

COOKSBRIDGE RAIL United Kingdom

Application: SOIL NAILING – SLOPE STABILIZATION
Product: SteelGrid™ HR30

Problem

Following the failure of a cut slope, a geotechnical investigation revealed the presence of a number of slip areas in the vicinity of a retaining wall. The decision was taken to stabilize the cut slope using soil nails and a high strength flexible facing mesh instead of replacing the retaining wall.

The design solution covered a 650 lin.ft. length of trackside slope which varied in height from 40 to 100 feet. The stabilization design included over 680 soil nails, each up to 20 feet in length, with a high strength steel wire mesh facing. In addition to being high strength, the mesh's low elongation was also considered important as the acceptable maximum deformation of the facing system was limited so as not to interfere with the rail right-of-way.

Solution

The main contractor Volker Fitzpatrick approached Maccaferri for the supply of a suitable high strength steel wire mesh product for the stabilization of the cut slope.

Maccaferri worked closely with the designer to establish the most suitable product for the stabilization. SteelGrid™ HR30 was deemed to be the most appropriate material with its tensile strength of over 12,000 lbs/ft at only 6% elongation and its in-isolation punch strength in excess of 11,000 lbs force with less than 10 in. of displacement.

The soil nail wire mesh system was installed in a staggered or triangular anchorage pattern and in certain areas, over a biodegradable erosion control matting. In addition to its exceptional engineering characteristics, the SteelGrid™ HR30 was simple and easy to install as it required no need to overlap or pre-tension the mesh. These advantages made the SteelGrid™ HR30 the most cost-effective option for this high-profile project.

Client:

NETWORK RAIL

Main contractor:

VOLKER FITZPATRICK

Designer:

TONY GEE AND PARTNERS

Date of construction:

AUTUMN/WINTER 2011



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