ON-SITE SEWAGE DISPOSAL SYSTEMS

Self-Installer's Manual

Linn County Environmental Health Program
(541) 967-3821
(800) 304-7468 - Outside Albany/Lebanon area only

ON-SITE SEWAGE DISPOSAL SYSTEMS

Pre-permit Site Work

To ensure that the environmental quality of Linn County is protected and to prevent the spread of disease caused by improper sewage disposal, the Linn County Environmental Health Program must approve all proposed sewage disposal systems. To obtain this approval, the following steps are required.

1. An Environmental Health Specialist from the Linn County Environmental Health Program must evaluate the site of the proposed installation. An applicant must submit a detailed plot plan showing the locations of all existing structures, drainage ways, water supplies, and proposed building and sewage disposal areas. The site evaluation or permit fee must be submitted with the application.

2. One or more test pits must be provided in the area of the proposed drainfield. (At the time of application, you should receive a Fact Sheet containing specifics on test pits and setback information.)

The Environmental Health Specialist will evaluate the site including soil conditions, depth to seasonal saturation, slope, and water supply location. If the inspection indicates that your site is adequate for a sewage disposal system, you will be sent an approval notification or a pre-permit plan packet showing the approved disposal area, type of system approved, and system specifications.

Permit

Once Environmental Health staff issue the pre-permit plan packet, the system must be staked-out according to the required specifications, and, based on the stakeout, you or your installer must complete all the necessary paper work. Then submit the completed plans to our office for review and approval (see the Pressurized Plan Checklist to make sure that you have all the required paperwork). We may make a field visit to inspect the stakeout. Once we approve the plans, we will issue the permit to install the system. **The installation of the system must conform exactly to the submitted plans unless you obtain specific approval from our office to make changes.**

Installation

A sewage disposal system may be installed either by the owner of the property or a licensed, bonded sewage disposal service (installer). A list of local licensed and bonded installers is available from the Environmental Health Program Office.

If you are an owner installing your own system, before we can issue the permit to install the system, we will try to arrange a meeting with you to review the stakeout. This will provide an opportunity to discuss construction materials and techniques, and will help to ensure a trouble-free installation. During the actual construction, you are encouraged to call us if you have problems or questions.

You must use a septic tank that has been approved by the Department of Environmental Quality. Commercially manufactured septic tanks constructed of concrete, coated steel, fiberglass, or polyethylene***** are available. Each septic tank (and dosing tank, if used) must be fitted with a watertight riser and lid. The riser must extend to the ground surface or above. You must test the tanks and the riser seam for watertightness in a manner specified by the tank manufacturer. This is commonly done by blocking the inlet and outlet of the tank, filling with water into the riser to a height not to exceed 2 inches above the top surface of the tank, and marking the water level.

The following guidelines apply to all standard sewage disposal systems:

1. The septic tank must be at least 5 feet from the foundation line of the house or any other building. The disposal trenches must be at least 10 feet from the foundation line of the house or any other building, 100 feet from any well, and 10 feet from property lines. The septic tank, solid pipe or distribution box may be 5 feet from property lines. Disposal trenches must be sited at least 100 feet from rivers, streams, and lakes for most systems.

2. Unless an effluent lift pump is used, there must be a minimum of **8 inches of fall** between the septic tank outlet and the piping in the first disposal trench. At least one distribution or drop box must be used in each system.

3. The bottom of the disposal trenches and the pipe in the trenches must be level throughout each trench. Use 3 or 4 inch perforated pipe for the distribution pipe in the trench. It must be placed in the trenches with the holes facing down. (Writing on the pipe goes on top.)

4. There must be a minimum of 5 feet of solid pipe between the septic tank and the disposal trenches, and a minimum of 4 feet of solid, level header pipe between the box(es) and the trenches. Use ABS Schedule 40 pipe to connect to the tank inlet and outlet and extend far enough to bridge the tank excavation before changing to PVC or other pipe material.

