

Installation Instructions for Pressurized Sand Fill Septic Systems



INFILTRATOR®
systems inc.

Before You Begin

Infiltrator® chambers can only be installed according to state and/or local regulations. Contact your local regulator for specific requirements.

Soil and site conditions must be approved prior to installation. Conduct a thorough site evaluation to determine proper sizing and siting of the system before installation.

These guidelines for construction machinery must be followed during installation:

- ⌘ Avoid direct contact with chambers when using construction equipment. Chambers require a 12-inch minimum of compacted cover to support a wheel load rating of 16,000 lbs/axle or equivalent to an H-10 AASHTO load rating.
- ⌘ Only drive across the trenches when necessary. Never drive wheeled machinery over chambers.
- ⌘ Avoid stones larger than 3 inches in diameter in backfill. Remove stones this size or larger that are in contact with chambers.

Materials and Equipment Needed

- ⌘ Infiltrator Chambers and End Plates
- ⌘ Pressure Lateral Pipe
- ⌘ Sand and Specified Fill Material
- ⌘ Plastic Pipe straps, all weather, 120 lb. tensile strength (nylon prohibited)
- ⌘ Vibratory Plate Compactor
- ⌘ Utility Knife or Hole Saw
- ⌘ Backhoe/Bulldozer
- ⌘ Glue
- ⌘ Rake
- ⌘ 2" Drywall Screws*
- ⌘ Garden Hose*
- ⌘ Chisel Plow*
- ⌘ Paving Block*

* Optional

FIGURE 1
TYPICAL SAND MOUND SYSTEM
(not to scale)

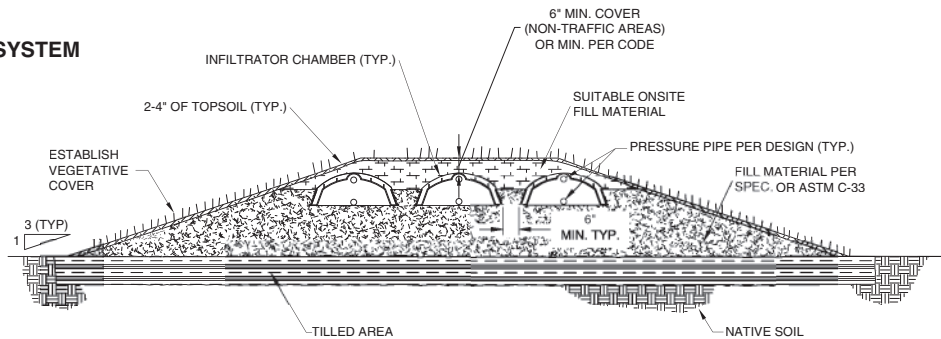


FIGURE 2
TYPICAL AT-GRADE SYSTEM
(not to scale)

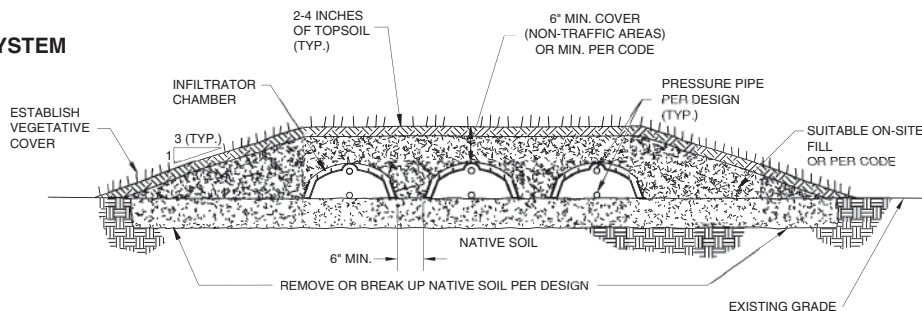
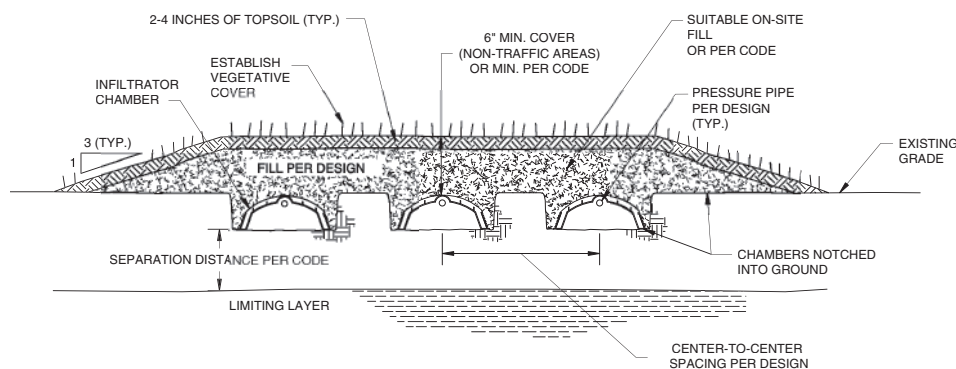


