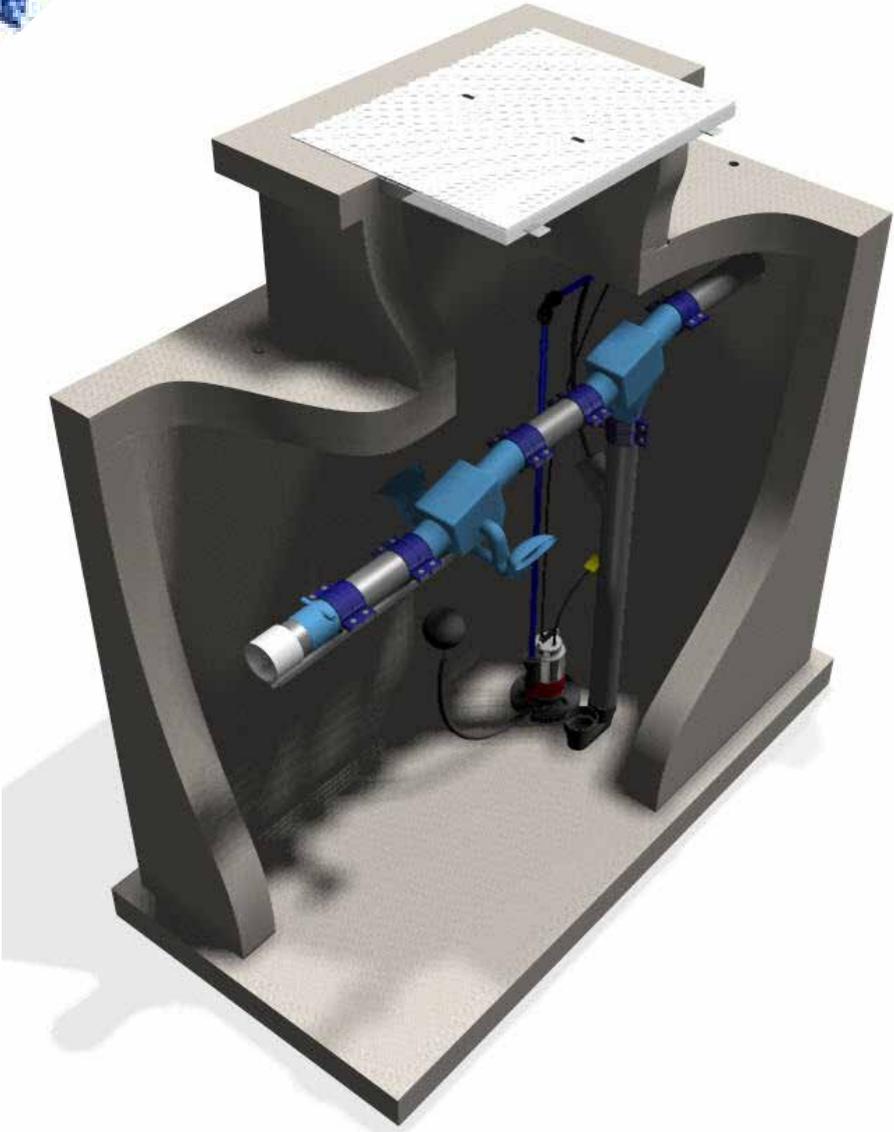


Ecosol™ Rain Tank Maintenance Guide

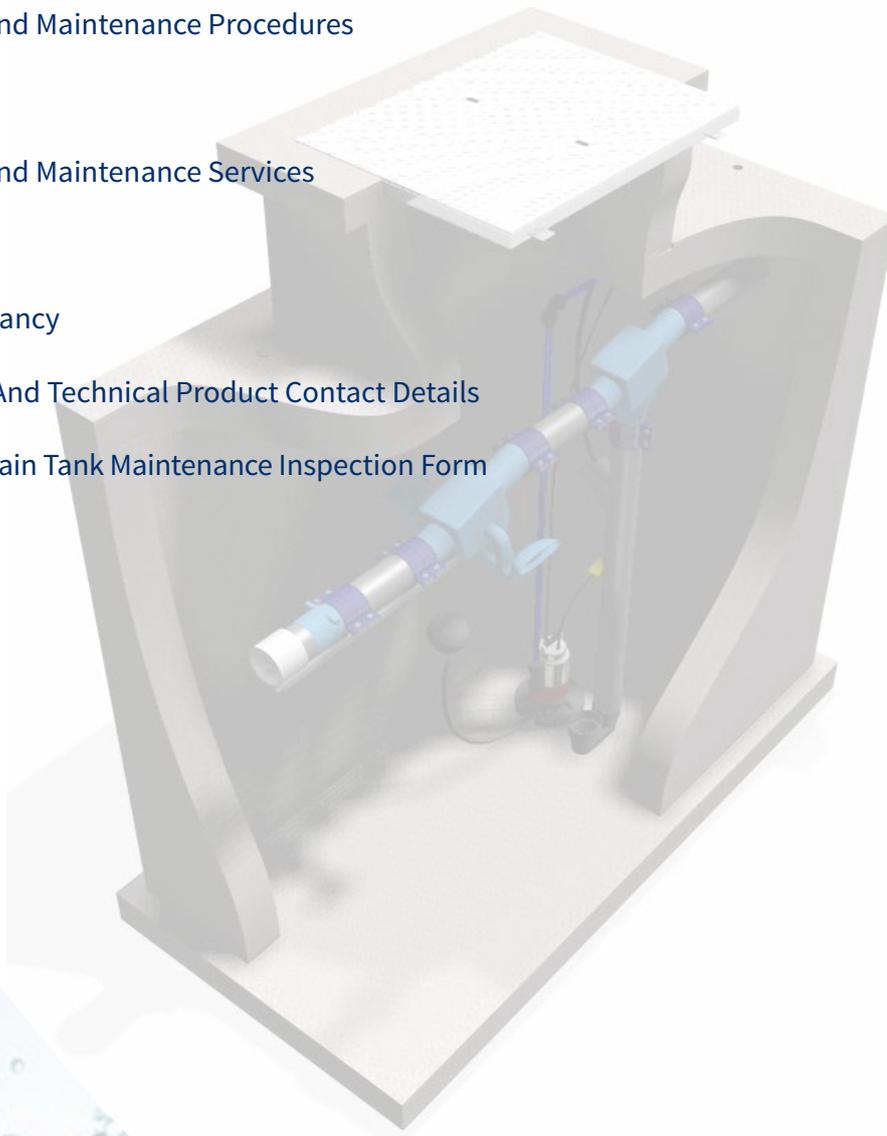


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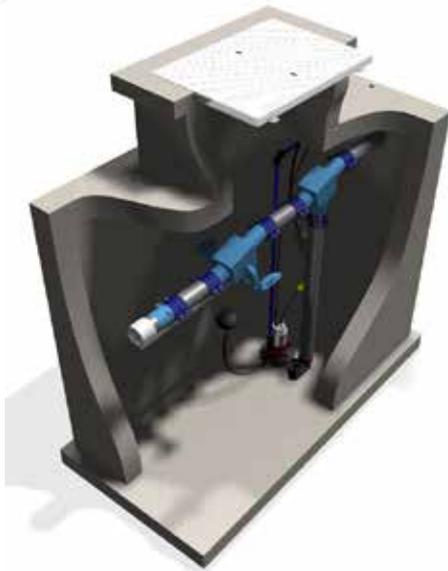


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The Ecosol™ Rain Tank has been designed specifically for easy on-site cleaning and maintenance using a licensed waste contractor equipped with a vacuum (eductor truck).



1.0 Introduction

The Ecosol™ Rain Tank is designed to store non-potable rainwater from impervious surfaces in commercial, industrial, and residential developments. Designed specifically for use on high-density residential and commercial sites where re-use of the rainwater is both viable and desirable.

The Ecosol™ Rain Tank system is delivered to site fully self-contained and fitted with an internal filter. It also has a controlled inlet device to reduce remobilisation of settled solids and manage flow velocities and as with all the Urban Asset Solutions Pty Ltd units, it has an overflow mechanism that enables the unit to discharge excess flows.

The system is designed specifically for underground storage of stormwater maximising above ground land use and is an ideal solution for high density housing developments and commercial sites installed under hardstands and car parks.

