.0 0.0 0.0 | 16.000 0.0 16.000 | 37.818 0.0 1.696 | | Vel = 8.96 |
| 15 to 18 | 0.0 62.03 | 1.682 120.0 0.1060 | 0.0 0.0 0.0 | 32.000 0.0 32.000 | 39.514 0.0 3.391 | | Vel = 8.96 |
| 18 to 21 | 0.0 62.03 | 1.682 120.0 0.1060 | 0.0 0.0 0.0 | 12.000 0.0 12.000 | 42.905 0.0 1.272 | | Vel = 8.96 |
| 21 to 22 | 0.0 62.03 | 1.682 120.0 0.1060 | E 4.95 T 9.9 0.0 | 36.000 14.850 50.850 | 44.177 0.0 5.388 | | Vel = 8.96 |
| 22 to A | 0.0 62.03 | 1.682 120.0 0.1060 | E 4.95 0.0 | 3.750 4.950 8.700 | 49.565 0.0 0.922 | | Vel = 8.96 |

Date: 05/05/16

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 3



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------|----------|-------------------|---------------------|-------------------|-------------|-------------|----------------------|
| A | 0.0 | 2.157 | | 9.750 | 50.487 | | |
| to B | | 120.0 | | 0.0 | 4.223 | | |
| B | 62.03 | 0.0316 | | 9.750 | 0.308 | | Vel = 5.45 |
| B | 0.0 | 2.157 | | 10.250 | 55.018 | | |
| to C | | 120.0 | | 0.0 | 4.439 | | |
| C | 62.03 | 0.0315 | | 10.250 | 0.323 | | Vel = 5.45 |
| C | 0.0 | 2.157 | | 10.250 | 59.780 | | |
| to D | | 120.0 | | 0.0 | 0.0 | | |
| D | 62.03 | 0.0316 | | 10.250 | 0.324 | | Vel = 5.45 |
| D | 0.0 | 2.157 | E 6.153 | 1.000 | 60.104 | | |
| to E | | 120.0 | | 0.0 | 6.153 | | |
| E | 62.03 | 0.0315 | | 7.153 | 0.225 | | Vel = 5.45 |
| E | 0.0 | 3.26 | 4E 37.631 | 12.000 | 65.310 | | |
| to TWR1 | | 120.0 | | 0.0 | 0.0 | | |
| TWR1 | 62.03 | 0.0042 | | 49.631 | 0.210 | | Vel = 2.38 |
| TWR1 | 0.0 | 3.26 | Fsp 0.0 | 5.500 | 65.520 | | |
| to BWR1 | | 120.0 | Bvcb 6.72 | 26.879 | 6.248 | | ** Fixed Loss = 3 |
| BWR1 | 62.03 | 0.0042 | T 20.159 | 32.379 | 0.137 | | Vel = 2.38 |
| BWR1 | 0.0 | 4.26 | T 26.334 | 2.000 | 71.905 | | |
| to H | | 120.0 | | 0.0 | 0.0 | | |
| H | 62.03 | 0.0012 | | 28.334 | 0.033 | | Vel = 1.40 |
| H | 0.0 | 4.26 | | 0.500 | 71.938 | | |
| to BKFL | | 120.0 | | 0.0 | 0.217 | | |
| BKFL | 62.03 | 0.0 | | 0.500 | 0.0 | | Vel = 1.40 |
| BKFL | 0.0 | 4.026 | Zac 0.0 | 0.500 | 72.155 | | |
| to BASE | | 120.0 | | 0.0 | 5.036 | | ** Fixed Loss = 3.52 |
| BASE | 62.03 | 0.0 | | 0.500 | 0.0 | | Vel = 1.56 |
| BASE | 0.0 | 4.07 | 2E 31.864 | 115.000 | 77.191 | | |
| to HOSE | | 150.0 | T 31.864 | 66.914 | 0.0 | | |
| HOSE | 62.03 | 0.0010 | G 3.186 | 181.914 | 0.173 | | Vel = 1.53 |
| HOSE | 0.0 | 20.57 | | 685.000 | 77.364 | | |
| to TEST | | 140.0 | | 0.0 | -25.986 | | |
| TEST | 62.03 | 0.0 | | 685.000 | 0.0 | | Vel = 0.06 |
| | 0.0 | | | | | | |
| | 62.03 | | | | 51.378 | | K Factor = 8.65 |

