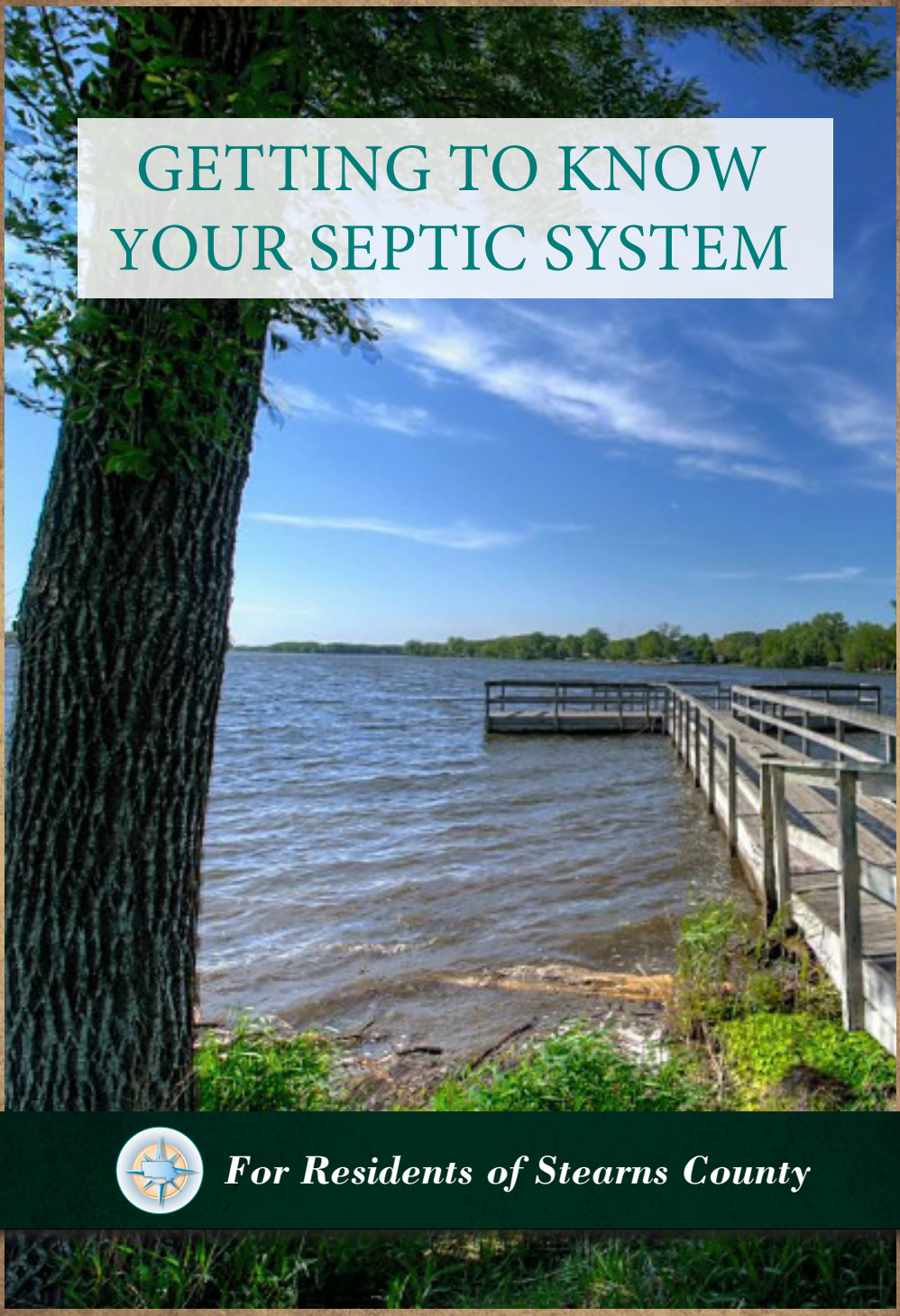
GETTING TO KNOW YOUR SEPTIC SYSTEM



For Residents of Stearns County

WHAT YOU NEED TO KNOW ABOUT YOUR SEPTIC SYSTEM IN STEARNS COUNTY

Stearns County is home to nearly 300 lakes, over 1,000 miles of rivers and streams, and has over 5,000 parcels alongside their shores. Many people live here specifically to enjoy our rich natural resources. We depend on these natural resources for our quality of life. Tourism is a driver of our local economy, and individuals choose Stearns County as home because it has so much to offer. We all have a responsibility to protect our environment and our way of life, and it starts with properly managing the water that we use; from conserving our domestic water to ensuring that all used water is fully treated before it re-enters the environment.

