

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.

Septitech:

- 1) Use Septitech Model M750 pretreatment system.
- 2) Contact local distributor, S.T. Griswold at (800) 339-4565 for purchase and installation information.
- 3) Install Septitech in accordance with manufacturer's installation instructions.
- 4) Septitech shall be installed downslope of septic tank with 1/4" per foot minimum grade on connecting pipe.
- 5) Septitech shall be supplied with pump to deliver 24 gpm @ 10' TDH.
- 6) Septitech shall be placed on 6" of clean sand.
- 7) Septitech cover shall remain above grade and accessible.
- 8) Heavy objects shall not be placed on or near the pretreatment system.

Distribution Box:

- 1) Use concrete distribution box. Installation is to include a riser to grade for access and maintenance as required by the Environmental Protection Rules effective August 16, 2002.
- 2) Use 4" solid PVC out of box. Slope solid PVC at 1/4" per foot for 5' minimum.
- 3) Use grout or rubber seals to make inlet and outlets watertight.
- 4) All outlets are to be level.
 - a) Use water test to level outlets. All outlets are to be at the same elevation, or use a "dial-a-flow" type device.
 - b) Add water to box to verify equal flow out of pipes. Adjust and retest as required.

Design Calculations:

- 1) Assume a three owner bedrooms and a five guest bedroom Bed and Breakfast. Daily Flow (DF) @ 140 gpd/br for each owner bedroom and 100 gpd for the guest bedrooms = 920 gpd
- 2) Percolation rate = 4 minute/inch
- 3) Application rate (AR) = $\frac{1}{(3/\sqrt{L})} \times 0.8 \times 2 = \frac{1}{(3/\sqrt{4})} \times 0.8 \times 2 = 2.4 \text{ gal/sf/day}$
Maximum application rate for filtrate in absorption trench = 2.4 gal/sf/day
- 4) Required trench area: $DF/AR = 920/2.4 = 383 \text{ sf}$
- 5) Actual area: two trenches @ 4' x 60' = 480 sf
- 6) Induced groundwater mounding, $h = l/r \times f$, where h = induced groundwater mound (ft)
 l = linear loading rate (gpd/ft) = $920/60 = 15.3 \text{ gpd/ft}$
 f = linear loading rate factor for coarse sandy loam with a 5% ground slope (from table 1) = 18.7 gpd/ft/ft
therefore, $h = 15/18.7 = 0.8' = 9.6"$
- 7) Separation between the bottom of the trench and the top of the induced groundwater mound, sr (in) = $l - h$, where l = depth to limiting layer = 40" (use 36" per "Simplified Procedure for Prescriptive Desktop Mounding Analysis.")
 h = induced groundwater mound = 9.6"
therefore, $sr = 36 - 9.6 = 26.4 > 18"$ required

Leachfield - Construction Notes:

- 1) Bottom of trenches to be 6" below grade.
- 2) Scarify sides and bottom of trenches prior to placing stone.
- 3) Place 6" of 1-1/2" clean hard crushed stone or washed stone.
- 4) Place 4" perforated PVC pipe in center of trench.
- 5) Cap end of all pipes 2" from trench end.
- 6) Cover distribution lateral with a minimum of 2" of stone.
- 7) Cover stone with filter fabric.
- 8) Grade surface of leachfield to direct surface water away from leachfield.
- 9) Topsoil, seed, and mulch all disturbed areas to establish vegetation.

Water Supply Basis of Design:

- a) Average day demand = 3 owner bedroom and 5 guest bedroom Bed & Breakfast @ 920 gpd
- b) Maximum day demand (gpm) = 1.27
- 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 and local health inspector for the following:
 - a) For stakeout of the well and leachfield locations.
 - b) For inspection of the scarification of the soil prior to placing stone.
 - 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.

