

Case Study – Soil Nailing in Sand, Gibraltar

Project

- The widening of a single lane coast road in Gibraltar to improve the only road skirting the north side of the rock.
- Footprint of the new carriageway to be won by excavating into extensive weakly cemented sand deposits and constructing a substantial retaining structure over the scheme length.

Client Requirements

- A design and build solution to provide temporary stabilisation of the over-steepened sand deposits. This to allow safe construction of the permanent rc retaining structures.

CAN Solution

- The main contractor undertook all earthworks whilst CAN Geotechnical's works comprised the stabilisation of the newly cut 60° face.
- The face was cut in 1m benches and CAN installed over 1200 Dywidag hollow self drilling anchors, up to 7m in length forming an eventual face height of 14m.



- Grout flush was required to maintain hole integrity during drilling, enhancing holding power by increasing the effective diameter of the grout body.
- Tensar SS40 was used as a structural surface reinforcement in conjunction with a geotextile under-blanket to prevent drying out and thereby maintain the cohesion within the sand. Due to the extreme heat, it was essential to minimise the time that any of the cut face was left exposed.
- Close cooperation between CAN and its design partner, Hyder Consulting, was essential in order to respond quickly to constantly changing ground conditions.
- The final element of CAN's works was the removal of breccia using a non-explosive demolition agent, to form a uniform slope profile on the approaches.