

TOWARDS BETTER ONSITE WASTEWATER MANAGEMENT IN VICTORIA - COMMUNITY EDUCATION SERIES



FACT SHEET 1: BASIC DESIGN INFORMATION FOR CONVENTIONAL SEPTIC TANKS AND ABSORPTION TRENCHES

This information will be of interest to you if you live on a property that is not connected to a reticulated or town sewerage system. You will either have a package treatment plant or a conventional septic tank system (for information on other septic systems refer to Fact Sheet 2: Package Treatment Plants – Basic Design Information). This fact sheet focuses only on conventional septic tanks and their associated absorption trenches.



1.1 WHAT IS A CONVENTIONAL SEPTIC TANK?

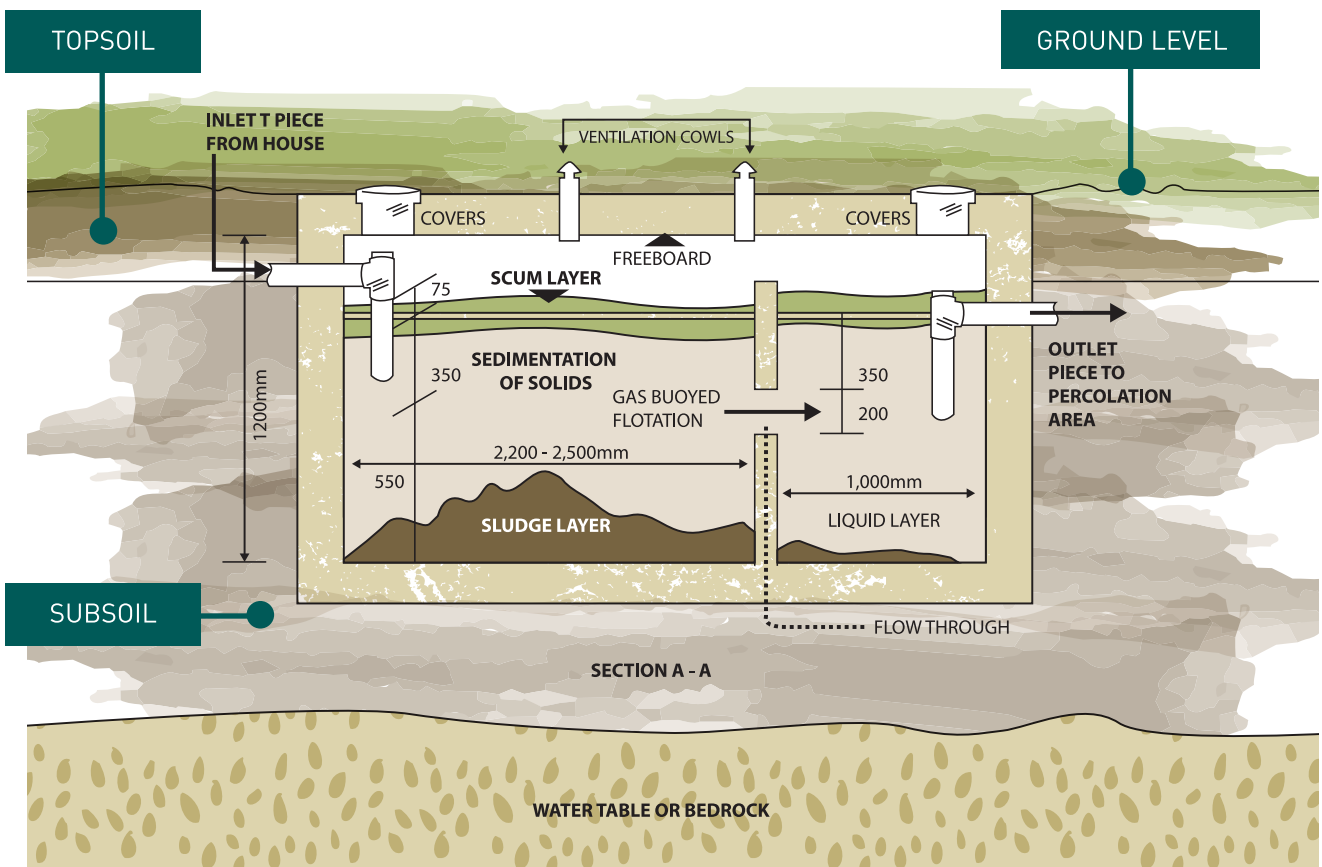
A conventional septic tank system is a living ecosystem contained within a concrete or plastic in-ground tank where good bugs live and digest and treat the wastewater from your kitchen, bathroom, laundry and toilet (refer to Diagram 1). The purpose of the septic tank is to allow solid materials to settle, allow the good bugs to breakdown some of the waste materials, and act as a storage chamber for undigested materials. The tank is divided into two chambers, which help the fats and solids to separate out of the liquid. A healthy septic tank should have three layers: a layer of fats forming a scum on the surface which helps to reduce odours; a clear layer in the middle also called effluent; and

