

DYNAMIC BARRIERS - LONG TERM STUDY

KNOCKAN CRAG, SCOTLAND, UNITED KINGDOM

Dynamic Barriers

Problem

To students of geology, Knockan Crag, in the far northwest of Scotland, represents the holy grail of thrust tectonics. This internationally important SSSI (Site of Special Scientific Interest) is in a remote corner of the British Isles, 13 miles north of Ullapool and is exposed to some of the worst weather conditions experienced in the UK.

At the location of the "Rock Room" geology visitor centre, the 20 to 30m high crag comprises a 75 to 85-degree western aspect rock slope. In 2008 boulders (up to 2x1.5x1m)) fell from the crag nearly hitting the rock room prompting site owner Scottish National Heritage (SNH) to commission the construction of a rock-fall catch fence above the Rock Room.

Solution

Following careful geotechnical assessment of the slope and detailed rockfall trajectory analysis URS's Derby office proposed the Maccaferri CTR 10-04-B (1000kj MEL) dynamic barrier system to protect the 'Rock Room' visitor centre. Installation took place in January 2009.

LONG-TERM PERFORMANCE ANALYSIS The barrier components were supplied to the site in prefabricated kits comprising hot-dip galvanised steel posts, post-base plates, cables (including energy dissipaters) and interception mesh panels. The kit was supplied with the highest level of corrosion protection available at the time - "class A".

A comprehensive inspection was performed on the barrier and all of its components after 5 years of service on-site, exposed to the arduous conditions of the Coigach region.

The barrier was found to be in excellent condition. All main structural and functional components - posts, base plates, ropes, interception mesh ropes, secondary mesh and dissipaters - were found to be free of corrosion.

Minor superficial corrosion was found on a small percentage of the accessory components such as shackles and rope grips and the LEA panel clips. The corrosion was not extensive and did not compromise the functionality of any of the affected components.

Modern dynamic barrier kits are offered with a higher level of corrosion protection on all accessory components and ropes with hot dip zinc and zinc/aluminium alloy galvanization.

Client: Scottish National Heritage

Designer / Consultant: URS

Contractor: Skye Rope Access

Products used (Qty.)

Date of construction: 01/2009 - 01/2009

[Google Maps](#)

[Google Earth](#)



Dynamic Barrier completed at Knockan Crag in Jan 2009



Dynamic barrier condition in 2014 (view N) after 5 years on-site



Dynamic barrier condition in 2014 (view S) after 5 years of use



Patented aluminium dissipaters unaffected by corrosion (2014)



Galvanised rope grips showing very slight surficial corrosion (2014)