

**NOTES**

**Septic Tank and Building Sewer:**

- 1) Use a 1000 gallon concrete septic tank with an access riser to grade, and an effluent filter.
- 2) Place tank a minimum of 10' from the building.
- 3) Use 4" cast iron or SCH 40 PVC from building to tank with one pipe joint placed on undisturbed soil to absorb settling.
- 4) Slope pipe from building to tank at 1/4" per foot.

**Pump Station:**

- 1) Test pump on and off levels to verify dose volumes.
- 2) Test alarm level.
- 3) Test pump to verify minimum 28" discharge height at leachfield orifices.

**Force Main:**

- 1) Perform a hydrostatic leakage test of the force main at 50 psi and hold pressure for two hours.

**Design Calculations (Replacement not required as per §1-804(c)(3)):**

- 1) Assume a four bedroom house. Daily Flow (DF) @ 140 gpd/br for the first three, and 70 gpd for the remaining bedroom = 490 gpd
- 2) Percolation rate  $t = 3$  minute/inch
- 3) Application rate (AR)  $= (3/\sqrt{t}) = (3/\sqrt{3}) = 1.73$  gal/st/day  
Maximum application rate for effluent in mound trench = 1.0 gal/st/day
- 4) Required trench area:  $DF/AR = 490 \text{ gpd} / 1.73 \text{ gal/st/day} = 283 \text{ sf}$
- 5) Actual area: two trenches @ 4' x 65' = 520 sf
- 6) Required minimum effective basal area:  $490 \text{ gpd} / 0.74 \text{ gpd/sf} = 662 \text{ sf}$
- 7) Basal area = 1878 sf
- 8) Interpolation of ledge between SB's 6 & 8 shows that the depth to ledge at the northern end of the trenches within the mound is 26"

**Leachfield - Construction Notes:**

- 1) Contact the consultant prior to any work to discuss system layout and inspection requirements.
- 2) Construction of the mound shall not take place if the soil moisture content is high. If questionable contractor to contact designer prior to construction.
- 3) Install force main, leaving 4" above grade.
- 4) Plow or scarify to limits of fill. Area to be plowed to a depth of 8" with plow lines running parallel with the contours, and throwing the soil uphill. Do not plow if area is wet. Do not run machinery on plowed surface.
- 5) Mound sand to meet the requirements of §1-913(c), see table:

Sieve Number	Opening (mm)	Percent Passage, by Weight
3/8	9.500	85 - 100
40	0.420	25 - 75
Option 1	60	0 - 30
	100	0 - 10
	200	0 - 5
4	4.750	95 - 100
8	2.380	80 - 100
Option 2	16	1.190
	30	0.590
	50	0.297
	100	0.149
	200	0.074
3/8	9.500	85 - 100
Option 3	40	0.420
	60	0 - 30
	100	0 - 10
	200	0 - 5

- 6) Sand is to be stockpiled on the edge of the plowed area and placed with a small track machine, keeping a minimum of 6" of sand below the tracks. Do not compact the sand.
- 7) Place 8" of 1-1/2" clean hard crushed stone or washed stone per the detail. Lay pressure piping and connect to force main. 1/4" holes to be pointed up with orifice shields over all holes and spaced according to the detail. Ream all holes to remove burrs. System must be tested prior to covering.
- 8) Cover pipe with a minimum of 2" of stone and filter fabric. Topsoil, seed, and mulch the entire area. Grade to drain runoff away from system.

**Water Supply Basis of Design:**

- a) Average day demand = 4 bedroom house @ 490 gpd
- b) Maximum day demand (gpm) = 0.68
- c) Instantaneous peak demand (gpm) = 5 gpm
- d) Source capacity = to be determined
- e) Storage capacity = not required for single family residence
- f) Pump capacities = to be determined
- g) Operating pressure ranges = 30-50 psi
- h) Reference to the floodplain = this project is not in the floodplain

**Water Supply Well:**

- 1) Install well in the location shown on the plan.
- 2) Provide well driller's log.
- 3) Provide well driller's certification as specified below.