a layer of solids or sludge at the bottom. The effluent flows out of the tank when new effluent enters and is discharged to an absorption field (refer to Diagram 2).

The conventional septic tank is not a mechanical system and relies on gravity and good bugs to work, so this system, when functioning well, is generally inexpensive to operate.

It is very important to remember that septic tanks do not kill the bad bugs (bacteria, viruses or parasites) and the effluent must be treated with extreme caution. Contact with people, food, clothing and pets **MUST** be prevented.

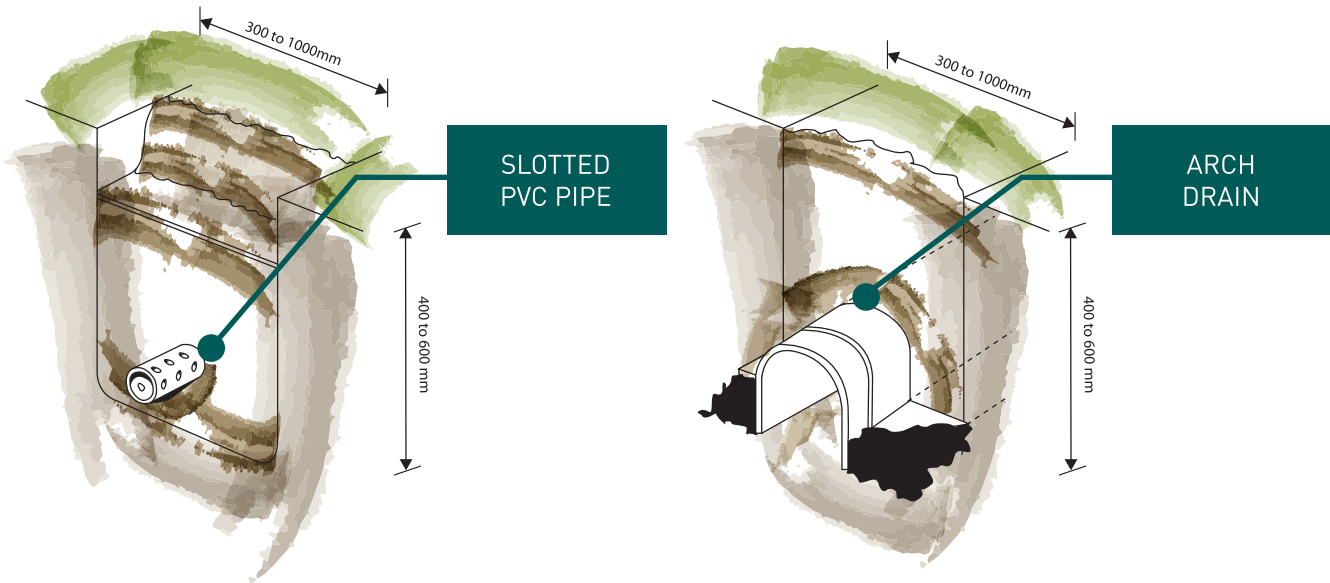
DIAGRAM 1: A CONVENTIONAL SEPTIC TANK



The absorption trenches are where the effluent goes when it leaves the tank. These trenches involve either a plastic archway (refer to the drawing on the right in Diagram 2), or slotted pipe (drawing on the left in Diagram 2) laid within an aggregate filled trench

and covered with soil. The effluent seeps through the archway or pipe and is evaporated and/or transpired through plant activity and/or absorbed by the soil where it is further treated to reduce pollutants and bad bugs.

