DOI: http://doi.org/10.4038/engineer.v53i1.7394

FROM THE EDITOR…

Bridge construction over the Kelani river has been a major engineering task as it is the widest river in Sri Lanka. Since British colonial era, several bridges have been constructed over the Kelani river. The first Kelani bridge was a pontoon bridge constructed in 1822. The bridge of boats was constructed by placing a timber deck on 21 boats to make 150 m span. Each boat was located 7 m distance from each other. In 1895, the pontoon bridge was replaced by then Victoria bridge which was a wrought iron truss bridge. Old Victoria bridge was replaced with the Sri Lanka-Japan friendship bridge in 1994-2000 under Japan International Corporation Agency (JICA) funding assistance considering the increase in traffic demand.

The Kelani bridge has been a main entry point to the Colombo city and any transportation improvement project must deal with improving the passage over the Kelani river. Identifying this need, the Government of Sri Lanka began the construction of an extra-dosed post-tensioned pre-stressed concrete box girder six-lane bridge over the Kelani river as a part of an elevated roadway project in Colombo in 2015. Three-span structure is 380 m long, with a 180 m main span. The box-girder is 5.6 m high at the pylon locations and 3.3 m at the mid-span and the ends. The two U-shaped pylon structures with a twin tower configuration is to support a fan-type stay-cable arrangement with 24 stay-cables emanating from each tower. The towers which are 29 m high, rise from the piers starting at the level of the under-side of the pot-bearings supporting the box girder. The stay-cables are attached to the 30.4 m wide bridge deck at the sides and are to be Expanded Lineup Epoxy Coated and Filled (ECF) cables. The detailed design of the bridge was performed taking into consideration the in-situ balanced cantilever method of construction, which is used for this bridge, through a staged analysis. The new Kelani bridge extends southwards from the Colombo Katunayake Expressway and divides towards the Port Access road and Baseline road. An elevated highway to be constructed from Peliyagoda to Colombo Fort will also be connected to the bridge at the interchange at the Bandaranaike roundabout. The new Kelani bridge together with the elevated highway is expected to help ease traffic congestion in the Colombo and Pel yagoda areas.

Proposed elevated highway from new Kelani bridge to Rajagiriya has two components as the main trace (from new Kelani bridge (Orugodawatta) to Rajagiriya) which is 6.9 km long, and the second component (link road to Baseline road at Dematagoda) which is 1.2 km long. Therefore, the entire length of the proposed highway is 8.1 km. The main trace from new Kelani bridge to Rajagiriya will be constructed over piers with on and off ramps connecting to existing roads at selected locations. JICA generously funds the project that will benefit the entire nation.The new Kelani bridge is the first application of cable-stayed bridges in Sri Lanka. Therefore, the new bridge with the elevated highway dawns a new era of road and bridge construction in Sri Lanka.

Eng. (Dr.) P.A.K. Karunananda
BSc. (Eng.) (Hons.) (Peradeniya), MPhil. (Peradeniya), MEng. (Ehime), DEng. (Ehime), C.Eng, MIE(SL)
Editor, 'ENGINEER', Journal of The Institution of Engineers