

Restricted site access presents no problem for the Skardu Bridge Programme

Bridging Case Study



Skardu Bridge Programme, Pakistan



Customer: Frontier Works Organization | Solution: Delta™ Bridge Systems

The Challenge

A multi-bridge project has been successfully delivered by Mabey Bridge at Kachura on Indus River, a remote location in the Skardu region of Pakistan. This project involved three Delta™ Bridges – now named as the Alam Bridge (3 spans, total length of 103.4m), the Sapper Shaheed Bridge (3 spans, total length of 137.39m) and the Tungush Bridge (single span, total length of 45m).

All three bridges presented their own challenges. In particular, a very restricted site around the Tungush Bridge (the final of the trio to be erected) only allowed 30m for assembly. During this build, the Skardu to Gilgit road had to be closed for four hours at a time, whilst the bays were assembled and moved into place using hauling rams. Space on the opposite bank was also severely restricted – this time, only 15m available – making the removal of the launch nose difficult and requiring another temporary road closure.

The Solution

Delta™ bridges were chosen for the Skardu programme because of their successful deployment on previous projects in the region. It also utilised items held in stock from the earlier project, His Highness Sheikh Khalifa Bin Zayed Al Nahyan Bridge in the Swat Valley.

Mabey Bridge's Senior Project Engineer, Ian Lock, had to create a special launch and erection schedule for the Tungush build. Ian liaised with Site Advisor, Alan Pearson, on a daily basis, to provide all of the assembly details and launch scheme information required. Whenever necessary these had to accommodate late changes, ensuring the erection schemes remained safe at all times.

The Tungush build required dedicated time and expertise of a Mabey Bridge Site Advisor and quick reactions from the Mabey Bridge Engineers to provide expert technical advice as the challenges evolved. The original launch scheme provided was based on having a 45m launch construction plane. As the project progressed it was discovered that the site had a house with a retaining wall in 13m proximity from the launch abutment, and a large rock outcrop around 22m from the landing abutment. A launch construction plane of at least 30m was required behind the abutment. Having reviewed possibilities of launching to temporary piers or building off temporary platforms, it was finally agreed with the contractor that the best method of launch was to increase the assembly area by removing some of the rock outcrop, and to launch from that end.

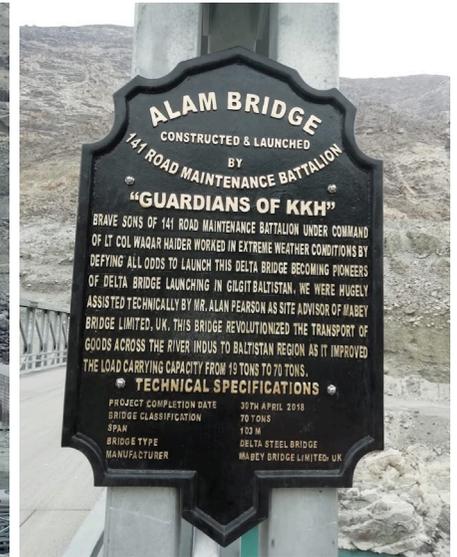
The Results

Despite the remote location, difficult terrain and extreme weather conditions, the combined efforts of Mabey Bridge's Engineers and Site Advisors with the 141 Road Maintenance Battalion "Guardians of KKH" ensured successful installation of all three bridges. The Sapper Shaheed Bridge was completed in a record time of 30 days. The Tungush Bridge upgraded an old Bailey bridge with C200™ decks to a robust 45m, two-lane Delta™. The Alam Bridge improved the road's loadbearing capacity from 19T to 70T and as quoted on its commemorative plaque "revolutionized the transport of goods across the River Indus to Balistan Region".

Photos

Front cover: Tungush Bridge

This page top: Sapper Shaheed Bridge and Alam Bridge Plaque | This page bottom: Alam Bridge



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