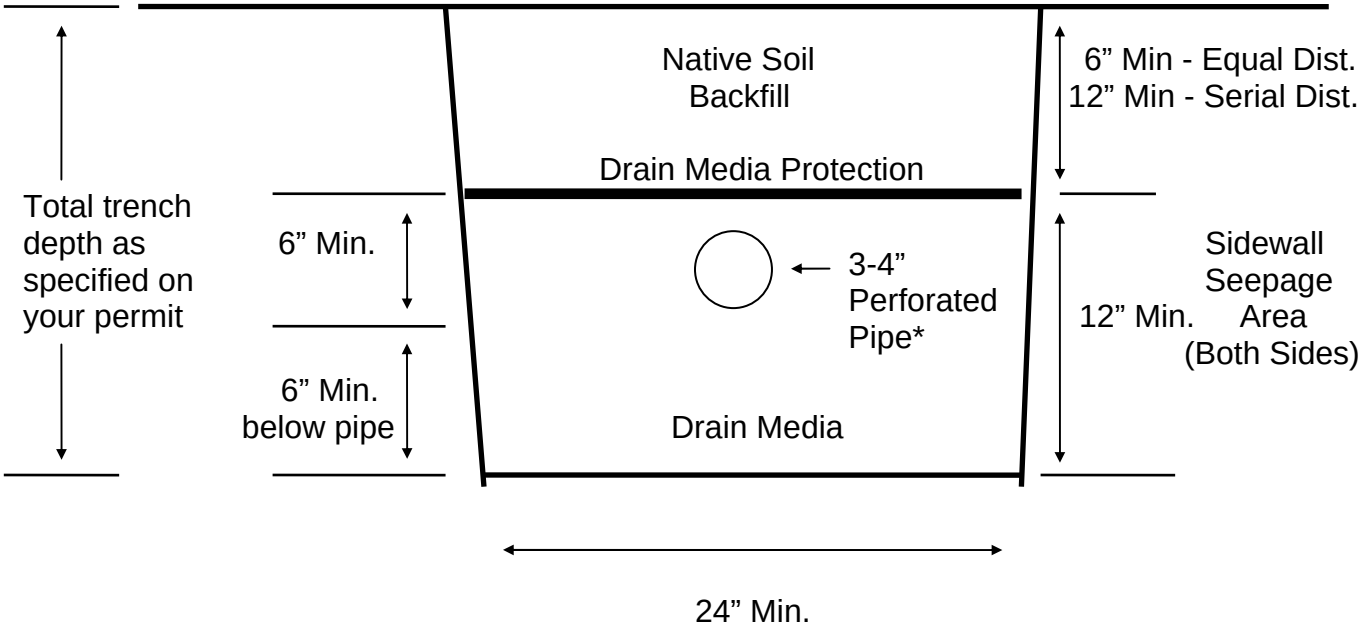
5. Contact the Linn County Planning and Building Department for plumbing requirements between the building and the septic tank. (967-3816 or 1-800-319-3816)

6. Disposal trenches must be spaced 10 feet apart on center (minimum) unless otherwise specified on your permit.

The following pages contain examples of typical serial distribution and equal distribution systems, a cross section of a disposal trench, a cross section of a distribution box, and a cross section of a drop box.

***** Polyethylene tanks have a very limited application. To determine if a polyethylene tank is appropriate for your site, please contact our office.

DISPOSAL TRENCH CROSS SECTION



Approved Drain Media for Oregon

- Rock: 3/4” - 2 1/2” **Washed** River or Crushed Rock
- Plastic Chambers: Infiltrator Systems Inc. Equalizer® 24 Chambers** or Quick 4 Chambers
  ADS Biodiffuser™ Bio 2 Chamber**
- Other: E-Z Drain Co. EZ Flow (expanded polystyrene aggregate)

