

ALPHA FIRE SUPPRESSION SYSTEMS

2391 CIRCADIAN WAY  
SANTA ROSA, CA. 95407

HYDRAULIC CALCULATIONS

FOR

The Sea Ranch Lodge - North Building  
60 Sea Walk Drive  
The Sea Ranch, Ca.

FILE NUMBER: 21-3466

DATE: DEC 6, 2021

-DESIGN DATA-

|                                        |                               |
|----------------------------------------|-------------------------------|
| OCCUPANCY CLASSIFICATION:              | NFPA 13 Light Hazard 2016     |
| DENSITY:                               | 0.10 gpm/sq.ft.               |
| AREA OF APPLICATION:                   | 458 sq.ft./Massage Rooms      |
| COVERAGE PER SPRINKLER:                | 148 sq.ft.                    |
| NUMBER OF SPRINKLERS CALCULATED:       | 8 sprinklers                  |
| TOTAL SPRINKLER WATER FLOW REQUIRED:   | 149.8 gpm                     |
| TOTAL WATER REQUIRED (including hose): | 249.8 gpm                     |
| FLOW AND PRESSURE (@ BOR):             | 149.8 gpm @ 48.8 psi          |
| SPRINKLER ORIFICE SIZE:                | 1/2 inch                      |
| NAME OF CONTRACTOR:                    | Pioneer Contracting Inc.      |
| DESIGN/LAYOUT BY:                      | B. Gale                       |
| AUTHORITY HAVING JURISDICTION:         | Sonoma County Fire Department |
| CONTRACTOR CERTIFICATION NUMBER:       | C-16 #670313                  |

CALCULATIONS BY HASS COMPUTER PROGRAM (LICENSE # 64616443 )  
HRS SYSTEMS, INC.

