



University of Mississippi

Structural, Material, and Geotechnical Solutions to Levee and Floodwall Construction and Retrofitting



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Prevent, Protect, Respond, Recover

Homeland Security Challenge:

Breaches in levees and floodwalls can cause severe flooding leading to catastrophic disasters. There is a need to develop efficient, cost effective techniques to strengthen, reinforce, and to retrofit existing flood protection structures such as levees and floodwalls to prevent the occurrence of another storm disaster similar to Hurricane Katrina.

Research Project Solution:

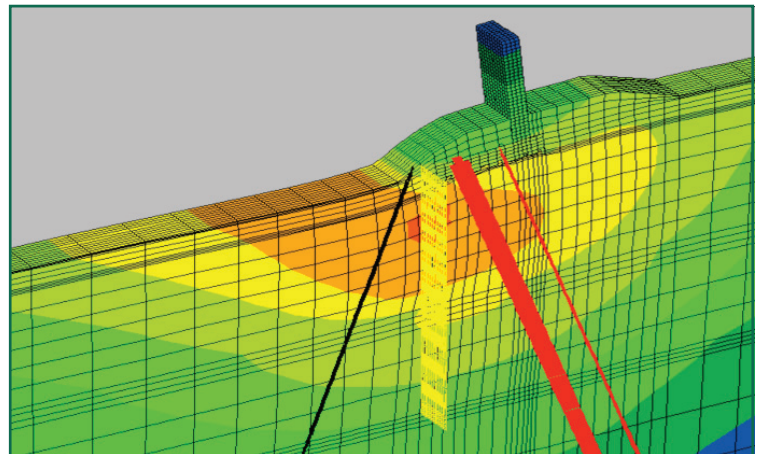
This research project takes the lessons learned from Katrina, as reported by the U. S. Interagency Performance Evaluation Task Force, as well as from other investigative teams, and proposes innovative structural, geotechnical, and material solutions for retrofitting the New Orleans floodwalls and levees. Particularly, structural components are designed to tie the floodwalls into a system to prevent the failure of individual pieces. Levee soils are strengthened and better protected to minimize erosion by overtopping water. Three-dimensional computational tools are created for the design of flood protection system.

National Implications:

The annual flood losses in the U. S. are estimated to be in the billions to tens of billions dollars range. The new material, retrofitting techniques, and design tools developed in this project can be used not only in New Orleans and Gulf Coast areas, but also in the entire nation, to improve the flood protection system, and to reduce the loss of properties and lives.



Measuring erosion coefficient using ASTM 6459-07 device.



Computed deformed shape of a T-wall shaped floodwall in New Orleans.

www.serri.org

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SERRI is managed by the Department of Energy's Oak Ridge National Laboratory for the U.S. Department of Homeland Security