

Railway Drainage

Sprayed Concrete, Deckdrain, Network Rail, Werrington, UK



Project Description

As part of a study into increasing capacity and reducing journey times on the East Coast Main Line (ECML) for long distance, high speed passenger services; Network Rail identified that a new grade separated junction at Werrington would be required. Through an option selection process it was determined that a dive-under would allow slow moving freight traffic to pass below the ECML.

The site is situated at Werrington Junction, 5km to the northwest of the city centre of Peterborough. The existing land was primarily agricultural with a relatively high water table.

Network Rail appointed Morgan Sindall to implement the scheme, with Mott MacDonald and Tony Gee appointed as partners to undertake the detailed design.

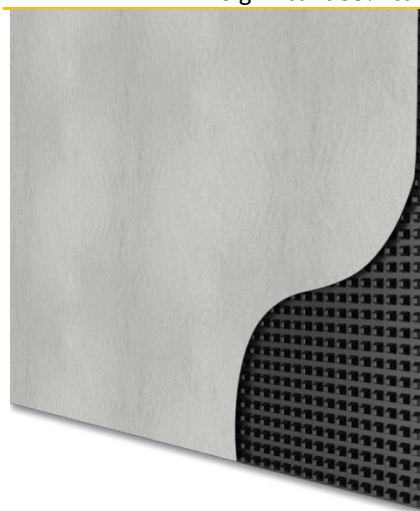
The Challenge

As the new tracks pass below the ECML at circa 8m below existing ground level, ramps of a suitable gradient (1in110) are required to bring the tracks back to the level to connect to the existing railway. The ramps required a solution that considered a number of factors such as construction cost, minimising land take and construction duration. The chosen solution for a section of one ramp was a 60° soil nailed slope with a concrete facing to ensure the long term stability of the naturally present clay.

The challenge was to create a retaining structure that would reduce required excavations, enable fast installation, reduce transport cost, achieve substantial carbon savings and meet design requirements on this sensitive location.

Project Information

Client	Network Rail
Contractor	Morgan Sindall/ BAM Ritchies
Consultant	Tony Gee and Partners LLP
Products	Deckdrain 700S/ST170
Quantity	4,500m ²
Benefits	<ul style="list-style-type: none">• All-in-one drainage & barrier• High flow capacity• Excellent bonding with shotcrete• Fast installation• Significant 55% carbon saving



ABG Deckdrain 700S/ST170 Geocomposite

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The Solution

ABG worked with the designer to develop a geosynthetic solution that provides the required drainage flow capacity and an effective barrier to ensure the long term performance. The BBA certified **ABG Deckdrain 700S/ST170** geocomposite drainage was specified for this application. Deckdrain geocomposite with an impermeable back HDPE cusped drainage core provides an excellent bond with shotcrete, requiring reduced excavation and saving a significant 696t of carbon. The geocomposite was installed against the embankment and 10m long soil anchors were drilled and grouted to achieve the required stability. Two layers of reinforcement mesh were installed before the final 250mm thick shotcrete wall was sprayed to the bank.



Deckdrain geocomposite, reinforcement and soil anchor installation

The ABG Service

ABG provided assistance and technical support during the design, trial and installation on this project.



Completed retaining structure



Shotcrete spraying onto Deckdrain geocomposite

Contact ABG today to discuss your project specific requirements and discover how ABG past experience and innovative products can help on your project.