Earthworks & Drainage

Client:
Handsworth Cutting

Location:
Deepcar, Cleethorpes

Summary

Handsworth cutting on the Deepcar to Cleethorpes line is cut through coal measures with bands of sandstone and siltstone/mudstone. The local geology has weathered leading to unstable cutting slopes with a history of rockfalls in the cutting, most notably one causing the derailment of a train in 1996 on the Up Main.

Project Overview

Our designers AECOM proposed a solution consisting of a variety of rock fall protection measures:

- The steeper sections of the cutting would be secured with a combination of rock fall netting and rock bolts.
- A series of low and high capacity rock fall fences would protect the track from the shallower rock and soil slopes.

The wide cess area provided an opportunity to utilise specialist plant to install anchor bars for the catch fences, which could operate safely behind a safety fence during normal day time hours. The movement restricted plant, operated under the guidance of the site specific ALO Plan (Any Line Open), eliminated the need for mid-week night time working, and reduced the number of possessions required to complete the works.

Our multi-skilled in-house rope access teams completed all vegetation clearance, rock scaling operations, drilling works, and the installation of nearly 4000 square metres of rock netting.

Summary of the installation

- 3800m2 of rock netting
- 277 top and bottom anchors
- 110 profile anchors
- 40 rock bolts
- 460 linear metres of low and high capacity catch fences (100kJ & 500kJ rockfall barrier)

Successes

Utilisation of specialist restricted access plant reduced the requirement for possession works, further reducing programme and installation costs.

Collaboration with the design team drove further cost efficiencies by replacing some sections of proposed low capacity catch fence with a rock trap ditch where space permitted, without reducing the effectiveness of the design.