

WESTFIELD ALBANY CASE STUDY HYNDS UP-FLO™ FILTER



Westfield Albany is the largest shopping centre development in Westfields New Zealand portfolio and as such, demanded the most advanced stormwater treatment system available.

Hynds Environmental designed a series of Hynds Up-Flo™ Filters to meet all the stormwater treatment requirements for the site.

The Site

Westfield Albany, located on the North Shore of Auckland, is the latest shopping centre developed by the Westfield Group. Once fully opened, Westfield Albany will be the largest shopping centre in New Zealand. It includes 70,000 m² of indoor space (49,000 m² and 21,000 m² offices) and provides over 2,300 carparks for around 150 specialty shops, a SKY CITY Multiplex Cinema and a 560 seat food court.

As part of the strict resource consent conditions for this development, the stormwater runoff from the 98,850 m² of surrounding carparks, gardens and roads has to be treated (>75% TSS removal) before discharge into the nearby waterways.

The Problem

Ten individual catchment areas formed this overall site and therefore ten separate stormwater treatment systems were required. Each catchment had varying flows and head requirements and were required to fit into the proposed drainage network. The head available throughout the network was governed by the existing downstream pipe network.

The Solution

Hynds Environmental worked closely with the Westfield Group, Tonkin and Taylor Ltd (Engineering Consultants) and CESCO Environmental Ltd (the drainage contractors for the site) to design and install a series of Hynds Up-Flo™ Filters for this project.

The largest catchment area on this site was 42,000 m². The Up-Flo™ Filter for this site was designed utilising a combination of on-site and precast construction. CESCO Environmental constructed a concrete chamber on site approximately 30 m² and 5.5 m deep and six Hynds Up-Flo™ Filters were then installed into this chamber.

Project Summary

- Total Catchment Area – approximately 98,850 m² of carparks, gardens and road area
- Ten individual catchment areas ranging from 2500 m² to 42,000 m²
- One Hynds Up-Flo™ Vault, chamber size 30m² x 5.0m deep (to treat 42,000 m²)
- Nine off, single or double Hynds UpFlo Filters constructed in 1200 diameter precast concrete chambers
- Achieves >75% Total Suspended Solids (TSS) removal
- Removes >90% Total Suspended Solids (TSS) with a mean particle size of 20 microns (0.02mm)

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The other nine sites utilised either a single Hynds UpFlo Filter or used two filters in parallel to treat the stormwater.

With a removal efficiency of greater than 90% for particles with a mean particle distribution of 20 microns, the Up-Flo™ Filter meets and exceeds the ARC's requirements for stormwater treatment of 75% Total Suspended Solids removal.



Hynds Up-Flo™ Filter - standard 1200mm dia model.

Performance

The Hynds Up-Flo™ Filter offers unrivalled performance in stormwater filtration. The system is designed to remove more than 90% Total Suspended Solids (TSS) with a mean particle size of 20 microns (0.02mm). The Hynds Up-Flo™ Filter has been accepted by the Auckland Regional Council as achieving 75% TSS removal.

System Maintenance

Maintenance of a Hynds Up-Flo™ Filter is simple and inexpensive and no specialised or heavy lifting equipment is necessary. The system's open design allows easy access to its components. Floatables are simply removed from the sump by vactor truck and the media packs are replaced by hand.

How They Work

Treatment

During a rain event, stormwater enters the chamber via an inlet pipe or overhead grate. Gross debris and sediment settle out in the sump. As water fills the chamber, flow is directed up through the angled screen into the filter module. Flow is evenly distributed across the media for maximum treatment. Treated flow exits the filter module via a conveyance channel to an outlet module.

Siphonic Bypass

Flows in excess of the designed filtration capacity are discharged directly to the outlet using a Siphonic Bypass.

Drain Down

The Hynds Up-Flo™ Filter has a patented Drain Down system to ensure that the filter media is not submerged between storm events.



Installation of twin Hynds Up-Flo™ System

Further Information

For further information on Hynds Environmental's stormwater treatment systems, please call them on 0800 425 433 or visit their website at www.hynds.co.nz.

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