



# STORMBRAKE

INNOVATIVE UNDERGROUND STORAGE  
AND INFILTRATION MODULES

PROTECTOR



SAVING NATURE.

At Protector we are focused on improving the quality of our waterways by supplying products that are designed to capture and contain pollution in stormwater runoff for many applications. Contaminants such as hydrocarbons, suspended solids, plastic rubbish and dissolved nutrients are removed by utilising absorption, retention, filtration and capture processes. These stormwater systems will deliver cleaner water back into the environment, saving nature for future generations.

Protector is an Australian family owned and operated stormwater treatment and fibreglassing company. Protector's 18 years of fabrication experience is a result of continuous improvement in product design and manufacturing innovation.

Our products are renowned for their quality and are engineered to Australian standards BS4994-1987 and ASME RPT1. Protector has improved the ease of device installation by eliminating the need for confined space entry and the requirement to access the base of site excavations.

Quality control procedures ensure each product is manufactured to specification and post production, each unit is inspected and factory tested to industry standards.

Protector products are constructed using the advanced chop hoop filament winding process which ensures circumferential as well as longitudinal strength. Every Protector product has a smooth molded resin rich inner corrosion barrier layer and an external resin barrier. Being manufactured in FRP (Fibre Reinforced Plastic) Protector products are light, easy to handle and easy to install.

FRP composites are a sustainable material that is reflected through its physical characteristics resulting in longer service life that exceeds traditional materials. The weight saving advantages lower construction and transport costs, reducing environmental impact. FRP products are high strength and are far more resistant to the effects of ageing, weathering, and degradation in severe environments. Maintenance is improved by the smooth internal molded finish providing excellent protection against scum accumulation. Fibre Reinforced Plastic is not susceptible to rust and offers excellent corrosion resistance.

# STORMBRAKE

INNOVATIVE UNDERGROUND STORAGE AND INFILTRATION MODULES

- EFFICIENT STORMWATER STORAGE AND INFILTRATION
- EASY ACCESS FOR SCHEDULED MAINTENANCE
- DURABLE CONSTRUCTION WITH 50+ YEARS LIFESPAN
- INTERGRATION OPTIONS WITH OTHER PROTECTOR PRODUCTS

As we confront climate change, it's clear that a collective shift in mindset is underway, with emerging initiatives like 'Resilient Cities', green roofing, and water-permeable surfaces leading the charge. These efforts, along with passive tree irrigation, combined stormwater management systems, and innovative purification technologies, are vital in conserving water and reducing urban flooding. However, the journey is far from complete.

Protector stands ready to tackle the challenges of flooding and drought, offering cutting-edge solutions like the Stormbrake water systems. These systems, in compliance with European standards, represent the forefront of underground water management, designed for a broad spectrum of applications. They promise efficient stormwater storage and infiltration, with durability testing ensuring a lifespan of 50 years or more, setting a new benchmark for long-term infrastructure resilience.





# STORMBRAKE

## APPLICATIONS

Infiltration systems reintroduce stormwater into the environment, which is crucial in urbanized areas where impermeable surfaces are prevalent. These systems mitigate the impact on sewage treatment facilities by naturally filtering clean stormwater back into the ground. The enhanced design of these systems allows for a more substantial water storage capacity, reducing the need for extensive excavation work compared to traditional methods like gravel swales. This process supports the replenishment of groundwater and plays a vital role in urban water management by efficiently utilizing underground space, thereby conserving valuable land for other development.

A wide range of infrastructure and systems designed for effective stormwater management, water conservation, and sustainable urban development. These components are crucial for minimizing flood risks, improving water quality, and enhancing the resilience of urban areas against climate change. Let's delve into a few key aspects of these elements to understand their importance and functionality.

## PARKING AREAS AND DRIVEWAYS

**Stormwater Management:** Incorporating permeable paving, which allows water to infiltrate through the surface into the ground or a specially designed sub-layer, reducing runoff and promoting groundwater recharge.