Drain Media Protection

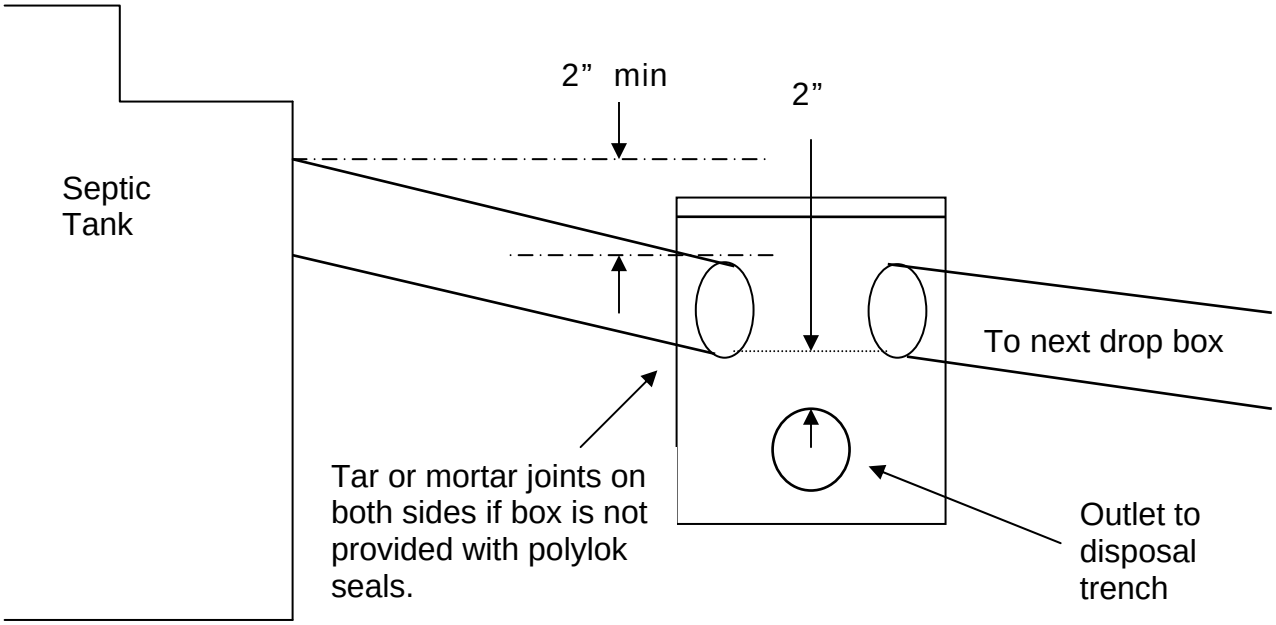
- 1 Layer **untreated** building paper or
- Filter Fabric

Distribution pipe (For Rock and Pipe system)

