

Secugrid®

Geogrids secure cliff road in Ireland

Project name
Rossbeigh Cliff Road Bypass, Ireland

Designer
Malachy Walsh and Partners, Tralee

Contractor
Griffin Brothers Contracting Ltd.,
Castleisland, Co. Kerry

Product
Secugrid® 80/20 R6





Fig. 1: Failure of road embankment

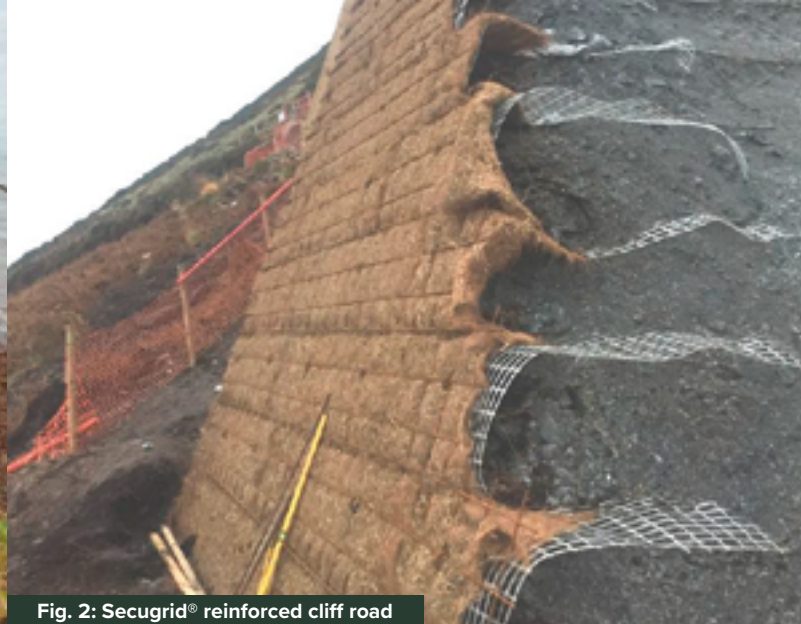


Fig. 2: Secugrid® reinforced cliff road

Problem

Rossbeigh is situated on the southern shore of Dingle Bay in Kerry County, Ireland. The project site is bounded by two roads. The lower road follows the coastline while the upper road cuts a path up the hill and passes over the slope to the east. The lower road provides access to 14 houses along the cliff and is the only available access for these houses. This access was cut off in 2015 due to a collapse of the cliff resulting in a significant instability on the local road.

This area was geotechnically and topographically challenging and presented considerable health and safety risks both for road users and for any construction personnel carrying out remedial work.

The bypass road was in total 360 metres long and had a level difference of 22 metres from the upper road to the tie-in point on the lower road. The road was designed with a gradient of 6.13% with two short steeper sections at about 10%. The hill on which it is constructed is at a natural angle of 33.5 degrees. Any cut slopes would be unstable and would require soil nailing for stability.

Solution

The road was designed as a fill embankment throughout except for a short section at the east end where cut was unavoidable. Construction had to be initiated from the higher end as the landslide cut off the lower end.

Consulting Engineers provided a solution for rehabilitation of the collapsed cliff area using mainly geogrid reinforced fill embankments and soil nailing for a short section at the east end.

BBA certified Secugrid® PET geogrids from Naue were used to reinforce the embankments with heights up to a maximum of 9.50 meters. A Naue Steel T facing system was applied, which combines non-galvanized steel mesh with an erosion control mat together with the Secugrid® geogrid being installed with the so-called “wrap-around” technique. The angle of the embankment face is 68 degrees.

In March 2019 Malachy Walsh & Partners won “The Association of Consulting Engineers of Ireland Design Excellence Award” for their innovative geotechnical and marine consulting work on the Rossbeigh Cliff Road Bypass in Kerry.



Fig. 3: Top view

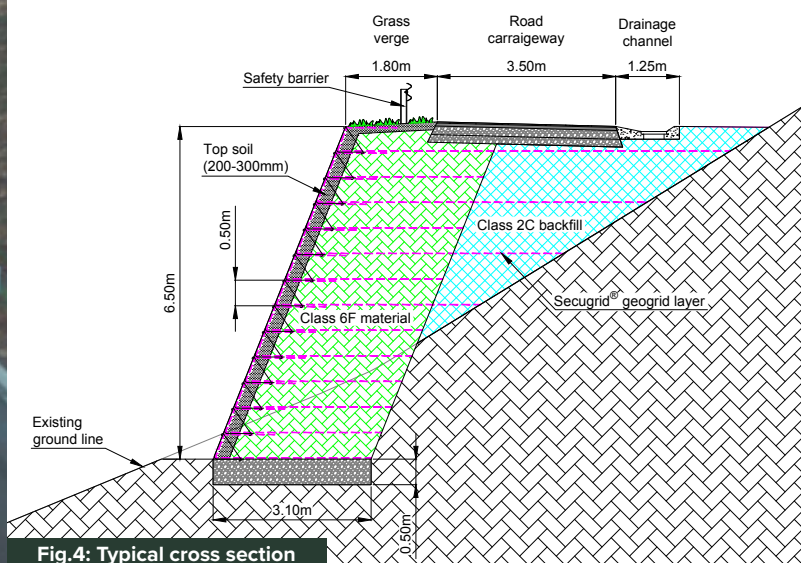


Fig.4: Typical cross section