Water Supply Curve C

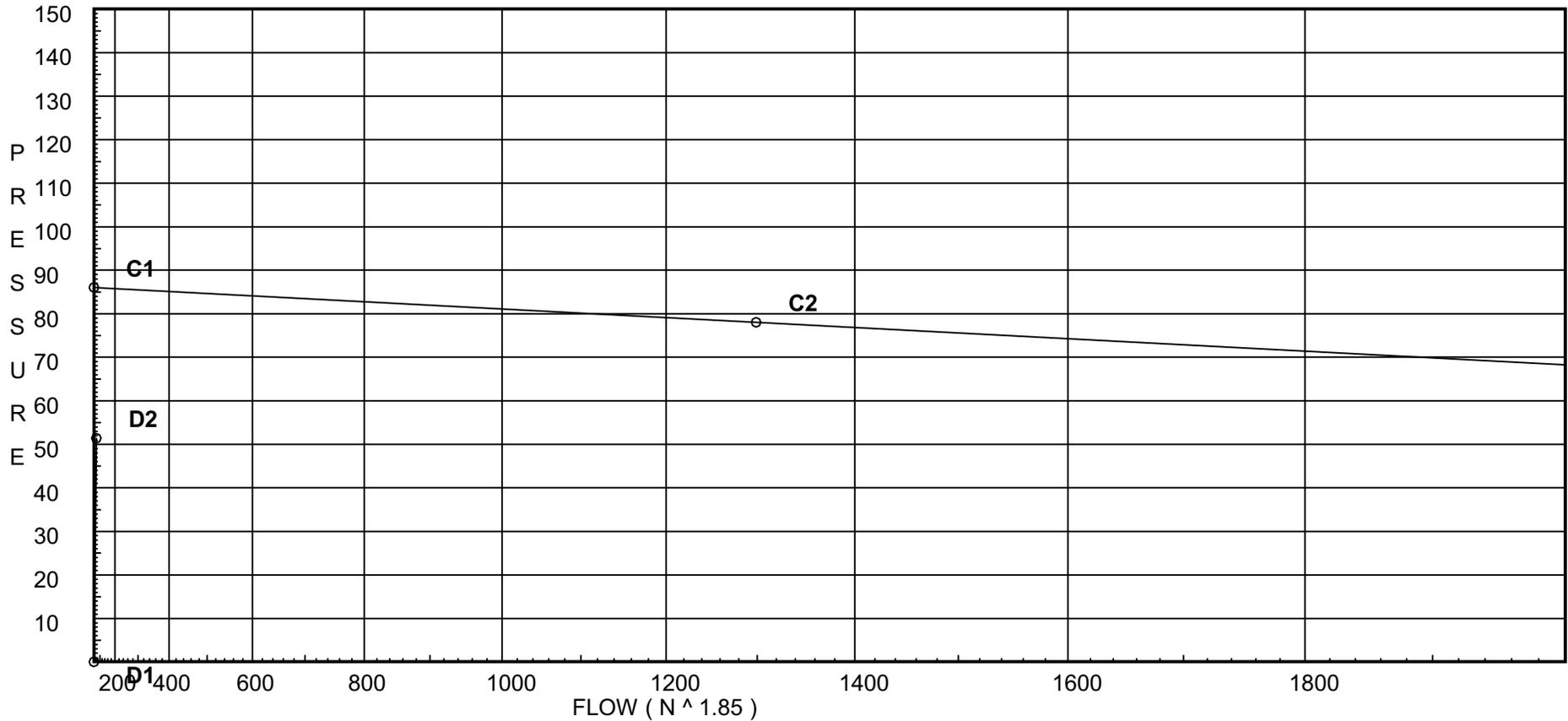
SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 3



City Water Supply:
C1 - Static Pressure : 86
C2 - Residual Pressure: 78
C2 - Residual Flow : 1299

Demand:
D1 - El
D2 - Sy
D2 - Sy
Hose (Date: 05/05/16
D3 - Sy
Safety Margin : 34.593

Reviewed for Code Compliance
Inspections Division
Approved with Conditions



SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 4



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Hydraulic Design Information Sheet

Name - 89 ANDERSON STREET APARTMENTS AREA 4 Date - 3/1
 Location - 89 ANDERSON STREET PORTLAND, MAINE
 Building - NEW System No. - 1 WE1
 Contractor - SPRINKLER SYSTEMS INC Contract No. - 15- Date: 05/05/16
 Calculated By - CDS Drawing No. - 1-3
 Construction: (X) Combustible () Non-Combustible Ceiling Height - VARIES
 Occupancy - APARTMENTS

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

S Other NFPA 13R
 T Specific Ruling

Made By Date

| M | Area of Sprinkler Operation | - 4 HEADS | System Type | Sprinkler/Nozzle |
|---|-----------------------------|-----------|---------------|-------------------|
| | Density | - .15 | (X) Wet | Make RELIABLE |
| D | Area Per Sprinkler | - 130 | () Dry | Model F1FR56 |
| E | Elevation at Highest Outlet | - 143 | () Deluge | Size 1/2" X 1/2" |
| S | Hose Allowance - Inside | - 0 | () Preaction | K-Factor 5.6 |
| I | Rack Sprinkler Allowance | - 0 | () Other | Temp.Rat.200 DEG. |
| G | Hose Allowance - Outside | - 0 | | |

N Note

Calculation Flow Required - 80.04 Press Required - 62.715 AT BASE
 Summary C-Factor Used: 120 Overhead 150 Underground

| W | Water Flow Test: | Pump Data: | Tank or Reservoir: |
|---|------------------------|-------------|--------------------|
| A | Date of Test - 5-23-15 | | Cap. - |
| T | Time of Test - AM | Rated Cap.- | Elev.- |
| E | Static Press - 86 | @ Press - | |
| R | Residual Press - 78 | Elev. - | Well |
| | Flow - 1299 | | Proof Flow |
| S | Elevation - 160.0' | | |

U Location - ON SITE

P Source of Information - OWNER AND WATER DISTRICT

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

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

E Horizontal Barriers Provided:

Pressure / Flow Summary - STANDARD

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 4



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/05/16
130 7.0

| Node No. | Elevation | K-Fact | Pt Actual | Pn | Flow Actual | Density |
|----------|-----------|-------------|-----------|----|-------------|---------|
| TYP | 0.0 | 5.6 | 12.13 | na | 19.5 | 0.15 |
| 19 | 143.0 | 5.6 | 12.22 | na | 19.58 | 0.15 |
| 20 | 143.0 | K = K @ ARM | 14.22 | na | 20.35 | |
| 16 | 143.0 | 5.6 | 12.13 | na | 19.5 | 0.15 |
| 17 | 143.0 | 5.6 | 13.55 | na | 20.62 | 0.15 |
| 18 | 143.0 | | 25.11 | na | | |
| 21 | 143.0 | | 25.68 | na | | |
| 22 | 143.0 | | 34.31 | na | | |
| A | 143.0 | | 35.79 | na | | |
| B | 133.25 | | 40.51 | na | | |
| C | 123.0 | | 45.46 | na | | |
| D | 123.0 | | 45.98 | na | | |
| E | 111.5 | | 51.32 | na | | |
| TWR1 | 111.5 | | 51.66 | na | | |
| BWR1 | 104.0 | | 58.13 | na | | |
| H | 104.0 | | 58.18 | na | | |
| BKFL | 103.5 | | 58.4 | na | | |
| BASE | 100.0 | | 62.71 | na | | |
| HOSE | 100.0 | | 62.99 | na | | |
| TEST | 160.0 | | 37.01 | na | | |

