

16. ECO-INFO – SEPTIC ✓ SAFE
PROTECT YOUR HEALTH AND ENVIRONMENT
YOUR SEPTIC SYSTEM
with SELF ASSESSMENT TROUBLE SHOOTING GUIDE

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Wyong Shire Council has many non-sewered areas that are serviced by on-site septic systems. These areas include Jilliby, Glenning Valley, Tumbi Umbi, Doyalson, Dooralong and Yarralong etc. To ensure minimal impact to public health and the environment in which we live, it is essential to understand the operation and maintenance requirements of your septic system

WHAT IS A SEPTIC SYSTEM?

A Septic System has a watertight tank usually combined with a soil absorption system or transpiration beds, pump out connections, amended soil systems, constructed wetlands, sand filters or sealed application areas.

HOW DOES A SEPTIC TANK WORK?

All wastewater enters the tank. Most solids settle to the bottom and are retained in the tank forming a sludge layer. Fats and greases lighter than water rise to the top to form a scum layer. A baffle (if installed) holds the scum layer and prevents it from leaving the tank and clogging the absorption system.

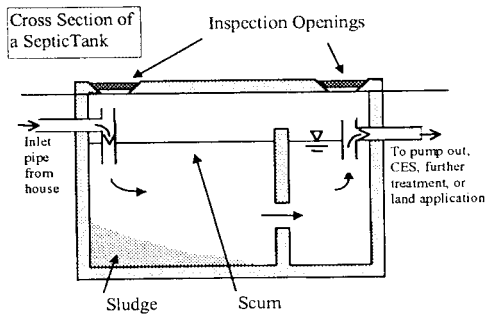


Figure 1: Cross section of a septic tank

Bacteria in the septic tank break down the solid matter in the sludge and scum layers. Material that cannot be fully broken down gradually builds up in the bottom of the tank and must be pumped out periodically. Primary treated effluent from the tank is then applied to the land below ground level.

LAND APPLICATION

Traditionally the effluent flows from the septic tank to absorption trenches or fields up to 600 mm in depth (commonly also called 'soakaways') with 150 mm minimum cover. Here the effluent is mainly absorbed into the soil.

These systems have the potential to contaminate groundwater and are generally suitable for low risk areas. They are not recommended in sensitive locations, in highly permeable sandy soils or heavy clays or in higher density developments. Further treatment using sand filters or natural wetlands/reed beds followed by subsurface irrigation can improve effluent quality, reduce environmental and public health impacts and prolong the life of the land application system (trenches and fields).

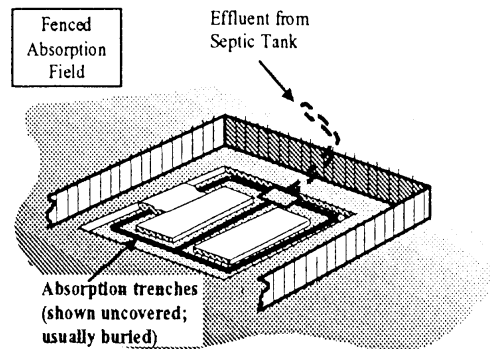
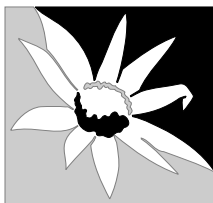


Figure 2: Absorption field

Septic tank performance and effluent quality can be improved by installing larger tanks, outlet pore filters and introduced growth media. To improve effluent quality and prolong the life of systems, improved technology allows effluent from a septic tank to be applied to amended soil systems, vertical and horizontal flow sub-surface wetlands, sand filters and sealed application areas.



TROUBLE SHOOTING GUIDE

SEPTIC TANKS AND ABSORPTION TRENCHES/ EVAPOTRANSPIRATION AREA SYSTEMS

*A self assessment trouble shooting guide to assist you
in maintaining your septic system.*

Septic absorption systems in the Wyong Shire consist of a tank (usually constructed of concrete or polypropylene) where primary treatment occurs and a soil absorption trench where effluent is applied.

