LONGITUDINAL RESPONSE OF A PRECAST POST-TENSIONED SEGMENTAL BRIDGE SYSTEM

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ABSTRACT

This paper discusses the main findings of a test designed to examine the seismic behavior of a precast post-tensioned segmental bridge with a cast-in-place, hollow, rectangular column. The half-scale specimen modeled a bridge from midspan to midspan and down to midheight of the column. The test was completed in two stages, the first involved a superstructure prestressing design approach to avoid joint openings throughout, and the second of which involved removing some of the tendons to enable opening of the joints in the superstructure and to impose on the joints nearest the column a more severe loading condition. The primary objectives of the test were to investigate the response of the column-superstructure interaction, possible opening of the superstructure joints, plastic hinge formation in the column, and the anticipated system failure mechanism.

Key-words: Joints, Precast segmental bridges, Testing