

Project Title: Evaluation of Hydrogel–stabilized Expansive Soils in Mississippi for Sustainable Maritime Infrastructure Design
Project Abstract (Brief Description): The expansive soil causes a variety maritime transportation infrastructure problem, such as cracks, damage of pipeline, and the differential settlement of foundation. In Mississippi, Yahoo clay, one type of expansive soil, causes significant concern during the maritime design and maintain. To address the need of MarTREC for the sustainable and resilient transportation infrastructure preservation and building upon its experience and expertise in the area, this project is being proposed the feasibility of using innovative hydrogel treatment as alternative expansive soil stabilization. Hydrogel is a network of polymer chains that are hydrophilic, which has physical entanglement and chemical bonding to integrate solid and liquid properties. Meanwhile, the superior toughness and mechanical strength of hydrogel can provide additional bonding force between soil particles and may reduce the swelling behavior of expansive soil. The hydrogel treatment may provide great and previously unexplored opportunities as cost-effective and sustainable preserving alternative approach for expansive soil stabilization in maritime infrastructure.
Describe Implementation of Research Outcomes (or why not implemented) - Place any photos here <i>To be determined upon conclusion of the project:</i>
Impacts/Benefits of Implementation (actual, not anticipated) <i>To be determined upon conclusion of the project:</i>
Web Links: martrec.uark.edu
Budget (Funding) Amounts & Source(s) (US DOT +Match(s) =Total Costs): USDOT \$50,000 + Matching funds \$25,000=Total \$75,000.
Project Start and End Dates: 8/1/2019 – 7/31/2020
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