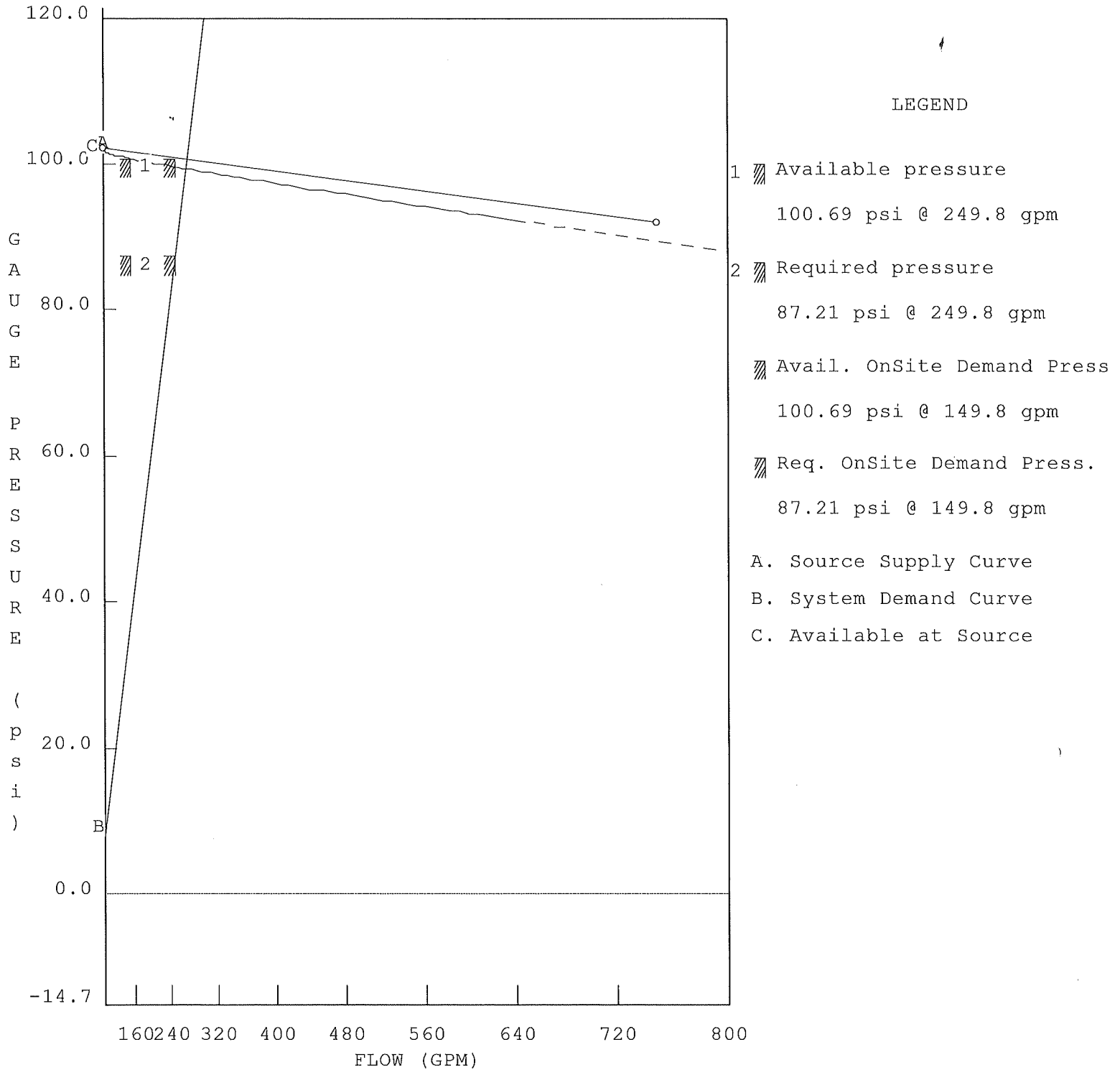


DATE: 12/6/2021 LODGE FP\SEA RANCH MASSAGE CALC\SEA RANCH MASSAGE CALC.SDF

JOB TITLE: Sea Ranch Lodge massage room- North .1/458 sq.ft.

WATER SUPPLY ANALYSIS

Static: 102.00 psi Resid: 92.00 psi Flow: 750.0 gpm



Note: (1) Dashed Lines indicate extrapolated values from Test Results

(2) On Site pressures are based on hose stream deduction at the source

DATE: 12/6/2021\LODGE FP\SEA RANCH MASSAGE CALC\SEA RANCH MASSAGE CALC.SDF

JOB TITLE: Sea Ranch Lodge massage room- North .1/458 sq.ft.

NFPA WATER SUPPLY DATA

| SOURCE<br>NODE<br>TAG | STATIC<br>PRESS.<br>(PSI) | RESID.<br>PRESS.<br>(PSI) | FLOW<br>@<br>(GPM) | AVAIL.<br>PRESS.<br>(PSI) | TOTAL<br>@<br>DEMAND<br>(GPM) | REQ'D<br>PRESS.<br>(PSI) |
|-----------------------|---------------------------|---------------------------|--------------------|---------------------------|-------------------------------|--------------------------|
| SRC                   | 102.0                     | 92.0                      | 750.0              | 100.7                     | 249.8                         | 87.2                     |

AGGREGATE FLOW ANALYSIS:

|                                        |           |
|----------------------------------------|-----------|
| TOTAL FLOW AT SOURCE                   | 249.8 GPM |
| TOTAL HOSE STREAM ALLOWANCE AT SOURCE  | 100.0 GPM |
| OTHER HOSE STREAM ALLOWANCES           | 0.0 GPM   |
| TOTAL DISCHARGE FROM ACTIVE SPRINKLERS | 149.8 GPM |

