



## FREIXO BRIDGE OVER THE RIVER DOURO

PRELIMINARY DESIGN (1987); DETAILED AND FINAL DESIGN, INCLUDING ADDITIONAL STUDIES: GEOLOGICAL - GEOTECHNICAL AND RIVER HYDRAULICS (1991); TECHNICAL ASSISTANCE DURING CONSTRUCTION (1993-1995)



**Client:** Junta Autónoma de Estradas (Currently Infraestruturas de Portugal, S.A.)

**Location:** E1 / IP1 / A20 – Porto, Portugal

**Design date:** 1991 - 1991

**Construction date:** 1993 - 1995

**Design by:** António Reis and Daniel Sousa in joint authorship (developed at GRID, Lda.)

**Services:** Preliminary Design (1987); Detailed and Final Design, including Additional studies: geological - geotechnical and river hydraulics (1991); Technical Assistance during construction (1993-1995)

**Summary:**

Prestressed Concrete Box Girder Bridge. Construction by Cantilever Method with max. cantilever of 75m from pier axis.

Additionally to the limitations issued by the Douro River, other difficulties were revealed in the foundations works, with very heterogeneous situations between the different foundations sites that required design solutions adapted to each case. Thus coexisting direct foundations: (soaked footings with 7 m height), indirect deep pile foundations and 'floating' piles in the sand massive.

Length / Span / Height / Width:

705 m / 150 m / 33 m / 36 m

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