On-Site Sewage Management

Septic Tank

Owners Guide

While people living in areas with reticulated sewerage rarely think about what happens after they flush the toilet or drain the bath, people in un-sewered areas are responsible for treating and disposing of their own wastewater.

If your house is not connected to the sewer, you probably have a septic tank or aerated wastewater treatment system (AWTS) to treat the liquid waste, and an absorption field or irrigation area for disposal of the liquids.

This guide explains how septic tank systems work, and what you need to do to protect your family, your neighbours and the environment.

What is a Septic Tank and how does it work?

A septic tank is a watertight vessel that stores and treats wastewater (ie waste from toilet, shower, bath, basin, kitchen and often laundry). The septic tank is designed to store at least one days waste from an average 3 bedroom home with a maximum of 5 occupants.

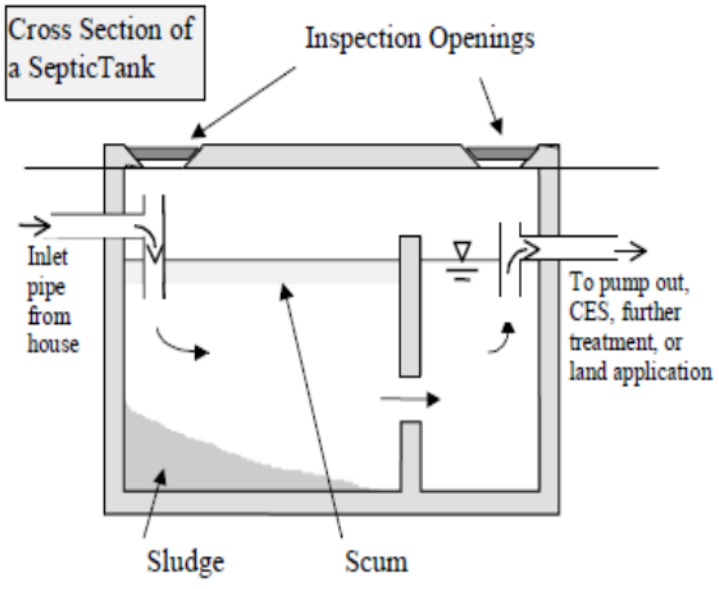
Three separate layers should form in a septic tank:

- Solid matter settles to the bottom of the tank where naturally occurring bacteria convert the material into Sludge. These bacteria do not require oxygen, and they produce methane gas, which is explosive if exposed to naked flame. However the bacteria can be destroyed by strong chemicals such as bleach and sanitisers or caustic oven cleaners, so it is important not to flush excessive chemicals down the drain.

- A scum layer, consisting of fat and grease forms on the surface of the water. This is normal and helps keep odours in, while keeping out oxygen. A vertical pipe (square junction) at the inlet and outlet allows the scum to form.

- The middle layer consists of clearer liquid than flows from the outlet of the tank each time wastewater enters the tank.

