



Temburong Bridge, Brunei **CC2 Marine Viaducts in Brunei Bay**

Murphy To, Yau-hong Chong, Alice Luk, Jack Yiu
Arup, Hong Kong

Sunil Sangakkara, Lukasz Wojnarski
Arup, UK

Contact: murphy.to@arup.com

Abstract

The new 30 km Cadangan Projek Jambatan Temburong (Temburong Bridge Project) in Brunei will connect the relatively isolated district of Temburong with the more developed Brunei-Muara district. The project includes over 14 km of marine viaducts crossing Brunei Bay which will be built under Construction Contract CC2.

The shallow waters of Brunei Bay, very soft ground conditions and a fast track programme pose significant challenges to both design and construction. Maximising the use of precast concrete and the repetition of details are key to delivering the scheme in an economical and timely manner.

The vast majority of foundations are groups of spun concrete piles. The superstructure will be in the form of twin post-tensioned concrete single-cell, box girders with 50m spans, built by span-by-span erection method.

Keywords: Brunei, marine viaducts, spun piles, precast segmental box girder bridge.

1. Introduction

Following completion of the Feasibility Study [1] for the 30 km long Brunei Temburong Link, the project was divided into several construction packages [2]. 14km of the route, making up the majority of the length across Brunei Bay, is in the form of marine viaducts, which are procured under construction package CC2 (Figure 1). Also within the Bay are 2 cable stayed bridges over the navigation channels and some short lengths of connecting viaducts and ramps [3].

The design of the marine viaducts has had to address the specific site conditions including very shallow waters and very soft ground. The target

construction programme of 45 months has also influenced the design.

Dredging is required to allow access for marine plant. Minimising the volume of dredged material is important to keep costs down, not delay the construction programme, and limit the environmental impact.

The prestressed concrete superstructure is designed to be erected span-by-span, but different options for the details of the casting and erection process were left available to the tenders. This was to encourage a competitive tender price, since contractors had different preferences and also different erection equipment available.