

# A Reference Guide to YOUR SEPTIC SYSTEM For Homeowners

## WHAT IS A SEPTIC SYSTEM

A septic system is an onsite wastewater treatment system that uses soils to treat wastewater flows. A properly designed, installed, operated and maintained septic system will provide economical and effective sewage treatment. However, failures of septic systems do occur. Thus, proper septic system operation and maintenance is essential for all homeowners. A septic system failure has serious effects. Sewage backs up into the building or gathers on the ground. People and animals may become ill. Pollution may enter surface waters and shallow drinking water supplies. In addition to public health concerns, there is a costly repair bill. Normal activities are interrupted while the system is uncovered and repaired. In spite of these concerns, there are ways to extend a system's operating life and make repairs easier to handle. A good start is knowing how to maintain the system and use it wisely.

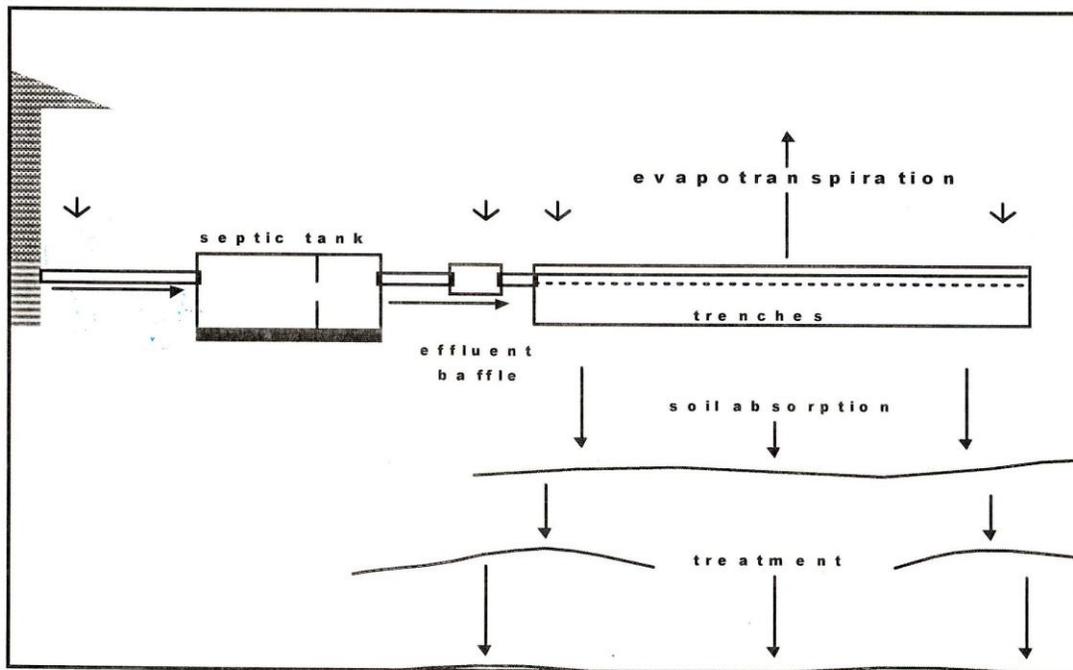


Figure 2-1. Cross section through a typical septic system.

A septic system consists of three main components: plumbing collection, septic tank and a soil treatment system (i.e., drainfield). All wastewater containing human wastes, nutrients, dirt and other contaminants must be collected via the **plumbing** and delivered to the septic tank and drainfield for treatment and disposal. The **septic tank** is usually buried a short distance away from the home and provides primary treatment. Primary treatment involves the separation of materials, which either settle to the bottom or float to the surface. This separation process leaves a relatively clear effluent, which flows from the tank to the **drainfield** and receives further treatment as it moves into and through the soil. What you put into your septic system will have a direct effect on whether or not you have a healthy, long-lasting and trouble-free system. Your septic system is not a dispose-all!

## **SEPTIC TANK**

A septic tank is a below ground watertight box (concrete, plastic, or fiberglass) often about 9 x 5 x 6 feet. It consists of three layers: floating scum layer (soaps, greases, toilet paper); liquid layer (water, liquid, suspended solids); and, sludge layer (heavy solids at the bottom of the tank). Heavier solids from the wastewater settle to the bottom of the tank as sludge. Lighter wastes form a scum layer on top of the water. Cleaner water between the two layers flows into the drainfield. Most solids fall out of the wastewater and remain in the septic tank. Bacteria breaks them down into sludge, but never eliminates them completely. Therefore, periodic cleaning and pumping is necessary. A septic tank must be installed at least 10 feet from a building foundation so repairs or pumping do not weaken the building. Since the tank holds wastewater, it must be installed at least 50 feet from a residential or private drinking water well (public wells serving several buildings or more than 25 people require larger isolation distances).

## **SOIL TREATMENT SYSTEM (DRAINFIELD)**

The drainfield treats the wastewater by distributing it over a large underground area of coarse soil. The drainfield is the area which contains the pipes (and/or other approved materials). It receives the partially treated liquid from the septic tank for distribution, treatment, and absorption into the soil. Wastewater flows through pipes into layers of stone and coarse soil. The stone holds the water and lets it filter slowly through the soil. Microorganisms in the soil provide final treatment by removing harmful bacteria, viruses, and nutrients. The drainfield must be able to treat the amount of wastewater produced or a septic system failure will result. A modern system design is based on the expected water production from people in the house. However, even an ideal system can be overloaded with water. If the soil is saturated, absorption stops and sewage backs up in the pipes or flows out onto the ground. It is important that the drainfield be properly maintained for proper function.

