© INNOVATIVE RESEARCH THOUGHTS | Refereed | Peer Reviewed | Indexed
ISSN : 2454 – 308X | Volume : 04 , Issue : 02 | January – March 2018

Analysis and Evaluation of soil-sub grade and base course materials

Subodh Khatkar
Department of Civil Engineering, MRIEM, Rohtak, Haryana, India
Email - khatkarsubodh@gmail.com

1. Abstract

The roads being highly complex and because of their high importance in proper development of the nation by properly connecting various parts of the country/economy/society and hence, can be termed as a "Strategic Infrastructure Sector" also for a country/economy/society. Not only roads can be compared as life line when we talk about economic sustainability and growth of a country but because of its uniqueness of providing support as well as linkages to all other sectors of economy and social activities, it attains a much more important & critical role similar of nerve veins running across the length and breadth of a living being. This paper deals with analysing and evaluating soil sub grade and base course material and checking its properties to find its suitability by using California Bearing Ratio test. It is done as a part of the tender work for the improvement of by widening from 5.50 meter to 10.00 meter staging and C. C. Block on Rewari Dadri road upto Lula Ahir in Rewari District including shifting of utility of P. H. and Electrical (Road ID: 1339, 4656 and 1682) including HSAMB Portion with an objective to tailor the functionality of this framework. In this paper results of the soil test conducted to evaluate the strength properties of soil are presented.

Key words: CBR Test, Strength, Soil

1. Introduction

Highway engineering [1] plays a pivotal role in development of a nation as it acts as an interconnection between different places. Along with the development of the highways there maintenance also plays an important role in maintaining its usefulness over due course of time [2]. Sub grade soil is an essential and most vital component of the road pavement structure as it grants the proper strength to sustainthe pavement from underneath [3]. The sub grade soil and its related properties are of critical importance in the planning of pavement structure. The main job of the sub grade is to give ample sustainability to the pavement and for this purpose the sub grade should have enough stability even in adverse climatic and loading conditions [4]. Therefore, it is of utmost importance to analyse and evaluate the sub grade by performing suitable tests to find out the strength and the related properties of the materials used for the construction in order to know whether they will be able to handle the roads constructed over them properly. Hence, for this analysis proper testing of the samples is carried out in advance, to check suitability of base course material.

2. Soil Tests

The tests [5]which are conducted to assess the strength of soils are generally classified into three categories, these are as described below:

a) Shear tests

Shear tests are by and largeconducted on comparatively smaller soil samples in the laboratories. In this test, in order to access the strength properties of soil, a large amount of representative samples are taken from different locations and are tested in the labs. Direct shear test [6], unconfined compression test, tri axial compression test are some types of the shear tests.

b) Bearing tests