

**LEGEND**

- FM PROPOSED FORCE MAIN
- W PROPOSED WATER LINE
- 242--- EXISTING CONTOUR
- APPROXIMATE PROPERTY LINE
- OE OVERHEAD ELECTRIC
- ST STORM DRAINAGE LINE
- W EXISTING WATER LINE
- ☐ POWER POLE
- ===== CULVERT
- DRAINAGE SWALE
- TP# TEST PIT
- MW# MONITORING WELL
- PERC TEST

**WASTEWATER PLAN**  
1" = 20'

**TEST PIT DATA**  
EXCAVATED: 3/09/04  
EXCAVATOR: LEO GORTON

- TP 1W  
0-10" Dark brown clay loam - friable  
10-18" Reddish brown clay loam - firm  
10-40" Yellowish brown clay loam  
40" Shale
- TP 2W  
0-12" Dark brown clay loam - friable  
12-45" Yellowish brown clay loam - friable  
45" Refusal
- TP 3W  
0-11" Dark brown clay loam - friable  
11-36" Yellowish brown clay loam - friable  
36" Shale
- TP 4W  
0-11" Dark brown clay loam - friable  
11-26" Yellowish brown clay loam - friable  
26" Shale
- TP 5W  
0-10" Dark brown clay loam - friable  
10-42" Yellowish brown clay loam - firm  
42" Shale
- TP 6W  
0-7" Dark brown clay loam - friable  
7-26" Yellowish brown clay loam - firm
- TP 7W  
0-11" Dark brown clay loam - friable  
11-36" Yellowish brown clay loam - firm
- TP 8W  
0-8" Dark brown clay loam - friable  
8-42" Yellowish brown clay loam - firm
- TP 1E  
0-3" Clay loam  
3"+ Clay - very firm
- TP 2E  
0-3" Clay loam  
3"+ Clay - very firm
- TP 3E  
0-3" Clay loam  
3"+ Clay - very firm
- TP 4E  
0-3" Clay loam  
3"+ Clay - very firm

**DISPOSAL FIELD DESIGN DATA**

Performance based design  
Septic Tank Effluent  
-Maintain at least 3' between bottom of trench and seasonal high groundwater table  
-Induced groundwater mounding is at least 6" below grade

Design Daily Flow:  
-2 State Employees at 15 gpd = 30 gpd  
-3 Town Employees at 15 gpd = 45 gpd  
-20 Conference Room at 5 gpd = 100 gpd  
-10% Deduction for low flow fixtures = -17 gpd  
-Adjusted Design Flow = 158 gpd

Application Rate: (Mound)  
Q = Application rate = 1.0 gallons/square foot

**Desktop Mounding Analysis:**

| Location    | Ground Slope | Soil Type | Linear Loading Rate Factor (f) | Soil thickness available for mounding | Soil thickness used in calculation (h) | Linear Loading Rate LLR=(f/h) |
|-------------|--------------|-----------|--------------------------------|---------------------------------------|--|-------------------------------|
| Primary     | 4.2 %        | Clay Loam | 1.9                            | 24'-6"-18"                            | 1.6 feet                               | 2.88 gals/Lt.                 |
| Replacement | 4.6 %        | Clay Loam | 1.9                            | 24'-6"-18"                            | 1.6 feet                               | 2.88 gals/Lt.                 |

**Absorption Trench Area:**

-158 gpd at 1.0 gallons/square foot = 158 square feet required  
-158 gpd at 2.88 gallons/Lt. = 55 linear feet required  
-Use a 3' x 55' trench = 165 square feet provided

**Basal Area:**

-158 gpd at 0.24 gallons/square foot = 658 square feet required  
-Effective area of 55' x 15' = 825 square feet provided

**Pump Requirements:**

-Eight (8) 5/16" diameter orifice holes 7' 0" o.c.  
-1.99 gpm/orifice x 8 = 16 gpm  
-Use 25 gpm min. to maintain 2.5ft/s in force main  
-TDH @ 25 gpm  
Elevation 15  
Friction 27  
Residual 3  
45

**WATER SUPPLY DESIGN DATA**

Water Supply Rules, Chapter 21 information is summarized below:

Average Day Demand:  
-5 Employees at 15 gpd = 75 gpd  
-20 Visitors at 5 gpd = 100 gpd  
-10% Deduction for low flow fixtures = -17 gpd  
-Adjusted Design Flow = 158 gpd (Use 160 gpd)

Maximum Day Demand = 160 gpd/720 minutes = 0.22 gpm

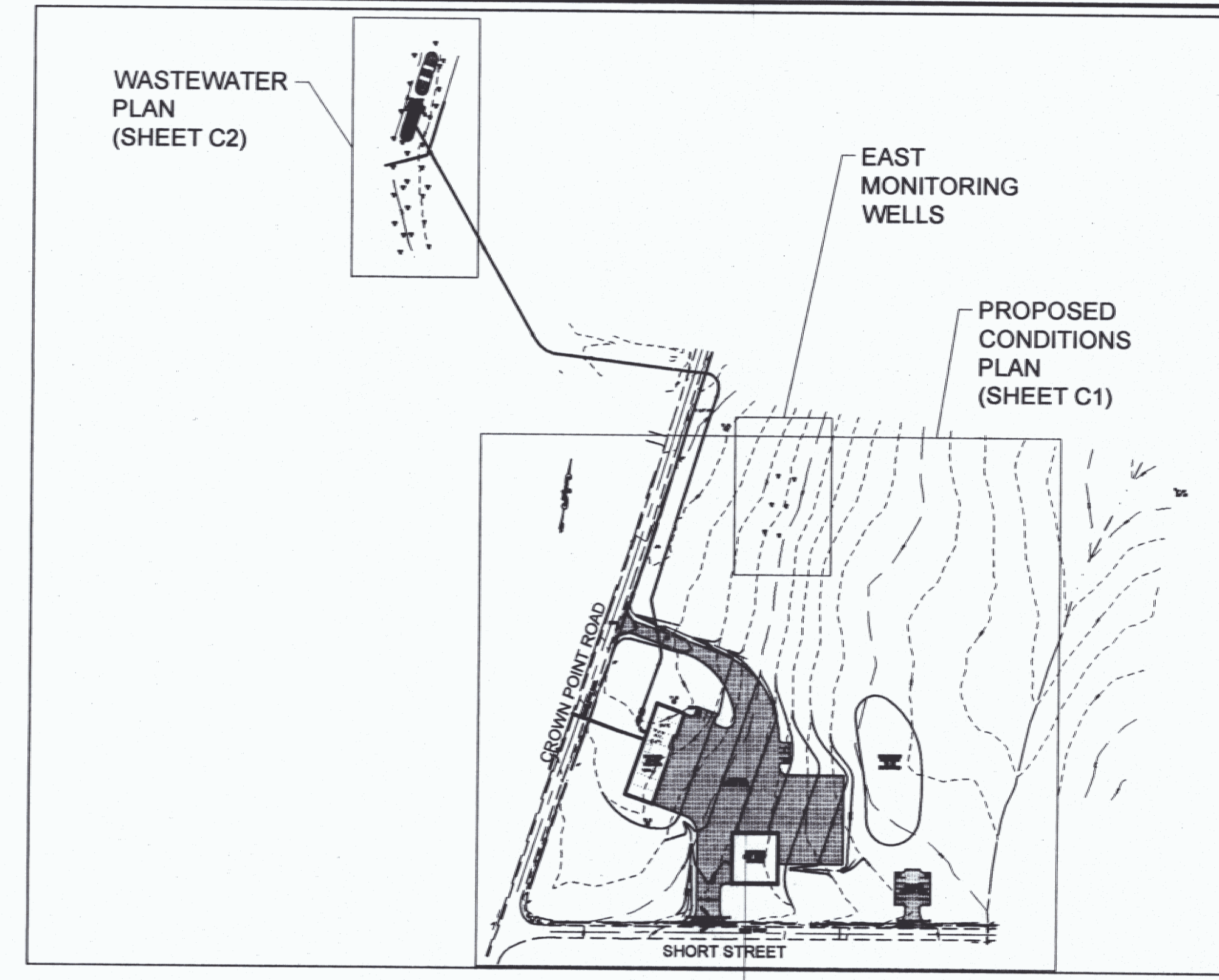
Instantaneous Peak Demand = 21.5 gpm (From AWWA M22)

Water Pressure - Based upon information supplied by the Town, we have calculated the following pressure information:

Service connection @ main = 80 psi  
Service pressure @ building = 57 psi  
(80psi-17.5psi/100' of 1" copper x 130')

With a service entrance pressure of 57 psi in a one story building, the pressure at the furthest fixture will be greater than 8 psi.

