



Client Jones Bros for Cambridgeshire County Council

Project Description In 2022 a new highway was completed south of the existing A605 in Cambridgeshire to provide a grade separated crossing of the Ely-March-Peterborough railway line. The new route comprises two structures which were designed by Cass Hayward, a bridge over the railway line and an underpass which carries the new road over an existing access track. The bridge is a skewed integral structure with a single span of 34m. The deck is formed of prestressed W beams acting compositely with a cast in-situ concrete deck slab, whilst the abutments comprise reinforced concrete diaphragms and columns, supported on piled foundations. The skewed underpass is a monolithic box type structure, with a deck comprising prestressed TY beams with a concrete deck slab. Reinforced concrete abutments and base are cast integral with the deck.

Cass Hayward Role(s)

- Detailed design of a 34m span prestressed integral bridge over the railway line.
- Detailed design of a 13m span prestressed monolithic underpass.

Project Statistics

- Integral 34m overline bridge comprising 6 No. W10 precast prestressed beams supported on square reinforced concrete columns sleeved within precast manhole rings.
- Kings Dyke Railway Bridge has a 28-degree skew and a deck width of 14m comprising a 9.3m wide carriageway with a footway on the north side and a verge on the south side.
- Skewed integral underpass comprising 9 No. TY7 precast prestressed beams with a 200mm thick reinforced concrete deck slab.

Special Features

- Columns supporting the railway bridge are sleeved within precast manhole rings to allow free movement under thermal loading.
- Upper and lower bound soil-structure interaction completed as part of the railway bridge analysis.
- Prestressed bridge beams designed to support weight of wet concrete deck slab whilst simply supported, to reduce bending effects in the abutment columns.
- Parapet panels designed as precast rather than cast in-situ, to aid construction over the railway line.