

CHAPTER I

INTRODUCTION

1.1 Background

Padang as the capital of West Sumatra, has an important role as the center of economic activity, the presence of transportation infrastructure is certainly a very important aspect as the driving force in economic development. Not only roads, bridges are also part of transportation which is needed, especially in its function as a connector of two segments roads cut off by an obstacle that is lower like the valley, irrigation canals, railroads, highways, rivers, lakes, and as a connector between islands.

Bridge condition must always be in good condition is highly demanded to support a smooth traffic through it. Good conditions for a bridge means having the strength to support the loads it receives, that are load of the structure itself or live load such as traffic load on it. But in fact, there are several factors that cause the bridge serviceability strength will be decreased for example because of damage to the bridge.

Kuranji precast bridge is a new bridge, which located on the bypass road Padang. by its location, There are several factors which will cause damages to the bridge structure such as a large traffic load, in addition to batang Kuranji river itself has recently been in trouble with the illegal sand mining operations that affect substructure of Kuranji composite bridge, so that eventually the bridge been closed for a while. One of damage that could be happen to the substructure of the bridge itself is the settlement in the support of the bridge.

In this thesis the author will discuss the case of damage of a bridge that is a settlement of the support element and the effect to the upper structure on Kuranji precast bridge.

1.2 Goals and Benefits of Research

This research aims to determine the effect of a settlement of support in Kuranji precast bridge against the value of the internal force and deformation that happened.

The benefits of writing this research is to provide an understanding of the effects of damage to the structure, namely a settlement of the support element in Kuranji precast bridge structure.

1.3 Problem Scopes

The discussion in this research include:

1. Structure Analysis to simulate a settlement of support
2. Modeling the structure of the bridge using SAP2000 14.0.0 version
3. Bridge implementation method is not taken into account
4. Soil analysis calculations are not calculated in this research
5. In the modeling, the foundation assumed as fixed and for the abutment are pins
6. Girders assumed countinious with Pillars
7. Support settlement value in the simulation is 15 cm
8. Support settlement that occur that simulate is irregular differential settlement
9. Considered load are as follows :

- a) Dead Load, that is the weight of the structure itself
 - b) Settlement load
10. Values are taken into account from the results of the structural analysis are: internal forces (moment, shear), deflection and mode shape.

1.4 Research Writing Outline

To produce good writing and understanding the research is divided into several chapters that discuss the following matters :

CHAPTER I INTRODUCTION

Consist of the background, goals, benefits of research and problems scope and research writing outline

CHAPTER II LITERATURE REVIEW

Consist of the literature regarding settlement of the support element and other literature that relevant to this research.

CHAPTER III RESEARCH METODOLOGY

Explain about the flowchart and the steps of this research from beginning to end

CHAPTER IV PROCEDURES AND RESULTS

Covers the procedures of problem solving in order to obtain results. Results are shown in graphs.

CHAPTER V ANALYSIS AND EXPLANATION

Include a description of the analysis and discussion of the results obtained.

CHAPTER VI CONCLUSION

Contains conclusions and suggestions of this research.

BIBLIOGRAPHY

