



Myton Bridge, Kingston upon Hull

For the Humberside County Council

The Myton Bridge spans the River Hull some 350 metres North of its confluence with the Humber estuary and carries dual three-lane carriageways and footpaths plus a central median. It is designed to Department of Transport loading (including 45 units of abnormal HB vehicle) and other specified abnormal vehicles up to 330 tonnes.

The approaches situated in a built up and possible future development area were required to be kept low. This demanded an opening bridge to permit passage of vessels up to 1500 tonnes gross weight and 60m in length.

The river configuration necessitated arrangements unusual for an opening bridge. The solution – a counter-balanced unequal span cable-stayed steel box-girder swing bridge having a width some two-thirds of the navigation span length – is possibly unique.

The moving bridge 32m x 83m weighs 2000 tonnes. There are twin welded steel box girders of 2.5m constant depth interconnected by cross girders and three cross boxes.

The use of steel box girders gives the structure high torsional stiffness despite its considerable width. Deflections during swinging are minimised, only one plane of cable stays is required and 600 tonnes of counterweight can be accommodated with the box girders.

The very shallow depth achieved by stayed construction reduces the number of daily bridge movements. Much river traffic can pass with the bridge in the closed position.

Site fabrication was kept to the minimum and the box girders weighing between 25-40 tonnes were assembled on site on falsework in the "open to shipping" position.

Sophisticated control systems (including emergency standby) and interlocks are provided to ensure correct sequence of operation and minimise interruption to traffic. The steel tower supporting the stays incorporates the operator's cabin which affords a clear view of both road and river traffic.

Consultant Architect: R E M Slater RIBA

Structural Engineers: Freeman Fox & Partners

Steelwork Contractor: Cleveland Bridge & Engineering Co Ltd

Judges' Comments

The road alignment and site conditions at this bridge presented the designers with unusual problems which have been solved very effectively to create this attractive and economical cable-stayed swing bridge, which is probably the first of its kind. Structural steel was the obvious medium to keep weight down to a minimum. The whole project has been well designed and executed bearing in mind requirements for inspection and maintenance.