2.0 Key Dimensions

One of the key benefits of the Ecosol™ Rain Tank is that it is self-cleaning and, therefore, largely maintenance free. Periodic inspections are usually all that is needed. The unit comes in a range of sizes with all internal pipes and fittings included to suit the site-specifics. Together with an upstream primary filtration system the Ecosol™ Rain Tank provides environmentally friendly, cost effective and efficient rainwater, re-use solution. The below tables provide a general guide on typical unit configurations.

Ecosol Rain Tank Unit Code	Volume	External Tank Dimensions ¹	Riser Dimensions	Pump Outlet Size	Access Cover Dimensions	Unit Loading Capacity	Unit Weight
	Litres	L x W x H	L x W	mm	L x W	Class	Tonnes
7300	3,000	2700 x 1350 x 2250mm	1200 x 900mm	25	600 x 900mm	D	7.6
7700	7,000	3600 x 1650 x 2600mm	1200 x 900mm	25	600 x 900mm	D	12.6
71500	15,000	4500 x 1950 x 3200mm	1200 x 900mm	25	600 x 900mm	D	19.7
72500	25,000	5550 x 2250 x 3525mm	1200 x 900mm	25	600 x 900mm	D	28.4

3.0 Monitoring & General Maintenance

To ensure continued access to good quality water for reuse, your Ecosol™ Rain Tank must be adequately maintained. The quality of water retained in the tank can also be influenced by a number of factors including the condition of the catchment area (roof and impervious ground surfaces), and vehicle or heavy industry emissions.

To maintain your rainwater harvesting system ensure that the:

- Internal components are regularly inspected (half yearly) and serviced (annually) to ensure they are clean and free from corrosion or material build up and are operating to their designed specification
- Catchment area conveying rainwater to the tank is clean and in good condition - this includes the regular removal of any debris from the catchment area
- Primary and secondary filters are regularly checked and cleaned, when required
- Overflow siphon devices are clear of all debris
- Pump is regularly serviced in accordance with the manufacturer's recommendations
- Access covers and surrounds are in good condition and correctly sealed; and the
- Pre-cast tank is de-sludged every 2 - 3 years to remove any accumulated sediment

4.0 Internal Fittings And Components

In most cases the Ecosol™ Rain Tank is supplied fully assembled in its own reinforced pre-cast concrete pit complete with stormwater and electrical conduits, internal filtration and re-use components and access covers. Each Ecosol™ Rain Tank supplied will generally consist of the following components

Tank entry and exit connections

This includes 100mm to 225NB (mm) PVC pipe sleeves, couplings, and 50mm electrical conduit sleeves.

External primary filter (if required)

External primary filters can remove and retain from stormwater flows a variety of pollutants such as gross litter. They can also remove fine silts and sediments.

Internal secondary filter

Most systems are supplied with an internal secondary filter installed. The filters are designed to remove high percentages of fine particles that may have passed through the external primary filter. There are two options available for secondary filtration, as follows:

- A 100mm in-line, low-maintenance cartridge filter with poly-housing and a stainless-steel (1.7mm x 0.7mm) self-cleaning filter mesh for roof run-off areas up to 200m²; or
- A volume filter with poly-housing and stainless-steel 0.55mm self-cleaning mesh for roof run-off areas up to 500m² (applicable for Ecosol™ Rain Tank 72500 units only). If your system is supplied with one of these filters then cleaning of this filter may be required up to six times annually. Whilst the filter is a largely self-cleaning the filter insert is easily manually removed for cleaning. Regular cleaning enhances the operation of the filter and improves water quality.

Controlled inlet device

This controls inlet velocities into the storage tank, thereby significantly reducing the likelihood of re-suspension of any fine particles that may have passed through the primary and secondary filters.



4.0 Internal Fittings And Components Continued

Back flow valve

This prevents ingress of stormwater and contaminants into the storage tank from high-tail waters. It consists of a 100mm polypropylene in-line, one-way valve.



Overflow siphon

This device constantly removes floating pollutants, such as pollen, from the standing surface water level when the maximum water-holding capacity within the unit is reached. It also discharges excess rainwater from the storage tank and its unique design also prevents rodents from entering the unit via the stormwater outlet.



