CORNISH CONCRETE PRODUCTS LTD

# ALDERLEY EDGE BRIDGE

These beams, which form part of a rail bridge over a new bypass around the pretty Cheshire village of Alderley Edge near Wilmslow, will be placed during the Christmas 72 hour railway closure.

Each beam weighs 133 tonnes and this would have been greater still had it not been for a 9m$^3$ polystyrene void form cast-in in order to reduce the overall structure weight. Included in each beam was 19 tonnes of steel reinforcement. The beams will be loaded with the assistance of two 250 tonne cranes at CCP's premises and will then be delivered by specialist transport to site. They will subsequently be assembled on site together with the steel bridge prior to the Christmas shutdown.

During the Christmas railway shutdown, the entire 700 tonne structure will be lifted up and placed.

The base of the shutters was a huge matrix of steel girders to support the soffits of the beams and was large enough to ensure that both beams could be poured side by side. After the initial curing of the first beam was complete, the side shutters were simply transferred to the second beam.

The pouring of the beams was meticulously planned utilising a concrete pump as well as both of CCP's Batching Plants to ensure that a high rate of pouring could be maintained. Unusually, for structures of this size, the maximum aggregate size was 10mm, principally due to the levels of steel reinforcement and their proximity to each other.

The bridge has been designed by Atkins and uses abutments piled using precast caisson type units with 75mm Macalloy bars protruding. Thirty-two 150mm diameter holes have been drilled to take the 75mm diameter Macalloy bars. There are eight post tensioned holes at each end of the beams which have anti burst rings around them.

The beams will be joined together with the steel bridge structure using four 50mm thick bearing plates cast into the beams. The whole structure will then be lifted into place using a lifting beam connected to the 50mm stainless steel Macalloy cast in.

Once the 700 tonnes structure has been placed, the bridge will be then post tensioned. Work will then continue with the road below where the level will need to be dropped some six metres below the new bridge.

(Status: ISO *9001: 2000*)

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