D4R7. Prievoz Interchange refurbishment at Bratislava

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Abstract

The project of Bratislava Bypass – D4R7, established as a Public-Private Partnership, consists of design, construction, financing, operation, and maintenance of D4 Motorway with a length of 27km and R7 expressway with a length of 32 km around Bratislava, the capital city of Slovakia. More than 110 structures were executed within the project, including concrete and steel bridges, box-girder, beam bridges, post-tensioned slabs, underpasses, animal crossings, pedestrian, cyclist bridges, and the 6th bridge over River Danube in Bratislava.

One of the most challenging parts of the D4R7 project is a rehabilitation of 8 bridges in 3-level interchange Prievoz, with a crossing of Highway D1 in the urban area of the Bratislava city, executed in the 1980s.

Keywords: interchange Prievoz, Slovakia, refurbishment, diagnostics, post-tensioning, vertical prestressing bars

1 Introduction

D4R7 was founded by a Spanish company Ferrovial and an Austrian company Porr Bau to lead the design and construction of the project after the consortium Zero Bypass Limited was formally selected in mid-2016 as a Concessionaire presenting the best technical and financial offer for the PPP project. The PPP project includes design, construction, and concession for 30 years of maintenance.

The project D4R7 has been developed by Design Teams from the Czech Republic, Spain, and Austria led and coordinated by a Slovak company Dopravoprojekt, a.s. Independent structural checking of the project is fulfilled by FHECOR – a design office from Spain. One of the major Austrian consultants – FCP, has performed the role of the Independent Engineer on the project.

For the refurbishment of the Prievoz interchange, the cooperation of design teams from Torroja Ingenieria S.L.P., Alfa 04 a.s. and Pontex, spol. s.r.o. was established.

The diagnostics of the existing flyovers was performed by Building, Testing and Research Institute from the Slovak republic – TSÚS, n. o. in cooperation with the Faculty of Civil Engineering from the Slovak University of Technology in Bratislava – SvF STU and Research Institute of Civil Engineering Structures – VÚIS Mosty s.r.o.