FIGURE 3
TYPICAL SHALLOW IN-GROUND SYSTEM
(not to scale)



Sand Mound Systems

Preparing the Site

1. Review site plans to determine the height of the seasonal high water table or other limiting factors.
2. Calculate the number of sand lifts necessary. Lifts should measure 6 to 12 inches in height.
3. Confirm that the sand used to build the mound meets plan specifications. If no specifications are available, Infiltrator Systems recommends sands that meet the grain size specifications (ASTM C33) below.

TABLE 1: GRAIN SIZE SPECIFICATIONS (ASTM C33)

Sieve Size	% Passing
3/8"	100%
No. 4	90% - 100%
No. 30	20% - 60%
No. 200	0% - 5%

4. Install sedimentation and erosion control measures.
5. Cut trees flush to the ground (or remove if code allows), remove surface boulders that can be easily rolled off, and remove vegetation over 6 inches long.
6. Rough or plow the area parallel with the contour of the land. Do this by using a multiple share plow, chisel plow or a similar implement attached to lightweight equipment. Avoid rotary tilling.

Placing the Sand

1. Use a dozer or backhoe to evenly spread a one-foot lift of specified fill material over required area.
2. Each sand lift must be compacted to 90% of Standard Proctor density. The contractor determines the means and methods necessary to stabilize fill and attain required compaction. Optimal moisture content to aid compaction is approximately 10%. Add water as necessary to obtain appropriate moisture content.



Note: Compaction is critical to prevent settling and will not have a significant effect on permeability of clean, sandy fill.

3. To obtain the necessary compaction, a tracked vehicle or wheeled backhoe can be driven over the entire bed. After first tracks are made across the bed, move across the bed at increments equal to the width of the wheels/tracks. A vibratory plate compactor may also be used for compaction.

Note: Check local regulations to determine if wheeled vehicles are allowed on fill systems. Wheeled vehicles may be used on the base fill. No wheeled vehicles are allowed over the chambers in a fill system.

4. Place consecutive lifts following Steps 1 and 2 until design elevation is achieved (desired elevation is the infiltrative surface). Lifts should not exceed a 12 inch height.
5. Lightly drag a landscape rake over the final infiltrative surface to scarify the top 1/2 inch of the sand. Check bed elevation to be sure it is level.

Note: For the next step, go to Installing Chambers, Pressure Pipes, and End Plates on page 3.

At-Grade Systems

Preparing the Site

Install at-grade systems on sites with high groundwater. The bottom elevation of the trench is at or near the original ground's surface (grade). Scarify or plow native topsoil under chambers to increase permeability before adding fill material. The system requires fill material to be brought in as cover material.

1. Confirm that the sand used to build the mound meets plan specifications. If no specifications are available, Infiltrator Systems recommends sands that meet the grain size specifications (ASTM C33) shown in **Table 1**.
2. Install sedimentation and erosion control measures.
3. Cut trees flush to the ground (or remove if code allows), remove surface boulders that can be easily rolled off, and remove vegetation over 6 inches long.
4. Rough or plow the area parallel with the contour of the land. Do this by using a multiple share plow or a similar implement attached to lightweight equipment. Avoid rotary tilling.

Note: For the next step, go to Installing Chambers, Pressure Pipes, and End Plates on page 3.

Shallow In-Ground Systems

Preparing the Site

Install shallow in-ground systems on sites with a shallow depth to the limiting layer. The bottom elevation of the trench should be within the upper two feet of the original ground's surface. Scarify or plow native topsoil under chambers to increase permeability before adding fill material. These systems require fill material to be brought in as cover material.

