

One key objective of commercial or large-scale residential developments is to minimise any adverse ecological impacts of urbanisation on the natural ecosystem. At-source stormwater treatment using Stormwater Quality Improvement Devices (SQIDs) is the most effective way to achieve significant and sustainable improvement in stormwater quality, and ultimately, in the health of our waterways.

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## New generation technology

The new generation EcoTreat Class 1 Stormwater Treatment Devices by Global Water offer a unique and economical solution for primary and secondary stormwater treatment. Polluted run-off water is treated by capturing gross pollutants, suspended solids and hydrocarbons, releasing clean water to the environment.

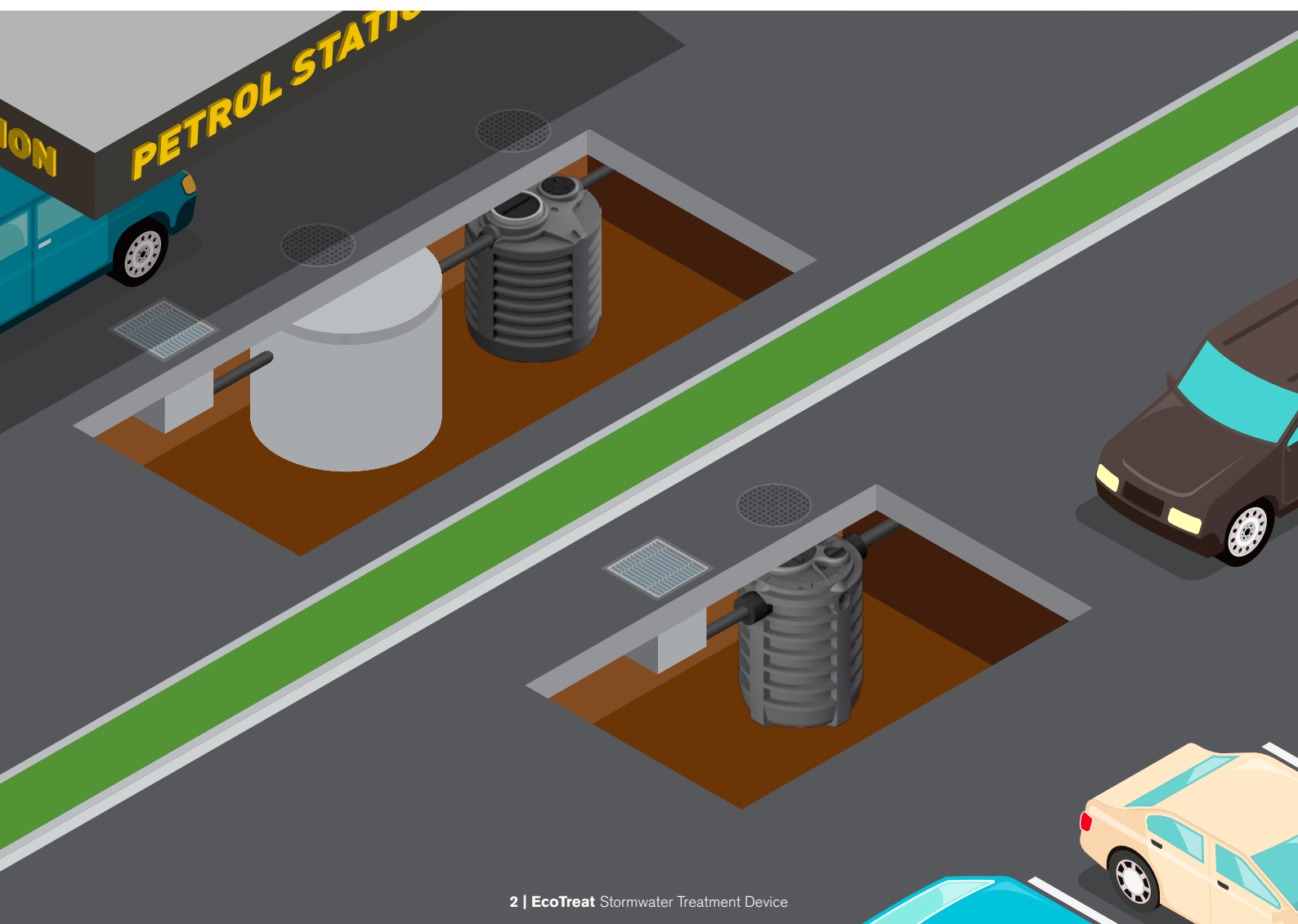
Made from tough polyethylene construction, the EcoTreat units are lightweight, easy to install and will not corrode or leak pollutants into the water table.

