

TYPICAL TRENCH DETAIL
N.T.S.

- NOTES:
1. Compaction of backfill and bedding shall be a minimum of 90% (95% under roadway surfaces) of maximum dry density determined in the standard proctor test (ASTM D698).
 2. Bedding material shall consist of crushed stone, gravel or sand with a maximum size of 3/4". Submit a sample to the Engineer for approval.
 3. In trenches with unstable materials, trench bottom shall first be stabilized by placement of filter fabric then crushed stone (3/4" maximum).
 4. Where 4 ft. of cover cannot be maintained the sewer pipe shall be protected against freezing by installation of a minimum of 3 inch thick styrofoam insulating sheets.
 5. Approved backfill shall not contain any stones more than 12" in largest dimension (6" in roadways, 2" maximum diameter within 2' of the outside of the pipe), or contain any frozen, wet, or organic material.
 6. Use 3 inch styrofoam sheets at all road crossings or areas that are to be plowed during the winter.
 7. The sides of trenches 4' or more in depth entered by personnel shall be sheeted or sloped to the angle of repose as defined by O.S.H.A. standards.

DISPOSAL FIELD DESIGN DATA

- Performance based design (Desktop mounding analysis) - Mound
Filtrate disposal system
- Maintain at least 3' between bottom of trench and seasonal high groundwater table for septic tank effluent. (Reduces to 2' for filtrate system)
 - In addition for desktop mounding, the system must maintain at least 3' separation between bottom of trench and mounded water table. (Reduces to 18" for filtrate system)
 - Maintain at least 4' between bottom of trench and bedrock. (Reduces to 2' for filtrate system).
 - Induced groundwater mounding is at least 6" below grade

Design Daily Flow:

- 3 Bedroom Home at 140 gallons/bedroom = 420 gpd

Application Rate: (Mound)

- Q = Application rate = 1.0 gallons/square foot * 2.0 for filtrate effluent = 2.0 gallons/s.f.

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 = (h)(f)
TP 10	8.1 - 10%	Fine Sandy Loam	13.5	8"-6" = 2"	0.17 feet	2.3 gals/l.f.
TP 4/5	10.1 - 15%	Fine Sandy Loam	33.7	18"-6" = 12"	1.00 feet	33.7 gals/l.f.
TP 8	4.1 - 6%	Sandy Loam	18.7	16"-6" = 10"	0.83 feet	15.5 gals/l.f.

Absorption Trench Area:

- Trench Area Based Upon Application Rate
- 420 gpd at 2.0 gallons/square foot = 210 square feet required
- Trench Length Based Upon Desktop Mounding - TP 10 location
- 420 gpd at 2.3 gallons/l.f. = 183 minimum linear feet required (Variance Required for reasonable length system. Use 50' long trench for best fit system)
 - Use a 6' x 50' trench = 300 square feet provided
- Trench Length Based Upon Desktop Mounding - TP 4/5 location
- 420 gpd at 33.7 gallons/l.f. = 13 minimum linear feet required
 - Area within setback for flood hazard
- Trench Length Based Upon Desktop Mounding - TP 8 location
- 420 gpd at 15.5 gallons/l.f. = 27 minimum linear feet required
 - Area within setback for flood hazard

Sand Req'd below trench: (filtrate system)

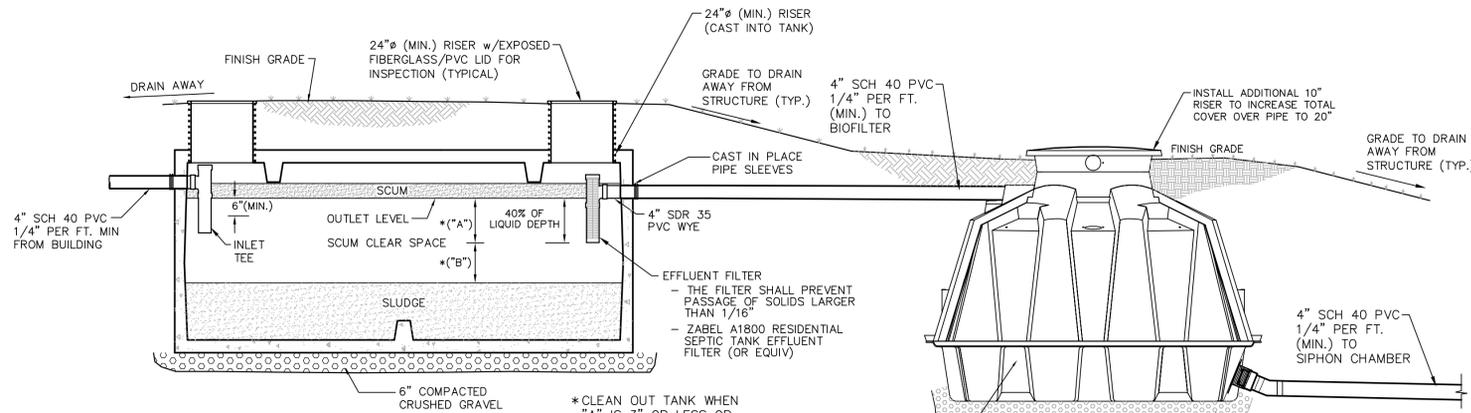
- TP 10 location
- Sand depth below trench, 24" above H₂O = 24" - 8" = 16"
 - Sand depth below trench, 18" above mounded H₂O = 18" - 2" = 12"