The maximum velocity is 14.89 and it occurs in the pipe between nodes 17 and 18

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 4



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. | Ln. | Pipe Ftg's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------|----------------|--------------------------|------------------|-----------------------|----------------------------|--------------------------|-------------|------------------------------------|
| TYP to ARM | 19.50 19.5 | 1.049 120.0 0.1243 | T | 5.0 0.0 0.0 | 2.500 5.000 7.500 | 12.125 0.0 0.932 | | K Factor = 5.60 Vel = 7.24 |
| | 0.0 19.50 | | | | | | | K Factor = 5.40 |
| 19 to 20 | 19.58 | 1.049 120.0 0.1251 | E | 2.0 0.0 0.0 | 14.000 2.000 16.000 | 12.220 0.0 2.002 | | K Factor = 5.60 Vel = 7.27 |
| 20 to 21 | 20.35 39.93 | 1.049 120.0 0.4676 | T | 5.0 0.0 0.0 | 19.500 5.000 24.500 | 14.222 0.0 11.455 | | K Factor @ node ARM Vel = 14.82 |
| | 0.0 39.93 | | | | | | | K Factor = 7.88 |
| 16 to 17 | 19.50 19.5 | 1.049 120.0 0.1242 | | 0.0 0.0 0.0 | 11.500 0.0 11.500 | 12.125 0.0 1.428 | | K Factor = 5.60 Vel = 7.24 |
| 17 to 18 | 20.62 40.12 | 1.049 120.0 0.4717 | T | 5.0 0.0 0.0 | 19.500 5.000 24.500 | 13.553 0.0 11.556 | | K Factor = 5.60 Vel = 14.89 |
| 18 to 21 | 0.0 40.12 | 1.682 120.0 0.0473 | | 0.0 0.0 0.0 | 12.000 0.0 12.000 | 25.109 0.0 0.568 | | Vel = 5.79 |
| 21 to 22 | 39.92 80.04 | 1.682 120.0 0.1698 | E T | 4.95 9.9 0.0 | 36.000 14.850 50.850 | 25.677 0.0 8.636 | | Vel = 11.56 |
| 22 to A | 0.0 80.04 | 1.682 120.0 0.1698 | E | 4.95 0.0 0.0 | 3.750 4.950 8.700 | 34.313 0.0 1.477 | | Vel = 11.56 |
| A to B | 0.0 80.04 | 2.157 120.0 0.0506 | | 0.0 0.0 0.0 | 9.750 0.0 9.750 | 35.790 4.223 0.493 | | Vel = 7.03 |
| B to C | 0.0 80.04 | 2.157 120.0 0.0506 | | 0.0 0.0 0.0 | 10.250 0.0 10.250 | 40.506 4.439 0.519 | | Vel = 7.03 |
| C to D | 0.0 80.04 | 2.157 120.0 0.0505 | | 0.0 0.0 0.0 | 10.250 0.0 10.250 | 45.464 0.0 0.518 | | Vel = 7.03 |
| D to E | 0.0 80.04 | 2.157 120.0 0.0506 | E | 6.153 0.0 0.0 | 1.000 6.153 7.153 | 45.982 4.981 0.362 | | Vel = 7.03 |
| E to TWR1 | 0.0 80.04 | 3.26 120.0 0.0068 | 4E | 37.631 0.0 0.0 | 12.000 37.631 49.631 | 51.325 0.0 0.336 | | Vel = 3.08 |
| TWR1 to BWR1 | 0.0 80.04 | 3.26 120.0 0.0068 | Fsp Bvcb T | 0.0 6.72 20.159 | 5.500 26.879 32.379 | 51.661 6.248 0.219 | | ** Fixed Loss = 3 Vel = 3.08 |

Date: 05/05/16

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 4



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------------|----------|----------------------|---------------------------|-------------------------|----------------|----------------|---------------------|
| BWR1 | 0.0 | 4.26 | T | 26.334 | 2.000 | 58.128 | |
| to | | 120.0 | | 0.0 | 26.334 | 0.0 | |
| H | 80.04 | 0.0018 | | 0.0 | 28.334 | 0.052 | Vel = 1.80 |
| H | 0.0 | 4.26 | | 0.0 | 0.500 | 58.180 | |
| to | | 120.0 | | 0.0 | 0.0 | 0.217 | |
| BKFL | 80.04 | 0.0020 | | 0.0 | 0.500 | 0.001 | Vel = 1.80 |
| BKFL | 0.0 | 4.026 | Zac | 0.0 | 0.500 | 58.398 | |
| to | | 120.0 | | 0.0 | 0.0 | 4.316 | ** Fixed Loss = 2.8 |
| BASE | 80.04 | 0.0020 | | 0.0 | 0.500 | 0.001 | Vel = 2.02 |
| BASE | 0.0 | 4.07 | 2E | 31.864 | 115.000 | 62.715 | |
| to | | 150.0 | T | 31.864 | 66.914 | 0.0 | |
| HOSE | 80.04 | 0.0015 | G | 3.186 | 181.914 | 0.276 | Vel = 1.97 |
| HOSE | 0.0 | 20.57 | | 0.0 | 685.000 | 62.991 | |
| to | | 140.0 | | 0.0 | 0.0 | -25.986 | |
| TEST | 80.04 | 0.0 | | 0.0 | 685.000 | 0.001 | Vel = 0.08 |
| | 0.0 | | | | | | |
| | 80.04 | | | | | 37.006 | K Factor = 13.16 |