The EcoTreat Class 1 treatment devices are available in both Full Retention and Bypass series to cover every application. The Full Retention range is ideal for run-off from contaminated sites or where there is a risk of a hydrocarbon spill occurring, while the Bypass range is designed for commercial precincts and larger residential developments where polluted first flush run-off is treated but larger storm flows are bypassed.

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## EcoTreat Class 1 features

- tough one-piece roto-moulded construction
- multiple sizes up to 125 L/s
- lightweight and robust for ease of installation and long life
- suitable for gravity or pumped inflows
- compliant to AS/NZS 1546.1
- compliant to EN858-1 and performance tested by the University of South Australia
- fitted with coalescing unit for effective hydrocarbon removal
- discharge quality meets EPA and Stormwater Australia guidelines
- bypass and full retention versions available
- auto-closure device fitted to Full Retention models
- suitable for above or below ground installations
- hydrocarbon alarm and silt alarm options available
- cost effective compared to alternative designs
- gravity operated - will function in the event of a power failure



## EcoTreat Class 1 Full Retention FR Series

At high risk sites like petrol stations and fuel depots, spills or overflows of petrol, oil or diesel need to be contained to prevent them from entering the stormwater drainage system.

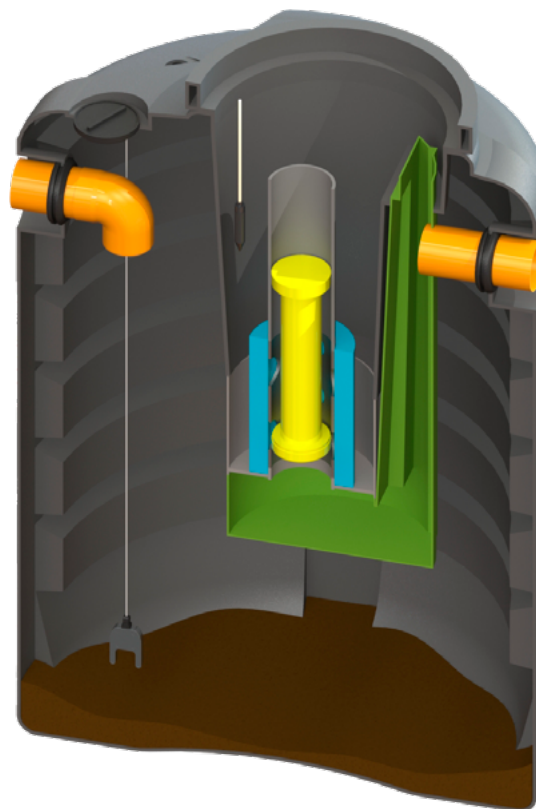
Global Water's EcoTreat Class 1 Full Retention device effectively treats every day episodic spills of diesel and oil, plus contains major spills that may occur.

The Full Retention FR Series is fitted with a coalescing treatment device that ensures that any hydrocarbon contaminated run-off is treated to comply to the stringent Class 1 requirements of the EN 858-1, with a stormwater discharge quality of less than 5 mg/L oil content.

The FR Series is suitable for secondary stormwater treatment, successful in removing sediment, suspended solids and hydrocarbons.