## PLAYGROUNDS AND SPORTS FIELDS

**Drainage:** Utilizing underdrain systems and engineered soils to ensure these areas remain usable after rain, preventing waterlogging and soil erosion.

## PARKS AND GARDENS RAINWATER

**Harvesting and Irrigation:** Capturing rainwater to use for irrigation, reducing the demand for potable water for landscaping purposes.

## UNDERGROUND STORMWATER MANAGEMENT

**Infiltration/Soak away Tank:** These tanks allow stormwater to slowly soak into the ground, reducing runoff and recharging groundwater supplies.

**Detention/Attenuation Tank:** Temporarily holds stormwater runoff, releasing it at a controlled rate to prevent flooding and erosion.

**Rainwater Recycling/Harvesting Tank:** Captures rainwater from roofs and other surfaces for reuse, significantly reducing potable water consumption.

## GRASS SWALES AND BIORETENTION BASINS

**Natural Filtration:** These features use vegetation and soil to filter pollutants from runoff water, improving water quality before it enters water bodies or groundwater.

## SPORT FIELD AND ROAD DRAINAGE

**Channel and Trench Drainage:** Designed to efficiently remove surface water, preventing flooding and ensuring the usability of roads and sports facilities.

## CAR PARK STORMWATER TANKING AND SEPTIC & LEACH DRAINS

**Water Treatment and Reuse:** Systems designed to manage and treat stormwater and wastewater for safe discharge or reuse, reducing environmental impact.

## MODULES FOR INFILTRATION AND DETENTION

**Aquasave Module:** A specific product designed to manage stormwater, typically by capturing, treating, and releasing it at a controlled rate or by facilitating infiltration.

**Stormwater Detention and Infiltration Module:** Combines detention (temporary storage) and infiltration (groundwater recharge) to manage stormwater efficiently.

## RAINWATER CATCHMENT SYSTEMS AND WATER INFRASTRUCTURE

**Potable and Recycled Water Infrastructure:** Systems that ensure the safe supply of drinking water and the treatment and reuse of wastewater.

**Detention and Retention Basin Construction:** Basins designed to manage stormwater runoff, reducing flooding risk and promoting water quality.