Date: 05/05/16

Water Supply Curve C

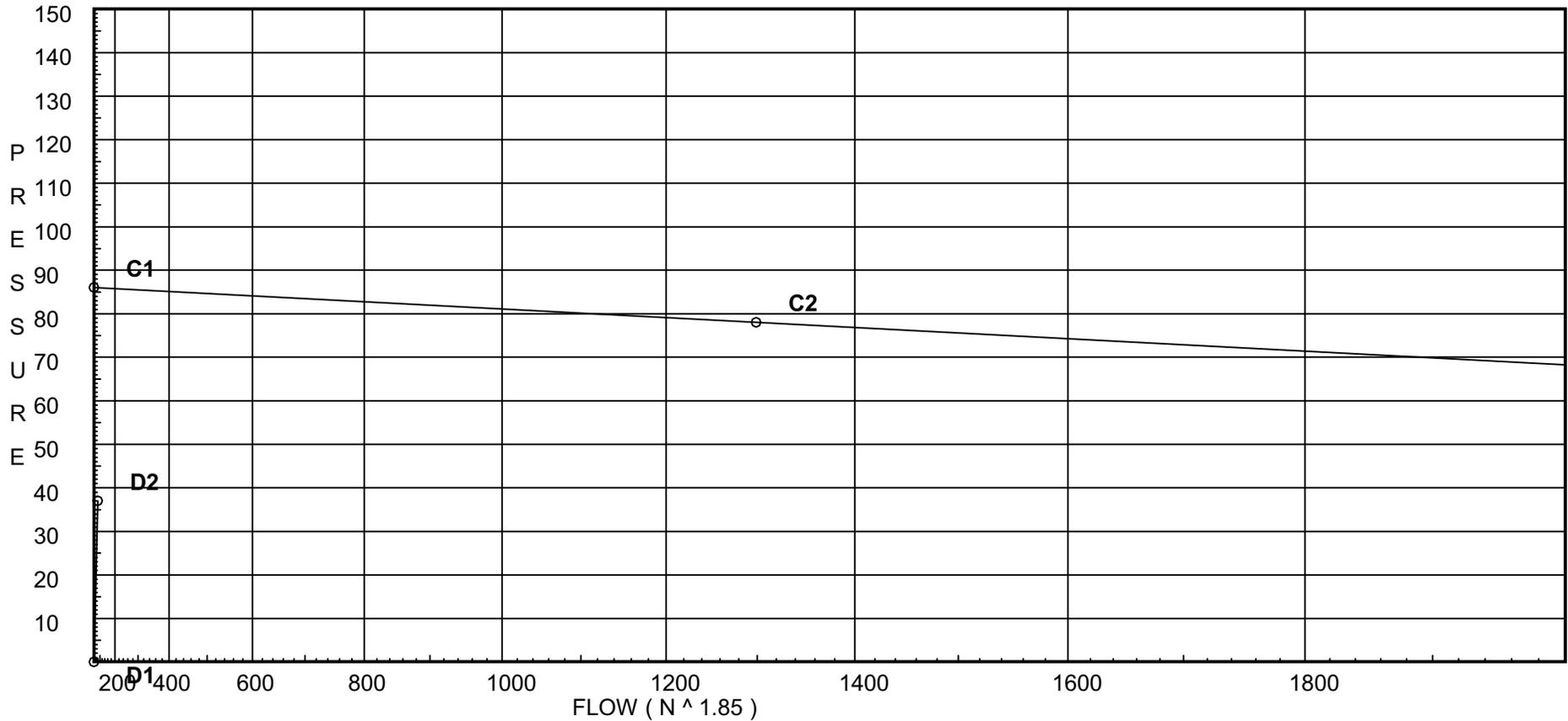
SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 4



City Water Supply:
C1 - Static Pressure : 86
C2 - Residual Pressure: 78
C2 - Residual Flow : 1299

Demand:
D1 - El
D2 - Sy
D2 - Sy
Hose (Date: 05/05/16
D3 - Sy
Safety Margin : 48.948

Reviewed for Code Compliance
Inspections Division
Approved with Conditions



SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 5



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Hydraulic Design Information Sheet

Name - 89 ANDERSON STREET APARTMENTS AREA 5 Date - 3/1
 Location - 89 ANDERSON STREET PORTLAND, MAINE
 Building - NEW System No. - 1 WE
 Contractor - SPRINKLER SYSTEMS INC Contract No. - 15- Date: 05/05/16
 Calculated By - CDS Drawing No. - 1-3
 Construction: (X) Combustible () Non-Combustible Ceiling Height - VARIES
 Occupancy - RETAIL

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

S Other NFPA 13R
 T Specific Ruling

Made By Date

| | | | | |
|---|-----------------------------|-----------|---------------|-------------------|
| M | Area of Sprinkler Operation | - 923 | System Type | Sprinkler/Nozzle |
| | Density | - .20 | (X) Wet | Make RELIABLE |
| D | Area Per Sprinkler | - 130 | () Dry | Model F1FR56 |
| E | Elevation at Highest Outlet | - 111.500 | () Deluge | Size 1/2" X 1/2" |
| S | Hose Allowance - Inside | - 0 | () Preaction | K-Factor 5.6 |
| I | Rack Sprinkler Allowance | - 0 | () Other | Temp.Rat.155 DEG. |
| G | Hose Allowance - Outside | - 250 | | |

N Note

Calculation Flow Required - 369.60 Press Required - 78.038 AT BASE
 Summary C-Factor Used: 120 Overhead 150 Underground

| | | | |
|---|------------------------|-------------|--------------------|
| W | Water Flow Test: | Pump Data: | Tank or Reservoir: |
| A | Date of Test - 5-23-15 | | Cap. - |
| T | Time of Test - AM | Rated Cap.- | Elev.- |
| E | Static Press - 86 | @ Press - | |
| R | Residual Press - 78 | Elev. - | Well |
| | Flow - 1299 | | Proof Flow |
| S | Elevation - 160.0' | | |