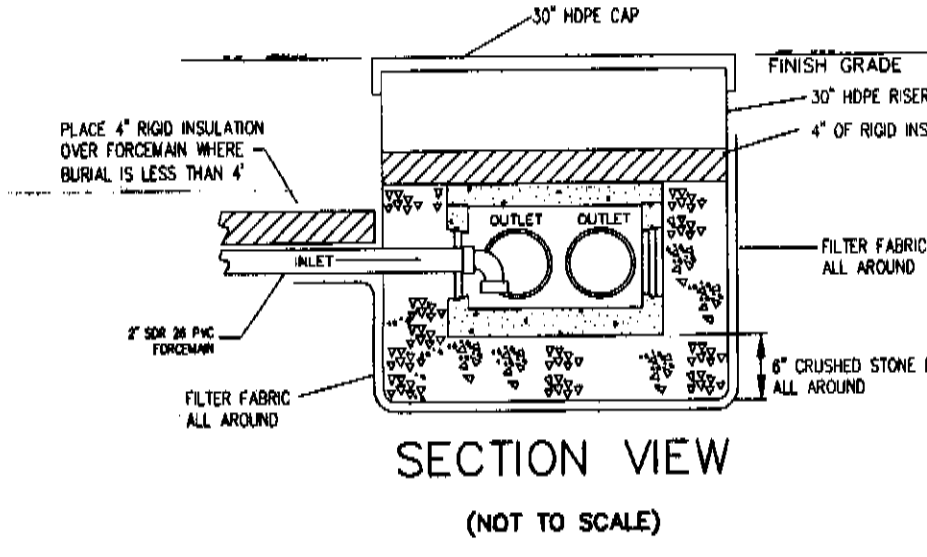
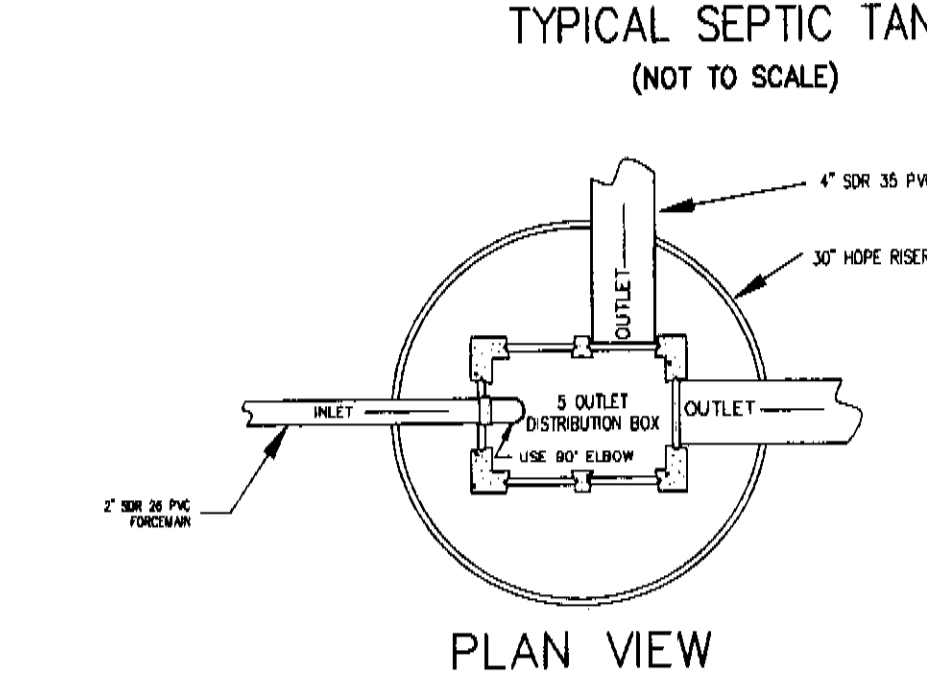