## CONSTRUCTION OF CAR PARKS AND LARGE PAVED AREAS

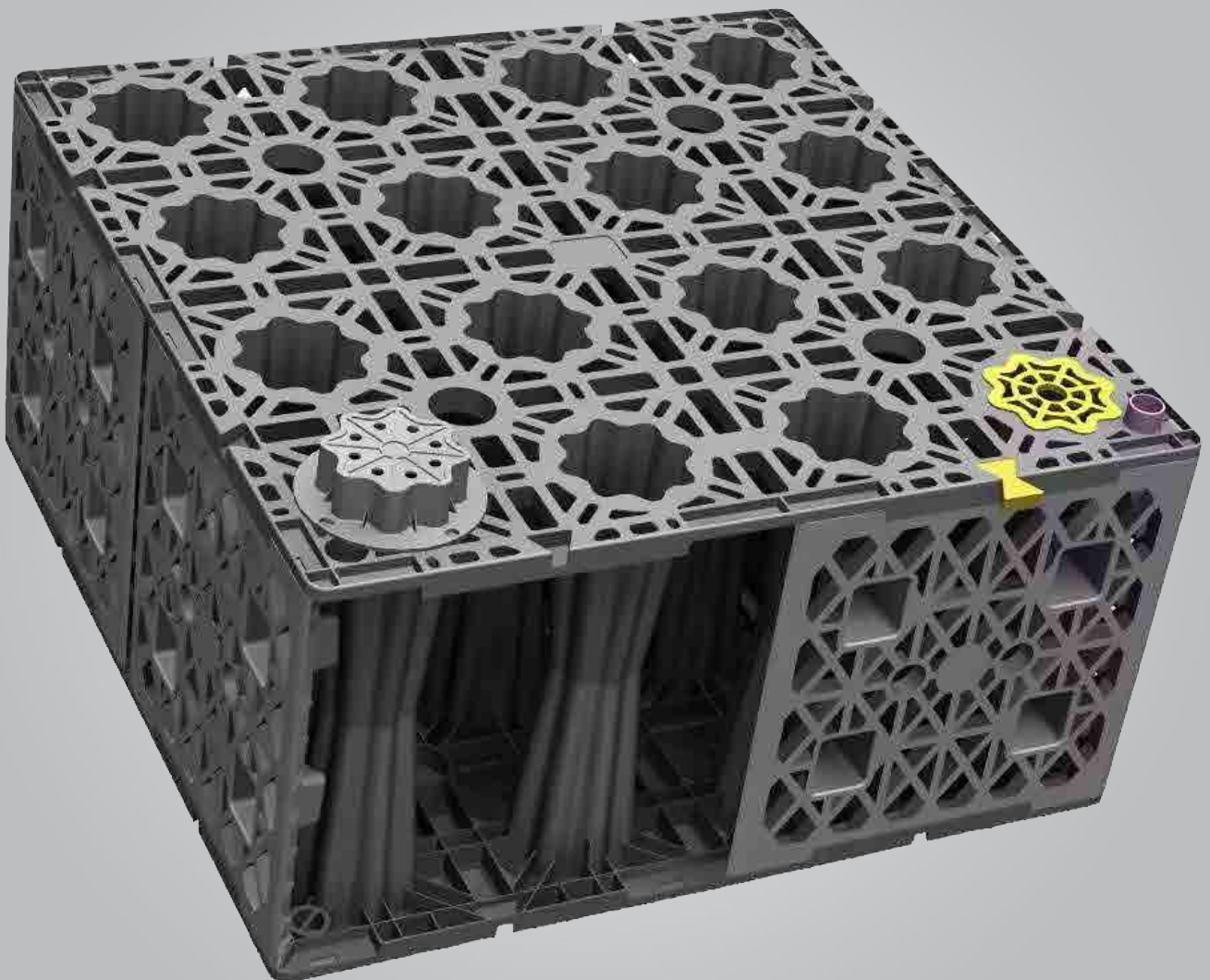
**Water Reticulation, Sewerage/Wastewater, and Underground Drainage System:** Infrastructure that ensures the effective collection, treatment, and distribution of water and wastewater, essential for urban sanitation and sustainability.

Each of these components plays a vital role in creating sustainable, resilient, and livable cities. By integrating these systems, urban areas can better manage water resources, reduce the impact of stormwater runoff, and enhance the environment for residents.

