

**SLOPE STABILIZATION SOLUTION ALONG CORAMBA ROAD
BETWEEN DORRIGO AND COFFS HARBOUR, NEW SOUTH WALES, AUSTRALIA**

Slope Protection

Problem

Coramba Road is one of two links that connects Dorrigo town and Coffs Harbour town. There are many tourism and recreational sites along this route. Following heavy rainfalls in 2013, a large slip occurred and brought down debris blocking and damaging the entire two lane motorway.

Rectification works was carried out in two separate phases. In the first phase, the road embankment was reconstructed via soil nails and shotcrete facade on the embankment downslope. This permitted the re-opening of 1 out of 2 lanes of the motorway. Second phase requires the motorway to be widened by another 5.0m by upslope cutting, strengthening and erosion control measures. The existing slope was re-profiled from gradient 30°-45° to 65°.

The majority of the slope cutting comprise of rock formation, variably weathered argillite. There are localized locations of soil slope made up from residual Silty Clay and extremely weathered argillite.

The conforming design specifies secured drapery system with Glass Fiber Reinforced Polymer (GFRP) soil nails and rock bolts. Erosion control mat shall be placed at soil slope areas only.

Solution

The contractor selected Steelgrid HR30 (SG HR30) as the secured drapery mesh for rock slopes and erosion control mat for the soil slope. The client and contractor gained significant material cost savings with this decision even with the additional consultancy fee for alternative design checking.

Aside from cost savings, SG HR30 exceeds project specifications whereby the mesh exhibits lower strain at specified tensile load. SG HR30 was also coated with GALFAN Class A as per BS EN 10244-2.

The erosion control mat functions to predominantly provide erosion protection on soil slopes while soil nail provide majority of the slope stabilization measures.

The alternative slope facing design was performed using software MacRo1 by Maccaferri based on the conforming design rock anchor and soil nail spacing, which showed the SG HR30 achieving the required factors of safety. Durability check was performed according to AS4534-2006 and found out that SG HR30 is able to achieve 50 years design life criteria.

Client: Coffs Harbour City Council

Designer / Consultant: Coffey

Contractor: Ground Stabilisation Systems Ltd

Products used (Qty.)

- Steelgrid HR

Area = 1,200m²

Date of construction: 03/2015 - 10/2015



SG HR30 and erosion control mat installation in progress at upslope



Complete installation of slope surface protection works



Front view of slope strengthening works upslope and downslope



Erosion control mat installation in progress



Upslope soil nail installation in progress



Completed rectification works

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