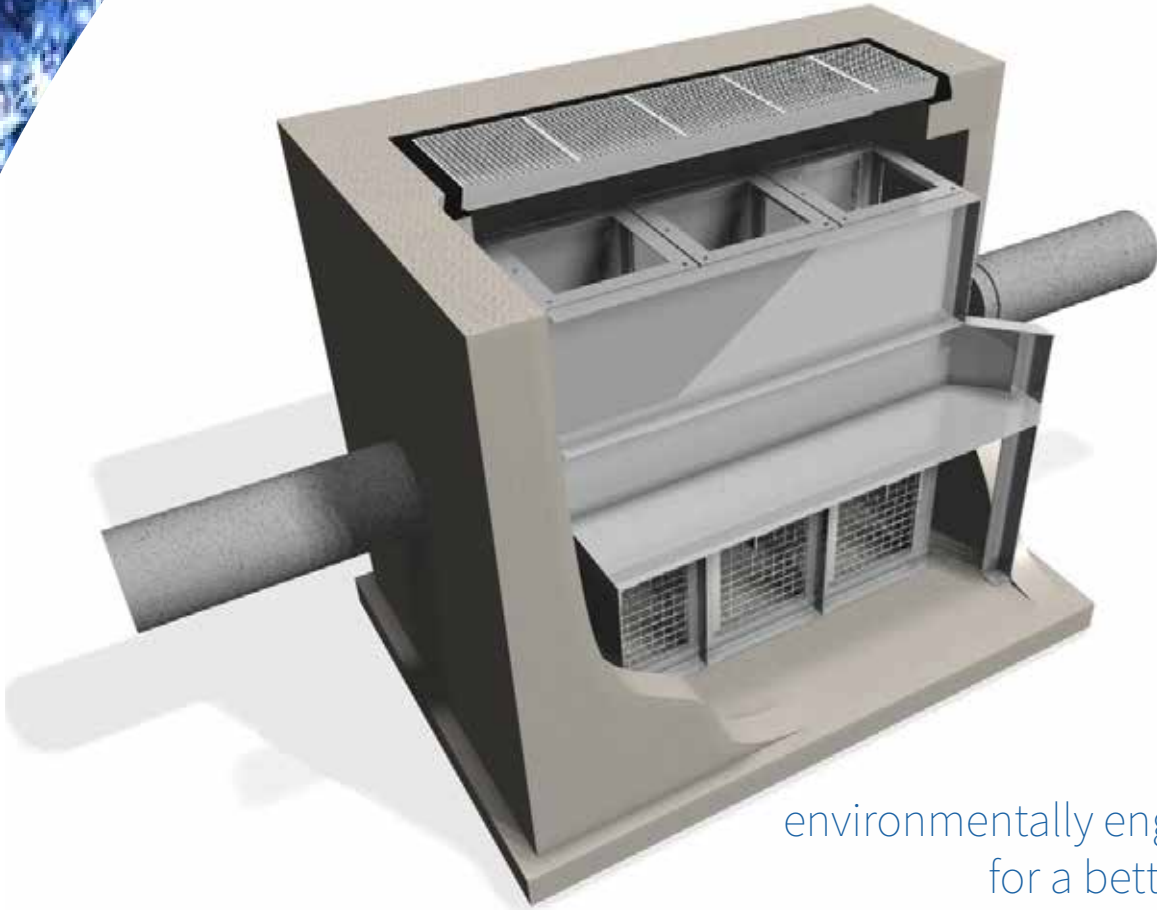


# Ecosol™ GPT Maintenance Guide



environmentally engineered  
for a better future



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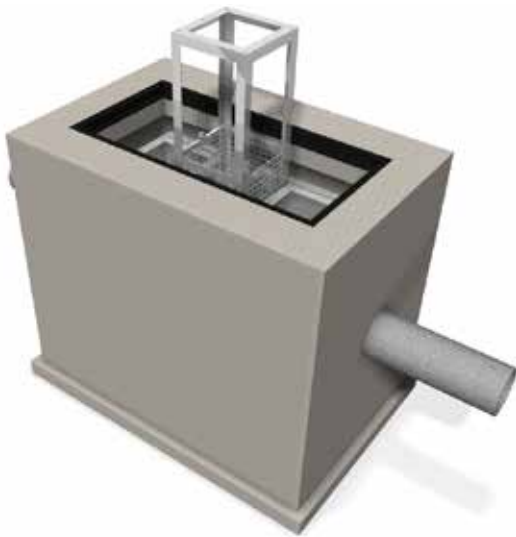
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The Ecosol™ GPT has been designed specifically for easy on site cleaning and maintenance using a licensed waste contractor equipped with either a vacuum truck or crane truck for removable basket configurations.



## 1.0 Introduction

The Ecosol™ GPT (in-line/end-of-line stormwater treatment solution) is a non-blocking tangential filtration system.

The range of Ecosol™ GPT's are designed specifically to provide essential primary treatment of gross pollutants conveyed in stormwater at high velocities. Typically this system has been designed to capture and retain more than 98% of pollutants larger than 2mm.

## 2.0 Key Dimensions

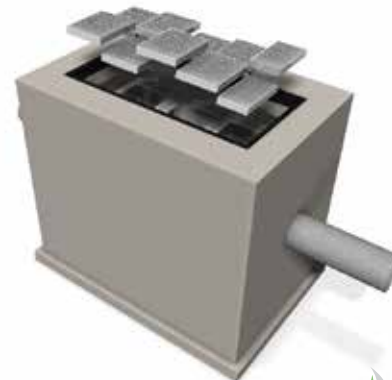
The Ecosol™ GPT is able to be custom designed to suit most applications. The below table provides a general guide on typical unit configurations for cylindrical and box culvert pipe applications and typical pollutant holding capacities.

Ecosol GPT Product Code	Maximum Inlet/Outlet Pipe Diameter	Treatable Flow Rate (L/s)	Approximate External Dimensions (L x W x D from inlet invert level) (mm)	Pollution Holding Capacities		
				Solid Pollutants >2mm	Free Oils and Grease	Water