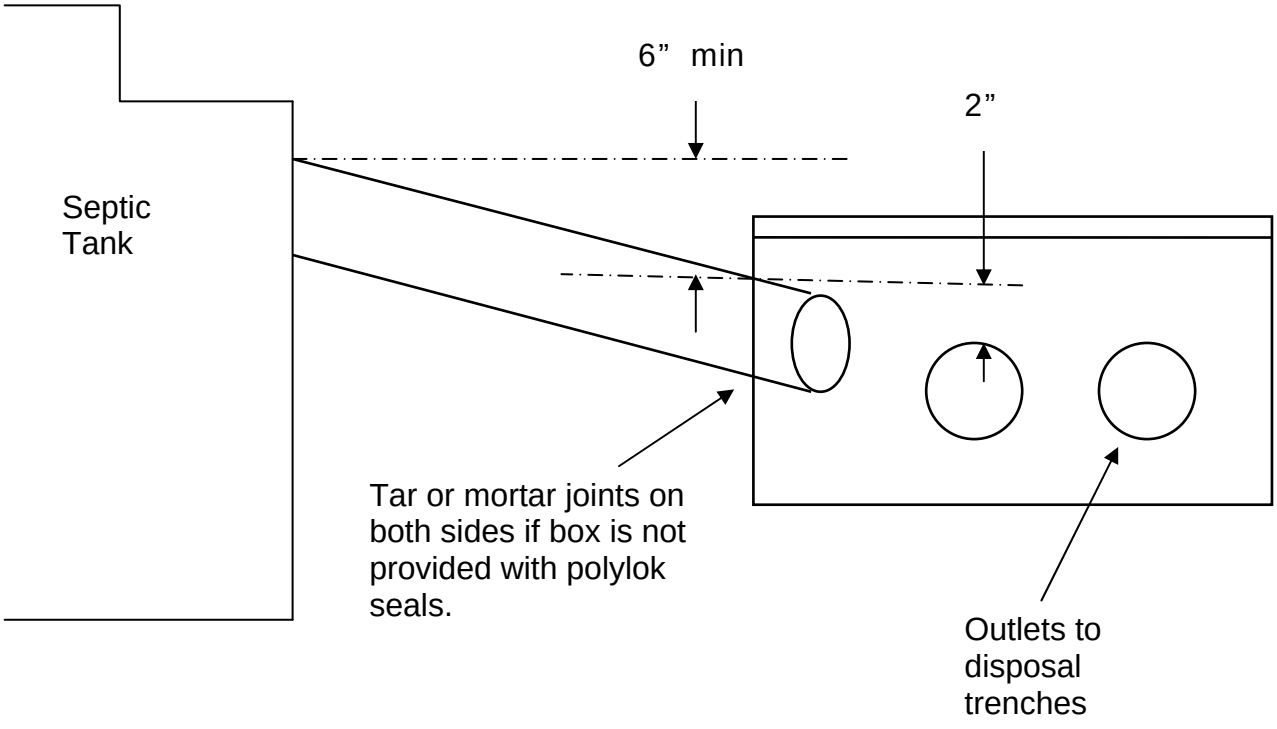
- 3-4” perforated pipe*

*See list of acceptable pipe materials at end of pamphlet.
**If your site has numerous ground-burrowing rodents such as gophers, it is strongly recommended that you follow manufacturer’s guidelines to prevent their entry into the chambers as they can have an adverse effect on the operation of the system.

DROP BOX CROSS SECTION
(Serial Distribution Systems)

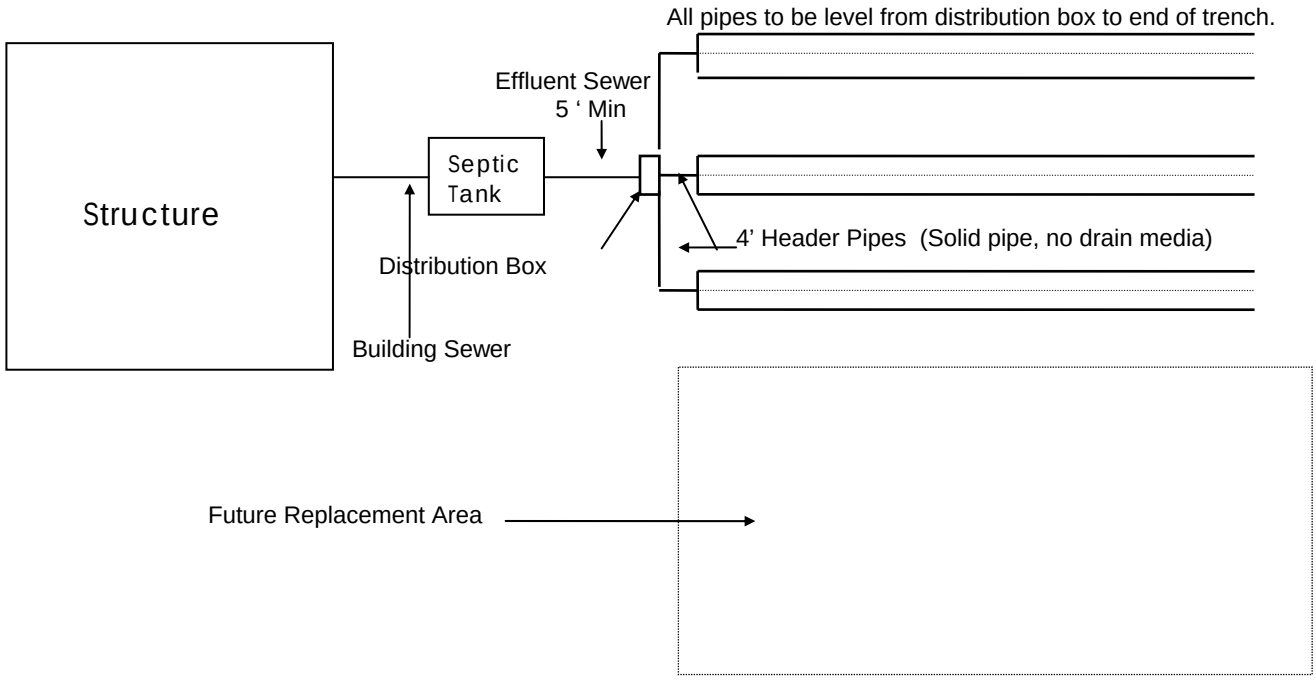


DISTRIBUTION BOX CROSS SECTION
(Equal Distribution Systems)