Problems with system failure (offensive odours, resurfacing effluent, and leaking tanks) usually occur because -

- There has been little or no maintenance on the tank and system.
- The tank has not been desludged to remove accumulated build up of sludge and solids in the bottom of tanks. Sludge build up reduces treatment and can cause trench clogging and resurfacing when transported to the absorption trench.
- The absorption trench becomes clogged with waste from the septic tank.
- The system design and trench length is inadequate considering the soil conditions on site. Some soils in Wyong (e.g. Patonga claystones in Jilliby) are dispersive which means that the soil particles go into permanent suspended solution when effluent or water contacts them. This causes premature clogging of trenches and resurfacing of effluent.
- Some laundry products (particularly laundry powders) contain high levels of sodium that causes soil structure decline and can lead to trench failure. Refer to Eco-info No 20 for sodium levels in laundry products.
- There is an excessive use of cleaning products, disinfectants and bleaches that affects the natural biological processes of treatment in the tank. Think of the link between your septic and your sink when using these products.

This self assessment guide is designed to assist you in understanding how your system works, to undertake an assessment of your own system's performance and to take action to fix any problems. The guide starts with an assessment of the condition of the tank followed by a visual inspection of your soil absorption system. When checking tanks and absorption trenches be aware that effluent is a health hazard. Use appropriate personal protective equipment and safe work practices.

Your system may not have been checked for many years and like changing the oil in your car your system needs regular maintenance. Consider this maintenance a form of "insurance" against the costs of replacing a neglected system as well as protecting your health and the environment. Council is encouraging the use of the Log Books provided to record any maintenance undertaken on your system.

Should you require any assistance or further information please contact Council's Customer Service Officers on (02) 4350 5555.

Septic Tank and Absorption Trench Trouble Shooting Guide

The Septic Tank

Checks	Actions
Locate your tank on your property	<i>The tank is usually downslope of the dwelling or buildings with plumbing fixtures in them. Council may be able to assist you in locating your tank by researching your records if available.</i>
Is the lid and manhole cover accessible?	<i>The lid needs to be accessible at ground level. All soil, plants and any overgrowth needs to be removed.</i>
Is the lid above ground level?	<i>The lid of the septic tank ideally needs to be 150 mm above ground level to prevent entry of surface water. The surrounding ground level needs to be graded to fall away from the tank.</i>
Is the lid sealed to prevent odours and the entry of rain water and insects like mosquitoes?	<i>Any cracks or openings in the lid of the tank need to be sealed. The join between the lid and the side of the tank needs to be sealed</i>

with a 4:1 sand/cement mix to prevent grasses and plant roots entering the tank and causing clogging. Before sealing, lift the manhole cover to ensure that any tree roots that may have entered the tank are removed. Some older tanks have projecting vents above the tank that often are damaged. These vents can be repaired and restored. Missing or broken inspection covers need to be replaced and sealed.

Is the tank of sound construction and holding effluent without leaking?

Some older systems were constructed of brick or blocks and may be leaking. Check the surrounds of the tank and look for visible signs of a leaking tank where above ground level. Lift the manhole cover and note the level of liquid/scum layer on the surface. Partly filled systems could be leaking and can cause groundwater and surface water pollution. Call your local plumber or Council for assistance and advice.

Are the inlet and outlet junctions present/functioning inside the tank?

Remove the small inspection covers at the edge of the tanks. Check the junctions are intact as they are required to prevent surface scouring within the tank and to prevent carry over of solids (fats, scum, oils, soap waste, etc.) to the absorption trench. Any broken junctions need to be repaired and replaced. Call your local plumber for assistance.

Check the sludge, scum and effluent levels.