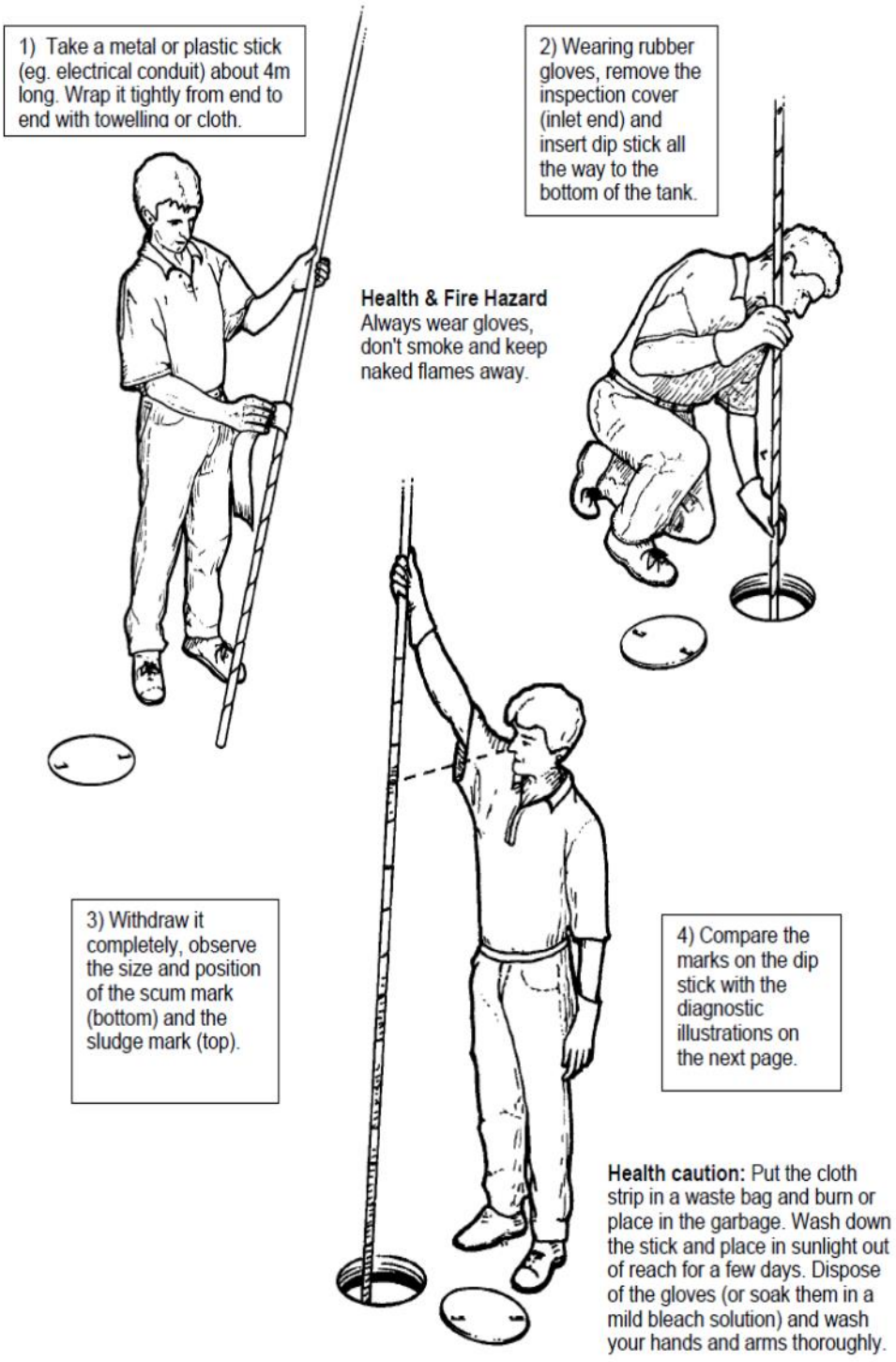
A baffle wall divides the tank into two chambers so the sludge and scum layers remain in the tank. If the sludge and scum layers become too thick the liquid capacity will be reduced. After Primary treatment in the septic tank the wastewater flows to an absorption trench or transpiration bed, where it is absorbed into the soil (refer Septic Tanks effluent Absorption fields)



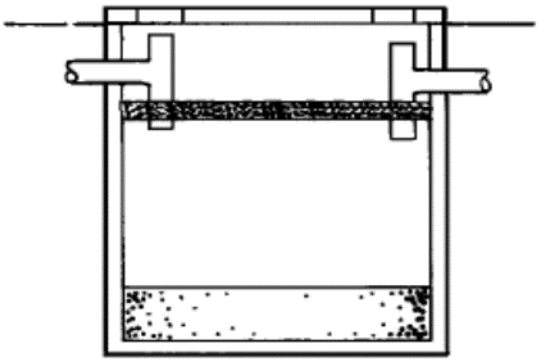
Servicing of Septic Tanks

Some Septic tanks may have a filter installed in the outlet. If It is not cleaned regularly, the house drains may become blocked. Follow the manufacturer's instructions and always wear gloves when cleaning the filter.

