



Temburong Bridge, Brunei - Design of two cable stayed bridges

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Summary

The Temburong Bridge Project is a 30km long dual two-lane highway crossing over the Brunei Bay. It will connect the relatively isolated Brunei district of Temburong to the other three Brunei districts. The main objective of the project is to stimulate economic growth in the Temburong region by connecting it to the country's airport and ports. The alignment crosses two navigation channels resulting in the need for two cable stayed bridges – the Brunei Channel Bridge (145m main span) and the Eastern Channel Bridge (260m main span).

The design of these cable stayed bridges is one of the first applications of the Eurocode to a fully concrete cable stayed bridge. Both cable stayed bridges draw on strong Islamic architectural influences from the region to form a tower shape that is unique and instantly recognisable.

Keywords: Cable stayed bridge, concrete ladder beam deck, sea crossing, Eurocodes.

1. Introduction

The Brunei district of Temburong is separated from the other three Brunei districts by the Brunei Bay and Malaysian state of Sarawak. The journey time between Temburong and the rest of Brunei can take several hours by road through Sarawak, else, the journey can be made by boat across the Brunei Bay. This separation has limited the potential economic growth of Temburong compared to the more prosperous Brunei-Muara district. The Cadangan Projek Jambatan Temburong (Temburong Bridge Project) is a proposed 30km long dual two-lane highway project to connect Temburong and Brunei-Muara, thus giving Temburong an economic boost from direct highway access to the country's airport and ports. The construction is planned for completion in 2018.



Figure 1: Site Plan of Temburong Bridge

The whole crossing comprises of a 14.6km long marine viaduct, 12km long section of elevated structure over peat swamp forest, 3km of tunnel and several kilometres of highway at grade. Further description of the project is given in [1].

There are two navigation channels along the marine section of the crossing – the 130m wide Brunei Channel and the 235m wide Eastern Channel. To cross these channels cable stayed bridges will be constructed, with main spans of 145m and 260m respectively. These two cable stayed bridges are the subject of this paper and are here in referred to as the Brunei Channel Bridge (BCB) and the Eastern Channel Bridge (ECB).