P J EDWARDS & CO (UK) LTD

PJE

CASE STUDY

CRAY BRIDGE REPLACEMENT

SCOTLAND

Cray Bridge is located approximately 30 miles north of Perth just off the A93 in the Scottish Highlands. The contract involved the complete replacement of the bridge which is situated between two very tight bends on the narrow B951 as it spans the Shee Water.

The piles specified to support the new structure were 6 No 750mm diameter bored piles each approximately 20.0 metres deep; 3 No on each side of the river.

The expected ground conditions were topsoil, peat and sand overlying dense coarse gravel with large cobbles and boulders. Not a job for the faint hearted.

Normally for these anticipated ground conditions, with high risk of encountering boulders, a traditional kelly bar rotary rig would be employed using either long sectional casing or a support fluid. However, due to our long standing experience with the installation of piles in difficult drilling conditions; P J Edwards had the confidence to offer the client a cost effective, and programme beneficial, continuous flight auger (CFA) option.

ULTIMATE CLIENT
Perth & Kinross District Council

CONSULTING ENGINEERS
Atkins Limited

MAIN CONTRACTOR
Raynesway Construction Ltd part of Balfour Beatty

ROLE
P J Edwards & Co (UK) Ltd acted as piling contractor

SPECIFICATION
Specification for Highway Works

EQUIPMENT
Llamada P150-tt Piling Rig

CONTRACT PERIOD
July – August 2012

In order to minimize the risk of early refusal, the piles were installed using a powerful high torque Llamada P-150TT CFA piling rig from our own fleet. The rig has a maximum drilling torque of 27 tonne metres and an operating weight of 102 tonnes. Working space was near non-existent.

Working in conjunction with the client, P J Edwards were also able to re-detail the long heavy 20B32 rebar cages. This included off-site prefabrication of single length reinforcement cages pre-fitted with head attachments to allow the use of a cage vibrator if required. Debonding sleeves to the rebar ensured efficient trimming of the piles.

During early discussions it became clear that the existing bridge was not capable of supporting the weight of the piling rig. Therefore following the installation of the west abutment piles the piling rig had to be completely de-mobilised and taken round by road to the other side of the river. This also included the removal of the ballast weight in order to reduce axle weights in transport. The tortuous route included negotiating 60 miles of tight highland back roads.