

# TOWARDS BETTER ONSITE WASTEWATER MANAGEMENT IN VICTORIA - COMMUNITY EDUCATION SERIES

## FACT SHEET 6: COMMON DISPOSAL METHODS (PRIMARY TREATMENT SYSTEMS)

This information will be of interest to you if you are selecting a new onsite domestic wastewater management system for your property, or live on a property that is not connected to a town sewerage system and have a conventional septic tank (alternatively for further information on aerated treatment systems and their common disposal systems refer to Fact Sheets 2 and 7 respectively).

This fact sheet focuses only on the common disposal methods for septic tank systems and introduces trench systems, evaporation beds, wick systems, and mounds. It is recommended that this fact sheet be read in conjunction with Fact Sheet 1 Conventional Septic Tanks.

Please check with your local Environmental Health Officer to ensure you get all the requirements for your local area.

### 6.1 ABSORPTION TRENCHES AND EVAPO-TRANSPIRATION / ABSORPTION TRENCHES

\*SUITABLE FOR CONVENTIONAL SEPTIC TANKS AND SEPTIC TANKS WITH SAND FILTERS AND AWTS AND ALL OTHER SECONDARY TREATMENT SYSTEMS

Evapo-transpiration/Absorption Trenches (or ETA trenches) are the most common onsite wastewater disposal method. Their design has varied over time but their primary function remains the same. Modern trench designs involve the use of slotted PVC piping or arch drains to disperse the effluent along the length of the trench bed. There is a minimum of 150mm of topsoil covering the trench and usually the rest of the trench is full of aggregate (max of 40mm in size) (refer to Diagram 1). The length of these trenches is based on the amount of wastewater potentially generated in the house and the rate that the water can be assimilated by soil, plants and evaporation. Consult with your local government Environmental Health Officer for local construction requirements.