### APPLICATIONS

- fuel depots and refuelling stations
- petrol station forecourts
- industrial loading zones
- aircraft/helicopter facilities
- commercial trucking yards
- mining and heavy vehicle service areas
- transformer stations and wind farms



### TECHNICAL DATA

Model no.	FR-4	FR-7	FR-30
Treatment flow rate (L/s)	4	7	30
Capacity (L)	1680	1920	4800
Diameter (mm)	1300	1300	1850
Height (mm)	1850	2070	2200
Weight (kg)	54	64	158
Inlet diameter (mm)	125	160	250
Outlet diameter (mm)	125	160	250
Oil storage volume (L)	40	70	300
Sediment storage volume (L)	400	700	1750

### WATER QUALITY CERTIFICATION

A full-scale performance test of the Global Water EcoTreat Class 1 Full Retention was conducted by the University of South Australia. Five samples were collected using the outflow arrangement in accordance with the requirements of EN 858-1. The table below shows the total recoverable hydrocarbons (TRH) results, in accordance with the definitions and reporting fractions for hydrocarbon analysis of samples as

per the National Environmental Protection (Assessment of Site Contamination) Amendment Measure 2013 (No 1). The mean concentration of the outflow tested C6-C40 was 1.52 mg/L, considerably better than the minimum 5 mg/L requirement of the Class 1 water quality requirements of European Standard EN858-1 which is recognised universally as best practice by regulatory bodies.

Constituent	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Average
C6 to C10 Fraction	0.91	0.89	0.87	0.9	0.89	0.91
C10 to C16 Fraction	0.45	0.55	0.54	0.5	0.32	0.45
C16 to C34 Fraction	0.17	0.23	0.2	0.14	< 0.1	0.17
C34 to C40 Fraction	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total recoverable hydrocarbons (mg/L)	1.53	1.67	1.61	1.54	1.21	1.53

## EcoTreat Class 1 Full Retention FR Series

### HOW IT WORKS

#### 1. ECOTREAT GROSS POLLUTANT TRAP (OPTIONAL)

The EcoTreat Gross Pollutant Trap is a particularly useful upstream addition to the treatment train where there is a high solids loading. The easy to clean silt basket removes gross pollutants plus a high percentage of sand and silt, reducing the load on the downstream treatment device.

#### 2. EMERGENCY STORAGE CHAMBER

In high-risk environments where a major spill can occur, an Emergency Storage Chamber is installed prior to the EcoTreat Full Retention. This ensures the entire spill is contained during a catastrophic event.

#### 3. FLAME TRAP

The inlet pipe has a liquid seal which prevents flammable vapours from venting up into the pipework system.

#### 4. SOLIDS SETTLING CHAMBER

All inflow first passes through the settling chamber, allowing removal of gross pollutants and fine sediment.

#### 5. OIL SEPARATION/STORAGE CHAMBER

Captured oil and other hydrocarbons are held in the oil storage chamber. The capacity of this chamber meets the requirements of EN 858-1.

#### 6. COALESCING TREATMENT DEVICE

All run-off passes through a coalescing treatment device which combines small droplets of light liquids such as oil and diesel, allowing them to be trapped and removed, ensuring the oil content in the outflow is less than 5 mg/L.

