Eastern Idaho Public Health

Prevent. Promote. Protect.

So, You've Decided to Install Your Own Septic System…

(Are you sure you really want to do this?)

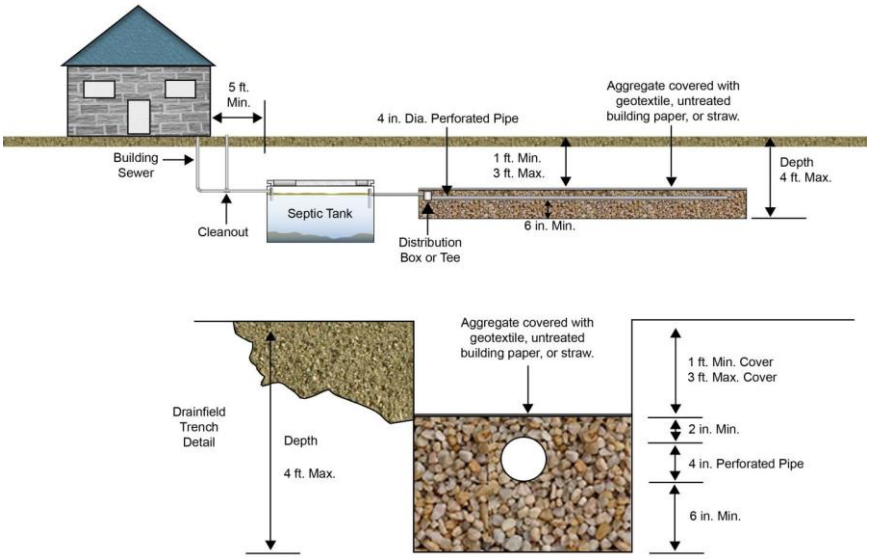
Please let us help!

A Homeowner's Guide to Installing a Septic System

State of Idaho Regulations allow a homeowner to install his/her own standard or basic alternative septic system. The same regulations apply to a homeowner as to a licensed septic installer. It is important for you to know those regulations before you begin installing your septic system.

1. **A septic permit is required.** This is obtained from the Environmental Health Division of Eastern Idaho Public Health. There is a fee for the permit. Once the application (with plot plan and floor plans) and fee are submitted, the health inspector will conduct an onsite evaluation. You will be required to have a test hole dug to a depth of ten feet for the onsite evaluation. The inspector will tell you where the hole is to be dug.
2. **The inspector is not allowed to design the system for you.** You will need to do some research before you apply for your permit. You should read the information in this booklet to gain a basic understanding of the systems you may choose from and what their requirements are.
3. **The inspector will write your permit based on their onsite evaluation.** The permit will specify the minimum septic tank size, minimum disposal area needed, and the type of system allowed.
4. **Once you have installed the system, you must have it inspected before covering it.** If the system is not installed correctly, it is possible that corrections may need to be made. These corrections can be costly and time-consuming.
5. **If you have questions or do not understand some of the regulations, PLEASE call and ask the inspector who issued the permit.**

A Homeowner May Only Install a Standard System or Basic Alternative System



A standard system consists of a septic tank, and a rock-and-pipe drainfield trench.

A basic alternative to the standard rock-and-pipe (gravel) trench is a gravelless trench. A gravelless trench is a commonly used alternative in this area.

- You will read more about these systems later.

The Basement Factor

One important factor in designing your septic system is whether or not your dwelling will have a basement. If it does, are there any water fixtures, such as a laundry room or bathroom? In most cases, if water service will be provided to the basement, a pump will be required to bring the wastewater up to the level of the disposal area. This should be done inside the house under plumbing regulations. This is because regulations only allow for a maximum trench depth of four feet or less from ground level.

Where Should I Put My Septic System?

The placement of your septic system is very important. First, you want your septic system to work well and last a long time. Second, you want to make sure that you are not contaminating any nearby water sources. To accomplish these two objectives, the regulations specify certain separation distances, both vertical and horizontal.

*You can find the Technical Guidance Manual (TGM) online at:

http://www.deq.idaho.gov/water-quality/wastewater/septic-and-septage/

Vertical Separation Distances

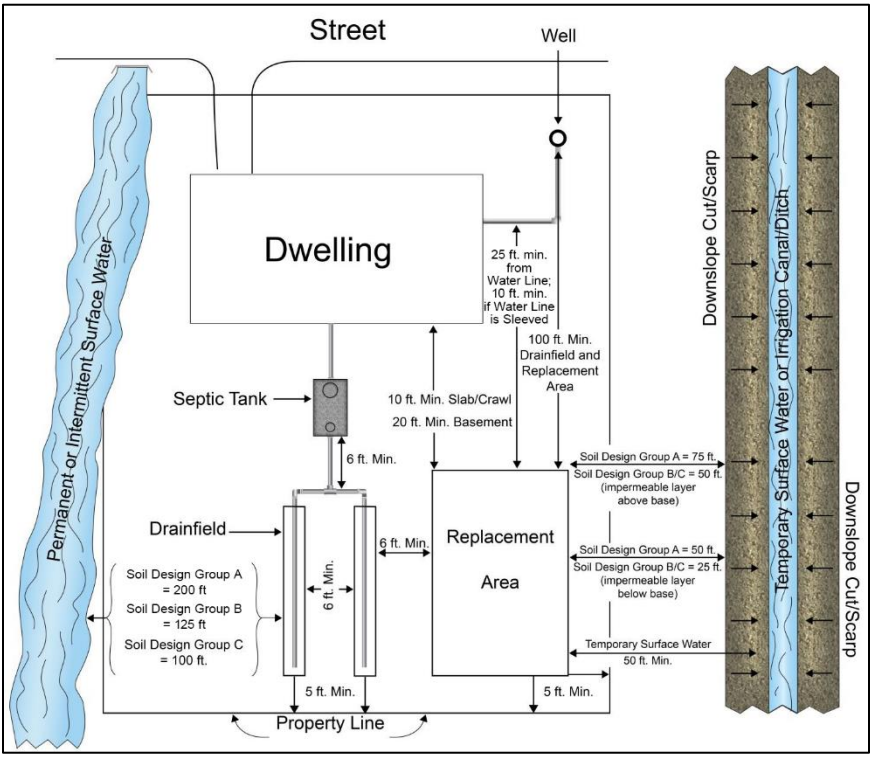
Vertical separation distances have to do with how deep a drainfield may be, and how much soil is required between the bottom of the drainfield and a limiting layer, such as groundwater or bedrock. The soil below the drainfield treats the wastewater by filtering it and allowing bacteria to digest the waste products.

If the wastewater flows through the soil quickly, as in sand and gravel, it is not cleaned as well, so more vertical distance is required to allow for sufficient treatment before reaching groundwater or bedrock. If the wastewater flows through the soil slowly, as in silt or clay, it is cleaned more effectively and less vertical separation is required. However, more square footage is required in the disposal area to absorb the wastewater.

EFFECTIVE SOIL DEPTHS TABLE			
Site Conditions	**Design**	**Soil**	**Group**
Limiting Layer	**A**	**B**	**C**
Impermeable Layer	4	4	4
Fractured Bedrock, Fissured Bedrock or Extremely Permeable Material	6	4	3
Normal High Groundwater Level	6	4	3
Seasonal High Groundwater Level	1	1	1

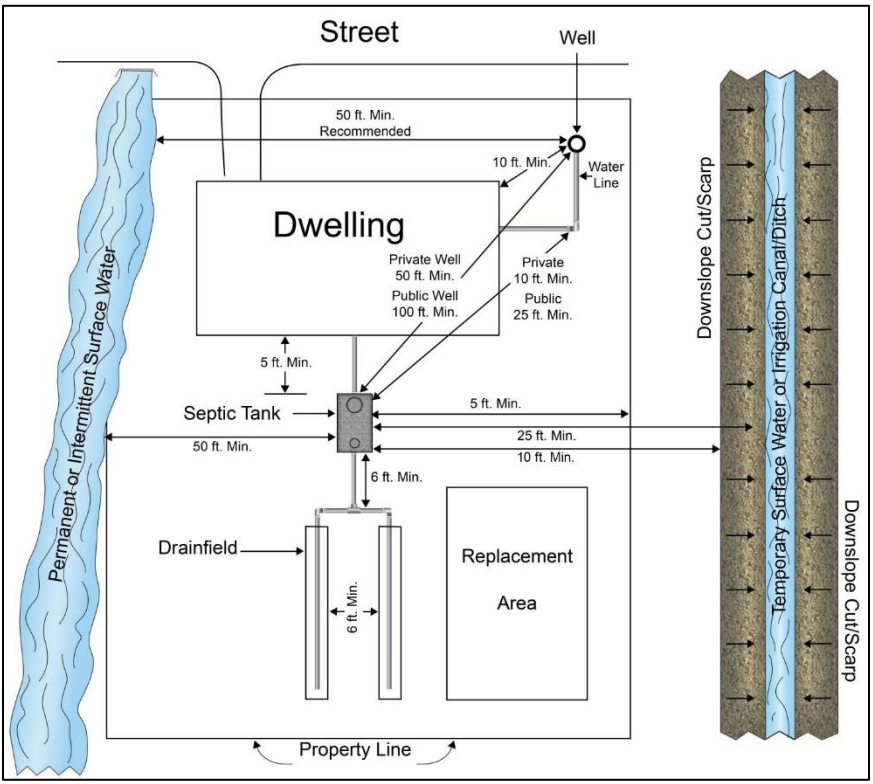
Horizontal Separation Distances

Major Horizontal Separation Distance Requirements for a Standard Drainfield



Horizontal Separation Distances, Cont'd.

Major Horizontal Separation Distance Requirements for a Septic Tank



Septic Tank Requirements

Only approved septic tanks may be used in the state of Idaho. You can find a list of approved septic tanks in chapter five of the TGM.

The size of your septic tank will depend upon the number of bedrooms in your home.

MINIMUM CAPACITY PER DWELLING UNIT	
Number of Bedrooms	**Minimum Liquid Capacity (gallons)**
1 to 4	1,000

For each bedroom over four (4) add two hundred fifty (250) gallons.

