

## ROCKFALL MITIGATION WORKS ALONG RAILWAY TRACK - VANGAL AND KARUR SALEM, TAMIL NADU , INDIA

### Surface Strengthening and Support

#### Problem

Salem Karur railway route is one of the busiest and saturated broad-gauge trunk routes in Tamil Nadu. Earlier these two locations were connecting via Erode Junction and it was a very long route.

To reduce extra kilometres and extra hours, a new broad-gauge line was proposed between Salem and Karur via Namakkal Junction. This new route reduced the traveling distance by at least 40 km. The distance of Karur-Erode-Salem was around 128 kms as against the new route which is only 85 kms.

The new railway track was laid out by cutting at number of locations. The side slope of this cutting area between Vangal and Karur was weathered rock and it had threat of rocks falling on to the track from this weak slope.

#### Solution

To reduce the risk of falling rock from cut slope of approx. 15m on to the railway line, Maccaferri proposed secured drapery system with raster of nails to impart surficial stability. The rockfall mitigation measures constituted of High Energy Absorption (HEA) panels (square type) with chain link mesh for surface protection.

Analysis and design were carried out to find out the maximum tension exerted by the debris accumulation on the mesh using In-house software.

The square type HEA Panel and the chain link mesh are anchored at crest using top anchors to hold the HEA Panel tightly and to provide greater strength to protective systems. HEA panels helped in minimizing the risk of failure. Anchor fasteners and bottom anchors were installed additionally on slope surface.

**Client:** Ferro Concrete Construction

**Designer / Consultant:** -

**Contractor:** Maccaferri Environmental Solutions Pvt Ltd.

#### Products used (Qty.)

- HEA Panels	39000 sqm (HEA SQ Panel)
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**Date of construction:** 01/2012 - 12/2014



Figure 1 Photograph showing the site before construction



Figure 2 Photograph showing the site during construction

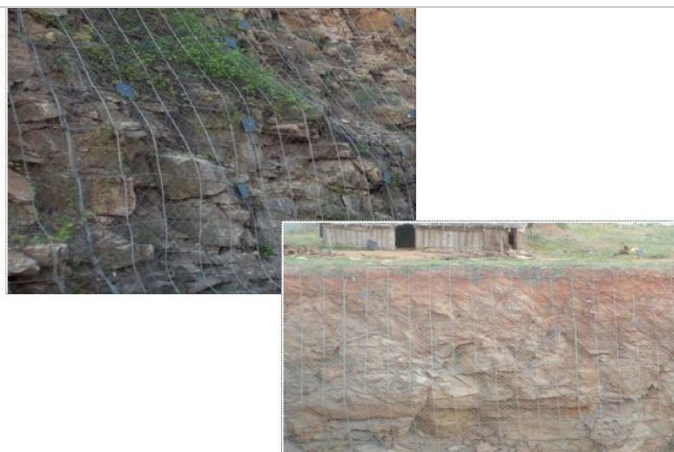


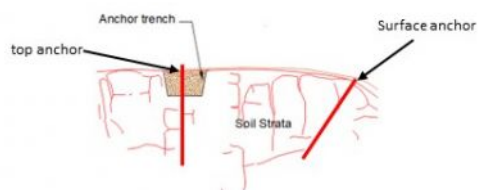
Figure 3 Photograph showing HEA panels installed on slope



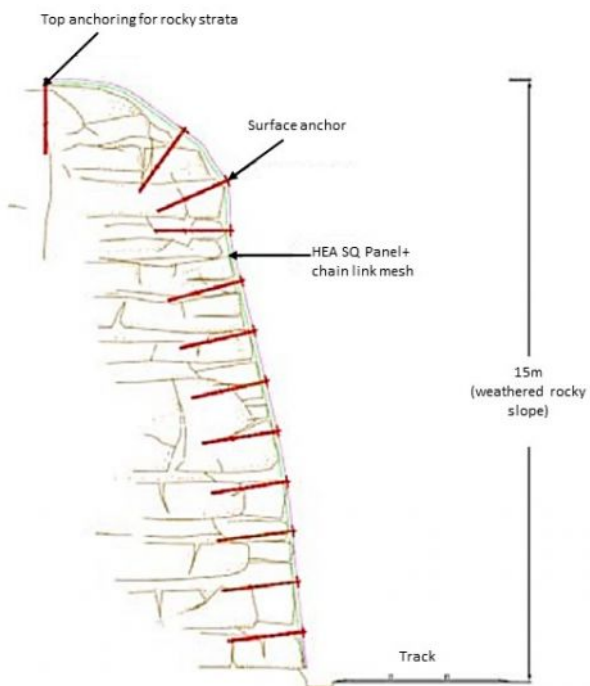
Figure 4 Photograph showing completed structure



Figure 5 Photograph showing completed structure



Top anchoring detail for cases where crest is comprising of soil strata



Typical Cross-section

## Typical Scheme

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