U Location - ON SITE

P Source of Information - OWNER AND WATER DISTRICT

| | | | |
|---|-----------------|--------------------|------------------------------|
| 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 | () Double Row | () Slave Pallet | () Solid Shelf () Non |
| T | () Mult. Row | | () Open Shelf |

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

E Horizontal Barriers Provided:

Pressure / Flow Summary - STANDARD

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 5



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/05/16

| Node No. | Elevation | K-Fact | Pt Actual | Pn | Flow Actual | Density |
|----------|-----------|--------------|-----------|----|-------------|---------|
| TYP | 0.0 | 5.6 | 21.56 | na | 26.0 | 0.2 |
| TYP1 | 0.0 | 5.6 | 21.56 | na | 26.0 | 0.2 |
| ARM1 | 111.5 | 5.6 | 21.56 | na | 26.0 | 0.2 |
| 114 | 111.5 | K = K @ DROP | 44.89 | na | 36.46 | |
| 115 | 111.5 | | 45.38 | na | | |
| 107 | 111.5 | K = K @ DROP | 24.49 | na | 26.93 | |
| 108 | 111.5 | | 24.52 | na | | |
| 109 | 111.5 | K = K @ DROP | 25.15 | na | 27.29 | |
| 110 | 111.5 | K = K @ DROP | 26.85 | na | 28.2 | |
| 111 | 111.5 | K = K @ DROP | 29.83 | na | 29.72 | |
| 112 | 111.5 | K = K @ DROP | 34.49 | na | 31.96 | |
| 101 | 111.5 | K = K @ DROP | 33.37 | na | 31.44 | |
| 102 | 111.5 | K = K @ DROP | 33.67 | na | 31.58 | |
| 103 | 111.5 | K = K @ DROP | 34.76 | na | 32.09 | |
| 104 | 111.5 | K = K @ DROP | 37.1 | na | 33.15 | |
| 105 | 111.5 | | 41.63 | na | | |
| 106 | 111.5 | K = K @ ARM | 41.96 | na | 34.77 | |
| 113 | 111.5 | | 42.99 | na | | |
| 116 | 111.5 | | 45.42 | na | | |
| 117 | 111.5 | | 51.43 | na | | |
| E | 111.5 | | 56.11 | na | | |
| TWR1 | 111.5 | | 61.8 | na | | |
| BWR1 | 104.0 | | 71.77 | na | | |
| H | 104.0 | | 72.65 | na | | |
| BKFL | 103.5 | | 72.88 | na | | |
| BASE | 100.0 | | 78.04 | na | | |
| HOSE | 100.0 | | 82.72 | na | 250.0 | |
| TEST | 160.0 | | 56.76 | na | | |

The maximum velocity is 24.56 and it occurs in the pipe between nodes 112 and 113

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 5



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------|-----------------|--------------------------|------------------------|---------------------------|------------------------|-------------|-------------------------------------|
| TYP to DROP | 26.00 26.0 | 1.049 120.0 0.2115 | T 5.0 0.0 0.0 | 1.000 5.000 6.000 | 21.556 0.0 1.269 | | K Factor = 5.60 Vel = 9.65 |
| | 0.0 26.00 | | | | 22.825 | | K Factor = 5.44 |
| TYP1 to ARM | 26.00 26.0 | 1.049 120.0 0.2114 | E 2.0 T 5.0 0.0 | 2.000 7.000 9.000 | 21.556 0.0 1.903 | | K Factor = 5.60 Vel = 9.65 |
| | 0.0 26.00 | | | | 23.459 | | K Factor = 5.37 |
| ARM1 to 108 | 26.00 26.0 | 1.049 120.0 0.2114 | 2E 4.0 T 5.0 0.0 | 5.000 9.000 14.000 | 21.556 0.0 2.960 | | K Factor = 5.60 Vel = 9.65 |
| | 0.0 26.00 | | | | 24.516 | | K Factor = 5.25 |
| 114 to 115 | 36.46 36.46 | 1.682 120.0 0.0396 | T 9.9 0.0 0.0 | 2.500 9.900 12.400 | 44.889 0.0 0.491 | | K Factor @ node DROP Vel = 5.26 |
| 115 to 116 | 0.0 36.46 | 3.26 120.0 0.0016 | T 20.159 0.0 0.0 | 3.000 20.159 23.159 | 45.380 0.0 0.037 | | Vel = 1.40 |
| | 0.0 36.46 | | | | 45.417 | | K Factor = 5.41 |
| 107 to 108 | 26.93 26.93 | 1.682 120.0 0.0220 | 0.0 0.0 0.0 | 1.000 0.0 1.000 | 24.494 0.0 0.022 | | K Factor @ node DROP Vel = 3.89 |
| 108 to 109 | 26.00 52.93 | 1.682 120.0 0.0790 | 0.0 0.0 0.0 | 8.000 0.0 8.000 | 24.516 0.0 0.632 | | Vel = 7.64 |
| 109 to 110 | 27.30 80.23 | 1.682 120.0 0.1706 | 0.0 0.0 0.0 | 10.000 0.0 10.000 | 25.148 0.0 1.706 | | K Factor @ node DROP Vel = 11.58 |
| 110 to 111 | 28.20 108.43 | 1.682 120.0 0.2978 | 0.0 0.0 0.0 | 10.000 0.0 10.000 | 26.854 0.0 2.978 | | K Factor @ node DROP Vel = 15.66 |
| 111 to 112 | 29.72 138.15 | 1.682 120.0 0.4661 | 0.0 0.0 0.0 | 10.000 0.0 10.000 | 29.832 0.0 4.661 | | K Factor @ node DROP Vel = 19.95 |
| 112 to 113 | 31.96 170.11 | 1.682 120.0 0.6851 | T 9.9 0.0 0.0 | 2.500 9.900 12.400 | 34.493 0.0 8.495 | | K Factor @ node DROP Vel = 24.56 |
| | 0.0 170.11 | | | | 42.988 | | K Factor = 25.95 |
| 101 to 102 | 31.44 31.44 | 1.682 120.0 0.0301 | 0.0 0.0 0.0 | 10.000 0.0 10.000 | 33.372 0.0 0.301 | | K Factor @ node DROP Vel = 4.54 |