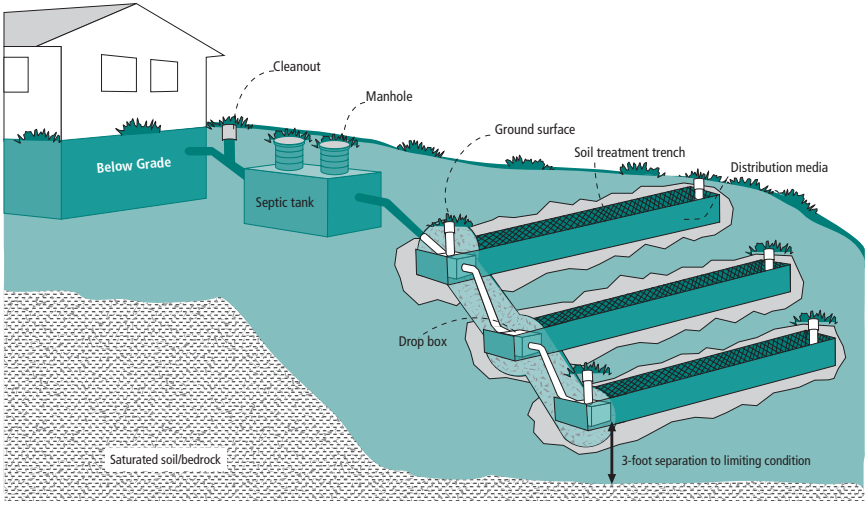
Treating sewage is everyone's responsibility. Residents within towns, cities, and sewer districts have their sewage treated at a treatment plant where costs are covered by taxes, assessments, and direct charges. Residents in areas without access to municipal treatment plants own, operate, and maintain their own "mini-treatment plants" – their septic systems.

WHAT IS A SEPTIC SYSTEM?

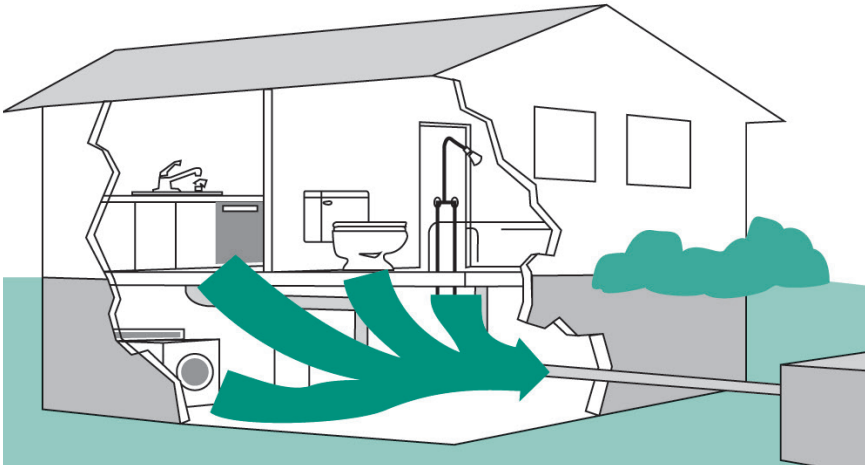
A septic system is professionally designed to treat sewage for a specific home, business, or group of properties. Proper treatment of sewage recycles water back into the natural environment with reduced health risks to humans and animals and prevents surface and ground water contamination.