**WASTEWATER PLAN (SHEET C2)**



**PLAN KEY**  
1" = 200'

**MINIMUM ISOLATION DISTANCES**  
(Contact Engineer for any Clarifications or Conflicts)

|   | Horizontal Distance (Ft.) |             |
|---|---------------------------|-------------|
|   | Toe of Mound              | Septic Tank |
| Shallow Well or Spring, Up Slope of Disposal Field  | 150*(Min.)                | 75          |
| Shallow Well or Spring, Down Slope of Disposal Field                                      | 500*(Min.)                | --          |
| Drilled Well Serving 1 Home - Up Slope of Disposal Field                                  | 100*(Min.)                | 50          |
| Drilled Well Serving 1 Home - Down Slope of Disposal Field                                | 200*(Min.)                | --          |
| Municipal Water Main  | 50                        | 50          |
| Service Water Lines   | 25                        | 25          |
| Roadways, Driveways, Buildings  | 10 (25 Downslope)         | 5           |
| Stream, Watercourse, Lake or Impoundment  | 50                        | 25          |
| Drainage Swales, Roadway Ditches  | 25                        | --          |
| Top of embankment or slope > 30%  | 25                        | 10          |
| Trees   | 10                        | 10          |
| Foundation, Footing Drains  | 35 (75 Downslope)         | 10          |
| Replacement Area - Sides  | 10                        | --          |
| Replacement Area - Uphill or Downhill   | 25                        | --          |
| Property Line - 10' from toe (or 25' from edge of disposal system, whichever is greater.) | 10 (25 Downslope)         | --          |

\*Isolation distances to well locations may vary due to site conditions - contact Engineer for verification with the Vermont Water Supply Rule Regulations.

**NOTES:**

1. THIS WASTEWATER SYSTEM IS DESIGNED UPON THE STATE OF VERMONT "ENVIRONMENTAL PROTECTION RULES, WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES", AUGUST 16, 2002 RULES, SECTION 1-403(a)(2).

**GPS COORDINATES**

| CENTER OF WASTEWATER SYSTEM | LATITUDE | LONGITUDE |
|-----------------------------|----------|-----------|
|                             |          |           |

(WGS 84 CRITERIA, ±50' ACCURACY)

I HEREBY CERTIFY THAT THE DESIGN-RELATED INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT, AND THAT, IN THE EXERCISE OF MY REASONABLE PROFESSIONAL JUDGMENT, THE DESIGN INCLUDED IN THIS APPLICATION FOR A PERMIT COMPLIES WITH THE VERMONT WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES AND THE VERMONT WATER SUPPLY RULES.

DESIGNER SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

SITE ENGINEER:



CIVIL ENGINEERING ASSOCIATES, INC.  
P.O. BOX 485 SHELburne, VT 05482  
802-985-2323 FAX: 802-985-2271 web: www.cea-vt.com

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DRAWN  
PJM  
CHECKED  
BCE  
APPROVED  
BCE

OWNER:



**STATE OF VERMONT**  
VERMONT AGENCY OF TRANSPORTATION  
MONTPELIER, VERMONT

PROJECT:

**BRIDPORT GARAGE**

CROWN POINT ROAD  
BRIDPORT, VERMONT

**PROGRESS PLANS**

| DATE | CHECKED | REVISION |
|------|---------|----------|
|      |         |          |
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**WASTEWATER PLAN and NOTES**

DATE  
MAY, 2004  
SCALE  
AS SHOWN  
PROJ. NO.  
04128

DRAWING NUMBER  
**C2**