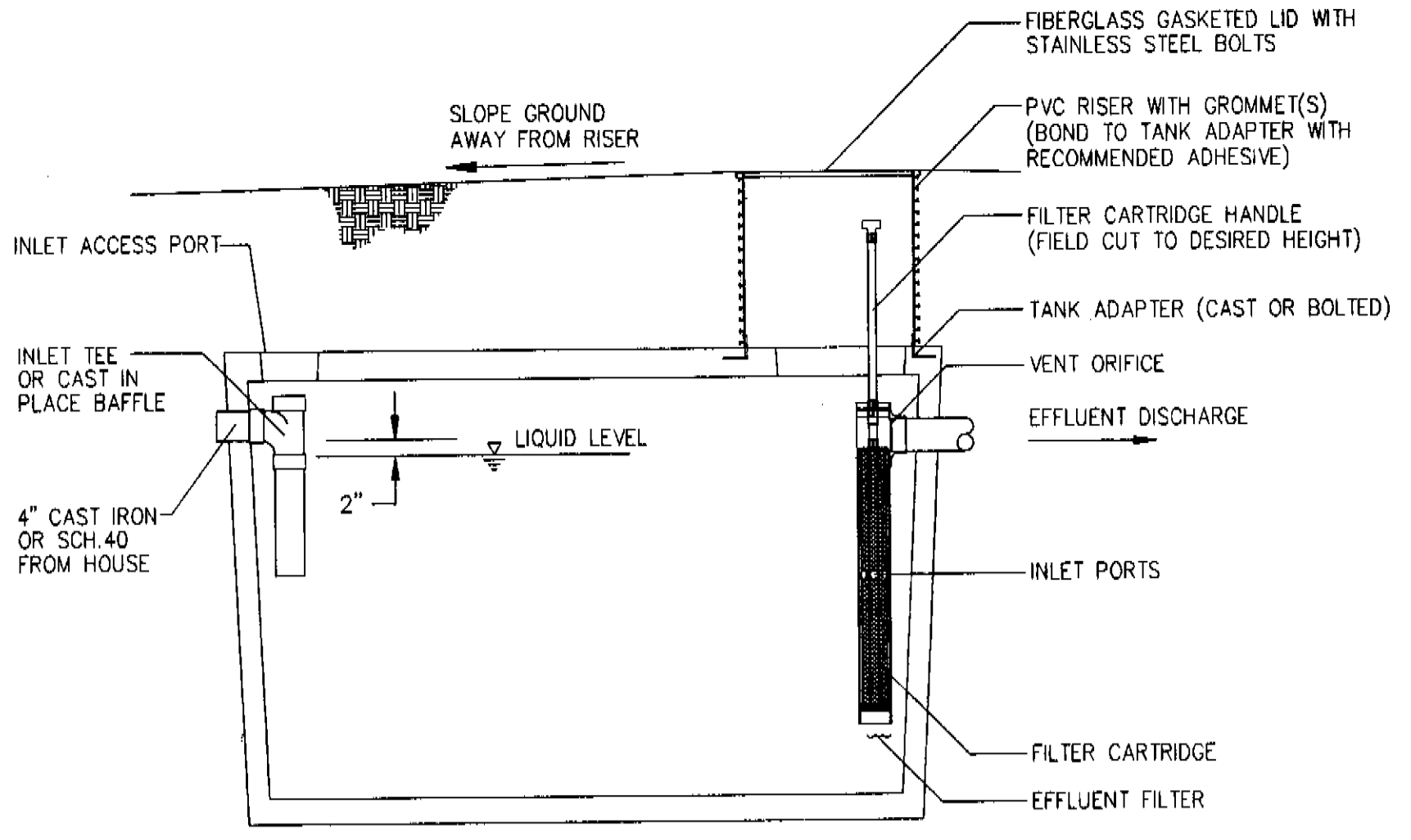
Inspections and Certifications: (continued)

