

Managing Your Septic System

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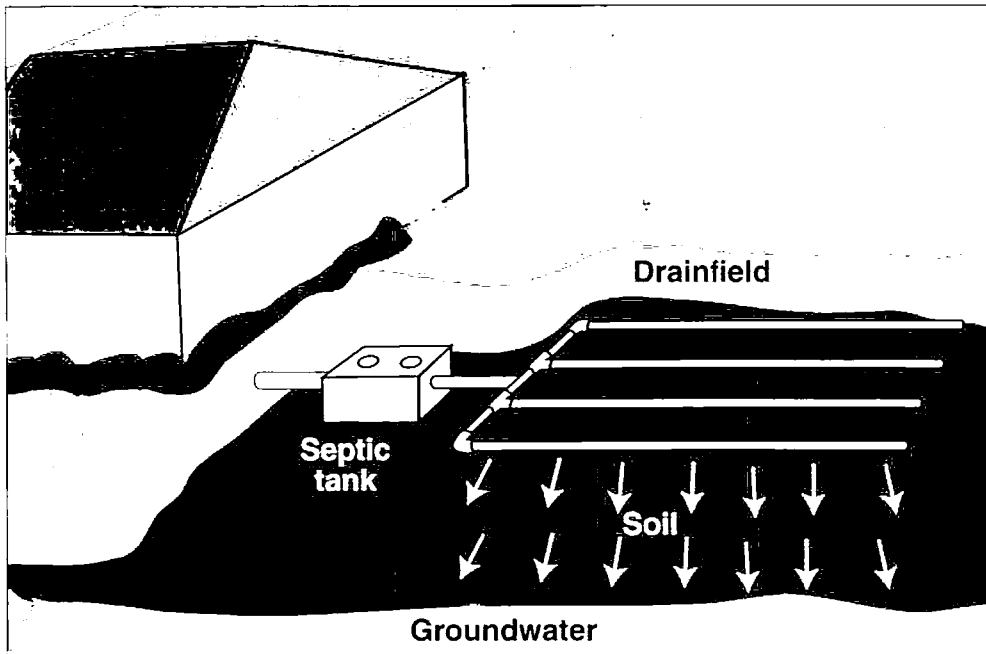
Households that are not served by public sewers usually depend on septic systems to treat and dispose of wastewater.

When Your Septic System is correctly located, adequately designed, carefully installed and properly managed, you will have a waste disposal system that is simple, economical, effective, safe and long-lasting. A failing system may result in property damage, odor,

surface and possibly groundwater pollution, disease potential, and costly repairs or replacement.

MANAGEMENT IS THE KEY TO A LASTING WASTEWATER DISPOSAL SYSTEM.

This file contains information that will help you manage your septic system. It also provides a place to record and store vital information about your system. It should be kept with other documents about your home and property.



Septic System Components

A septic system has two basic parts: a **septic tank** designed to intercept, hold and partially treat solids contained in wastewater coming from the home, and a soil absorption field or **drainfield** to facilitate treatment and dispersal of clarified wastewater after it leaves the septic tank, as illustrated at left.

Helpful Sources of Assistance and Additional Information

Questions and concerns about your septic system can be directed to the sanitarian in your county or regional health office, to a septic system contractor or to your local Michigan State University Extension office. Additional information can be found in:

On-site Domestic Sewage Disposal Handbook, MWPS-24, Midwest Plan Services; request from Department of Agricultural Engineering, Michigan State University, \$6.

Septic Tank Systems: A Homeowner's Guide, Michigan Environmental Health Association, <www.meha.net>.

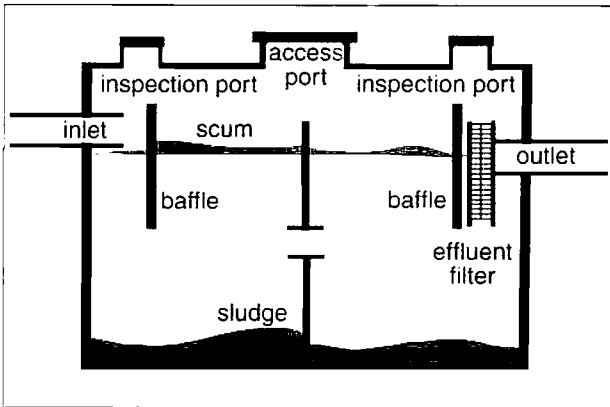
So...now you own a septic system; Groundwater protection and your septic system, and several additional on-site waste disposal publications, National Small Flows Clearinghouse, <www.nsfcc.wvu.edu>.