The complete septic system is made up of three primary components:

- Plumbing: sewage collection
- Septic tank: primary treatment of all water used in the home
- Soil treatment area: final treatment and dispersal of septic tank effluent



A home, septic tank, and soil treatment area where unsaturated soil exists.

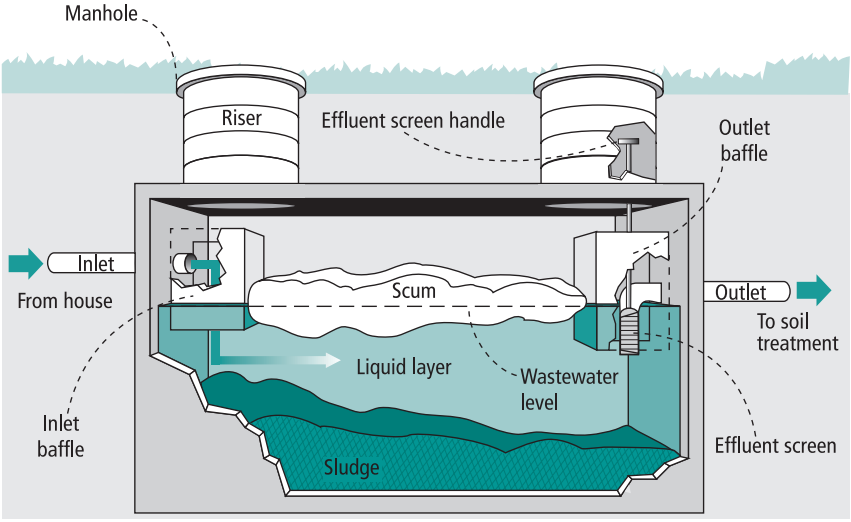


All water used in the home should go to the septic tank. Clear water from sump pumps, water softeners, and high-efficiency furnaces should be directed away from the septic system.

YOUR SEPTIC TANK

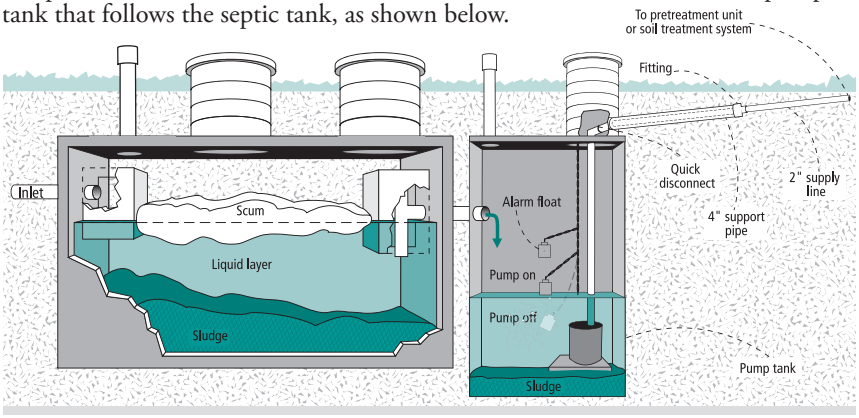
The tank's purpose is to collect all water used in the home and retain the wastewater long enough to allow for the settling of solids and the digestion of organic material. The tank's job is to store solids, which must be removed periodically to ensure adequate space in the tank to perform this primary treatment process (see page 6). The tank transforms wastewater entering the tank into effluent, a liquid that contains reduced amounts of suspended solids and organic content, but still has significant nutrients and disease-causing organisms. If too many solids are allowed to leave the tank, plugging in the soil treatment area may force effluent to the ground's surface, posing a threat to public and environmental health.

The septic tank has an important job. It prepares sewage for final treatment. Using excessive cleaning compounds, flushing medications, or disposing inappropriate materials down the drain can paralyze your septic tank and may cause irreparable damage to your soil treatment area.



