

A REVIEW REPORT ON COMPARATIVE ANALYSIS OF HIGHWAY MATERIAL

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ABSTRACT: In this paper, material and the construction proper described the highway design. The target this project giving the good material used in the highway and construction work provided the good road facilities. New road construction and its maintenance are one of the most vital applications of civil engineering. Essentials of civil engineering fundamental such as surveying, technology used, and earth work, compaction, grading of the road surface etc. new technology are being involved to make the construction.

Keywords: Highway material, Highway construction, Highway maintenance, Project Management.

I. INTRODUCTION

Highway material can be classified into three types

(1) Minerals material: Minerals materials are used for embankment construction, pavement construction and filler materials, subgrade soil, soil, sand, gravels, pebbles, blast furnace slag into materials.

(2) Binding Materials: Stone dust, cement, lime, bitumen, tar and other organic materials are binding materials. Rigid or flexible bond can be prepared by selection of different materials.

(3) Common materials: Reinforcing steels, gabion wires, cobbles, boulders, bricks, stone, timber are common materials used in highway construction.

II. Subgrade Soil

Soil is an accumulation or deposit of earth material, derived naturally from the disintegration of rocks decay of vegetation. The supporting soil beneath pavement and its special under course is called subgrade. Compacted by controlled movement of heavy subgrade soil.

Type of soil:

(a) Gravel: These are coarse materials with materials with particle size under 2.36mm little no fines contributing to cohesion of materials.

(b) Moorum: These are similar to gravel expect presence of higher content of fines.

(c) Silt: These are finer than sand, brighter in color as compared to clay, and exhibit little cohesion.

(d) Clay: These are finer than silt. Clayey soil exhibit stickiness', high strength when dry, and no latency.

Test of soil:

(i) California Bearing Ratio test.

(ii) Shear test.

(iii) Penetration test. Pavement Design

III. Aggregates

The stone aggregates are used in the construction of various pavement layers. Bitumen pavement layer of flexible pavements and cement concrete mixes used cc pavement slab.

The aggregates are specified based on their grain size, shape, texture and its gradation. The grading, tests and specification of stone aggregates for different road making purpose have been specified by various agencies like the IRC, BIS, ASTM and BSI.

Test of aggregates:

- (i) Aggregate Impact test
- (ii) Aggregate Crushing test
- (iii) Los Angeles abrasion test
- (iv) Shape test
- (v) Specific test
- (vi) Water absorption test

IV. Highway Construction

Highway construction consists of earth work for preparation of the road formation, construction of road drainage facilities, construction of cross drainage structures and construction of pavement structure. These are executed at the site as per the design.

Construction of embankment involves compaction of locally available soil in layers. Subgrade is also to be constructed by compacting selected soil in layers, above the embankment or over the prepared cutting. Construction of drainage layer and other pavement layer is taken up after the subgrade is made ready to receive the pavement structure.

V. Highway Maintenance

The overall purpose of highway maintenance is to fix defects and preserve the pavement structure and serviceability. Defects must be defined, understood, and recorded in order to select an appropriate maintenance plan. Defects differ between flexible and rigid pavements.

There are four objectives highway maintenance:

- Repair of functional pavement defects
- Extend the functional and structural service life of the pavement

- Maintain road safety and signage
- Keep road reserve in acceptable condition

Through routine maintenance practices, highway system and all their components can be maintained to their original, as built condition.

VI. Project Management

Project management involves the organization and structuring of project activities from inception to completion. Activities could be the construction of infrastructure such as highways and bridges or major and minor maintenance activities related to constructing such infrastructure. In addition, minimizing social and environmental impacts is essential to successful project management.

VII. Conclusion

In this paper, the research study investing the safety effect, materials, and the pavement materials are design, & ability provided to the highway.

Research the focus improving the good material, and maintenance to the road new technology. Made the road are provided good materials and all test described on road. Project management are calculated the estimate to project

VIII. Future Scope

In this project, the highway materials, maintenance and project management are provided facilities on the highway in the future.

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Area of includes interest Highway Material.

