Motsa Bridge, Israel - Design and Construction Engineering Challenges

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Abstract

The 170 million USD Road 1 Motsa Bridge near Jerusalem and Tel Aviv, Israel is part of the major highway system and is the main road into Jerusalem. It is one of the most important infrastructure projects carried out by the Ministry of Transport and Roads Company in the past several years. The project faced a major challenge due to an accident during construction that resulted in a total revision of the construction sequence.

Keywords: precast, segmental, post-tensioned, bridge, balanced cantilever, launching gantry

1 Introduction

The 170 USD million Road 1 Motsa Bridge near Jerusalem, Israel is part of the Israeli infrastructure system and is the main highway into Jerusalem. It is one of the most important infrastructure projects carried out by the Ministry of Transport and Roads Company in the past several years. The bridge was constructed by the major Israeli contractor Danya-Cebus as part of the Design-Build project to improve the capacity of Road 1. The overall bridge design was supplied by the Israeli engineering firm Shamir-Posner-Bown with the superstructure design and construction engineering services provided by Finley Engineering Group (FINLEY), based in Tallahassee, Florida (USA) and the substructure design performed by YDE Engineers (Israel). The project is a shining star of the long-term collaboration between Danya-Cebus and FINLEY, who together built more than 15 precast segmental bridges in Israel.

The bridge consists of two parallel, continuous units: North Bridge is 730.2 m long and South Bridge is 681.21 m long with span lengths up to 68.19 m. This makes the Motsa bridge the largest precast segmental bridge in Israel built to date.

The construction of the bridge faced a major challenge when an accident of the launching gantry

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