Basal Area:

- 420 gpd at 0.74 gallons/square foot = 568 square feet required
- Effective area of 50' x 22' = 1100 square feet provided (i.e. 12' min width req'd)

Pump Requirements:

- Twelve (12) 3/8" diameter orifice holes 4'2" o.c.
 - 2.87 gpm/orifice x 12 = 35 gpm
 - TDH @ 35 gpm
 - Friction 5
 - Residual 3
 - 8
- Use #413 siphon @ 140 gals/minute. Maintain siphon outlet invert a minimum of 10' above trench lateral invert.



1000 GALLON SEPTIC TANK
N.T.S.

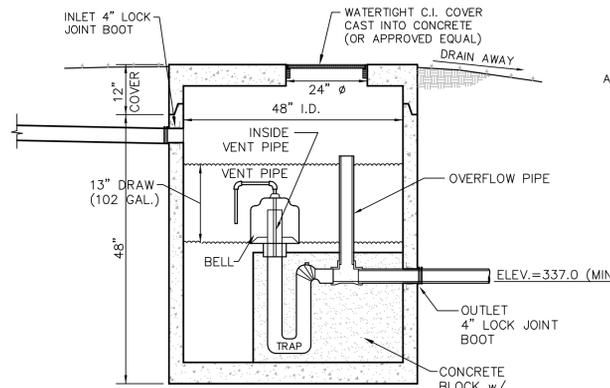
- Septic Tank Notes
1. Septic tank shall be a precast concrete tank, unless otherwise approved.
 2. Maintenance
 - At least once a year, the depth of sludge and scum in the septic tank should be measured. The tank should be pumped if:
 - The sludge is closer than twelve inches to the outlet baffle or
 - The scum layer is closer than three inches to the outlet baffle.
 - Under no circumstances should anyone enter a septic tank.
 3. Recommendations
 - The use of garbage grinders is discouraged as sludge accumulation in the septic tank can be increased by up to 40%. If used, the septic tank will require more frequent pumping.
 - The septic system is designed to handle human waste and toilet paper, plus water from plumbing fixtures such as toilets, baths and sinks. Moderate use of household cleaners, detergents and bleach should not damage your system; however, indiscriminate use may cause problems. Non-degradable paper products and any other non-biodegradable substances should not be put in your wastewater system.
 - Minimize the amount of water used in the household. Excessive water could flush solids from the septic tank to the disposal field which leads to clogging or plugging of the piping. When dishwashers and washers are used, make sure loads are full and stagger their use to reduce peak flows, i.e. stagger loads of laundry over several days instead of one day.
 4. Walkways, patios and decks or other permanent structures should not be constructed over the septic tank.
 5. There should be no need to use commercial "starter", "bacterial feeds", or "cleaners", etc. Bacteria in a septic tank system occurs naturally.

*CLEAN OUT TANK WHEN "A" IS 3" OR LESS OR "B" IS 12" OR LESS

GENERAL NOTES:
-ALL TANKS TO BE WATER-PROOF w/BOOTED CONNECTIONS
-INLET & OUTLET RISERS REQUIRED



BIO-FILTER DETAIL
N.T.S.



SIPHON CHAMBER DETAIL
N.T.S.

TANK TESTING (3 TANKS)

- A. The tanks shall be tested by the following procedure:
1. Exfiltration Leakage Test: All pipes and other openings into the tank shall be suitably plugged and the plugs braced to prevent blowout.
The tank shall then be filled with water to a point at least two inches about the point of the riser connection to the top of the tank. A period of time may be permitted, if the Contractor so wishes, to allow for absorption. At the end of this period, the tank shall be refilled, if necessary, and the measuring time of twenty-four (24) hours begun. There shall be no measurable leakage over the twenty-four hour test period. If leakage exists, repairs shall be made as approved by the Engineer and the tank retested.
If the Contractor elects to backfill prior to testing, the testing shall be at his own risk, and it shall be incumbent upon the Contractor to determine the reason for any failure of the test. No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorption, etc. It will be assumed that all loss of water during the test is a result of leaks through the joints or through the concrete. Furthermore, the Contractor shall take any steps necessary to assure the Engineer that the water table is below the bottom of the tank throughout the test.

SITE ENGINEER:



CIVIL ENGINEERING ASSOCIATES, INC.
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DRAWN
PJM
CHECKED
BCE
APPROVED
BCE

OWNER:

TERRY HOTALING

PROJECT:

PROPOSED WASTEWATER SYSTEM

142 OAK HILL ROAD
ROAD
CHARLOTTE
VERMONT

DATE	CHECKED	REVISION
2/29/12	BCE	STATE PERMIT PLANS

WASTEWATER DETAILS

DATE
JUNE, 2011
SCALE
AS SHOWN
PROJ. NO.
05134

DRAWING NUMBER
C2.0