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# INFLUENCE OF A HOT ASPHALT MIXTURE ON THE STRESSES IN THE POST-TENSIONED BOX GIRDER

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## SUMMARY

Thermal effects can have a significant impact on the durability of concrete bridges [4,5,6,7,8,9,10]. The research gives environmental effects as a cause of bridge failures. A review of the design standards and guidelines shows that more precise recommendations for sizing of reinforcement for thermal effects is needed. This paper focuses on the assessment of the influence of hot asphalt mixture laid on the deck on the stresses in a PT box girder at the construction stage. Results of FEA were confirmed by the research conducted on the structure in-situ and show a significant stress development in the girder at this stage. It is concluded that the existing code requirements need to be supplemented.

**Keywords**: *Post-tensioned bridge, box section, thermal effects, hot asphalt mixture, paving.*

## 1. DESCRIPTION OF THE STRUCTURE

The flyover is located along the Internal Ring Road in Wrocław, Poland [1]. It consists of two parallel post-tensioned box girders (each carrying one carriageway in the opposite direction) and has a complex layout. The side roads (see Fig. 1) allowing the traffic to access local streets, are elevated and monolithically connected to the main 15-span viaducts. The railway tracks underneath force uneven span arrangement, the overall dimensions are shown on Fig. 1.

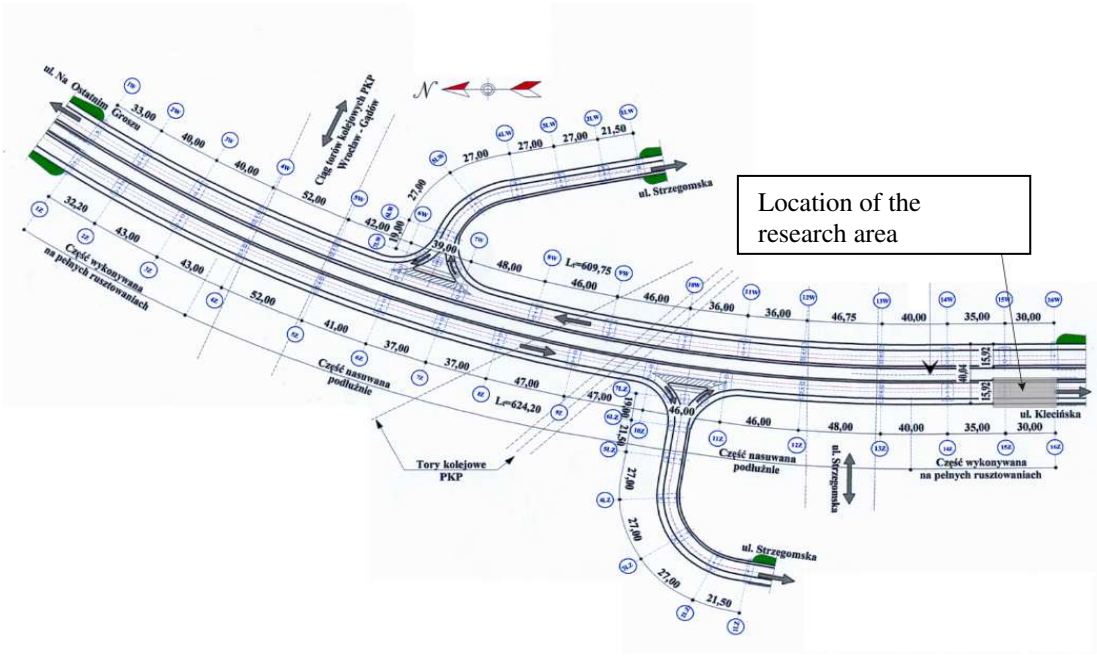


***Fig. 1.*** *Plan view of the flyover.*

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