

Case Study



Innovative Hydro Up-Flo™ Filter Treats Access Road Surface Water Runoff

Project profile

Objective

To incorporate SuDS with two levels of treatment for a new commercial access road in Faversham, Kent.

Solution

A six module Up-Flo™ Filter was installed along with a Stormbloc® tank which provides for approximately 180 m³ of storage attenuation and infiltration.

Product profile

Up-Flo™ Filter

An advanced stormwater treatment solution that combines sedimentation and screening with fluidised bed filtration to deliver exceptional surface water pollution removal.

Hydro Stormbloc®

A modular geocellular structure that provides below-ground storage of stormwater and surface water.

Stormbloc® Optimum is now available.

[**Click to find out more.**](#)

One of the first UK stormwater treatment solutions using Hydro's innovative Up-Flo™ filtration technology has enabled developer Fairview New Homes to incorporate SuDS with two levels of treatment into the surface water drainage for a new access road.

Environment Agency planning requirements sought two levels of treatment for the new commercial access road in Faversham, Kent, but a SuDS solution using completely natural features was not possible. Developers Fairview New Homes and consultants Infrastructure Design Ltd worked with Hydro International to develop a unique solution for the site which combined a custom-modified Up Flo™ filtration unit with Hydro Stormbloc® modular storage and infiltration blocks.

Jim Brand, Maintenance Manager of Fairview New Homes explains: "Working closely with our engineering consultants and Hydro, we were able to put together a fit-for-purpose solution which met the maintenance requirements of Kent Highways, while satisfying SuDS principles."

The access road is needed to service retail and light commercial units as part of the mixed-use redevelopment of the Eurocentre wholesale distribution centre, on the site which is bounded by the London to Dover main railway line.

While much of the access road offers natural flow to a swale for treatment, around 100 metres of the road was below surrounding land.

"We needed to provide polishing treatment to remove finely dispersed pollutants, as it was adjacent to a source protection area," points out Phil Tomes, of engineering consultants Infrastructure Design Ltd. "To create sufficient fall for a swale, we would have had to try and install it some three metres below ground level, which was not possible.



Landscaped area above installed Up-Flo™ Filter & Stormbloc® infiltration tank.

"We had to look at engineered solutions and Hydro International's Up-Flo™ solution was ideal. The unit could be located in a chamber at sufficient depth to provide effective settlement, screening and filtration treatment for the water."

Rainwater from the road passes initially through a bypass separator (the first level of treatment) before entering the concrete chamber containing the Up-Flo™ Filter. The Up-Flo™ Filter acts as a sump where sediments are allowed to settle. Any floatables are controlled by baffles on the Up-Flo™ Filter module inlet. The water flows up through the fine sand filter medium in the six filter modules until it discharges through the outlet. The Up-Flo™ Filter unit thus provides the essential second level of treatment, removing coarser sediments and floatables and fine suspended solids.

"Kent Highways specified maintenance requirements before agreeing to adoption of the installation", continues Phil. "Kent preferred to avoid their crews having to physically enter the chamber through a manhole cover in order to change the filter medium bags in the Up-Flo™ unit.

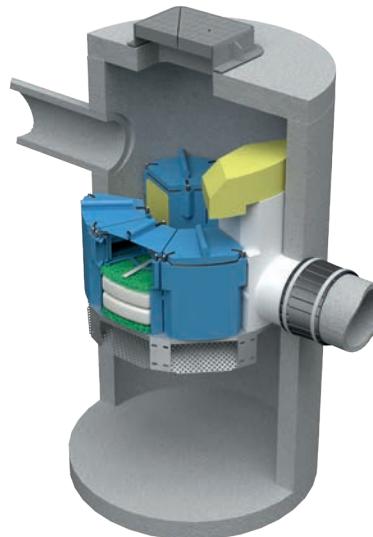
"To accommodate this requirement, the consultants asked us for some input," states Marcus Mumford of Hydro's design team. "We responded to the need by innovating a design modification, which demonstrates the versatility of the Up-Flo™ Filter unit. The modification can now be used by other Hydro customers to meet similar requests in future."

"We adapted the design by mounting the modules containing the filter bags on a platform that could be raised and lowered with a screw-operated penstock gate mechanism. The design enables the filter bags to be exchanged at approximately ground level. Maintenance intervals are currently estimated as yearly or longer."

To meet the surface water discharge constraints for the site, the final discharge from the filtration unit has to be infiltrated into the ground. Without room for a separate soakaway, a Hydro modular construction Stormbloc® storage infiltration tank was used. Because it is loadbearing, it could be easily sited under public space in a shallow excavation and landscaped over. This provides around 180 m³ of storage attenuation and infiltration, without occupying valuable surface area.

Already used extensively in the US, Hydro International's Up-Flo™ Filter is still a relatively new technology to the UK. It has a gentle action to facilitate sediment settlement, due to the rising water flow through the filter unit system. The drain down system eliminates virtually all possibility of blinding and clogging. The design ensures that maintenance is infrequent and simple, with bagged filter media from the modules being exchanged manually, and a standard gully vacuum unit employed to remove sediment from the sump.

During any extreme rainfall events, a bypass system, with baffles to exclude floatables, allows a temporary overflow to discharge. As well as its availability in concrete vault design which can be upsized to meet a range of maximum flows, other Up-Flo™ configurations are available, including single packaged units suitable for manhole-sized installations, and separate filter units for retrofit. Filter media can also be selected to meet specific water quality and pollutant requirements.



Up-Flo™ Filter

Learn more

To learn more about how the Up-Flo™ Filter can help you to manage water more effectively, visit hydro-int.com, search **Up-Flo Filter** online or contact us:

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