Lift the manhole lid to check sludge and scum levels. This will improve the performance of the tank, prevent premature clogging and save you \$\$\$\$\$. Check for -

- High effluent levels over the inlet junctions will indicate a clogged outflow or trench.*
- Sludge needs to be removed if sludge on the bottom of tanks is greater than about 400 mm thick or within 200 mm of the bottom of the outlet of the tank. To check your sludge levels insert a 20-25 mm marked rod, or a long stick with wrapped towelling attached, slowly through the top scum layer. As it descends you should then feel it the pass through a liquid effluent layer until a soft ooze is reached. Note the level of the marked rod and continue to push all the way to the bottom of the tank. Remove the rod or stick and check the height of the sludge against the markings or towelling.*
- Scum is to be removed where build up is within 100 mm of the bottom of the outlet of the tank or overflowing over the top of the outlet junction. Scum levels can be assessed, in a similar way to sludge levels, near to the outlet junction.*

Excessive sludge and scum can only be removed by Council's approved waste contractor. Recent studies suggest sludge and scum should be removed every 3-5 years for the average 4 person 2300 litre sized tank.

Has your tank a septic tank outlet filter?

Outlet filters can be inserted inside the outlet

junction of some septic tanks. They are very effective at removing suspended solids and organic matter and prolong the life of absorption trenches. These filters need to be cleaned periodically to remove build up (@ 3-6 monthly). Contact your plumbing or septic supplier for filters (Brands include Zabel, Orenco, Everhard, etc).

Are all house drainage lines connected to the tank and absorption trench?

Open the inspection inlet opening on the tank and have someone flush the toilet while you view the inlet of the tank. Water should be seen to flow in the tank at the inlet junction. The same can be done systematically for other fixtures (basin, shower, etc.). Be aware that some greywater fixtures (laundry, kitchen) may discharge directly to the absorption trench in some installations. In some cases it may be necessary to dye test drainage lines and tanks to verify connections and trench locations. Any dye testing needs to be carefully undertaken in view of the proximity to waterways and the environment.

Is the installation fitted with a overflow relief gully?

The gully (looks like a drainage grate at ground level) is installed externally on house drainage lines with an overflow level @ 150 mm below the floor level designed to ensure that if there are any blockages in the house drainage lines that they overflow outside the building. The top of the gully should be @ 150 mm above ground level. Call your local plumber for assistance and advice.

Is there a house drainage vent installed?

An upstream vent is always installed on house drainage before the last fixture (toilet, basin, sink etc.) and appears as a pipe above the roof line of the dwelling. This vent prevents siphoning of trap seals in fixtures and prevents the build up of dangerous gases such methane in the drainage system. Call your local plumber for assistance and advice.

Grease Trap (if fitted)

Checks

Systems that were installed prior to 1984 generally had grease traps fitted as the septic tanks did not have internal baffles. Septic tanks were then fitted with internal baffles and grease traps were no longer required. Grease traps collect waste from the kitchen sink and are usually found near to the kitchen. They require periodic cleaning (@ 3 months)

Actions

The lid of the grease trap (@ 600 mm x 400 mm) needs to be lifted and checked for cleaning.

All fats and solids need to be removed.

Grease trap contractors can remove contents if required.

Absorption Systems and Trenches

Walk towards the area where you believe the trench is located to check the following items. The trench can usually be seen as a green strip of turf at ground level or if not performing effectively you will usually detect an offensive odour or notice effluent resurfacing.

Checks

Are you aware of where effluent from the septic tank goes?

Actions

Effluent normally discharges from the tank to an absorption trench (sometimes referred to as a "soak away") being a trench that is about 600

mm deep and 600 mm wide of varying lengths. Effluent in the trench gravitates through the soil profile where further treatment occurs. The trench can often be seen at ground level as a green strip of turf. Failing trenches usually have a swale plume of green turf and effluent resurfacing from one end (or the middle) of the trench. You can usually smell a failing trench that is resurfacing effluent. Council may be able to assist with locating trenches from a review of records kept.

Is the absorption system and trench wet or soggy?

YES?

- Reduce water use
- Ensure surface water and overland flow from rain events is diverted away from the system or trench with a diversion drain.
- Recheck in a couple of days. If it is still wet this is probably an early sign of system failure.

Are there depressions at ground surface level causing water to pond and collect above your absorption trench?

All depressions need to be filled with absorbent soil so that water does not pond and cause overloading of the trench.

Absorption Systems and Trenches Ctd

Checks

Actions

Is effluent flowing across the ground from the absorption system or trench?

