MACCAFERRI

CASE HISTORY

Ref: CH-INT-RF052-IS Rev01 Sep12

REINFORCED SOIL EMBANKMENT SYSTEM

BOLUNGARVIK, ICELAND

ROCKFALL AND AVALANCHE PROTECTION

Product: Reinforced Soil Embankment System + Paragrid

Problem

The fishing village of Bolungarvik in northwest Iceland is only accessible by sea or a single road through the Fjord land region. The road and the town are often affected by avalanches and rock falls, incidents which have proved fatal in the past.

Maccaferri were approached to provide protection to the town from specific threats, specifically avalanche and rockfall threats, identified on a nearby mountain called Traðarhyrna.

Solution

Having considered various options Maccaferri suggested their Green Terramesh based Reinforced Soil Embankment protection system as the most effective solution.

The embankment system could be proportioned to meet the complex requirements of the protective system for the project and would fulfil the environmental and multiple impact durability requirements required by the client.

Upslope 'splitter' embankment during construction

Main (22m high) Embankment during construction

Main contractor:

Local contractor

Designer:

Specialist subcontract designer

Products used:

9no. Reinforced Soil Embankments (>910 lin m)

Date of construction

Summer 2010 to Summer 2012

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The Bolungarvik site offers a particularly challenging environment to work in and comes with geographical and logistical challenges. These factors, added to the funcational and design life requirements (in what is a very aggressive environment) made the Reinforced Soil Embankment system the best option for the project.

Maccaferri proposed a site-specific version of the Embankment system with various additional features required to satisfy the height, load, multiple and design life requirements of the client.

The embankment fill and foundation materials were composed exclusively of site-won materials meaning that no import of fill materials was required thereby improving the "green credentials" of the project

The main structure comprises a composite embankment which is up to 22m high and extends to 710m in length. Directly up-slope from the main embankment are 8no. 'splitter' embankments (up to 11.5m high) that intercept and deflect incoming impacts and thereby causing interference effects and improving the multiple impact performance of the main structure.

During the installation of the main structure the client asked Maccaferri to provide an additional continuous embankment that is 240m long and up to 13m high. This additional structure was delivered to the same specification as the earlier structures.

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