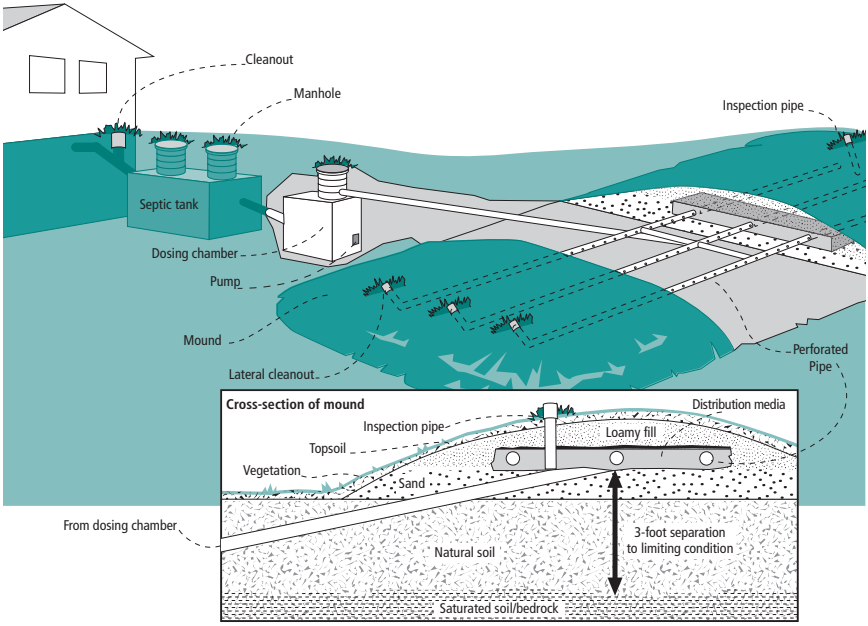
Specifications of a modern septic tank.

Soil treatment areas that are higher in elevation than the septic tank outlet or utilize low pressure to distribute the effluent across the soil treatment area have a pump tank that follows the septic tank, as shown below.



YOUR SOIL TREATMENT AREA

Septic tank effluent moves to the soil treatment area, where final treatment occurs. Microorganisms in soil break down and treat effluent before it recharges the ground water, preventing pollution and public health impacts. The beneficial microorganisms in the soil that complete this process need air to live. Therefore, a three-foot deep zone of unsaturated soil must exist below where the effluent enters the soil for complete treatment. If these conditions do not naturally exist, they must be designed, often as a mound system (see figure below).



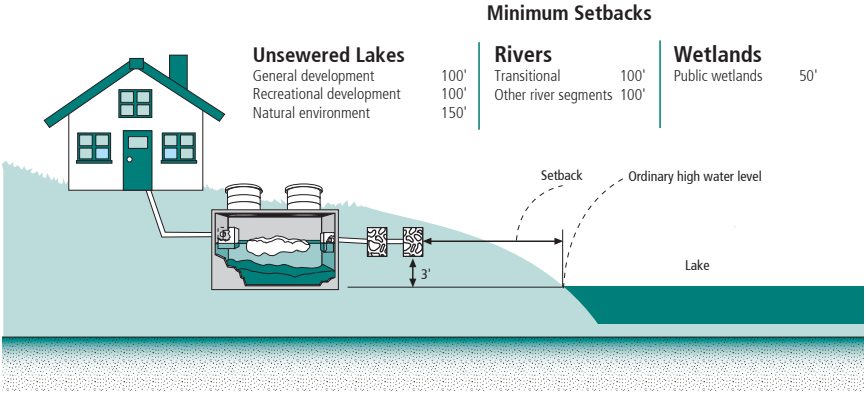
In this example, there is not enough natural unsaturated soil, so a "mound" is built to provide three feet of unsaturated soil.

A properly designed and installed soil treatment area will destroy pathogens and filter out the fine solids contained in the effluent. Phosphorus is chemically attached to soil particles and remains near the soil treatment area. Nitrogen treatment under a soil treatment area can occur through various methods. Shallow systems enhance evaporation and interaction with plants. Nitrogen that remains in the downward percolating water may be diluted by ground water.

