

All information contained within this manual is the property of Eco Water Holdings Pty Ltd.

Any duplication, alteration and/or redistribution is forbidden without written expressed permission of Eco Water Holdings Pty Ltd.

© 2009 Eco Water Holdings Pty Ltd



**EARTHSAFE**  
WASTEWATER TREATMENT SYSTEMS

A DIVISION OF ECO WATER HOLDINGS

**OWNERS MANUAL**

# EARTHSAFE D10 S/C WASTEWATER SYSTEM

## WARRANTY

The warranty on your system consists of:

- 15 years covering tank casing
- 5 years on internal components
- 2 years covering electrical components

Ecowater reserves the right to either repair or replace components.

Pumps and other electrical components must be removed and returned to Ecowater Holdings Brisbane factory in clean condition for warranty assessment.

Warranty applies to faulty materials, factory workmanship or faulty components providing the system has been correctly serviced, and has not been subjected to flooding or any other improper use / accidental damage.

**SYSTEM WARRANTY DOES NOT COVER INSTALLATION RELATED PROBLEMS.**

**PLEASE CONSULT YOUR INSTALLER IF INSTALLATION ISSUES ARISE.**

## Operation

The EarthSafe D10 system treats waste water on-site to primary and secondary levels far in advance of older style septic tanks. In technical terms the D10 has been designed to process waste water to achieve typically 95% reduction in both suspended solids (TSS) and biological oxygen demand (BOD<sub>5</sub>). The treated effluent is clear, odourless and can be reused on site (subject to council approval). A household drainage system terminating at an Earthsafe treatment unit does NOT require a grease trap on the kitchen line.

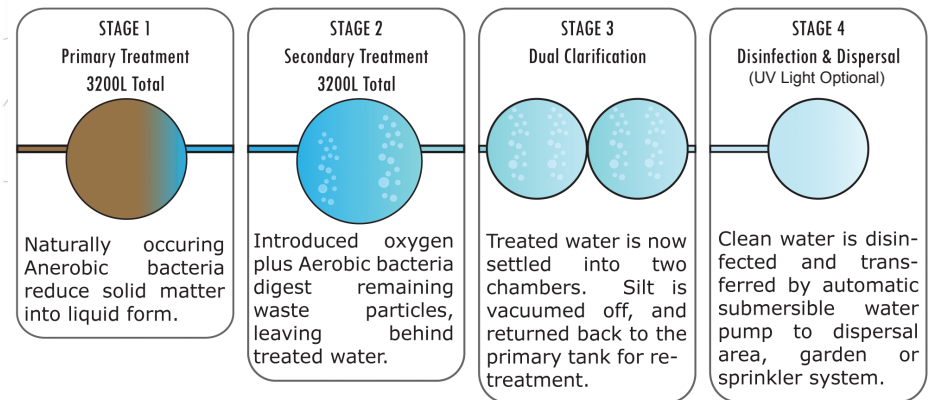
## Treated Water Quality

	D10 S/C	S/C AS/NR
BOD <sub>5</sub>	20 mg/litre or less	10 mg/L
Suspended solids	30 mg/litre or less	10 mg/L
Faecal coliforms	100 cfu / 100 ml or less	10 cfu/ 100ml
Free residual chlorine	min 0.2 mg/L, max 2 mg/L	(UV Light)

*(These figures can be further enhanced on environmentally sensitive sites.)*

The Earth Safe D10 S/C is a compact sewage treatment system housed in one tank. It is intended to treat domestic waste water from single households with adequate capacity to treat waste water for up to 10 people. The tank is connected to the household plumbing system and requires electrical power to be supplied for the air blower, electronic alarm control unit and the irrigation pump (one connection).

## The Aeration Process



## Earthsafe D10 S/C Treatment 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 a 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 into clean, clear water through aerobic digestion and oxidisation. 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 filters or other innovative systems. Your local council will decide this.

