Izmit Bay Suspension Bridge – Overview of the Project

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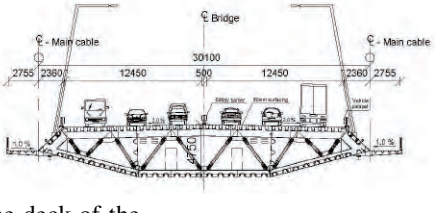
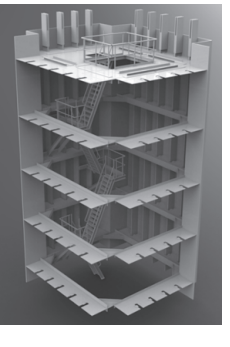
Summary & Introduction

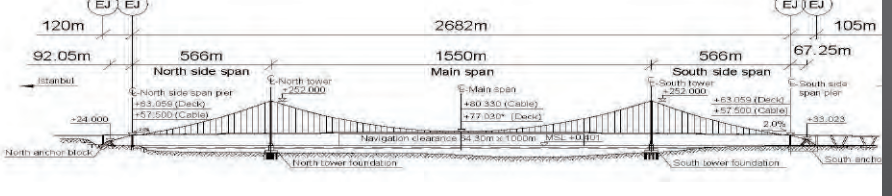
The scale of the bridge and the tight schedule in the EPC contract requires the state of the art, suitable design, well proven construction method adopted challenging technics. The paper deals with the project overview including construction update, and schedule. The Izmit Bay Suspension Bridge will carry the new Gebze-Orhangazi-Izmir motorway across the Sea of Marmara at the Izmit Bay in northern Turkey. The new motorway was contracted between OTOYOL YATIRIM VE ISLETME A.S and a General Directorate of Highways, Turkey as Build-Operate-Transfer (BOT) project for 22 years and 4 months in September, 2010. Scope of IHI's works is Engineering-Procurement-Construction (EPC) of the IZMIT Bay Suspension Bridge. Construction of the IZMIT Bay Suspension Bridge was started in 2011 for the design and preparatory works, and move to the major construction works at site in January 2013, and it is ongoing to complete in January 2016.



1. Bridge Configuration and profile

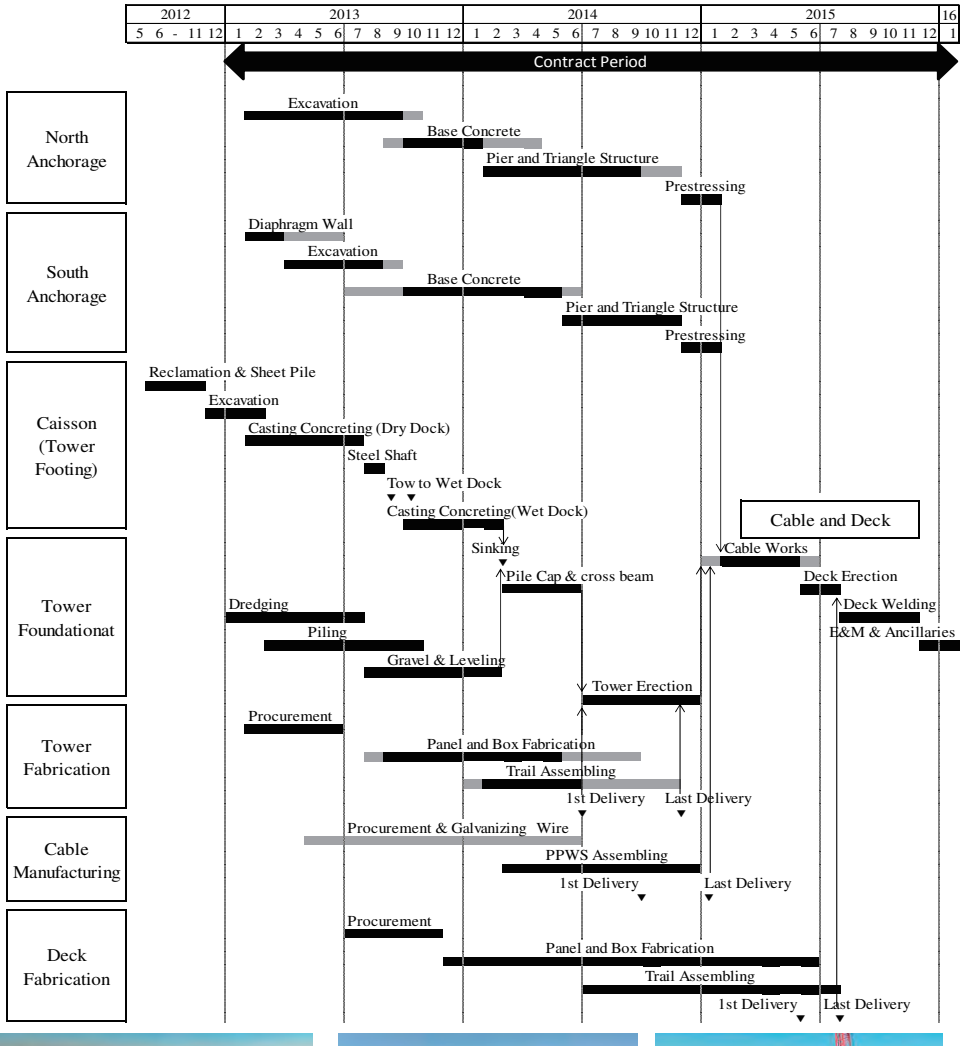
The main span is 1550m and the side span is each 566m. This bridge will become the world's fourth longest suspension bridge. The suspended deck is 2682 m long and continuous between two side span piers. The main cables are deviated at the side span piers toward the cable anchorages located below the deck of the transition spans. Steel Two towers are sitting on the gravel -40m depth. South anchorage is sitting on the artificial land by unique shape of concrete slab. North anchorage is sitting on the natural hard rock





2. Program and updated status as of Dec./2014

The project critical path of major activities and Up dated status as of Dec./2014 at site is shown in next page. In the Suspension bridge EPC contract, substantial completion (traffic open) is agreed at 37 month after commencement of works which is real challenging schedule compering with similar size of suspension bridges. To realize this target, all main activities from Day-1 are executed by 2-shifts to minimize the duration of each activity, and spread the works and/or resources by which works can be performed at same time. As the result, a lot of activities are on the critical path, and worked simultaneously.


2012
2013
2014
2015
16
5 6 - 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1
Contract Period
North Anchorage
Excavation
Base Concrete
Pier and Triangle Structure
Prestressing
South Anchorage
Diaphragm Wall
Excavation
Base Concrete
Pier and Triangle Structure
Prestressing
Caisson (Tower Footing)
Reclamation & Sheet Pile
Excavation
Casting Concreting (Dry Dock)
Steel Shaft
Tow to Wet Dock
Casting Concreting(Wet Dock)
Sinking
Cable and Deck
Cable Works
Tower Foundationat
Pile Cap & cross beam
Deck Erection
Dredging
Deck Welding
Piling
E&M & Ancillaries
Gravel & Leveling
Tower Erection
Tower Fabrication
Procurement
Panel and Box Fabrication
Trail Assembling
1st Delivery
Last Delivery
Cable Manufacturing
Procurement & Galvanizing Wire
PPWS Assembling
1st Delivery
Last Delivery
Deck Fabrication
Procurement
Panel and Box Fabrication
Trail Assembling
1st Delivery
Last Delivery