

WOODFERN CRESCENT CASE STUDY HYNDS UP-FLO™ FILTER



A Hynds Up-Flo™ Vault System proved to be the optimal solution for Waitakere City Council's Woodfern Crescent site.

Hynds Environmental designed this innovative Up-Flo™ Vault solution after traditional stormwater filter systems proved unsuitable for the site.

The Site

Woodfern Crescent is located in Titirangi, West Auckland. In 2004 the Waitakere City Council completed the upgrade of the existing stormwater drainage system in Titirangi Rd as part of their comprehensive stormwater management strategy.

As part of the consent conditions for this project, the stormwater from the catchment (1.2 Ha of impervious area) had to be treated in accordance with ARC TP10 requirements (75% TSS removal) prior to discharge in Waikumete Stream. Woodfern Crescent was assessed to be the optimal location for the stormwater treatment system and a Hynds Sand Filter was specified and manufactured for this site.

The Problem

Unforeseen site conditions meant the Hynds Sand Filter could not be installed on this site as per the original design. The Sand Filter was manufactured from five precast chambers and measured 70m² x 2.5m deep.

Hynds Environmental were approached and asked to assist in developing an alternative stormwater solution for the site.

The Solution

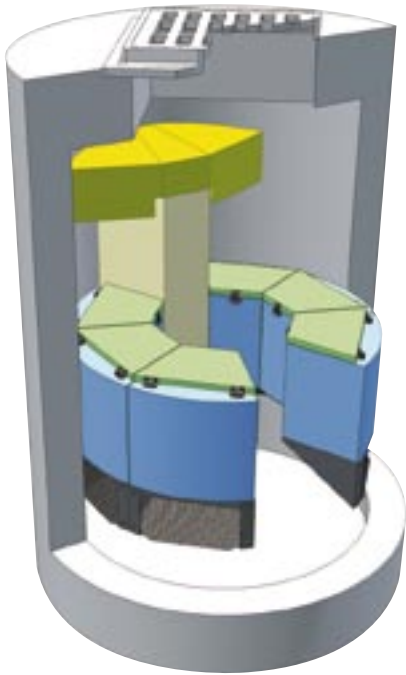
Hynds Environmental designed an innovative vault system utilising existing components of the original Sand Filter combined with the latest Up-Flo™ Filter stormwater treatment system. The flow rate for the Up-Flo™ Filters is much higher than the Sand Filters so the overall volume of the treatment system was significantly reduced. The final chamber measured 12m² x 2.5m deep. This system proved to be an effective, economical solution for this site which was easily installed on site within one working day by Civil Underground Ltd.

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.

Project Summary

- Total Catchment Area – approximately 12500m² of impervious runoff area
- Replaced a Hynds Sand Filter, size 70m² x 2.5m deep
- One Hynds Up-Flo™ Vault, chamber size 12m² x 2.5m deep
- Achieves >75% Total Suspended Solids (TSS) removal
- Removes >90% Total Suspended Solids (TSS) with a mean particle size of 20 microns (0.02mm)
- Installed within one working day

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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 the Hynds UpFlo Vault.

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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protecting our environment

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www.hynds.co.nz

Reference EV48 April 2007