



Are you...

SEPTIC
SMART
?

Why Waste your Money?

Inside you will find great tips on how to save money through proper septic maintenance and how to protect your home and the environment from septic contamination





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guide.*



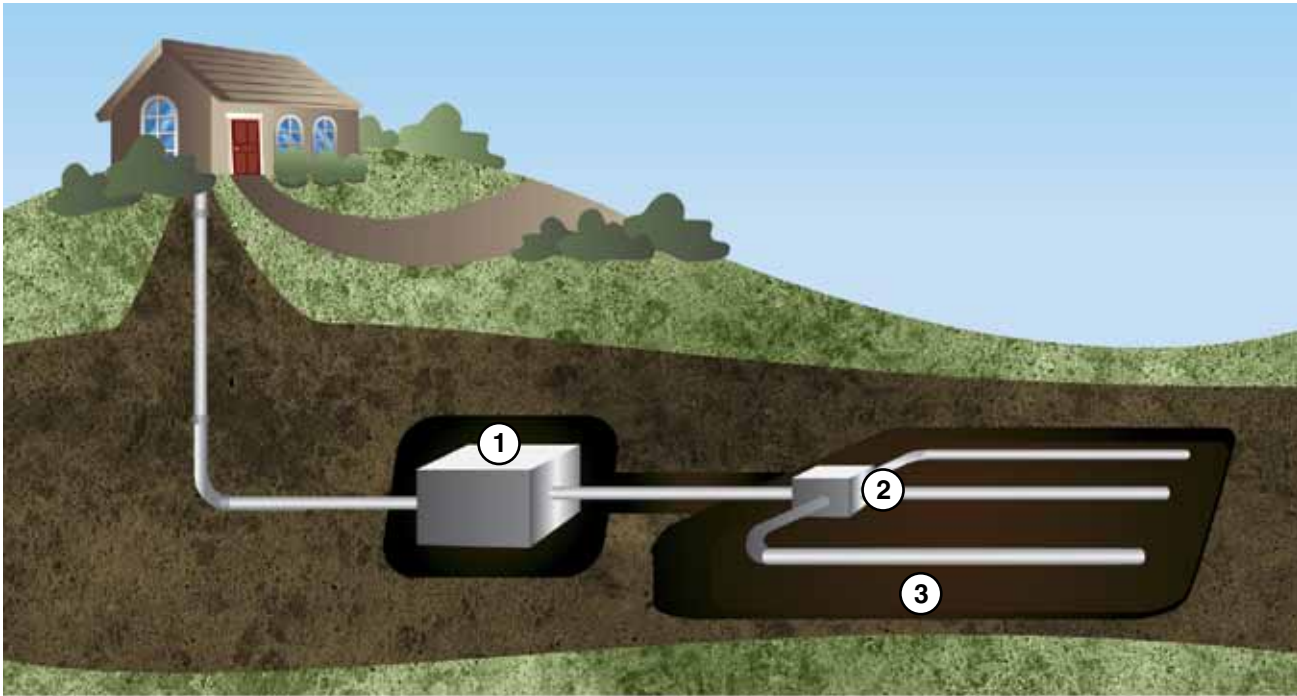
***Hi, my name is Septic Sam.
This homeowner guide is designed
to help you maintain your septic
system while saving money and
your local environment.***

If you are like most homeowners, you probably never give much thought to what happens when waste goes down your drain. But if you rely on a septic system to handle your household wastewater, what you don't know can hurt your pocketbook and your family's health.

Your septic system is buried beneath your yard and is constantly working day and night processing the waste from your home. With proper care and maintenance, your septic system can continue to work for at least 25 to 30 years. If it fails, it can cost \$15,000 or more to replace, not to mention the aggravation and inconvenience.

What is a Septic System

A conventional septic system has three main components: ① Septic tank; ② drainfield; and ③ soil.



① **Septic tank:** A septic tank is a large watertight tank usually divided into two compartments, with access ports at the top for inspection and service. The size of the tank depends on the size of the house, the number of bedrooms and the number of people living in the house. The purpose of your septic tank is to remove solids, fats, oil, and grease from the wastewater in order to prevent these materials from being transferred to your drainfield, as this will cause the drainfield to clog and fail. Older tanks often consist of only one compartment and are usually smaller than newer tanks, making it even more important for owners to conserve water, and to conduct an annual inspection to determine if the tank needs to be pumped out.

② **Drainfield** (also known as a distribution system, absorption field or tile field): A pipe from the septic tank transfers the settled wastewater to the drainfield, which typically consists of a grid of perforated pipes that distribute the wastewater over a large area where it enters the soil. The wastewater transfer can be done either by gravity, or by pumps. If a gravity system is in place, the wastewater first enters a distribution-box that equally distributes the wastewater flow into the pipes. A pumped or pressurized drainfield system ensures more uniform distribution minimizing the potential for overloading or clogging the drainfield or any particular drainpipe segment. The drainpipes are typically surrounded by gravel. The purpose of the gravel is to provide liquid storage, increase soil surface area for absorption, and prevent soil from blocking the perforations in the distribution pipes.

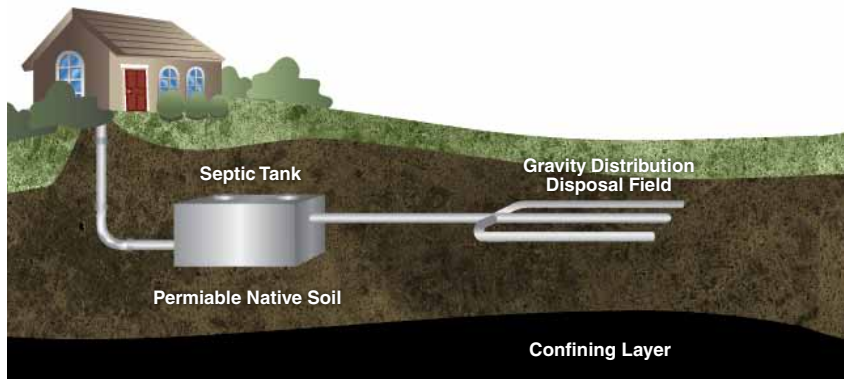
③ **Soil:** The purpose of the soil beneath the drainfield is to absorb, treat and transfer the wastewater away from the drainfield, down to groundwater and eventually to a river or lake. The soil must be granular enough to allow wastewater to be absorbed into the soil and allow oxygen to be available. The soil acts like a filter removing particles from the wastewater. Aerobic bacteria attached to the soil digest and treat the wastewater. For this soil-based treatment system to work, there needs to be at least three to four feet of unsaturated soil beneath the property. Where there is not enough soil depth, or the groundwater (saturated soil) is too close to the drainfield pipe, sand may be added to the site to increase the soil depth for treatment and dispersal.

