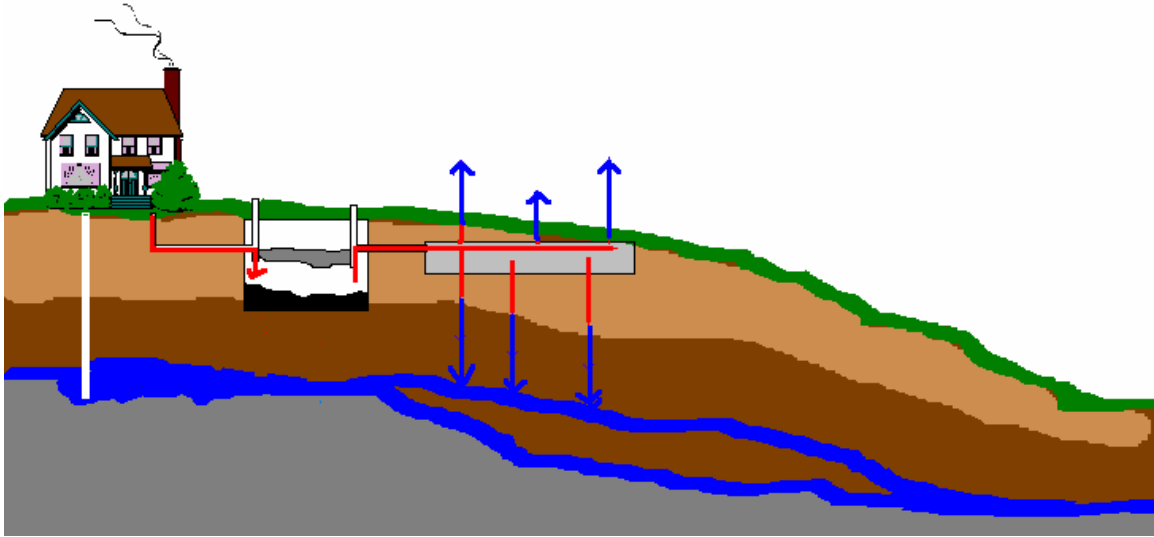




Ottawa County Health Department

What is an On-site Sewage Disposal System?

Waste water leaves the house and enters the septic tank. The septic tank performs two functions. **First**, it acts as a holding tank and allows the solids to settle-out. The heavier solids sink to the bottom forming the sludge layer, the lighter solids, fats, oils, grease, etc...rise to the surface and form the scum layer. The relatively clear layer in the middle is called effluent. **Second**, naturally occurring anaerobic bacteria begin breaking down the solids in size and destroying the pathogens.



This is a standard gravity-fed septic system. The treatment process starts in the septic tank and is completed in and around the drainfield. This simple type of system is best suited for those ideal building lots: well draining soils, no high water tables or nearby bodies of water.

After the treatment process is started in the septic tank the effluent enters the soil treatment phase of the process (baffles prevent the larger floating solids from entering the drainfield). The soil treatment system, more commonly called the drainfield, is comprised of distribution pipe laid in a trench partially filled with gravel and covered with topsoil.

As the effluent enters the drainfield it percolates through the gravel bed where a large portion of the pathogens are destroyed. Pockets of oxygen created by the uneven shape of the gravel allow the more efficient aerobic bacteria to exist. As the effluent exits the drainfield the natural soil completes the treatment process. By the time the effluent has traveled 2-3 feet through the soil all the remaining pathogens have been destroyed and the water is drinking quality. The cleaning process continues as the water migrates through the soil

Phosphorus and nitrogen are utilized by the vegetative life covering the drainfield and chemically changed in the soil. A large portion of the moisture is returned to the atmosphere through evaporation (evapotranspiration).

Obviously not all sites are going to be perfect. When dealing with high water tables, a nearby body of water, little or no soil, extremely slow soils, small lots, etc. and a standard system will not adequately perform the treatment process alternative systems can be designed to ensure the treatment process is performed before the effluent is discharged to the environment.

CAUSES OF SEPTIC SYSTEM FAILURE	SOLUTIONS
<p>Septic tanks seldom fail, the soil, or drainfield fails when it becomes plugged and the effluent can no longer migrate through the soil. The drainfield essentially becomes a dead pool of water. In most cases these failures occur when it becomes plugged with solids that were supposed to remain in the tank. These failures are usually a combination of factors and can be avoided and in some cases, damages can even be reversed.</p>	<p>Failures can be avoided by learning how a septic system functions, how to properly use it, and what steps you can take to protect it. The basics of protecting a system are really quite simple, once you realize that they work on a bacterial process (good bacteria eating bad bacteria) and bacteria don't eat plastic like polyester and nylon...too many harsh cleaning solution will kill off the good bacteria. Also a septic system can only handle a certain amount of water per day...if you put more water down the drain than it can handle you will overload the system.</p>
<p>The homeowner puts more water down the drain than the system can handle hydraulically over-loading the system.</p>	<p>Install water-saving appliances, devices and practice water saving techniques. Repair plumbing leaks. Leaking toilet valves are a major culprit of hydraulic overload putting hundreds of gallons of water through the system every day.</p>
<p>Fine solids from washing machines (lint) and garbage disposals do not have the mass to settle in the tank, instead they remain in suspension until reaching the drainfield where they plug the pores of the soilbed</p>	<p>Install filter for the washing machine to remove the fine solids from the discharge and do not use or minimize the use of garbage disposals.</p>
<p>Larger solids like feminine hygiene products, condoms, cigarette butts, paper towels, toys, etc. get out of the tank and enter the drainfield plugging it up.</p>	<p>Have the contractor install an effluent filter in the tank. These are cleanable filters that stop the larger solids from reaching the drainfield.</p>
<p>Chemicals are over-used killing the bacteria in the system stopping the treatment (and breakdown of solids) process.</p>	<p>Conserve chemical usage. Automatic toilet bowl cleaners can be very hard on a system because they kill the bad bacteria in the toilet but the killing process continues throughout the system.</p>
<p>Periods of heavy water use do not allow solids to settle in the tank and are flushed out to the drainfield.</p>	<p>Water use should be spread out. Do 1 or 2 loads of laundry per day rather than 10-15 loads on Saturday morning.</p>
<p>Baffles in the tank are not of the proper size or fall off allowing solids to float out to the drainfield.</p>	<p>Exit baffle should be replaced with effluent filters. These cleanable filters prevent the larger solids from reaching the drainfield and if installed properly are permanent baffles.</p>
<p>Solids are allowed to build-up in the tank leaving little settling room for newly introduced solids and forces solids out of the tank to the drainfield.</p>	<p>Have the tank inspected annually and pumped when necessary. Ask your contractor about putting you on an annual (cheaper) inspection program. Tanks should be pumped and inspected through the manhole cover, not the inspection pipe.</p>
<p>Vehicles are allowed to drive over the drainfield compacting the soil and destroying the natural (drainage) structure of the soil.</p>	<p>Keep vehicular and heavy foot traffic off the drainfield. Plugged/compacted drainfields can be rejuvenated by having the soil fractured. This fracturing creates thousands of tiny fissures that allow the soil to drain and the aerobic bacterial colonies to re-populate.</p>
<p>Sodium (salt) in wastewater can bind with certain types of clay soils causing the soil to seal.</p>	<p>A soil de-flocculent can be used to correct sodium damaged soil. A mini-septic system can be installed to receive the discharge from the water softener to prevent this damage.</p>