Final treatment depends on a delicate balance of soil, air, and effluent to support healthy microorganisms. Different soil textures have drastically different particle sizes, which affect how well treatment can occur. Effluent travels quickly through coarse soils, which limits the contact time needed for complete wastewater treatment. Design measures that can be taken to promote complete treatment include the use of pressurized distribution, pretreatment, adjusting the soil treatment area geometry, or relying on aerobic conditions deeper in the ground by confirming additional vertical separation.

SETBACKS

A setback is a horizontally measured separation distance between two regulated items. Required setbacks between septic systems and bodies of water are intended to ensure that the effluent has been fully treated before it reaches surface water through ground water flow (see figure below).

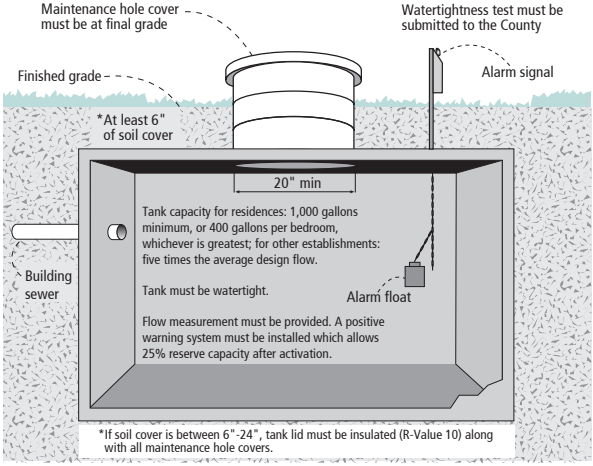


Lake and river setbacks in Stearns County

Required setbacks between septic systems and water supply pipes and wells, property lines, structures, and rights-of-way are intended to protect each item from impacting the other. Required setbacks are identified in the Stearns County Subsurface Sewage Treatment Ordinance.

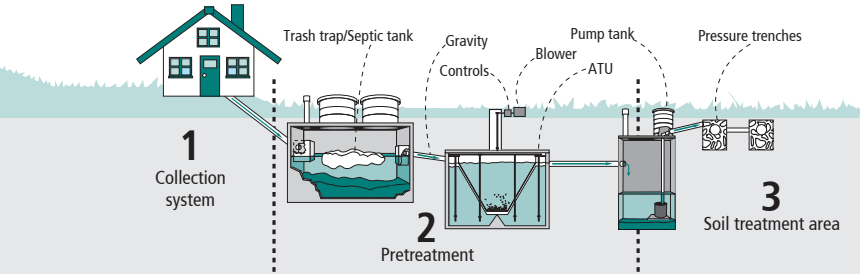
HOLDING TANKS

Holding tanks are septic tanks used to store sewage until it can be transported to a point of treatment and dispersal. They are used in Stearns County as a temporary alternative for an existing broken system or as an option of last resort for sites where a soil treatment area cannot be feasibly installed. In no case can a holding tank be



allowed for new dwellings. Holding tank owners in Stearns County must maintain a contract with a licensed SSTS Maintenance Business to manage this system. Owners are also responsible for submitting prior year maintenance records to the Environmental Services Department by January 31st of each calendar year.

ENHANCED TREATMENT TECHNOLOGY



Pretreatment units are typically located between the septic tank and the soil treatment area (see figure above). Their purpose is to provide an extra level of treatment to effluent before it enters the soil treatment area. They are typically used where there are individual site challenges such as high ground water, small lot size, or environmentally sensitive conditions. Pretreatment units may, in certain circumstances, allow the soil treatment unit to be downsized or require less unsaturated soil depth. Their use requires regular monitoring by a certified professional. They are operated under stipulations of a renewable operating permit.