Types of Septic Systems

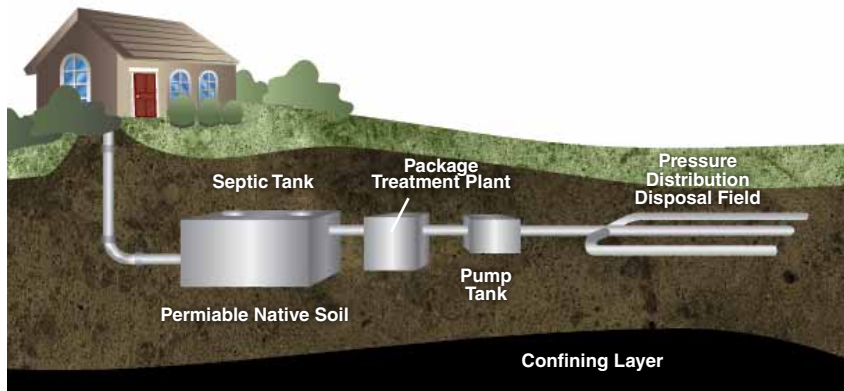
There are three types of wastewater treatment systems:

- **Type 1 – septic tank**
- **Type 2 – secondary wastewater (package) treatment**
- **Type 3 – advanced wastewater treatment with disinfection**

Type 1 system:



Type 2 system:



Type 1 and Type 2 treatment systems are intended for use on properties with ideal or near-ideal soil conditions for ground disposal. The primary difference between Type 1 and 2 systems is that Type 2 systems also include a wastewater treatment system, thereby requiring less drainfield pipe and, consequently, less land area than a Type 1 system. However, Type 2 systems have a greater treatment cost than Type 1 systems.

A *Type 3* treatment and disposal system is custom designed and intended for use with properties that have poor or very marginal site soil conditions not suitable for Type 1 or Type 2 systems. Type 3 systems treat to a higher water quality standard than Type 2 systems, and they are also required to disinfect the treated wastewater before it is distributed to the drainfield.

Selecting the wrong system can be a costly mistake. Be sure to consult an Authorized Person in selecting the right system for your property.

Drywells

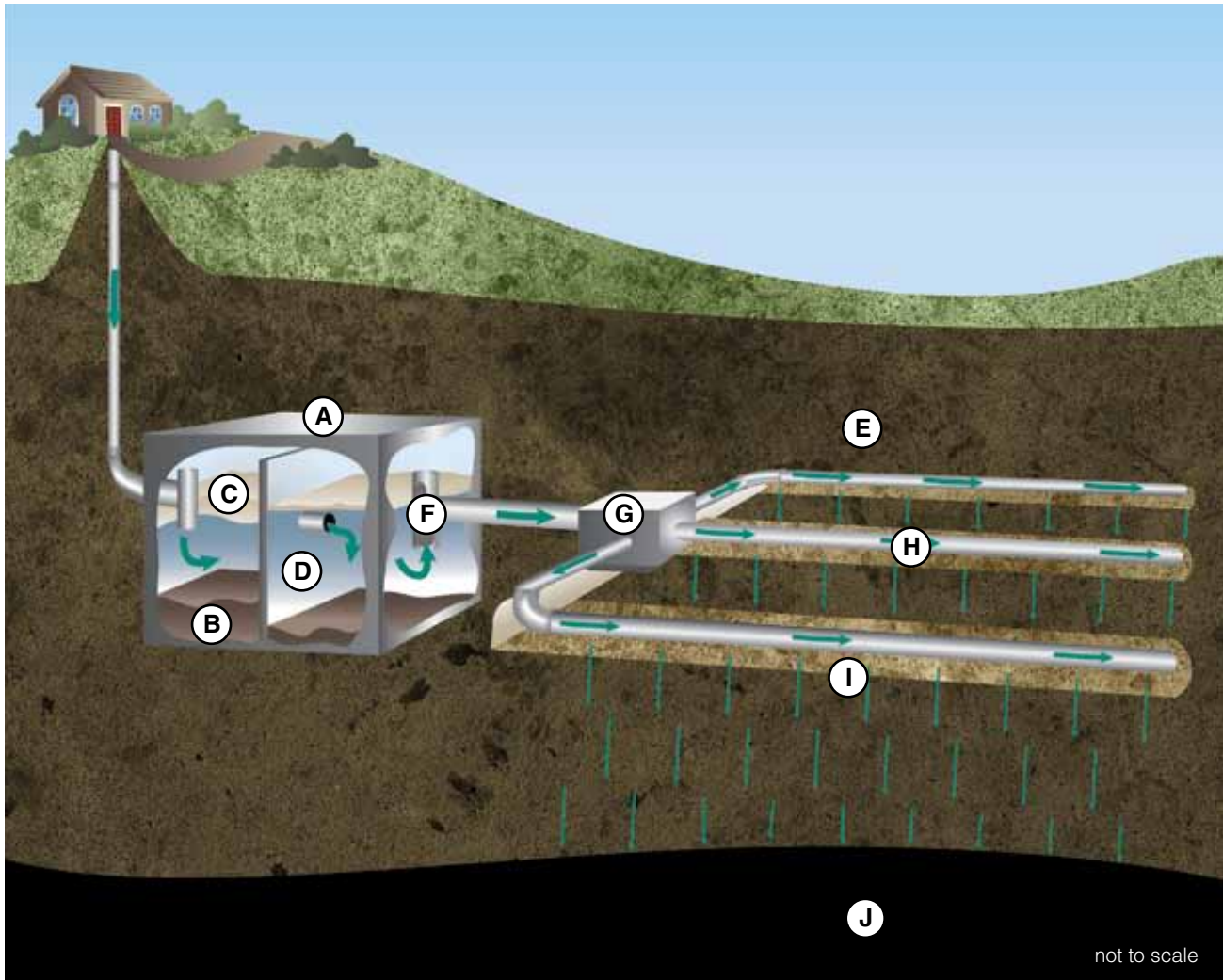
A drywell is a simple pit or hole in the ground, open to the soil at its sides and bottom in which residential wastewater is deposited. It is typically made from concrete or plastic or may be constructed as a pit filled with gravel, or other debris. Some properties may have a septic tank that receives wastewater from the house before it goes into the drywell. In this instance, the drywell acts as a replacement to the drainfield (as in a Type 1 system).

Unlike a drainfield, drywells extend vertically into the permeable native soil with holes or pores that allow the partially treated wastewater to seep into the surrounding soil. If the drywell is located in wet or poorly drained soils or within the water table, the effluent can enter the groundwater untreated or back up into your home.

Many older properties within the CSR D had drywells installed before regulations were introduced. The cumulative impact of these drywells is significant. Population growth and increased household water use means more wastewater is making its way into drywells and into the local environment without being properly treated. ***Continuing to use a drywell places tremendous stress on the local environment and groundwater, as well as posing a potential health hazard to your family and a risk to property values.***

How Does Your Septic System Work?