				m <sup>3</sup>	Litres	Litres
GPT 4200	Up to 300mm	Up to 51	2200 x 900 x 750	0.23	268	667
GPT 4300	Up to 525mm	Up to 120	2700 x 1350 x 750	0.32	469	1,181
GPT 4450	Up to 600mm	Up to 260	3600 x 1650 x 1050	1.03	1,347	3,348
GPT 4600	Up to 900mm	Up to 470	4500 x 1950 x 1350	2.43	2,994	7,211
GPT 4750	Up to 1050mm	Up to 730	5600 x 2300 x 1650	4.83	5,711	13,608
GPT 4900	Up to 1350mm	Up to 1,050	6500 x 2600 x 1975	8.30	9,576	22,768
GPT 41050	Up to 1500mm	Up to 1,430	7450 x 2950 x 2300	13.11	14,850	35,262
GPT 41200	Up to 1800mm	Up to 1,870	8630 x 3300 x 2625	19.52	22,793	51,698
GPT 41350	Up to 1950mm	Up to 2,370	9700 x 3700 x 2950	<b>27.70</b>	<b>30,578</b>	72,495
GPT 41500	Up to 2100mm	Up to 2,930	10680 x 4000 x 3250	37.94	41,491	98,317
GPT 41800	Up to 2400mm	Up to 4,210	12730 x 4700 x 3900	65.33	70,452	166,836

Table 1 Ecosol GPT Configurations

## 3.0 Monitoring

Under normal weather and operating conditions, your Ecosol™ GPT should be checked a minimum of every three months depending on the quality and quantity of the inflow to the unit. Initially, Urban asset Solutions Pty Ltd recommends that monitoring is undertaken monthly. Once the unit has been in operation for an extended period of time (say, 12 months) then the monitoring schedule can be adjusted to reflect the actual operating conditions specific to the catchment. It is also recommended that the unit is inspected after every major storm event.