# STORMBRAKE

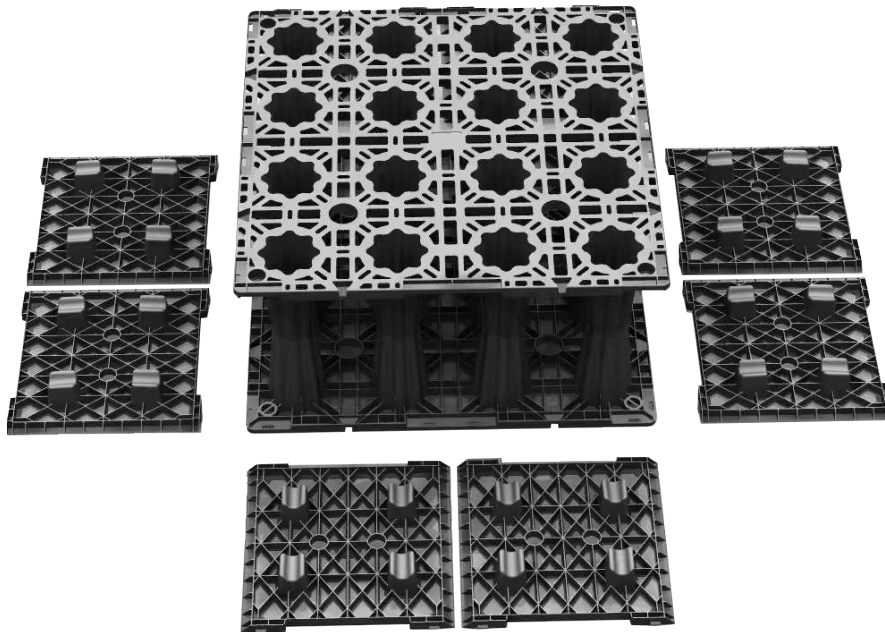
## PRODUCT BENEFITS

The Stormbrake systems offer significant benefits through their innovative supporting panels. Designed for situations that require enhanced structural support—such as installations above groundwater or in multi-layered configurations where the horizontal load is substantial—this feature substantially broadens the systems' application scope. The Side panel, which showcases a honeycomb pattern that perfectly aligns with the column structure of the module halves, is positioned on the side of two halves. This strategic placement bolsters the vertical strength by approximately 60%, markedly extending the range within which these systems can be effectively installed.



# STORMBRAKE

## TECHNICAL SPECIFICATIONS



The Stormbrake systems boast impressive load-bearing capabilities suitable for different types of surface loads. The modular dimensions and design options make these systems flexible for any project requirements.

### INSTALLATION GUIDELINES

The installation of Stormbrake modules is designed for ease and efficiency on construction sites, demanding minimal space for storage.

These modules arrive in compact stacks, with seventeen units per pallet, facilitating their storage in confined spaces, including outside the excavation area.

This feature simplifies the setup process as it eliminates the need for additional storage space within the excavation site itself, ensuring that the installation process is unobstructed and straightforward.

Stormbrake modules boast a system that allows for rapid pre-assembly, both within and outside the excavation pit, through a simple, one-step process. The modules feature high-tensile-strength snap connections, enabling quick assembly of two halves into a complete unit without the need for tools. This simplicity ensures that a single individual can easily assemble the system, further streamlining the installation process.

The design of the Stormbrake system eliminates the necessity for complex installation patterns

Pre-assembled modules or half-blocks can be effortlessly connected to form a cohesive unit. Their lightweight nature allows for easy manipulation by a single person, and secure connections between modules are established through connectors. Importantly, the design considerations include safety measures, such as appropriately sized column holes, to prevent accidents, removing the need for additional coverings over these openings.

This installation approach not only enhances the ease and speed of setting up the system but also optimizes the use of space on construction sites, making the StormBreaker systems suitable for a wide range of installation environments.

### LOADING CAPACITY

The Stormbrake system is engineered to accommodate substantial loads, conforming to the SLW 45/HGV 55 standards. This makes it suitable for scenarios with up to 4 meters of cover and 6 meters of soil depth, ideal for diverse infiltration system requirements.

Protector can conduct a tailored stability analysis for specific project needs, considering standard installation conditions like a soil specific weight of 450.7 kN/m<sup>2</sup>, a maximum soil temperature of 20°C, and a soil depth of 6 meters, ensuring a reliable and secure application in various environmental conditions.

# PROTECTOR

## THE PROTECTOR ADVANTAGE

Protector is a family-owned and operated Australian company with 18 years of experience manufacturing FRP stormwater treatment systems. Protector is dedicated to efficiency, innovation and ease of use. When necessary, Protector improve their product design and manufacturing process to ensure their products are user-friendly and easy to install. Protector is committed to improving waterway quality by capturing and containing pollution in stormwater runoff, delivering cleaner water back into the environment, saving nature for future generations.

Efficient stormwater management is key to addressing the unique challenges that arise with each project. These challenges are influenced by factors such as stormwater volume and quality, urban development, and landscaping needs. Recognizing these variables early in the project planning phase is crucial for the effective implementation of storage and infiltration systems.

Compliance with relevant standards and regulations is vital for the proper planning and sizing of these systems. This ensures that the solutions meet environmental and safety standards and contribute to sustainable development objectives.

Our consultancy services are designed to benefit a wide array of stakeholders, including construction firms and design engineers, but they are especially valuable for builders and project developers. These stakeholders aim to protect their investments by employing economical and durable stormwater management solutions. Our services offer expert advice on incorporating effective stormwater systems that safeguard the environment and enhance the value and sustainability of development projects.





# PROTECTOR

## PRODUCT RANGE

### TRAP-IT FILTER INSERT

The Protector Trap-It Filter Insert is designed to capture gross pollution that runs into stormwater pits such as plastic, sediments and organic matter. It can be retrofitted within existing infrastructure. It is typically installed as a primary treatment device before nutrient removal filters.

Protector Trap-It Filter Inserts are an efficient, yet low cost alternative to a end of line Gross Pollutant Trap for small to medium catchments.

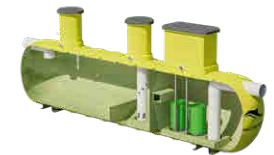
Oil booms can be fitted to the Trap-It for additional oil and hydrocarbon spill containment.



### HYDROPROTECTOR

HydroProtector systems are autonomous and gravity operated, therefore will function without electricity. They are engineered to meet the European Standard EN858:1: 2002 and have been independently tested for discharge water quality of less than 5mg/l and also achieve percentage removal rates of nitrogen and phosphorus.

All HydroProtector models are independently certified for hydrocarbon spill capture volumes. Hydraulic testing has been carried out to ensure capacity and flowrate accuracy. The HydroProtector is a full retention separator that does not allow any liquids to be bypassed, therefore all flows into the unit are treated.



### ENVIROSAVE

The Envirosave is a compact stormwater management solution that combines a Gross Pollutant Trap (GPT) and Nutrient Filter in one unit. It is designed to remove large debris, pollutants, and excess nutrients from stormwater runoff in residential, commercial, and industrial settings. The Envirosave's compact size makes it easy to install in limited spaces, and its low maintenance requirements and internal bypass system reduce installation and upkeep costs. The Envirosave's innovative design, including its high-quality materials and internal hydrocarbon baffle, ensures it can withstand harsh environmental conditions and heavy traffic loads. The GPT and Nutrient Filter work together to provide high-performance capabilities for efficient stormwater management.



### XTREAMPROTECTOR

The XtreamProtector is designed to filter stormwater run off and remove a large proportion of the contaminants in the process. This filtration device to be implemented into stormwater systems to remove fine sediments, heavy metals and phosphorus from stormwater runoff. The system consists of a base with several legs stands, each designed with water inlets holes to ensure high even flow of water into the water filter, a removable top shell with retention chamber, a one way air valve to create a vacuum for continuous flow and the filter cylinder itself. The water is able to evenly flow up the outer channels and flow evenly through the filter media, consisting of three different media that is designed to target and remove specific contaminants.



### HYDROVAULT

Hydrovault is Protector's high-capacity sewerage and stormwater storage systems called Retention systems, which are made of fiber glass polymer using a unique chop hoop filament winding technique. These systems are compatible with most stormwater treatment systems and can store almost all types of effluent due to their corrosion-resistant coating. The Hydrovault systems are constructed from fiber-reinforced polymers and built using the chop hoop filament winding construction technique, providing a long-lasting solution. These systems are designed for use in storage, detention, and retention at the end of treatment trains. The Hydrovault can be customized with baffles, pumping stations, and pressurization to meet specific needs.





**PARKING AREAS AND DRIVEWAYS**

**PLAYGROUNDS AND SPORTS FIELDS**

**PARKS AND GARDEN RAINWATER**

**UNDERGROUND STORMWATER MANAGEMENT**

**GRASS SWALE AND BIORETENTION BASINS**

**SEPTIC AND LEACH DRAINS**

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**PROTECTOR**

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