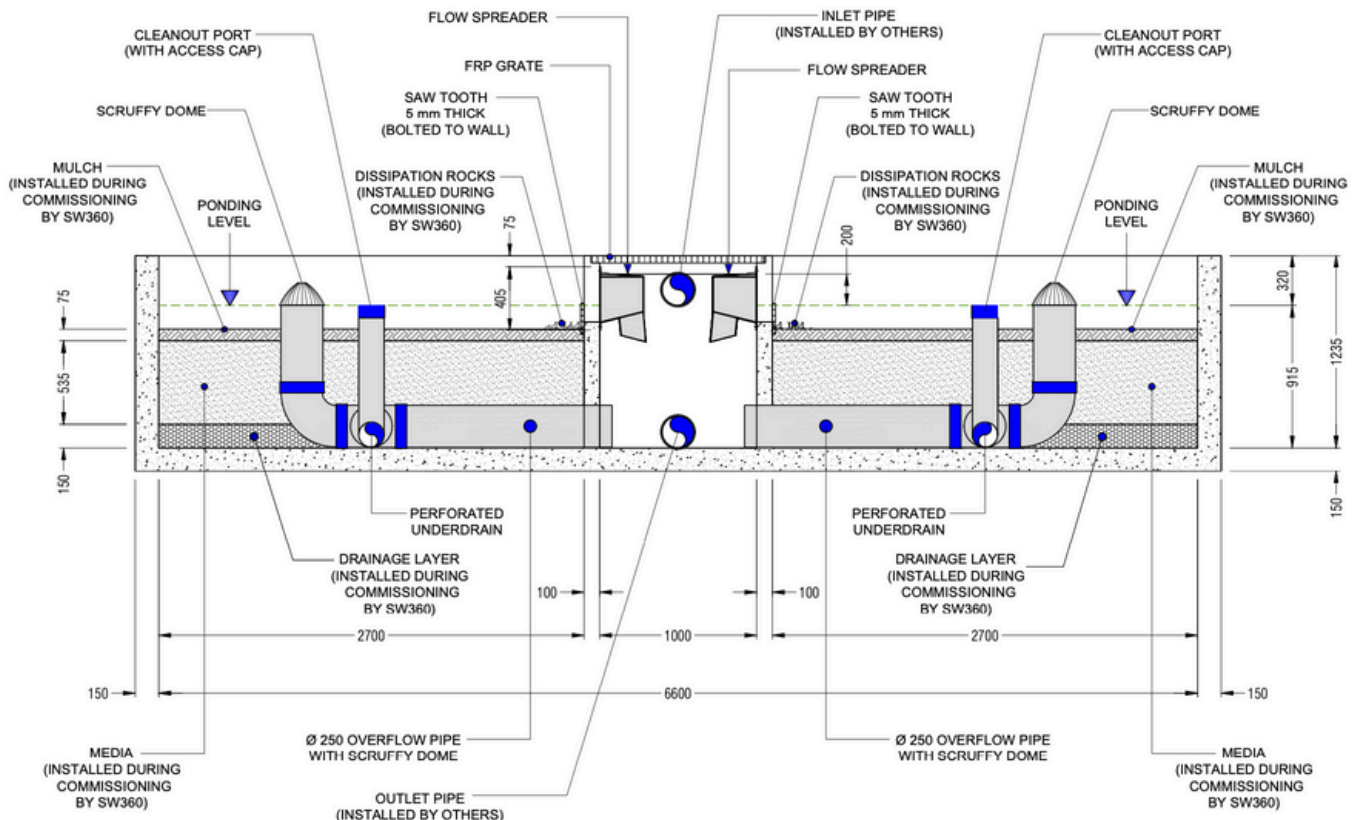
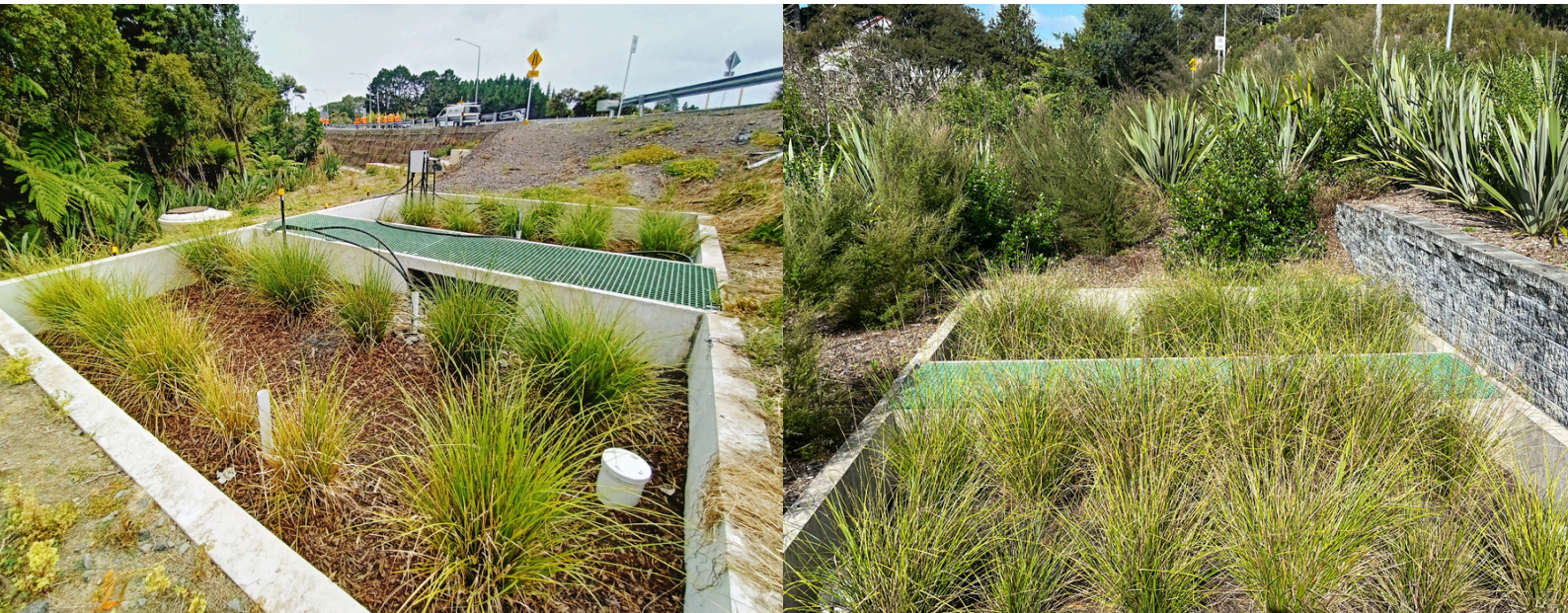




