

# **AQUA WASTEWATER MANagements' HOMEOWNER GUIDE: PROPER OPERATION AND MAINTENANCE OF ON-LOT SEPTIC SYSTEM**

## **PART I: THE BASICS ON SEPTIC SYSTEMS**

The best designed and properly installed on-lot sewage system can still malfunction if the homeowner does not properly operate and maintain the system. In addition to requiring costly repairs, malfunctioning systems can contaminate both surface and ground waters. Contamination can cause various health problems; create unsightly messes, and foul odors. When raw sewage surfaces back up into the home, homeowners can help prevent malfunctions and ensure the long-term use of their on-lot system by following the instructions below:

- **Conserving water and reducing waste flow into the septic tank (i.e. Low flush toilets, front load washers)**
- **Avoid putting chemicals, of any kind, into the septic tank**
- **Do not use the toilet to dispose of bulky or slow decomposing waste**
- **Having the septic system inspected annually**
- **Preventing runoff from downspouts, sump pumps, and paved surfaces from getting into the septic system**
- **Keeping heavy vehicles and equipment away from the septic system**
- **Avoid planting trees or shrubs directly adjacent to the septic system**
- **Insure that your septic tank is pumped out at 1-2 year intervals depending on the tank size and the number of household members**

Be sure the tank is pumped out through the man-way and not the inspection ports. This could damage the baffles and cause abnormal amounts of solids to escape into the drain field. It is important to maintain accurate records of the septic systems design, installation location, and maintenance.

**PART II: WATER CONSERVATION: SAVING YOUR SYSTEM**

On-lot systems not only treat and dispose of domestic sewage from toilets, but they also receive wastewater from other household fixtures (i.e. baths, showers, kitchen sinks, garbage disposals, dishwashers, and washing machines.)

Conserving water and reducing the amount of flow from these household fixtures is important to ensuring long-term use of your on-lot system.

**Septic System Water and Flow Conservation Suggestions:**

<b>Use the dishwasher and washing machine only when fully loaded</b>	Top loading washing machine (35-50 gallons)	Front loading washing machine (22-25 gallons)
<b>Fix leaky faucets and plumbing fixtures immediately. Install control devices on all faucets</b>	Regular faucet aeration (2.5-6 gallons / minute)	Flow regulating aerator (.5-2.5 gallons / minute)
<b>Take short showers instead of baths. Install flow control or water saving devices on showerheads and other plumbing fixtures</b>	Conventional showerhead (5-112 gallons / minute)	Water saving showerhead (2-3 gallons / minute)
<b>Reduce water use each you flush the toilet</b>	Conventional toilet (4-6 gallons / flush)	Water saving toilet (1.6-2.6 gallons / flush)

Most new homes come equipped with low flow toilets. **IF** there is an older type toilet, you can displace the water volume by installing a plastic jug filled with water in your tank.

Use the garbage disposal sparingly, if at all. These wastes place a great burden on the septic system by adding additional solid waste which could lead to the need for more frequent pump outs. You can compost these wastes and add them to your garden. The compost is an excellent source of organic material which creates good soil for plants.

### **PART III: KILLING BENEFICIAL BACTERIA WITH YOUR TRASH**

Millions of living, beneficial bacteria constantly decompose and treat raw sewage in a septic system. The effectiveness of these bacteria can be impaired greatly when harmful substances and chemicals are placed into the system. Some examples of these items include:

- **Oils and greases**
- **Gasoline**
- **Anti-freeze**
- **Varnishes, paints, and solvents**
- **Harsh drain and toilet bowl cleaners**
- **High solvent laundry detergents**
- **Bleach in large amounts**
- **Pesticides, etc.**

Remember what goes into your toilet and drains may eventually end up in your drinking water. Utilize mild detergents, baking soda or borax instead of caustic bowl cleaners or bleach.

**NEVER** flush bulky, hard to decompose items such as sanitary napkins, diapers, paper towels, cigarette filters, plastics, egg shells, bones or coffee grounds down the toilet these items can and probably will clog your system.

### **PART IV: PROPER MAINTENANCE**

First in properly maintaining the on-lot septic system, is to obtain a copy of your sewage permit system from the builder or the seller. This will identify the size, location and components that have been installed for the home. Should you live in an older home, you may be able to obtain this information from the local sewage enforcement officer, township or county health department.

Secondly, all systems have a septic tank, which accumulates solids (sludge) and scum, which is on top of the water. The tank should be pumped out at regular intervals depending on the size of your tank and the number of household residents. It is recommended that this pumping occur every 1-2 years. This will increase the efficiency of the tank in retaining, digesting solids and extending the life of the drainage field.

Thirdly, keep accurate records that reflect the date and company that pumps and services your tank. Should the system be a gravity flow system (a system without a pump) has your pipes inspected periodically to ensure that solids are not building up and clogging the absorption field pipes. If you are the owner of a pressure dosed system (a

system with a pump) your underground pipes should be pressure cleaned each year in conjunction with having your tank cleaned. This process is inexpensive, but must be done properly and you should request a videotape of the interior of the pipes to show that the small diameter holes have, in fact, been cleaned.