MANAGING YOUR SEPTIC SYSTEM

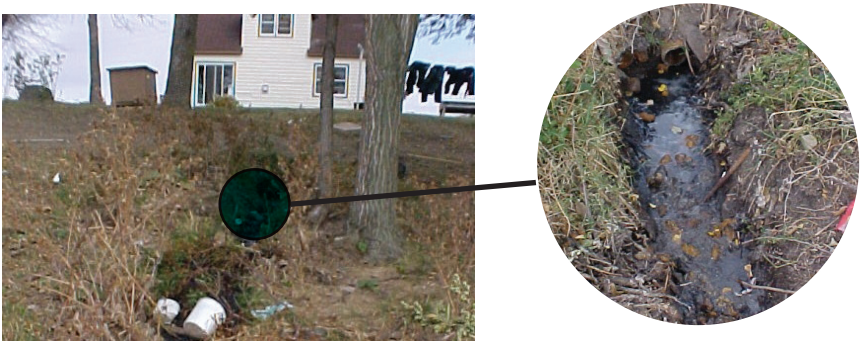
Following proper operation and maintenance guidelines will prevent costly repairs or premature replacement of your septic system.

Best Management Practices for your Septic System		
Household Plumbing	**Septic Tank**	**Soil Treatment Area**
Control water use–repair leaks, use low-water-use appliances and fixtures.	Pump/clean solids through tank's maintenance hole regularly (at least every 3 years). Do not remove solids through inspection pipes.	Maintain vegetative cover (turf, grass, native grasses or flowers). Mow, but do not over-fertilize, over-water, or burn.
Don't overload the system–spread water usage throughout the day or week. If you have high surge use (weekend company) talk to a Septic Professional about options that will help your septic manage your lifestyle.	Install and insulate risers to maintenance hole for improved management access.	Keep heavy vehicles off area (cars, tractors, snowmobiles, boats, etc.).
Minimize use of harsh cleaners, bleach, antibacterial soaps and detergents.	Have baffles inspected when tank is pumped.	Do not plant trees, shrubs, or deep rooted plants on or near the area.
Do not dispose of paints, medications, or chemicals through your septic system.	Install an effluent screen and service as necessary.	Do not grow vegetables or locate playgrounds above the area.
Keep grease, lint, food, feminine hygiene products, and plastics out of your septic system.	Do not use tank additives or cleaners.	**Help prevent system freezing:** • Inspect for cracked or missing inspection pipe covers annually. • Place mulch, straw or other insulating cover above soil treatment area for winter. • Maintain normal daily water use over the course of winter or pump tank and discontinue water use until spring. • Consider insulating cold air access points.
NEVER ENTER A SEPTIC TANK!		

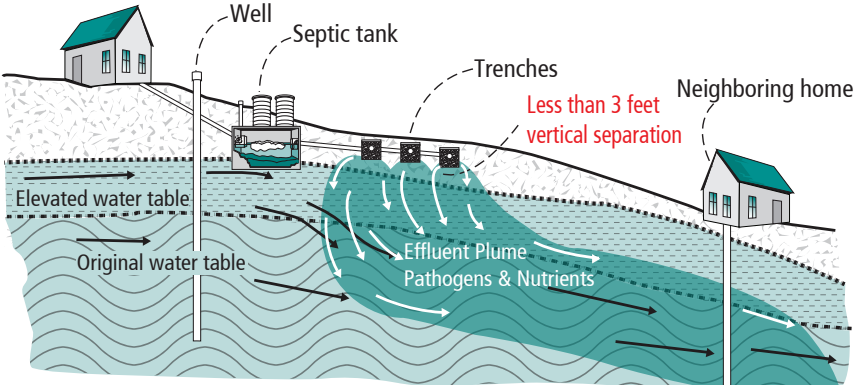
NOT ALL SEPTIC SYSTEMS PROVIDE TREATMENT!

Many SSTS owners incorrectly assume that as long as their used water "goes away," their system must be working properly. However, poorly designed, installed, outdated, or malfunctioning septic systems are actually a threat to water quality.

Many people live in homes or cabins built before standards for sewage treatment were enforced. The presence of straight-pipe discharges, surfacing systems, cesspools, drywells, other non-watertight tanks, or systems without the necessary aerobic conditions for final treatment continues to threaten water quality. Effluent from these systems entering surface or groundwater before final treatment is a problem that should be addressed. To make issues more challenging, lots around lakes are often very small, and soil conditions can have a high water table requiring special design considerations.



This straight pipe system was installed before the homeowner had neighbors. Out of sight, out of mind? Systems that allow untreated sewage to reach the ground surface are considered imminent public health threats.



