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Evaluation of Expansive and Problematic Compacted Clays in Missouri using 3D Swell Tests

Many clay soils in the Midwest region are susceptible to changes in water content that may result in swelling that can impact lightly loaded structures. In construction soils are often used for fill and compacted at specified water contents. Problematic clay soils are present in arid regions like in Texas and Colorado and it is well documented. However, less information is available on Missouri clay soils. Soil samples at shallow depth were collected and tested in the Missouri S&T geotechnical laboratories. The properties and characteristics of the compacted samples were determined. The swelling potential using a new testing protocol called the 3D Swell Test was determined for two samples from different locations in the state. Comparison and evaluation of the swelling results are made and recommendations for future research are also presented.

Yasmin Hassen is an undergraduate student in Civil Engineering. She is originally from California and came to Missouri S&T in search for fame, fortune, and knowledge. She found knowledge, which is endless, and therefore engaged in research. She has also found that learning can come in many different styles and has traveled to Guatemala in class projects that promote service learning. She plans to graduate in 2009.