(1) How to check the sludge and scum depth of your tank

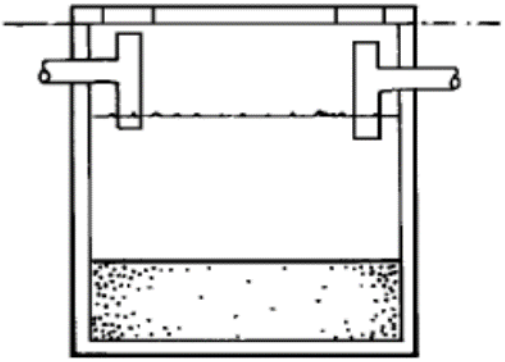


Healthy tank



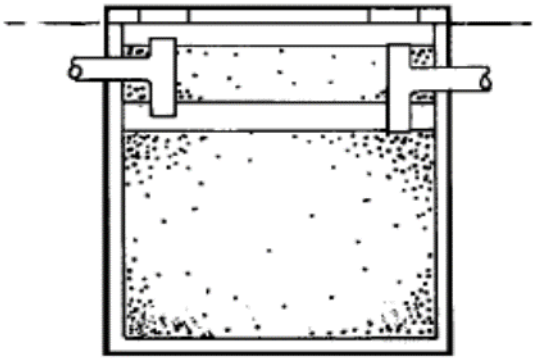
Sick tank

Bacteria have died.
Needs pumping out, filling with clean water and addition of lime.