## 4.0 Cleaning and Maintenance Procedures

The steps to be followed for cleaning your Ecosol™GPT 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 floating pollutants:

- Open surface access lids
- Lower the vacuum hose into the central capture silo chamber and position over retained floating debris
- Commence removal of floating materials, including hydrocarbons, by moving the vacuum hose over the floating material at water level
- Once all visible floating debris and hydrocarbons (free floating oils and grease) have been removed stop the vacuum

De-watering process (for large GPT systems only):

- Commence de-watering the system by pumping all water from the clean chamber (outlet end access point) to the nearest sewer manhole (relevant sewage utility approval must be obtained prior to de-watering to sewage)
- Set up the de-watering pump adjacent to the clean chamber access point
- Connect all hoses and lower one end into the clean chamber. It is important that the hose lowered into the clean chamber sits above the base of the unit to avoid sucking and disturbing any sediment settled at the base of the unit. When lowering the hose into position ensure the operator is tethered to prevent risk of falling
- Position hoses from the pump downstream of the unit into an approved sewer for de-watering



## 4.0 Cleaning and Maintenance Procedures Continued

De-watering process (for large GPT systems only cont):

- Turn on the pump and commence de-watering the unit
- When the water level of the unit has subsided to a point where settled sediment is visible in the clean chamber or when the water being discharged becomes very dark with sediment, stop de-watering
- Remove all positioned hoses and pack away
- Position heavy duty mesh over the clean chamber opening to prevent risk of falling

Removal of settled pollutants:

The steps required to successfully remove all capture and retained pollutants from the Ecosol™ GPT are:

- Start the vacuum truck and position the vacuum hose over the capture silo access openings
- The vacuum truck hose operator is to wear a safety harness and must be tethered to reduce risk of falling prior to commencing with the removal of pollutants
- Lower the vacuum hose into GPT and position over pollutants
- Commence moving the vacuum hose over the material to commence removal of pollutants



- If entry to the unit is necessary to loosen captured pollutants and remove large debris then only confined space trained personnel with all equipment available and in place can enter the unit. This includes using the established 4 to 1 access and recovery tripod and harness system
- Ensure the worker lowered in to the GPT is always connected to the rope recovery system and is wearing steel capped gum boots, protective clothing and hard hat. When lifting material from the GPT manually, ensure the worker below stands clear during this operation
- Once all visible pollutants have been removed from the capture silo chamber, lift the vacuum hose from the GPT
- Lower the vacuum hose into the clean chamber and remove any fine sediment from the base of this chamber.
- Again, ensure the operator is tethered to prevent risk of falling.

## 4.0 Cleaning and Maintenance Procedures Continued

Final clean out process:

To avoid the potential build-up of fine sediment behind the filtration screens, it is important at the conclusion of each clean that the screens are cleaned with a high pressure water hose. Most combination vacuum trucks have this facility.

- Start the vacuum and position the vacuum hose into the bottom of the clean chamber to remove any fine sediment as it is flushed from behind the screens (again ensure the operator is wearing a safety harness and is tethered prior to commencing with the removal of pollutants)
- From the surface, hose down all of the filtration screens using a high pressure hose
- Whilst this is occurring, continue to remove sediment flushed out by vacuum hose
- On completion, remove the vacuum hose and pack up equipment



Site demobilisation:

- Complete cleaning report accordingly
- Using long handle access cover lifters, lift all access covers back into position
- Using an 8mm Allen key reinstall all access cover lock down bolts.
- Reinstall all bolt protective caps
- Note it is recommended that all access covers, frames and bolts should be greased at least once per annum.
- The vacuum truck must be packed up and leave site to dispose of all captured pollutants at an approved waste facility
- If required under local regulations, ensure the transporter of the stormwater waste is licensed. Record all details of the disposal location and volume of waste disposed.
- Load all other plant equipment and tools ensuring the site is restored to its original condition.



## 5.0 Monitoring Cleaning and Maintenance Service

Urban Asset Solutions Pty Ltd has a very competitive cleaning service for the removal of all captured pollutants. After each clean we provide a full report detailing the volume and type of pollutants removed. 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.

