CASE STUDY

Project: Eureka Bend Slope Reinstatement, SH60
Date: March 2009
Client: NZTA
Location: Takaka Hill, Golden Bay

Green Terramesh

Located in the Tasman region, SH60 over Takaka Hill, is famous for its steep mountainous terrain. The occurrence of a major slip near the Eureka Bend in November 2006 resulted in the closure of only access road to Golden Bay. A temporary Bailey bridge was installed to the inner lane as an interim measure to provide access to the local community. To make matters worse, the slip occurred almost immediately after a hairpin bend creating a major safety hazard for road users.

Geofabrics was contacted to assist with the initial concept of reinstating the road. Together with the consulting engineer - GHD Ltd, Geofabrics developed a solution incorporating the Green Terramesh system. A face inclination of 65 to 70 degrees was proposed to avoid ‘chasing’ the formation level on the downhill slope. This still required a 12m high structure founded on the colluvium/fractured rock layer. A gentler profile was discounted as it would have resulted in an even higher structure along a huge increase in earthworks volumes, time and associated costs. The stability analysis for both static and seismic case were carried out using MacStars software.

The final solution incorporated an in-situ stabilisation method using soil nailing to maintain surface stability of the cut face and to facilitate the construction of the Green Terramesh structure, while keeping the one lane open. Soil nails were installed at various lengths from top down, concurrent with the excavation. MacMat-R was used at the face between nail heads and the cut slope profile, this type of facing option is considered as ‘flexible structural facing’ according to CIRIA report C637.

The entire Green Terramesh structure was completed with a construction period of less than 2 months. This covers a wall face area of approximately 1,000m². The overall project was completed ahead of time and under the allocated budget.

The reinstatement of Eureka Bend won the Goughs Excellence Award for a Minor Road Project at the 2009 Roading Excellence Awards for Fulton Hogan, GHD and NZTA.

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Completed Green Terramesh structure

Completed project and road reopened