NODE ANALYSIS DATA

| NODE TAG | ELEVATION<br>(FT) | NODE TYPE | PRESSURE<br>(PSI) | DISCHARGE<br>(GPM) | NOTES |
|----------|-------------------|-----------|-------------------|--------------------|-------|
| SRC      | -3.0              | SOURCE    | 87.2              | 149.8              | NOTES |
| WM1      | -1.0              | - - - -   | 62.6              | - - -              | NOTES |
| WM2      | -1.0              | - - - -   | 58.6              | - - -              | NOTES |
| BF1      | 2.0               | - - - -   | 55.9              | - - -              | NOTES |
| BF2      | 2.0               | - - - -   | 49.9              | - - -              | NOTES |
| BOR      | 4.0               | - - - -   | 48.8              | - - -              | NOTES |
| FS1      | 5.0               | - - - -   | 46.7              | - - -              | NOTES |
| FS2      | 5.0               | - - - -   | 43.7              | - - -              | NOTES |
| TOR      | 10.0              | - - - -   | 40.0              | - - -              | NOTES |
| 1        | 1.0               | - - - -   | 43.9              | - - -              | NOTES |
| 2        | 1.0               | - - - -   | 43.9              | - - -              | NOTES |
| 3        | 10.0              | - - - -   | 40.0              | - - -              | NOTES |
| 4        | 25.0              | - - - -   | 33.5              | - - -              | NOTES |
| 5        | 25.0              | - - - -   | 33.5              | - - -              | NOTES |
| 6        | 30.0              | - - - -   | 31.3              | - - -              | NOTES |
| 7        | 30.0              | - - - -   | 31.3              | - - -              | NOTES |
| 8        | 10.0              | - - - -   | 40.0              | - - -              | NOTES |
| 9        | 1.0               | - - - -   | 43.9              | - - -              | NOTES |
| 10       | 10.0              | - - - -   | 29.9              | - - -              | NOTES |
| 11       | 10.0              | - - - -   | 18.2              | - - -              | NOTES |
| 12       | 10.0              | - - - -   | 14.0              | - - -              | NOTES |
| 13       | 12.0              | - - - -   | 9.6               | - - -              | NOTES |
| 14       | 13.0              | - - - -   | 8.7               | - - -              | NOTES |
| 15       | 15.0              | - - - -   | 7.6               | - - -              | NOTES |
| P1       | 25.0              | - - - -   | 33.5              | - - -              | NOTES |
| P2       | 25.0              | - - - -   | 33.5              | - - -              | NOTES |
| P3       | 30.0              | - - - -   | 31.3              | - - -              |       |
| P4       | 30.0              | - - - -   | 31.3              | - - -              |       |
| S1       | 15.0              | K= 5.60   | 23.7              | 27.3               |       |
| S2       | 10.0              | K= 5.60   | 17.6              | 23.5               |       |
| S3       | 10.0              | K= 5.60   | 13.2              | 20.4               |       |
| S4       | 12.0              | K= 5.60   | 9.0               | 16.8               |       |
| S5       | 12.0              | K= 5.60   | 8.9               | 16.7               |       |
| S6       | 13.0              | K= 5.60   | 7.7               | 15.5               |       |
| S7       | 15.0              | K= 5.60   | 7.0               | 14.8               |       |
| S8       | 15.0              | K= 5.60   | 7.1               | 14.9               |       |

DATE: 12/6/2021 LODGE FP\SEA RANCH MESSAGE CALC\SEA RANCH MESSAGE CALC.SDF

JOB TITLE: Sea Ranch Lodge massage room- North .1/458 sq.ft.