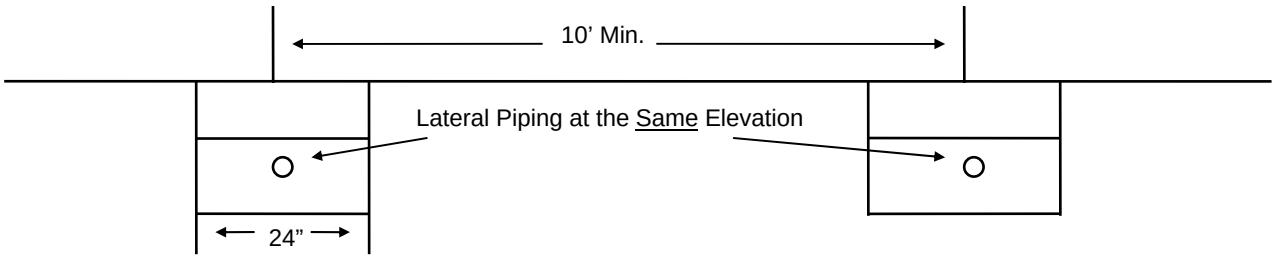


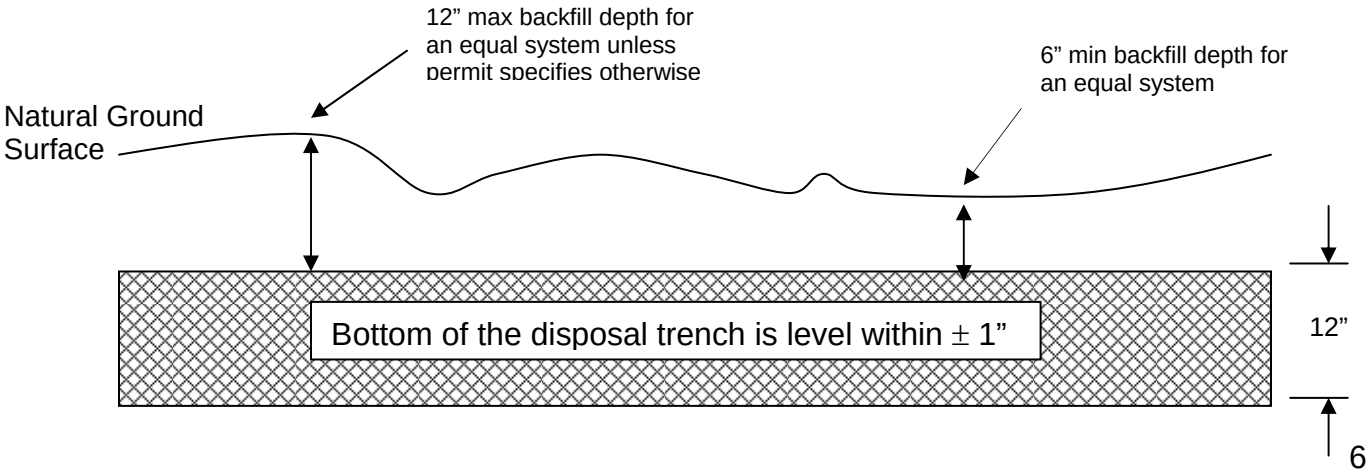
TYPICAL EQUAL DISTRIBUTION SYSTEM

(Used on level ground)



