

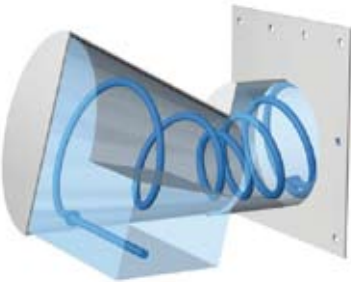
Project Profile

Objective

To help alleviate flooding incidents from the Dinvin Burn which runs through the centre of the village of Portpatrick.

Solution

An earth dam was built incorporating a 727 mm Type CX Hydro-Brake® Flow Control device to regulate the flow.



Product Profile

- No moving parts.
- No power requirements.
- Self-activating and self-cleansing.
- Outlet 3-6 times larger than conventional controls.
- Highest performing passive flow control.
- Can reduce storage requirements by up to 30% compared to an orifice plate.

Hydro-Brake® Flow Control at Core of Portpatrick Flood Defences

The small harbour and fishing port of Portpatrick, opposite Belfast from the Galloway coastline, lies at the foot of a range of hills which catch the prevailing rain coming over Ireland from the Atlantic. To help alleviate flooding incidents from the Dinvin Burn, which runs through the centre of the village, Dumfries and Galloway Council have invested in an earth dam incorporating a 727 mm bore Type CX Hydro-Brake® Flow Control device to regulate the flow.



A flooding incident at Portpatrick.

The last major incident in Portpatrick occurred in October 2000, when the burn overtopped its banks, flooding the Main Street and causing extensive damage to shops, hotels and houses. Climate change and more unsettled weather could increase the frequency of these storm conditions.

James McLeod, Senior Engineer for the Dumfries and Galloway Council explains: "The best place to build a retaining dam was on agricultural land at Merrick, above the village, incorporating a flow attenuation device. This was designed to release water up to a maximum of 850 l/s identified by the Council's consultants, The Ewan Group Plc as the volume the watercourse could carry."

James McLeod, Senior Engineer for the Dumfries and Galloway Council explains: "The best place

"To achieve this flow attenuation at maximum head of water, the fixed opening of a standard orifice type device would have had to have been relatively small, and this would have backed up water in the dam even at low water heights. Furthermore, the large opening of the Hydro-Brake® unit (between three to six times larger than the equivalent orifice plate) meant it was less susceptible to blockage from water borne debris."

"The benefit of the Hydro-Brake® Flow Control is that its larger diameter allows greater flows to pass at lower heads, whilst still restricting the flow within design limits. This ensures that land take under most conditions is much less than with alternative fixed opening devices, and means that the farmer who owns the land will suffer flood inundation of his fields much less frequently."



Studies have shown that storage requirements for Hydro-Brake® Flow Controls can be up to 30% less than orifice plates or even other vortex devices without Hydro-Brake® Flow Control's hydraulic profile. In terms of total installation cost per m³ for a project, this can provide a significant cost benefit. A further advantage of the Hydro-Brake® Flow Control design is that it has no moving parts and needs no power, so operating costs are very low and maintenance is minimal.

turning water around ...®

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