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

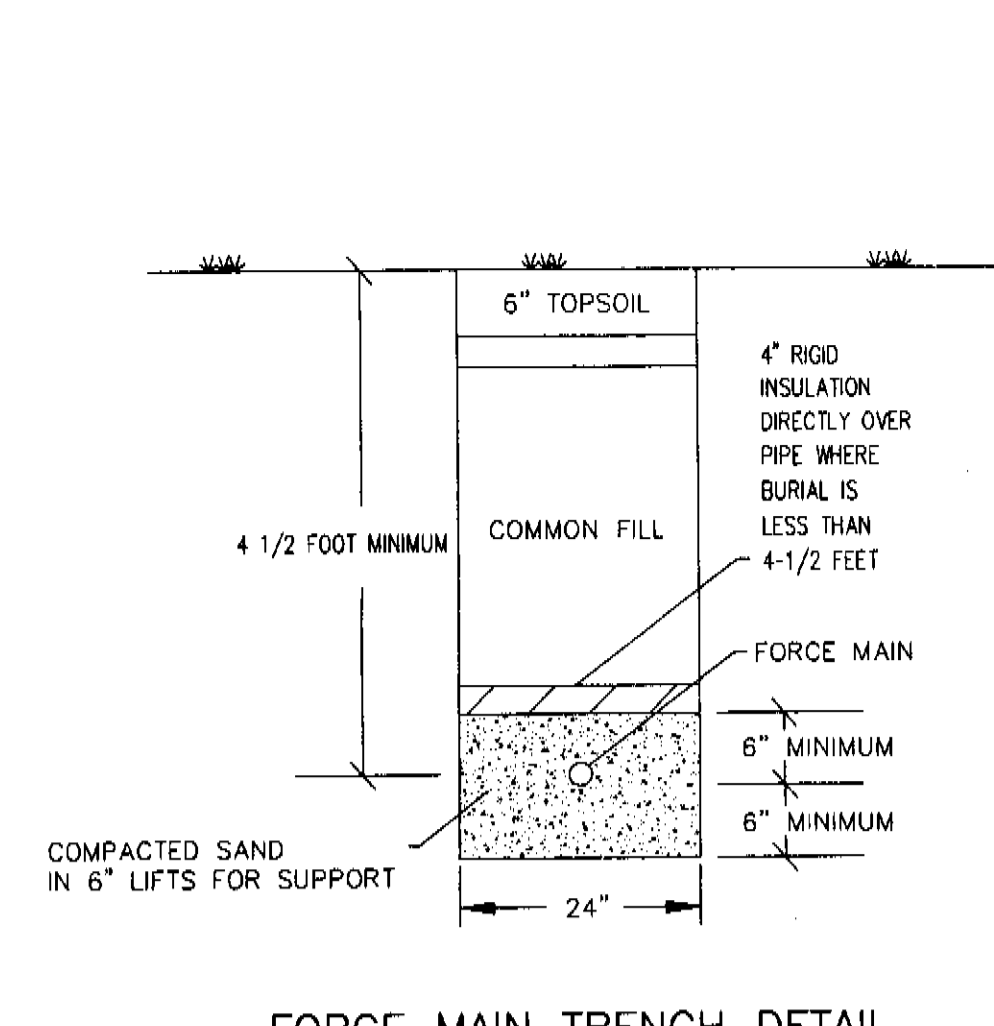
I hereby certify that the installation-related information submitted is true and correct, and that in the exercise of my reasonable professional judgment, the potable water supply has been installed in accordance with the permitted design and all permit conditions, was inspected, was properly tested, and has successfully met those performance tests.
- 4) The certification of construction as required by section 1-303(c) of the Environmental Protection Rules may not be provided by the designer if the procedures outlined herein are not followed.

