

Project Profile

Objective

To provide storage and control for the allowable discharge of stormwater runoff from the hard standing area within the development.

Solution

To install an extensive flow control system using HRD Technologies Ltd product range of Stormcell[®], Hydro-Brake[®] Flow Control and Downstream Defender[®].



Stormcell[®] Attenuation System

Product Profile

Stormcell[®]

- Modular & flexible.
- Lightweight.
- High structural integrity - suitable for installation below roads, car parks and amenity areas.
- Patented silt prevention system.
- Simple & quick to install.

Large Supermarket, Donore Road, Drogheda

Stormwater discharge restrictions imposed on a site for a large retail store off the Donore Road, Drogheda meant an extensive flow control system was required.

HRD Technologies Limited geo-cellular Stormcell[®] Storage System along with a Hydro-Brake[®] Flow Control and Downstream Defender[®] enabled engineers White Young Green - Belfast to achieve the site requirements.

Based on the allowable discharge limit set by the local authority, the engineers designed that the runoff from the site was to be limited to 24.00 l/sec, requiring 1,321m³ of Stormcell[®] storage and a Hydro-Brake[®] Flow Control to enable the allowable discharge to be achieved.

In addition to the Stormcell[®] attenuation tank and Hydro-Brake[®] Flow Control the assigned contractors David Patton & Sons (NI) Ltd also installed a Downstream Defender[®] for the removal of sediments, oils and floatables from the stormwater runoff.



Stormcell[®] Attenuation Tank under construction

The attenuation tank was constructed to a size of 60m x 34.80m, by using a total of 725 bales of Stormcell[®]. Along with the stone under the cell the required storage volume of 1,321m³ was achieved. By using Stormcell[®], which does not require extensive construction work, the engineers were able to reinstate the land over the attenuation tank to be used as a large carpark area. With a high load-bearing honeycomb structure, a key benefit of Stormcell[®] is its loading capacity of up to 40 tonnes/m², which allow it to be installed under trafficked areas and with high depths of cover, without the need for expensive additional structural support.

There was a total of 8 parallel perforated distribution pipes installed under the cell, each of 225mm diameter. With the dry weather flow these pipes allow the stormwater to pass through to the Hydro-Brake[®] Flow Control and then the Downstream Defender[®]. In the event of a storm the silts & grits will be carried through the piping system to the flow control chamber, while the Stormcell[®] storage system fills up. The Hydro-Brake[®] Flow Control creates a vortex which controls the water leaving the attenuation tank to the allowable discharge before entering the Downstream Defender[®]. As the stormwater passes into the Downstream Defender[®] it is directed downwards around the periphery of the chamber inducing a rotational flow. This flow, coupled with the design of the internal components, creates a unique flow pattern within the unit encouraging the solids separation.

Cont....

Product Profile

Hydro-Brake® Flow Control

- STH Models have achieved BBA Certification.
- No Moving Parts.
- No power requirements.
- Self-activating and self-cleansing.
- Outlet 3-6 times larger than conventional controls.
- Can reduce storage requirements by up to 30% compared to an orifice plate.



Hydro-Brake® Flow Control

Downstream Defender®

- Proven to be more efficient for removing pollutants and preventing pollutant re-entrainment.
- Outlet Pipe can be orientated to suit actual site conditions.
- Efficient over a wide range of flows.
- No moving parts.
- Low system headloss.



Downstream Defender®

Additionally, the Stormcell® unique patented silt protection design ensures that maintenance of the storage system is minimised and access for inspection is permitted. Solutions without silt protection may require expensive cleaning or even complete replacement within a few years in order to maintain the storage volume which was first required.

The Hydro-Brake® Flow Control was installed in a chamber after the attenuation tank and for this development HRD Technologies Ltd supplied a unit from the 'S' range. This model would be the most popular unit available for stormwater and will limit the flow to the required 24.00 l/sec. The Hydro-Brake® Flow Control is manufactured in robust stainless steel and has no moving parts. In addition to stormwater flows, these models can also be used as inlet controls and for regulating the outflow from balancing tanks and detention ponds.

The Downstream Defender® is the most advanced stormwater separator available and is proven to be more efficient than other structural treatment devices in as little as 1/2 the footprint. The unit which was supplied for this contract was 1.20m in diameter, which will allow for a capacity flow of up to 70 l/sec. The outlet pipe can be orientated to suit actual site conditions which allows for the easy installation of the unit within the pipework. The Downstream Defender® is also the only separator with internal components proven to prevent pollutant re-entrainment (or washout).



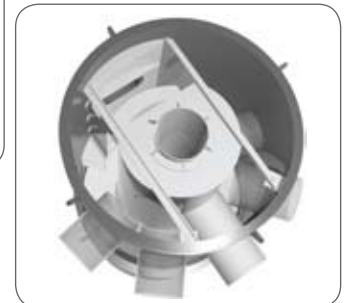
Stormcell® System

Consulting Engineers :
Contractors :

White Young Green - Belfast
David Patton & Sons (NI) Ltd
t/a Patton Construction



Hydro-Brake® Flow Control



Downstream Defender®

This information is for guidance only and not intended to form part of a contract. HRD Technologies Ltd pursues a policy of continual development and reserves the right to amend specifications without prior notice. Equipment is patented in countries throughout the world.

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