Date: 05/05/16

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 5



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------|---------------|--------------------|----------------------------------|--------------------------|----------------------|----------------------|-------------------------------------|
| 102 to 103 | 31.58 63.02 | 1.682 120.0 0.1091 | | 10.000 0.0 10.000 | 33.673 0.0 1.091 | | K Factor @ node DROP Vel = 9.10 |
| 103 to 104 | 32.09 95.11 | 1.682 120.0 0.2337 | | 10.000 0.0 10.000 | 34.764 0.0 2.337 | | K Factor @ node DROP Vel = 13.73 |
| 104 to 105 | 33.14 128.25 | 1.682 120.0 0.4062 | T 9.9 | 1.250 0.0 9.900 11.150 | 37.101 0.0 4.529 | | K Factor @ node DROP Vel = 18.52 |
| 105 to 106 | 0.0 128.25 | 3.26 120.0 0.0162 | E 9.408 | 11.000 0.0 9.408 20.408 | 41.630 0.0 0.331 | | Vel = 4.93 |
| 106 to 113 | 34.78 163.03 | 3.26 120.0 0.0252 | 3E 28.223 | 12.500 0.0 28.223 40.723 | 41.961 0.0 1.027 | | K Factor @ node ARM Vel = 6.27 |
| 113 to 116 | 170.11 333.14 | 3.26 120.0 0.0947 | T 20.159 | 5.500 0.0 20.159 25.659 | 42.988 0.0 2.429 | | Vel = 12.81 |
| 116 to 117 | 36.46 369.6 | 3.26 120.0 0.1147 | E 9.408 | 43.000 0.0 9.408 52.408 | 45.417 0.0 6.012 | | Vel = 14.21 |
| 117 to E | 0.0 369.6 | 3.26 120.0 0.1147 | 2E 18.815 | 22.000 0.0 18.815 40.815 | 51.429 0.0 4.681 | | Vel = 14.21 |
| E to TWR1 | 0.0 369.6 | 3.26 120.0 0.1147 | 4E 37.631 | 12.000 0.0 37.631 49.631 | 56.110 0.0 5.694 | | Vel = 14.21 |
| TWR1 to BWR1 | 0.0 369.6 | 3.26 120.0 0.1147 | Fsp 0.0 Bvcb 6.72 T 20.159 | 5.500 6.72 20.159 32.379 | 61.804 6.248 3.714 | ** Fixed Loss = 3 | Vel = 14.21 |
| BWR1 to H | 0.0 369.6 | 4.26 120.0 0.0312 | T 26.334 | 2.000 0.0 26.334 28.334 | 71.766 0.0 0.883 | | Vel = 8.32 |
| H to BKFL | 0.0 369.6 | 4.26 120.0 0.0300 | | 0.0 0.0 0.500 0.500 | 72.649 0.217 0.015 | | Vel = 8.32 |
| BKFL to BASE | 0.0 369.6 | 4.026 120.0 0.0420 | Zac 0.0 | 0.500 0.0 0.500 0.500 | 72.881 5.136 0.021 | ** Fixed Loss = 3.62 | Vel = 9.31 |
| BASE to HOSE | 0.0 369.6 | 4.07 150.0 0.0258 | 2E 31.864 T 31.864 G 3.186 | 115.000 66.914 181.914 | 78.038 0.0 4.686 | | Vel = 9.11 |
| HOSE to TEST | 250.00 619.6 | 20.57 140.0 0.0 | | 0.0 0.0 685.000 685.000 | 82.724 -25.986 0.019 | | Qa = 250 Vel = 0.60 |

