

Bridgework Section

Maryville Interchange
for the Scottish Development Department

Design Office
Babtie, Shaw and Morton

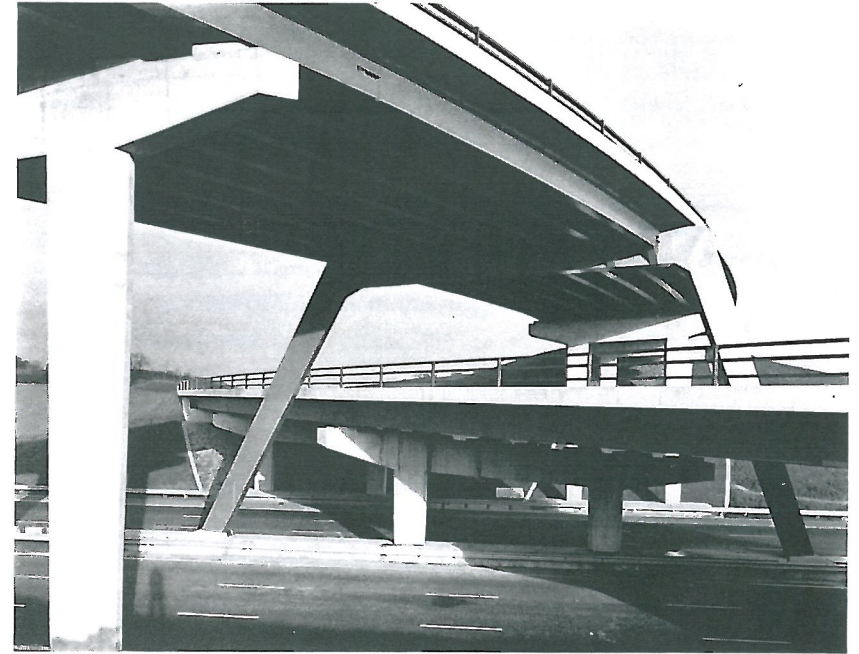
Steelwork Contractor
Sir William Arrol & Co. Ltd

