

Tinsley Viaduct for the Ministry of Transport

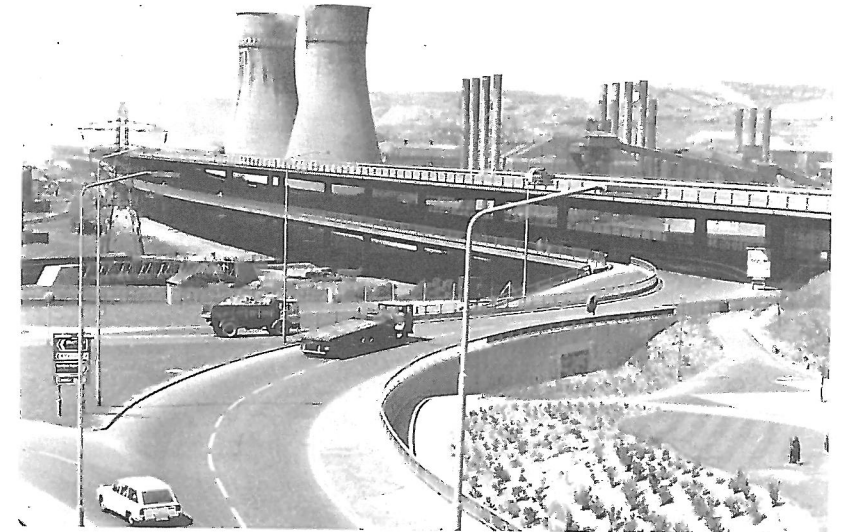
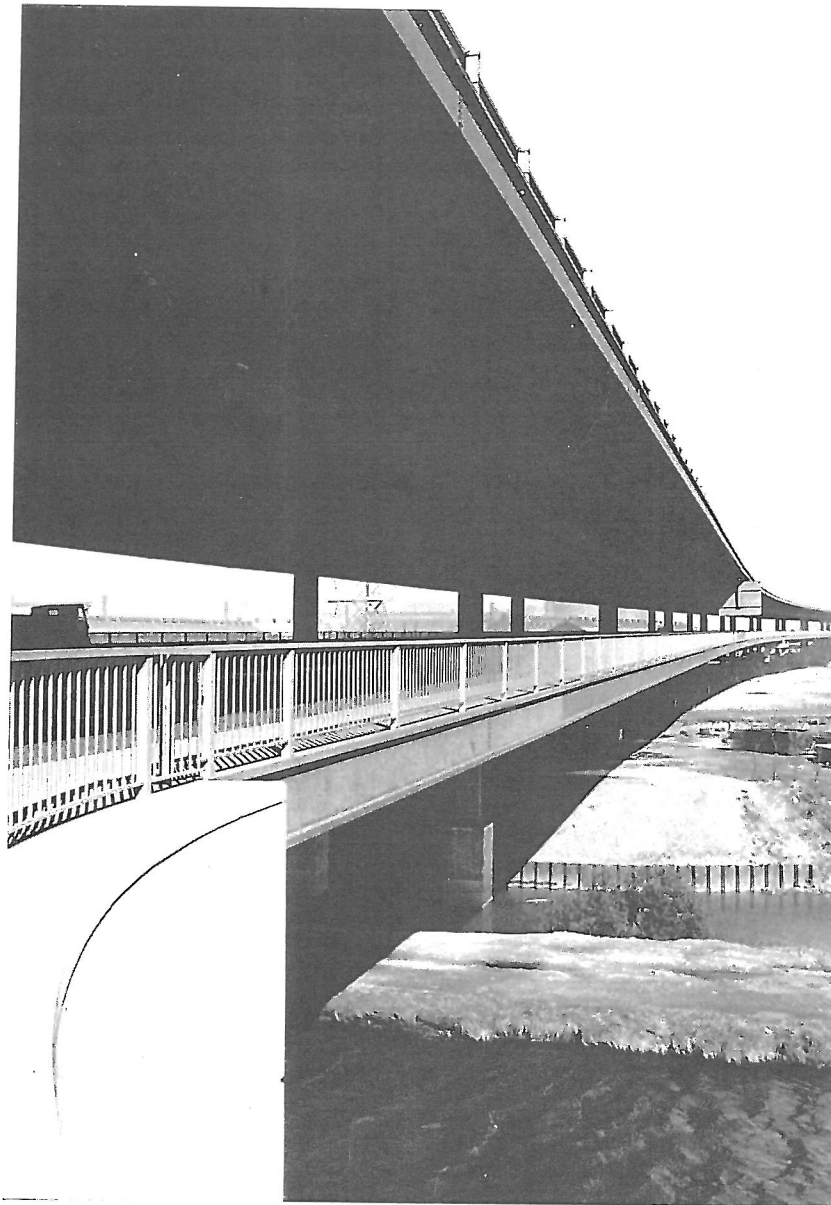
**Design Office**  
Freeman Fox & Partners