NFPA PIPE DATA

| Pipe Tag | K-fac   | Add Fl | Add Fl  | To    | Fit:   | L                          | C         | (Pt)   |      |
|----------|---------|--------|---------|-------|--------|----------------------------|-----------|--------|------|
| Frm Node | El (ft) | PT     | (q)     | Node/ | Eq.Ln. | F                          |           | (Pe)   | Nc   |
| To Node  | El (ft) | PT     | Tot.(Q) | Disch | Act ID | (ft.)                      | T         | Pf/ft. | (Pf) |
| Pipe: 1  |         | Source | 0.0     |       |        | 2E: 6.1                    | 60.00     | 100    | 24.6 |
| SRC      | -3.0    | 87.2   | 149.8   | WM2   | H2.000 | T: 6.1                     | 12.77     |        | 0.9  |
| WM1      | -1.0    | 62.6   | 149.8   |       | 2.000  | G: 0.6                     | 72.77     | 0.326  | 23.8 |
| Pipe: 2  |         |        | 0.0     |       |        | Fixed Pressure Loss Device |           |        |      |
| WM1      | -1.0    | 62.6   | 149.8   | BF1   |        | 4.0 psi,                   | 149.8 gpm |        |      |
| WM2      | -1.0    | 58.6   | 149.8   |       |        |                            |           |        |      |
| Pipe: 3  |         | 0.0    | 0.0     |       |        |                            | 3.00      | 150    | 2.7  |
| WM2      | -1.0    | 58.6   | 149.8   | BF2   | L2.000 | E: 5.5                     | 5.50      |        | 1.3  |
| BF1      | 2.0     | 55.9   | 149.8   |       | 1.985  |                            | 8.50      | 0.160  | 1.4  |
| Pipe: 4  |         |        | 0.0     |       |        | Fixed Pressure Loss Device |           |        |      |
| BF1      | 2.0     | 55.9   | 149.8   | BOR   |        | 6.0 psi,                   | 149.8 gpm |        |      |
| BF2      | 2.0     | 49.9   | 149.8   |       |        |                            |           |        |      |
| Pipe: 5  |         | 0.0    | 0.0     |       |        |                            | 2.00      | 150    | 1.2  |
| BF2      | 2.0     | 49.9   | 149.8   | FS1   | M2.000 | ----                       | 0.00      |        | 0.9  |
| BOR      | 4.0     | 48.8   | 149.8   |       | 2.009  |                            | 2.00      | 0.151  | 0.3  |
| Pipe: 6  |         | 0.0    | 0.0     |       |        |                            | 1.00      | 150    | 2.0  |
| BOR      | 4.0     | 48.8   | 149.8   | FS2   | M2.000 | S: 9.0                     | 9.50      |        | 0.4  |
| FS1      | 5.0     | 46.7   | 149.8   |       | 2.009  | G: 0.5                     | 10.50     | 0.151  | 1.6  |
| Pipe: 7  |         |        | 0.0     |       |        | Fixed Pressure Loss Device |           |        |      |
| FS1      | 5.0     | 46.7   | 149.8   | TOR   |        | 3.0 psi,                   | 149.8 gpm |        |      |
| FS2      | 5.0     | 43.7   | 149.8   |       |        |                            |           |        |      |
| Pipe: 8  |         | 0.0    | 0.0     |       |        |                            | 5.00      | 150    | 3.8  |
| FS2      | 5.0     | 43.7   | 149.8   | 10    | M2.000 | E: 5.5                     | 5.50      |        | 2.2  |
| TOR      | 10.0    | 40.0   | 149.8   |       | 2.009  |                            | 10.50     | 0.151  | 1.6  |
| Pipe: 9  |         | 0.0    | 0.0     |       |        | 8E2T5RK                    | 130.00    | 150    | 3.9  |
| 1        | 1.0     | 43.9   | 0.0     |       | P1.250 |                            | 66.00     |        | 3.9  |
| TOR      | 10.0    | 40.0   | 0.0     |       | 1.394  |                            | 196.00    | 0.000  | 0.0  |
| Pipe: 10 |         | 0.0    | 0.0     |       |        |                            | 10.00     | 150    | 0.0  |
| 2        | 1.0     | 43.9   | 0.0     |       | P1.250 | 2E:12.0                    | 18.00     |        | -0.0 |
| 1        | 1.0     | 43.9   | 0.0     |       | 1.394  | T: 6.0                     | 28.00     | 0.000  | 0.0  |
| Pipe: 11 |         | 0.0    | 0.0     |       |        |                            | 10.00     | 150    | -3.9 |
| 3        | 10.0    | 40.0   | 0.0     |       | P1.000 | R: 1.0                     | 1.00      |        | -3.9 |
| 2        | 1.0     | 43.9   | 0.0     |       | 1.101  |                            | 11.00     | 0.000  | 0.0  |
| Pipe: 12 |         | 0.0    | 0.0     |       |        |                            | 15.00     | 150    | -6.5 |
| 4        | 25.0    | 33.5   | 0.0     |       | P1.000 | R: 1.0                     | 1.00      |        | -6.5 |
| 3        | 10.0    | 40.0   | 0.0     |       | 1.101  |                            | 16.00     | 0.000  | 0.0  |
| Pipe: 13 |         | 0.0    | 0.0     |       |        |                            | 40.00     | 150    | -0.0 |
| P1       | 25.0    | 33.5   | 0.0     |       | P1.000 | E: 5.0                     | 13.00     |        | -0.0 |
| 4        | 25.0    | 33.5   | 0.0     |       | 1.101  | 8R: 8.0                    | 53.00     | 0.000  | 0.0  |

DATE: 12/6/2021 LODGE FP\SEA RANCH MASSAGE CALC\SEA RANCH MASSAGE CALC.SDF

JOB TITLE: Sea Ranch Lodge massage room- North .1/458 sq.ft.