**Inspections and Certifications:**

- 1) It is the owner's/ contractor's responsibility to contact the consultant (McCain Consulting - 802-244-5093) for the following:
  - a) For stakeout of the well and leachfield locations - Please provide 2 weeks notice.
  - b) For inspection of the scarification of the soil prior to placing stone. Please provide 72 hours notice.
  - c) For inspection of the pressurization of the force main to 50 psi.
  - d) To observe pump operation and to verify discharge height at the leachfield.
- 2) The septic system installer will provide the consultant with a signed and dated statement as follows:

I hereby certify that the installation-related information submitted is true and correct, and that in the exercise of my reasonable professional judgment, the wastewater system has been installed in accordance with the permitted design and all permit conditions, was inspected, was properly tested, and has successfully met those performance tests.

**Inspections and Certifications (Continued):**

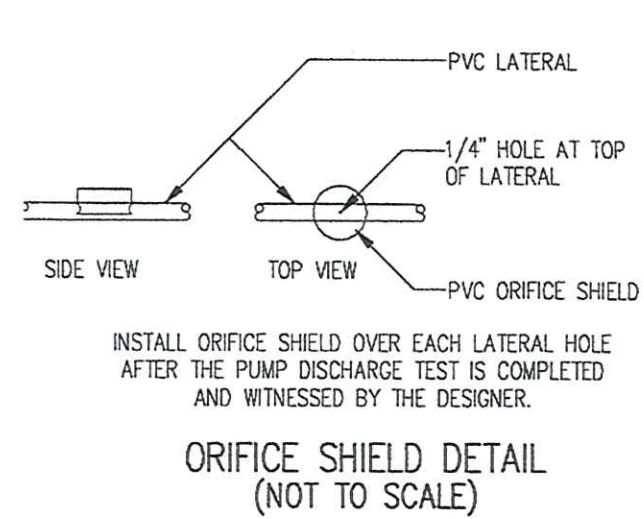
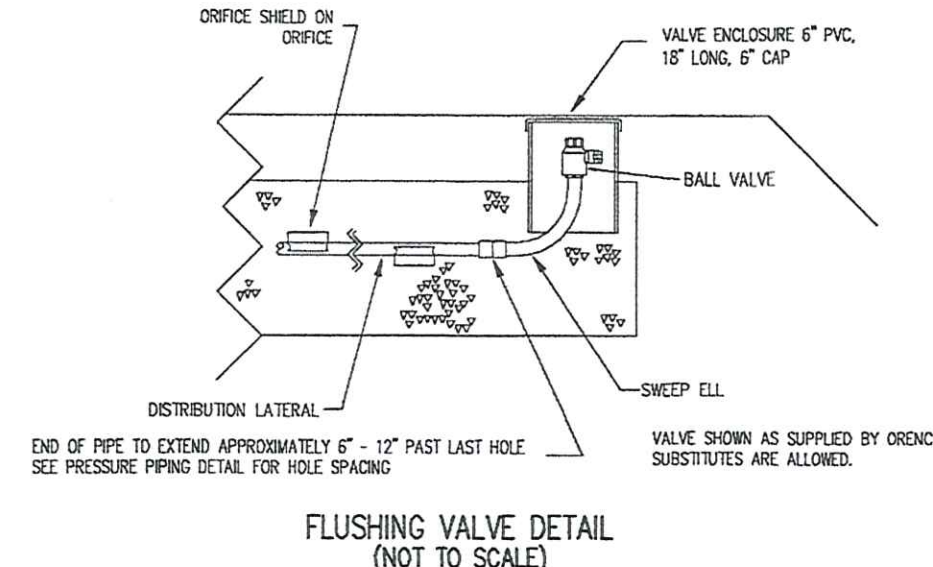
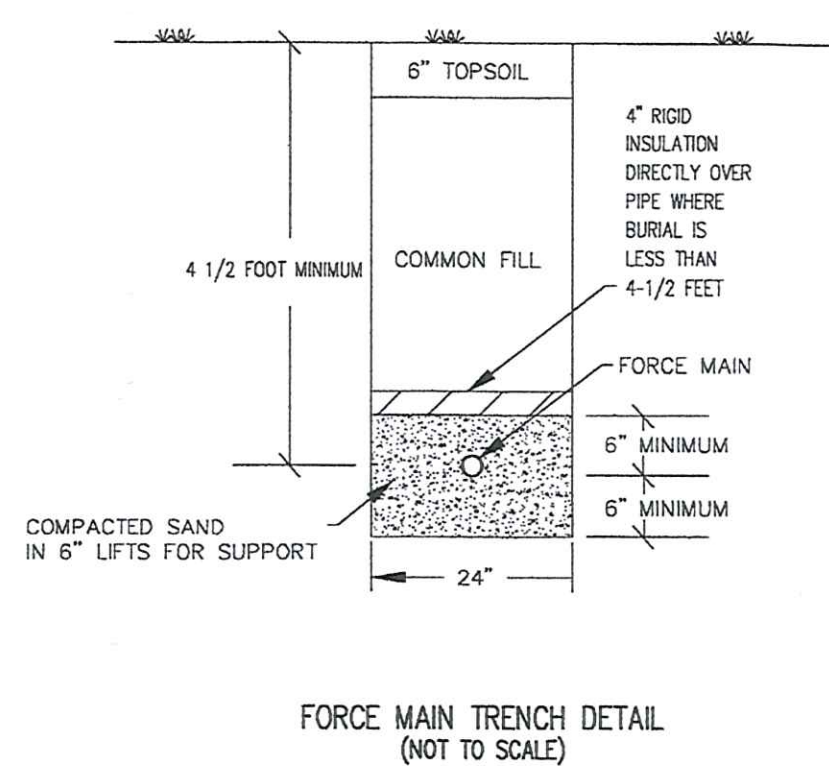
