VIADUCT FOR THE HIGH SPEED RAILWAY OVER THE ULLA RIVER (A CORUÑA)

Main data:

- ✓ Location: North-Northwestern High Speed Railway (A Coruña)
- ✓ Scope of Works: Detailed design and Technical Assistance during the construction works
- ✓ Structural type: Concrete deck arch bridge
- ✓ Construction process: Arch: cantilever construction. Deck: span by span segmental construction using movable scaffolding
- ✓ Overall length: 630,0 m
- ✓ Spans: 43,0 + 4x52,0 +179,0 +3x52,0 + 42,5 m
- ✓ Deck width: 14,0 m
- ✓ Deck maximum height: 115,0 m

Summary:

The new North-NorthWestern High Speed Railway crosses over the environmentally protected zone “Sistema Fluvial Ulla-Deza”, over a valley at a height of 115 m. This very windy valley of the Ulla river is crossed using a bridge that is 630 m long. The bridge is an arch bridge that is 168 m long and with a rise of 105 m.

The cross section of the arch is a reinforced concrete rectangular hollow section; the width of the arch is 7,7 m and the height of the arch is 3,5 m. The hollow section is filled with concrete where the vertical spandrel columns are connected to the arch. The shape of the arch is a “gothic” arch, made with 2,5 m long straight segments. The construction of the arch was a segmental construction using 26 segments for each half of the arch. Some temporary cables were used for the construction of the arch. The central segment of the deck is placed 11 m under the centre of the central span of the deck.

The deck is a continuous deck made of prestressed concrete. The total length of the spans located over the arch is 179 m and is made up of six spans. The northern access has a total length of 251,0 m and is divided into five spans. The southern access has a total length of 198,5 m and is divided into four spans. The depth of the deck is 3,89 m and the width of the deck is 14,0 m. The thickness of the inclined webs is 0,50 m. The thickness of the bottom and top slab is 0,35 m.

The construction of the deck was a span-by-span segmental construction using movable scaffolding.

The piers are made of reinforced concrete. The width of the piers of the access spans is 3,5 m. The spandrel columns of the main spans are 2,5 m wide. The piers P5 and P11, located at the base of either side of the arch, are 3,5 m wide.

The fixed element of the bridge is the Abutment E2. The longitudinal and transverse forces on the deck are resisted using this element.

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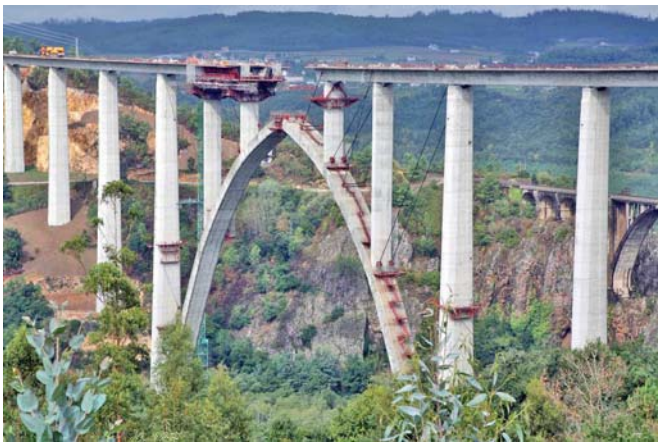

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