Taiwan High Speed Rail Project, Contract C 250,

Loading Platform Design

Client
THSRC; the Taiwan High Speed Rail Corporation; the BOT concessionaire company responsible for the 345 km high speed rail project.

Project
Design Construct Lot C 250; Hochtief / Ballast Nedam / Pan Asia; the HBP Joint Venture.

Design of two of the temporary works steel loading platforms to receive the high speed rail concrete box girders from the two precast factories.

Services period
2001 – 2003

Background
Over 70%, or 27 km, of the length of C 250 comprised of standard viaducts, and to precast each span and erect by overhead gantry was the fastest and most efficient method of construction for such a large number of repetitive viaduct spans.

Each box girder was 2.8 m deep and 13 m wide; with spans that vary from 25 m, 30 m and 35 m in length, and weighing up to 800 tons.

The temporary loading platforms were erected in 2 sections of the high speed rail alignment and sited between three of the permanent works piers; close to the precast factory areas.

A self propelled transporter which was used to transport the box girder units; is shown parked on the platform.

The ends of the drawbridges were opened to allow the 915 ton gantry crane to enter and position the box girder on the transporter.

After the drawbridges were closed, the transporter moved the precast girder span unit to its final placing location on the HSR alignment.
Taipei Rapid Transit System, Neihu Line, Taiwan

Mucha Line Extension, Full Span Precast

Client: Kung Shin Contractors, Taiwan.

Project
Taipei Rapid Transit System, Neihu Line Project.

Services
- Precast pier cap mould design
- Precast segmental mould design
- Design of the equipment for the segmental cantilever erection
- Design of the erection equipment for the full span precast girders

Services period: 2004 - 2006

Background
The new medium capacity Mucha Line north extension; called the Neihu Line; is under construction. The new Neihu Line will be 14.8 km in length, with 12 stations and serve Neihu residents and passengers using Songshan Domestic Airport.

The Neihu Line is mostly elevated and comprises of precast segmental balanced cantilever viaducts and full span precast U channels. Equipment design services are being provided to Kung Shin Contractors.

A section of the line used 25 m full span precast double U channels back to back to form the elevated alignment.

Long bed casting moulds were designed to precast the U channels and erection equipment was designed for the full span precast U girders.

The precast segmental equipment was designed for the construction of a 1 km length of viaduct. The segments being 9.3 m wide with a varying depth of 3.6 - 1.6 m, and erected by the balanced cantilever method.

Two long bed casting moulds were designed for production of over 400 precast segments, and the maximum segment weight was about 65 tons.
Taipei Rapid Transit System, Tamshui Line, Taiwan

Contract C 206 A, Full Span Precast

Client
Department of Rapid Transit System, (DORTS); Taipei.

Project
Taipei Rapid Transit System; TRTS; Tamshui Line, Contract C 206 A. The overall deck length was 9 km and the average span lengths was 30 m.

Services
- Construction stage calculations
- Camber calculations and bearing presets
- Consulting during construction

Services period: 1993 – 1994

Background
A full span precast launching method was used to launch and place precast units on Contract C 206 A. Each full span precast segment weighed 320 tons.

The method allowed for rapid placing and advancement as one precast unit was placed progressively in front of the other. It was then possible to immediately track over and place the next unit.

This method generally achieved a high advance rate, however it also required long runs of precast units to place to become effective.

Responsible for the construction engineering and supervision; and as a consultant to the contractor.

The services included special section casting yard arrangements and the erection equipment for the elevated section of the TRTS Tamshui Line.