| Pipe Tag | K-fac   | Add Fl | Add Fl  | To    | Fit:           | L      | C         | (Pt) |    |
|----------|---------|--------|---------|-------|----------------|--------|-----------|------|----|
| Frm Node | El (ft) | PT     | (q)     | Node/ | Eq.Ln.         | F      |           | (Pe) | Nc |
| To Node  | El (ft) | PT     | Tot.(Q) | Disch | Act ID         | (ft.)  | T Pf/ft.  | (Pf) |    |
| Pipe: 14 |         | 0.0    | 0.0     |       |                |        | 6.00 150  | 0.0  |    |
| 5        | 25.0    | 33.5   | 0.0     |       | P1.000 2R: 2.0 | 2.00   |           | -0.0 |    |
| P1       | 25.0    | 33.5   | 0.0     |       | 1.101          | 8.00   | 0.000     | 0.0  |    |
| Pipe: 15 |         | 0.0    | 0.0     |       |                |        | 3.00 150  | 0.0  |    |
| 5        | 25.0    | 33.5   | 0.0     |       | P1.000 T: 5.0  | 5.00   |           | -0.0 |    |
| P2       | 25.0    | 33.5   | 0.0     |       | 1.101          | 8.00   | 0.000     | 0.0  |    |
| Pipe: 16 |         | 0.0    | 0.0     |       | E: 5.0         | 30.00  | 150       | 2.2  |    |
| P2       | 25.0    | 33.5   | 0.0     |       | P1.000 T: 5.0  | 12.00  |           | 2.2  |    |
| 7        | 30.0    | 31.3   | 0.0     |       | 1.101 2R: 2.0  | 42.00  | 0.000     | 0.0  |    |
| Pipe: 17 |         | 0.0    | 0.0     |       |                |        | 20.00 150 | -8.7 |    |
| 7        | 30.0    | 31.3   | 0.0     |       | P1.000 R: 1.0  | 1.00   |           | -8.7 |    |
| 8        | 10.0    | 40.0   | 0.0     |       | 1.101          | 21.00  | 0.000     | 0.0  |    |
| Pipe: 18 |         | 0.0    | 0.0     |       |                |        | 10.00 150 | -3.9 |    |
| 8        | 10.0    | 40.0   | 0.0     |       | P1.000 E: 5.0  | 5.00   |           | -3.9 |    |
| 9        | 1.0     | 43.9   | 0.0     |       | 1.101          | 15.00  | 0.000     | 0.0  |    |
| Pipe: 19 |         | 0.0    | 0.0     |       |                |        | 70.00 150 | 0.0  |    |
| 9        | 1.0     | 43.9   | 0.0     |       | P1.250 3R: 3.0 | 3.00   |           | -0.0 |    |
| 1        | 1.0     | 43.9   | 0.0     |       | 1.394          | 73.00  | 0.000     | 0.0  |    |
| Pipe: 20 |         | 0.0    | 0.0     |       |                |        | 90.00 150 | 0.0  |    |
| 8        | 10.0    | 40.0   | 0.0     |       | P1.000 E: 5.0  | 20.00  |           | -0.0 |    |
| 3        | 10.0    | 40.0   | 0.0     |       | 1.101 3T:15.0  | 110.00 | 0.000     | 0.0  |    |
| Pipe: 21 |         | 0.0    | 0.0     |       |                |        | 8.00 150  | -2.2 |    |
| 6        | 30.0    | 31.3   | 0.0     |       | P1.000 T: 5.0  | 5.00   |           | -2.2 |    |
| 5        | 25.0    | 33.5   | 0.0     |       | 1.101          | 13.00  | 0.000     | 0.0  |    |
| Pipe: 22 |         | 0.0    | 0.0     |       |                |        | 6.00 150  | 0.0  |    |
| P3       | 30.0    | 31.3   | 0.0     |       | P1.000 E: 5.0  | 10.00  |           | -0.0 |    |
| 6        | 30.0    | 31.3   | 0.0     |       | 1.101 T: 5.0   | 16.00  | 0.000     | 0.0  |    |
| Pipe: 23 |         | 0.0    | 0.0     |       |                |        | 3.00 150  | 0.0  |    |
| P4       | 30.0    | 31.3   | 0.0     |       | P1.000 E: 5.0  | 10.00  |           | -0.0 |    |
| 6        | 30.0    | 31.3   | 0.0     |       | 1.101 T: 5.0   | 13.00  | 0.000     | 0.0  |    |
| Pipe: 24 |         | 0.0    | 122.5   | 11    | E: 7.0         | 12.00  | 150       | 10.1 |    |
| TOR      | 10.0    | 40.0   | 27.3    | S1    | P1.500 2R: 2.0 | 10.00  |           | -0.0 |    |
| 10       | 10.0    | 29.9   | 149.8   |       | 1.598 K: 1.0   | 22.00  | 0.460     | 10.1 |    |
| Pipe: 25 |         | 5.60   | 27.3    | Disch | E2TRK          | 16.00  | 150       | 6.2  |    |
| 10       | 10.0    | 29.9   | 0.0     |       | P1.000         | 17.00  |           | 2.2  |    |
| S1       | 15.0    | 23.7   | 27.3    |       | 1.101          | 33.00  | 0.121     | 4.0  |    |
| Pipe: 26 |         | 0.0    | 99.0    | 12    |                | 17.00  | 150       | 11.7 |    |
| 10       | 10.0    | 29.9   | 23.5    | S2    | P1.250 2R: 2.0 | 2.00   |           | -0.0 |    |
| 11       | 10.0    | 18.2   | 122.5   |       | 1.394          | 19.00  | 0.617     | 11.7 |    |

