

LESSON 4-1: Installation

Absorption Area Installation

STEP 1: Scarify Receiving Soil

- Scarify the receiving layer
- Absorption area should not be obstructed by stumps or other obstacles and shall be roughed or plowed parallel with the contour to a maximum depth of 6 inches (73.55b.(2))
- Avoid walking or any type of travel over the scarified soil before placing the specified sand to avoid soil compaction.



The receiving layer of the absorption area is scarified by hand or with a backhoe. If system is installed below grade, use a hand rake to scarify absorption area side walls.

The receiving layer of the soil refers to the bottom of an excavated trench or seepage bed or the natural soil surface for an above ground absorption area.

As with any other absorption area, the moisture level of the soil should be checked prior to installation.

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STEP 2: Place specified sand

- Place 6 inches of specified sand and compact
- Place another 6 inches of specified sand on top and compacted
- A hand-tamping tool or vibrating compactor are both acceptable to use for compacting the sand
- The depth of compacted specified sand below the Eljen GSF modules must be a minimum of 12 inches
- The specified sand must be level



Twelve (12) inches of specified sand has been placed at the bottom of the system area and is compacted in 6 inch lifts by a vibratory plate compactor, hand tamping tool, or approved equivalent.

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STEP 3: Place Eljen GSF Modules

- Place units end-to-end
- White Stripe up



Eljen B43 modules placed end-to-end in a bed configuration.

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STEP 4: Install Distribution Pipe

- Center the 4-inch perforated distribution pipe lengthwise over the modules
- Orifices are at the 4, 6 and 8 o'clock positions
- Secure pipe to module using Wire Clamp



One Eljen wire clamp per module is placed over the 4-inch distribution pipe to hold it in .

Pump tank must be placed so that the lowest lateral in the system will drain back to the pump tank after a event.

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STEP 4: Install Distribution Pipe

Pressure Distribution – End Manifold

A 4-inch- diameter standard perforated distribution pipe with holes at the 4, 8 and optional 6 o'clock positions.

Uses a 1 1/2-inch low pressure pipe inside the 4-inch perforated pipe

- Make sure the low-pressure orifices are at the 12 o'clock position
- Drill one 1/4-inch drain hole at the 6 o'clock position of each lateral

Distribution of effluent to the individual laterals shall be from an end feed manifold. The overall length of the laterals may exceed 51 feet.



Pump tank must be placed so that the lowest lateral in the system will drain back to the pump tank after a event.

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STEP 4: Install Distribution Pipe

Pressure Distribution – Central Manifold

A 4-inch- diameter standard perforated distribution pipe with holes at the 4, 8 and optional 6 o'clock positions.

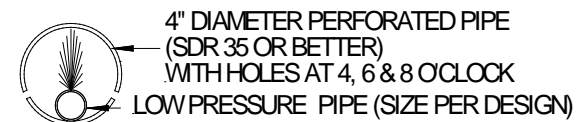
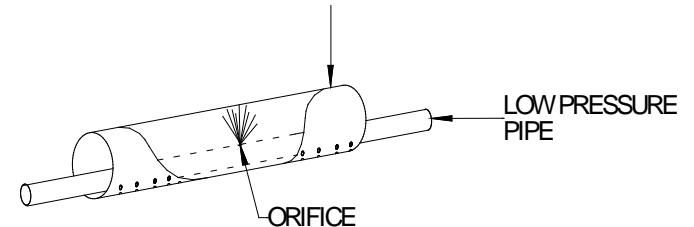
Uses a 1 1/2-inch low pressure pipe inside the 4-inch perforated pipe

- Make sure the low-pressure orifices are at the 12 o'clock position
- Drill one 1/4-inch drain hole at the 6 o'clock position of each lateral

Distribution of effluent to the individual laterals shall be by a central manifold extending into the absorption area from the delivery pipe. The overall length of the laterals may exceed 51 feet.



4" PERFORATED PIPE (SDR 35 OR BETTER)



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STEP 5: Place barrier material

To properly install the cover fabric:

- A) Center the fabric over the perforated pipe and drape it over both sides
- B) Shovel on specified sand directly over the distribution pipe
- C) Repeat this step while moving along the pipe
- D) Place specified sand along edges of modules to hold fabric in place



The cover fabric provided by the manufacturer is laid over the distribution pipe and modules.



Specified sand is placed along the sides of the perforated pipe and over the modules.

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STEP 6: Additional Construction Specifications

The absorption area shall be chisel plowed across the slope and under the berm as described in 73.55(b)(2).

