



Western Bay of Plenty District Council approached Stormwater360 to assess an existing temporary stormwater treatment device at the Ōmokoroa Industrial Zone and determine whether it could be retrofitted with a permanent, higher-performing solution. The brief, called for a stormwater treatment device with a reduced footprint that could be installed within the current site boundary with minimal additional earthworks.

The site came with an added constraint: a future road boundary change is planned to future-proof the main road corridor, which will considerably reduce the available treatment footprint once implemented. A conventional stormwater treatment device sized for the site's catchment would not fit within the post-boundary-change footprint, ruling out standard options and making a compact, space-efficient solution essential from the outset.

The site also adjoins a kiwifruit orchard boundary with a steeply sloped, grassed bank running down to the edge of the existing device, adding both a geotechnical and a health and safety dimension to the redesign.

TREATMENT SOLUTIONS UTILIZED:

188m² Filterra® Bioscape® system

Cascade Separator™ as pre-treatment

THE SOLUTION:

The previously recommended permanent solution was a constructed wetland. However, this would have occupied a significant area of high-value industrial and commercial land and required construction on moderately sloping ground above a neighbouring property, introducing additional geotechnical and downstream risk. Its proposed location upstream of a natural drainage line also meant that runoff from a substantial portion of the catchment could not reach the wetland by gravity, and would either bypass the system or require pumping.

This created an opportunity to identify a more compact solution within an existing, unproductive area nestled between three landowners — releasing valuable land for productive use while offering WBoPDC significant capital and operational cost savings compared with constructing and maintaining a large wetland. Stormwater360 identified Filterra® Bioscape® system as the right fit for the site's constraints, with the Cascade Separator™ providing pre-treatment as part of the Filterra® Bioscape® system.

Filterra® Bioscape® is a collaboration between Stormwater360, design consultants, council and the contractor, placing the proven Filterra® biofiltration technology into a custom-designed, large-format encasement built in situ — allowing the system to be engineered specifically within the limited footprint available at Ōmokoroa.

Lysaght Consultants led the design of the pre-treatment stage and Filtterra® Bioscape® system to work within the site's tight physical limits. This included redesigning the adjoining sloped bank to be safely maintainable, with health and safety considerations built into both access and long-term upkeep of the system.

Because the nature of the infill material used on-site in previous years was unknown, geotechnical services were engaged to inform the design and ensure the new system could be safely constructed and supported on the existing ground conditions. An existing haul track on site was retained and upgraded to serve as the new permanent maintenance access route to the Filtterra® Bioscape®, avoiding the need for a separate access solution.

DESIGN FEATURES & DETAILS:

- Compact Filtterra® Bioscape® design engineered to fit within a tight, constrained site footprint
- Cascade Separator™ pre-treatment: a hydrodynamic separator that excels at sediment capture and retention while effectively removing hydrocarbons, litter, and debris from stormwater runoff
- Designed to remain within the site's boundary ahead of a future road corridor boundary change
- Redesigned adjoining bank for safe, ongoing maintainability
- Geotechnical assessment of uncertain historical infill material to inform design and construction
- Existing haul track upgraded and repurposed as the permanent maintenance access lane
- Biofiltration technology that, delivers among the highest levels of contaminant removal across varying pollutant loads and concentrations

TARGET POLLUTANTS:

Designed to treat a range of contaminants typical of an multiple different land uses:
Total Suspended Solids (TSS), heavy metals, nutrients, fine sediment, dissolved contaminants, oil & hydrocarbons and gross pollutants.

MAINTENANCE PROGRAMME:

Stormwater360 will complete the first 12 months of maintenance on the Filtterra® Bioscape® system, included as part of the procurement cost. This initial maintenance period allows Stormwater360 to confirm the system is functioning as designed and that all planting is establishing and thriving before handover.

Beyond the first year, Stormwater360 supports long-term maintenance through both online and on-site training. Maintenance contractors can complete online certification to become qualified to maintain a Filtterra® Bioscape® system, giving councils and asset owners flexibility in who carries out ongoing servicing while ensuring the system continues to perform to specification. Stormwater360 maintains an ongoing relationship with WBoPDC to share learnings on maintenance implications and costs, ensuring the Filtterra® Bioscape® continues to function as designed.

COST COMPARISON:

A recent independent consultant report prepared for Western Bay of Plenty District Council found that the Filtterra® Bioscape® option has a lower upfront capital cost than an equivalent conventional raingarden solution, but the most significant difference lies in ongoing maintenance costs.

Footprint comparison:

Wetland 1 2546m² vs Bioscape 241m²

Wetland 2 1388m² vs Bioscape 143m²

Averaged across the catchments assessed, annual maintenance drops from approximately \$95.6k/year for a conventional raingarden to approximately \$19k/year for a Filtterra® Bioscape® system from Year 4 onwards.

Averaged across the catchments assessed, annual maintenance drops approximately 80.13% for the Filtterra® Bioscape® compared to the conventional raingardens.

Beyond these cost savings, the report also notes that Filtterra® Bioscape® systems achieve the same treatment objectives with a substantially smaller footprint.

OUTCOME:

By retrofitting a Filtterra® Bioscape® system into the existing device footprint, Western Bay of Plenty District Council secured a stormwater treatment solution that fits within a significantly constrained and shrinking site, removes a broad spectrum of industrial pollutants, and is future-proofed against the upcoming road corridor boundary change and with savings of up to 80% on the lifecycle cost when compared to a conventional system — all while reusing existing site infrastructure, including the haul track, to minimise additional earthworks and cost.