Date: 05/05/16

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 5



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

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

Date: 05/05/16

0.0
619.60

56.757

K Factor = 82.24

Water Supply Curve C

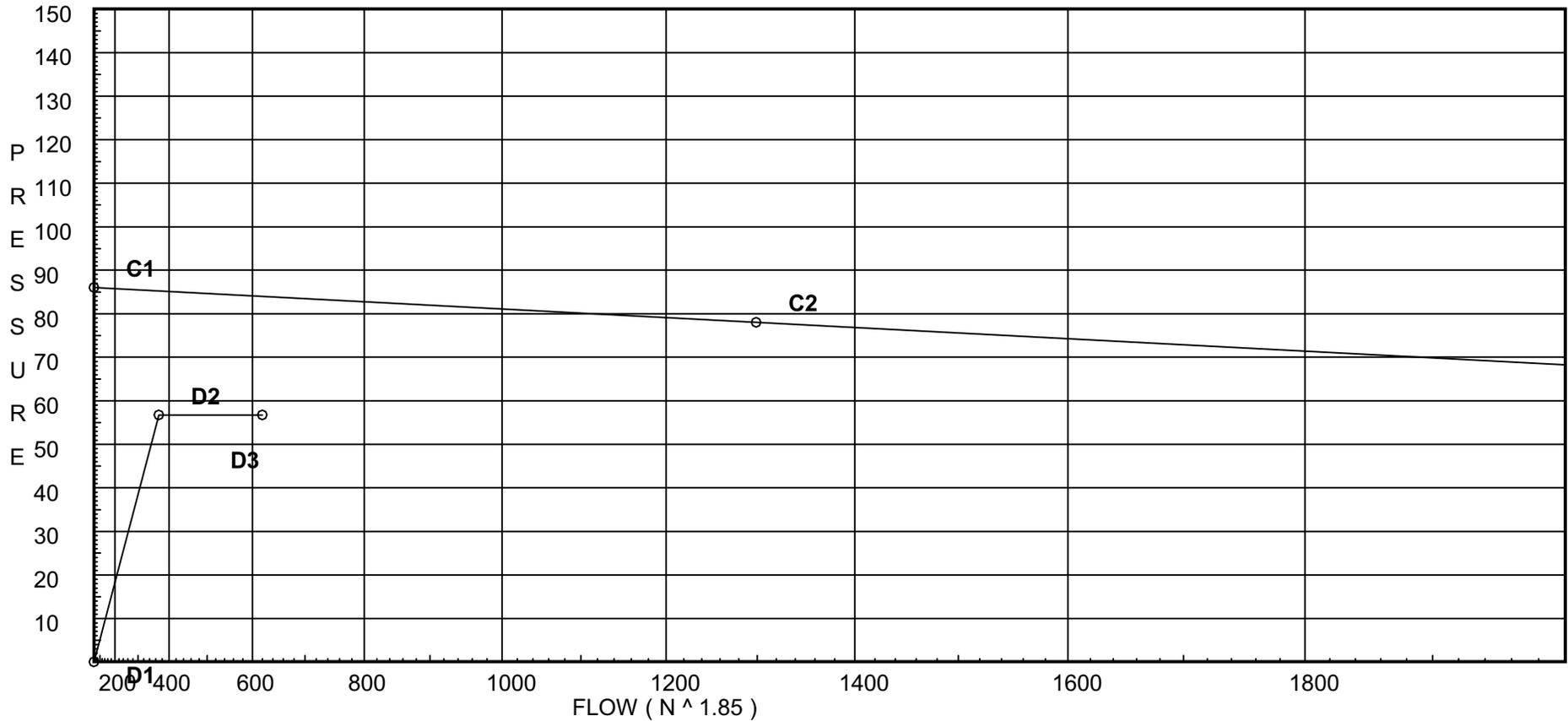
SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 5



City Water Supply:
C1 - Static Pressure : 86
C2 - Residual Pressure: 78
C2 - Residual Flow : 1299

Demand:
D1 - El
D2 - Sy
D2 - Sy
Hose (Date: 05/05/16
D3 - Sy
Safety Margin : 27.209

Reviewed for Code Compliance
Inspections Division
Approved with Conditions



SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 6



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Hydraulic Design Information Sheet

Name - 89 ANDERSON STREET APARTMENTS AREA 6 Date - 3/1
 Location - 89 ANDERSON STREET PORTLAND, MAINE
 Building - NEW System No. - 1 WE
 Contractor - SPRINKLER SYSTEMS INC Contract No. - 15- Date: 05/05/16
 Calculated By - CDS Drawing No. - 1-3
 Construction: (X) Combustible () Non-Combustible Ceiling Height - VARIES
 Occupancy - APARTMENTS

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

S Other NFPA 13R
 T Specific Ruling

Made By Date

| M | Area of Sprinkler Operation | - 4 HEADS | System Type | Sprinkler/Nozzle |
|---|-----------------------------|-----------|---------------|-------------------|
| | Density | - .05 | (X) Wet | Make RELIABLE |
| D | Area Per Sprinkler | - 324 | () Dry | Model F1RES49 |
| E | Elevation at Highest Outlet | - 133.250 | () Deluge | Size 7/16" X 1/2" |
| S | Hose Allowance - Inside | - 0 | () Preaction | K-Factor 4.9 |
| I | Rack Sprinkler Allowance | - 0 | () Other | Temp.Rat.155 DEG. |
| G | Hose Allowance - Outside | - 0 | | |

N Note

Calculation Flow Required - 75.86 Press Required - 67.031 AT BASE
 Summary C-Factor Used: 150 Overhead 150 Underground

| W | Water Flow Test: | Pump Data: | Tank or Reservoir: |
|---|------------------------|-------------|--------------------|
| A | Date of Test - 5-23-15 | | Cap. - |
| T | Time of Test - AM | Rated Cap.- | Elev.- |
| E | Static Press - 86 | @ Press - | |
| R | Residual Press - 78 | Elev. - | Well |
| | Flow - 1299 | | Proof Flow |
| S | Elevation - 160.0' | | |

U Location - ON SITE

P Source of Information - OWNER AND WATER DISTRICT

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

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

E Horizontal Barriers Provided:

Pressure / Flow Summary - STANDARD

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 6



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/05/16

| Node No. | Elevation | K-Fact | Pt Actual | Pn | Flow Actual | Density |
|----------|-----------|--------------|-----------|----|-------------|---------|
| TYP | 0.0 | 4.9 | 12.03 | na | 17.0 | 0.05 |
| 44 | 133.25 | 4.9 | 13.06 | na | 17.71 | 0.05 |
| 43 | 133.25 | 4.9 | 12.68 | na | 17.45 | 0.05 |
| 41 | 133.25 | 4.9 | 12.03 | na | 17.0 | 0.05 |
| 42 | 133.25 | | 13.19 | na | | |
| 45 | 133.25 | | 13.9 | na | | |
| 46 | 133.25 | | 21.94 | na | | |
| 47 | 133.25 | K = K @ DROP | 24.54 | na | 23.71 | |
| 48 | 133.25 | | 36.62 | na | | |
| 3F | 133.25 | | 42.75 | na | | |
| B | 133.25 | | 44.85 | na | | |
| C | 123.0 | | 49.76 | na | | |
| D | 123.0 | | 50.23 | na | | |
| E | 111.5 | | 55.54 | na | | |
| TWR1 | 111.5 | | 55.84 | na | | |
| BWR1 | 104.0 | | 62.29 | na | | |
| H | 104.0 | | 62.34 | na | | |
| BKFL | 103.5 | | 62.55 | na | | |
| BASE | 100.0 | | 67.03 | na | | |
| HOSE | 100.0 | | 67.28 | na | | |
| TEST | 160.0 | | 41.3 | na | | |