The construction of the absorption area should also include a minimum slope of 2:1 on all sides of the sand.

In pressure configurations, the absorption area must be constructed using pressure-dosed distribution with lateral end cleanouts.

When the limiting zone is greater than or equal to 20 inches, the absorption area must also be sized in accordance with the requirements of 73.16(c), Table A, column labeled subsurface sand filters & elevated sand mounds.

Placing absorption areas in stacking configuration for new construction is prohibited. Berms are required to meet the requirements of Sections 73.55(b)(7), 73.55(d)(3), and 73.55(d)(4).

For elevated absorption areas only The recommended minimum length to width ratio for slopes ranging from 8 percent to 12 percent is 4:1 while slopes ranging from 12 percent to 15 percent may utilize a 6:1 length to width ratio or greater.

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STEP 7: Place Cover Material

Section 73.52(b)(14 & 15)

- Place a minimum of 8 inches of soil cover over the barrier material
- Make sure the soil cover material consists of soil suitable for the growth of vegetation
- Apply the cover material from the upslope side
- Do not use wheeled equipment over the absorption area. A light track machine may be used with caution.
- Avoid crushing or shifting any of the distribution pipes
- Seed and mulch to establish vegetative cover and control erosion



The cover material has been graded and seeded to prevent erosion. There is a vent pipe at the distal end of this absorption area. Venting is required when there is more than 18 inches of soil cover over the Eljen GSF filters.

The local agency SEO must conduct a final inspection before the soil cover is placed over the system.

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SEO Final Inspection

The SEO must check the system to verify that it was installed according to the approved design. This final inspection must be done prior to placing the soil cover over the system.

The Eljen Pennsylvania GSF Design and Installation Manual has a checklist to use during the final inspection.



Go to www.eljen.com to obtain the **Eljen Pennsylvania GSF Design and Installation Manual**. The inspection checklist is included in the design and installation manual.

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SEO Final Inspection

Absorption Areas With Gravity Flow

The items in the list below must be checked during the final inspection of the Eljen GSF System:

- 1) Verify each line or row of modules is level.
- 2) Ensure that the painted white stripes on the module are facing up.
- 3) Verify there is a minimum 12 inches of specified sand underneath each module in the system.
- 4) Based on the system design, verify the appropriate amount of specified sand is installed between module rows in bed systems and along the 4-foot module length in trench systems.
- 5) Verify there is 6 inches of specified sand at the beginning and end of the module in a row or a trench configuration.
- 6) Verify the 4-inch perforated pipe on top of the modules is SDR-35 or equivalent.
- 7) Verify the pipe's orifices are in accordance with the design.
- 8) Verify one wire clamp per module is installed over the 4-inch distribution pipe.
- 9) Verify the cover fabric is placed over the 4-inch perforated distribution pipe and draped over the sides of each module before specified sand is placed around the modules. The cover fabric must NOT be pulled tightly away from the 4-inch perforated pipe, because this causes tenting.

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SEO Final Inspection

Absorption Areas With Pressure Distribution

In addition to all the items previously covered in the gravity flow list, the following items must be verified during the final inspection of an Eljen GSF System when used with pressure distribution:

- 1) Verify the 1½ -inch low-pressure pipe has at least one 1/4-inch-diameter drain hole at the 6 o'clock position for each lateral
- 2) Verify the 1 ½ -inch low-pressure pipe orifices are at the 12 o'clock position.
- 3) Verify the pipe's orifices are in accordance with the design.
- 4) Confirm the on-lot system has 3 feet of head at the terminal end of the lateral.
- 5) For elevated absorption areas, verify the length and width ratio is a minimum of 4:1 for slopes ranging from 8 percent to 12 percent or 6:1 for slopes ranging 12 percent to 15 percent.
- 6) Verify there is minimum 2:1 approved sand slope on all sides or elevated systems.
- 7) Verify the berms meet the requirements of Section 73.55(b)(7), 73.55(d)(3), and 73.55(d)(4).
- 8) Verify the inclusion of lateral end cleanout.

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System Start-up Requirements

- Manufacturer's representative must schedule a meeting with the property owner in first month of start-up
- Explain Operation and Maintenance
- Location of all parts of the system
- Recommend that the manufacturer be contacted if the pump alarm is activated
- Provide a copy of the GSF Septic System Owner's Manual
- Written commitment that Eljen will investigate and troubleshoot system problems when notified