

GREENHILL QUARRY ROCKFALL BARRIER SLAPE'S GULLY, ADELAIDE, AUSTRALIA

ENVIRONMENTAL/GEOTECHNICAL ENGINEERING/ROCKFALL BARRIER

Product: Maccaferri CTR 500KJ Flexible Rockfall Barrier

Problem

Boral Resources (SA) Limited's Greenhill Quarry is located on the south-western hillside of Slape's Gully adjoining Stonyfell Quarry in the Adelaide Hills. In the quarry there is a 90m high rock-face that was excavated in the 1940s above an area where trucks need to turn to dump materials into a conveyor feed bin.

The face was excavated using rudimentary techniques and in the last few years the blocky rock exposed in the face has begun to show evidence of deterioration. As part of an ongoing campaign of risk reduction, Boral contracted Rocktest Consulting to recommend solutions that would reduce the risks associated with any rock falls that occurred.

Solution

A detailed investigation was carried out involving a quantitative risk assessment and numerical modelling. There were two options initially considered, namely to install a flexible rock fall barrier (catch fence) to give protection for trucks and workers below or to install a 40 m long x 15m high Maccaferri drape netting over the higher section of the rock face. It was decided that the most cost effective, technically sound solution would be the installation of a Maccaferri flexible rockfall barrier, 25m above the toe.

A 3m high, 40m long Maccaferri 500KJ barrier was selected. This barrier has **ETAG 027** compliance (Falling Rock Protection Kits), indicating that it has undergone the rigorous testing necessary to comply with the European requirements for barriers of the rated capacity. The crash test involved a 1610kg boulder impacting the barrier at 25.6m/s. Maccaferri are able to provide flexible rockfall barriers up to 5000KJ (16'200kg boulder travelling at 25.77m/s). Please visit www.eota.be for more information on the ETAG 027 guideline. Retaining Wall Solutions Pty Ltd, a local contractor with the necessary qualifications and experience, completed the challenging installation well within the allocated timeframe.

Client name:

BORAL RESOURCES (SA) LIMITED

Contractor name:

RETAINING WALL SOLUTIONS PTY LTD

Design engineer:

ROCKTEST CONSULTING

Product used:

MACCAFERRI CTR 500KJ FLEXIBLE ROCKFALL BARRIER

Construction date:

DEC 2007



Drilling For The Anchors

Date: Dec 2007



Drilling For The Posts

Date: Dec 2007



Post Installation

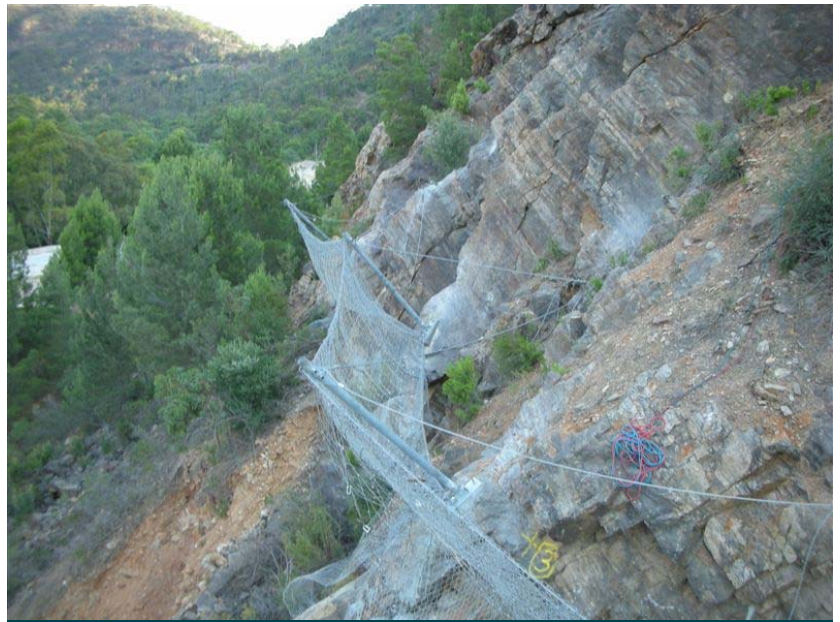
Date: Dec 2007

MACCAFERRI



Base Plate

Date: Dec 2007



Completed Barrier

Date: Dec 2007



Brake system before impact



Brake system after impact

Maccaferri CTR flexible rockfall barriers have an aluminium braking system that works by deformation and not by friction. This ensures that potential factors like rust on cables, inconsistency of galvanising and changes in temperature will not affect the behaviour of the system during impact. It also makes for a light system that is highly advantageous when it comes to challenging installations like this one.



Completed Barrier

Date: Dec 2007

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