## Owners/Tenant Responsibilities (Cont)

- Earth Safe Queensland can suggest a maintenance person in your area if required, or contact your local council for a full list of licensed personnel.
- The owner/tenant of the property should ensure safe passage for the Service Technician. Any animals that may pose a danger to the service technician should be locked up or penned during servicing.
- The owner/tenant should provide a key for the Service Technician if there are any locked gates which prevent entry to your property for emergency repairs.
- The owner/tenant should ensure that the area around the Earthsafe System is kept neat and tidy at all times.
- The owner/tenant should monitor the irrigation sprinkler system to ensure all spray jets are working properly. (The owner/tenant will be required to replace or clear any blocked or broken sprinklers). This work can also be arranged to be completed by a maintenance technician.
- The owner/ tenant should ensure that any inline filters on the irrigation sprinkler system are checked and cleaned on a regular basis if required. The service technician will clean the filter every three months.
- The owner/ tenant should ensure prompt payment of any service or repair accounts.
- The owner/tenant should not allow painters / cleaners etc. to dump paint chemicals etc into the drains whilst working on site.
- If you have any questions in regards to servicing your system please contact us on during business hours.

**A full maintenance manual can be downloaded from:**

<http://www.ecowaterholdings.com>

**For information regarding correct environmental maintenance, please refer to Lanfax Laboratories' online knowledgebase at:**

<http://www.lanfaxlabs.com.au/laundry.htm>

# The Earthsafe Wastewater Recycling System

## Introduction

About 20% of Australian homes are not connected to central sewers i.e. treatment of waste water occurs on-site. It is important to realise that on-site waste water systems require regular inspection and maintenance to ensure that they function effectively.

Your D10 has been tested and accredited by the Queensland Department of Natural Resources (complying with QPW code) and the system must be operating correctly to ensure that the health of your family and the community are protected at all times.

EarthSafe Queensland can arrange maintenance service for your peace of mind. It is important that you have signed a contract for the ongoing maintenance of your system. This will ensure that your system continues to operate as designed, warranties are protected and the unit will continue to function correctly in the long term. Generally speaking the D10 is automatic in operation and requires very little owner intervention. It is useful however for you to familiarise yourself with the system so that you understand the general operation of the unit.



**PACKAGED SYSTEM WEIGHT:**  
**TANK HEIGHT:**

**4.1 tonne**  
**2.2 m**

## HOME OWNER / END USER

Please validate your system warranty by filling in this form and faxing, posting or emailing it to:

**EcoWater Holdings Pty Ltd**  
**PO Box 648, Virginia QLD 4014**

Phone (07) 3865 3775  
Fax (07) 3216 5243  
Email [ecowaterhol@gmail.com](mailto:ecowaterhol@gmail.com)

**VERY IMPORTANT - RETURN PROMPTLY**

### SYSTEM WARRANTY VERIFICATION

Date \_\_\_\_\_

Owner name \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

Purchased From \_\_\_\_\_

Purchase Date \_\_\_\_\_

Plumber / System Installer \_\_\_\_\_  
(licence no.) \_\_\_\_\_

Electrical Installer \_\_\_\_\_  
(licence no.) \_\_\_\_\_

Local Authority (Council) \_\_\_\_\_

Service Person \_\_\_\_\_  
(phone) \_\_\_\_\_

## Owners/Tenant Responsibilities

The home owner is responsible to the local authority for ensuring that their waste treatment process is operated correctly and produces a good quality discharge.

- The unit should NEVER be turned off, even during holiday periods. To cope with extended periods of absence, contact your service agent.
- The treatment system is engineered to meet normal household water discharge levels. If large amounts of water are discharged to the system it can affect the amount of process time and result in lower quality treatment. Please ensure that washing machine loads are spread over several days if possible.
- Do not dispose of fats, greases or large amounts of household food scraps down the drain as this can overload the system's process of digestion.
- Do not dispose of solvents, paints, strong cleaning agents (chlorines, bleaches, disinfectants etc) or other chemicals down household drains. These are toxic to the microbiological process working inside the system. Try to use natural cleaning products and use disinfectants sparingly. Try to utilise cleaning products that are low in phosphorous as it is far better long-term for the environment.