Properly functioning and maintained onsite septic systems are an excellent natural means of treating domestic wastewater. Although many different types of systems are used, they generally operate under the same principles.



not to scale

(A) Septic Tank

(B) Sludge

(C) Scum

(D) Partially treated (or “primary treated”) wastewater

(E) Drainfield

(F) The Effluent Filter

(G) Distribution Box

(H) Drainfield Pipes

(I) Voids

(J) Water Table

** see next page for full descriptions of each of these elements in the system*

In a typical Type 1 septic system, all wastewater from your home including kitchen and bathroom sinks, dishwashers, bathtubs, showers and toilets, laundry washing machines and tubs drain from the house into a **septic tank (A)**. The septic tank uses time, floatation and gravity to separate the oils, grease and coarse solids from the wastewater into three layers:

i) Sludge (B): Heavy materials including feces, toilet paper, grit, plastic and solid food waste settle to the bottom of the septic tank. Naturally-occurring bacteria slowly digest the accumulated solids; however, the solids build up faster than they can be digested and accumulate until they reach a level where they need to be pumped out. Otherwise they risk flowing out and clogging the drainfield. *Therefore, the fewer solids you put down the drain, the less often you'll need to pump out your septic tank.*

ii) Scum (C): Light soaps, fats, oils, grease and similar materials that float to the surface of the septic tank.

iii) Partially treated (or “primary treated”) wastewater (D): The remaining water that sits in the middle of the tank containing some suspended solids and soluble organic contaminants. This wastewater is transferred either to a second chamber, or directly drained to the drainfield.

Your septic tank should be large enough to store wastewater for two days before it is released to the **drainfield (E)**.

If your septic tank is properly operated and pumped out regularly, the liquid leaving the septic tank will contain very few solid particles. However, if solids build up and are not pumped out, they can flow through to the drainfield, potentially blocking the small holes in the drainpipe and damaging the field. Solids can build up fast for many reasons:

- (1) Your septic tank could be undersized for the size of your house or the number of occupants.
- (2) Your tank is not being pumped out frequently enough.
- (3) High volumes of water from bath tubs or hot tubs are being discharged pushing solids through the tank before they have a chance to settle.

Regardless whether your septic tank has one or two chambers, it is highly recommended to install an effluent filter. **The effluent filter (F)** catches solids before they leave the tank ensuring they are not released to the drainfield. Common wisdom is that it is better to have a clogged filter that needs cleaning (and also usually serving notice the septic tank needs pumping), than to have a clogged drainfield.

Gravity-fed septic systems distribute wastewater coming out of the septic tank through a **distribution box (G)**. The distribution box evenly distributes the wastewater into the perforated **drainfield pipes (H)** that lie buried in drain rock, in trenches, or in a bed beneath the ground. Larger systems use pumps to distribute the wastewater over the leaching bed area. Small holes in the drainpipes allow the wastewater to seep into and be stored in the **voids (I)** around the drain rock and then gradually seep into the soil. Natural filtration and bacteria in the soil clean the water. The soil must be both coarse enough to allow water to easily flow through it, but also fine enough to ensure it flows slowly enough to be properly treated. When the liquid finally reaches the **water table (J)**, the wastewater has been treated and cleansed.

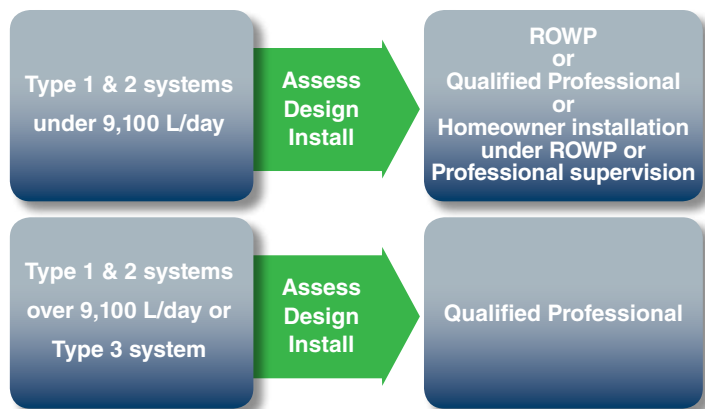
When septic systems work properly, they are efficient, inexpensive to maintain and safe for people and the environment. However, if they fail, they can cause odours, water pollution, major repair costs and health hazards. Contaminants can leach into groundwater and drain directly into our lakes, streams and backyards!

What the Law Requires of You

The design, installation and maintenance of septic systems in British Columbia falls under the Sewerage System Regulation. As a homeowner with a septic system, the Regulation sets out certain responsibilities and requirements that you should be aware of.

Use An Authorized Person

Before starting installing or replacing a septic system, you must have an “Authorized Person” – either a Registered Onsite Wastewater Practitioner (ROWP) or a Qualified Professional – assess your property’s soil conditions, design a treatment and ground disposal system appropriate to the site conditions, develop a maintenance plan and then register the treatment and disposal system on your behalf with Interior Health. Who you need to hire depends on the soil conditions, the type of system required for the site and the amount of wastewater generated per day. For single family residences with Type 1 or Type 2 systems, you may also construct your own household system under the supervision of an Authorized Person. See insert box on this page and the back of this guide for more information on how to find an Authorized Person in your service area. **It is an offence to install or repair a septic system without the involvement of an Authorized Person.**



ROWPs and Qualified Professionals follow a Standard Practice Manual (SPM) when investigating and assessing soil conditions, designing the disposal system and creating a maintenance plan. A summary on the SPM is available on the CSRD’s website (www.csr.bc.ca/septicsmart).

Maintain Your System

When it comes to maintaining your system, Regulation requires that you:

- 1) Ensure your system is maintained in accordance with the maintenance plan provided by the Authorized Person who designed your system.
- 2) Keep records of all maintenance service performed on your system.
- 3) Ensure that all other requirements under the regulations and local by-laws are followed.

It is an offence to install or repair a septic system without the involvement of an Authorized Person.

To find a registered practitioner (ROWP) in your area contact:

Applied Science Technologists
& Technicians of BC
- Onsite Wastewater Registration Program
Visit: <http://owrp.astbc.org/c/finder.php>
or call 604.585.2788 ext. 236

To find a Qualified Professional in your area contact:

Association of Professional Engineers and
Geoscientists of British Columbia
Visit:
www.apeg.bc.ca/members/sewageprolist.html
or call 1.888.430.8035.

