

Safeguarding New Zealand's Natural Legacy

Hydro-Brake® Optimum at Pembroke Heights

Nestled above the shimmering waters of Lake Wānaka and overlooking the mouth of the Clutha River (Mata-Au), the Pembroke Heights development is a landmark residential project in the heart of New Zealand's South Island. Spanning 30 hectares and comprising 400 residential lots, the site is part of a long-term vision to expand sustainable living in the Queenstown Lakes District; a region celebrated for its alpine beauty, ecological significance, and cultural heritage.

Product profile

Manage low, moderate and high flows to deliver sustainable drainage from single sites to large networks.

The Hydro-Brake® Optimum vortex flow control provides tailored water quantity management for storm, surface, foul or combined water across a wide range of flows and for a variety of applications.

Precision-engineered to meet site-specific flow, head and storage requirements. Only the Hydro-Brake® Optimum leverages more than 40 years of vortex flow control expertise to deliver exceptional flood protection and sustainable drainage.

A Sensitive Catchment Demands Intelligent Flow Control

Lake Wānaka, New Zealand's fourth-largest lake, is a glacial jewel fed by the Matukituki and Makarora rivers. It flows into the Clutha River, the country's largest and fastest-flowing river, which carries immense historical weight; from pre-Māori settlement and gold rush prosperity to its modern role in hydropower generation and tourism. Protecting this iconic waterway is a top priority for the Queenstown Lakes District Council, especially as urban expansion and climate variability increase pressure on local infrastructure.

The Pembroke Heights site sits atop a steep 300,000 m² upper catchment, where stormwater runoff poses a risk to both the new development and the established residential areas below. With increasingly unpredictable weather patterns, the need for precise, low-maintenance flood control was clear.

Engineered for Resilience: Hydro International's Hydro-Brake® Optimum

In collaboration with LandPro Consultants and Riley Consultants, Hynds and Hydro International provided a tailored solution: the Hydro-Brake® Optimum flow control, installed within a 3-metre diameter Hynds concrete chamber, approximately 4 metres deep.

To ensure safe and visible access for inspections; critical for community-facing infrastructure, the unit was fitted with an extra-large scruffy dome, supplied by Hynds. Their expertise in precast concrete and access solutions played a key role in delivering a durable, inspection-friendly installation.



Key benefits include:

- Up to 15% reduction in surface water storage requirements compared to other vortex flow controls.
- Significant excavation cost savings, freeing up land for development and increasing ROI.
- Individually designed to meet the site's hydraulic profile, ensuring optimal performance across everyday flows and extreme storm events.

Supporting SuDS and Climate-Ready Design

Hydro International's Hydro-Brake® Optimum supports Sustainable Drainage Systems (SuDS) and green infrastructure by:

- Managing surface water runoff with precision.
- Reducing reliance on oversized detention ponds.
- Future-proofing developments against climate change impacts.

This installation reflects Hydro International's commitment to protecting natural environments while enabling smart urban growth. By combining engineering excellence with environmental stewardship, Pembroke Heights sets a new standard for stormwater resilience in one of New Zealand's most treasured landscapes.



Images courtesy of Hynds



Proud of our partnership with Hynds in New Zealand

Our partnership with Hynds means delivering smart, site-specific stormwater solutions for Pembroke Heights. Their local expertise and commitment to innovation were key to the successful installation of the Hydro-Brake® Optimum.

We also acknowledge the valuable contributions of LandPro and Riley Consultants, whose design support helped bring this project to life in one of New Zealand's most iconic landscapes.

Hydro-Brake® Optimum is a registered trade mark of CRH Group Services Limited

Learn more

To learn more about how the Hydro-Brake® Optimum can help you to manage water more effectively, visit hydro-int.com, search **Hydro-Brake® Optimum** online or contact us:

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