#### 7. AUTO CLOSURE DEVICE (ACD)

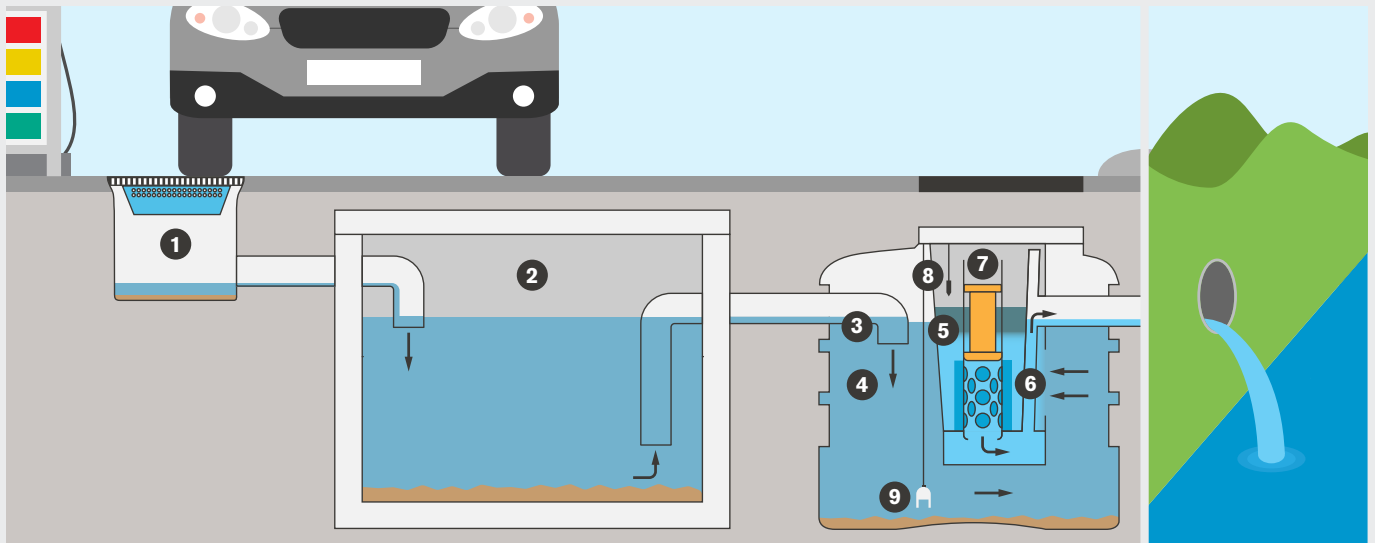
The ACD is engineered to be sensitive to changes in liquid density as a result of fuel, oil or diesel build-up in the oil storage chamber. In the event of a spill, the ACD shuts off the outlet and stops any further discharge, containing the spill on site and preventing any contamination of the stormwater system.

#### 8. OIL SENSING PROBE

In high-risk sites including petrol stations, the EPA requires an Oil Sensing Probe to monitor for a high accumulation of hydrocarbons. When the level reaches the predetermined depth, an alarm is triggered signalling that a spill has occurred or that the unit requires maintenance.

#### 9. SILT ALARM (OPTIONAL)

A Silt Alarm Probe can be mounted inside the main chamber to give a fault signal when there is an excess build-up of silt and sludge.



### TREATMENT CAPABILITIES

All liquid from the catchment area flows through the EcoTreat Full Retention device - there is no bypass, so all discharge to the environment is fully treated to the requirements of a Class 1 gravity supply device, in accordance with EN 858-1.

#### Episodic spills

The EcoTreat Class 1 Full Retention unit can treat every day episodic spills of diesel and oils from the surface water in low-flow or high-flow conditions.

#### Major spills

Where a major or chronic spill occurs, hydrocarbons are captured and held in the emergency storage chamber and EcoTreat unit, allowing ongoing run-off to be treated through the coalescing treatment device until such time as the oil storage chamber is surcharged and the auto closure device shuts off the discharge.

## EcoTreat Class 1 Bypass BP Series

Global Water's EcoTreat Class 1 Bypass Separator is an in-line device designed to treat stormwater run-off from paved areas where low levels of hydrocarbon residuals and gross pollutants are present whilst allowing high flows to pass without restriction. The Bypass Separator is suitable for primary and secondary treatment in low risk areas, removing hydrocarbons and suspended solids whilst preventing on-site flooding from storm events.

### APPLICATIONS

- carpark and shopping centres
- warehouse loading areas
- industrial yards and waste depots
- heavy vehicle maintenance and storage areas
- airport aprons and tarmacs
- road tunnels

### HOW IT WORKS

#### 1. SOLIDS SEPARATION CHAMBER

All incoming first-flush run-off passes through the settling chamber, allowing settling and removal of sediment and other suspended solids.