DATE: 12/6/2021 LODGE FP\SEA RANCH MASSAGE CALC\SEA RANCH MASSAGE CALC.SDF

JOB TITLE: Sea Ranch Lodge massage room- North .1/458 sq.ft.

| Pipe Tag | K-fac   | Add Fl | Add Fl  | To    | Fit:   | L       | C     | (Pt)   |      |
|----------|---------|--------|---------|-------|--------|---------|-------|--------|------|
| Frm Node | El (ft) | PT     | (q)     | Node/ | Eq.Ln. | F       |       | (Pe)   | Nc   |
| To Node  | El (ft) | PT     | Tot.(Q) | Disch | Act ID | (ft.)   | T     | Pf/ft. | (Pf) |
| Pipe: 27 |         | 5.60   | 23.5    | Disch |        |         | 1.00  | 150    | 0.5  |
| 11       | 10.0    | 18.2   | 0.0     |       | P1.000 | T: 5.0  | 5.00  |        | -0.0 |
| S2       | 10.0    | 17.6   | 23.5    |       | 1.101  |         | 6.00  | 0.092  | 0.5  |
| Pipe: 28 |         | 0.0    | 78.7    | 13    |        |         | 9.00  | 150    | 4.2  |
| 11       | 10.0    | 18.2   | 20.4    | S3    | P1.250 | R: 1.0  | 1.00  |        | -0.0 |
| 12       | 10.0    | 14.0   | 99.0    |       | 1.394  |         | 10.00 | 0.416  | 4.2  |
| Pipe: 29 |         | 5.60   | 20.4    | Disch |        |         | 1.00  | 150    | 0.8  |
| 12       | 10.0    | 14.0   | 0.0     |       | P1.000 | E: 5.0  | 10.00 |        | -0.0 |
| S3       | 10.0    | 13.2   | 20.4    |       | 1.101  | T: 5.0  | 11.00 | 0.070  | 0.8  |
| Pipe: 30 |         | 0.0    | 45.2    | 14    |        |         | 7.00  | 150    | 4.4  |
| 12       | 10.0    | 14.0   | 16.8    | S4    | P1.250 | T: 6.0  | 6.00  |        | 0.9  |
| 13       | 12.0    | 9.6    | 78.7    |       | 1.394  |         | 13.00 | 0.272  | 3.5  |
| Pipe: 31 |         | 5.60   | 16.8    | Disch |        |         | 3.00  | 150    | 0.6  |
| 13       | 12.0    | 9.6    | 0.0     |       | P1.000 | E: 5.0  | 10.00 |        | -0.0 |
| S4       | 12.0    | 9.0    | 16.8    |       | 1.101  | T: 5.0  | 13.00 | 0.049  | 0.6  |
| Pipe: 32 |         | 5.60   | 16.7    | Disch |        |         | 5.00  | 150    | 0.7  |
| 13       | 12.0    | 9.6    | 0.0     |       | P1.000 | E: 5.0  | 10.00 |        | -0.0 |
| S5       | 12.0    | 8.9    | 16.7    |       | 1.101  | T: 5.0  | 15.00 | 0.049  | 0.7  |
| Pipe: 33 |         | 0.0    | 29.7    | 15    |        |         | 3.00  | 150    | 0.9  |
| 13       | 12.0    | 9.6    | 15.5    | S6    | P1.250 | 2R: 2.0 | 2.00  |        | 0.4  |
| 14       | 13.0    | 8.7    | 45.2    |       | 1.394  |         | 5.00  | 0.098  | 0.5  |
| Pipe: 34 |         | 5.60   | 15.5    | Disch |        | E: 5.0  | 12.00 | 150    | 1.0  |
| 14       | 13.0    | 8.7    | 0.0     |       | P1.000 | T: 5.0  | 11.00 |        | -0.0 |
| S6       | 13.0    | 7.7    | 15.5    |       | 1.101  | K: 1.0  | 23.00 | 0.043  | 1.0  |
| Pipe: 35 |         | 0.0    | 14.9    | S8    |        |         | 4.00  | 150    | 1.1  |
| 14       | 13.0    | 8.7    | 14.8    | S7    | P1.250 | R: 1.0  | 1.00  |        | 0.9  |
| 15       | 15.0    | 7.6    | 29.7    |       | 1.394  |         | 5.00  | 0.045  | 0.2  |
| Pipe: 36 |         | 5.60   | 14.8    | Disch |        |         | 5.00  | 150    | 0.6  |
| 15       | 15.0    | 7.6    | 0.0     |       | P1.000 | E: 5.0  | 10.00 |        | -0.0 |
| S7       | 15.0    | 7.0    | 14.8    |       | 1.101  | T: 5.0  | 15.00 | 0.039  | 0.6  |
| Pipe: 37 |         | 5.60   | 14.9    | Disch |        |         | 3.00  | 150    | 0.5  |
| 15       | 15.0    | 7.6    | 0.0     |       | P1.000 | E: 5.0  | 10.00 |        | -0.0 |
| S8       | 15.0    | 7.1    | 14.9    |       | 1.101  | T: 5.0  | 13.00 | 0.039  | 0.5  |

