Dawlish Slope Stabilisation

Client :
Network Rail

Designer :
Tony Gee & Partners

Main Contractor :
Carillion

Location :
Devon

Date :
2009

The mainline between Exeter and the west passes along the English Riviera in Devon. In places, Isambard Kingdom Brunel's track has been squeezed between the sea and the cliffs rising vertically above it.

Weathering of these very exposed cliffs presents Network Rail with the risks of spalling material falling onto the busy twin tracks below. Following an extensive risk assessment study by designer Tony Gee and Partners, certain zones were prioritised for stabilisation to protect the railway below. Normal train operations continued while the cliff stabilisation works were carried out.

The success of the project has been made possible by early contractor involvement in the design and planning of the works. Robust and safe working methods included special rope supported drilling plant and equipment, designed and developed in house by BAM Ritchies, bespoke protection systems, a high degree of on site supervision and above all a fully trained and competent work force having the widely recognised 'Industrial Rope Access Trade Association' certificates for rope access working. In addition BAM Ritchies has a very strong commitment to full HSQE training of all employees, most of whom have achieved or are working towards relevant NVQs

The work at Dawlish has involved the stabilisation of 120m of New Red Sandstone cliffs up to 40 metres high between two tunnels with the Shell Cove section situated on private land above the dual line.

Dywidag GEWI soil nails (generally four metres long) and 270 GEWI face soil nails were installed using rope supported rigs, utilising purpose built feed beams and 'bubble' wheels to assist movement on the face. These rigs are lightweight but robust and have proved to be very successful on the steep and undulating conditions present on this part of the site.

Additionally 530 GEWI face pins one metre long were installed to secure the surface facing of hexagonal twist wire netting with an erosion control matting underneath. The complex concave shape to the face in places presented an interesting setting out task for the team's engineers who also produced detailed as built drawings for future reference.

The Shell Cove site was split into three areas located between the meanders of a private footpath leading down to Shell Cove private beach. Work was undertaken in a 'top down' method to ensure protection to the workforce.

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