1. In preparing the site, refer to local codes for specific requirements.
2. Confirm that the sand being used to build the mound meets the plan specifications. If no specifications are available then Infiltrator Systems recommends a sand that meets the grain size specifications (ASTM C33) shown in **Table 1**.
3. Install sedimentation and erosion control measures.
4. Stake out the location of all trenches and lines.

Excavating the Trenches

1. Review site plans to determine trench excavation depth based on the offset distance to the limiting layers or seasonal high water table.
2. Excavate the trench width to match the chamber being installed. Trenches must have the proper center-to-center spacing.
3. Rake trench bottom and sides if smearing has occurred. Remove large stones or other debris. Do not use the bucket teeth to rake the trench and minimize foot traffic within the trench.
4. Using a transit, 4-foot level, or laser verify the trench is level or has the prescribed slope.

All Systems

Installing Chambers, Pressure Pipes, and End Plates

1. To allow pressure laterals to drain after each cycle, drill holes in the bottom end of the pipe. Place a splash plate or a paving block at the bottom of the trench to protect the infiltrative surface from erosion.

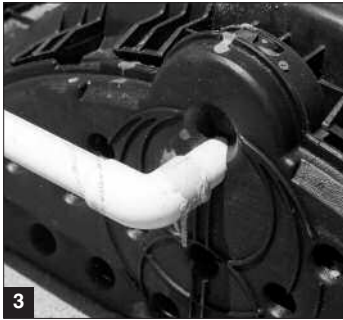
2. Cut the appropriately-sized hole in the end plate at the proper elevation.

Note: See Pressure Pipe Design Options for the location of the pressurized piping.

Insert the pressure lateral pipe into the end plate hole and slide it into the manifold pipe.

3. Glue the pressure lateral pipe to the manifold pipe.

Note: Health Departments may require a wet-run pressure check. This may be done prior to chamber installation, when the pipe is laying on the ground. Check with your local Health Department for the proper procedure.



4. Secure the pressure lateral pipe to the top of the first chamber with a plastic pipe strap at the outlet end of the unit. Slide the strap up through a slot in the chamber top, down through the other slot, and cinch the two ends around the pipe.



5. Lift and place the next chamber onto the previous one at a 45-degree angle. Line up the notches on the end of the chamber and lower it to the ground to engage the interlocks.

6. Secure the lateral pipe to the top of the chamber once in place. Follow the same method as described in Step 4.

7. Continue interlocking chambers and pipe until trench is completed.

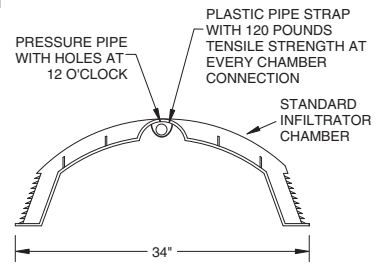
8. Attach an end plate to the last chamber in the trench. If cleanout extensions are required, use a hole saw and cut a hole in the end plate at the proper elevation to allow the lateral pipe to extend. For cleanout access, a 90° elbow that extends to the soil's surface can be attached to the lateral pipe.

9. Follow Steps 1-8 to lay the next row of chambers in the bed parallel to the first. Keep a minimum separation distance of 6 inches between each row of chambers.

Note: For the next step, go to Covering the System on back page.

Pressure Pipe Design Options

METHOD A TOP PLACEMENT

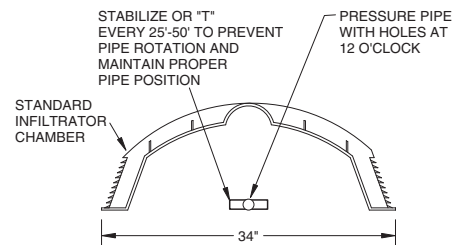


Advantages of Method A

- Pipe and orifice placed closer to the chamber dome offer improved distribution.
- Pipe positioned at the dome of the chamber top places it well above effluent.
- Plastic pipe hanger easily secures pipe in place.