Onsite Works! An Introduction to Decentralized Wastewater Treatment Systems, Housing Education and Research Center (HERC) at Michigan State University, <www.canr.msu.edu/cm/herc/onsite/index.html>.

Several bulletins on septic systems are available in Michigan State University Extension's WQ (water quality) bulletin series, including: *Home*A*Syst (WQ-51)*; *Managing Shorelines to Protect Water Quality (WQ-52)*; *What to Do if Your Septic System Fails (WQ-14)*; *Buying or Selling a Home? What To Find Out About Your Water and Septic Systems (WQ-15)*; and *How to Conserve Water in Your Home and Yard (WQ-16)*. Contact your local MSUE office or the MSU Bulletin Office, 117 Central Services Bldg., MSU, East Lansing, MI 48824-1001, or <www.msue.msu.edu/waterqual/wq-mats.html>.

How the Septic Tank Functions

The typical septic tank is a large, buried, rectangular or cylindrical container made of concrete, fiberglass or polyethylene usually located 10 or more feet from the point where the sanitary drain leaves the house. Wastewater from your bathroom, kitchen and laundry flows into the septic tank. There, heavy solids settle to the bottom where bacterial action partially decomposes the solids into sludge and gases. The lighter solids, such as fats and greases, rise to the top and form a scum layer. The partially treated effluent then leaves the septic tank and flows to the drainfield. Septic tanks have one or two compartments specifically designed to capture the solids and prevent them



Cross-section of a two-compartment septic tank

from entering the drainfield. Two-compartment tanks do a better job of capturing the solids and may be required in new installations. Tees and baffles are essential parts of the septic tank. Some tanks are equipped with an inlet tee or baffle to slow incoming waste and direct it downward. The outlet tee or baffle prevents floating solids or scum from leaving the tank and then clogging the drainfield. Some tanks are also equipped with an effluent filter to further prevent the movement of solids into the drainfield. All septic tanks should have accessible covers for checking the condition of the baffles and for pumping out the accumulated sludge and scum mat. **If accumulated solids are not regularly removed from the septic tank, they will overflow into the drainfield and cause premature failure of the drainfield resulting in costly repairs or replacement.**

Servicing the Septic Tank

Regular servicing of the septic tank is the single most important maintenance requirement of a septic system. Required frequency of service depends on septic tank size, the number of persons in the household and whether occupants are minimizing the release of unnecessary solids into the wastewater. **Most septic tanks should be pumped every three to five years.**

How do I determine when to pump?

Most homeowners prefer to give this responsibility to a reputable septic tank pumping firm. Its representative will periodically check your system to determine the rate of solids accumulation and design a pumping schedule tailored to your situation. As a general rule, the tank will require pumping when any of the following occurs: the top of the sludge deposit is within 12 inches of the **bottom** of the outlet baffle; the **bottom** of the floating scum mat is within 6 inches of the bottom of the outlet baffle; the top of the floating scum mat is within 1 inch of the **top** of the outlet baffle or; the floating scum mat is more than 12 inches thick.

Should I use special products to enhance the operation of my septic tank?

No. Though many products are claimed to improve septic tank performance or reduce the need for routine pumping, they have not been found to make a significant difference. Some of these products can actually cause solids to be carried into the drainfield and lead to premature clogging. Other products containing organic solvents can contribute to groundwater contamination.

Where is my septic tank located?

The tank is usually located about 10 to 15 feet from the point where the sanitary drain leaves the house. It can be found by gently inserting a steel rod (soil probe) into the ground where the tank is most likely to be or by waiting for a light snowfall and observing where the snow first melts.