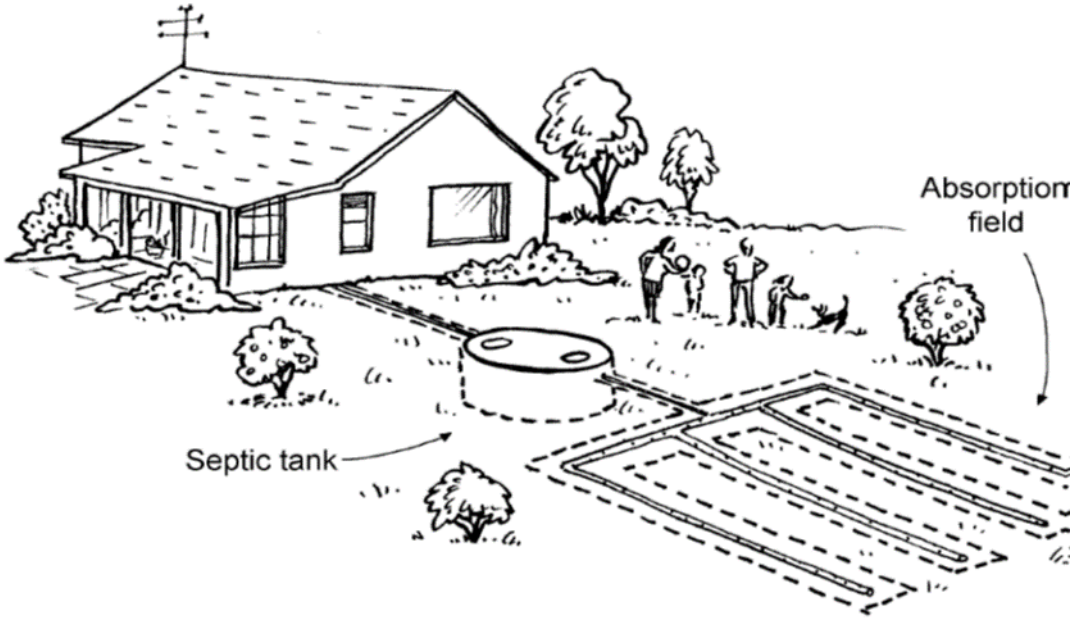
Sick tank

Needs pumping out and trench may be blocked or waterlogged or failed

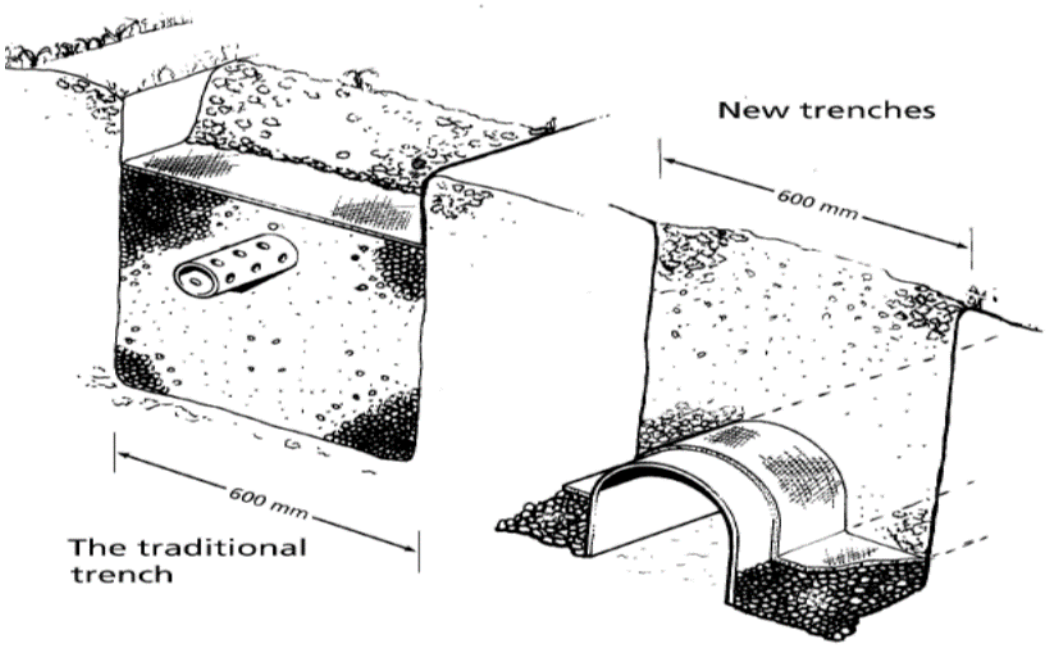


Septic tank effluent absorption fields

While effluent from the septic tank generally gravitates to an absorption trench, some sites may require a pump well if the absorption field is higher than the septic tank or located some distance away.



TYPICAL TRENCH DESIGNS



How Do Absorption fields work?

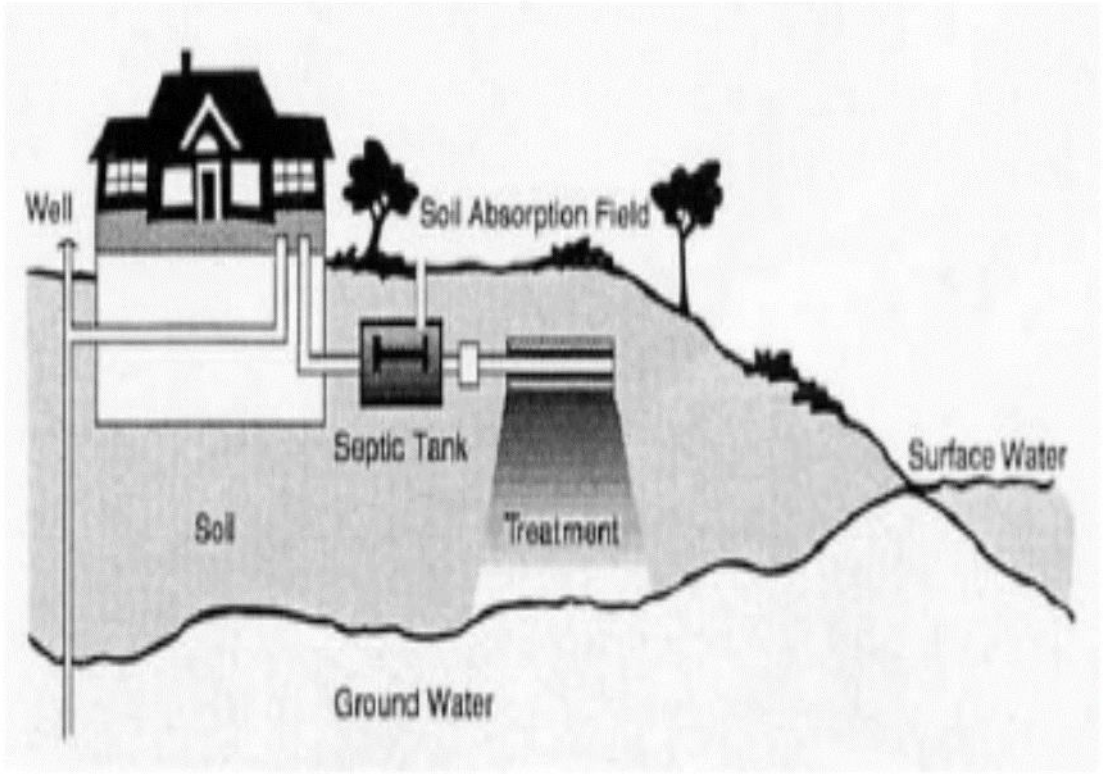
Absorption fields rely on the porosity of the soil to soak up the treated effluent and provide an environment for suitable plants to use the water for transpiration.