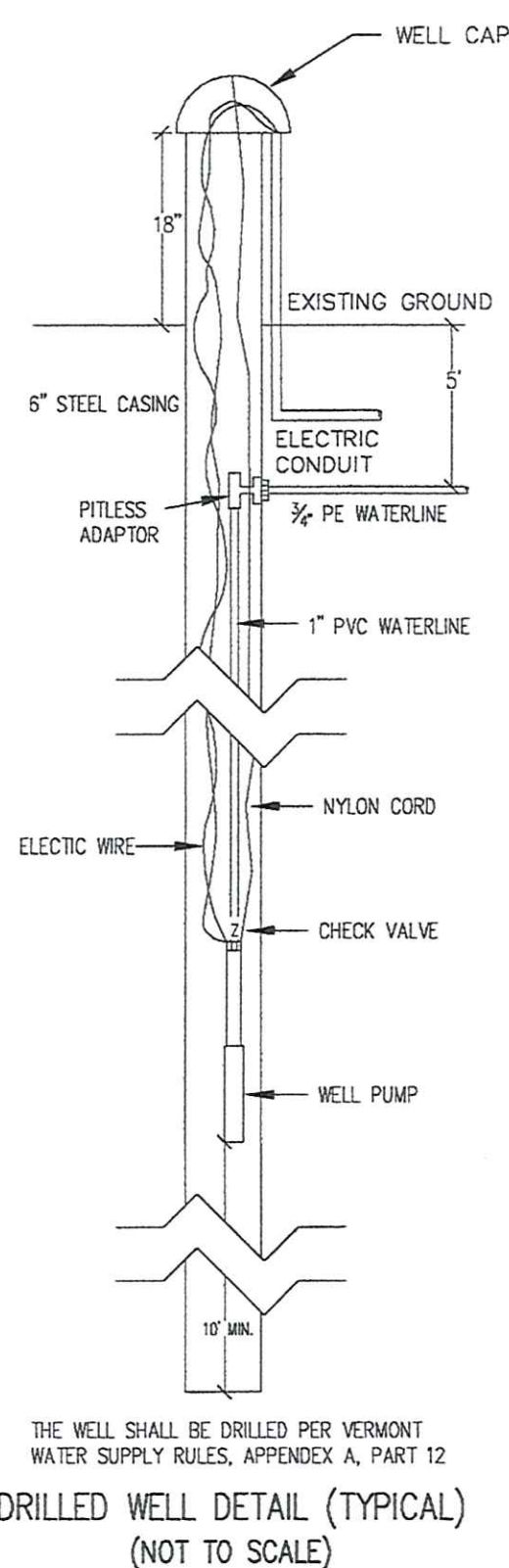
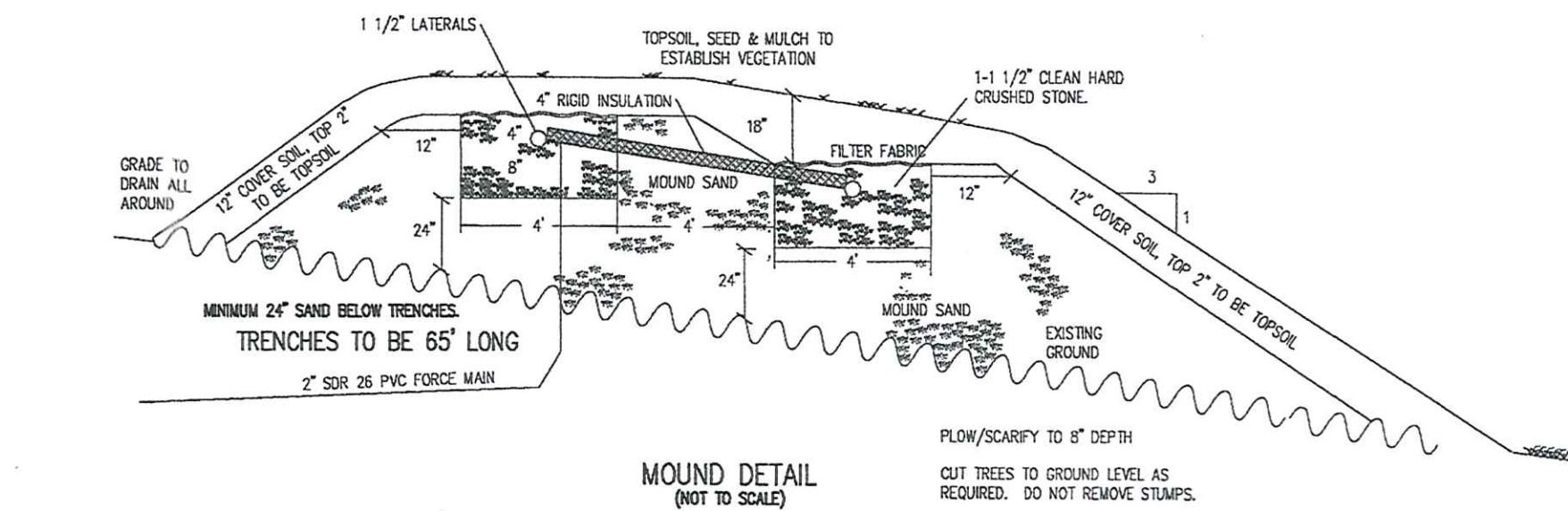
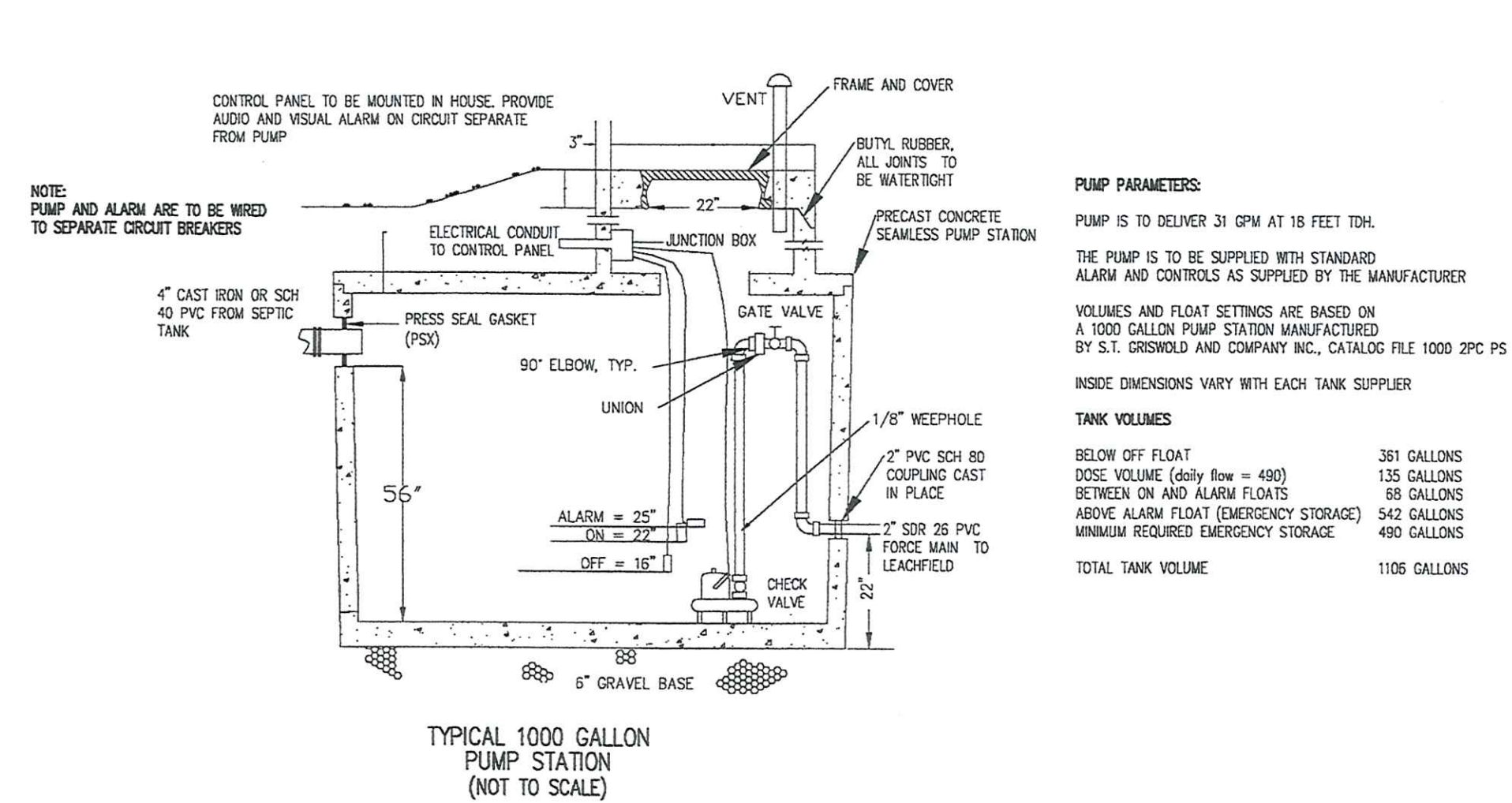
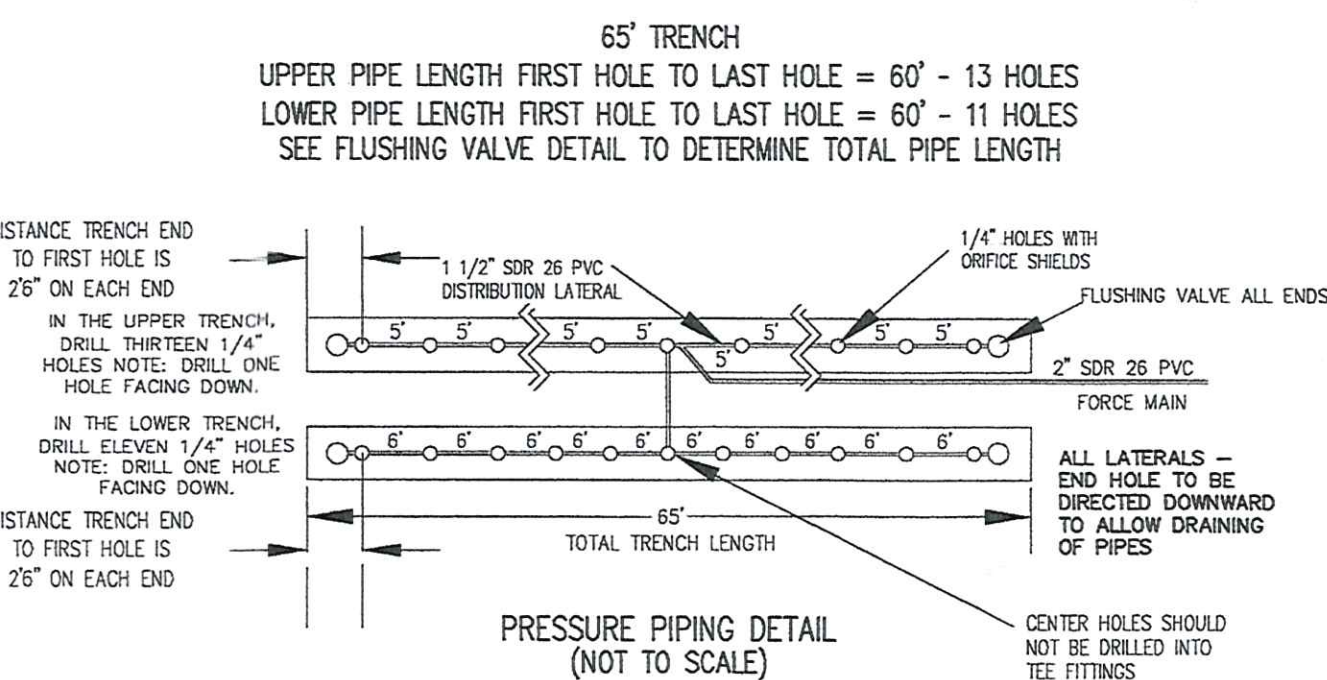
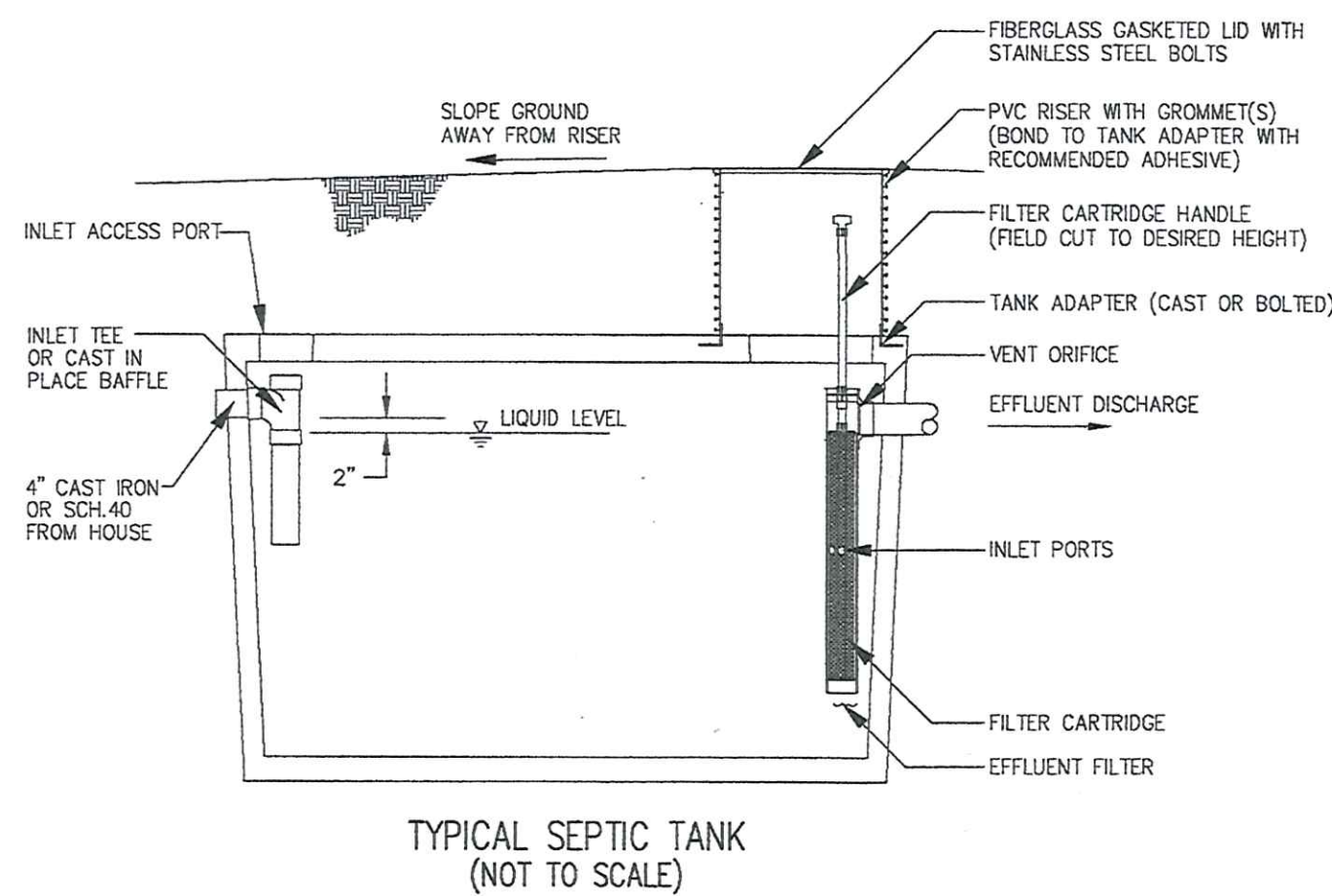
- 3) The well driller will provide the consultant with a signed and dated statement as follows:

I hereby certify that the installation-related information submitted is true and correct, and that in the exercise of my reasonable professional judgment, the potable water supply has been installed in accordance with the permitted design and all permit conditions, was inspected, was properly tested, and has successfully met those performance tests.

- 4) The certification of construction as required by section 1-308(c) of the Environmental Protection Rules may not be provided by the designer if the procedures outlined herein are not followed.

**Maintenance:**

- (1) At least once a year, the depth of sludge and scum in the septic tank should be measured. The tank should be pumped if:
  - (a) The sludge is closer than twelve inches to the outlet baffle, or
  - (b) The scum layer is closer than three inches to the septic tank outlet baffle.
- (2) Following septic tank cleaning in units over 5,000 gallons, all interior surfaces of the tank should be inspected for leaks and cracks.
- (3) At least twice a year, the outlet filter on the septic tank should be removed and cleaned by spraying it with water under normal household pressure.
- (4) At least once a year, dosing tanks and distribution boxes should be opened and settled solids removed as necessary and the dosing tank or distribution box checked for levelness.
- (5) At least once a year, pump stations should be inspected:
  - (a) Remove settled solids as necessary. Solids and scum accumulation in the pump station may be indicative of a septic tank outlet filter malfunction, septic tank overloading, or other cause that should be investigated and remedied.
  - (b) On/off and alarm floats should be tripped to ensure proper operation.
  - (c) Inspect delivery of effluent to the leachfield. Slow delivery may indicate impending pump failure.
- (6) Toxic or hazardous substances should in general not be disposed of in septic systems. These substances may pass through the system in an undiluted state and contaminate groundwater or remain in the septicage and subsequently contaminate the soil or crops at the site of ultimate disposal.
- (7) The leachfields are not designed for the disposal of filter backwash or other byproducts of water treatment, filtration or purification systems.