#### 2. OIL SEPARATION/STORAGE CHAMBER

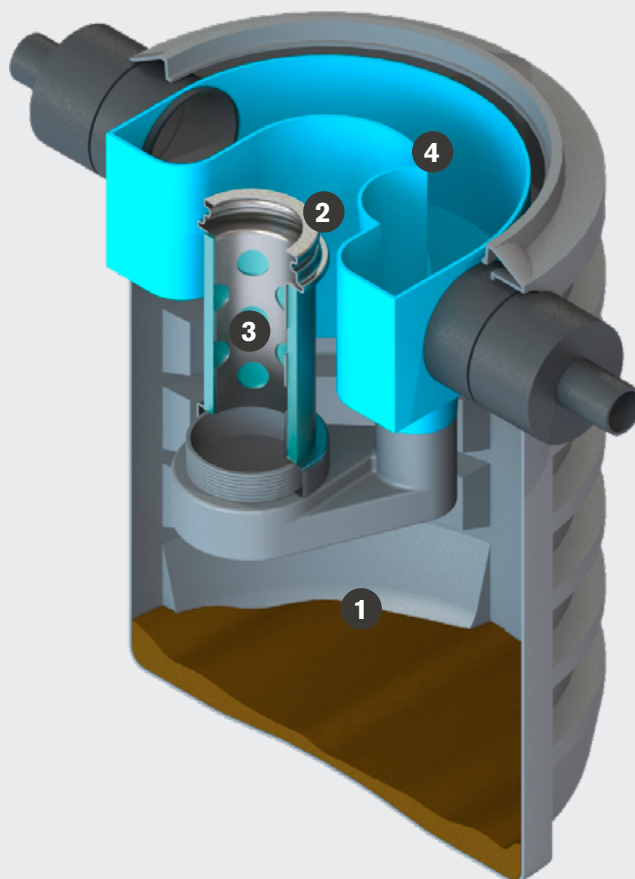
Captured oil and other hydrocarbons are held in the oil storage chamber. The capacity of this chamber meets the requirements of EN 858-1.

#### 3. COALESCING TREATMENT DEVICE

The flow then passes through the coalescing treatment device which combines small droplets of light liquids such as oil and diesel, allowing them to be trapped and removed, ensuring the oil content in the outflow is less than 5 mg/L. This meets the requirements of a Class 1 gravity supply device, in accordance with EN 858-1.

#### 4. BYPASS FUNCTION

During high-flow events, the excess flow bypasses the settling chamber and the coalescing device, ensuring that trapped pollutants are not diluted or washed through. This bypass feature ensures that the site is protected from flooding in storm events.



### TECHNICAL DATA - BYPASS MODELS

Model no.	BP-35	BP-60	BP-125
*Treatment flow rate (L/s)	7	12	25
*Bypass flow rate (L/s)	35	60	125
Capacity (L)	1730	2200	3720
Diameter (mm)	1300	1850	1850
Height (mm)	1940	1585	2210
Weight (kg)	98	163	211
Inlet diameter (mm)	160/200/250/315	200/400	315/400
Outlet diameter (mm)	160/200/250/315	200/250/315/400	315/400
Oil storage volume (L)	70	120	250
Sediment storage volume (L)	700	1200	2000

**Note:** The treatment flow rate depicts the maximum flow the EcoTreat Class 1 Bypass Separator can treat through the coalescing unit, while the bypass flow rate is the maximum rate at which partially treated flow moves through the unit in a storm event.