**Steelwork Contractor**  
The Cleveland Bridge & Engineering Co. Ltd

#### **Judges comments**

The graceful curves and clean lines of this bridge represent an outstanding achievement in the economic and efficient use of steel. Highway layout requirements necessitated a reverse curve in plan and this, together with other difficulties posed by many obstacles and site constraints, including the possibility of mining subsidence, were overcome by the structural solution adopted.



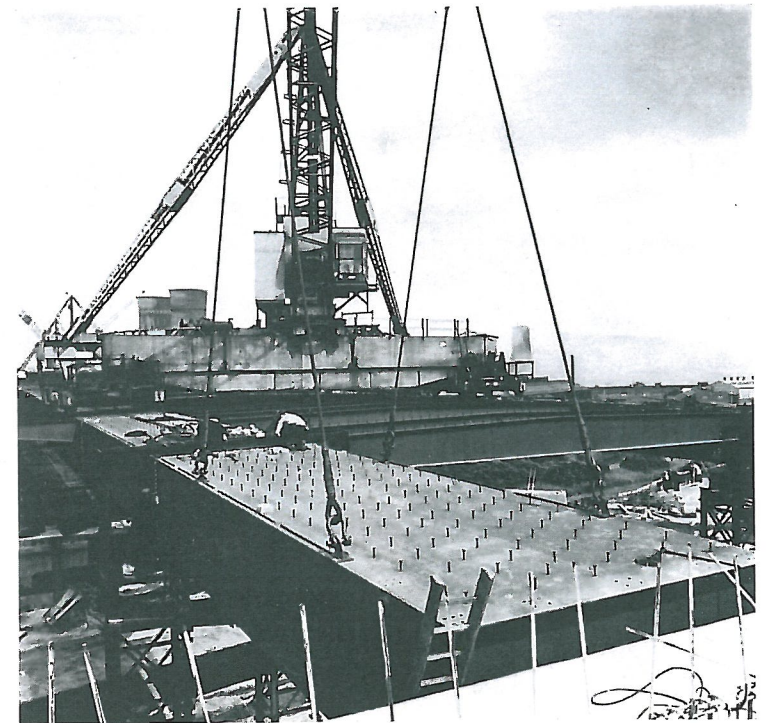
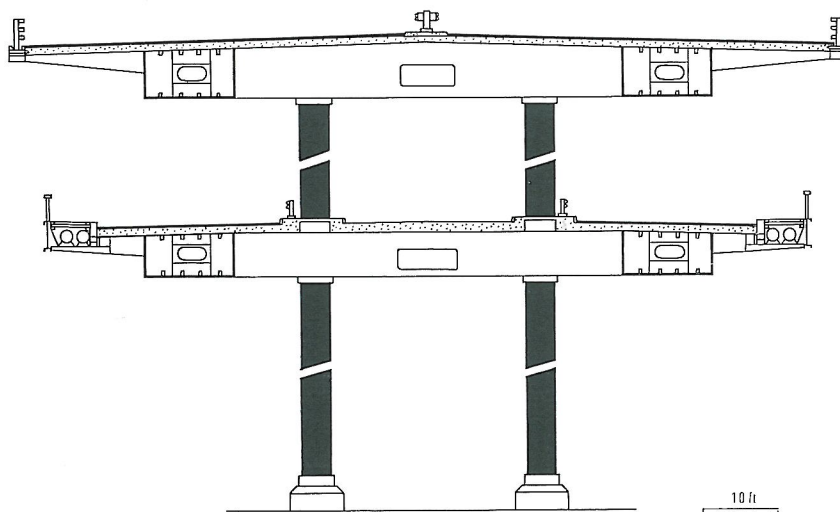
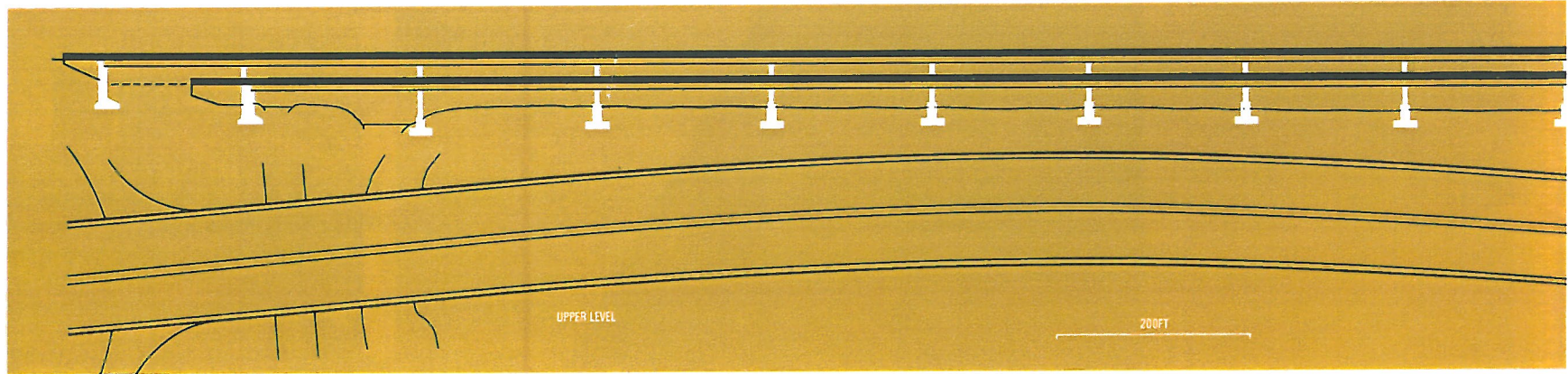


