

Project identification

Santos Harbor Channel Crossing

Type of project

Immersed tunnel

2015



Client

Dersa

In co-operation with

Project assignment

Design Management and Consultancy

Country

Brazil

Location

Santos

Project duration

2013-2015

Project phase

Design

Construction cost

estimated R\$ 1 billion

Consultancy fee

R\$ 1.000.000

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Immersed tunnel

Project description

The project is located in the Port of Santos, between the two cities Santos and Guarujá in the state of São Paulo coast, some 80 km south west of the city of São Paulo.

The two cities are separated by an approx. 500 m wide entrance channel to the busiest port of Brazil. The connection between the cities is currently operated by ferry boats, but there is a desperate need for a fixed link to accommodate the increasing transport volume and regarding the foreseen extension of the harbour as a consequence of the economic growth. The current travel distance on the road can be reduced from approx. 45 km to less than 1 km.

An immersed tunnel has been selected by the government as the most viable option to establish a fixed link between the two cities. This option, the first of its kind in Brazil, combines a safe and secure connection with least impact on city life and port development against a reasonable investment. TEC has provided consultancy for the selection process.

The tunnel will consist of an enclosed section of about 760 meters and approaches, all-in-all some 1,800 m length. The harbor channel depth is up to 21 meters to allow for deeper draft vessels to enter the port area. The tunnel will consist of 2x3 lanes for road traffic and a separate tube for pedestrians and cyclists.

Scope of work

TEC's involvement consists of three parts:

Knowledge transfer

As this is the first immersed tunnel to be constructed in Brazil, there is a requirement to build knowledge about this technology in the country. TEC will contribute by writing a design manual, specifications with regard to construction and operation&maintenance manuals. Such documents are to be used by local partners for this project.

Design review

The project will be designed by local Brazilian consultancies. With regard to the specific immersed tunnel aspects, TEC will review the designs and propose improvements.

Design management

As part of the project management team of the Client, TEC is managing the design process. This is being done by having permanent presence in São Paulo by the general design coordinator. On top of that experts are participating in the design management process on topics like:

- Geotechnical engineering;
- Tunnel safety;
- Tunnel element transport and immersion process;
- Construction site selection and preparation;
- Structural engineering;
- Traffic and alignment engineering;
- Cut&Cover and tunnel approaches design.