SHEAR BEHAVIOUR OF LIME-PRESS MUD STABILIZED CLAYS

Final Project Report
as a requirement to obtain Bachelor degree from
Universitas Atma Jaya Yogyakarta

by:
DIGNA DIVA KOA
Student ID Number: 131314863

INTERNATIONAL CIVIL ENGINEERING PROGRAM
DEPARTMENT OF CIVIL ENGINEERING
FACULTY OF ENGINEERING
UNIVERSITAS ATMA JAYA YOGYAKARTA
YOGYAKARTA
JANUARY 2017

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I signed below stating that the final project with the title:

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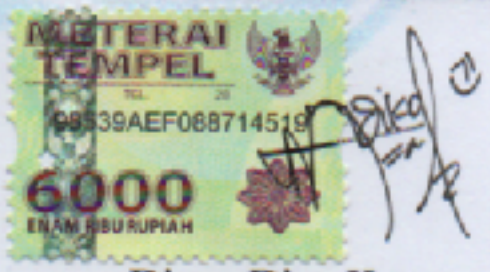

Digna Diva Koa

APPROVAL

Final Project Report

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by:

DIGNA DIVA KOA
Student ID Number: 131314863

has been approved by Supervisor

Yogyakarta, January 24th, 2017

Supervisor,

Ir. J. Tri Hatmoko, M.Sc.

Department of Civil Engineering

Chairman,

J. Januar Sudjati, ST, MT

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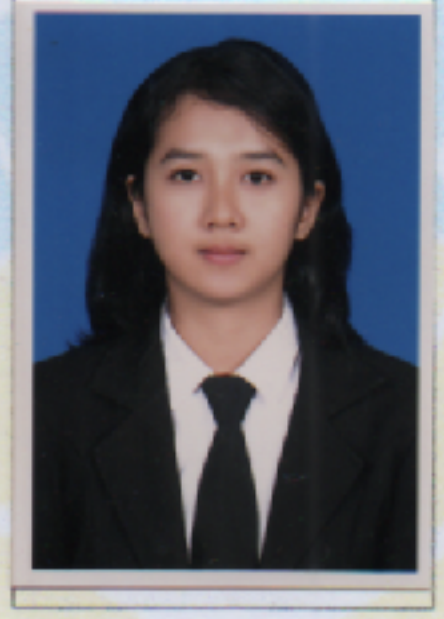

by:

DIGNA DIVA KOA
Student ID Number: 131314863

has been examined and approved by:

	Name	Signature	Date
Chief	: Ir. J. Tri Hatmoko, M. Sc.		24/01/17
Secretary	: Dr. Eng Luky Handoko		24/01 2017
Member	: Ir. Y. Lulie, M.T.		January 24th 2017

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF SYMBOLS

ω	Natural water content
G_s	Specific Gravity
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
γ_w	Wet unit weight
c	Cohesion
ϕ	Friction Angle
τ	Shear Stress
σ	Normal Stress

ABSTRACT

"SHEAR BEHAVIOUR OF LIME-PRESS MUD STABILIZED CLAYS"
prepared by Digna Diva Koa, Stu. ID Number 131314863, 2017, Geotechnical Engineering, International Civil Engineering Program Department, Faculty of Engineering, Universitas Atma Jaya Yogyakarta.

In Indonesia the existence of clays becomes problems in construction project area such as for infrastructure development. Soil improvement for problematic soil is required especially for construction project area, because commonly the soil characterized by low strength and high compressibility. On the other hand, considering about environmental issue. Nevertheless, the utilization of press mud from sugarcane waste as a stabilizer is limited in engineering practice. Whereas, press mud can be used as alternative for soil stabilizer in soil improvement.

This study was to investigate shear strength of lime-press mud stabilize clays. The first step was to obtain the optimum lime content by doing liquid limit test, plastic limit test and plasticity index determination. The soil mixed with the additives of 2%, 4%, 6%, and 8% lime content. The optimum lime content obtained when the lime has big effects in reducing the plasticity index of soil. In the second step, the optimum lime content was used to make the specimens with addition of press mud with variations 10%, 15% and 20% for direct shear test.

These experimental results showed that the optimum lime content was 6%, with the decrement of plasticity index value from 24.24% become 15.77%. Soil specimens that mixed with 2%, 4%, 6%, 8% lime, shows there were increment of cohesion (c) value in 7 and 14 days curing time and increment of friction angle (ϕ) value in 14 and 28 days curing time. The specimens with optimum lime content 6% mixed with 10%, 15%, 20%, shows there were increment of cohesion (c) value and increment of friction angle (ϕ) value with 7 and 14 days curing time press mud. The specimen with 6% lime and 20% press mud were the most at improving the shear strength of soil about 0.4447 kg/cm^2. It increases about 59.32% of original soil shear strength in 28 days. On the other hand, the additional of lime-press mud into the mixture increases the shear strength with required curing time periods.

Keywords: *Plasticity Index, Lime, Press Mud, Cohesion, Friction Angle, Shear Strength, Direct Shear Test*