CASE STUDY

Rockfall Products

Project: The Christchurch Gondola
Date: July 2013
Client: Welcome Aboard
Location: Christchurch

GEOFABRICS®

Maccaferri Hybrid Fence

The Christchurch Gondola in the Port Hills area is an iconic tourist attraction in the region. The gondola ride from the base to the top of Mt Cavendish Summit is a 1km distance ride that goes through the crater rim of the Port Hills. The ride offers stunning views for the passengers overseeing Lyttelton Harbour.

After the 22nd February 2011, this favourite tourist attraction was closed due to the rockfall concern and the risk posed to the tourists should another earthquake happen. Since the event the client had been working with the consulting engineer Golder Associates to investigate the rockfall risk and design protection measures to ensure the risk was controlled to a minimum and in full compliance with the council's requirement.

In addition to trajectory analysis using computer software to determine the kinetic energy and bounce height of the falling rock; the engineer also carried out scaling of identified rocks above Summit Road, monitored their size and trajectory. This field test results provided invaluable data to assist the engineer in the simulation work using computer software and planning the necessary protection measures.

A number of different design approaches have been taken by the engineer in this project. Firstly, the larger rocks were scaled off from the slope surface so that the immediate rock source threat was taken away. The residual risks of potential rock fall was then further controlled by installing an attenuator fence up the slope of Tower 6. Attenuator fence features include its long drape and ability to attenuate or dissipate the energy of the falling rocks bringing them down at rest or allowing the rock to pass through the tail with much reduced energy. This particular attenuator fence was 40m long with a 4.0m high post with a panel drape length using Ring Nets of up to 14m long. With the vast experience Maccaferri has acquired in this specialist field internationally, this fence is design to be capable of handling a maximum impact kinetic energy of up to 2,000KJ the fence is supplied as a 'kit set' including base plates and anchors; with a standard installation manual and drawing to assist an engineer in the preparation of their design proposal.

Helicopter positioning the drape
Photo courtesy of Solutions2Access Ltd

Connection of ring net panels
Photo courtesy of Solutions2Access Ltd

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Completed Attenuator Fence Photo courtesy of Solutions2Access Ltd