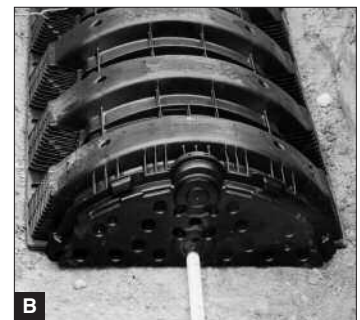


METHOD B BOTTOM PLACEMENT



Advantages of Method B

- Pipe resting on the trench bottom allows easy installation and maintenance.
- Stabilizing "T's" keep pipe level.
- System promotes efficient pressure checks.
- Pipe resting on the trench bottom allows better inspection when monitoring ports are installed.



Covering the System

Before backfilling, the system must be inspected by a health or regulatory official as required by state and local codes. Create an as-built drawing at this time for future records.

1. Place a 2-foot high pile of berm material around the perimeter of the sand mound and directly against the outer rows of chambers for stabilization.



2. Ladle soil between the chamber rows to the top sidewall louver to prevent chamber movement before final backfill. Firm the soil between the chamber rows by walking it in. This important step assures correct structural support of the system.

3. Push the berm material between and over the chamber rows with a dozer. Keep a minimum 12-inches of compacted cover over the system.



Note: NO wheeled machinery is allowed on chambers in mounds.

4. After the system is covered, the site should be seeded or sodded to prevent erosion.

Note: If the system is for new home construction, it is important to leave marking stakes along the boundary of the system. This will notify contractors of the site location so they will not cross it with equipment or vehicles.

Infiltrator Systems, Inc. Limited Warranty

(a) The structural integrity of each chamber and end plate manufactured by Infiltrator (collectively referred to as "Units"), when installed and operated in a new, residential leachfield of an onsite septic system in accordance with Infiltrator's installation instructions, is warranted to the original purchaser ("Holder") against defective materials and workmanship for one year from the date upon which a septic permit is issued for the septic system containing the Units; provided, however, that if a septic permit is not required for the septic system by applicable law, the one (1) year warranty period will begin upon the date that installation of the septic system commences. In order to exercise its warranty rights, Holder must notify Infiltrator in writing at its corporate headquarters in Old Saybrook, Connecticut within fifteen (15) days of the alleged defect. Infiltrator will supply replacement Units for those Units determined by Infiltrator to be defective and covered by this Limited Warranty. Infiltrator's liability specifically excludes the cost of removal and/or installation of the Units.

(b) THE LIMITED WARRANTY AND REMEDIES IN SUBPARAGRAPH (a) ARE EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE UNITS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

(c) The Limited Warranty does not extend to incidental, consequential, special or indirect damages. Infiltrator shall not be liable for penalties or liquidated damages, including loss of production and profits, labor and materials, overhead costs, or other losses or expenses incurred by the Holder or any third party. Specifically excluded from Limited Warranty coverage are damage to the Units due to ordinary wear and tear, alteration, accident, misuse, abuse or neglect of the Units; the Units being subjected to vehicle traffic or other conditions which are not permitted by the installation instructions; failure to maintain the minimum ground covers set forth in the installation instructions; the placement of improper materials into the system containing the Units; failure of the Units or the septic system due to improper siting, improper sizing, excessive water usage, improper grease disposal, or improper operation; or any other event not caused by Infiltrator. This Limited Warranty shall be void if the Holder fails to comply with all of the terms set forth in this Limited Warranty.

Further, in no event shall Infiltrator be responsible for any loss or damage to the Holder, the Units, or any third party resulting from installation or shipment, or from any product liability claims of Holder or any third party. For this Limited Warranty to apply, the Units must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and Infiltrator's installation instructions.

(d) No representative of Infiltrator has the authority to change this Limited Warranty in any manner whatsoever, or to extend this Limited Warranty. No warranty applies to any party other than the original Holder.

* * * * *

The above represents the standard Limited Warranty offered by Infiltrator. A limited number of states and counties have different warranty requirements. Any purchaser of Units should contact Infiltrator's corporate headquarters in Old Saybrook, Connecticut, prior to such purchase, to obtain a copy of the applicable warranty, and should carefully read that warranty prior to the purchase of Units.

For specific information on bed, mound, serial, pressure-dosed, or sandy-soils installations, call Infiltrator Systems Inc. at 1-800-221-4436.



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