"LABORATORY STUDIES ON MARSHAL PROPERTIES OF LATEX MODIFIED BINDER FOR DENSE BITUMINOUS MACADAM GRADE 1 WITH WARM MIX ASPHALT"

PROJECT REPORT

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In partial fulfillment of the requirements for the degree of

BACHELOR OF ENGINEERING

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CERTIFICATE

Certified that the project work entitled "Laboratory studied on Marshal properties of Latex modified binder for Dense Bituminous Macadam Grade 1 with warm mix asphalt" is a bonafide work carried out by

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ABSTRACT

The advancement in the field of road construction leads to the invention of new materials and use of new technologies. Some of traditional materials not only makes construction cost high but also creates environmental problems. In Hot Mix Asphalt construction technology, heavy energy and fuel is required to heat the aggregate, bitumen and its mix. This leads to hike in fuel cost and cause Green House Effect due to release of high Carbon Content to the Environment. Due to heating binder to higher temperatures, properties of binder will goes on reducing. Hence there is a need to have binder, which is having low viscosity and to produce low heating temperature thus it would fulfill all the requirements with proper coating at low temperature with easy workability. The technology of binder with low viscosity at low temperature is Warm Mix Asphalt (WMA).

Warm Mix Asphalt (WMA) is produced at temperatures in the range of 17°C to 56°C lower than the traditional hot mix asphalt (HMA). It has a number of benefits including reducing energy consumption, emissions from burning fuels, and volatiles generated from the heated asphalt binder at the production plant at the paving site.

In the present study, the physical properties of aggregates and bitumen were determined.. Routhfutch's method is carried out to obtain proportion of aggregate mixing and Marshall method is adopted for bituminous mix design. Then for the neat bitumen, Marshall tests were performed to obtain the OBC of DBM Grade 1. Then, Marshall properties were determined for moulds prepared with latex modifier binder with Warm Mix Asphalt.