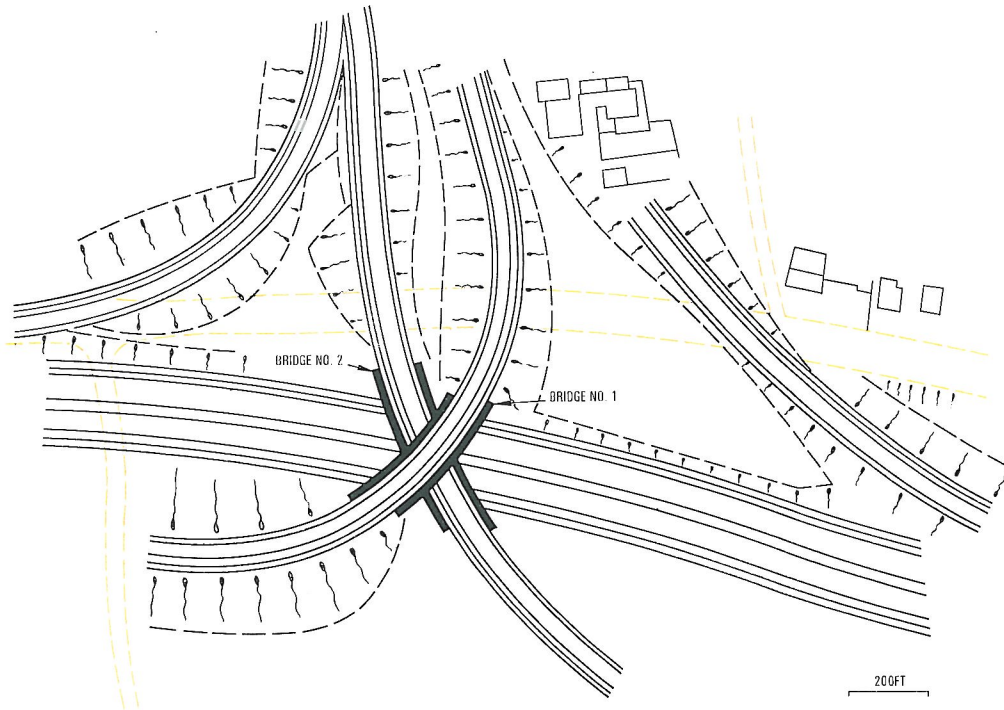
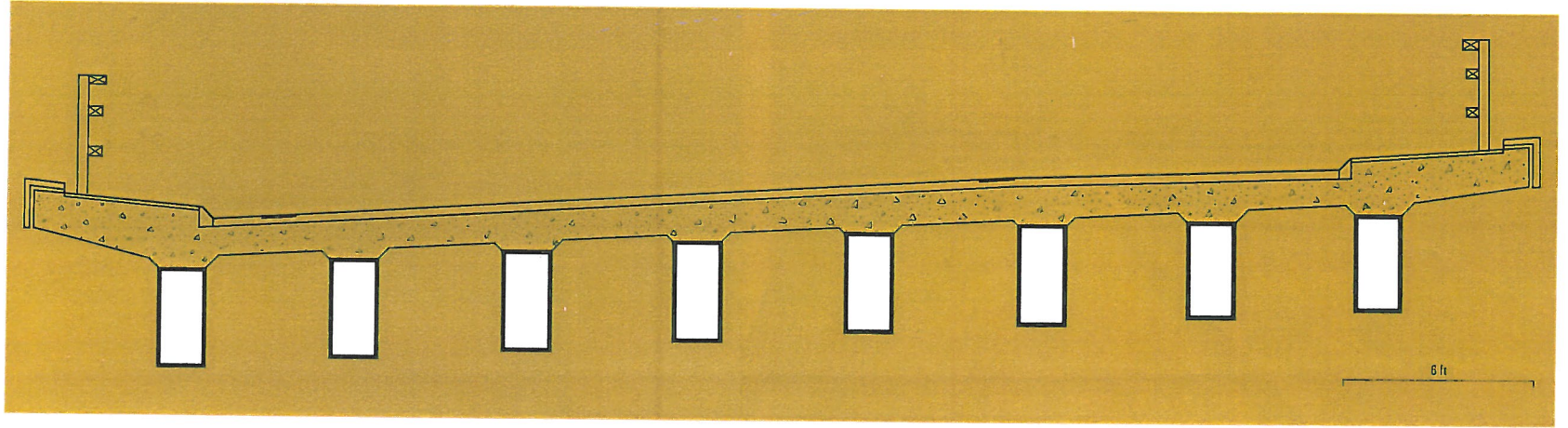
Main Contractor
Tarmac Civil Engineering Ltd

