

Incheon Bridge Project–The role of the Contractor's Checking Engineer

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Summary

A 12.3 km long sea crossing is currently under construction at Incheon in South Korea. At a cost of US\$1.4 billion, the crossing will link the new Incheon International Airport on Yeongjong island to Songdo (New City) and the new International Free Enterprise Zone (IFEZ) which are both currently under construction. A cable stayed bridge will cross the 625.5m wide by 74m high navigation channel leading to the Port of Incheon. With an 800m long main span, this will be the longest spanning bridge in South Korea and will form part of one of the longest sea crossings in the world. A joint venture team comprising Halcrow, Arup and local consultant Dasan was appointed by design and construct contractor Samsung Construction JV (SCJV) as the Contractor's Checking Engineer (CCE) in March 2005.

Keywords: independent design check; cable-stayed bridge; sea crossing; ship impact

1. Introduction

The Incheon Bridge, illustrated in Fig. 1, will carry six lanes of traffic across the straits between Yeongjong island and the Korean peninsula. The project is being procured by the Korea Highway Corporation (KHC) on a BOT basis. KODA Development Ltd, the AMEC led Concessionaire, in joint venture with the City of Incheon, will finance and manage the toll-bridge for 30 years before returning the project to the Korean government.

Construction of the bridge was let on a Design & Build basis and construction works began in June 2005. SCJV, a group of seven Korean construction companies are carrying out the works with design services provided by consultants Seoyeong Engineering (Korea), Chodai (Japan) and others.



Fig. 1 *Incheon Bridge*

The majority of the length of the bridge is constructed as low level viaduct structures with pretensioned precast 50m long concrete box girder spans. Where the alignment rises to cross the navigation channel, precast segmental balanced cantilever approach bridges with 145m spans link the viaducts to the cable stayed bridge which provides the 800m long navigation span itself.

The bridge is constructed over tidal flats and in up to 20m depth of water. Marine deposits overly rock strata. All of the foundations are large diameter cast in place concrete piles socketed in