

A Smart Health Monitoring System for the New I-10 Twin Span Bridge over Lake Pontchartrain

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ABSTRACT

A new I-10 Twin Span Bridge over Lake Pontchartrain is being constructed to replace the existing bridge, which was heavily damaged by Hurricane Katrina in 2005. The elevation of the new bridge will be higher, making it less vulnerable to high storm surge. The bridge will be supported by groups of battered pile foundations. In order to verify the analysis method used in the design phase, LADOTD decided to install a health monitoring system on a selected M19 eastbound bridge pier of the main span. The system includes both sub-structure and super-structure instrumentations for use in short-term monitoring during a static lateral load testing and for long-term monitoring during selected events such as wave, wind, and vessel impact. A unique lateral load test was designed and conducted at the M19 pier to assess the validity of the analysis method used to design pile foundations. This paper will present the development of the sub-structure instrumentation plan of I-10 Twin Span Bridge and its use during the lateral load test.

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