

Wasan Sutthinun 2009: Determination of Effective Strength Parameters of Soft Bangkok Clay Using Suction - monitored Unconfined Compression Tests. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Mr. Apiniti Jotisankasa, Ph.D. 113 pages.

This research is on the determination of effective strength parameters for soft Bangkok Clay using Unconfined Compression Test with measurement of soil suction during testing, compared with those obtained from Triaxial Compression Test. Suction measurements were performed during Unconfined Compression Test using miniature tensiometers developed by Kasetsart University. The studies also include the application of the parameters from SUC Test in the numerical analysis of excavation work

The Suction - monitored unconfined compression test employs the tensiometers which work satisfactorily for suction range of 10 to 80 kPa. The values of the effective angle of shearing resistance, ϕ' , obtained from these tests are 26°, 23° and 25° at the plasticity index (PI) of 44, 60 and 62 - 68 respectively, with effective cohesion equal to zero (using the critical state theory). The behaviour of isotropic compression obtained from Triaxial test and isotropic drying using, tensiometer and pressure plate agree reasonably well for the clay with degree of saturation greater than 95%. Finally since the value of effective mean stress is less than 80 kPa, as obtained from the finite element analysis of excavation to deep - 6.30 meter, the Suction - monitored unconfined compression test (SUC Test) proposed on his study can be employed in such application.

Student's signature

Thesis Advisor's signature

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