MACCAFERRI

CASE HISTORY

Rev: 1, Issue Date 05.05.2025

KIWIRAIL NIMT 453.63 DEBRIS FLOW BARRIER

AUCKLAND, NIMT, NEW ZEALAND

Debris Flow Barriers

Problem

The North Island Main Trunk (NIMT) is a critical railway line in New Zealand, connecting the capital city, Wellington, with the largest city, Auckland. Spanning approximately 682 kilometers (424 miles), the NIMT serves as a vital corridor for both freight and passenger services.
At kilometer 453.63 on the NIMT is likely corresponds to a segment between Taumarunui and Te Kuiti, areas known for their challenging terrain and historical significance in New Zealand's rail network.
One of such location is existing natural drain formed due to the terrain. Which causes heavy debris flow every monsoon season. This creates hindrance for railway operations and hence urgent solution was required.

Solution

To mitigate these risks, KiwiRail implemented a channelised debris flow fence system, incorporating Maccaferri's Debris Flow Barriers. These barriers are engineered to contain soil and water flows or shallow landslides on slopes, channels, and chutes. Upon impact by debris flow, the barrier progressively deforms, with compression brakes and systems absorbing the energy. The hydrostatic pressure within the flow rapidly dissipates once the debris flow has been arrested, leaving the volume of debris within the barrier.
Maccaferri's Debris Flow Barriers are customized to suit the project's dimensions, anticipated debris material, and expected flow volume. They offer strength and performance without the aesthetic intrusion of other debris flow systems .
This project exemplifies the integration of advanced geotechnical solutions to enhance the resilience of critical transportation infrastructure against natural hazards.
The Debris flow barrier was designed for 4.5m/s debris velocity and 34kPa dynamic pressure with

Client: Kiwirail
Designer / Consultant: GAIA Engineers
Products used (Qty.)

- Debris Flow Barriers — 3m high channel barrier

Date of construction: 10/2024 - 10/2024

Google Maps Google Earth

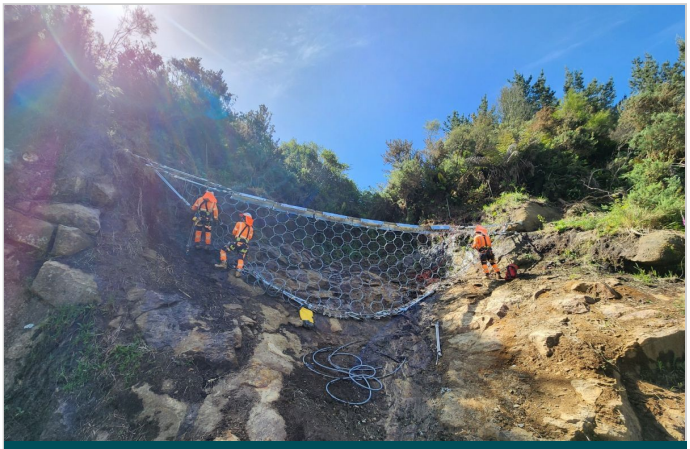


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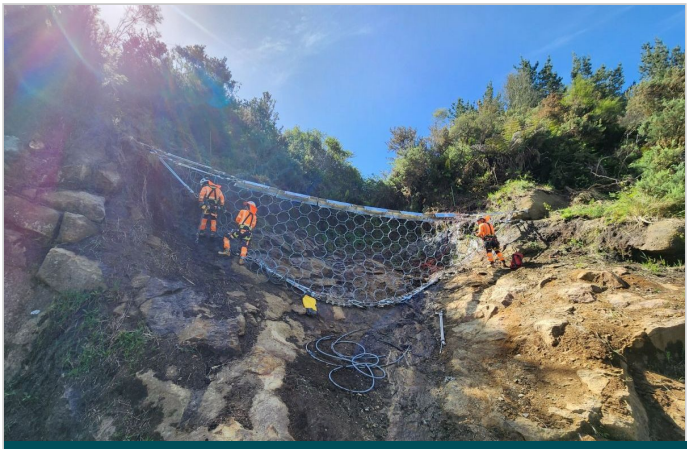


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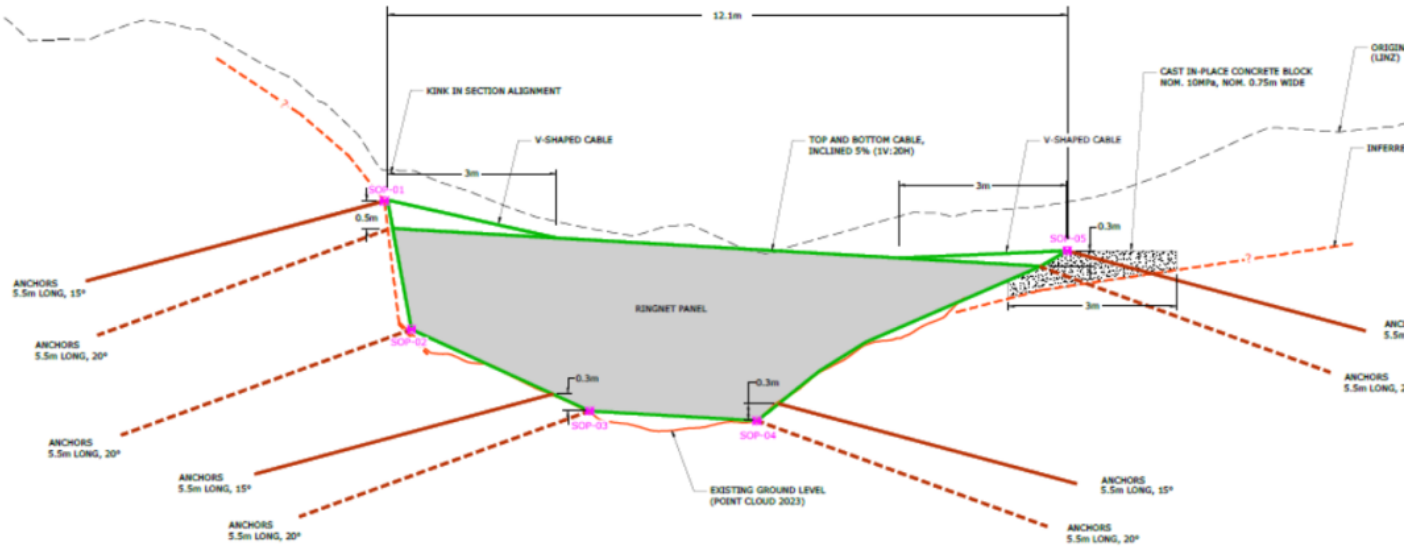
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Cross Section

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