Your system has failed. Arrange to have the tank desludged with Council's Customer Service Officers as a temporary solution, reduce your water use, and contact a plumber or Council. It is likely your trenches or soil absorption system will need to be replaced. Under legislation Council is obliged to consider systems that reuse resources (water, organic matter, biosolids), where possible, in system selection. An absorption trench has limited capacity to achieve resource reuse. The replacement of a failing trench with another designed to AS/NZ 1547-2000 is dependant on soil conditions, the risk of groundwater pollution and the sensitivity of the site.

Is surface water run-on diverted away from the absorption trench?

Any excessive surface water from rain events run-on needs to be diverted away from the absorption trench with upslope dish drains or earth berms(@ 300 mm deep/high and 500 mm wide).

SUMMARY

WARNING SIGNS

By looking out for the following warning signs and attending to them immediately, you can protect your health and the environment.

- * water that drains too slowly
- * drain pipes that gurgle or make noises when air bubbles are forced back through the system

- * sewage smells, this indicates a serious problem
- * water backing up into your sink which may indicate that your septic system is already failing
- * wastewater surfacing over the land application area

IF THERE ARE ODOURS PRESENT CHECK:

- > check the greasetrap (if installed), is it full or blocked?
- > absorption field, is it wet or soggy?
- > has there been recent heavy rain?
- > think about the household cleaning products you are using.

DO

- ✓ have your septic tank desludged regularly. This should occur at no more than five yearly intervals for the average sized family to prevent sludge build up, which may 'clog' absorption trenches
- ✓ have your septic tank serviced regularly by service providers to check scum and sludge levels, and the presence of blockages in the outlet and inlet pipes
- ✓ have your grease trap (if installed) cleaned out at least every two to three months
- ✓ keep a record of pump outs, inspections and other maintenance in your Log Book
- ✓ learn the location and layout of your septic system and land application area
- ✓ check household products for suitability for use with a septic tank. See Eco-info No 20 fact sheet for information on phosphorus and sodium levels in washing and laundry products
- ✓ use biodegradable liquid detergents, such as concentrates with low phosphorus and reduced sodium content
- ✓ conserve water and use a sink strainer
- ✓ install an outlet filter in the tank outlet junction
- ✓ ensure your tank is mosquito-proofed.

DON'T

- x put large quantities of bleaches, disinfectants, whiteners, nappy soakers and spot removers into your septic tank via the sink, washing machine or toilet
- x allow any foreign materials such as nappies, sanitary napkins, condoms and other hygiene products to enter the system
- x use more than the recommended amounts of detergents
- x put fats and oils down the drain and keep food waste out of your system
- x install or use a garbage grinder or spa bath if your system is not designed for it

REDUCING WATER USAGE

Reducing water usage will lessen the likelihood of problems such as overloading with your septic system. Overloading may result in wastewater backing up into your house, contamination of your yard with improperly treated effluent, and effluent from your system contaminating groundwater or a nearby waterway.

Conservative water use around the house will reduce the amount of wastewater which is produced and needs to be treated. Install AAA water saving shower heads, dual flush toilet

cisterns and consider flow control devices on other fixtures.

Most septic systems are unable to cope with large volumes of water such as several showers or loads of washing over a short period of time. Try to avoid these 'shock loads' by ensuring water use is spread more evenly throughout the day and week.

Some Water Usage Facts:

SHOWERS use 10-30 litres a minute, 200 litres a minute in 10 minutes. Try a AAA shower head.

BATHS use an average of 120 litres.

TOILETS can use up to 11 litres per flush. Dual flush cisterns typically use only 3/6 litres per flush.

WASHING MACHINES use 100 -200 litres per load. Front loaders use less. Fully load before use.

LEAKING TAPS can use up to 5 litres an hour. Repair leaks and replace washers.

DISHWASHERS use approximately 50 litres per cycle. Fully load before use.

A poorly maintained septic system can be a serious source of water pollution and may present health risks, cause odours, and attract vermin and insects. By looking after your septic system you can do your part in helping to protect the environment and the health of you and your family

This information package has been assisted by the New South Government through the 'Septic✓Safe' On-site Sewage Management Program administered by the Department of Local Government.

For further assistance please call Council's Customer Service Centre on (02) 4350 5555