P J EDWARDS & CO (UK) LTD

PJE

CASE STUDY

A6 to MANCHESTER AIRPORT RELIEF ROAD
BRIDGE B010 RETAINING WALLS - STOCKPORT

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 B010, south of Bramhall, is one such structure and will form an underpass where the new relief road will pass under the existing A5102, Woodford Road.

The underpass is retained by contiguous bored pile retaining walls using 900mm diameter continuous flight auger piles. Using two heavy duty CFA rigs installed a total of 234 piles with depths ranging up to 21.0m below ground level. The piles were drilled through loose sands, firm clays and founded into stiff gravelly clays with mudstone fragments (Glacio-fluvio-cohesive).

The piles were reinforced with up to 9B40 main bars with overall cages lengths of up to 21.1m. Cage vibrators were employed to insert the longest cages which were fitted with stiffening plates welded at the top.

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
Two Llamada P150TT Continuous Flight Auger Rigs

CONTRACT PERIOD
June - August 2016

CONTRACT VALUE
£1.46M

The fast track programme required prompt pile trimming following pile installation

The design for the structure stipulated that the underpass lining walls should be securely attached to the bored piles. This was achieved with the use of proprietary reinforcement continuity strips attached to the pile reinforcing cages prior to concreting. These were provided in 1.2m long strips for alternate piles on their excavated faces. The system uses pre-bent reinforcement in purpose built boxes which are exposed after the piles have been excavated. The reinforcing legs are then bent out and cast into the lining walls. This system negates the need for traditional drilled anchors and gives the main contractor significant programme benefits.