DIAGRAM 1: COMMON ETA TRENCH DESIGNS

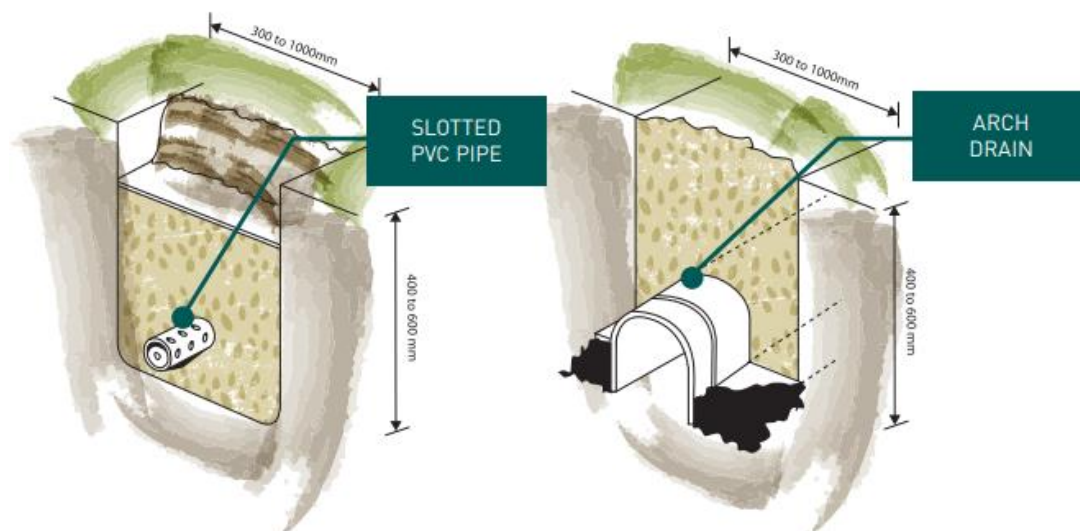
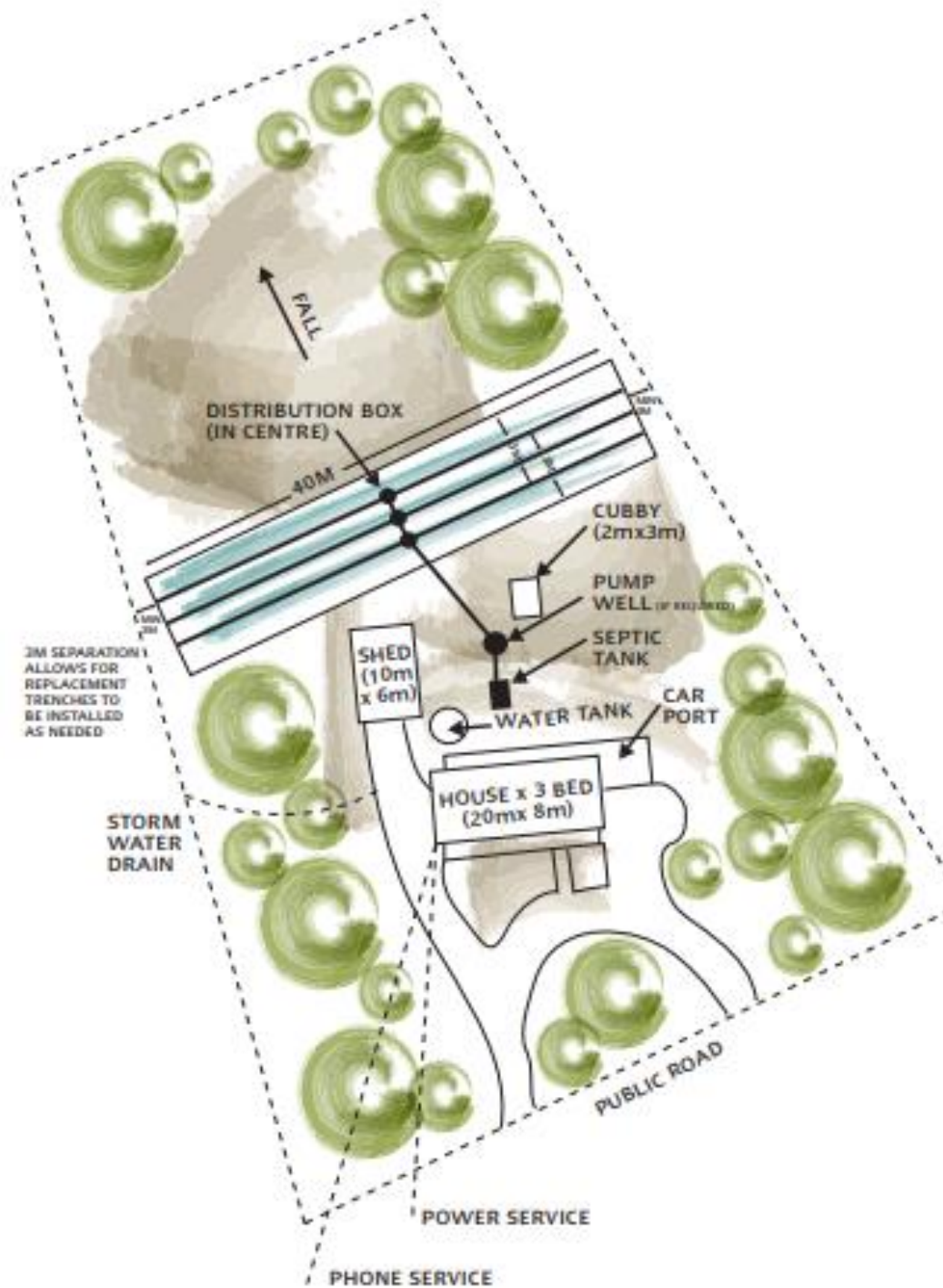