The trenches should follow the contour so they are level (for even distribution of the effluent). As contact with septic tank effluent can cause disease, the trenches are generally 300 – 600 mm deep. The location of the absorption field is also important to protect neighbours, and the environment including water courses or groundwater that may be used for drinking or domestic purposes.

Stormwater must be diverted away from the absorption field to prevent flooding (either a 150mm mound or dish drain up-hill from the trench). The size of the field depends on the volume of wastewater generated, the soil type and the climatic conditions. Sandy soils will require a smaller absorption field than for clay soils, while some site may be unsuitable for absorption fields.

NOTE: Minimising water use will reduce the size of the field.

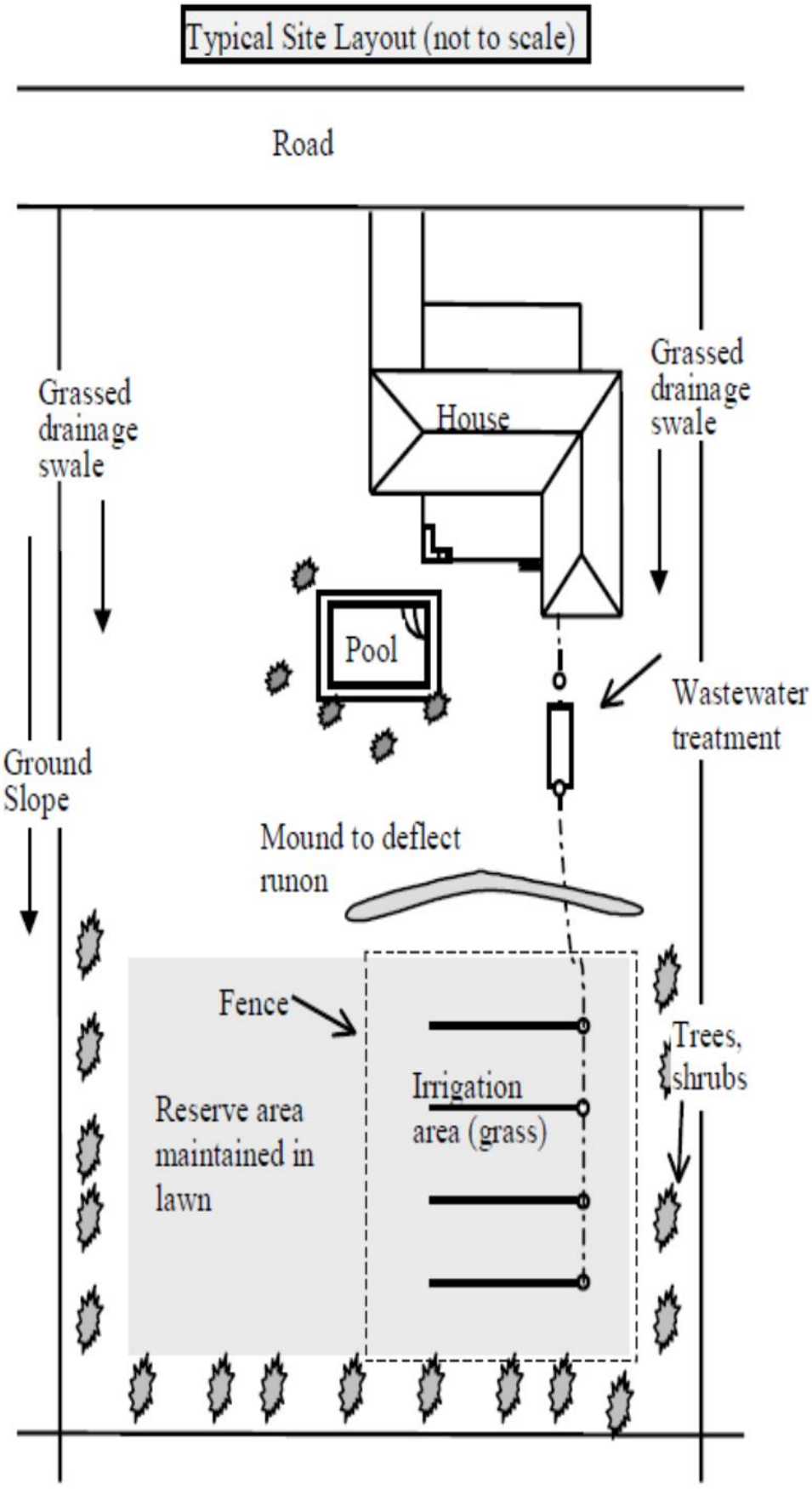
Where disposal on-site is not possible due to rocky areas, steep slopes or inadequate land area, a holding tank may be required to store effluent for regular removal by a contractor licensed by council. If your land is within 700metres of reticulated sewer council and town water is available may require connection to the sewerage system.



