

Temporary Bridge Supports

Kennington Railway Bridge, Oxford

Client

Oxfordshire County Council

Principal Contractor

Skanska

Works Commenced

September 2016

The A423 Oxford Southern Bypass is carried over four tracks and two streams by Kennington Railway Bridge. It is a three span structure, comprising post-tensioned concrete beams spanning 22m, 23m and 22m across one stream, four tracks and the second stream respectively. The 33m wide deck carries a two-lane dual carriageway and a wide cycle path. The bridge dates from 1965 and is skewed at 24 degrees.

The deck's movement joint is above the west pier where leaf rocker bearings allow the main span to expand and contract. However, due to either an installation error or possible translation of the pier's pile cap towards the stream, about half of the leaf rockers are permanently leaning at an angle, rather than rocking to and fro about a vertical average position.

Oxfordshire County Council required a safeguard in case one or more of the leaf bearings leaned too far and slipped over. Freyssinet, in conjunction with Skanska's design team, came up with a solution, with work starting on site in September 2016.

A new sliding rocker bearing is being installed beneath each of the 10 vulnerable leaf rockers. Each new bearing sits on a 250 tonne jack which preloads the bearings so that they take 50% of the dead load. The jacks are supported by a steel header beam (305x305x97 UC section) which in turn rests on a series of V-props (254x254x73 UC section). The props form a V because the pile cap beam has to be loaded along its centreline, otherwise it would have been overstressed in torsion.

Freyssinet has designed and installed all the temporary works, including the steel work which totalled more than 25 tonnes. The jacks are due to be simultaneously stressed at the end of September. The works are to be delivered in a four-week blockade of the down goods loop, the closest line to the works. The main London to Oxford lines remains open throughout the works.

While on site, Freyssinet also performed a number of concrete repairs to degraded parts of the cross head beam.



- 1 West pier
- 2 Concrete repair to cross head beam
- 3 Access scaffold
- 4 V props

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