NOTES (HASS):

- Calculations were performed by the HASS 2021 D computer program in accordance with NFPA13 (2020) under license no. 64616443 granted by HRS Systems, Inc.  
208 Southside Square  
Petersburg, TN 37144  
(931) 659-9760

DATE: 12/6/2021 LODGE FP\SEA RANCH MESSAGE CALC\SEA RANCH MESSAGE CALC.SDF

JOB TITLE: Sea Ranch Lodge massage room- North .1/458 sq.ft.

(2) The system has been calculated to provide an average imbalance at each node of 0.001 gpm and a maximum imbalance at any node of 0.008 gpm.

(3) Total pressure at each node is used in balancing the system. Maximum water velocity is 25.8 ft/sec at pipe 26.

(4) Items listed in bold print on the cover sheet

are automatically transferred from the calculation report.

(5) Available pressure at source node SRC under full flow conditions is 100.54 psi with a flow of 264.93 gpm.

(6) PIPE FITTINGS TABLE

User Pipe Table Name: alpha

PAGE: L MATERIAL: CT-L HWC: 150  
 Diameter Equivalent Fitting Lengths in Feet  
 (in) E T F R K S G N  
 Ell Tee 45-El TeeRu Koupl SwgCh GatVl NPTee  
 1.985 5.50 9.00 2.00 0.50 0.50 9.00 0.50 9.00

PAGE: M MATERIAL: CT-M HWC: 150  
 Diameter Equivalent Fitting Lengths in Feet  
 (in) E T F R K S G N  
 Ell Tee 45-El TeeRu Koupl SwgCh GatVl NPTee  
 2.009 5.50 9.00 2.00 0.50 0.50 9.00 0.50 9.00

PAGE: P MATERIAL: CPVC HWC: 150  
 Diameter Equivalent Fitting Lengths in Feet  
 (in) F E T R K  
 45 90 Branc Run Koupl  
 1.101 1.00 5.00 5.00 1.00 1.00  
 1.394 2.00 6.00 6.00 1.00 1.00  
 1.598 2.00 7.00 8.00 1.00 1.00

PAGE: \* MATERIAL: S40 HWC: 120  
 Diameter Equivalent Fitting Lengths in Feet  
 (in) E T L C B G A D N  
 Ell Tee lngEll ChkVlv BfyVlv GatVlv AlmChk DPVlv NPTee  
 -----  
 F  
 F45Ell  
 2.067 5.00 10.00 3.00 11.00 6.00 1.00 10.00 10.00 10.00  
 2.50