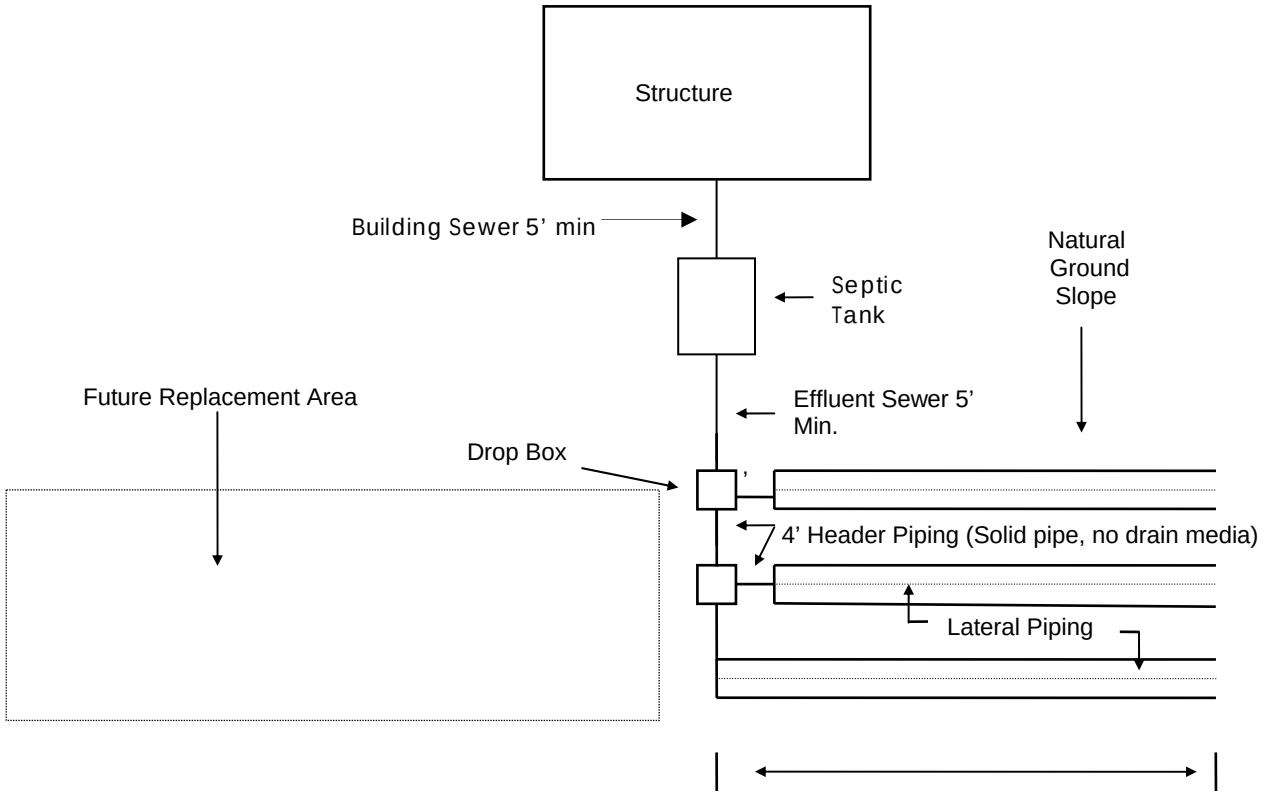
Cross-section of equal distribution

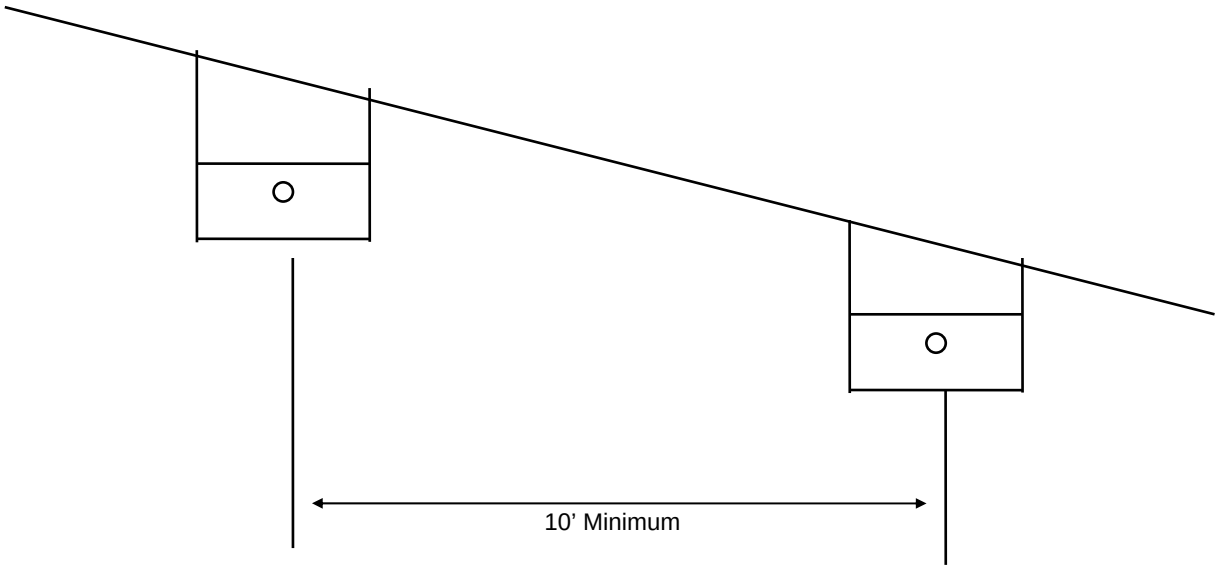




TYPICAL SERIAL DISTRIBUTION SYSTEM

(Used on sloping ground)