DIAGRAM 2: TYPICAL ABSORPTION TRENCHES



1.2 ISSUES ASSOCIATED WITH CONVENTIONAL SEPTIC TANKS AND ABSORPTION TRENCHES:

- Too much sludge. This can result in untreated wastewater heavy with solids leaving the tank and clogging up pipes and absorption trenches.
- Too much water going into the septic tank and trenches. This can also result in solids being pushed out of the tank and clogging up the pipes and the trenches because of poor wastewater flow rate calculations or overuse of the system. This commonly occurs when the system is undersized to manage household wastes, or the system is over used.
- Toxic chemicals such as bleach or commercial cleaners going into the system. This can result in the good bugs being killed off and this will stop the digestion process.
- Common signs of a failing septic tank system include water draining away too slowly; pipes making noises or gurgling when draining; sewage smells; or water ponding in the area of the absorption trenches.

1.3 DEALING WITH THESE PROBLEMS:

You need to de-sludge your septic tank every 3-5 years depending on use. Newly pumped out tanks should be refilled with clean water and a handful of lime added to reduce the odours and encourage good bugs. The following are some other helpful hints to keep your septic tank healthy:

- Ensure the septic tank is inspected frequently by licensed plumbing practitioners to check the scum and sludge levels, and the presence of blockages in the outlet and inlet pipes;
- Keep a record of pump outs, inspections and other maintenance activities;
- Check the household products that you use are suitable for disposal through a septic tank - bleaches, disinfectants or nappy soakers can all affect the operation of the septic tank;
- Use biodegradable liquid detergents, i.e. concentrates with low phosphorus and salt;
- Ensure that the septic tank is mosquito proofed;

- Do not put rubbish such as sanitary napkins, condoms or disposable nappies down the toilet;
- Do not alter any part of your system without Council approval. Your septic tank system has been designed for a particular amount of wastewater. Be careful not to overload the system by increasing wastewater flow rates;
- Spread your laundry cycles throughout the week to reduce the disruption of the settling process by peak wastewater flows.

Look after your absorption trenches by:

- Diverting stormwater away from the absorption trench;
- Plant small water loving, shallow rooted plants down-slope of the trenches. These will help absorb the effluent;
- Do not drive over or allow livestock to disturb the trenches;
- Do not build structures like garages or sheds over them;
- Do not cover them with concrete or pavers;
- Do not place excessive amounts of top soil on top of trenches. If the trenches are soggy then you should call a licensed plumbing practitioner;
- Do not let children play near the absorption trench area.

1.4 COMPARISONS BETWEEN CONVENTIONAL SEPTIC TANKS AND PACKAGE TREATMENT PLANTS

CONVENTIONAL SEPTIC SYSTEM	PACKAGE TREATMENT PLANT
Generally does not require power, unless the effluent needs to be pumped.	Requires a continual supply of power.
Limited maintenance - a de-sludge every 3-5 years, depending on use.	Requires regular maintenance – serviced once every 3 months, annual water sample test and a de-sludge every 3-5 years, depending on use.
Generally costs between \$7,000 & \$10,000.	Generally costs between \$10,000 & \$15,000.
<i>Information on this fact sheet is not intended to favour one system over another.</i>	
Check with manufacturers for specific details and your local environmental health practitioner (EHP or EHO: Environmental Health Officer) for suitability when choosing a new system for your house.	

Package treatment plants may be a good alternative on properties with environmentally sensitive features or limited available area.

1.5 WHO TO CONTACT:

PRODUCED AND FUNDED BY:

