

FILTERRA® BIOSCAPE

A solution for large, high performance biofiltration





WHAT IS BIOSCAPE?

Green infrastructure has been used for decades to provide excellent treatment and ecological outcomes. A manufactured system providing market-leading enhanced treatment outcomes, the Filterra® Bioscape requires up as little as 10% the footprint of conventional treatment devices.

Filterra® Bioscape is a collaboration between Stormwater360 and design consultants, placing the proven Filterra® technology into custom designed, large format, built in situ encasement. Custom-designed flow distribution makes sure every part of the Bioscape is providing treatment, and full integration into any landscape design is possible. Whereas ponds and wetlands need rebuilding periodically, the Bioscape media should not need replacing and has an expected life span of at least 25-years.

Application

Ideally suited to larger land development projects where a centralised treatment solution is preferred, Filterra® Bioscape can provide treatment for a range of applications:

- » **Greenfield and brownfield developments**
- » **Residential subdivisions**
- » **Mixed-use and commercial subdivisions**
- » **Local roads and highways**
- » **Catchments over 1ha**

Biological treatment system that will remove the majority of contaminants, reduce stormwater flows and blend in to the urban environment.





BIOSCAPE BENEFITS

Footprint

High hydraulic conductivity means the Filterra® Bioscape requires as little as 10% of the footprint of conventional treatment devices, allowing more space for development or recreation.

Biodiversity

Manufactured in New Zealand from locally sourced materials, the Filterra® Bioscape complements Low Impact Design (LID) principles. New Zealand native plant species promote biodiversity, community and cultural outcomes.

Maintenance

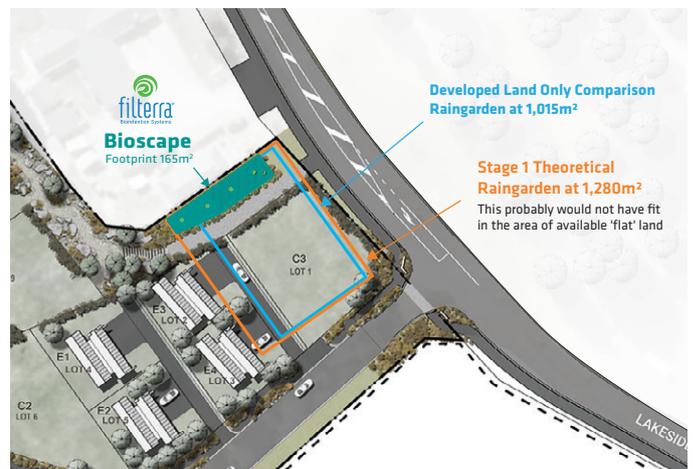
Only the mulch layer needs to be replaced every 6-12 months, sourced from an approved third party supplier. Under normal conditions, the media and plants should not need replacing. Planting, commissioning and 12 months of maintenance are included in the supply of the Bioscape.

Cost

Filterra® Bioscape offers substantial cost benefits when compared to traditional devices. The smaller footprint results in more developable area with less earthworks, and maintenance does not require a specialised contractor. A Life Cycle Cost report is available on request.

Performance

Filterra® Bioscape media undergoes at least 25 quality assurance assessments to ensure pollutant removal, hydraulic conductivity and performance over time. Each batch takes over a month to produce, and is guaranteed to not leach or transform contaminants such as phosphorous or copper. Plant trials have established successful plants for long term health of the system, and rigorous third-party tests in New Zealand, Canada, USA and Australia are available to demonstrate its TSS, metals and nutrient removal capabilities.



Treating a 5.5ha subdivision, the proposed large format rain garden was 1,280m². The Bioscape required to treat water quality flows is 165m².



BIOSCAPE DESIGN

The Filterra® Bioscape is a packaged design solution for large biofiltration systems. The design is a collaboration between consultants, contractors, asset owners and Stormwater360. Bioscape can be uniquely tailored to individual project requirements, site conditions and landscaping design contact us today for more information.

Design Support

Stormwater360 work with the consultants and other project members to develop a preliminary design and functional green infrastructure design.

Regulatory Engagement

Stormwater360 reviews the final design and drawings to ensure success of the project and provides support to regulatory approval process review consent conditions and monitoring conditions

Detailed Design

Detailed drawings are provided showing the custom designed cross section with project levels, the volume of high-quality engineered Filterra® media, custom adjustable flow controls, and a specific design for the underdrain manifold to ensure effective collection of filtered stormwater at high hydraulic conductivity.

Construction Support

Stormwater360 liaises with the construction team for pre and post construction requirements.

Planting, Operation and Maintenance

High flow bioretention plants are sourced and supplied with a 12-month warranty ensuring healthy and robust vegetation. Stormwater360 operate and maintain the Filterra® Bioscape for the first 12 months.



Bioscape can be designed to blend into the surrounding landscape, with features supporting biodiversity, community and cultural needs.



On steep sites, innovative solutions can be found to accommodate treatment where traditional green infrastructure devices are not feasible.



TREATMENT OUTCOMES

Stormwater treatment device efficiency is highly variable from site to site, and storm to storm. Particle size distribution, speciation and contaminant mix all influence pollutant removal efficiency and subsequent percentage removal.

Stormwater360's approach is to provide transparent independent test reports from New Zealand, Canada, USA and Australia, with third party verification, certification and approvals over a range of land uses and applications. Full test reports are available from Stormwater360.

Some field study highlights are as follows:

Washington Department of Ecology: Bellingham Study
90% TSS and 70% TP removal

Canterbury University Filtterra® Roof Study
99% Total and Dissolved Zinc Removal

Washington Department of Ecology - ARMCO study
Total Copper 88.3%, Dissolved Copper 48.7%,

University of Western Sydney Study
89% Total phosphorus and 47% Total Nitrogen Removal

CULTURAL DESIGN

Filtterra® Bioscape is a land-based approach to stormwater management, using all natural processes and promoting a connection with the treatment and water body.

Bioscape is a living asset. As a living system, care throughout its lifetime is critical to protect the health of the device and maintain the treatment performance over time.

Stormwater360 can help project teams address any cultural considerations or questions at the outset of developing our custom solution, incorporating the needs of all stakeholders in the design and implementation of each Filtterra® Bioscape.



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Stormwater360
BETWEEN SKY AND SEA



STATION BAY, LAKE TEKAPO

ENHANCED TREATMENT PERFORMANCE

165m²
Filtrerra® Bioscape
footprint

1,280m²
conventional
system footprint

Station Bay is a boutique subdivision on the shore of Lake Tekapo. Enhanced treatment for Total Suspended Solids, nutrients and metals were set by Environment Canterbury, so Stormwater360 were approached for an innovative solution. Green infrastructure was essential, so the Filterra® Bioscape was chosen. There were benefits over a conventional rain garden, while the native plant species stimulated habitat creation and biodiversity.

The full design assistance from Stormwater360 meant a 5.5ha catchment only required a 165m² device footprint (green box), compared to a 1,280m² rain garden (orange box). Minimising the footprint allowed for an additional 3 lots to be developed, and decreases the time and costs for maintenance.



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full case study

Stormwater360
BETWEEN SKY AND SEA