

Design and Performance Verification of a Bridge Column/Footing/Pile System for Accelerated Bridge Construction (ABC), TR-673

Description

Meta Fields

Category : Ongoing Projects

Group : Substructure

Subject : Footing/Column/Cap

Abstract :

Accelerated bridge construction (ABC) has gained significant momentum among various state departments of transportation (DOTs) as it helps in reducing the period of onsite construction, thereby reducing the impact to the traveling public. In addition, the FHWA has recently initiated an effort to reduce the time required to bring new bridges into service, and has also increased the design life of bridges from 50 to 75 years. In response to these changes, and to facilitate ABC practices, several State DOTs have developed a variety of structural connection details for prefabricated bridge elements ranging from full-depth precast deck panels to precast girders to precast integral abutments. Several innovative ABC techniques have also been implemented by the Iowa DOT and Iowa County Engineer offices. Given the recent success in the development of accelerated construction details for bridge columns and decks, the scope of the proposed research is to facilitate the use of ABC for an entire bridge substructure system. This will be accomplished by establishing design details for pile-to-pile cap connections and column-to-pile cap connections, and validating their behavior through component and system tests. By means of this process, the intent of this project is to establish suitable details for full ABC solutions (i.e., from foundations to superstructure) for routine bridge designs.

Key Words :

Bridge construction, Bridge design, Prefabricated bridges, Service life, Bridge abutments, Columns, Footings, Bridge superstructures, State departments of transportation, Iowa

Budget : 214552.00

Project Length : 30

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Project Completion Year : 2016