

NEW DEEP WATER QUAY

AV Dawson - MIDDLESBROUGH (2012)



When AV Dawson first took over the North Sea Supply Base in 1998 the water depth was only 4m. It was heavily silted and strangling the potential of the site to attract larger offshore related projects.

The new deep water berth, costing 3.2m, will be 8.5 metres deep and 150 metres long with the majority of work expected to be completed by August. It will be used by specialised support vessels which come to berth before fitted out to do offshore ie. surveying and trenching.

Dawson Contract Piling were awarded the contract to drive 158 off Ø508 32 metre tubular piles in the construction of the new deep water jetty.

All piles were driven to the required level and in the required time scale to the satisfaction of the client.

Technical Specifications

Dawson Contract Piling were required to drive 158 off Ø508x16mm tubular piles @ 32m long.

Initially 4 off Ø610 guide tubes were driven by the LRB255 rig with the intention to pre-auger. Due to the very dense band of iron ore, slag type of material, auguring was not an option.

A Slag Displacement Pile (SDP) was manufactured using a Ø610 tube with a fabricated point. The point of the SDP enables accurate positioning to allow it to create the void in its own right.

The first 4 off Ø610 guide tubes previously installed were extracted and with the SDP's immediately driven in their place, displacing the slag and dense material leaving a clear 6.0m to 7.7m deep guide hole.

The SDP remains in place until the 32m Ø508x16mm thick tube is in position and ready to be immediately inserted into the hole left upon removal of the SDP.

A Gotwald crane supplied by A.V. Dawson lifted the Ø508 tubes to the vertical and pitched into the void left in the slag by the SDP. The Ø508 tube penetrated 5.5m minimum to enable the LRB255 to have enough head room to safely attach the vibro unit to the 32metre long tube.

The tubular pile was driven to a level using the LRB255 c/w resonance free vibrator. The above process was repeated for the remainder of the tubular piles.

The final back driving of each tubular pile was carried out with a crane suspended DCP HPH6500 hydraulic drop hammer.

Summary of Soil Conditions at the proposed Jetty

Depth	Lithology
0.0 - 0.2	Made Ground - Concrete (broken out by client)
0.2 - 4.0	Made Ground - black gravelly ashy slag fill
4.0 - 7.6	Made Ground - Slag fill
7.6 - 12.1	Medium dense becoming loose dark brown/black slightly gravelly SAND
12.1 - 21.5	Soft locally firm dark grey soft silty laminated CLAY
21.5 - 27.1	Firm becoming stiff with depth, grey soft sandy laminated CLAY with lots of organic bands
27.1 - 27.2	Weathered MUDSTONE

