

## FACTSHEET 16: EFFLUENT DISPOSAL – DOSED SYSTEMS FOR AERATED WASTEWATER TREATMENT SYSTEMS

In lower risk sites, secondary treated effluent disposal can be applied to soil absorption trenches using a dosing system. Dosing of all trenches simultaneously provides a more sustainable and effective use of effluent from an Aerated Wastewater Treatment System. Instead of disposing of effluent in concentrated single trenches with the potential for overloading and soil structure deterioration, a dosed system engages all trenches in turn via the use of a rotavalue, which switches effluent load continuously between all trenches.

### Introduction

Essentially a dosed effluent disposal system applies effluent using the pump within the secondary treatment plant/system (or pump-well). It provides a more effective and even application within a series of trenches and removes the requirement for distribution boxes.

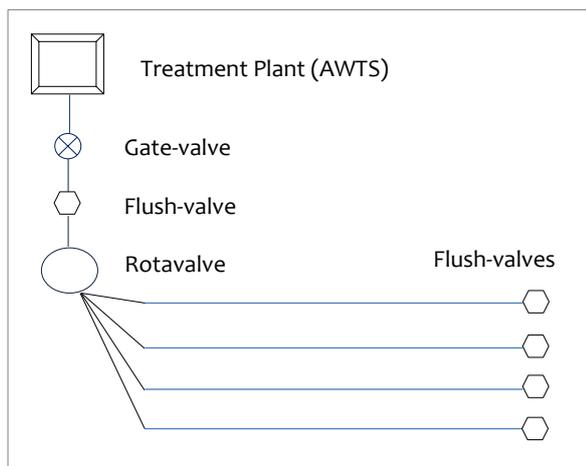


Figure 1 – Basic layout of dosed system.

Microbial breakdown of wastewater pathogens occurs much the same way as traditional soil absorption trenches however utilises all trenches rather than overloading a single trench to the point of ineffectiveness.

Dosed effluent disposal is similar to Evapo-transpiration Beds and Trenches where effluent is applied with pressure via a pump. The difference is that only secondary treated effluent can be applied using the dosed method.

Evapo-transpiration Beds and Trenches on the other hand can be used with septic tank/or primary treated effluent using a pump well to disperse the effluent.

### Installation Steps/Requirements

Dosed systems can utilise both 90mm slotted PVC or ReIn drain surrounding/protecting the dosing line. The following information details installation steps required of plumbers:

#### Step 1 – The Treatment Plant

Dosed systems require the pre-use of a secondary treatment plant or Aerated Wastewater Treatment System which treats effluent to a higher standard than septic tanks. Please note that a 20m head pump is required within the treatment plant for effective pressure dosing.



Figure 2 – Installing an OzziKleen RP10.  
(Source: Smedts & Sporn 2017)

Aerated Wastewater Treatment Systems (see *Figure 1*) are typically required in Moyne Shire for high risks sites which include small lots (<5000m<sup>2</sup>), and/or systems between 30m and 60m of a watercourse or wetland.

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## Step 2 – Gate and Flush Valves

After the treatment plant has been installed, 25mm 'purple-line' polyethylene pipe is run to a flush-valve and then to a gate valve allowing isolation and flushing of system components where required (see *Figure 3*).



Figure 3 – Gate and Flush valves..

## Step 3 – Rotavalve: switching device

Replacing the need for distribution boxes, the rotavalve is placed prior to the soil absorption trenches and operates to switch effluent disposal between each trench line. As seen below it must be made accessible at all times for possible maintenance (see *Figure 4*).



Figure 4 – The Rotavalve replaces distribution boxes.

## Step 4 – Poly-pipe and trenches

Typical soil absorption trenches are completed as for a traditional septic tank system using either 90mm slotted PVC or ReIn drain (with slotted PVC to protect 25mm purple-line poly-pipe) (see *Figures 5,6,7*).