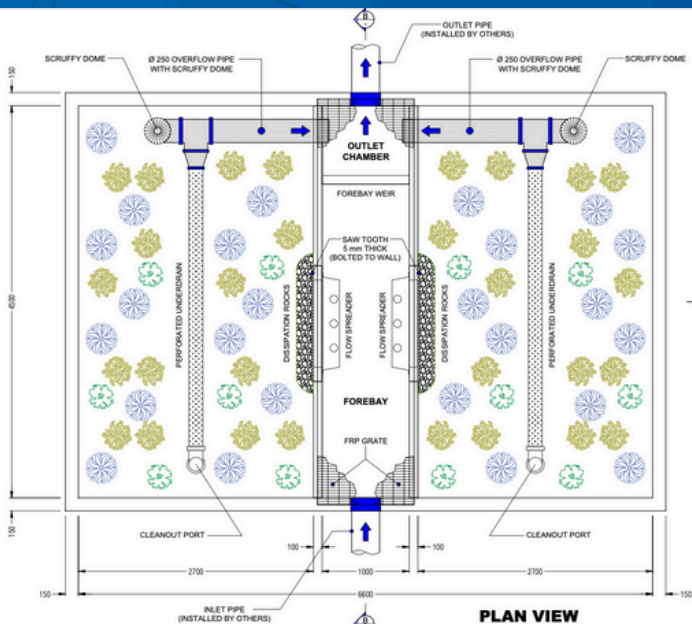
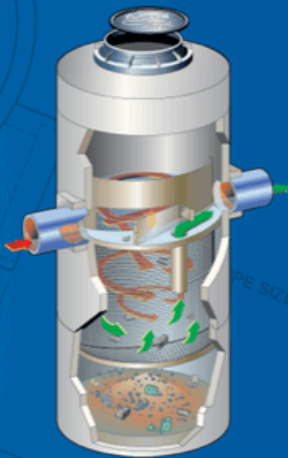
Site requirements:

- Dangerous stretch of a busy road with high traffic flow. Coatesville-Riverhead Highway has $\pm 5,000$ VPD, and Dairy Flat Highway has $\pm 15,000$ VPD.
- Expected to generate high levels of contaminants of Gross pollutants (trash and debris), increased sediment mass load from vehicle movements, hydrocarbons and heavy metals.
- Constrained site from steep slopes on a narrow road corridor, so not enough room for rain gardens.
- Catchment area of $2,568\text{m}^2$ and $3,709\text{m}^2$.



Solution:

- Custom designed Filterra® with a footprint of 29.7m².
- The device is practical to construct and maintain and has safety elements from all stages of construction and operation fully considered.
- Use of treatment train with pretreatment upstream of a Cascade Separator®. The pretreatment removes most of the coarser sediment and gross pollutants, which ensures performance and maintenance frequencies are optimised.
- Cascade Separator® is an innovative hydrodynamic separator that captures sediment and gross pollutants while also removing hydrocarbons, litter and debris from stormwater runoff and provides the highest removal efficiency of any Stormwater360 Gross Pollutant Trap.
- Filterra® is the next generation of biofiltration devices. Filterra® removes contaminants, including nutrients and metals, reduces stormwater flows and blends into the urban environment.



Benefits of Filterra®:

Approvals and third-party verifications:

- State of New Jersey Department of Environmental Protection (NJDEP) Approval of Use for Manufactured Treatment Devices.
- Washington State Technology Assessment Protocol - Ecology (TAPE) Program: General Use Level Designation (GULD) approval.
- Approved by Auckland & Christchurch City Councils
- Accepted by Waikato Regional Council.

Footprint: the Filterra® requires a fraction of the footprint of traditional green devices. For a 2000m² catchment, a typical 2% rain garden might be 50m², whereas the Filterra® only needs to be 8.4m².

Treatment Performance: Filterra® is the best-performing stormwater treatment device available in New Zealand, with approvals for removing TSS, nutrients, and dissolved metals. Over 25 quality assurance tests through the production process deliver a product guaranteed to perform.

Maintenance: Typical maintenance intervals are 6-12 months depending on rainfall patterns, and mulch can be sourced from approved third-party suppliers. Planting, commissioning and 12 months of maintenance are included in the supply of the Filterra®.

Cost: Filterra® can offer a substantial capital cost saving when compared to bespoke rain garden designs, and not requiring any specialist tools it is the most cost-effective of any treatment device to maintain.