Example of Septic Tank System

Recommended Buffer Distances for septic tanks and Land Application areas

SYSTEM	DISTANCE
Septic tank	Minimum 1.5m from buildings (maximum 10 metres)
Absorption trenches and Transpiration beds	- 100 metres from permanent waterways (eg.rivers, streams & lakes) - 250 metres to groundwater bore/well used for drinking and food preparation - 40 metres to other waters (farms dams, intermittent waterways/channels etc) - 12 metres uphill and 6 metres downhill from property boundaries - Downslope from in-ground water tanks & swimming pools - 3 metres from paths and walkways


Typical Site Layout (not to scale)
Road
Grassed drainage swale
House
Grassed drainage swale
Pool
Wastewater treatment
Ground Slope
Mound to deflect runon
Fence
Trees, shrubs
Irrigation area (grass)
Reserve area maintained in lawn

USEFUL HINTS

Do's

- ✓ Only use laundry detergents that are low in Sodium. High levels of sodium will reduce the life of land applications areas and restrict plant growth (refer Lanfax website – www.lanfaxlabs.com.au)
- ✓ Conserve Water. The more water used, the more wastewater you have to treat and dispose of. Install shower flow restrictors, use front loading washing machine & avoid small loads
- ✓ When purchasing or moving to a property that is not connected to sewer, always check the on-site sewerage system and seek advice from a licensed plumber and council
- ✓ Understand how your system works, and seek immediate help if drains block, odours are evident, or water is ponding in the absorption field or irrigation area
- ✓ Keep a record of inspections, services, desludging, filter cleaning et
- ✓ Make tenants aware of their responsibility to maintain the wastewater treatment and disposal system
- ✓ Keep grass mown in the irrigation area and remove grass cuttings for mulching
- ✓ Divert roof water and surface water away from absorption fields & land application areas
- ✓ Use natural cleaning products such as bi carb soda and vinegar
- ✓ Use kitchen sink strainers and lint filters on laundry outlet

Don'ts

- Never flush antibiotics or other medications down the drain. They can destroy the bacteria that break down the waste.
- Don't pour fats oils or grease down the sink
- Don't flush excessive amounts of chemical such as bleach, nappy sanitiser, caustic chemicals, corrosive fluids or pesticides down the drain. They can also destroy the bacteria that break down the waste.
- Don't use garbage disposal units or put food scraps down the drain
- Don't flush nappies, tampons, condoms or other large items down the toilet as they can block drains & don't break down in the septic tank
- Don't drive or park motor vehicles on a septic tank, land application area or absorption field
- Don't allow livestock on the irrigation area as they can damage absorption trenches
- Don't use water from a bore, located within 250 metres of an absorption field or land application area, for drinking or food preparation, as it may contain faecal contamination
- Don't plant large trees in or near the land application area as they can shade the disposal area and the roots can damage the absorption

Useful Resources:

https://www.olg.nsw.gov.au/public/about-councils/laws-and-regulations/onsite-sewage-management-septic-tanks/

https://www.health.nsw.gov.au/environment/domesticwastewater/Pages/default.aspx

https://www.greaterhume.nsw.gov.au/Your-Greater-Hume-Council/Building-and-Development/Building-and-Renovation/Plumbing-Approvals-and-on-site-Sewage-Management-Systems

ENVIRONMENT & PLANNING
CULCAIRN OFFICE

40 Balfour Street, Culcairn NSW 2660
Phone: (02) 6029 8588
Fax: (02) 6029 8607

Email: mail@greaterhume.nsw.gov.au
Website: www.greaterhume.nsw.gov.autrenches.