

**A6 to MANCHESTER AIRPORT RELIEF ROAD – BRIDGE B002****MANCHESTER**

The A6 to Manchester Airport Relief Road Scheme will provide a new, approximately 10km long, dual carriageway with new sections of road built from the A6 at Hazel grove to the eastern end of the existing A555 at Wilmslow Road, Handforth to Manchester Airport and the spur road to the M56.

The scheme involves the construction of approximately 13 bridge structures and 17 retaining walls. Four of the bridge structures will cross railway lines.

Bridge B002 at Hazel grove is one such bridge and will carry the existing Stockport to Buxton railway line over the new road. The bridge is supported on four 2.3m diameter bored piles constructed with permanent casings. The piles were installed using rotary techniques using a heavy duty hydraulic piling rig with depths of up to 20.0m below piling platform level. To minimise rail disruption all four piles were installed whilst trains were still running. Several geological faults lie immediately below the site and resulted in varying toe levels being required for the piles. A design penetration of 9.0m was required into the medium strong Sandstones, siltstones and Mudstones of the Middle Coal Measures Group.

Reinforcement cages comprising 40no 50mm diameter bars were provided in lengths of up to 16.0m. Complex tandem lifting arrangements were required using both the piling rig and the attendant service crane.

**CLIENTS**

Manchester City Council  
Stockport Metropolitan Borough Council  
Cheshire East Council

**CONSULTING ENGINEERS**

Aecom  
Grontmij

**MAIN CONTRACTOR**

Carillion Morgan Sindall Joint Venture

**ROLE**

P J Edwards & Co (UK) Ltd acted as  
Piling Contractor

**SPECIFICATION**

Specification for Highway Works

**EQUIPMENT**

Delmag RH34

**CONTRACT PERIOD**

Sept - Nov 2015

**CONTRACT VALUE**

£273k

**CASE STUDY**

The piles were constructed using 2.4m diameter permanent mild steel casings which had to stay in place to avoid undermining the adjacent railway tracks. Due to unforeseen changes in ground conditions associated with the geological faults the permanent casings had to be lengthened by welding on site to provide a reliable support for the pile shaft.

The piles were constructed with Sonic Coring tubes to allow cross-hole integrity testing to take place down the concreted pile shafts.

On completion of the piles in situ pilecaps were constructed within the permanent casings. At the same time the prefabricated bridge deck was being assembled adjacent to the piling area. The bridge deck was constructed with precast concrete bearings at each end.

The completed deck was manoeuvred into place using powered lifting units during a single night shift to avoid disruption to the railway.



Installation of the 2.4m dia permanent casing



Complex tandem lifting of the reinforcement





Prefabricated Bridge Deck before and after manoeuvring into place