

NORTH WALES COASTROAD (A55) CONWY, WALES, NORTH WALES, UNITED KINGDOM

Basal Reinforcement

Problem

This contract is one of a series to construct a continuous grade-separated carriageway along the North Wales coastline to improve the link between Ireland (by way of Holyhead) to the Channel ports.

This particular construction provides the approach to an immersed tunnel crossing of the Conwy estuary. An 8m high embankment to carry the carriageway is founded on soft alluvial estuarine clay overlaid by a layer of refuse material, 1m to 4m thick.

Solution

Where the alluvial clay was at its shallowest, after having removed the refuse, a separator geotextile was placed to provide a separation filter layer below a drainage blanket of single-sized 37.5mm crushed rock. Over the deepest clay area, a drainage blanket (0.4m) was placed directly onto the stripped ground. Vertical band drains were then driven through to a depth of 6-10m to shorten the period for dissipating pore water pressure below the embankment.

Paralink 300 was then placed before completing in controlled lifts the remaining 2.2m of drainage stone. Paralink was introduced to take up the stresses imposed by the settlement of the embankment and thereby even out any differential movements.

Instrumentation has been installed under the embankment to monitor the settlement profile, edge movements and pore pressure. No significant displacement has been recorded proving the effectiveness of the solution proposed.

Client: Welsh Government

Designer / Consultant: Travers Morgan & Partners
(Now CAPITA PLC)

Contractor: Costain/Tarmac JV

Products used (Qty.)

Date of construction: 03/1986 - 10/1989

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Paralink® installation



Paralink® covering the installation area



View of the completed dual carriageway