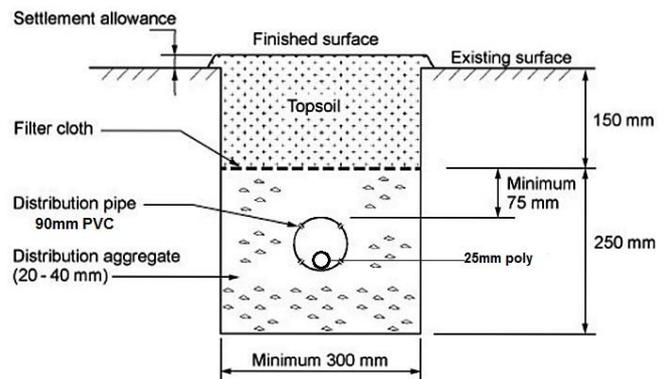


Figure 5 – Example of dosing pipe within 90mm slotted PVC.

The 25mm purple-line poly-pipe must be pre-drilled at 300mm intervals using a 3-4mm drill-bit. When complete this pipe is placed inside the 90mm slotted PVC as shown.

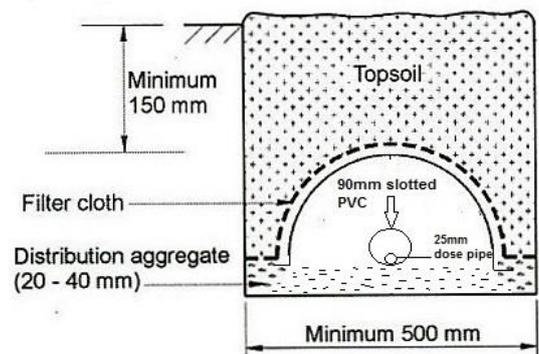


Figure 6 – Example of dosing pipe within 90mm slotted PVC and ReIn drain.



Figure 7 – Example of trenches and install of dosing pipe within 90mm slotted PVC and ReIn drain.

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### Step 5 – Flush-valve at end of each line

To complete the process a flush-valve (brought to finished ground level) must be located at the end of each line/trench for future maintenance and flushing of the line (see *Figure 8*).



Figure 8 – Flush-valve installed at the end of each trench.

### AWTS maintenance issues

The success of any wastewater system is dependent upon not only the appropriate design and siting of the system, but upon continued vigilance of wastewater quantity and quality in the house, and regular inspections and maintenance of the operating in-field system.

Vegetation cover within the effluent disposal area must be well maintained to ensure strong growth for maximum uptake by transpiration.

The surrounding landscape and vegetation must also be maintained to minimise shading and maximise exposure.

Maintenance or repairs of an AWTS must always be carried out by a qualified plumber or service agent if a problem with the system occurs.

### AWTS problems

- Too much sludge in the primary chamber can result in wastewater heavy with solids entering other chambers of the tank, clogging components, and reducing the ability of the tank to treat the wastewater adequately.
- Too much water entering the treatment plant can result in failure to adequately treat the wastewater.
- Toxic chemicals such as bleach and commercial cleaners entering the system can result in good bugs being killed off, halting the digestion and treatment process.
- Common signs of a failing wastewater treatment system include water draining away too slowly, pipes making noises or gurgling when draining, sewage smells, or ponding in the area of the irrigation system.
- Don't build structures on the irrigation area or plant trees that will shade it.
- The area should be in full sun to help plant growth, evaporation and pathogen breakdown.
- Small trees should be planted at least 5m away.
- Don't drive cars on the irrigation area or graze animals there.
- Any heavy movement may break the pipework and will compress the soil.
- A small fence will let visitors know which areas to avoid.
- Don't store anything on your irrigation area.
- Don't let children play in the irrigation area.
- Don't grow vegetables for human consumption in or near the irrigation area.
- Even treated effluent still contains potentially harmful bacteria.

For more information contact:  
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