## 6.0 Catchment Size and Recommended Cleaning Frequency

The tables below provide a broad guideline about the catchment size and number of cleans required annually.

Ecosol GPT Product Code	Pollution Holding Capacities			Optimal Catchment Area (Ha)	Recommended Cleaning Frequency
	Solid Pollutants >2mm	Free Oils and Grease	Water		
	m <sup>3</sup>	Litres	Litres	Ha	Per Annum
GPT 4200	0.23	268	667	0.35	1
GPT 4300	0.32	469	1,181	0.50	1
GPT 4450	1.03	1,347	3,348	1.50	1
GPT 4600	2.43	2,994	7,211	3.60	1
GPT 4750	4.83	5,711	13,608	7.30	1
GPT 4900	8.30	9,567	22,768	12.50	1
GPT 41050	13.11	14,850	35,262	19.80	1
GPT 41200	19.52	22,793	51,698	29.50	1
GPT 41350	27.70	30,578	72,495	41.90	1
GPT 41500	37.94	41,491	98,317	57.40	1
GPT 41800	65.33	70,452	166,836	98.90	1

Table 2 - Optimal catchment sizes and cleaning frequencies

Cleaning frequencies are based on typical pollution loads of 0.280m<sup>3</sup> /ha/year for gross pollutants and 0.380m<sup>3</sup> /ha/year for sediment generated on typical fully developed fully developed urban catchment. For larger catchments or during extended dry weather periods, additional system cleaning may be required.

Urban Asset Solutions Pty Ltd specialises in the cleaning and maintenance of all Stormwater Treatment Devices including vegetated solutions and would be pleased to assist you with your ongoing asset maintenance.

## 7.0 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;
- Volume or weight of material removed;
- Composition of the captured material e.g sediment, vegetation, litter, etc; and
- Details of any remedial work undertaken or required at a later stage.

Reporting of the above information is included in the cost of any clean undertaken by Urban Asset Solutions Pty Ltd. Please refer to the next section for more details.



## 8.0 Life Expectancy

The Ecosol™ GPT is designed to meet strict engineering guidelines and manufacturers guarantees. The stainless steel components have a life expectancy of 15 years while the pre-cast concrete pit has a life expectancy of 50 years, providing appropriate maintenance practices are employed.

## 9.0 Warranty

All Ecosol™ GPT's are covered by a twelve-month warranty, provided the unit is maintained and cleaned with the frequency and using the method recommended in our technical specification.

## 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](mailto:info@urbanassetsolutions.com.au)

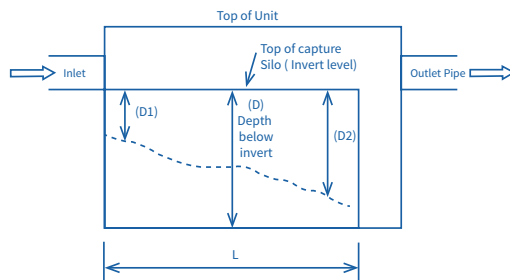
# 11.0 Ecosol™ GPT Cleaning and Maintenance Inspection Form

Asset Owner:  Asset ID:   
 Unit Location:  UAS Ref:   
 Date:  Time:  Product Code: Ecosol™ GPT  
 Inspected By:

## Visual Inspection

Item	Good	Fair	Damaged	Remarks
Access covers				
Access cover surrounds				
Surrounding surfaces				
Internal components				
Other				
Floatables visible				

## Extent of Captured Material



## Capture Silo Dimensions

Unit Size	Depth (D) (m)	Length (L) (m)	Width (W) (m)	Silo Vol (m³)
GPT 4200	0.600	1.310	0.250	0.23
GPT 4300	0.600	1.500	0.300	0.32
GPT 4450	0.900	2.250	0.450	1.03
GPT 4600	1.200	3.000	0.600	2.43
GPT 4750	1.500	3.750	0.750	4.83
GPT 4900	1.800	4.500	0.900	8.30
GPT 41050	2.100	5.250	1.050	13.11
GPT 41200	2.400	6.000	1.200	19.52
GPT 41350	2.700	6.750	1.350	27.70
GPT 41500	3.000	7.500	1.500	37.94
GPT 41800	3.600	9.000	1.800	65.33

