

M8 Kingston Bridge, Glasgow – External Post-tensioning Installation



Kingston Bridge is a pair of bridges taking the M8 over the River Clyde

Phase 1 Works

The Kingston bridge in Glasgow carries the M8, reputed to be one of Europe's busiest Motorways, over the River Clyde.

A consortium of Balfour Beatty Construction, Balvac and VSL France carried out the complex challenging works of the Phase 1 strengthening contract. The concrete box section bridges were jacked clear of their original piers and supported on temporary buttresses.

The original piers were demolished and new ones constructed, then 88MN of prestress was applied to the bridge decks, prior to the bridges being moved 75mm horizontally and lowered onto the new piers. Each deck weighs 40,000 Tonnes. The bridge remained substantially open to traffic throughout the work and was subject to a constant monitoring regime ensuring safety at all times.

External Post-tensioning

Balvac carried out the installation of 230 Tonnes of external post-tensioning as well as 70Te of structural steelwork to act as deflectors for the new strands. Special trial works were the key to successful development and implementation. Bar tendons were used to attach the concrete anchorage blocks to the existing structure. Tendon deflectors at

Client	The Scottish Office
Consulting Engineers	Giffords Consulting
Sub-consultants	Tony Gee & Partners
Principal Contractors	Balfour Beatty Construction
Specialist Contractors	Balvac
Project Value	£30 million
Specialist Value	£4 million
Programme	1998 – 2000
Form of Contract	ECC Option E

diaphragms comprised curved steel tubes cast into cored holes at the piers, and steel fabrications anchored to the structure elsewhere.

All tendons are of the external type and are made up of greased / plastic coated strands within a grouted polyethylene duct



Additional tendons installed inside the box section

The tendons range from 169m to 200m in length and the specification called for the facility to destress and replace an individual strand within and otherwise fully stressed tendon. An in-situ full-length trial on site has confirmed that this specification requirement has been achieved in practice.