



Helping Communities face the challenges and impacts of growth while maintaining their character and sense of place.

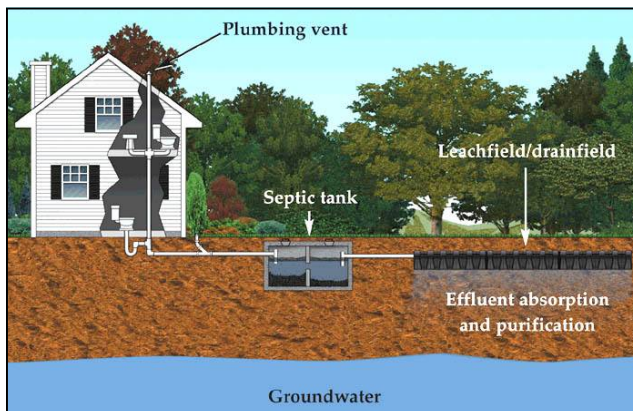
Septic Systems

What is a Septic System?

Septic systems can be thought of as individual, small-scale sewage treatment systems typically used in homes or businesses that cannot connect to municipal sewer systems. In these circumstances, all wastewater treatment must occur onsite in an individually designed septic system.

Septic systems consist of two parts, treatment and disposal, with the ultimate goal of providing purification of wastewater effluent.

The first part of the system is the septic tank, where larger solid materials are first removed and stored. Liquid effluent is then passed to the second part of the system, a leaching area where effluent is distributed, microorganisms and oxygen treat bacteria and small solids, and chemical reactions remove nutrients from the wastewater. In a properly operating system, disease-causing bacteria are destroyed as wastes percolate through the soil.



Source: <http://abeeseptic.com>

How are Septic Systems Sited and Installed?

Septic systems must be located in areas with soils that will drain properly and are deep enough to protect the underlying water table. A number of considerations go into the design of a septic system, including soil percolation rate, required separation distances from other resources or property lines, type of use, and daily flow volumes. Each of these will have an effect on the size of the leachfield bed needed to service the property, and potentially on the type of system ultimately installed.

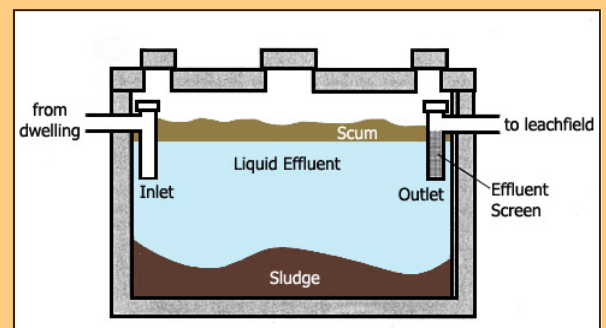
FUNCTIONS of a SEPTIC TANK

A septic tank is the treatment device that connects between the inlet wastewater pipe and the outlet septic drain field. It has three main functions:

Removal of Solids – Sewage enters the septic tank from the inlet pipe and is slowed, causing solids to sink and soaps and grease to rise to the surface. The effluent in the middle is discharged

Bacterial Decomposition – Anaerobic bacteria decompose the solids and liquids remaining in the tank under conditions where oxygen is not present.

Sludge and Scum Storage – The tank stores sludge, solids accumulating at the bottom on the tank, and scum, materials floating near the surface of the tank, so that they are not released into the leachfield, which would clog the receiving soil and eventually cause a system failure. When the tank approaches capacity, the sludge and scum must be pumped out of the tank in order to keep it functioning properly.



Source: NHDES Onsite Wastewater Disposal System Installation Manual

iTRaC is the Nashua Regional Planning Commission's new approach to community planning that focuses on integrating transportation, land use and environmental planning. The program was developed to assist communities in dealing with the challenges of growth in a coordinated way that sustains community character and a sense of place.



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Septic System Failures

According to RSA 485-A:2, a septic system failure occurs when the system “does not properly contain or treat sewage or causes or threatens to cause the discharge of sewage on the ground surface or into adjacent surface or groundwater.” Maintenance problems are often to blame when systems fail, rather than structural defects or installation errors. Septic systems need routine maintenance and should be pumped as needed, and at least every three years.

What are the symptoms of system failure?

- A black sewage backup that appears in drains or toilets, complete with a very disagreeable odor. Odors from drains or in the vicinity of the septic system are also indicators.
- Toilets and drains run slowly, indicating that the septic tank is full and needs to be pumped.
- Surface flow of wastewater near the septic system. It may or may not have an odor.
- Lush green grass near a leachfield (especially during dry weather) may indicate that liquids are moving up, rather than down, and the system may be clogged.
- Appearance of aquatic weeds or algae in lakes or ponds near the septic system. Nutrient-rich wastes may be leaching into the surface water.

What causes a septic system failure?

- Septic systems have a life expectancy, too. A good system will last 20 to 30 years, but eventually will become clogged with organic material, necessitating replacement.
- Lack of proper tank maintenance can drastically reduce the life of a septic system. Not pumping a tank at regular intervals can cause large amounts of organic matter to enter the leachfield, quickly clogging soil pores and causing system failure.
- Dumping inappropriate household cleaners, solvents, antifreeze, oils and greases, plastics, or personal care products can quickly clog the system or kill microorganisms responsible for sewage decomposition.
- Compacting the soil around a leachfield can render the system unusable by taking away precious pore space. Avoid driving or parking over any system components.

What if the system fails?

Health and economic effects are the most serious considerations of a failing septic system. Diseases can be spread by improperly treated wastes and the direct expense of system replacement can be significant (between \$2,000 and \$4,000). Addressing the problem immediately can help mitigate these consequences.

Call your local health department

Health department staff may be able to provide professional resources to help address the problem.

Have your septic tank pumped

An empty tank can hold several days of waste, and a full tank may actually be the source of the problem.

Conserve water

If your system has not failed completely, reduced loading can help buy time to diagnose and address the root problem.

Long-term solutions may include increasing the size of the absorption field to address inadequate capacity or low soil percolation rates. Perimeter drains may help where saturated soils cause absorption problems. Of course, an entire septic system replacement may be necessary if there are no options to connect to a community sewage system.

The NH Department of Environmental Services has a broad array of fact sheets designed to help individuals understand septic system processes, design, installation, and permitting. Visit the Subsurface Systems Bureau at <http://des.nh.gov/organization/divisions/water/ssb/index.htm>.



For more details on this topic or an overview of the entire iTRaC program, visit www.nashuarpc.org/itrac or contact Camille Pattison, iTRaC Program Manager, at camillep@nashuarpc.org or 603-424-2240 x14.