All Earthsafe systems are fitted with a visual warning strobe light on top of the electrical control box. If this light is activated, it indicates either:

1. The aeration system is not operating correctly.
2. The system water level is too high.

Before contacting your service agent, please check:

1. That the irrigation outlet from your system is not kinked or blocked.
2. That there has been no disruption to power that could have caused the electrical breaker within the control box to trip (electrical storms, etc).

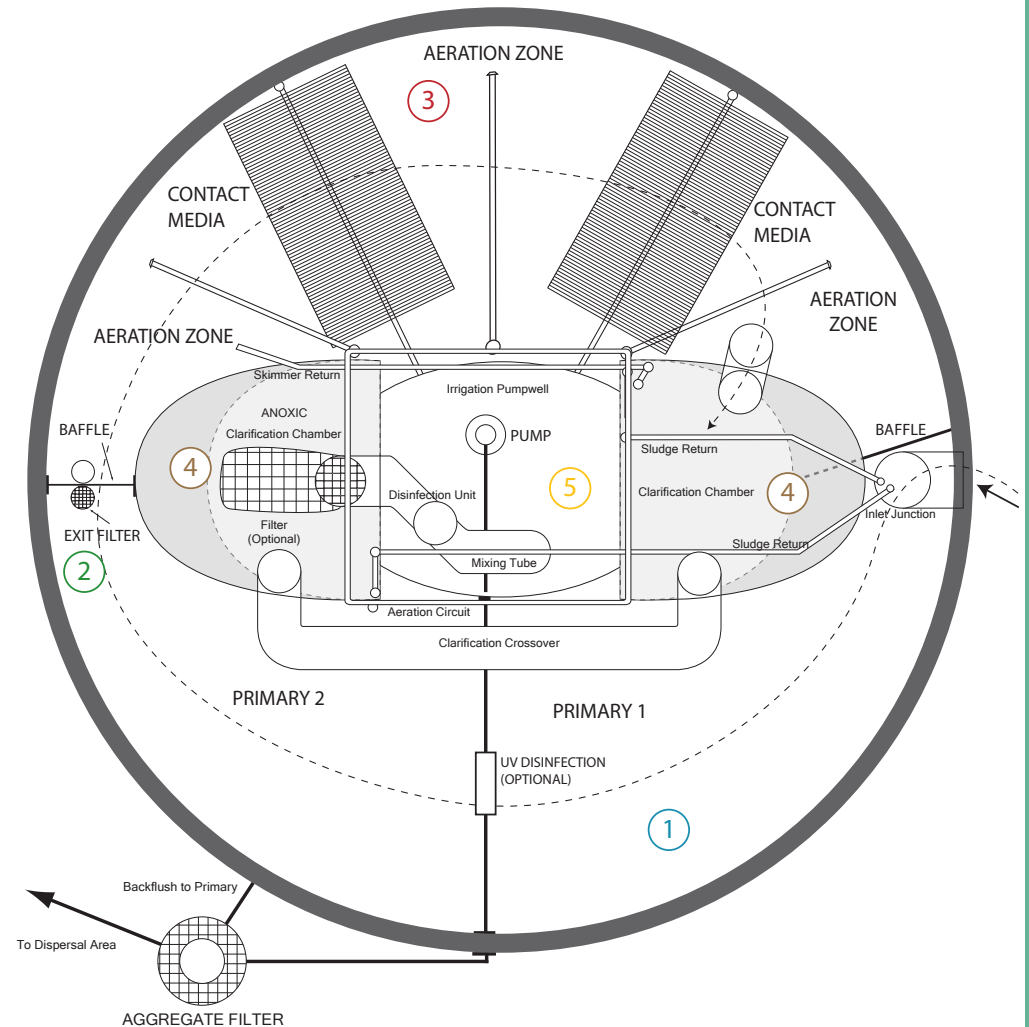
If there is no obvious cause for the alarm, contact your service agent.

See section 28 of maintenance procedures (<http://www.ecowaterholdings.com/domestic>) for advice on system de-sludging.

For your nearest SERVICE PERSON please call 1800 607 695.

## 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).

**Excavation Dimensions**

Depth	2.20 metres
Width	3.00 metres
Length	3.00 metres
(Measured at tank base)	