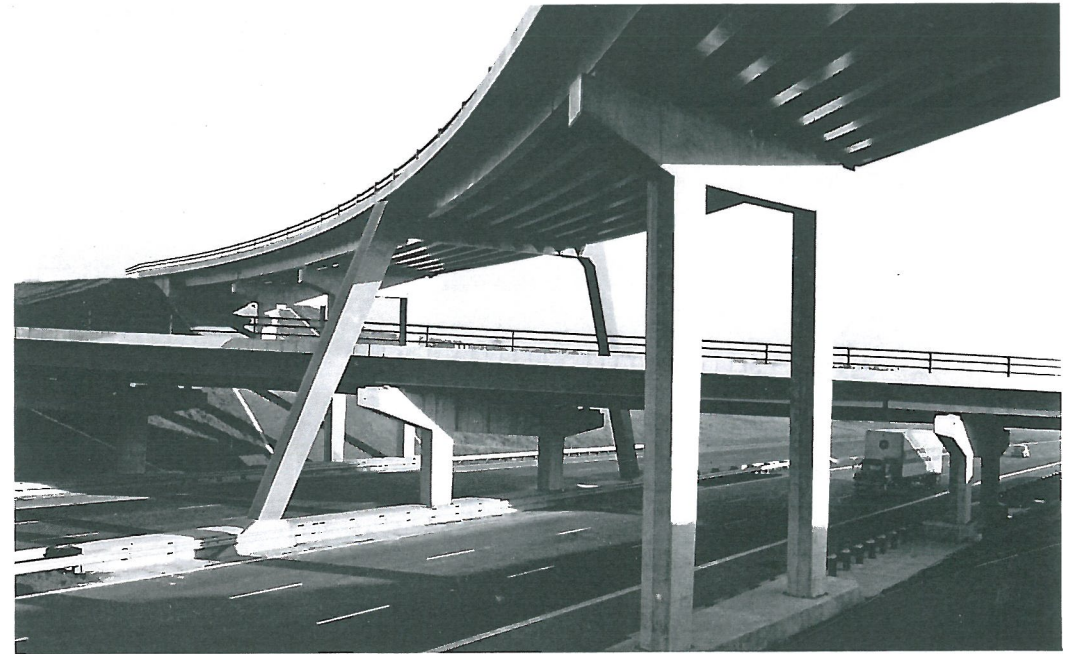
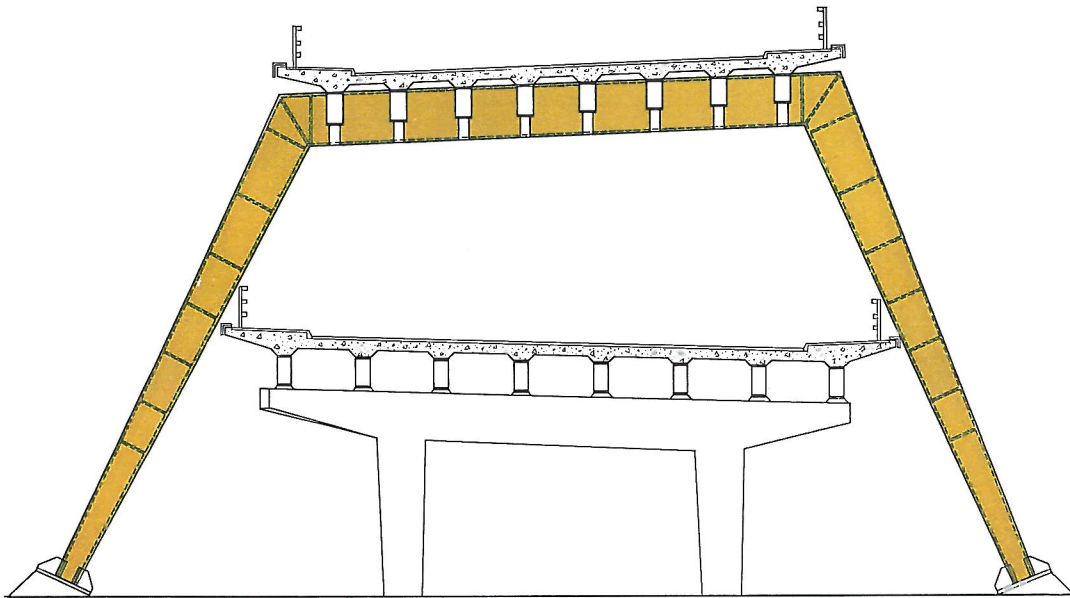
Judges comments

This three level fully directional interchange, with decks both skewed and curved, represents an ingenious, economical and successful solution of a very difficult problem.

High bending stresses in the deck beams and the central portal called for the use of welded steel which gave the added advantage of reduced dead load. The sealed steel box members of constant depth throughout combine clean structural simplicity with ease of maintenance.







Description

Maryville Interchange provides a fully directional link between two motorways, the M74 and M73. In order to minimise the cost of the embankments it was important to keep the construction depth as little as possible. Together with the sharp curvature of the decks this favoured a design with small spans, these varying between 54ft and 82ft while deck widths were 46ft and 49ft. Altogether some 487 tons of steel were used.

The decks consist of longitudinal box beams and a composite reinforced concrete slab with no transverse beams. The low dead weight of composite steel construction was important as foundation loads had to be kept down because of nearby mine workings. For the same reason the decks are fully articulated, the side spans being simply supported while the longer spans over the motorway are cantilevered thus maintaining a constant depth for the box beams. The central bent straddling the lower bridge is also a welded box and is in high yield stress steel.