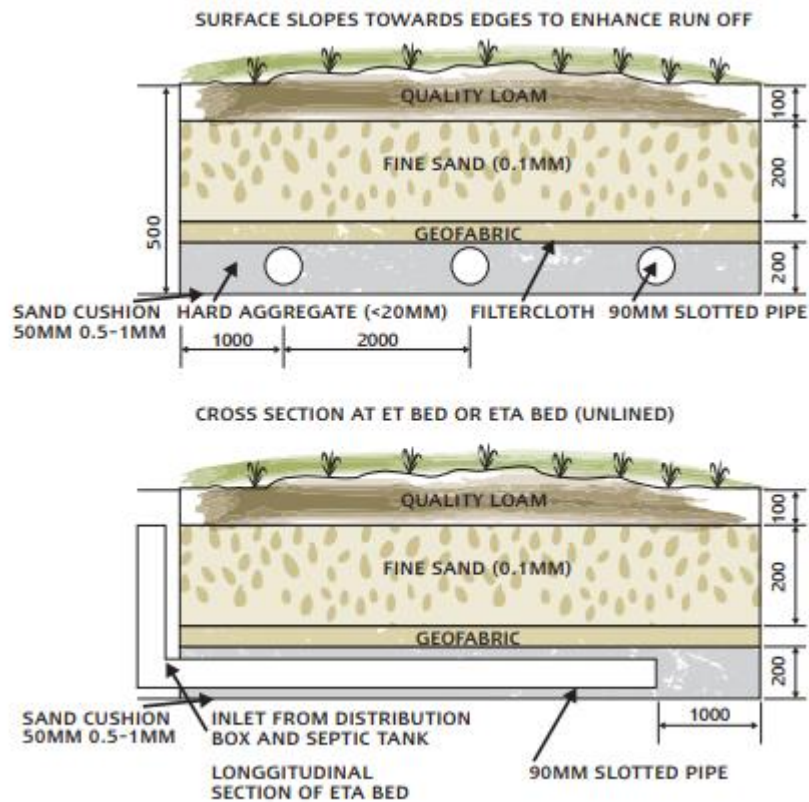
DIAGRAM 2: A TYPICAL ETA TRENCHES LAYOUT



## 6.2 EVAPOTRANSPIRATION / ABSORPTION BEDS (OR ETA BEDS)\*

\*Suitable for conventional septic tanks and septic tanks with sand filters ETA Beds are a useful effluent disposal option for properties with shallow soils or areas of high water tables. These beds are essentially designed to be large constructed sponges of sand and gravel, sealed off from the surrounding soil, with an inbuilt water storage capacity with the surface planted and shallow rooted perennial plants to maximise the evaporation and transpiration processes. The effluent is fed or pumped into a network of pipes and then relies on the capillary action of water to spread through the bed. A critical design consideration for these types of beds is that it is located in a position to maximise solar heat and wind movement.

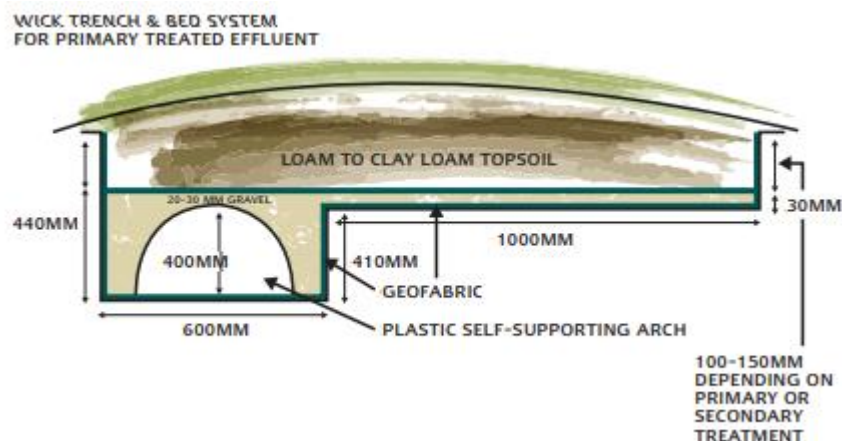
DIAGRAM 3: VIEW OF AN ETA BED



### 6.3 WICK TRENCH AND BED SYSTEM

\*Suitable for conventional septic tanks and septic tanks with sand filters AND ALL OTHER SECONDARY TREATMENT SYSTEMS Wick trenches are a newer design for subsurface wastewater disposal and may be helpful for small blocks with limited space or where the soil has poor absorption (e.g. heavy clay soils). This trench type is the combination of an absorption trench and an evapotranspiration trench to best use the space between trenches within the disposal area. The system of trenches and beds are underlain and joined by a layer of geotextile fabric. The geotextile fabric acts as a “wick” to continuously draw liquid upwards from the trench into the bed. This design provides a greater surface area for transpiration and evaporation to occur. Given the width of those trenches, steep sloping sites may require special designs.