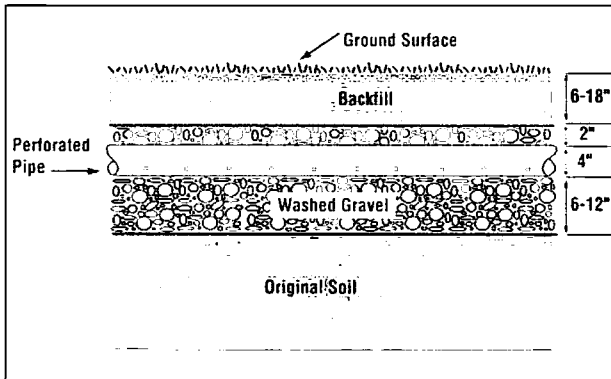
Safety Considerations

Certain features of the septic tank can cause serious injury or death, so the tank should be treated with extreme caution.

- **Never enter the septic tank.** It contains life-threatening gases and little oxygen.
- **Explosion or electrical shock** can occur when lights, appliances or tools are used in or near the septic tank. Smoking can also trigger an explosion.
- **Infectious diseases** can be acquired from contact with liquids and solids in the septic tank.
- **Secure exposed manhole covers and inspection ports** to prevent tampering or entry by children.
- **If sewer gas odors are detected in the home,** immediately call your plumber or a septic system maintenance firm. Evacuate the building if the odor is strong.
- **Keep children and spectators away** when septic system is being maintained or excavated.

How the Drainfield Functions

The drainfield receives partially treated effluent from the septic tank. It consists of a network of perforated pipes laid in gravel-filled trenches about 2 or 3 feet wide or in beds that are over 3 feet wide and 6 to 18 inches (or more) deep. The size and type of drainfield are determined by the estimated daily wastewater flow and local soil conditions. Wastewater trickles out of the perforated pipes, through the gravel layer and into the soil.



Physical and biological purification processes take place as the effluent percolates down toward groundwater. These processes work best where the soil is somewhat dry and permeable and contains plenty of oxygen for several feet below the drainfield. Some systems include a dosing chamber or distribution box in the pipe leading from the septic tank to the drainfield for regulating the release of wastewater into the drainfield. This promotes optimal treatment and dispersal of the water and prolongs the life of the drainfield. The lifespan of a well-maintained system can be 20 to 30 years or more.

Signs of system failure

- Odors, surfacing sewage, wet spots or lush vegetation on or near the drainfield.
- 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 any other problems with your septic system, contact the sanitarian at your county or regional health office or your septic system contractor for assistance.

Alternative systems

In some situations, it may be possible or necessary to treat and disperse effluent from the septic tank using something other than only a drainfield. Alternative systems in use today include sand filters, mounds, wetlands, gravelless drainfields, pressure dosing and aerobic units. Servicing requirements for these systems vary and should be obtained from your local sanitarian or septic system contractor.

Recommendations

These suggestions will help you prolong the life of your septic system.

- **Minimize the amount of water entering the septic system.** Practice water conservation by installing water-saving fixtures in your home, using the least amount of water to get the job done, and repairing leaky faucets and toilets. When possible, keep water softener backwash out of the septic system.
- **Avoid using a garbage disposal unit.** Make compost out of vegetable wastes, coffee grounds, eggshells and other compostable kitchen wastes.
- **Eliminate release of non-degradable materials** such as fats, paper towels, hair, tampons, sanitary napkins and disposable diapers.
- **Never release toxic chemicals** such as solvents, disinfectants, oils, paints, paint thinner and pesticides. Use boiling water and a drain snake to open clogged drains instead of caustic drain openers. Use commercial bathroom cleaners in moderation. Use mild detergent or baking soda when possible.
- **Pump septic tank regularly,** usually once every three to five years, and never allow solids or scum to leave the septic tank and enter the drainfield.
- **Keep surface of drainfield properly drained** by slightly mounding the soil over the drainfield, redirecting downspouts and sump pump outflow, and not stockpiling snow over the area.
- **Do not install automatic sprinklers** over the tank and drainfield.
- **Landscape over septic system** with dense grass cover and other shallow-rooted plants.
- **Avoid impermeable or compacted surfaces over the drainfield** such as concrete, asphalt, plastic or compacted soil from vehicular traffic.
- **Save fertilizer** by not fertilizing over the drainfield.
- **Stay away from additives.** Their benefits have not been demonstrated, and some may actually harm your system and contaminate groundwater.
- **If there are observation ports in your drainfield,** look in them during wet (spring) and dry weather and determine depth of ponded water, if any. Records over time will help you forecast and solve any developing problems.

