

WASTE WATER TREATMENT SYSTEMS

EARTHSAFE
WASTEWATER TREATMENT SYSTEMS
A MEMBER OF ECO WATER HOLDINGS



The **Earthsafe D10** system reduces all sewage and grey water to clean, clear irrigation for re-use on landscaped areas, trees and shrubs.

The single concrete tank Earthsafe D10 systems are manufactured by **Allcast Precast**. This reliable domestic wastewater unit is developed by Eco Water Holdings. The **Allcast Precast** tanks weigh 4.5 tonne, measure 2.5m in diameter, 2.25m in height and come complete with electrical control box mounted on the lid. Units are delivered throughout South East Queensland on rear mounted crane trucks. They are simply installed in-ground and connected to the household drainline and power supply. The system is then ready to irrigate to an area approved by local council.

The D10 models are the result of over 20 years experience in the wastewater business and

have evolved from Eco Water's commercial systems. They use high quality components, and all internal chambers are built in polypropylene, which is extremely strong, impervious to corrosion, and will flex. All internal fixings are marine grade 316 stainless steel to ensure long life, and not simply galvanized like competitors systems.

The electrical control component is simple and hard wired and does not contain complex summer or winter modes, or a PLC, as it has been found that these items are very susceptible to damage from electrical storms (and expensive to replace). The Earthsafe control boxes are overload protected and are extremely reliable, like the rest of the system.

The Earthsafe D10 systems use a 100L blower (others use 80L) and also either a 10m head (standard) or 34m head (optional) irrigation pump. Two clarification chambers are utilised within the system (most opposition systems have one), and as a result even the standard system will treat up to 3000 litres per day to a very high standard. (Most other standard systems will only do 1500 to 2000L.)

AVAILABLE NOW
with Advanced Secondary
& Nutrient Reduction

THE TREATMENT PROCESS

All household wastewater enters the primary treatment chamber where it is initially digested by anaerobic bacteria. It is then filtered to retain any solids and the flow enters the aerobic chamber where air is introduced to promote aerobic bacteria numbers. These

quickly digest the waste, reducing it to sugars and starches, gas and clean water. The gas is vented off and the flow now enters a clarification process (x2 separate chambers) where any remaining silt is removed and returned to the primary chamber for re-treatment. The clean water now passes through a final disinfection process

(either chlorination or ultra violet light) and is stored in a holding area until a float activated pump delivers it to your garden or designated area as irrigation.

For the advanced secondary and nutrient reduction models, an additional final filtration unit is included. This filter contains

not sand, but a blend of special aggregate material proven in Eco Water's commercial models and demanded by some Pacific Island governments. (Eco Water sells systems into Fiji, Vanuatu, and other Island nations where pristine environmental concerns are paramount.)

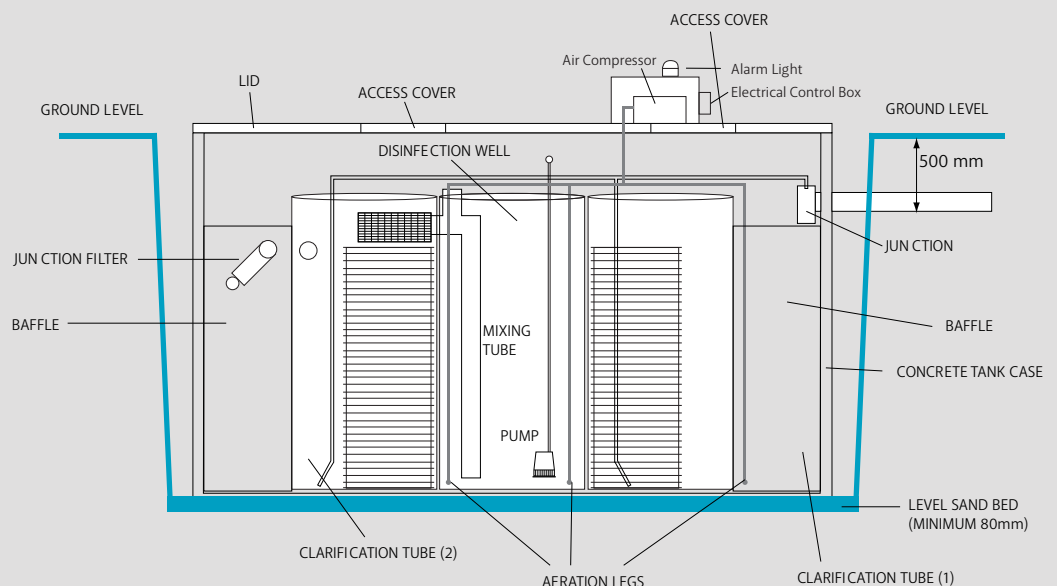
Excavation Dimensions

Depth	2.20 m*
Width	3.00 m*
Length	3.00 m*

*Measured at tank base

Concrete

Total Volume	8,000 L
Invert (below ground)	500 mm
With 475mm riser	975 mm
Diameter	2.5 m
Weight	4.5 tonne (5.0 t with riser)
Air Blower	100 L/minute
Irrigation Pump	10 or 34 m head



