

ST. ANNES RAILWAY CUTTING PROTECTION BRISLINGTON , BRISTOL, UNITED KINGDOM

Dynamic Barriers

Problem

To reduce the risk of falling vegetation and rock debris onto the main London to Bristol railway line, revegetation and descaling of the sandstone rockface above the line was carried out in April 2006. The works were subcontracted to Greenman Environmental Management Ltd by Network Rail's area maintenance contractor, Dean and Dyball. This work revealed a large pre-existing 8 m-long tension crack behind a large sandstone block. The movement of this block onto the main line could be catastrophic.

Consultants White Young Green implemented a weekly monitoring regime of the slope until remedial works could be designed and sourced to stabilise this vulnerable slope area. Throughout the entire process, the main line had to remain open to 100mph traffic and could not be closed either before or during the works.

Solution

White Young Green designed a series of interventions on the rock face to stabilise it. A mesh of high tensile cables was strapped across the sandstone block to stabilise it, whilst a mass concrete block was installed beneath it. This stabilised and protected the weak shale within a concave area directly beneath the massive block.

Having overcome the most pressing issue, WYG turned their attention to stopping smaller, yet still significant debris falling onto the main line. WYG determined that a barrier capable of accommodating a 100 - 250kj rockfall event would be suitable. The system needed to be certified to meet the energy absorption resistance.

Maccaferri suggested its OM250 Rockfall and Debris Flow Catch Fence, independently certified to offer an impact energy resistance of 250kj. The barrier would be 2m high and 35m long with support posts at 5m centres.

Client: Dean & Dyball Ltd

Designer / Consultant: White Young Green

Contractor: Network Rail

Products used (Qty.)

Date of construction: 12/2006 - 03/2007

[Google Maps](#)

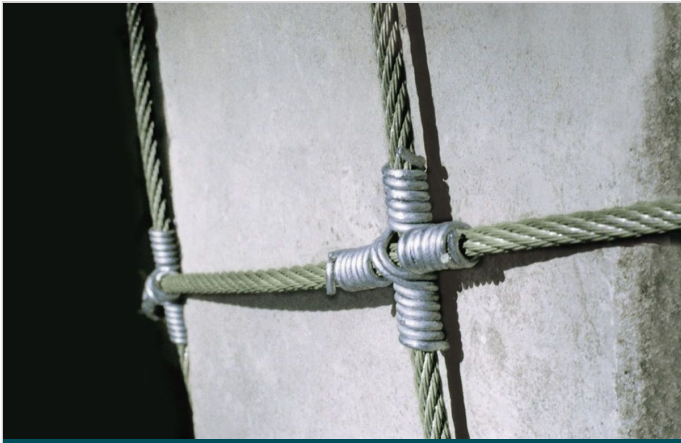
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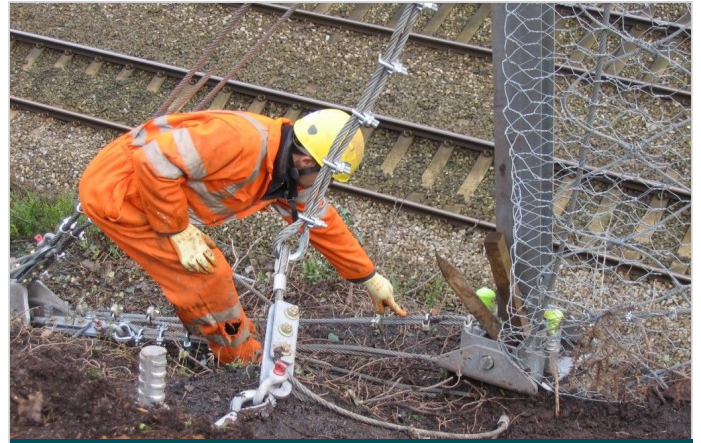
OM250 barrier installed above the Bristol - London railway line



Barrier / Catch fence above railway line



Detail of the cable connection used within the catch



Adjustment of the cables and friction brakes during installation



Intermediate fence post head detail