Nz's Largest Proprietary Treatment Device - An Innovative Centralised Stormwater Treatment & Pumping Facility

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A project to address flood risk mitigation in Christchurch offered a unique opportunity to retro-fit a large-scale stormwater treatment device to remove contaminates and reduce adverse environmental downstream effects. A project team consisting of experts from Opus, Beca, CCC and Stormwater360 collaborated to design and supply New Zealand's largest StormFilter.

Land drainage systems within Christchurch City have changed significantly due to subsidence and damage to waterways, land and infrastructure caused by multiple earthquake events since September 2010. Consequently, this has increased the risk of flooding in a number of catchments across the city. The Land Drainage Recovery Programme (LDRP) has been setup to deliver projects which aim to mitigate the effects of the earthquakes in the city's most affected areas, restore the flooding risks to 'pre-earthquake levels' and develop sensible area-wide solutions that offer the most benefit, to the most people.

The Bells Creek - Woolston catchment was identified under the LDRP as an area at greater risk of flooding since the earthquakes, due to ground subsidence. The catchment is approximately 160 hectares of commercial/residential land types and includes all flows draining to the Ferry Road Stormwater main, Moorhouse Avenue, Fitzgerald Avenue and part of the CBD. An initial project team consisting of Opus, Beca & CCC were engaged to design an end of line stormwater pump station at Richardson Terrace. The pump station needed to receive peak stormwater flows from the catchment, when the existing gravity fed and tidal influenced reticulation is at capacity, and pump discharge into the Heathcote River.

Christchurch City Council (CCC), under their Heathcote Stormwater Management Plan, identified this catchment as a significant source of contaminates, namely dissolved metals and Total Suspended Solids (TSS). Stormwater360 joined the project team to assist in the design and supply of a StormFilter to treat the first flush stormwater runoff.

This paper presents findings and learnings from the design stages of this collaboration.