## **MAINTAINING YOUR SEPTIC SYSTEM**

A key reason to maintain your septic system is to save money! Failing septic systems are expensive to repair or replace, and poor maintenance is often the culprit. As such, be sure to adhere to the following maintenance tips:

1. Eliminating unnecessary sources of surface or runoff water will help maximize the life of your septic system. The disposal field is designed to treat a specific amount of wastewater each day. Make sure that water from eaves troughs, grass watering, plowed snow, parking lot drains or other sources is not draining on top of your septic field. A 1-inch rainfall will add 27,145 gallons of water to one acre of ground. The runoff from your roof can be as much as 400 gallons. There is no need to water or fertilize the septic field.
2. Household water conservation will reduce the strain on and prolong the life of your sewage treatment system. Leaky toilets, faucets, and extended showers can easily tax the system beyond its limitations. Laundry can be spread out over several days to minimize the daily surge of wastewater to the system. Low flow showerheads and faucet aerators, along with low capacity toilets tanks can help lower the amount of wastewater a system needs to handle. Water softener discharge water should be diverted to a separate dry well since it is not wastewater.
3. Landscaping the septic field should merely be grass or small vegetation. Large bushes or trees will clog the piping of the system with roots. Grass will take up some moisture, as well as nutrients from the field. Never pave over a field, nor drive or park heavy vehicles or machinery on top of the system.

4. Shoreline residents need to pay particular attention to their wastewater disposal system due to the unique situation they have. Often, the soils around lakes and streams are not as well suited for sewage treatment as upland sites are. The treatment system should be situated as far away as possible from surface water (100 feet per the Sanitary Code). Water conservation practices are especially important for these residents. The saturated soils encountered near lakes and streams will facilitate the movement of nutrients and contaminants toward the surface water. Although the system may appear to be working fine, it may, in reality, be leaking contaminants into the nearby lake, pond, or stream. Look for signs, such as excessive weed growth in isolated areas, or unpleasant odors near the shoreline.

### **SOME COMMON CLUES TO A FAILING SEWAGE DISPOSAL SYSTEM**

- ✓ Black water with a foul odor, which backs up in the plumbing, sink drains, or the toilet.
- ✓ Toilets flush slowly, even with the use of plungers or drain cleaners.
- ✓ Surface water ponds on top of the septic tank or system drainfield. This is a sign that either the system is not able to “breathe” properly (oxygen must move through the soil to treat the wastewater underground) or the system is overloaded with water and cannot accept any more.
- ✓ Abundant green grass over the drain field, even during hot, dry weather. This indicates the grass is absorbing excess water and nutrients which ought to be moving downward through the soil.
- ✓ Weeds or algae build up in nearby lakes or ponds. The septic system may be discharging wastewater and nutrients to the surface water rather than treating it underground.
- ✓ Foul odor near the septic tank or drainfield area.

### **TIPS TO AVOID TROUBLE- “DO”**

- ✓ **DO** have your tank pumped out and system inspected every 3 to 5 years.
- ✓ **DO** keep a record of pumping, inspections, and other maintenance activities. Use the “Maintenance Record” at the end of this document.
- ✓ **DO** practice water conservation: repair dripping faucets and leaking toilets; run washing machines and dishwashers only when full avoid long showers; and, use water-saving features in faucets, shower heads and toilets.
- ✓ **DO** learn the location of your septic system and drainfield. Keep the sketch provided in this report for future service visits. If your system has a flow diversion valve, learn the location and turn it once a year. Flow diverters can add many years to the life of your system.
- ✓ **DO** divert roof drains and surface water from driveways and hillsides away from your septic system. Keep sump pumps and house footing drains away from your septic system as well.

- ✓ **DO** take leftover hazardous household chemicals to your approved hazardous waste collection center for disposal. Use bleach. Disinfectants, and drain and toilet bowl cleaners sparingly and in accordance with product labels.

**TIPS TO AVOID TROUBLE- “DO NOT”**

- ✓ **DO NOT** allow anyone to drive or park over any portion of your system. The area over the drainfield should be left undisturbed, with the exception of typical lawn mowing. Roots from nearby trees or shrubs may clog and damage your drain lines.
- ✓ **DO NOT** make or allow repairs to your septic system without obtaining the required Health Department permit. Use professional licensed septic contractors when needed.
- ✓ **DO NOT** use commercial septic tank additives. These products usually do not help and some may hurt your system in the long run.
- ✓ **DO NOT** use your toilet as a trash can by dumping non-degradables down your toilet or drains. Also, do not poison your septic system and the groundwater by pouring harmful chemicals down the drain. They can kill the beneficial bacteria that treat your wastewater.
- ✓ **DO NOT** put diapers, cat litter, cigarette filters, coffee grounds, grease, feminine hygiene products, etc. into your septic system.
- ✓ **DO NOT** put household chemicals, gasoline, oil, pesticides, antifreeze, paint, etc. into your septic system.

**SEPTIC SYSTEM MAINTENANCE RECORD**

RECORD OF SERVICE			
Date	Work Done	Contractor	Comments