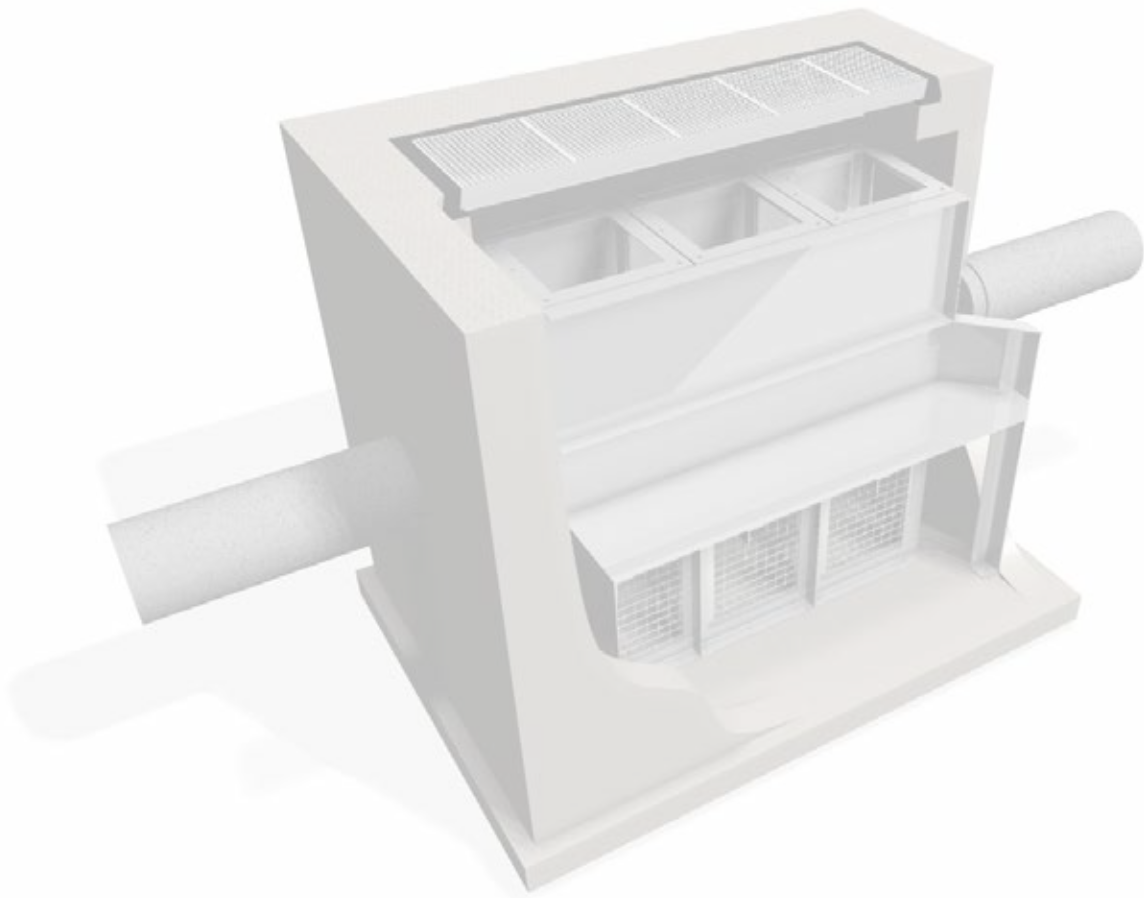
## Evolution of Captured Material

D =	m	D1 =	m	D2 =	m	Dav. = (D1 + D2) / 2 =	m	
L =	m	W =	m	Vol = (D - Dav.) x L x W =				m³

• Note: Cleaning to be scheduled when the capture silo is approximately 70% full

Comments :

Urban Asset Solutions Pty Ltd  
ABN 73 627 354 830  
Telephone: 1300 706 624  
Fax: 1300 706 634  
Website: [www.urbanassetsolutions.com.au](http://www.urbanassetsolutions.com.au)



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