

Central Plains Water Limited labyrinth weir

Riley is proud to have our recent work on the Central Plains Water Limited (CPWL) labyrinth weir featured on TVNZ One News and YouTube.

This innovative project showcases our commitment to undertaking projects in collaboration with our client to increase the resilience of existing irrigation infrastructure to meet the demands of climate change and support the long-term sustainability of agriculture in Canterbury, New Zealand.

THE CHALLENGE

This weir replacement project presented some unique challenges. We needed to construct the new weir within the same overall width as the original weir and achieve more than double the flow capacity. We also needed to complete the project within a very tight project timeframe to ensure the weir structure was ready for the 2025 irrigation season.

RAKAIA RIVER
CANTERBURY

PROJECT LEAD



Paul Rivett
Project Director
– Water Resource

RILEY TEAM

Jacob Couprie,
Madi Millar, Ben Figg,
Ally Dobie, Reon Tiweka,
Geof Lyman, Leah King,
Thomas Jamieson-Lucy,
Oscar Barrett-Garnier.

250m
long if stretched
in a straight line

28
pre-cast panels

\$1.7m
total project cost

11
months from
board approval
to completion

100%
compliant with
CPWL's consents



OUR APPROACH

Our team employed a highly collaborative approach to the design. Following site investigations, initial geometric design and hydraulic modelling, a trapezoidal “labyrinth” shaped weir was selected to achieve the required flows for the available width.

We produced a 3D rendering of the new weir structure in conjunction with an independent structural engineer. This enabled us to refine the structural elements and construction sequencing along with the initial cost estimates for CPWL as early as possible.

Following funding approval, we commenced the detailed design process and issued interim design drawings for review and feedback by the wider project team. This process refined the design and allowed for detailed design drawings to be completed well ahead of schedule to allow pre-casting of the concrete elements.

Once the contractors were established on-site, and initial earthworks and support beams were completed, we were able to place, level and connect the pre-cast weir elements within weeks of delivery to site. Cast in place foundation concrete and the remaining site earthworks were then completed well before the start of the new irrigation season.

THE OUTCOME

The new CPWL weir was completed on time and within budget, exceeding client expectations. The weir replacement project has increased the resilience of the CPWL supply canal by reducing the operational impact caused by flood events in the Rakaia River.

WATCH

[youtube.com/
watch?v=QhsyurVauxA](https://youtube.com/watch?v=QhsyurVauxA)

“ Jacob’s contributions in managing the design workstream, including the engagement, coordination and management of specialist consultant structural designers, were invaluable to the successful completion of the project. ”

Susan Goodfellow – CEO, Central Plains Water Limited