Septic Systems and Your Health

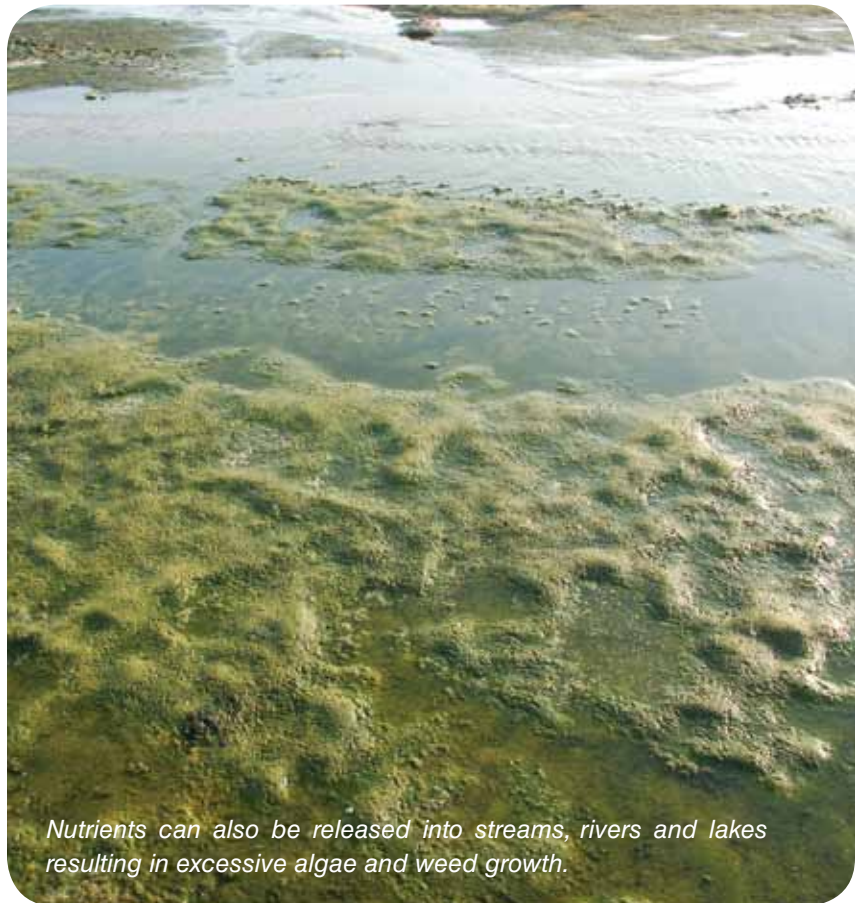


When septic systems fail, household wastewater is released into the environment. Any contact with untreated human waste can pose a significant health risk to you and your family. Untreated wastewater from failing septic systems can also contaminate nearby wells, groundwater, and drinking water sources. Diseases caused by bacteria, parasites and viruses present in wastewater include dysentery, gastroenteritis, hepatitis, and typhoid fever. Many serious outbreaks of these diseases have been caused by contaminated drinking water.

If a wastewater treatment and disposal system is poorly designed, maintained or overloaded, it can have a wide range of health and environmental consequences. For example, excess ammonia discharges can result in high nitrate levels in groundwater. Nitrate is the cause of methemoglobinemia, or blue baby syndrome, a condition that prevents the normal uptake of oxygen in the blood of young babies. Nutrients can also be released into streams, rivers and lakes resulting in excessive algae and weed growth. Medicines flushed down the toilet or poured down the drain can also enter the groundwater and affect neighbouring wells and waterways.

In addition, a failing septic system can lead to unpleasant conditions affecting your neighbourhood and community, such as pungent odours, soggy lawns, and beach closures.

When septic systems fail, inadequately treated household wastewater is released into the environment. Any contact with untreated human waste can pose a significant health risk to you and your family.



Nutrients can also be released into streams, rivers and lakes resulting in excessive algae and weed growth.

Maintaining Your Septic System

Septic system maintenance is like caring for your car – just a little effort on a regular basis can significantly prolong the life of the system and save you a lot of money.

Locate Your Septic Tank

Even a professional may have trouble locating your system if the access to the tank is buried. Sometimes a sketch of the system is included with the original install documentation (a septic system permit if the installation was done prior to 2005) and can be referred to in locating the septic tank. Another way to start looking is to go to the basement to determine the direction the sewer pipe goes out through the wall. Back outside, a certified inspector will use an insulated probe inserted into the soil to locate the buried piping. In some instances, when a probe cannot locate the tank, a radio transmitter may be used. The transmitter is about the size of a small bottle of aspirin, and is flushed down the toilet. A receiver is then used to follow the transmitter and locate the septic tank. The transmitter can be retrieved once the tank is located and opened.

Once the system components are found, be sure to sketch a map in your maintenance log and keep it on hand to save time on future service visits. A maintenance log is located on page 9 of this guide.

Locating and uncovering the septic tank prior to the inspector arriving can save the inspector time and reduce your inspection

costs.

Inspections

All septic tanks need to be inspected regularly by a certified inspector. Don't neglect this or put it off. Regular inspections can prevent the high cost of septic system failure. An inspection lets you find out:

- i) How much sludge and scum has accumulated;
- ii) Whether the baffles are functioning properly; and
- iii) Whether the tank has any leaks.

NEVER allow anyone other than a properly equipped, trained and licensed contractor to access a septic tank for any reason whatsoever. The tank contains deadly gases. See page 19 of this guide to locate a qualified inspector.

During an inspection, a qualified contractor should do a number of things, including:

1. Uncover the manhole and inspection ports
2. Check plumbing connections to the septic tank
3. Visually observe the scum and sludge layers in the septic tank and measure them using special tools inserted through the inspection port.
4. Check the condition of the baffles or tees, as well as the walls of the tank for cracks, and the drainfield for any signs of failure. If the system includes a distribution box, drop box or pump, these need to be checked too.



Who Should Inspect Your Septic System?

The Applied Science Technologists & Technicians Association provides a list of people qualified to carry out an inspection for a Type 1 or Type 2 system (see contact information on page 19 of this Guide). For a Type 2 or Type 3 system, follow the maintenance plan that was prepared by a Qualified Professional, and have the treatment plant manufacturer or their authorized agent maintain the equipment.

Pump Outs

It is important to have your septic system pumped out by a licensed septic system contractor on a regular basis. A licenced contractor will have the appropriate equipment and will dispose of the sludge at an approved treatment site.

How often you should pump out your septic tank depends on the tank size, the number of people living in your home, and the habits of your particular household. Garburators and food preparation practices also affect the pumping frequency. Discuss this with your pumping contractor during the first inspection.

Pumping Tips

- Be present when your tank is being pumped. Make sure that the contractor uses the manhole, not the inspection ports, to pump the tank to avoid damaging the baffles or tees. Also make sure all the material in the tank is removed. It is not necessary to leave anything in the tank to “restart” the biological processes, but it is also not necessary to scrub or disinfect the tank.
- It's best to pump in the summer or fall, before cold weather.



System Additives

The bacteria needed by a septic system occur naturally. It is a ‘rural’ myth that biological additives such as yeast or meat need to be added to your system. No commercial starters, bacterial feeds or cleaners are required or recommended.

There are two types of septic system additives that you may find marketed on the internet: biological (like bacteria, enzymes, and yeast) and chemical. While many products on the market claim to help septic systems work better, the truth is there is no magic potion to cure an ailing system. The biological additives may be harmless but some chemical additives can potentially harm the soil in the drainfield and contaminate the groundwater. Some additives can kill off the healthy bacteria in your tank and are not recommended.



No commercial starters, bacterial feeds or cleaners are required or recommended

Septic Heaven

Septic systems do not last forever. If you find that your onsite septic system is no longer functioning, you may need to consider an alternative -- or part or all of it may have to be dug up and replaced. A ROWP should be contacted to provide assistance in assessing your onsite system problems and developing an appropriate solution to your circumstances. If your circumstances are particularly difficult, they may refer you to a Qualified Professional for further assistance.



System Maintenance for Type 2 and Type 3 Systems

Type 2 and Type 3 systems have much smaller drainfields than Type 1 systems. Instead, they rely on bacteria contained within a package treatment plant to further treat wastewater coming from a septic tank before it enters the drainfield. These package treatment systems are typically mechanical processes that have pumps, air blowers, and electrical components that can break down if they are not properly maintained.

