

CHAPTER 1
INTRODUCTION

1.1 Background

There are two types of pavements, namely flexible and rigid pavement. Flexible pavement usually consists of asphalt concrete placed above the base and subbaselayer supported by compacted soil, referred to as subgrade. Flexible pavement layer transmits uniform stress and deflection is not uniform. Figure 1.1. Shows the cross section of the flexible pavement. Surface layer of flexible pavement can be consisted of wearing course or only wearing course. Material of both wearing course and binder course is asphaltic concrete that is hot mix asphalt mixture.

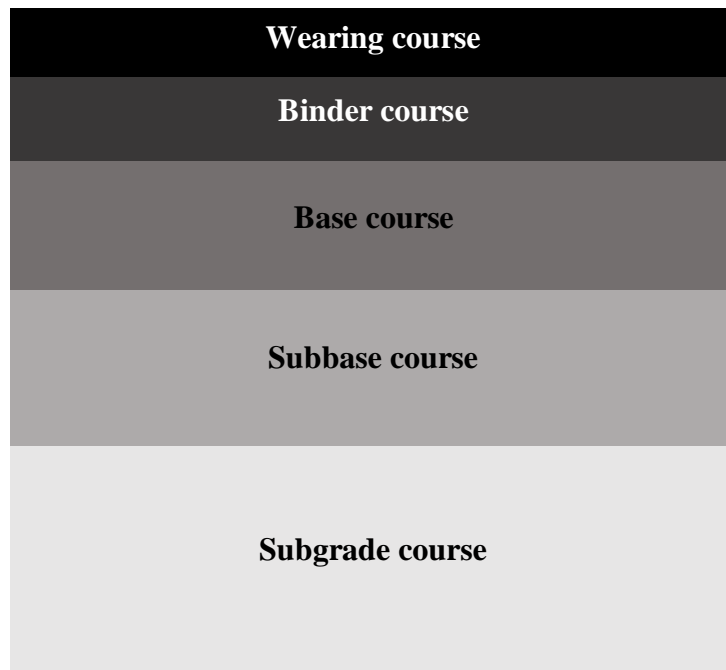


Figure 1.1 Typical Cross Section of Flexible Pavement

The subgrade is the original soil surface, excavation surface, or embankment surface which is the basis for laying the other parts of the pavement. The strength and durability of road pavement construction is highly dependent on the nature and carrying capacity of the subgrade. So that the subgrade determines the thin thickness of the soil above it.[1]

The subbase layer is the layer between subgrade and base layer. Subbase serves to support and spread the wheel load, besides that it can also achieve efficient use of relatively inexpensive materials in order to reduce the thickness of the layers above (saving construction costs). To prevent the subgrade from entering the foundation layer. And also as the first layer so that the implementation can run smoothly.

The base layer is the layer loadbetween the surface layer and the bottom foundation layer which functions as a wheel load restraint and also as a placement below the surface layer. Generally the materials must be strong enough and durable so they can withstand wheel loads. Before deciding on an ingredient to be used as a foundation material, we should do the best investigation and consideration in relation to the technical requirements.[2]

In this Final Assignment the subgrade, subbase and base will be stabilized using Feldspar. Feldspar is a group of test silicate minerals that form rocks that make up about 41% of continental crust based on their weight. Feldspars crystallize from magma [3]. Details about Feldspar will be explained in Review's Chapter 2 Literature.

1.2 ProblemStatement:

Subgrade, subbase, and base must be strength enough in odder the pavement strength and will not damage under the traffic load.

1.3 Objectives of the study:

Referring to the problem statement the objectives of the study are:

1. To stabilize subgrade, subbase, and base material using feldspar.
2. Analysis feldspar stabilize subgrade, subbase, and base.

1.4 Scope of the study:

To accomplish those objectives, this study started with a literature review, given in chapter 2, which contains the information that related to coherency of expansive clay, Base and Sub base. Feldspar as a soil stabilization, Base and Sub base and characteristics of the present Feldspar in some different water content, as well as tests which have to be conducted to the soil stabilization. Based on the results of the literature review, a research design and methodology, given in chapter 3, was developed involving preliminary research to find the appropriate stabilizer, in this study was Feldspar as control, as well as an extensive laboratory testing and experiments. Furthermore, the data obtained from the test were analyzed and given conclusions which recommendations were made in chapter 4, and chapter 5.