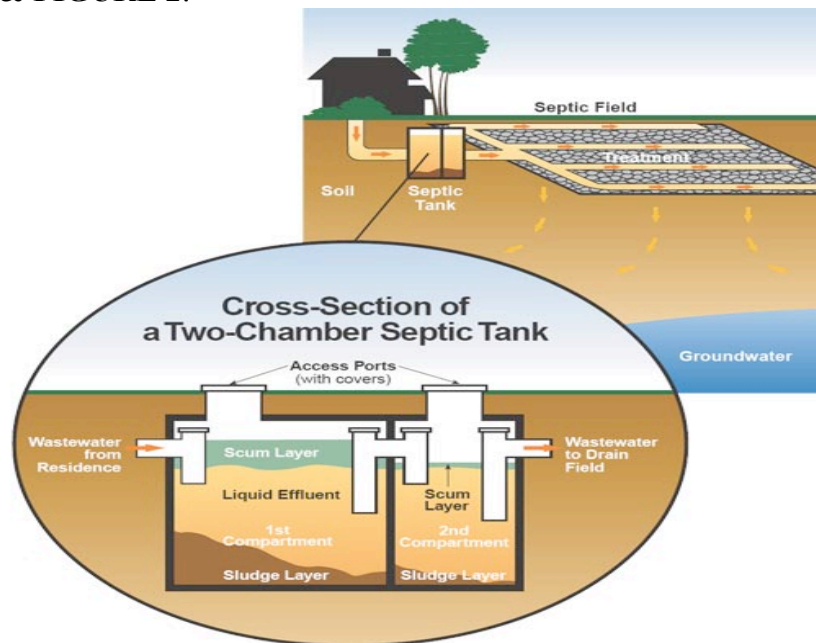
Again, keep good accurate records of all maintenance items and any additions or corrections that have been made to the system. These records will be quite valuable to you if you should decide to sell your property. All lending institutions require a sewage certification as part of their loan approval process. Good, accurate records can increase the value of your property and make the septic certification a simple task to complete.

## **PART V: HOW A SEPTIC SYSTEM WORKS**

A septic tank system contains two major components, a septic tank and an absorption field (Figure 1). The septic tank is usually made of concrete, fiberglass, or plastic; therefore, it is resistant to corrosion and decay. All septic tanks should have baffles, internal slabs to ensure proper flow patterns.

The size of the tank varies depending on the number of bedrooms in the home, but typically it holds approximately 1,000 gallons of liquid. The primary purpose of the septic tank is to separate the solids from the liquids. The solids, which come in the form of: 1. sludge, sink and collect on the bottom of the tank and 2. scum, which float on the top of the water. These solids remain in the tank and are pumped out periodically (Figure 2).

**FIGURE 1 & FIGURE 2:**

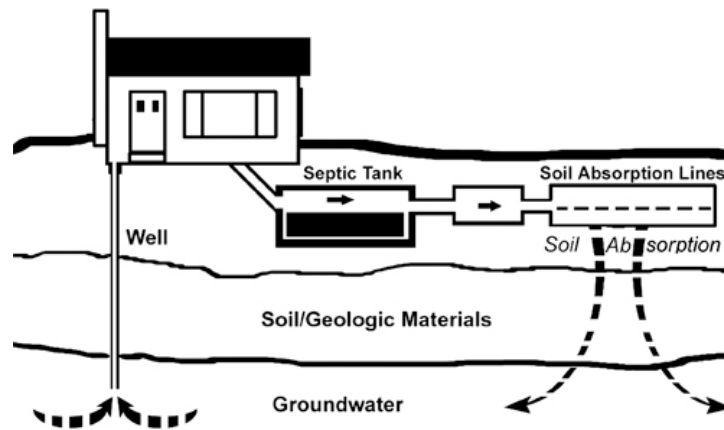


The wastewater (grey water) is passed on to the absorption field through a connecting pipe. The absorption field, also known as the soil drain field, nitrification field or leach field contains a series of underground-perforated pipes.

The wastewater (effluent) coming out of the septic tank is cloudy liquid that still contains many disease-causing germs and pollutants. When this water flows into the perforated pipe in the absorption field, the effluent exits through the holes in the pipe and trickles through the gravel where it is stored until it is absorbed by the soil. In some systems, subsurface chambers store the effluent. As the effluent enters and flows through the unsaturated soil, many of the bacteria that can cause diseases are filtered out. Some of the other smaller germs, such as viruses, are trapped and held by the soil molecules (absorbed) until they die. The soil can also retain certain nutrients such as phosphorous and some forms of nitrogen.

The perforated pipes ensure that the wastewater can reach the entire absorption field. The absorption field treats the wastewater through an aerobic (oxygenated) digestion process and filters out the remaining impurities (germs and chemicals) before the wastewater returns to the groundwater (Figure 3).

**FIGURE 3:**



**SUMMARY:**

In summary, do not dispose of items that will destroy the natural digestion process of the septic system, or deliver excess water to the drain field. Have the septic tank inspected regularly (preferably 1-2 years) and pump out the solids as necessary. If you adhere to these few simple rules, the septic tank system will provide a safe and economical method for on-site disposal of your wastewater.

**FOR MORE INFORMATION OR TO SCHEDULE SERVICES,  
CALL  
AQUA WASTEWATER MANAGEMENT:  
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