If you don't maintain a Type 2 or Type 3 package treatment plant, it will fail to treat the wastewater adequately, resulting in the drainfield overloading, clogging and ultimately failing. The result? High repair costs and potential public health and environmental consequences. As the oil filter advertisement goes "You can pay me now ... or pay me later!" It is typically far less expensive to routinely inspect, maintain, and make minor repairs to a

treatment system, than to neglect it and have it break down and fail abruptly, or even worse, slowly and progressively clog your drainfield until the entire system suddenly fails at great cost and inconvenience to your family.

If your property requires a Type 2 or Type 3 system, your Authorized Person will prepare a detailed maintenance program for you and will provide you with a schedule of preventative maintenance activities. Following the maintenance program is not only essential to prevent treatment problems or system failures, it is also required by law. Make yourself aware of the maintenance schedule and, ideally, contract the maintenance servicing to a company with an Authorized Person on staff who is knowledgeable in the area of onsite system maintenance and is authorized and certified by the manufacturer to maintain your package treatment plant.



It is typically far less expensive to routinely inspect, maintain, and make minor repairs to a treatment system, than to neglect it and have it break down and fail abruptly.



Two-compartment concrete septic tank

Maintenance Records

It is very important to keep a detailed record of all inspections, pump outs, permits (for installations before 2005), repairs, and any other maintenance to your system along with a sketch of where your septic system is located. Having this information on hand for service visits can save you both time and money. Tear out this maintenance chart and keep it in a safe place to track the performance of your septic system.

Maintenance Record Chart

Home address/location:

Type of Drainfield System:

- Conventional Trench Shallow Trench Other (give details)
 Conventional Bed Raised Bed or Mound
 Contour Trench Drywell

Type of Distribution System:

- Gravity
 Pressure

System Designer

Name: _____ Phone No: _____
 Address: _____

System Installer:

Name: _____ Phone No: _____
 Address: _____

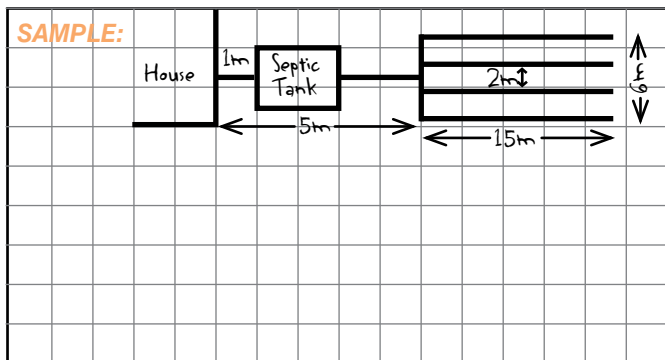
Local Inspector:

Name: _____ Phone No: _____
 Address: _____

Documents:

- Copy of Site Evaluation
 Copy of Sewage System Permit, including drawings
 Copy of Final Inspection and Use Report
 Manufacturers' Instructions and Warranties
 Sketch map showing location of septic system and house on lot

System Map:



Results

Date Inspected	OK	Pumped Out	Repairs Needed	Other	Contractor Name/Initials

Troubleshooting Tips

Symptom	Possible Causes	Action
Toilets and sinks start to drain slowly	<ul style="list-style-type: none"> • Drains may be clogged. • Septic tank may need to be pumped out. • Drainfield pipe may be partially blocked. • Plumbing vents may not be properly connected. 	<ul style="list-style-type: none"> • Have a plumber check the drains and vents. • Have a ROWP check septic tank.
Extra plant growth over drainfield area	<ul style="list-style-type: none"> • Clogged soil on the bottom of the drainfield, trenches or bed causing water to pond. • Excess hydraulic or organic loading to the septic system. 	<ul style="list-style-type: none"> • Have ROWP inspect septic tank and drainfield inspection ports and/or cleanouts. • Check water meter records for excess water usage that may indicate plumbing fixture leaks and/or inspect fixtures for leakage.
Foul odours outside	<ul style="list-style-type: none"> • Plumbing vents may not be properly connected. • Septic tank cover may not be properly sealed or covered with earth. • Wastewater may be ponding in the vicinity of the drainfield or surfacing nearby (see below). 	<ul style="list-style-type: none"> • Have plumber check vents. • Have ROWP inspect septic tank and ensure the cover is sealed. • Inspect soil above and in the vicinity of the drainfield for excess moisture or ponded water.
Foul odours inside	<ul style="list-style-type: none"> • Plumbing traps may not be properly installed. • Electrical conduits for septic system pump may not be properly sealed. • Pipe leading from house to septic tank may be broken. • Wastewater may be backing up into the home. 	<ul style="list-style-type: none"> • Have plumber inspect traps and inspect perimeter foundation drainage for presence of water during dry weather. • Have ROWP inspect the septic tank for the possible causes noted.
Waste water backing up into home	<ul style="list-style-type: none"> • Pipe leading to septic tank may be blocked. • Pipe leading to drainfield may be blocked. • Drainfield may be damaged or clogged. 	<ul style="list-style-type: none"> • Have ROWP inspect septic tank.
Effluent breaking out to ground surface	<ul style="list-style-type: none"> • Soil cover over pipes may not be deep enough. • Pipes may not be sloped properly. • Part of the drainfield may have settled or been lifted by frost heave so gravity cannot drain pipes properly. • Distribution system may be damaged. • Pipes and/or soils in drainfield may be full and not able to drain properly. 	<ul style="list-style-type: none"> • Have ROWP check problems. • Inform Interior Health.
High nitrate and/or presence of coliform bacteria in nearby wells, lakes, rivers and or streams	<ul style="list-style-type: none"> • Soil below drainfield may be too coarse or too shallow to adequately treat the wastewater. • Water table may be too close to the bottom of the drainfield. • Wastewater may be breaking out from the drainfield into nearby drainage courses. 	<ul style="list-style-type: none"> • Have ROWP inspect drainfield, inspection ports or cleanouts. • Inform the Interior Health.

Protecting Your Drainfield

FIVE CRAZY THINGS PEOPLE HAVE DONE WITH THEIR DRAINFIELDS



1. Built a driveway (patio, deck, tennis court) over it.

Covering over the drainfield limits the availability of oxygen needed by bacteria in the soil and makes inspecting the drainfield impossible. Any vehicle traffic or heavy equipment used to construct the driveway, patio, deck or tennis court could crush the drainfield pipes.

2. Built an aboveground pool on it.

The weight of an above ground pool could crush the drainfield pipe, or compress the soil and make the soil less permeable (less absorbent). Further, any water leakage from the pool could saturate the soil and the drainfield beneath the pool and overload it hydraulically.

3. Flooded it so the kids could have a skating rink.

Drainfields are carefully built to accept water -- even if it is an excess amount coming from a hose sprayed in the middle of winter. This family managed to freeze their entire drainfield solid, and ended up with water backing up into the house.

4. Rototilled it for a vegetable garden.

Although conventional drainfield pipes are buried at a depth of about 800 mm, older drainfields may not have been installed to that standard and could be much shallower. Pipes can be as little as 375 mm below the ground surface and can easily get damaged.

5. Made it look pretty with trees and nice landscaping.

Perforated pipes don't stand a chance against roots from trees and shrubs. They get clogged or crushed. Either way, the septic system doesn't work properly.

