

Evaluation of Drained Shear Strength of Bentonite-Sand Mixtures

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Abstract : Drained shear strength of saturated soils is fully understood. Shear strength of unsaturated soils is usually expressed in terms of soil suction. Evaluation of shear strength of compacted mixtures of sand-bentonite at optimum water content is main purpose of this research. To prepare the required samples, first, bentonite and sand are mixed in 10, 30, 50 and 70 percent by dry weight and then compacted at the proper optimum water content according to the standard proctor test. The samples were sheared in direct shear machine. Stress-strain relationship of samples indicated a ductile behavior. Most of the samples showed a dilatancy behavior during the shear and the tendency for dilatancy increased with the increase in sand proportion. The results show that with the increase in percentage of sand a decrease in cohesion intercept c' for mixtures and an increase in the angle of internal friction Φ' is observed.

Keywords : bentonite, sand, drained shear strength, cohesion intercept

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