## EcoTreat Class 1 Bypass BP Series

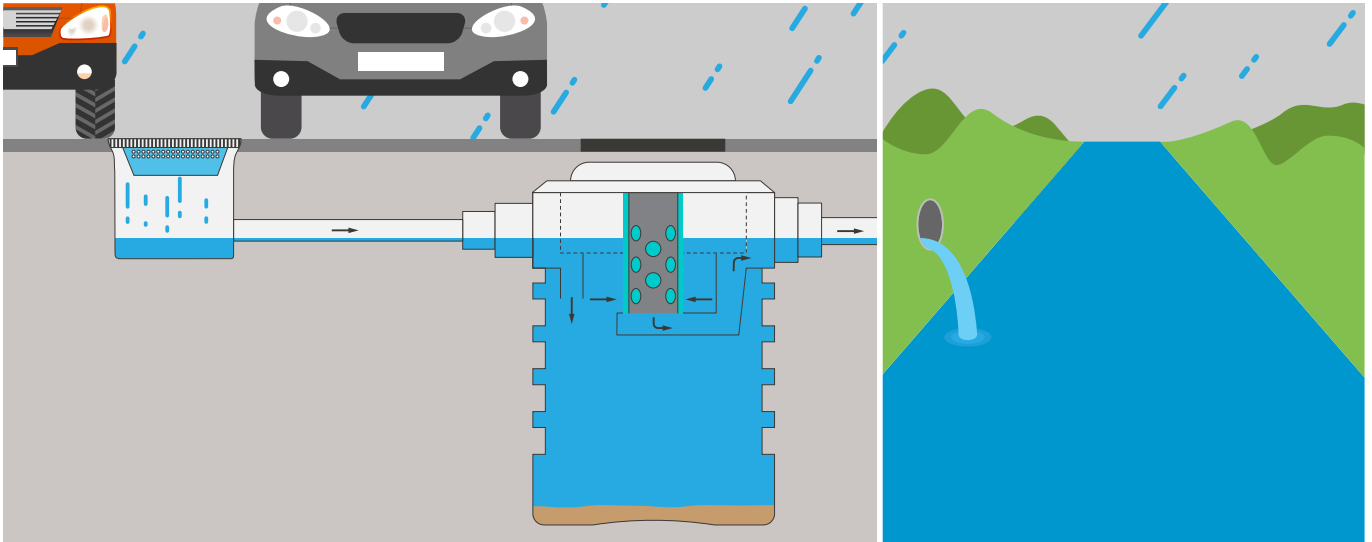
### TREATMENT PROCESS

The EcoTreat Class 1 Bypass Separator is designed to treat first flush run-off during typical rainfall events, ensuring that most of the contaminants are captured and the catchment area flushed clean for subsequent runoff.

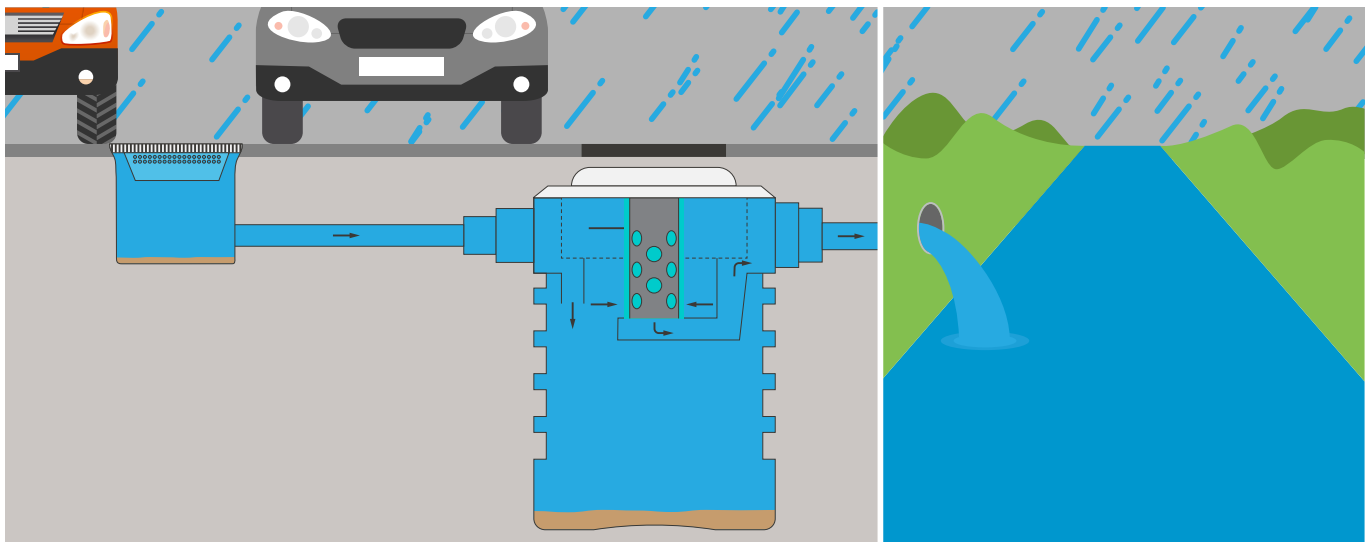
During subsequent storm events, an internal overflow weir and bypass allows excess flows to exit through the device without disturbing trapped solids or hydrocarbons, thus protecting the environment. The bypass function allows larger flows to be handled without backup or flooding on site.

