



First-of-a-kind for Mumbai: Metro viaduct over water

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The wait to witness a metro viaduct pass over a water body was over with the last span of the 550-m Kasheli Creek metro viaduct in the Mumbai Metropolitan Region (MMR) is erected. This is part of Phase 1 of the Mumbai Metro Line 5, connecting Thane to Kalyan via Bhiwandi. The Kasheli Creek bridge - first to be crossing the creek- comprises 13 spans, including nine on water, with each span being 42.23 m in length with 15 segments. What's more, the spans were erected with the help of launching girders in around four months - precisely 123 days.

The bridge has been constructed by Mumbai-based Afcons. Asked how the construction was achieved in just 123 days, **Sukesh Singh, Project Manager, Afcons Infrastructure**, replies, "The day-to-day activities were monitored at a micro level and exclusive resources were allocated."

Initial establishments like a temporary jetty to facilitate construction inside water were first erected after necessary permissions and approvals. Thereafter, major components such as piling, pile cap, pier, pier cap and segments as superstructure were executed.

"The piles were constructed using a reverse circular drilling (RCD) machine," shares Singh. "A barge of 2,143 mt capacity and crawler crane of 150 mt along with vibro hammer, diesel generators and tugboat were used." He adds that the shutter arrangement for the pile cap was built by supporting on a permanent liner of piles. The piers and pier caps were cast by making supporting arrangement on pile caps.

The major difference in constructing a metro line over water compared to land is different logistics arrangements. In a marine-based project, all logistics must be done via a temporary jetty whereas on land, all the required material can reach exact span locations. It also requires additional floating devices with provisions to carry heavy equipment like a RCD machine and cranes required for marine construction.