Raised Drainfields

When there is insufficient native soil depth (e.g. shallow soil above an impermeable layer or rock, or high groundwater level) to put in a conventional drainfield, in certain circumstances the soil depth can be built up using sand. Creating a mound not only increases the depth of soil for treatment to occur, but it can also increase the area for water to flow into the shallow native soil.

MORE CRAZY THINGS PEOPLE HAVE DONE WITH THEIR RAISED DRAINFIELDS

“That huge mound was really ugly, so we brought the rest of the ground up to match.”

Often, the reason the builder installed a raised bed or mound is because the site has a very shallow layer of permeable soil over impermeable clay or rock. If a raised bed is surrounded with clay soil, the wastewater discharged into the drainfield may be trapped, filling the drainfield area like a pool. The only material that should be used to level the rest of the area is sand.

“It was in the way so we cut it off and built a nice-looking retaining wall.”

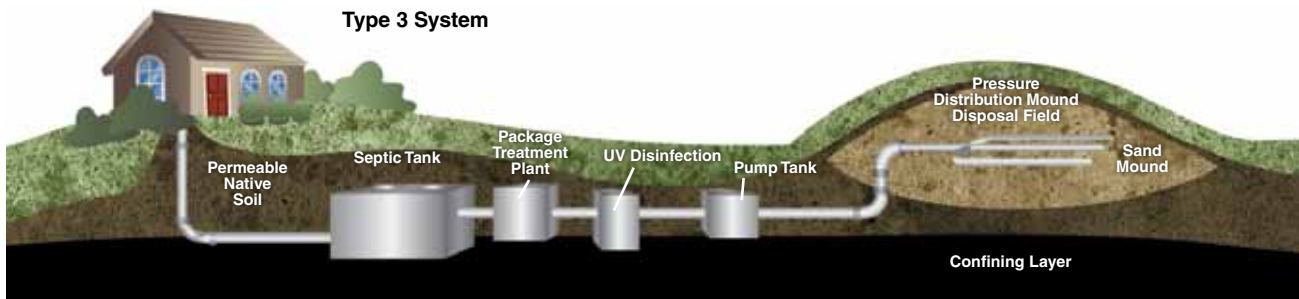
This family didn't understand that the whole mound area is used for filtering wastewater. When they cut it off by building a wall, the partially treated wastewater was diverted and discharged it into the nearby drainage ditch.

Difficult Sites: Alternative Technologies

There are many properties in the CSRSD where traditional Type 1 and Type 2 septic systems are not suitable. Difficult sites, including slow draining soils, high water tables, steep slopes and extremely shallow native soil depths (i.e. less than 18 inches) are situations where a Type 3 system may

be required. A Type 3 system design is custom built to address specific site problems. Type 3 systems typically have a higher standard than a Type 2 system in the way they treat and disinfect the wastewater, and then discharge the treated effluent into a mounded soil system.

Failing to recognize and address severe site or soil limitations can result in your system failing at great financial cost to you, as well as posing a major inconvenience during system replacement, and a serious threat to your health and the environment.



Seasonal Occupancy

If you only occupy your property for part of the year, you may have to give special consideration to your septic system. The ideal onsite system for a property with seasonal occupancy is a Type 1 septic tank and drainfield system. Even if you only use the property two weekends a year, a septic system will continue to function just as satisfactorily as if the home were occupied year-round.

However, if you have a Type 2 or Type 3 treatment system, most of these involve biological systems that require consistent feeding - and won't do well if starved for long periods of time.

So, if you need to have a Type 2 or Type 3 system, what can you do?

First, make sure your Qualified Professional is aware of how you

intend to use your property and ask him or her to take that into consideration in advising you on the appropriate system for your property. Generally avoid treatment systems that are suspended-growth processes requiring blowers or jet pumps to provide air and mixing energy. You don't want high energy-use pumps and blowers operating while you are away, and these systems can take several weeks to recover after long periods without wastewater. Instead, consider using an attached-growth bed-style type of wastewater treatment system. These systems typically use low-energy recirculation pumps that can be left on while you are away. The bacteria in these systems attach to the media in the process and recover faster from long periods without wastewater.

Your Qualified Professional should be able to assess your occupancy

characteristics and help you make an appropriate system selection. There are both non-proprietary (public domain) and proprietary (commercial) attached-growth wastewater treatment systems available. Examples of non-proprietary processes include:

- Intermittent Sand Filters
- Recirculating Sand Filters
- Recirculating Gravel Filters
- Constructed Wetlands

There are also a large number of proprietary and patented options. The primary advantages of using commercial technologies is they may require as little as 5 percent of the land area required for non-proprietary technologies (i.e. 20 sq ft versus 400 sq ft per household), and commercial technology suppliers can provide you with maintenance support.

Source Control

Alternative Cleaners

Be careful of what goes down your drain!

You may be cleaning your sink and toilet, but you could be harming your septic system at the same time. Some cleaning products can be harmful to the natural bacteria that digest the sludge in your septic tank. Soil beneath the drainfield also contains microorganisms that treat the wastewater, which are sensitive to harmful chemicals. Chemical cleaners can also pass through the soil, polluting groundwater and the surrounding environment. If you must use harmful products, such as bleach or ammonia, remember that a little bit in moderation will be okay but it is preferable to avoid if possible. Powder or flake dishwasher or laundry detergents can clog drainfield pipes and are not recommended.

Septic Smart Cleaning Ingredients:

- ✓ Baking soda
- ✓ Borax
- ✓ Vinegar
- ✓ Baby oil
- ✓ Pure soap flakes
- ✓ Phosphate free dish soap
- ✓ Salt
- ✓ Lemon juice
- ✓ Washing soda

Here are some natural alternative cleaners that are septic safe.

Drain Cleaner

- 1/2 cup baking soda
- 1/2 cup white vinegar
- 2 litres boiling water

Pour baking soda down the drain, followed by white vinegar. Cover and let stand for 15 minutes. Flush with boiling water. If this is done weekly, greases that may have built up will melt. Note: Do NOT use on ceramic toilets, as the boiling water may crack them.

All Purpose Cleaner

- 1/2 cup vinegar
- 1 cup to 1 litre of warm water

Scouring Solution

- 1 part baking soda
- 1 part salt
- 1 part water

Mix equal parts baking soda and salt. Add enough water to produce a paste; apply and scrub with a scouring pad. Alternatively, mix equal parts of vinegar and salt or Borax and lemon juice.

Hand Cleaner:

To get paint or grease off your hands rub with baby oil, wipe dry and wash.

Window Cleaner

- 1 part white vinegar
- 1 part water

Mix ingredients together and spray onto windows or mirrors. Wipe off with a cloth.

Tub / Tile Cleaner

- Mix 1/4 cup baking soda and 1/2 cup white vinegar

Laundry detergent

- 1 cup pure soap flakes or pure soap powder
- 3 tbsp washing soda

Bleach alternative:

- 1/2 cup Borax
- 4 litres of hot water

Toilet Bowl Cleaner

- 2 tbs baking soda
- Lemon juice

Sprinkle a few tablespoons of baking soda and scrub with a brush. Add a few drops of lemon for freshness.

Kitchen cleaner

- 1/4 tsp of dish soap
- White vinegar

Mix in a spray bottle.