It is important to capture all first flush run-off before it is diluted by heavy rain flows, so it is recommended that the catchment area be divided up into separately graded areas with a catchment sump in each area. The EcoTreat Gross Pollutant Trap acts as a catchment sump and is particularly beneficial where there is a high solids loading as it will reduce the load on the downstream treatment device.

#### Treatment flow



#### Bypass flow



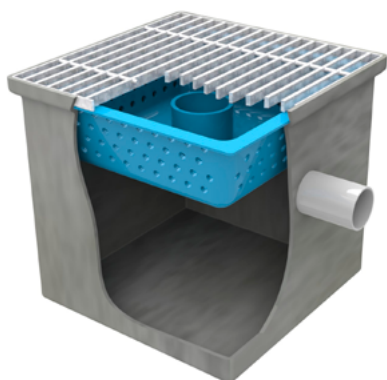
### WATER QUALITY CERTIFICATION

Full-scale performance testing of the EcoTreat Class 1 Bypass Separator was conducted by the University of South Australia in accordance with Stormwater Australia guidelines for suspended solids and nutrient removal. The unit achieved Class 1 gravity supply device requirements, in accordance with EN 858-1.

For full details on certified MUSIC modelling, please contact Global Water.



## EcoTreat Gross Pollutant Catchment Sump



### AN ADDITION TO YOUR TREATMENT TRAIN

For sites with high solids loading, the Global Water EcoTreat Gross Pollutant Trap (GPT) is the ideal catchment sump, effectively capturing floating debris, litter and silt in heavily contaminated stormwater run-off.

This upstream, primary treatment device is suitable for installation prior to the EcoTreat Full Retention or Bypass units, complementing the treatment train and minimising the maintenance requirements of downstream treatment devices. Multiple units can be installed to ensure effective site coverage.

Based on Global Water's proven glass reinforced concrete (GRC) 600 mm x 600 mm sumps, the GPTs offer optimum versatility, with the outlet able to be installed to suit site requirements.

Units are available in two configurations, with a bypass version available for those situations where a clogged silt trap could result in flooding of buildings or adjoining properties.

The EcoTreat GPT is fitted with a non-corrosive impact resistant polyethylene basket with significant silt handling capacity, yet lightweight enough to enable emptying by hand. Lifting handles are stainless steel.

A galvanised grate suitable for pedestrian or light vehicle traffic is supplied as standard. A heavy duty grate is available as an option.

### SPECIFICATIONS

Pit construction	6 mm GRC
Pit size	
– Model 66	600 <sup>2</sup> x 600 mm deep
– Model 69	600 <sup>2</sup> x 900 mm deep
Recommended outlet size	80-150 mm
Treatment flow rate	10 L/s
Bypass flow rate	20 L/s
Galvanised grate	Light or heavy
Silt capacity	
– basket	30 L
– main chamber	70 L

## Find out more

To find out more about the EcoTreat Stormwater Treatment Devices, or to see how they can be incorporated into your next development, contact the Global Water team.

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