The maximum velocity is 25.56 and it occurs in the pipe between nodes 47 and 48

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 6



Reviewed for Code Compliance
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Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------|----------------|--------------------------|---------------------------------|--------------------------------|--------------------------|-------------|-------------------------------------|
| TYP to DROP | 17.00 17.0 | 1.049 120.0 0.0963 | T 5.0 0.0 | 1.000 5.000 6.000 | 12.030 0.0 0.578 | | K Factor = 4.90 Vel = 6.31 |
| | 0.0 17.00 | | | | 12.608 | | K Factor = 4.79 |
| 44 to 45 | 17.71 17.71 | 1.101 150.0 0.0543 | E 3.825 T 9.563 0.0 | 2.000 13.387 15.387 | 13.064 0.0 0.836 | | K Factor = 4.90 Vel = 5.97 |
| | 0.0 17.71 | | | | 13.900 | | K Factor = 4.75 |
| 43 to 45 | 17.45 17.45 | 1.101 150.0 0.0529 | E 3.825 T 9.563 0.0 | 9.750 13.387 23.137 | 12.677 0.0 1.223 | | K Factor = 4.90 Vel = 5.88 |
| | 0.0 17.45 | | | | 13.900 | | K Factor = 4.68 |
| 41 to 42 | 17.00 17.0 | 1.101 150.0 0.0504 | E 3.825 T 9.563 0.0 | 9.750 13.387 23.137 | 12.030 0.0 1.165 | | K Factor = 4.90 Vel = 5.73 |
| 42 to 45 | 0.0 17.0 | 1.101 150.0 0.0504 | | 0.0 14.000 0.0 14.000 | 13.195 0.0 0.705 | | Vel = 5.73 |
| 45 to 46 | 35.15 52.15 | 1.101 150.0 0.4007 | T 9.563 0.0 | 10.500 9.562 20.062 | 13.900 0.0 8.039 | | Vel = 17.57 |
| 46 to 47 | 0.0 52.15 | 1.101 150.0 0.4006 | | 0.0 6.500 0.0 6.500 | 21.939 0.0 2.604 | | Vel = 17.57 |
| 47 to 48 | 23.71 75.86 | 1.101 150.0 0.8016 | T 9.563 0.0 | 5.500 9.562 15.062 | 24.543 0.0 12.073 | | K Factor @ node DROP Vel = 25.56 |
| 48 to 3F | 0.0 75.86 | 1.682 120.0 0.1538 | T 9.9 0.0 | 30.000 9.900 39.900 | 36.616 0.0 6.137 | | Vel = 10.95 |
| 3F to B | 0.0 75.86 | 1.682 120.0 0.1538 | T 9.9 0.0 | 3.750 9.900 13.650 | 42.753 0.0 2.099 | | Vel = 10.95 |
| B to C | 0.0 75.86 | 2.157 120.0 0.0459 | | 0.0 10.250 0.0 10.250 | 44.852 4.439 0.470 | | Vel = 6.66 |
| C to D | 0.0 75.86 | 2.157 120.0 0.0458 | | 0.0 10.250 0.0 10.250 | 49.761 0.0 0.469 | | Vel = 6.66 |
| D to E | 0.0 75.86 | 2.157 120.0 0.0457 | E 6.153 0.0 | 1.000 6.153 7.153 | 50.230 4.981 0.327 | | Vel = 6.66 |

Date: 05/05/16

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 6



Reviewed for Code Compliance
Inspections Division
Approved with Conditions

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ** |
|-----------------------|--------------|--------------------------|---|------------------------------|----------------------------|----------------|------------------------------------|
| E to TWR1 | 0.0 75.86 | 3.26 120.0 0.0061 | 4E 37.631 0.0 0.0 | 12.000 37.631 49.631 | 55.538 0.0 0.305 | | Vel = 2.92 |
| TWR1 to BWR1 | 0.0 75.86 | 3.26 120.0 0.0061 | Fsp 0.0 Bvcb 6.72 T 20.159 | 5.500 26.879 32.379 | 55.843 6.248 0.198 | | ** Fixed Loss = 3 Vel = 2.92 |
| BWR1 to H | 0.0 75.86 | 4.26 120.0 0.0017 | T 26.334 0.0 0.0 | 2.000 26.334 28.334 | 62.289 0.0 0.048 | | Vel = 1.71 |
| H to BKFL | 0.0 75.86 | 4.26 120.0 0.0 | 0.0 0.0 0.0 | 0.500 0.0 0.500 | 62.337 0.217 0.0 | | Vel = 1.71 |
| BKFL to BASE | 0.0 75.86 | 4.026 120.0 0.0020 | Zac 0.0 0.0 0.0 | 0.500 0.0 0.500 | 62.554 4.476 0.001 | | ** Fixed Loss = 2.96 Vel = 1.91 |
| BASE to HOSE | 0.0 75.86 | 4.07 150.0 0.0014 | 2E 31.864 T 31.864 G 3.186 | 115.000 66.914 181.914 | 67.031 0.0 0.250 | | Vel = 1.87 |
| HOSE to TEST | 0.0 75.86 | 20.57 140.0 0.0 | 0.0 0.0 0.0 | 685.000 0.0 685.000 | 67.281 -25.986 0.001 | | Vel = 0.07 |
| | 0.0 75.86 | | | | 41.296 | | K Factor = 11.80 |

Date: 05/05/16

Water Supply Curve C

SPRINKLER SYSTEMS INC.
89 Anderson Street Wet System Area 6



City Water Supply:
C1 - Static Pressure : 86
C2 - Residual Pressure: 78
C2 - Residual Flow : 1299

Demand:
D1 - El
D2 - Sy
D2 - Sy
Hose (Date: 05/05/16
D3 - Sy
Safety Margin : 44.663

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