Oven cleaner:

- 4 tablespoons baking soda
- 1 litre warm water.
- 1/2 cup vinegar
- Lemon juice

Dissolve baking soda in water. Add vinegar and lemon juice to cut grease.



Water Conservation

Water conservation is very important for septic systems. If there is too much water going through your system, solids are not given time to settle in your septic tank and can get pushed through into your drainfield. Continual saturation of the soil in the drainfield can also affect the quality of the soil and its ability to naturally remove toxins, bacteria, viruses, and other pollutants from the wastewater.

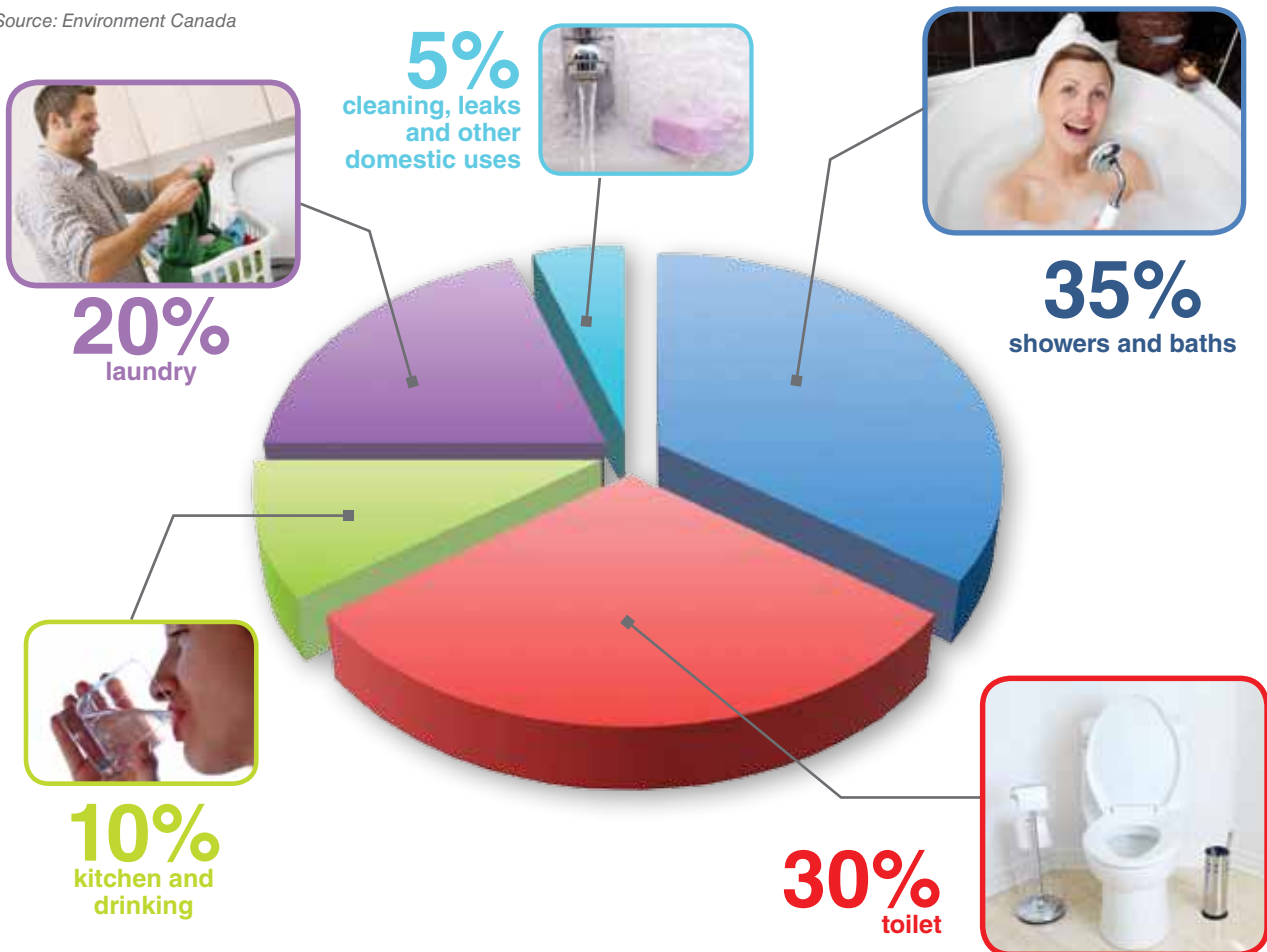
If you have an older septic system, water conservation is especially important for you. Older septic systems were designed when people used less water. If your septic system is older, it may be under capacity compared to today's standards.

The most effective way to conserve water around the house is to first take stock of how it is being used. The next section of this guidebook "Do's and Don'ts" lists a few things you can do to conserve water, reduce costs and improve the performance of your septic system.

If you have an older septic system, water conservation is especially important for you. Older septic systems were designed when people used less water.

Indoor Water Usage

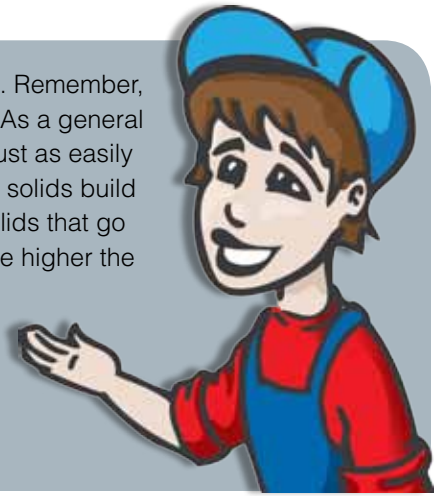
Source: Environment Canada



Do's and Don'ts

What you put into your septic system greatly affects its ability to do its job. Remember, your septic system contains living organisms that digest and treat waste. As a general rule of thumb, do not dispose of anything in your septic system that can just as easily be put in the trash. Your system is not designed to be a garbage can and solids build up in the septic tank that will eventually need to be pumped. The more solids that go into the tank, the more frequently the tank will need to be pumped, and the higher the risk that problems will arise.

By educating everyone in your household about what is and what isn't good for septic systems, you can save a lot of money and headaches, while prolonging the life of your system and the health of your family, property and the environment.



Installation

Do

- ✓ If you're planning an addition that adds more than 15 per cent to your home's floor area, increases the number of bedrooms, or increases the number of plumbing fixtures, you may need to enlarge your septic system.
- ✓ If you plan an addition or renovation that involves an increase in the use of your septic system and a building permit is required for the addition or renovation, the CSRD will require a stamped and signed letter from an Authorized Person stating that the existing septic system is sufficient to accommodate the increase wastewater.
- ✓ Use professional licensed onsite contractors when needed.

Don't

- ✗ Don't expand the size of your residence, add a basement suite, or start a business (e.g. daycare) without adjusting the size of your septic system.
- ✗ Don't attempt to install or repair your septic system without the involvement of a Registered Onsite Wastewater Practitioner or a Qualified Professional.
- ✗ Don't make or allow repairs to your septic system without obtaining any required permits.

Your Drainfield: It's not a parking lot!

Do

- ✓ Watch for settlement that might direct water onto the drainfield.
- ✓ Keep the area grassed to promote evaporation and avoid erosion.

