

**THE SHEAR STRENGTH CHARACTERISTIC
OF
LIME AND FLY-ASH STABILIZED CLAY**

Final Project

Prepared by :

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CIVIL ENGINEERING INTERNATIONAL PROGRAM
FACULTY OF TECHNIC
UNIVERSITAS ATMA JAYA YOGYAKARTA
YOGYAKARTA

April 2015

APPROVAL

Final Project

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Has been corrected and approved

Yogyakarta,

June 18, 2015

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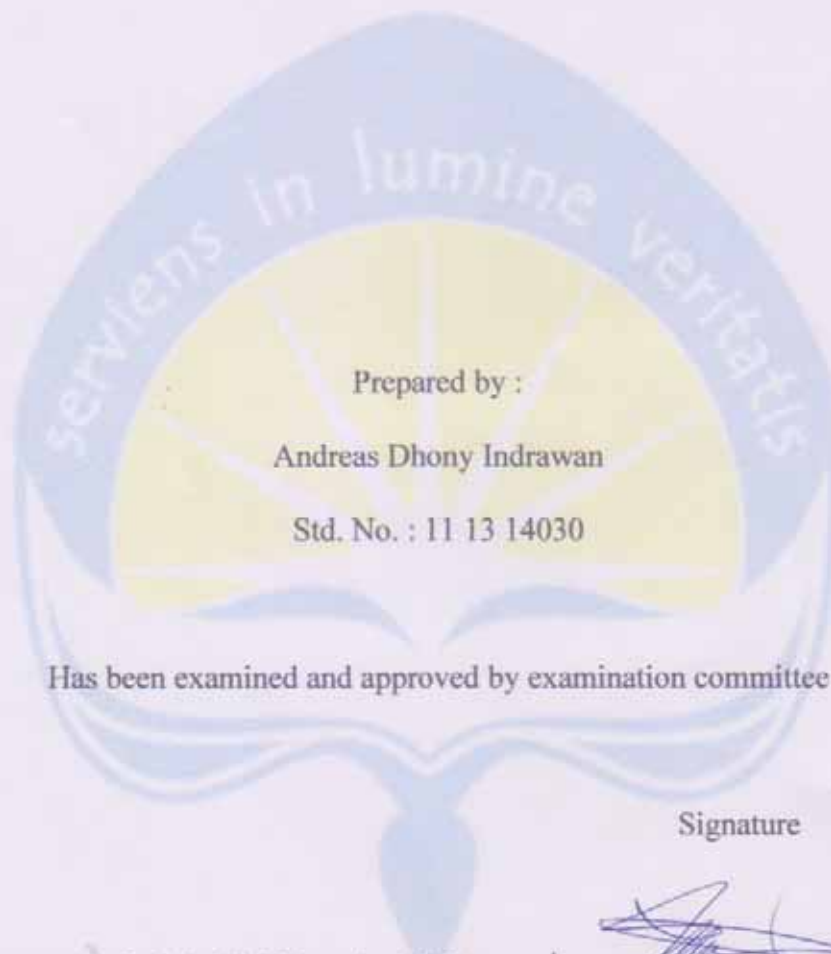


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Signature

Date

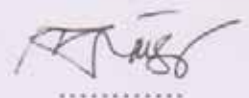
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(Andreas Dhony Indrawan)

PREFACE

First and foremost, the author would like to thanks to God for His blessing that had been given to the author, so that the author could prepare and finish this final project report. This report was arranged, due to finish the S1 degree at Faculty of Engineering, Department of Civil Engineering, Universitas Atma Jaya Yogyakarta.

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The writer realized that this report has many mistake, misspelling, etc. For that, the writer will accept all of the critics and suggestion which will make this report better. Finally the writer hopes this report could give any advantages for the readers.

