

**HOUW HOEK ROCKFALL MITIGATION
WESTERN CAPE**

ROCKFALL DRAPERY SYSTEM

Product: HEA Panel

Problem

The rocky slope overlooking Route N1, presents cases of superficial alteration and degradation of the rock with consequent detachment of blocks. This instability posed a danger to the road system below. IA stabilization measure had to be introduced to prevent damage to persons and property.

Due to the area consisting of a rare natural value, the Clients request was to reduce the environmental impact, and ensure that the solution would blend with the surrounding topography.

Solution

The technical solution adopted was to protect the road and road users by draping the slopes with Maccaferri HEA panels. This is known as the Active Method of design and is based on the principle that the slope face is securely draped to keep detached rocks in position.

Rockfall Mitigation measures are either "Active": measures that act upon the causes of rockfall and inhibit its initiation, they prevent the detachment of blocks from their original position; or "Passive": measures that control a rockfall once it has occurred, so they do not directly interfere in the process of rock detachment, but control the dynamic effects of moving rocks

Maccaferri provides a wide range of RockFall Mitigation products all of which have undergone rigorous testing to comply with European requirements of barriers as per the ETAG 027 Specification. The drape mesh products range of double twist wire mesh with or without cables reinforcing to the High Energy Absorption (HEA) Panels. These HEA Panels are supplied in panel form from the production facility in the normal dimension of 6m x 3m but the panel dimension varies depending on the width and length of the panel required.

The new HEA Panel (High Energy Absorption) combines high strength features of the wire rope with the steel knot. The new knot is made by two bindings, each one obtained by looping a pair of 3mm class A, zinc coated wire according to Table 2 of SANS 10244-2. The two bindings tightly envelope the ropes crossing each other.

The panel is made of square meshes manufactured with one rope, closed by an aluminium pressed spinning cot, with resistance not less than 90% of the rope breaking load.

The specification and location for the barriers and site supervision was provided by Melis & Du Plessis Consulting Engineers (Pty) Ltd.

The complex construction work was carried out using boom lift and rope access techniques by Penny Farthing ENG. S.A. (Pty) Ltd.



Drapery guided by rope access



Gabions walls completing the lower section

Client name:

SANRAL

Main contractor name:

PENNY FARTHING ENG. S.A. (PTY) LTD

Consultant:

MELIS & DU PLESSIS CONSULTING ENGINEERS

Product used:

HEA PANELS, GABIONS

Construction info:

Construction date:	September 2010
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Completion date:	January 2011
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Benefits

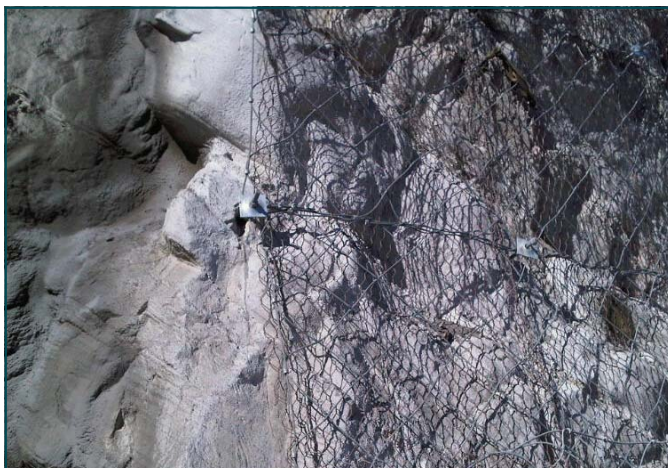
The benefits offered by Maccaferri products and solutions

The combination of using the HEA panels manufactured from cables at 300mm centres, attached to a double twisted wire mesh with 80mm by 100mm openings provided the engineer with a product that could address the need to secure in position both large rocks and small rocks that have the potential of breaking away from the rock face.

The strength of the HEA panels also allows a more economical spacing of the anchors needed to secure the mesh and panels to the rock face.

Gabions were introduced to augment the stabilization of the bank by providing a solution where the profiles of the rock face made it impractical to use a drapery system.

The use of gabions, the construction of which is a labour intensive operation, enabled the contractor to absorb some unskilled labour from within the area.



Anchored HEA/ Drapery mesh



Combination of HEA / Drapery mesh anchored to the face

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