Maintenance: Septic Tank and Leachfield

- (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.
 - (c) Following septic tank cleaning in units over 5,000 gallons, all interior surfaces of the tank should be inspected for leaks and cracks.
- (2) At least once a year, the outlet filter on the septic tank should be removed and cleaned by spraying it with water under normal household pressure.
- (3) 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.
 - (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 distribution box. Slow delivery may indicate impending pump failure.
- (4) At least once a year, pump stations should be inspected.
 - (a) Toxic or hazardous substances should in general not be disposed of in septic systems. These substances may pass through the system in an unaltered state and contaminate groundwater or remain in the septic tank and subsequently contaminate the soil or crops at the site of ultimate disposal.
- (5) The leachfields are not designed for the disposal of filter backwash or other byproducts of water treatment, filtration or purification systems.
- (6) The Septitech M750 Pretreatment System:
 - 1) The owner shall have a valid maintenance contract in force at all times. The minimum length of any contract shall be for a period of two years. A copy of the initial and each succeeding contract shall be submitted to the appropriate Regional Environmental Office of the Agency. Maintenance shall be performed by, or shall be supervised by, a Vermont Registered Professional Engineer or a Certified Class B Site Technician, approved by the vendor, who shall provide written inspection reports detailing the maintenance performed on the specific system, any problems that have occurred since the previous inspection, any modifications made to the system, the date of the inspection, and any work required to ensure the system operates in compliance with Innovative/Alternative System Approval #2002-03.
 - 2) The inspection shall be performed in accord with the manufacturer's Operation and Maintenance Manual submitted as part of the Innovative/Alternative System application package. If at any inspection the effluent is cloudy or pungent smelling, a sample shall be collected and tested for BOD and TSS. The results of any testing shall be submitted with the annual inspection report.
 - 3) The first inspection shall be completed no later than 6 months after placing the system in service.
 - 4) The second inspection shall be completed no later than 12 months after placing the system in service.
 - 5) Subsequent inspections shall be completed at least once per year based on the date when the system was first placed in service.
 - 6) All inspection reports shall be filed with the appropriate Regional Environmental Office of the Agency and the landowner no later than 30 days after the date of inspection.

