



A New Bridge Across Lake Maracaibo in Venezuela

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Summary

Keywords: cable-stayed; pylons; tower shape; design efficiency.

1. Introduction

Traffic demand across Lake Maracaibo has increased considerably in the years since the opening in 1962 of the first Maracaibo road bridge designed by Morandi in the '50s and now there is the need for a new crossing. Heavy marine cargo and oil tankers navigate the lake north-south and the bridge is crossing an important navigation channel. The necessity has arisen for railway transportation of passengers and goods and a railway bridge will have to be built parallel to the new road bridge.

The new bridge will be 11.2 km long with four lanes of traffic and two emergency lanes and is located few km north of the alignment of the old bridge, between the towns of Santa Cruz de Mara on the west and Sabaneta de Palmas on the east. The location is at the top of the South American continent, at a latitude of about 10 degrees North.

The rail bridge will run parallel to the road bridge and will have two tracks for transport of passengers and goods.

The navigation channel will be crossed by a new generation of two twin segmental concrete cable stayed bridges of 430 m span and 910 m length. The foundations will be in common between the two bridges with a single footing built on driven steel shell concrete piles (SSCP) to withstand the ship impact load that is governing the design. The pylons will be single masts connected by a cross beam below deck and a single plane of cables from each pylon will support the prefabricated concrete box girder segments.



The rail bridge will represent a record length for prefabricated span for passengers and freight train.

The stakeholders of the project are:

Client: PDVSA (VE) Contractor: Odebrecht (BR)

Designer: COWI (DK) Reviewer: TY Lin (US)

All computer renderings and drawings of the bridge shown here are courtesy of the designer COWI.

Fig. 1: The New Maracaibo Bridge (rendering)