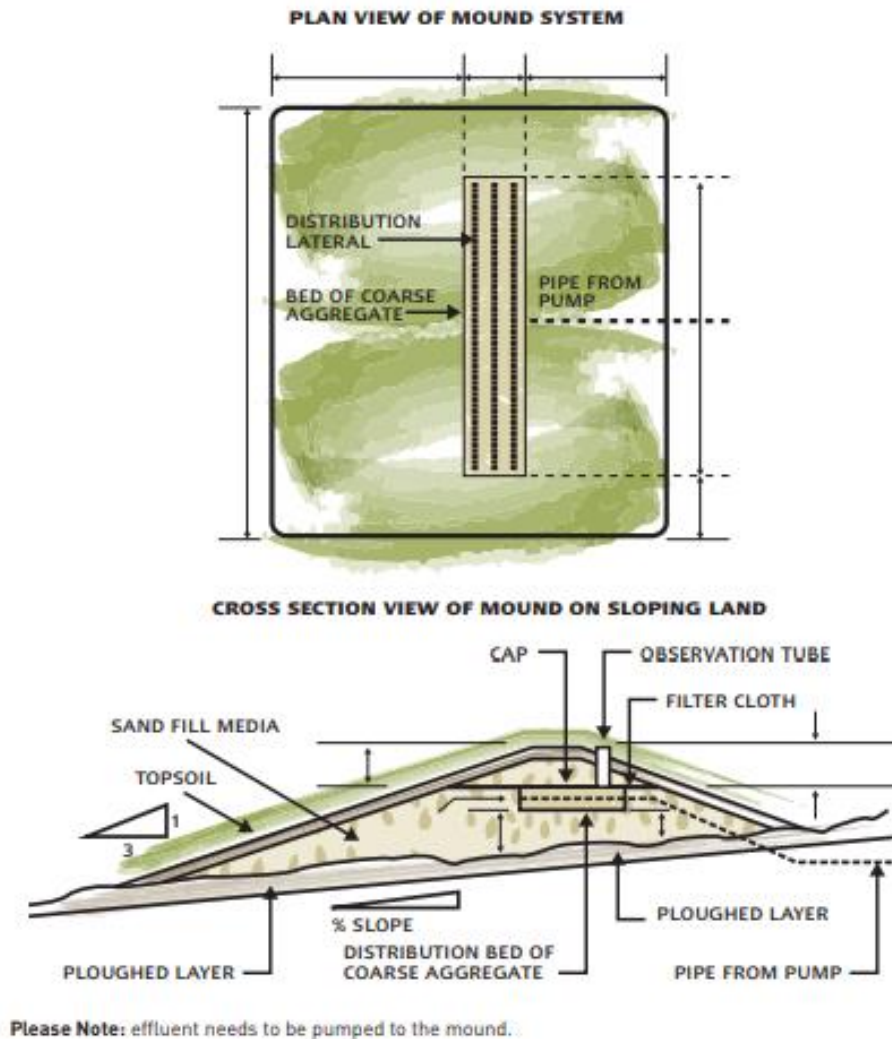
DIAGRAM 4: WICK TRENCH AND BED SYSTEM



## 6.4 MOUND SYSTEMS

\*Suitable for conventional septic tanks and septic tanks with sand filters Mounds are normally used on flat allotments that have site or soil restrictions and are particularly useful if there is a high water table or lots of rock. The site is roughed up or ploughed then the mound is constructed directly onto the surface of the ground. The mound is mostly sand with the wastewater effluent pressure dosed into a bed of coarse aggregate so as to maximise dispersion into the sand for treatment. The effluent discharges from the sand directly onto the underlying soil. While also exploiting the mounds wind exposure to evaporate and transpire wastewater.

DIAGRAM 5: MOUNDS



## 6.5 SOME HELPFUL TIPS FOR THE DISPOSAL OF PRIMARY TREATED EFFLUENT:

It is important to ensure that vehicles do not drive over these systems as they can compact and damage the field resulting in costly repairs. This also applies to cattle and other livestock.

It is also important that paving, driveways, patios, fences, building extensions, sheds, children's playgrounds, portable above ground swimming pools and utility service trenching not be built over or encroach on the disposal area.

Remember only to use products in the household that are safe for your system (avoid anti-bacterial surface wipes, bleaches and prewash soakers and brighteners). Some products are considered safe to use and these include citrus based products, vinegar, environmentally friendly or biodegradable products and scented toilet blocks without antibacterial agents.

Your septic tank needs to be pumped/de-sludged every 3-5 years depending on use.



Carry out regular mowing and trimming of the vegetation within the disposal field to maximise exposure to the sun and nutrient up take.

Should the soil in the area have a tendency to crust then you should apply gypsum to help repair it. Gypsum can also be applied to the bottom of new trench systems as well to reduce solid dispersion and maximise soil structure.

It would be advantageous to install a suitable filter at the outlet of your septic tank. Some more recent septic systems could already have one installed, if you are not sure, check with your plumber. This will reduce the amount of solids entering and potentially clogging the disposal area. These filters do require occasional maintenance.

Ensure all distribution boxes, inspection points or observation tubes associated with the individual disposal methods are accessible at the surface of the ground.

If you have trenches as your disposal method, periodic assessment and adjustment of the effluent distribution between the trenches will allow for a more even use and greater longevity. This can be achieved by adding loosely fitting 90o bends to the end of the slotted pipe at the distribution box (Note that you would be dealing with sewage that can make you sick so thoroughly wash and sanitise your hands directly after you have finished).

If the disposal area is subject to pooling of surface waters, smooth the surface of the soil to remove any pits or depressions and install a diversion drain upslope from the disposal field.

#### 6.6 WHO TO CONTACT:

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