



Bridge over the Cádiz bay, Spain

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Summary

The bridge over the Cádiz Bay has a total length of 3157 m and crosses from Cádiz City to Puertorreal. The main bridge is a cable stayed solution with a main span of 540 m and approach spans of 200 m. and a maximum vertical clearance of 70 m. It will be one of the longest cable-stayed bridge in Europe.

The deck is a trapezoidal box girder 3.0 m deep in a composite construction steel concrete in the bridge over the bay and prestressed concrete in the bridge on the land side. The simply supported deck has a variable depth made of steel with an orthotropic deck. The total width varies from 33.20 to 34.20 m. The bridge will support 2 lanes carriageways for vehicles and 2 tracks carriageway for a tram. The pylon is a double Y shape reinforced concrete structure.

The bridge is currently under construction. The main span will be built by free cantilever system with 20 m long segments. The approach span on the Cadiz side will be built by incrementally launched segments. The approach spans on the Puertorreal side will be constructed span by span with a centering. The simply supported 150 m span will be lifted from a barge.

Keywords: Cable-stayed bridge. Composite Steel-concrete bridge. Prestressed Concrete Bridge. Free cantilever Construction. Incrementally launched bridge. Heavy lifting construction.

1. Introduction

The old aspiration of the city of Cádiz to build a new access that would reach the old town and the Port directly from Puerto Real was fulfilled by the authorities of the Spanish Ministry of Public Works and Transport with the launching of the project of the Bridge over the Cádiz Bay. Fig.1.

The Bay navigation canal by the Cabezuela - Puerto Real Quay is 400 m wide and 14 m deep. The port authorities enlarged this horizontal clearance up to 540 m to avoid occupying the Cabezuela Quay shore and to provide for easier ship maneuvering. The pier on the Cabezuela Quay side, is placed as far as 70m into the quay, thus enabling easier loading and unloading operations from the service cranes. As for the vertical clearance the carriageway is placed at a formidable height of 69 m, which makes this bridge one of the world's highest.