Pump and Controller

Selection of the most-appropriate pump is essential to ensure that the system extracts sufficient volumes of water at pre-determined rates and times relevant to usage design and expectations. It is also important to ensure the pump selected provides the end user with a cost-effective, low-maintenance system. The controller unit is an integral part of the overall design efficiency of the unit. The controller ensures water is extracted to the minimum water level and at predetermined volumes. It will automatically switch between the available rainwater supply and mains water so there is no need for any manual intervention. It also provides an option for mains water top up, if necessary (240v 42LMP with built-in check valves).



The Ecosol™ Rain Tank unit is typically supplied with one of the following pumps:

- a submersible pump, float switch-operated 240 volt centrifugal, multi -stage, twin-impeller design; or
- an above-ground 240 volt centrifugal, multi-stage, twin-impeller commercial rain bank pump set design. Submersible Pumps and Rain bank Pro Rainwater Harvesting systems will require regular periodic maintenance in accordance with the supplier's specifications. Please refer to the suppliers manuals supplied with your system for full maintenance details.

Floating pump intake valve

This device floats within the tank just below the water surface enabling the cleanest water to be extracted by the pump. It is also fitted with a filter and check valve.



5.0 Cleaning And Maintenance Procedures

As mentioned in section 3.0 all underground rainwater harvesting systems should be de-sludged every 2–3 years to remove any accumulated sediment thereby enhancing water quality. This section explains the steps to be followed to de-sludge your system.

The steps to be followed for cleaning your Ecosol™ Rain Tank are as follows:

Prior to cleaning day

- Advise all concerned parties of the proposed date and time the clean is to take place
- Obtain approvals from the appropriate authorities
- Check Weather Conditions
- Prepare all necessary Safe Work Method Statements
- Ensure all necessary plant and equipment is loaded and safe for operation.



Site establishment

- Complete and sign off all relevant Safe Work Method Statements
- Ensure that all access points are exposed and accessible
- Ensure barricades are provided at all working areas and that signs are in place to prevent injuries to public or staff
- Ensure all working areas are safe and all equipment, including hoses and machinery, are in place and ready for operation



Removal of sedimentation

- Open surface access lid
- Lower the vacuum truck hose into the central chamber and position below the water line
- Commence removal of stored rainwater by vacuum method, until the base of the unit and settled sediment is visible.
- With all rainwater removed commence moving the hose over the sediment that has accumulated at the base of the tank.
- Once all visible sediment has been removed stop the vacuum truck.



5.0 Cleaning And Maintenance Procedures Continued

Final Cleanout process

To ensure all internal components are clean and free of debris and sediment it is important at the conclusion of each clean that all components are cleaned with a high pressure water hose. Most Wet Vac combination vacuum trucks have this facility.

- Start the vacuum truck and position snorkel into the bottom of the tank to remove any fine sediment as it is flushed from behind components (ensure the operator is wearing a safety harness and is lanyard on prior to commencing with the removal of pollutants)
- From the surface hose down all of the internal components using a high pressure hose
- Whilst this is occurring continue to remove sediment flushed out with the eductor truck vacuum hose
- On completion remove the vacuum trucks hose and pack up equipment

6.0 Reporting

After each clean it is important that all cleaning data is recorded for use in ongoing asset management activities. A cleaning report should be prepared that details as a minimum the following information:

- Site location;
- Date and time of the clean;
- Duration of the clean;

Reporting of the above information is included in the cost of any clean undertaken by Urban Asset solutions Pty Ltd - Please refer to the attached form at the back of this manual for more details.



7.0 Monitoring, Cleaning And Maintenance Services

Urban Asset solutions Pty Ltd has a very competitive cleaning service using an eductor truck for the removal of all retained pollutants. After each clean we provide a full report. We believe that it is in your best interests for Urban Asset solutions Pty Ltd staff to clean and maintain the unit, not only because we are specialists, but also because proper monitoring and maintenance enhances the unit life significantly.

8.0 Warranty

The Ecosol™ Rain Tank (Rainwater Storage and Re-use System) has a one-year warranty covering all internal components and workmanship. Urban Asset solutions Pty Ltd will rectify, at no charge, any problems that fall within the warranty terms. However, damage caused by vandalism and by outside parties is not covered by the warranty. This includes instances where the client cleans or otherwise maintains the unit, or employs others to do so, and damage is caused by inappropriate procedures. The warranty is also void if regular maintenance is not undertaken in accordance with the manufacturer's specifications or if the unit is used for purposes other than those specified.