Systems installed without adequate vertical separation threaten public and environmental health. Would you want to drink water from the neighboring home's well? These systems are considered non-compliant because they fail to protect the groundwater from contamination.

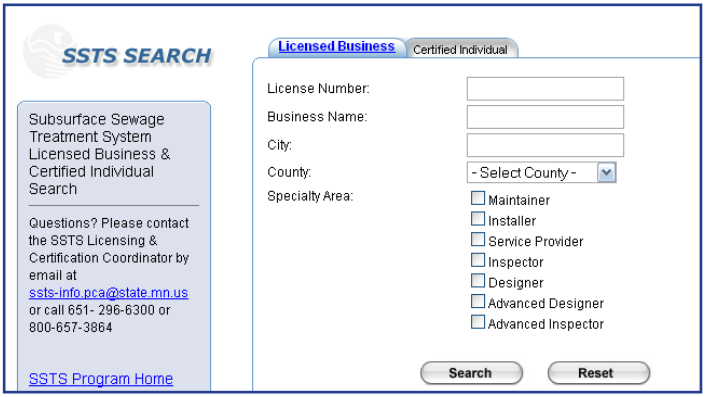
As our population grows and the demand for natural resources continues to increase, society's expectations that sewage be responsibly treated and clean water returned to the environment also increase. This means that Stearns County will be focusing on identifying and addressing problematic systems in years to come.

MAINTAINING, REPAIRING OR REPLACING YOUR SEPTIC SYSTEM

Find out where your used water goes. If your system doesn't fully treat effluent, replace it. Septic system professionals are certified by the state and hold business licenses that require bonding and insurance protection. Stearns County Environmental Services staff maintains a list of professionals in the area currently licensed in Minnesota to conduct this specialized work. Interview your septic system professional and learn about how they do business. Make sure they are licensed, reputable, and reliable by asking for and checking references.

Visit: http://septic.umn.edu/owners/findprofessionals/questions for a list of questions to ask potential professionals.

The Minnesota Pollution Control Agency maintains a list of certified professionals and licensed businesses. Search for professionals throughout Minnesota and filter by specialty area or local jurisdiction. Visit: www.pca.state.mn.us and search for "SSTS Search" to begin your query.



Improperly treated sewage can threaten human health and the environment.

When septic systems fail, human and environmental health are compromised.

System failure most commonly results from:

1. Overuse of water in the home
2. Lack of proper maintenance
3. Improper system design or installation

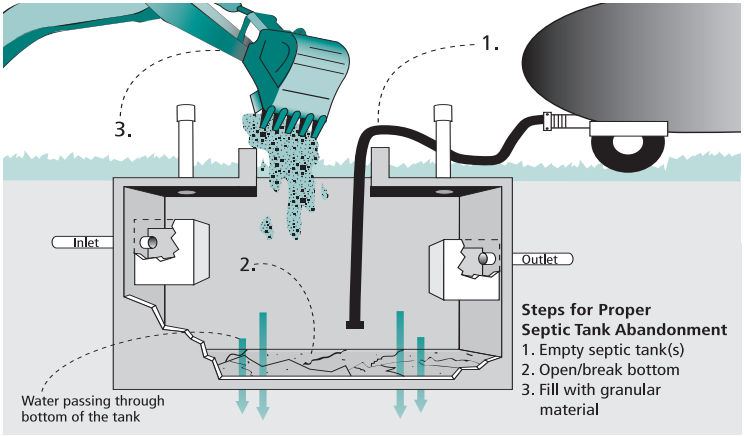
System failure may be identified by one or more of the following:

1. Sewage backup into the house
2. Sewage surfacing in the yard or a ditch
3. Sewage odors indoors or outdoors
4. High levels of nitrates or coliform bacteria in well water tests
5. Sounding of system alarms
6. Algae blooms and excessive plant growth in nearby ponds or lakes

ABANDONING YOUR SEPTIC SYSTEM

In the event that a septic tank is no longer used (because of an alternate connection to city sewer, tank replacement during system upgrade or repair, etc.), the tank must be properly abandoned. The goal is to render the area of the old tank safe and free of environmental or public health impacts. The tank must first be completely emptied of its contents by a Minnesota licensed Maintainer. Three common practices for addressing an empty tank are:

1. Remove and dispose of the tank at an approved site (normally a landfill).
2. Crush the tank completely and backfill.
3. Break the tank botton and fill the tank with granular material or some other inert, flowable material such as concrete.



