Replacing vital infrastructure

Bridging Case Study

His Highness Sheikh Khalifa Bin Zayed Al Nahyan Bridge, Pakistan

Customer: United Arab Emirates | **Solution:** Delta™

mabey bridge

The Challenge

In 2010 the annual rainy season in Pakistan caused great devastation and damage to vital infrastructure. The Swat Valley in the Khyber-Pakhtunkhwa province was badly affected, and a multi-span concrete slab deck bridge over the River Swat near the town of Barikot was severely damaged, leaving only one short span in place. Due to the importance of the bridge as a key supply route, a rapid replacement was essential.

The United Arab Emirates, which funds many charitable causes, was approached with a view to funding a bridge replacement project managed by the engineering and construction branch of the Pakistan Army. Manpower was to be provided by the Pakistan Army Corps of Engineers and the finished structure was to be named ‘His Highness Sheikh Khalifa Bin Zayed Al Nahyan Bridge’, also known locally as ‘Gammon Bridge’.

The Solution

The Delta™ bridge was selected for speed of installation and for its full highway load capability.

The structure is fully galvanised to ensure a long design life with minimal maintenance. Once intermediate piers and abutments had been reconstructed, work began on building the bridge, starting with the launching nose. With only limited mechanical equipment available on site, the 24-strong workforce, assisted by a Mabey Site Advisor, began constructing the bridge one bay at a time on top of launching rollers.

Upon completion, the bridge was launched over the piers as a continuous structure using hauling rams supplied by Mabey as part of the launching and erection equipment. As the bridge reached the landing abutment, the launching nose was removed and the team began the operation of separating the bridge at each pier into individual spans and jacking them down onto bearings at each abutment and pier location.

Once the Delta™ bridge was in place, the deck units, parapets and the external footwalk were fitted and the approach roads at each end completed. Solar powered street lights were installed and the bridge was ready to be officially opened on 25 May 2012. Total installation time was just 56 days, with the entire project completed only eleven months from the start of pier construction.

The Result

The finished bridge is a permanent, two-lane structure with an external pedestrian footwalk. The overall length of the bridge is 328.5m, divided into five spans of around 65m each.

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