

Pont Briwet Bridge Detailed Design

CLIENT: Hochtief (UK) Construction

LOCATION: Wales

YEAR OF COMPLETION: 2015

We led a team in providing the detailed design for a 1.5km road and 800m rail improvement scheme which included a seven span viaduct using precast beams and crossheads, separate decks for the highway and railway. The 134m long fully integral viaduct does not have bearings or formal movement joints and is the longest structure of its type in the UK. In addition, specialist track/structure interaction design avoided the use of expensive and difficult to maintain breather switches at either end of the rail bridge. The new track alignment also involved a rock armoured embankment and a replacement precast concrete station at Llandecwyn.

The bridge has separate decks supported on combined crossheads. The crossheads were designed with a precast external shell to act as a permanent shutter. The bridge was constructed in two stages with the rail first to allow the bridge to remain open to traffic. The deck construction stages allowed for the support of a temporary deck to carry road traffic during the works. This was to avoid construction of a separate temporary bridge.

All the designs had to meet the highest environmental requirements of the Snowdonia National Park and resulted in Hewson winning the ICE Wales Award for Innovation.

KEY FACTS:

- Detailed design of road/rail viaduct
- Innovative tender solution
- Hydraulic modelling