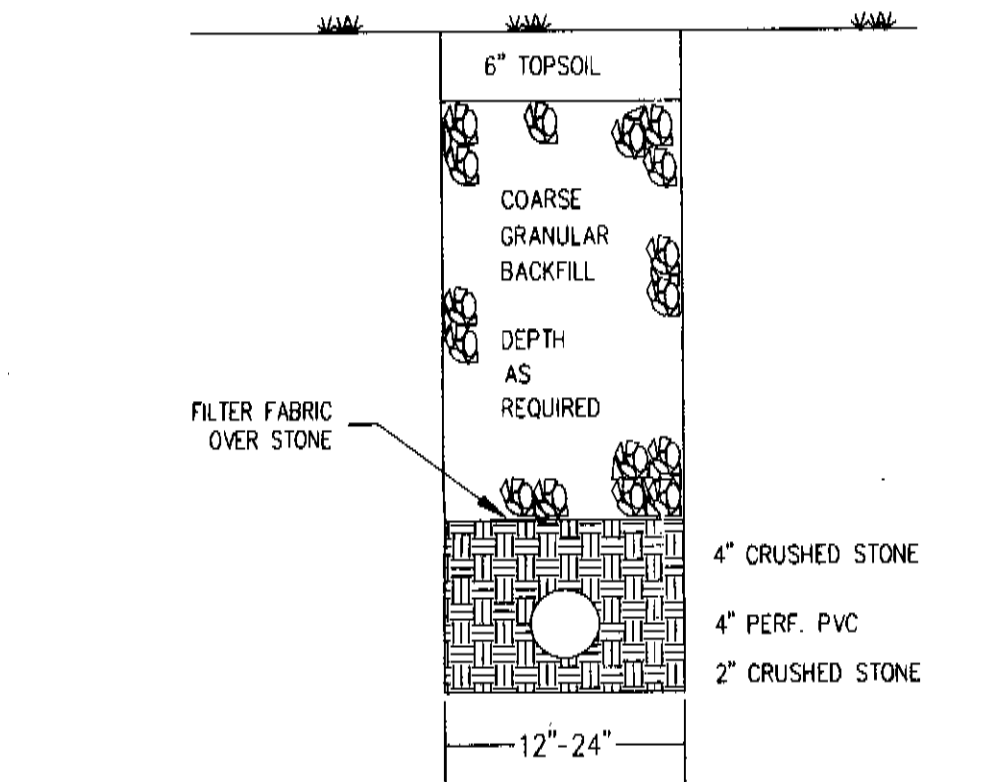


FIVE OUTLET DISTRIBUTION BOX WITH RISER

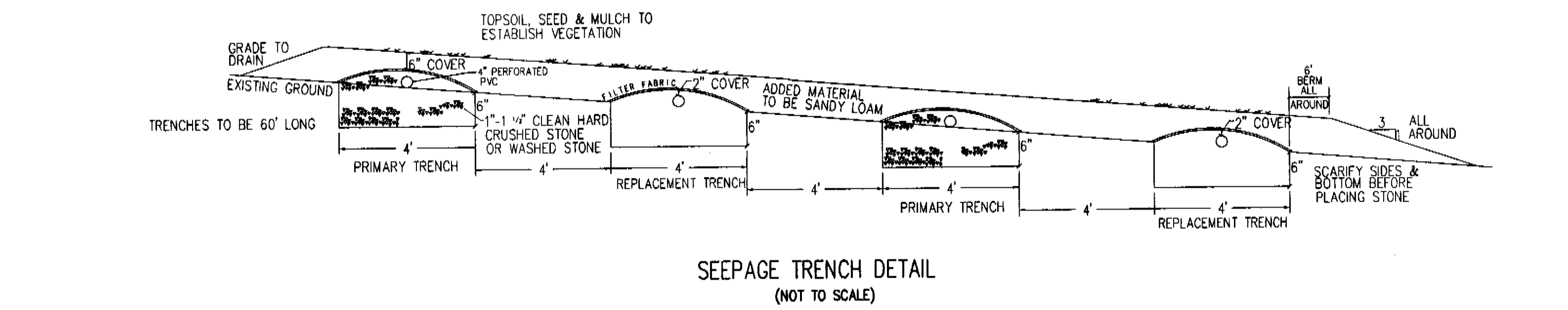


FORCE MAIN TRENCH DETAIL (NOT TO SCALE)

- NOTES:**
1. DISTRIBUTION BOX IS TO BE SET ON A 6" BASE OF CRUSHED STONE. APPLY FILTER FABRIC ALL AROUND, BEFORE SETTING CRUSHED STONE IN PLACE.
 2. AFTER ALL PIPING CONNECTIONS ARE COMPLETED ADD STONE ALL AROUND DISTRIBUTION BOX UP TO TOP OF THE BOX.
 3. PLACE RISER ON TOP OF STONE, RISER TO EXTEND TO GROUND SURFACE.
 4. PLACE 4" OF RIGID INSULATION ON TOP OF BOX, CUT INSULATION AS REQUIRED TO FIT SNUGGLY INSIDE RISER.



CURTAIN DRAIN (NOT TO SCALE)



SEEPAGE TRENCH DETAIL (NOT TO SCALE)

GROUNDWATER LEVEL MONITORING

Water Monitor #	3/4/2002	3/7/2002	3/11/2002	3/14/2002	3/19/2002	3/21/2002	3/25/2002	3/28/2002	4/1/2002	4/4/2002	4/8/2002	4/11/2002	4/15/2002	4/18/2002	4/22/2002	4/24/2002	4/28/2002	5/2/2002	5/8/2002	5/10/2002	5/13/2002	5/17/2002	5/20/2002	5/23/2002	5/28/2002
1	11.50	19.00	14.00	20.00	24.00	25	26	21	9	18	23	22.5	6	16.5	24	21	13.5	21	24	27.5	5.5	6.5	18	24	29.5
2	54 - dry	54 - dry	54.00	54.5 - dry	54 - dry	54 - dry	54 - dry	54 - dry	54 - dry	54 - dry	54 - dry	48 - dry	43	47.5	50	51	54 - dry	54 - dry	54 - dry	48 - dry	48 - dry	53	52	54 - dry	dry
3	48 - dry	48.5 - dry	47.50	48 - dry	48 - dry	48 - dry	48.5 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry	48 - dry
5	42 - dry	38.5 - dry	40.5 - dry	40 - dry	40 - dry	40 - dry	40 - dry	40 - dry	39.5 - dry	40 - dry	40 - dry	41 - dry	32	40 - dry	40 - dry	40 - dry	40 - dry	40 - dry	40 - dry	40 - dry	40 - dry	40 - dry	40 - dry	40 - dry	40 - dry

