

DESIGN OF RIGID PAVEMENT OF GEJAYAN INTERSECTION

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

by:

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**INTERNATIONAL CIVIL ENGINEERING PROGRAM
DEPARTMENT OF CIVIL ENGINEERING
FACULTY OF ENGINEERING
UNIVERSITAS ATMA JAYA YOGYAKARTA
YOGYAKARTA
2018**

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APPROVAL

Final Project Report

**DESIGN OF RIGID PAVEMENT OF GEJAYAN
INTERSECTION**

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PREFACE

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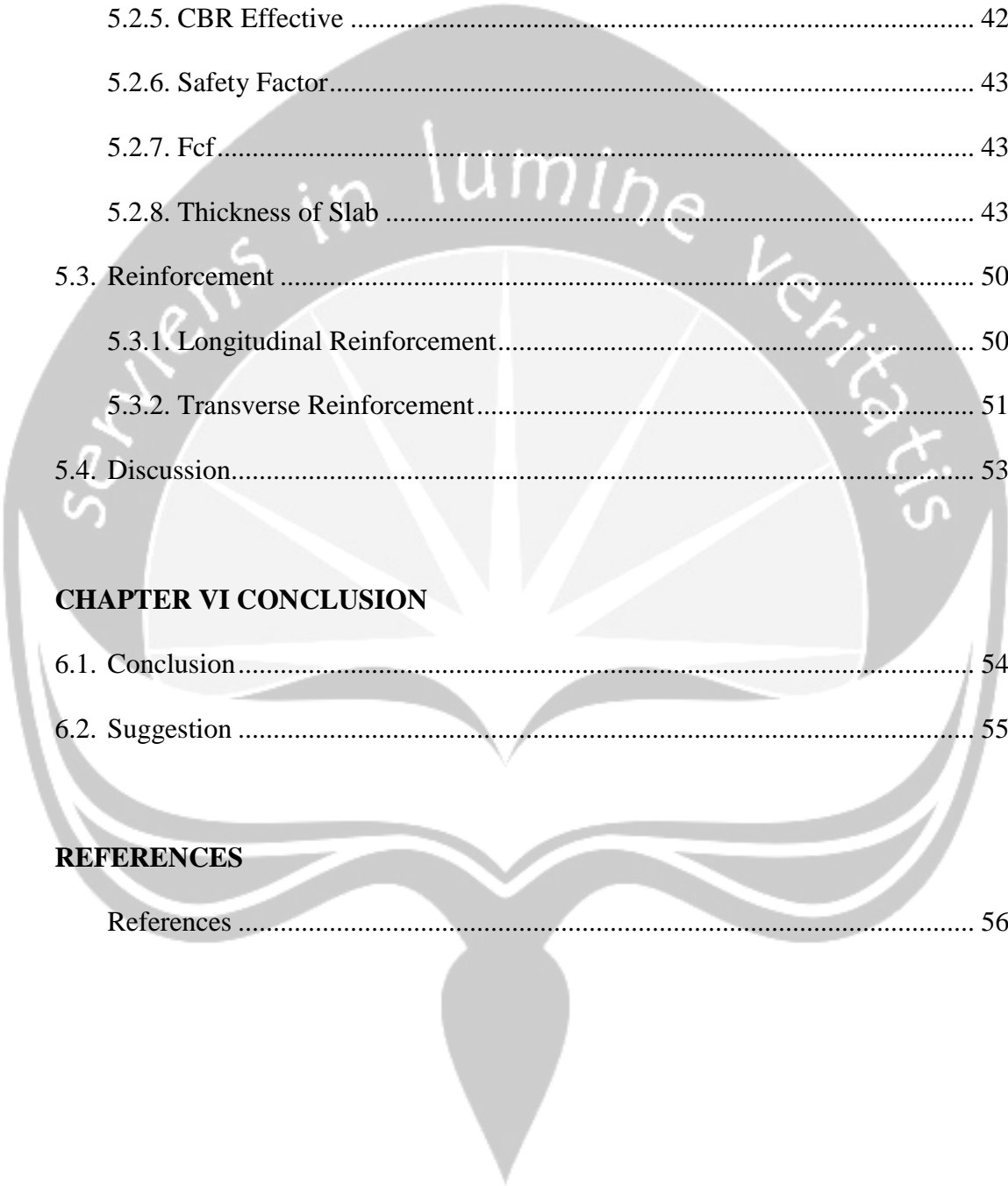
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ABSTRACT

DESIGN OF RIGID PAVEMENT OF GEJAYAN INTERSECTION,

Alpin Roy Batubara, Student ID 13 13 14997, 2018, Transportation Engineering, International Civil Engineering Program, Civil Engineering Department, Faculty of Engineering, Universitas Atma Jaya Yogyakarta.

Transportation is an important sector in supporting society's economic activities, because it provides access for the society. This is generally known as road. Road conditions are expected to provide best performance of security and comfort for users. *Jalan Ringroad Utara* is one of crowded road in Yogyakarta, because *Jalan Ringroad Utara* is the main road for people to do activities and also a inter-provincial route. This may cause the defect. Especially in traffic light, because when the vehicle is stop and start to run, it will increase load to the pavement. Therefore, road performance may decrease. In this study, it will review and investigate existing pavement and replace with rigid pavement layer, but still using, rigid pavement layer above existing pavement.

After surveying, Alligator cracking, patch and potholes are the cause of the decrease of road performance. Therefore rigid pavement is designed to improve this by Continuously Reinforced Concrete Pavement (CRCP). For this designing method, the calculation will be done from designing the slab thickness. The slab thickness must fulfill the requirement (the fatigue and erosion ≤ 100 %). After that, designing the reinforcement. For this designing method, there are two types of reinforcement that used in Continuously Reinforced Concrete Pavement (CRCP). (1) Transverse reinforcement, (2) longitudinal reinforcement, but for longitudinal reinforcement must fulfill the checking of theoretical distance between cracking.

This designing is following the Pd T-14-2003, the data for designing of rigid pavement came from survey in the research location. There are 3 types of road damage: Alligator Cracking, Potholes and Patch. From the calculation, the author got slab thickness = 220 mm, base foundation = 150 mm, the subgrade will adjust the elevation. The transverse reinforcement used $\phi 12 - 250$ mm and longitudinal reinforcement used $\phi 16 - 120$ mm.

Keywords: Transportation, Road Damage, Continuously Reinforced Concrete Pavement