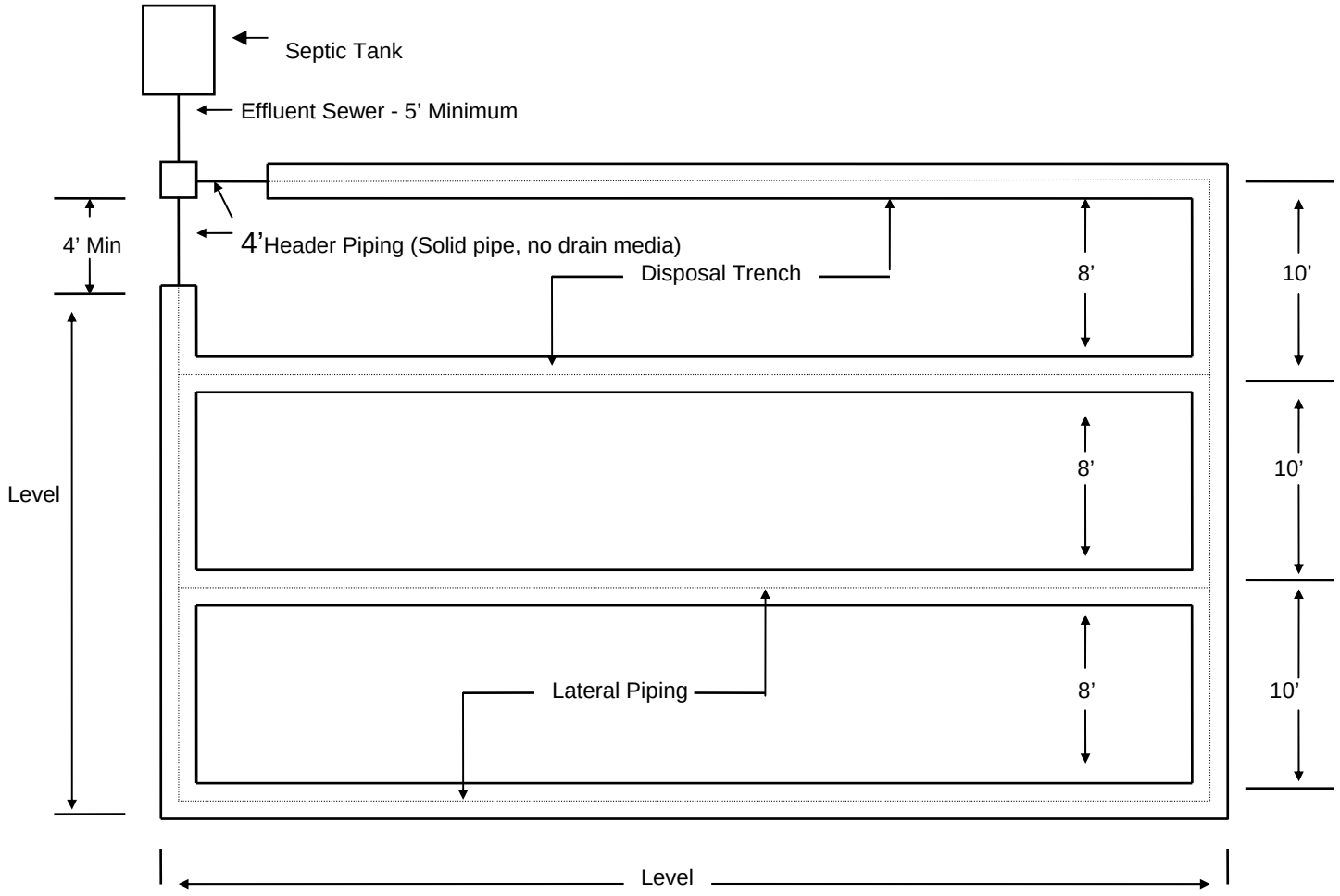




Cross-section of serial distribution

TYPICAL LOOP EQUAL DISTRIBUTION SYSTEMS

(Used on level ground)