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EARTHSAFE D10 S/C PROCESS

The Earthsafe D10 is an aerated treatment tank system which uses totally natural biological processes to treat the waste water. It consists of a set of 5 chambers which perform various treatment processes on the waste stream.

1 Water first enters the primary pre-treatment chamber where organic and inorganic solids settle to the bottom and fats and other floating matter forms a scum layer on top of the liquid in the chamber. A sludge layer builds up in the chamber and biological process takes place i.e. anaerobic bacteria digest the sludge and break down some of the organic matter.

2 Fluid is decanted from the pre-treatment chamber through a baffle and filter to eliminate the passage of grease and floating matter. Whenever liquid enters the pre-treatment chamber waste water flows by hydraulic displacement into the aeration chamber.

3 In this chamber air is introduced through fine diffusers which serve to stir the contents of the tank whilst some air dissolves to provide oxygen for aerobic bacteria to thrive. These bacteria form as a bio-film on the submerged media and float in the solution. Aerobic bacteria

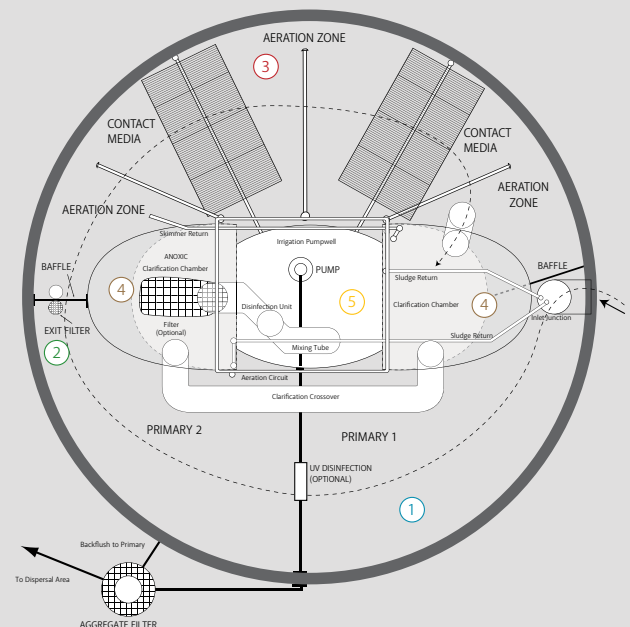
are far more efficient than their anaerobic counterparts and the effluent is converted to clean, clear water through aerobic digestion and oxidation. This process is odour-free.

4 Liquid from the aeration chamber flows into the clarifiers where the solution slows to enable any suspended particles to settle to the bottom. Periodically the accumulated sludge is returned to the primary treatment chamber to ensure more complete digestion. This return process is automatic.

5 Treated water now flows through a lower chamber where it is disinfected before passing into the final irrigation area. At this point clean waste water is automatically and silently discharged into the land application system. Land application systems vary according to individual situations and can be in the form of surface sprinklers, subsurface irrigation, sand fibres or other innovation systems. Your local council will decide this.

D10 S/C AS/NR - OVERVIEW

Constructed within a single concrete case with a minimum liquid volume of 6000L.



(At this stage an aggregate filtration unit can be fitted to upgrade discharge quality to 'advanced secondary' if required).

The Earthsafe units are available with **3 discharge quality levels:**

1. STANDARD

Suitable for most household sites, and producing 'secondary' treated water.

2. ADVANCED SECONDARY

This is a very high quality discharge suitable for sites that are near a waterway or are environmentally sensitive, and demanded by some councils.

3. ADVANCED SECONDARY WITH NUTRIENT REDUCTION

Again, a very high quality discharge but also with a significant reduction in Nitrogen and Phosphorous levels. This is usually only needed where there is possible run-off during rain events, or sensitive waterways nearby, or a reduction in dispersal area is required.

(This system uses technology from our commercial treatment units.)

