Septic systems have been used for many years in areas not served by public sewers. A well-designed, installed, and maintained septic system can provide years of reliable low-cost service. When these systems fail to operate effectively, property damage, groundwater, and surface water pollution, and disease outbreaks can occur. It makes good sense to understand and care for your septic tank system and protect your investment!

There are many different types of septic systems to fit a wide range of soil and site conditions. The following information will help you to understand a conventional gravity-flow septic system to help keep it operating safely and at the lowest possible cost.

A conventional gravity-flow septic system has three working parts:

1. The septic tank.
2. The drainfield with its replacement area.
3. The surrounding soil.

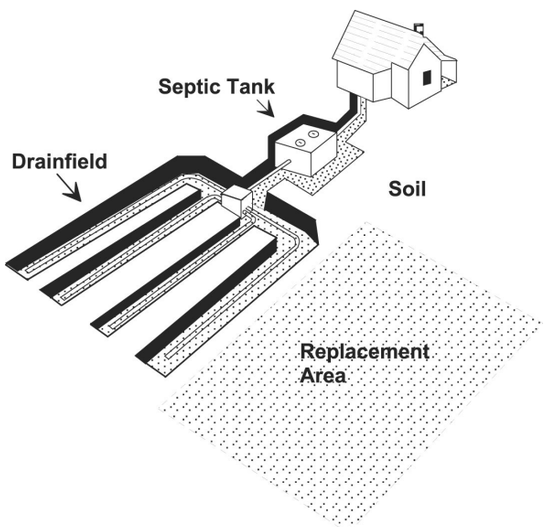


Image: Diagram of a basic septic system

The Septic Tank

The typical septic tank is a large, buried rectangular or cylindrical container made of concrete, fiberglass, or polyethylene. Wastewater from the toilet, bath, kitchen, laundry, etc. flows into the tank. Heavy solids settle to the bottom where bacterial action partially decomposes them to digested sludge and gases. Most lighter solids, such as fats and grease, rise to the top to form a scum layer.

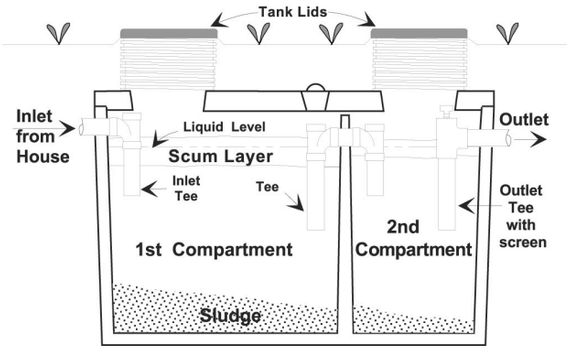
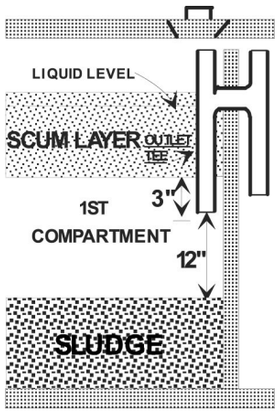


Image: Insite the septic tank.

Septic tanks may have one or two compartments. Two compartment tanks do a better job of settling solids and are required for new systems. Tees or baffles are provided at the tank's inlet and outlet pipes. The inlet tee slows the incoming wastes and reduces the disturbance of the settled sludge. The outlet tee keeps the solids or scum in the tank. All tanks should have accessible covers for checking the condition of the baffles and for pumping both compartments. If risers extend from the tank to or above the ground surface, they should be secure to prevent accidental entry into the tank.

Soils that are not decomposed remain in the septic tank. If not removed by periodic pumping, solids will accumulate until they eventually overflow into the drainfield. Most septic tanks need to be pumped every 3 to 5 years, depending on the tank size and the amount and type of solids entering the tank.

"Early Warning" Levels Inside Your Septic Tank



The septic tank should be pumped when:

- The bottom of the scum layer is within 3 inches of the bottom of the outlet tee or baffle, or
- The top of the sludge layer is within 12 inches of the bottom of the outlet fitting.

Image: Layers in the tank

Some septic tank additives on the market with chemicals, yeast, bacteria, or enzymes claim to improve septic tank performance or reduce the need for routine pumping. Such products are not necessary for the proper functioning of a septic tank. Some can cause solids to carry over to the drainfield, which results in early soil clogging and the need for a new drainfield. Products containing organic solvents contribute to groundwater pollution.

The wastewater leaving the septic tank is a liquid called effluent. It has been partially treated but still contains disease-causing bacteria and other pollutants. Discharging effluent onto the ground's surface or into surface and ground water is against Washington State law.

The Drainfield

The drainfield receives septic tank effluent. It has a network of perforated pipes laid in gravel filled trenches (2-3 feet wide) or beds (up to 10 feet wide) in the soil. Wastewater trickles out of the pipes, through the gravel layer, and into the soil. The size and type of drainfield depends on the estimated daily wastewater flow and soil conditions.

Every new drainfield is required to have a designated replacement area. It must be maintained should the existing system need an addition or repair.

The Soil

The soil below the drainfield provides the final treatment and disposal of the septic tank effluent. After the effluent has passed into the soil, most of it percolates downward and outward, eventually entering the groundwater. A small percentage is taken up by plants through their roots, or evaporates from the soil.

The soil filters effluent as it passes through the pore spaces. Chemical and biological processes treat the effluent before it reaches groundwater, or a restrictive layer, such as hardpan, bedrock, or clay soils. These processes work best where the soil is somewhat dry, permeable, and contains plenty of oxygen for several feet below the drainfield.

System Failure

Warning signs of a failure:

- Odors, surfacing sewage, wet spots or lush vegetation growth in the drainfield area
- Plumbing or septic tank backups
- Slow draining fixtures
- Gurgling sounds in the plumbing system

If you notice any of these signs or if you suspect your septic tank system may be having problems, contact your local health agency for assistance.

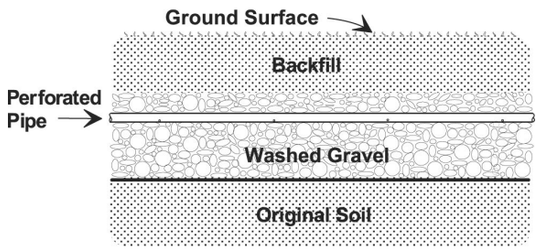


Image: Example layers in the drainfield.

Caring For Your System - The Ten Essentials

1. ***Practice water conservation.*** The more wastewater you produce, the more wastewater the soil must treat and dispose. By reducing and balancing your use, you can extend the life of the drainfield, decrease the possibility of system failure, and avoid costly repairs.

   To reduce your water use:

   - Use water-saving devices.
   - Repair leaky faucets/plumbing fixtures.
   - Reduce toilet reservoir volume or flow.
   - Take shorter showers.
   - Take baths with a partially-filled tub.
   - Wash only full loads of dishes and laundry.

2. ***Keep accurate records.*** Know where your septic system is and keep a diagram of its location. Records may be available at your county's health agency. It is also wise to keep a record of maintenance on the system. These records will be helpful if problems occur and are valuable to the next owner of your home.

3. ***Informally inspect your system once a year.*** Check the sludge and scum levels inside your septic tank to assure that the layers of solids are not within the "early warning levels." Check the tank to see if the baffles or tees are in good condition. Periodically inspect the drainfield and downslope areas for odors, wet spots, or surfacing sewage. If your drainfield has inspection pipes, check them to see if there is liquid level continually over 6 inches. This may be an early indication of a problem.

4. ***Get a professional inspection and pump out your septic tank.*** Do not wait until you have a problem. Routine inspections can prevent failures such as clogging of the drainfield and sewage back-up into the home. Inspections tell you when it is time to pump your tank. Using a garbage disposal will increase the amount of solids entering the septic tank, requiring more frequent pumping.

5. ***Never flush harmful materials into the septic tank.*** Grease, cooking oils, newspaper, paper towels, rags, coffee grounds, sanitary napkins, and cigarettes cannot easily decompose in the tank. Chemicals such as solvents, oils, paint and pesticides are harmful to the system's proper operation and may pollute the groundwater. Septic tank additives are not necessary for the proper functioning of a septic tank, nor do they reduce the need for routine pumping. For information on the proper disposal of hazardous household waste, call the Washington Recycle Hotline, 1-800-RECYCLE.

6. ***Keep runoff away from your system.*** Water from surfaces such as roofs, driveways, or patios should be diverted away from the septic tank and drainfield area. Soil over your system should be slightly mounded to help surface water runoff.

7. ***Protect your system from damage.*** Keep traffic such as vehicles, heavy equipment, or livestock off your drainfield or replacement area. The pressure can compact the soil or damage pipes. Before you plant a garden, construct a building, or install a pool, check the location of your system and replacement area.

8. ***Landscape properly.*** Do not place impermeable materials over your drainfield or replacement area. Materials, such as concrete or plastic, reduce evaporation and the supply of air to the soil for proper effluent treatment. They can also hinder getting to the system for pumping, inspection, or repair. Grass is the best cover for your system.

9. ***Never enter any septic tank.*** Poisonous gases or the lack of air can be fatal. Any work to the tank should be done from the outside of the tank.

10. ***Check with your county's health agency for help with system problems.*** Although some malfunctions may require complete drainfield replacement, many problems can be corrected with a minimum amount of cost and effort.

Additional Information

For more information about caring for your septic system and to learn more about different system types, please visit: www.doh.wa.gov/septic

On-Site Sewage System Regulations (Chapter 246-272A WAC)
https://doh.wa.gov/wastewater-rules-and-regulations

Water Conservation and Droughts

https://doh.wa.gov/community-and-enviornment/drinking-water-emergencies/drought

Publications on the Department of Health's webpages are available by writing to:

Washington State Department of Health
Wastewater Management Section
PO Box 47824
Olympia, WA 98504-7824

Other sources of information include your:

Local Health Agency
Soil Conservation Service Office
Cooperative Extension Office

DOH 337-086 (October 2024)

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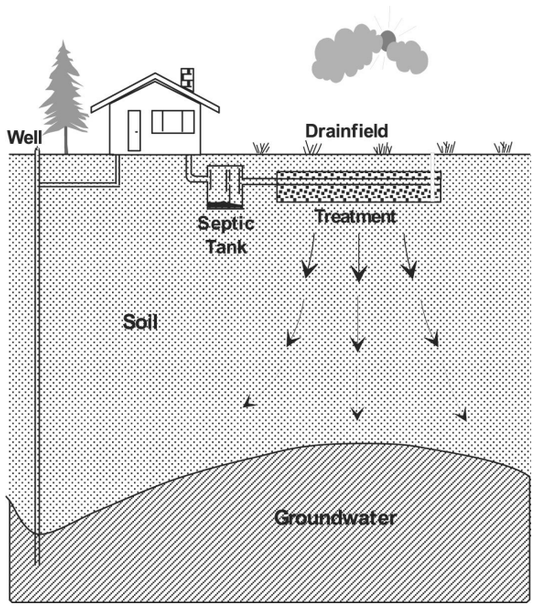
Washington State Department of HEALTH

Understanding And Caring For Your Septic System



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