Final Inspection

After the system has been completed, and prior to backfilling, an Environmental Health Specialist from our office must perform a final inspection to check the location and construction of the system. When you request an inspection, you must submit the "as-built" form certifying that the installation of the system conformed to the approved plans. This form is provided in the pre-permit plan packet. We will not perform an inspection until we have a copy of the as-built. The septic and dosing tanks (if used) must be demonstrated to be watertight before approval is granted. Once the system is approved and we have received the **original** As-built, a Certificate of Satisfactory Completion will be issued.

A reinspection fee will be required if the system is not ready for inspection when we arrive.

Inspection of the sewer line between the building and the septic tank will be done by the Building Department. You must request this inspection as well. (967-3816 or 1-800-319-3816)

Care of the Sewage Disposal System

Neglect of the septic tank is a frequent cause of on-site sewage disposal system failure. The purpose of a septic tank is to clarify wastes (settle out the solids) so that wastewater may be more readily absorbed into the soil. When the tank is not pumped as needed, solids build up until they are carried into the disposal field, where they can clog the trench/soil interface and prevent the flow of the liquid into the soil. When the disposal field fails, it must be replaced--a costly undertaking.

Using septic tank additives such as yeast, enzymes, bacteria, and so forth is not necessary for digestion within the tank. In fact, these additives can actually be harmful to the disposal field. The normal use of bleach, detergent, soap, and drain cleaner does not harm or interfere with operation of the system. However, excessive use can cause problems.

DO use the disposal area for a lawn, shrubbery, or other landscaping. The vegetation takes moisture and nutrients from the disposal trenches and contributes to a longer life for your system.

DO NOT use the disposal field as a parking area or turnaround. Traffic on the disposal area will compact the soil, which will deprive the system of essential oxygen. Without oxygen, waste in the disposal trenches will break down so slowly that the system will become clogged, causing failure.

NEVER plant deep-rooted shrubs or trees such as willows, cottonwoods, poplars, silver maples, or dogwoods on or near a drainfield area.

DEFINITIONS

Building Sewer is the pipe that conveys waste from a building to the septic tank.

Effluent Sewer is the pipe that conveys waste from a septic tank or other treatment device to a drainfield.

Header Pipes are solid pipes which separate drainfield absorption areas from distribution or drop boxes, or which separate individual disposal trenches from each other.

Drainfield Pipes are perforated pipes that distribute wastewater into the drain media for absorption by the soil.

Pressure Piping conveys wastewater under pressure from a pump or siphon.

ACCEPTABLE MATERIALS FOR BUILDING SEWERS & GRAVITY-FLOW EFFLUENT SEWERS

Type of Pipe	Pipe Specifictions	Joint Type	Joint Specifications
ABS Plastic	Schedule 40	Solvent Weld	
PVC Plastic	Schedule 40	Solvent Weld	
PVC Plastic	ASTM D 3033 or ASTM D 3034	Rubber Gasket	SDR-335
ABS Plastic	ASTM D 2751	Solvent Weld	IAPMO

ACCEPTABLE PRESSURE PIPE MATERIALS

Type of Pipe	Pipe Specifictions	Joint Type	Joint Specifications
Polyvinyl Chloride (PVC)	10’	Solid	ASTM D 2241

For piping 1” or smaller in diameter, minimum pressure rating of 200 psi is required.

For piping greater than 1” in diameter, minimum pressure rating of 160 psi is required.

ACCEPTABLE DRAINFIELD & HEADER PIPE MATERIALS

Pipe-Fittings	Pipe Length	Form	Standard markings
Polyethylene Plastic	10’	Solid & Perforated	ASTM F 405
Polyethylene Plastic	Greater than 10’	Solid Only	ASTM F 405
Polyvinyl Chloride (PVC) Plastic	10’	Solid & Perforated	ASTM D 2729
High Density Polyethylene Smooth Wall Tubing	10’	Perforated	HanCor, Inc. F810 HDPE