Septic tanks must be legibly marked with the manufacturer's name or trademark, the total liquid capacity, and shall indicate the tank's inlet and outlet. The tank must be installed level and in accordance with the manufacturer's instructions. If soil where the tank will be set is rocky, place up to six inches of soil or sand in the hole to create a smooth surface to set the tank on.

Inlet and outlet tees, or baffles, must be provided by the tank manufacturer and marked accordingly, and be 4 inches in diameter. Inlet and outlet baffles are not interchangeable. They should extend below the liquid level to a depth where 40% of the tank's liquid volume is above the bottom of the baffle. Seal the inlet and outlet holes with mastic.

For all septic tanks, a manhole riser must extend to finished grade from the manhole above the inlet or any compartment that contains an individual component (i.e. pump, effluent filter, etc.).

Inlet and outlet piping must be 4-inch diameter ABS schedule 40 or equivalent. There must be 12 inches of cover over the pipe.

Building Sewer

The design and installation of a building sewer is under the jurisdiction of the Idaho Division of Building Safety-Plumbing Bureau. The state or local authority must approve any plans involving the construction or installation of a building sewer. Contact the Plumbing Bureau for all guidance, permitting, and inspection requirements related to the building sewer components from household fixtures up to the inlet of the septic tank (TGM Chp.3.2.2).

FYI

1. Building sewers must run at a uniform slope of not less than 0.25 inches per foot toward the point of discharge, (into the septic tank).
2. Building sewer piping should be laid on a firm, stable bed throughout its entire length.
3. Building sewers must be installed a minimum of twelve inches below the surface of the finished grade.
4. Cleanouts are required by the Uniform Plumbing Code. Refer to chapter 3.2.2 of the TGM for additional guidance, and check with your local plumbing inspector for additional information.

Standard Gravel Drainfield Trench System

The standard gravel drainfield trench system consists of a 2-4' deep trench that is 1-6' wide and filled with at least 6" of gravel. Then, a 4" perforated pipe is placed on top of the gravel. The perforations should be oriented downward at 5 and 7 o'clock. Once the pipe is in place, it should be covered with ≥2" of gravel, for a total gravel depth of at least 12 inches. A protective barrier of geotextile fabric or straw is placed on top of the gravel. The trench should then be backfilled with at least 1' of original soil.

Remember to maintain the horizontal and vertical separation distances and follow any other specific instructions that are required on the permit.

<u>Construction Specifications:</u>

- Each trench may only be up to 100' long.
- The grade of the bottom of the trenches must be level.
- Trench Width – 1' to 6'
- Trench Depth – **Check your permit requirements**
- Undisturbed earth between trenches - ≥6'
- Distance between septic tank and trenches - ≥6'
- Total Depth of gravel - ≥1' (at least 6" under pipe, and 2" above pipe)
- Amount of soil over gravel - ≥1' and ≤3'
- Soil Barrier – Geotextile Fabric (greater than 1 oz/sq yard weight), or 3" Straw
- Gravel – ½ -2 ½" diameter and free of fine particles. Gravel should come from an approved gravel yard, and you will need to document how many yards of gravel are used.

*Perforated pipe is for use in the trenches only. It should not be used on the discharge piping from the septic tank.

Standard Gravelless Drainfield Trench System

A gravelless drainfield trench system has similar dimensions to a gravel drainfield. The difference is that you replace the rock and pipe with a gravelless trench component. The trench component is placed directly on the ground in the bottom of the trench. If using domes, the effluent pipe from the septic tank is connected to the **top hole** of the first dome in the trench. The domes snap together end-to-end throughout the length of the trench.

Using this type of system properly will result in a 25% reduction in square feet needed for the drainfield. The trench can be no wider than 36 inches (3 feet), or the reduction in drainfield square footage will not be granted. The bottom edges of dome components should reach the sidewalls. If the trench is too wide, the domes will flatten out, and you will not get a reduction in square footage.

You can find a list of approved gravelless trench components and their required trench widths in Chapter 5.7 of the TGM.

<u>Construction Specifications:</u>

- Each trench may only be up to 100’ long.
- The grade of the bottom of the trenches must be level, with an allowable variation of not more than 1/2” per 100’.
- Trench Width – Dependent upon gravelless trench component installed
- Trench Depth – **Check your permit requirements**
- Undisturbed earth between trenches - ≥6’
- Distance between septic tank and trenches - ≥6’
- Amount of soil over domes - ≥1’ and ≤3’
- No soil barrier (straw or geotextile fabric) is required.

Eastern Idaho Public Health

Environmental Health Section Contacts

Bonneville County	(208) 523-5382
Clark County	No EHS office. Contact Bonneville Co.
Custer County	(208) 522-8064
Fremont County	(208) 522-8065
Jefferson County	(208) 745-7297
Lemhi County	(208) 756-2123
Madison County	(208) 356-3239
Teton County	(208) 522-8066

***If you have any questions, please contact us. We want to help you avoid mistakes that may require costly and time-consuming corrections.**