

SUMMARY

ENGARUH SEKLUS PENGERINGAN-PEMBASAHAN BERULANG TERHADAP KARAKTERISTIK TEGANGAN GESER PADA TANAH LEMPUNG YANG DIP ADATKAN

THE EFFECTS OF REPEATED DRYING - WETTING CYCLE ON SHEAR STRESS CHARACTERISTICS OF COMPECTED CLAY

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Keyword : : tanah lempung mengembang; tanah tidak jenuh air; tegangan geser; siklus pengeringan-pembasahan

Description :

Proses pengeringan - pembasahan merupakan peristiwa pengurangan dan penambahan kadar air pada massa tanah, yang menyebabkan terjadinya perubahan volume dan perubahan tegangan air pod negatif (suction). Perubahan volume dan tegangan air pori negatif tersebut menyebabkan terjadinya perubahan tegangan geser, yang besarnya masih memerlukan penelitian untuk jenis tanah tertentu

Dalam penelitian mi masalah yang akan dikaji adalah pengaruh variasi tegangan air pori negatif terhadap tegangan geser, perubahan volume, pada kondisi awal slurry, padat standar proctor yang diberi perlakuan pengeringan-pembasahan. Disamping itu juga dipelajari hubungan antara perubahan kadar air dan perubahan angka pori. Sampel tanah dalam penelitian ini menggunakan tanah lempung campuran, 75% tanah lempung Citraland dan 25% tanah lempung Bentonite. Tanah lempung campuran mempunyai karakteristik fisik, LL = 195%, PL = 29,59%, dan PI = 165,41%. Pada penelitian ini dibuat tiga kelompok benda uji. Kelompok pertama dibuat sebanyak 37 pasang benda uji yang mempunyai kodisi awal slurry diberi perlakuan pengeringan -pembasahan, kelompok kedua dibuat 25 pasang benda uji padat standar proctor yang diberi perlakuan pengeringan - pembasahan, dan kelompok ketiga dibuat 23 pasang benda uji padat standar proctor yang diberi perlakuan pembasahan - pengeringan. Dibuat sepasang benda uji, masing-masing untuk test geser dan tegangan air pori negatif (suction) sesudah mencapai kadar air tertentu.

Hasil penelitian ini menampakkan ada hubungan yang signifikan antara tegangan geser dan tegangan air pori negatif untuk ketiga kelompok benda uji. Tegangan geser benda uji yang mempunyai kondisi awal slurry meningkat tajam setelah tegangan air pori negatif mencapai harga 10.000 kPa ($pF = 4$). Hal yang sama juga terjadi pada kedua kelompok yang lainnya. Hasil lainnya dari penelitian ini adalah hubungan antara berat volume kering dan tegangan air pori negatif pada proses pengeringan. Untuk tegangan air pori negatif yang sama, benda uji slurry mempunyai berat volume kering terbesar, disusul benda uji padat yang mendapat perlakuan awal pembasahan, dan kemudian benda uji padat yang mendapat perlakuan awal pengeringan.

Description Alt:

Drying - wetting process is a process of reducing and adding of water content to soil mass which causes change on volume and suction. The change on volume and suction cause shear strength, in which the degree of change needs further research for certain type of soil.

This research with discuss the effects of various suction on shear strength, volume change, first slurry condition, proctor standard solid which is given drying -wetting treatment. This research will also discuss the relationship between water content change and change on void ratio.

Soil samples in this research are clay mixture, 75% Citraland Clay and 25% of Bentonite Clay. Clay mixture has physical characteristics, LL - 195%, PL = 29,59%, and PI = 165,41%. In this research, three experiment objects are made. The first one is made into 27 pairs of instrument objects which have first slurry condition and they are given drying and wetting treatment, the second group is made into 25 pairs of instrument objects of proctor standard solid which are given drying - wetting treatment and the 3rd group is made into 23 pairs of instrument object of proctor standard solid which are also given drying - wetting treatment It is made a pair of experiment object , each for shear test

and suction after reaching certain water content

This research result shows significant relationship between shear strength and suction for all instrument object Shear strength of instrument object which has first slurry condition increases sharply after suction reaches 10.000 kPa (pF - 4). The same thing also happens to other groups. Other result this research shows the relationship between dried volume weight and suction at drying process, for the same suction, slurry experiment object, has the biggest dried volume weight and the second biggest dried volume weight is solid experiment object which is given fist wetting treatment and the third biggest dried volume weight is solid experiment object which is given first drying treatment

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Date Create : 10/01/2007

Type : Text

Format : Pdf; 100 Pages

Language : Indonesian

Identifier : ITS-Master-3100001012425

Collection : 3100001012425

Call Number : 624.151 36 Jir

Source : Theses Geotechnic RT 624.151 36 Jir p-1, 2000

COverage : ITS Community

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Thank You,

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