There are a few ways to safely abandon a septic system. Hire a trained professional to ensure it is done right.

The abandoned tank must present no collapse or confined-space hazard. It is recommended that a Minnesota licensed septic system professional manage the tank abandonment process.

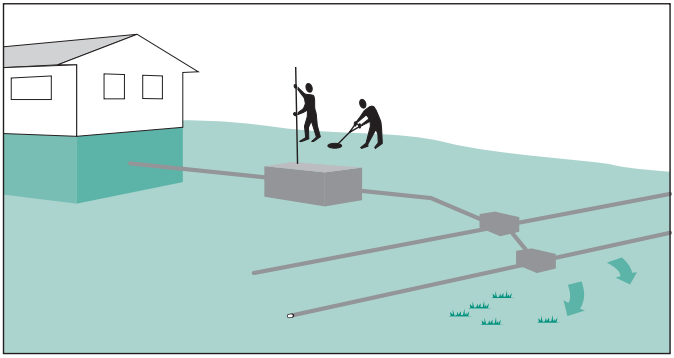
The abandonment of a soil treatment area is also a job for a professional. Contaminated material must be identified and properly handled to prevent human contact. These materials must be disposed of according to state law.

A professional is trained to complete this procedure and will prepare a report for the Environmental Services Department. A homeowner can perform these tasks so long as all requirements are met, including prior notification of the Environmental Services Department. The department will conduct an abandonment inspection upon completion.

COMPLIANCE INSPECTIONS

Every new or replacement septic system in Stearns County is reviewed and inspected by the Environmental Services Department. Existing systems must be inspected in the following situations:

1. Upon the transfer of property, except in certain extenuating circumstances.
2. When a permit is required to repair, modify, or upgrade an existing septic system.
3. Upon the receipt of a complaint or other information of potential system failure.
4. Prior to the issuance of a building permit for the addition of a bedroom.
5. Prior to the issuance of any permit in the Shoreland Overlay District.
6. Any time there is a change or expansion of use of the property being served by the septic system.
7. Upon application for a daycare license.
8. Upon the renewal of an operating permit.
9. During systematic lake or area-wide inventory surveys.



Septic systems inspections must be completed by a licensed professional.

The licensed inspector is going to verify four things about your septic system when conducting an inspection:

1. All tanks must be watertight below the operating level.
2. The soil treatment area must have adequate vertical separation between the bottom of the system and the limiting condition.
3. The system cannot seep or discharge sewage to the surface.
4. Management requirements must have been documented and met.

Systems found to be non-compliant must be upgraded within 10 months of the receipt of the notice of non-compliance. Systems that are an imminent threat to public health have 90 days to fix their system.

Sewage treatment is everyone's responsibility. Do your part by ensuring your septic system treats wastewater. Take care of your system by pumping your tank every three years or less and being thoughtful of what products you use in your home. Every drop of water that you use inside your home goes into your septic system- make sure that your system can handle your load!

Stearns County Environmental Services
705 Courthouse Square Rm 343
St. Cloud, MN 56303

FOR MORE INFORMATION:

Stearns County Environmental Services Department:
Phone: (320) 656 - 3613, 1-800-450-0852
Email: septic.info@co.stearns.mn.us
Web: http://www.co.stearns.mn.us

Minnesota Shoreland Management Resource Guide:
Web: http://shorelandmanagement.org

University of Minnesota Onsite Sewage Treatment Program:
Web: http://septic.umn.edu

This brochure is a collaborative effort between Stearns County Environmental Services and the University of Minnesota's Onsite Sewage Treatment Program.

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