**Soils Information**

Test Pits 9/15/2015, excavated by backhoe  
Carl Fuller, ANR, Barre, Present to observe

SB-1	0' - 2"	Topsoil Loom, Dark Brown
	2' - 8"	Very Fine Sandy Loom, Friable, Dark Brown, Loose
	8' - 39"	Fine Sandy Loom, Friable, Gray Brown Common Distinct Mottles, Blocky, Slightly Gravelly
SB-2	0' - 3"	Topsoil Loom, Dark Brown
	3' - 12"	Fine Sandy Loom, Friable, Brown, Loose
	12' - 36"	Very Fine Sandy Loom, Firm, Gray Brown Common Distinct Mottles, Blocky
SB-3	0' - 3"	Topsoil Loom, Dark Brown
	3' - 12"	Fine Sandy Loom, Friable, Brown, Loose
	12' - 33"	Very Fine Sandy Loom, Firm, Gray Brown Common Distinct Mottles, Slightly Gravelly
SB-4	0' - 4"	Topsoil Loom, Dark Brown
	4' - 15"	Sandy Loom, Friable, Brown, Loose
	15' - 30"	Very Fine Sandy Loom, Firm, Gray Brown Common Distinct Mottles, Blocky
SB-5		Mottles at 8"
SB-6	0' - 4"	Topsoil, Dark Brown
	4' - 32"	Fine Sandy Loom, Firm in Place/Loose in Hand Light Brown, Angular Blocky, Slightly Gravelly Ledge at 32"
SB-7	0' - 5"	Topsoil
	5' - 25"	Fine Sandy Loom, Friable, Brown, Loose, Slightly Gravelly
	25' - 29"	Loomy Fine Sandy Loom, Firm, Gray Brown Few Faint Mottles Blocky
SB-8	0' - 3"	Topsoil, Dark Brown
	3' - 21"	Fine Sandy Loom, Friable, Yellow Brown, Loose Slightly Gravelly Ledge at 21"
SB-9	0' - 6"	Topsoil, Dark Brown
	6' - 30"	Very Fine Sandy Loom, Friable, Light Brown, Manganese 30' - 33"
		Loomy Very Fine Sand, Firm, Few Faint Mottles
SB-10	0' - 4"	Topsoil
	4' - 24"	Very Fine Sandy Loom, Friable, Brown, Slightly Gravelly
	24' - 34"	Loomy Very Fine Sand, Firm, Gray Brown, Few Faint Mottles, Blocky

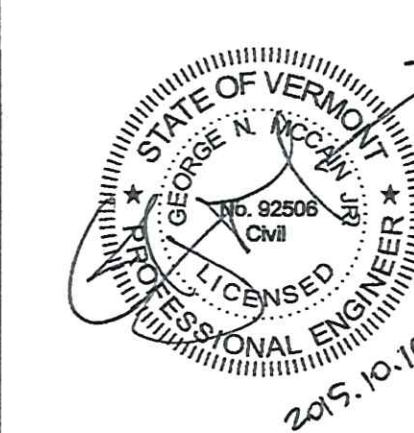
**Percolation Tests**

PT-1	14 Min/in @ 24"
PT-2	21 Min/in @ 24"

Drinking Water and Groundwater Protection Division

THIS IS SUBJECT TO PROVISIONS OR CONDITIONS LISTED IN PERMIT  
Permit Number: WW-5-7026  
Dated: 10/30/15

Received  
OCT 15 2015  
Drinking Water and Ground Water Protection Division



**DETAILS**  
GERALD MULHALL REVOCABLE LIVING TRUST  
SINGLE LOT WASTEWATER DESIGN  
WOODS ROAD SOUTH WARREN, VT

SCALE: NTS  
DESIGNED BY: GMJr PROJECT #35052  
DRAWN BY: WDB  
CHECKED BY: GNM

**McCain Consulting, Inc.**  
93 SOUTH MAIN STREET  
WATERBURY, VERMONT 05676

DATE: SEPTEMBER 30, 2015 SHEET 2 OF 2

THE CONTRACTOR SHALL REVIEW ALL CONSTRUCTION ACTIVITIES, COMPONENT LOCATIONS, SPECIFICATIONS, AND DETAILS PRIOR TO COMMENCEMENT OF SITE WORK AND SHALL NOTIFY MCCAIN CONSULTING OF ANY ISSUES OR DISCREPANCIES THAT ARISE FROM THAT REVIEW.

ENGINEER:  
GEORGE N. MCCAIN, JR., P.E.  
VT P.E. 92506

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