Precamber Variability in Precast Concrete Deck Planks

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Abstract

Precast concrete girders, including both Deck Planks and Super-Ts are amongst the most common and cost effective forms of bridge construction used in Australia. Girder precamber or expected hog values are a key design parameter and construction that rarely conforms to the theoretical calculated design values noted on the design drawings. This variability of as-constructed girder hog presents a number of challenges for the contractor during construction, in particular to meet finish surface design levels for structural and civil purposes and avoid potential girder sag. As compared to Super-T girders Precast Deck Planks may also be more sensitive to these impacts.

The Westgate Tunnel Project, comprises more than 20km of bridge construction including many precast concrete deck plank span where functional arrangements suited. The aim of this paper is to revisit existing technical literature and guidance on the calculation of hog values and then to compare against practical results provided by the large dataset of information available from the hundreds of deck planks used on the project. It has been observed from this data that precamber values are highly variable with as constructed values differing from predicted values. The paper would seek to provide guidance on how this can be managed or the impact minimised for design and construction alike.