



Reference Details

Owner Land Transport Authority, Singapore +++
Architects and Consultation Land Transport Authority, Singapore +++

General Contractor Sato Kogyo (Singapore) Pte Ltd, Singapore

DSI Unit Utracon Structural Systems Pte Ltd, Singapore

DSI Scope Supply, installation and post-tensioning of DYWIDAG Multistrand Tendons, type 22x0.6" – 26x0.6" and 31x0.6"; technical assistance; rental of equipment 17



DYWIDAG Tendons Secure Viaduct in Singapore

LTA Contract 1280, Boon Lay MRT Extension, Singapore

The multi million dollar project "Boon Lay MRT Extension" extends the existing Singapore Mass Rapid Transit (SMRT) East-West line. Starting from what used to be the last stop, Boon Lay in the West, a new 3.8km long viaduct and two new passenger stations are being built for this extension line. After its scheduled completion in 2009, bus transfers will become unnecessary for both the residents in this rapidly growing south-western region and for employees of the surrounding industries.

Utracon Structural Systems Pte Ltd (USS), previously known as UTRACO, DSI's licensee in Singapore, was awarded the sub-contract for the post-tensioning and precast beam installation works for the new viaduct. One of the main challenges of the construction was the transportation and launching of the precast beams, which weigh up

to 270t. As the contract forbade the transportation of precast beams on the existing roads, Utracon made the innovative proposal to transport the precast beams on the completed viaducts to the final launching site, where the beams were erected using Utracon's self launching steel truss.

The construction cycle began with the casting of beams at the precast yard located adjacent to the elevated viaduct. Here, four DYWIDAG Multistrand Tendons, types 22x0.6" to 26x0.6" with anchorages were installed into each of the 238 precast beams. Subsequently, Utracon post-tensioned the DYWIDAG Tendons at the precast yard.

After removal from the forms, each posttensioned precast beam was pulled towards Utracon's loading facility (made up of 2 steel portal frames with 2 strand lifting units) and lifted onto the viaduct's temporary rail tracks by Utracon personnel. Each beam was then transported on a locomotive all the way to the rear of the self-launching truss, which was parked just behind the span where the beam was to be launched. After anchoring the precast beam onto the auxiliary beam of the launcher, the launcher was then pushed forward by the locomotive so that the beam could be slid towards its final position and lowered to the required final position. There, the beam is supported on temporary jacks where grouting of permanent bearings will then take place.

For the permanent post-tensioning of the cross heads on site, Utracon used 31x0.6" DYWIDAG Multistrand Tendons and posttensioned them successfully. Utracon is proud to have contributed to this prestigious project in Singapore.



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