Yogyakarta, May 2015

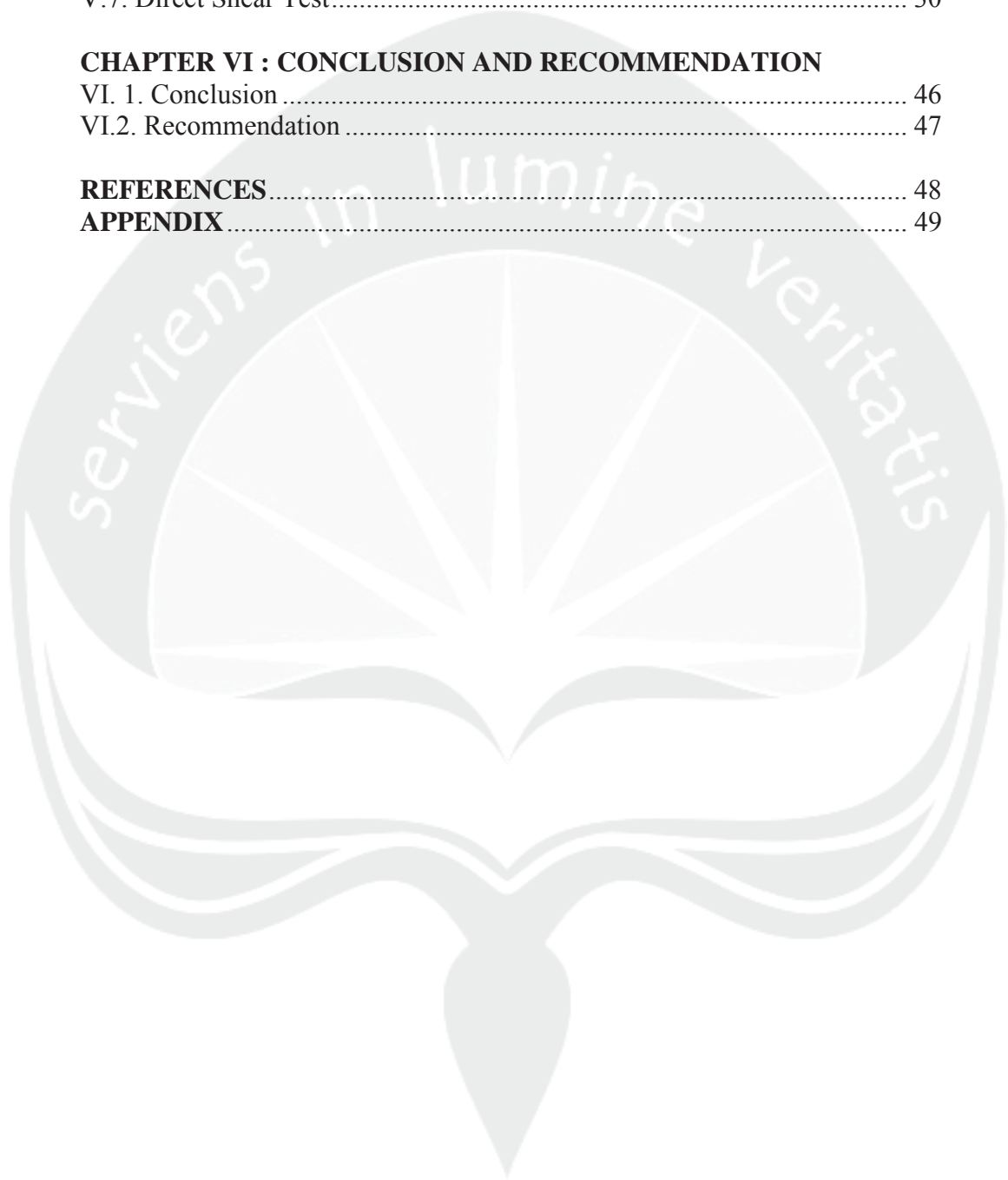


Andreas Dhony Indrawan

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ABSTRACT

“THE SHEAR STRENGTH CHARACTERISTIC OF LIME AND FLY-ASH STABILIZED CLAY” prepared by Andreas Dhony Indrawan, Std.No 11 13 14030, International Program of Civil Engineering Department, Faculty of Engineering, Universitas Atma Jaya Yogyakarta.

This research investigates the shear strength characteristic of lime and fly-ash stabilized clay. Research consists of two processes: identifying soil properties and observing shear strength characteristic of soil. Observing shear strength characteristic had done by doing direct shear test. Initially, the optimum values of lime mixture were observed, samples were the soil mixture with 4%, 6%, and 8% of lime content. The optimum percentage of lime was used to create other variation by mix it with certain amount of fly-ash: 10%, 15%, and 20%. Research found that that all samples with 4%, 6%, or 8% of lime content have increasing cohesion value (c) along the time curing periods. In the other hands samples that mixed with 6% Lime and 10% Fly-ash; 6% Lime and 15% Fly-ash; 6% Lime and 20% Fly-ash shows that the cohesion value is decreasing along the time curing periods. Soil samples that mixed with lime only additive have decreasing friction angle value (ϕ) along curing periods but, all samples that added with lime and fly-ash show the increasing value of friction angle along the time curing. The result of direct shear test shows that sample booth lime only also lime and fly-ash sample indicates the improvement of shear strength (τ). The shear strength of clay which is added by lime mixed with fly ash is provides better result than lime only additive. Result of direct shear concludes that clay with 6% Lime and 15% Fly-ash content provides optimum value of shear strength (τ) which is reaching 0,629 kg/cm².

Keywords: Clay, lime, fly-ash, direct shear, cohesion, friction angle, shear strength