Don't

- ✗ Don't allow vehicles to drive over the drainfield area or park on it.
- ✗ Don't plant any trees or shrubs on or near the bed; their roots can clog pipes.
- ✗ Don't drain downspouts, sump pumps, etc. down the septic system.
- ✗ Don't alter drainage features without consideration for impacts to the disposal field.
- ✗ Don't build over the drainfield or cover it with a hard surface such as asphalt, brick or patio stones.
- ✗ Don't excessively water the lawn over the drainfield area.
- ✗ Don't install automatic lawn sprinklers in the area.

System Maintenance

Do

- ✓ Do learn the location of your septic tank and drainfield. Keep a sketch of it handy with your maintenance record for service visits.
- ✓ Do keep your septic tank cover accessible for inspections and pumping. Install risers if necessary.
- ✓ Do have an Authorized Person design a maintenance plan for your system.
- ✓ Do have your septic system inspected annually.
- ✓ Do ensure you have an effluent filter installed on your septic tank to reduce the amount of solids leaving the tank and to increase the life of your system.
- ✓ Do have your septic tank pumped out by an ROWP approximately every three to five years, or as often as is appropriate for your system
- ✓ Do call a professional whenever you experience problems with your system, or if there are any signs of system failure.
- ✓ Do keep a detailed record of repairs, pumping, inspections, permits issued, and other maintenance activities.

Don't

- ✗ Don't access or enter a septic tank.
- ✗ Don't use septic tank additives.

Waste: Your Septic System is not a garbage can!

Do

- ✓ Dispose of solids appropriately. The only things that should be flushed down the toilet are wastewater and toilet paper.
- ✓ Dispose of chemicals and fuels at approved waste sites.
- ✓ Dispose of grease with the regular garbage. In addition, a grease interceptor between the kitchen sink and the septic tank is often recommended.
- ✓ Use household cleaners such as bleach, disinfectants, and drain and toilet bowl cleaners in moderation and only in accordance with product labels. Overuse of these products can harm your system. See list of alternative cleaners in this guide.
- ✓ Return leftover medications to your pharmacy. Also be aware that human wastes from people on medication (e.g. antibiotics) can affect the performance of your septic system and may require more frequent pumping of your tank.

Don't

- ✗ Do not put cigarette butts, paper towels, sanitary tampons, condoms, disposable diapers, anything plastic or similar non-biodegradables into a septic tank system.
- ✗ Avoid washing food scraps, coffee grinds, and other food items down the drain. Avoid using a garburator to dispose of kitchen wastes. In-sink garbage disposal units can increase sludge accumulation by 40 per cent.
- ✗ Never put oil, gasoline, paint thinners, solvents, photographic chemicals, weed or insect killers down the drain. They can poison your septic system and possibly threaten water supplies for your whole neighbourhood. Even latex paint is unhealthy for your septic system.
- ✗ Don't put cooking grease down the drains. It can solidify and clog pipes.
- ✗ Don't use chemical drain cleaners or chemical-based cleaning products.
- ✗ Don't dispose of pharmaceuticals down your drains or toilets.

Do's and Don'ts continued

Bathroom

Do

- ✓ Install water-saving toilets or install toilet dam devices to reduce water use per flush. Low-flush toilets use 1.6 gallons per flush compared to the three to five gallons used by conventional toilets.
- ✓ Reduce the number of times you flush your toilet with multiple uses before flushing.
- ✓ Install water-saving features in faucets and shower heads. These devices can reduce water use by up to 50 per cent.
- ✓ Fix all leaking faucets and toilets immediately. A toilet that continues to run after flushing could be wasting 20-40 litres per hour – enough water to fill a swimming pool in a year. Leaks can cost you up to \$240 per year.
- ✓ Take shorter showers. Shortening your shower time to 5 minutes or less can save up to 40 litres of water each time you shower.

Don't

- ✗ Don't let taps flow unnecessarily.
- ✗ Do not let the water run while washing hands, shaving or brushing your teeth. You can save up to 22 litres of water per use!

Kitchen Sink

Do

- ✓ Compost kitchen wastes (organic matter) instead of using a garburator.
- ✓ Scrape dishes into the garbage instead of the sink.
- ✓ Use a drain catcher to stop food bits from going down the drain.

Laundry

Do

- ✓ Buying a new washing machine? Look for appliances that display the Energy Star symbol. Newer energy-efficient clothes washers use 50 percent less water than a standard model. Side-loading machines use up to 40% less water than top-loading machines
- ✓ Run washing machines and dish washers only with full loads. Alternatively, select the proper load size for your washing machine. Washing small loads of laundry with large quantities of water is a waste of both water and energy.
- ✓ Spread water loading. Instead of washing four loads of laundry in one day, do one or two loads a day. If you're expecting a large crowd, reduce water use for a few days before the guests arrive.
- ✓ Cool hot tub water and drain onto turf or landscaped areas of your property well away from the septic tank, drainfield and house in accordance with local regulations.

Don't

- ✗ Avoid caustic drain openers and cleaners.
- ✗ Avoid water softeners. Some needlessly pump hundreds of gallons of water into the septic system all at once. Water softeners also remove hardness by using a salt to initiate an ion exchange. The backwash to regenerate the softener flushes pounds of this used salt into the septic system. Studies have shown that water softener brine regeneration wastes not only harm the bacteria in the wastewater treatment system, they can also cause the septic tank itself to discharge greater concentrations of solids, grease, and oil into the dispersal field.

Contact Information

There are many valuable resources available to assist you with your septic system. Be sure to get professional advice.

Find A Registered Onsite Wastewater Practitioner (ROWP)

The Applied Science Technologists & Technicians of BC (ASTTBC) website provides a directory of ROWPs to assist with your Type 1 or Type 2 septic systems.

Website: <http://owrp.asttbc.org/c/finder.php>

Phone: 604.585.2788 ext. 236

Find a Qualified Professional

The Association of Professional Engineers and Geoscientists of BC (APEG) offers an online registry of Qualified Professionals to assist you with your Type 2 or Type 3 septic system design and installation.

Website: www.apeg.bc.ca/members/sewerageprolist.html

Phone 1.888.430.8035.

Onsite Septic System Regulations

The BC Government's website provides current information on policy and regulations affecting septic systems.

Website: http://www.health.gov.bc.ca/protect/lup_index.html

Columbia Shuswap Regional District

Where a building permit is required the CSRD Building Department can assist you in determining whether you require a larger septic system for a renovation, addition or change in use of your property.

Website: www.csrdb.ca

Phone: 250-832-8194 • Toll Free: 1-888-248-2773

After Hours Emergencies: 1-877-996-3344

Onsite Wastewater Consumer Information Centre

The Onsite Wastewater Consumer Information Centre has lots of great information about septic systems and how to maintain them. You can also find qualified ROWP's here and submit a complaint.

Website: <http://wastewater.asttbc.org/c/index.php>

Provincial Emergency Program (PEP)

If sewage is flowing off a property and especially towards or into any streams, creeks, water supplies (including wells), various agencies and authorities may need to be involved. The Provincial Emergency Program (PEP) determines which agencies to involve in situations such as these. One call can inform them all.

Website: www.pep.bc.ca

Phone: 1-800-663-3456



www.csr.bc.ca/septicsmart

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