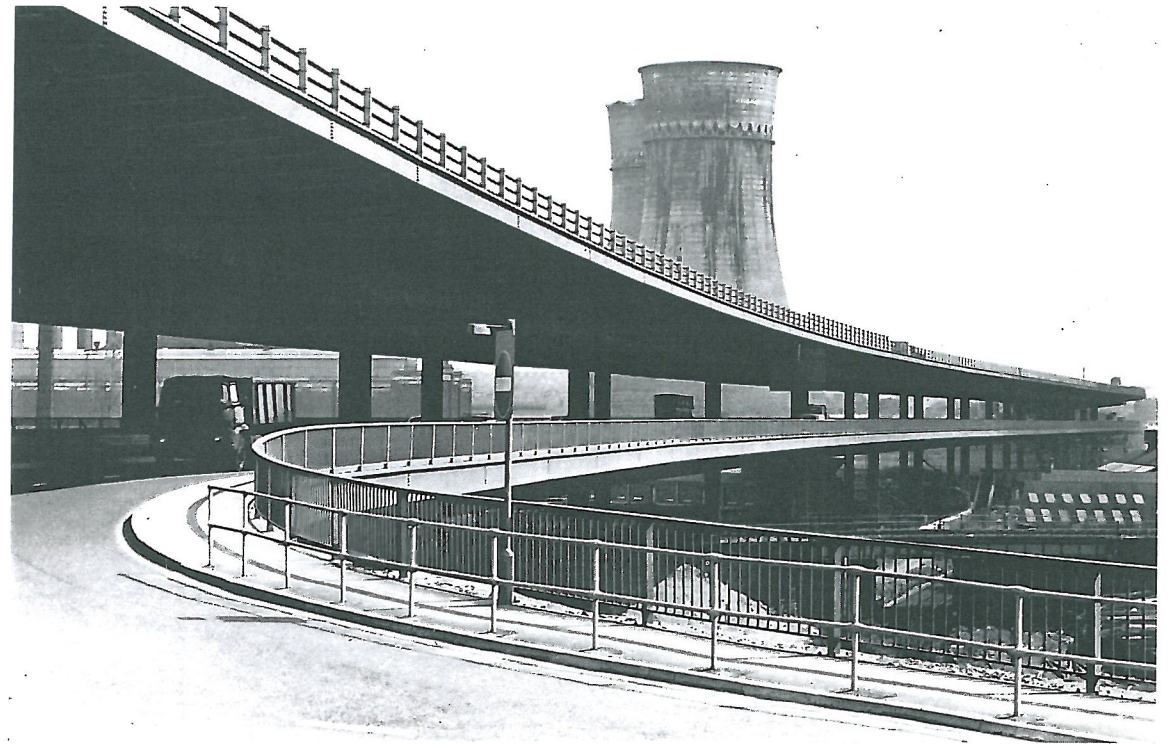
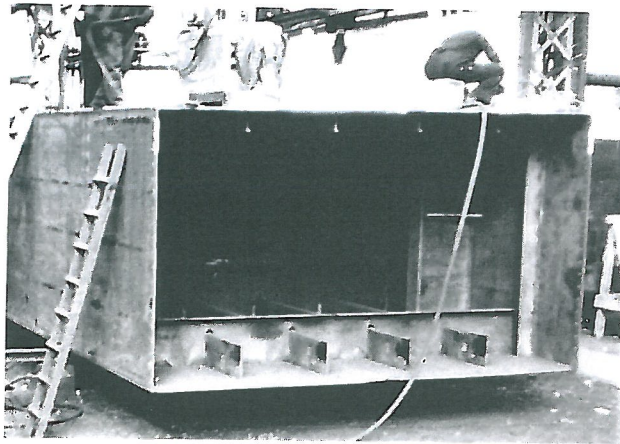
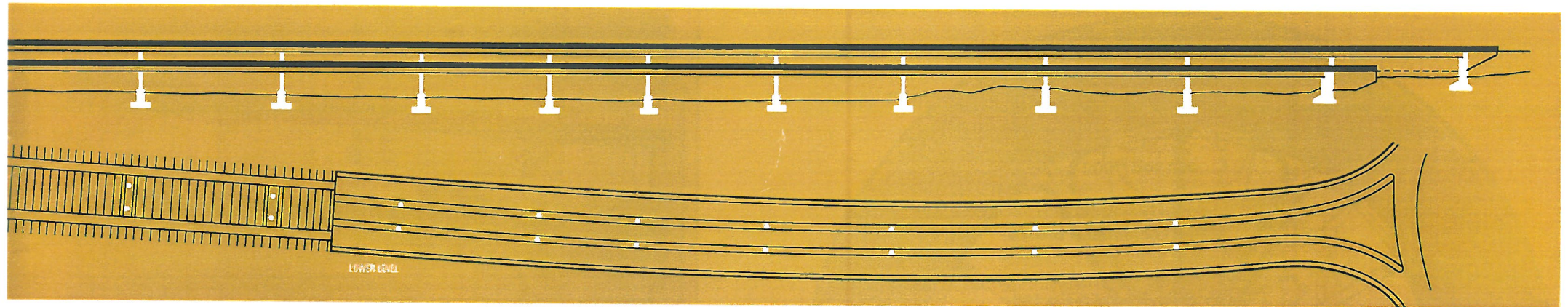
### Description

Tinsley Viaduct is a two level structure crossing the Don Valley in Sheffield. The upper level carries the M1 with three lanes and a hard shoulder in each carriageway while the lower level carries a dual carriageway trunk road with 2 lanes in each direction together with 7ft footways and a 22ft service road.

The viaduct is 3388ft long and is divided into 20 spans up to 181ft 9in long. Each level is supported by two longitudinal box girders of welded construction in high yield stress steel. Each girder is 12ft wide and approximately 6ft 6in deep. The fabricated cross girders and cantilevers occur at 10ft intervals. The decks are carried on independent, rocking, steel box columns on reinforced concrete piers. Longitudinal anchorage is provided by the abutments at the north end while there is a single expansion joint at the south end, more joints being made unnecessary by the structural continuity. The use of steel resulted in a considerable saving in dead load compared with concrete. The continuous structure, by absorbing longitudinal forces, also enabled the size of the pier foundations to be reduced.

Bridgework section





By fabricating the steel units off the site and following a cantilever sequence of erection, congestion on the restricted working area was prevented and the use of land beneath the structures was minimised. The weight of steel in the structure is 12,278 tons of which 10,000 tons is of high yield stress quality.