9.0 Life Expectancy

All Ecosol™ Rain Tank System has been designed to meet strict engineering guidelines and manufacturers' guarantees. The reinforced concrete has an expected life span of 50 years while the internal components, such as the filters, pumps, overflow siphon, and back flow valve, have a life expectancy of 10 - 15 years.

10.0 Supplier And Technical Product Contact Details

For any maintenance or technical product enquiries please contact:

Urban Asset solutions Pty Ltd

Tel: 1300 706 624

Fax: 1300 706 634

Email: info@urbanassetsolutions.com.au



11.0 Ecosol™ Rain Tank Cleaning And Maintenance Inspection Form

Asset Owner:

Asset ID:

Unit Location :

Ecosol Ref:

Date:

Time:

Product Code: Ecosol™ Rain Tank

Inspected By:

Visual Inspection

Item

Good

Fair

Damaged

Remarks

Access covers

Access cover surrounds

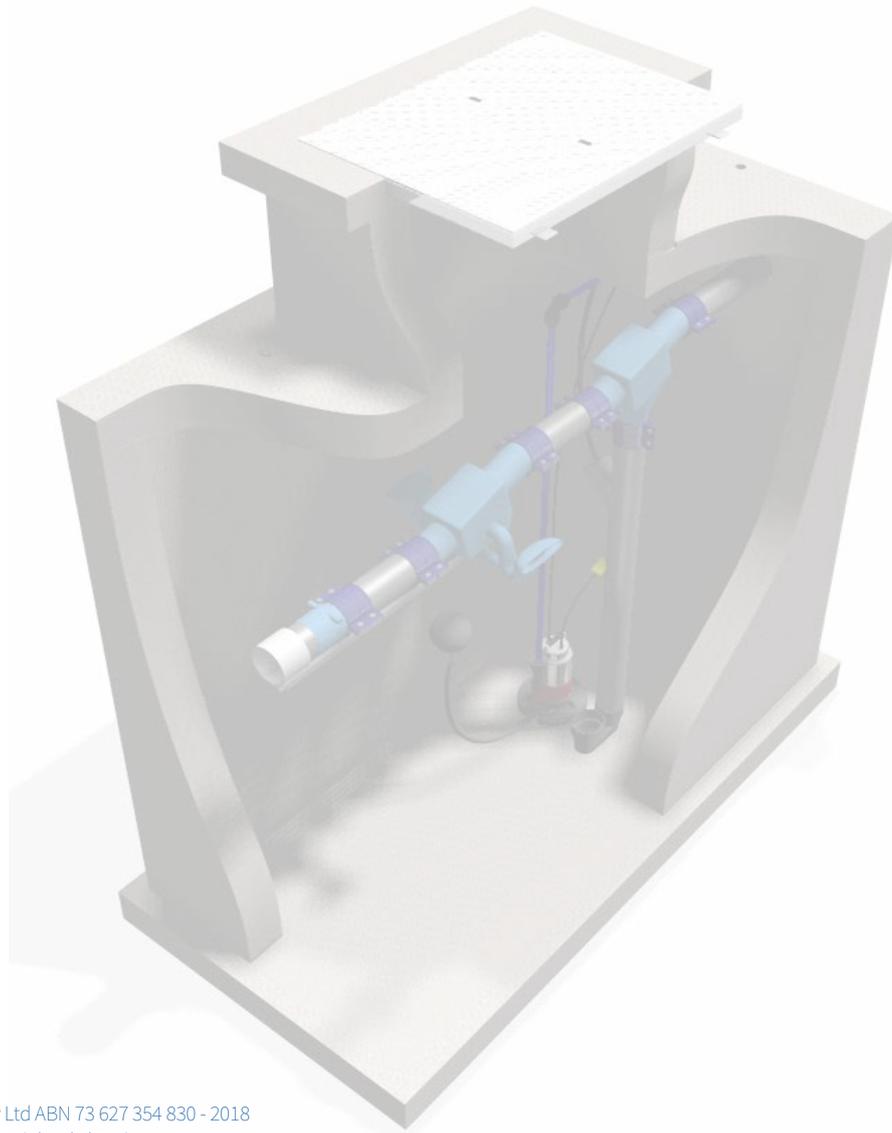
Internal components

Pump & Controller condition

Comments :

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