Proposed Shallow-H-Ground Leachfield with Pretreatment and 6" of stone, 24" Vertical Separation Required. Critical Level is 30' BGS

Depth	# Days Allowed	1	2	3	5
30"-24"	30	10.5	0	0	0
24"-18"	20	38.5	0	0	0
18"-12"	10	11	0	0	0
< 12"	0	8.5	0	0	0

SOIL INFORMATION

- MAD RIVER VALLEY ALLIANCE CHURCH, ROUTE 17, WAITSFIELD
TEST PITS DUG 08/30/00 BY OPEN-PIIT BACKHOE
- SB-1
0 - 10" DARK BROWN TOPSOIL, LOAM
10" - 38" GRAY BROWN FINE SANDY SILT, FIRM
38" - 66" BROWN MEDIUM SAND WITH SILTY LENSES
COMMON DISTINCT MOTTLES @ 10", WATER @ 65%
 - SB-2
0 - 24" BROWN MEDIUM COARSE SANDY GRAVEL
24" - 55" BROWN SANDY GRAVEL WITH SILTY PACKETS, FRIABLE
FEW FAINT MOTTLES @ 24"
 - SB-3
0 - 10" DARK BROWN TOPSOIL, LOAM
10" - 31" GRAY BROWN FINE SANDY SILT, FIRM
31" - 62" BROWN GRAY SILT FEW FAINT MOTTLES @ 26"
MAGNESIUM STAINED @ 31"
 - SB-4
0 - 12" DARK BROWN TOPSOIL, LOAM
12" - 56" BROWN COARSE SANDY GRAVEL WITH SILTY POCKETS
FEW FAINT MOTTLES @ 25"
 - SB-5
0 - 18" BROWN TOPSOIL, LOAM
18" - 50" GRAY BROWN FINE SANDY SILTY TILL
FEW DISTINCT MOTTLES @ 18"
 - SB-6
0 - 10" BROWN TOPSOIL, LOAM
10" - 31" GRAY FINE SANDY SILTY TILL
31" - 52" BROWN COARSE SILTY GRAVEL, SATURATED
COMMON DISTINCT MOTTLES @ 10"
 - SB-7
0 - 12" BROWN TOPSOIL, SANDY LOAM
12" - 24" ORANGE BROWN MEDIUM/COARSE SAND
24" - 36" ORANGE BROWN SLIGHTLY SILTY FINE SAND
36" - 60" BROWN SLIGHTLY SILTY COARSE GRAVEL
 - SB-8
0 - 10" DARK BROWN TOPSOIL, SILTY LOAM
10" - 49" ORANGE BROWN COARSE SANDY GRAVEL
FEW FAINT MOTTLES @ 20"
FINES WASHED @ 29", CURTAIN DRAIN
 - SB-9
0 - 8" DARK BROWN TOPSOIL, SILTY LOAM
8" - 45" ORANGE BROWN SILTY LOAM,
COMMON DISTINCT MOTTLES, WATER @ 40%
 - SB-10
0 - 18" ORANGE BROWN COARSE SANDY GRAVEL
18" - 50" BROWN COARSE SANDY GRAVEL
WATER @ 50"
CURTAIN DRAIN WITH MONITOR

Percolation Tests
Taken 10/25/04

PT-1	1 Min/in	@ 24"
PT-2	4 Min/in	@ 25"

Dept. Of Environmental Conservation
Approved: [Signature]
Permit #: 0001-S-02022
Date: 12/18/04

REVISED 11/11/04 TITLE BLOCK, WATER MONITORING TABLES

DETAILS
SUSAN PARENT
SINGLE LOT WASTEWATER DESIGN
BED & BREAKFAST

VT ROUTE 17
WAITSFIELD

SCALE: 1" = 30'
DESIGNED BY: GNM PROJECT: #20094B
DRAWN BY: WDB
CHECKED BY: GNM/NPN

DATE: OCTOBER 28, 2004 SHEET 2 OF 2

McCAIN CONSULTING, INC.
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