



“REVIEW ON IMPROVEMENT OF ROAD CONSTRUCTION USING GEOSYNTHETICAL MATERIAL AND POROUS ASPHALT PAVEMENT”.

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ABSTRACT

Construction/installation procedures are available for using geotextiles in aggregate surfaced pavements and flexible pavements for roads, and these may be used as an aid in recommending procedures for airport construction. Results of comprehensive tests by researchers indicate that geogrids have more potential than geotextiles for reinforcement of flexible pavements.

Keyword: geosynthetic Material

INTRODUCTION

The geosynthetic acts as a reinforcement element within a soil mass or in combination with the soil to produce a composite that has improved strength and deformation properties over the unreinforced soil. Porous asphalt allows water to drain through it, returning water naturally to the water table and helping to manage storm water runoff and drainage challenges. Porous material offers many great environmental benefits and great green infrastructure opportunities for commercial and local authority entities.

II. AIM

The aim of this study of to determines improvement of road construction using geosynthetic material and porous asphalt.

III. OBJECTIVE

1) Reducing the uneven settlement of subgrade using Geosynthetic materials 2) Study of Improvement in life span of the road pavement using 1. Geosynthetic materials 2. Porous Asphalt Pavement

IV. LITERATURE REVIEW

B Mary Devika (1) B Durga Vara Prasad (2) K Suseela (3) (1, December, 2020)

Soil stabilization is the process which involves enhancing the physical properties of the soil in order to improve the strength, durability etc. by blending additives. By blending cotton fibers to the soil the CBR values will improve and thickness of pavement layer also reduces. By the application of soil stabilization method in construction the cost gets reduced. The liquid limit of the soil with addition of cotton fibers was found to be decreasing when compared to liquid limit of soil alone. The plastic limit of the soil decreases with the blending of fibers.

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Geotextiles, which is now an effective engineering technology, has acquired wide spread applications in pavement construction. Geotextiles are most widely used under paved and unpaved roadways, and this is referred to as the application of separation / stabilization. In addition, geotextiles used in paved and unpaved roads provide many advantages: separation, stabilization, strengthening and filtration. In many cases, geotextiles replace or decrease the need to use natural gate building materials which provide economic and environmental benefits.

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Road and railway stabilization is the use of geosynthetic reinforcing elements to strengthen the ground in order to work on very soft and weak ground in the construction of asphalted or unpaved vehicle roads and rail systems.

V. THEROTICAL INVESTIGATION

Cement

Cement, generally all kinds of adhesives, but in a narrower sense construction and civil engineering binders. Natural Sand Sand has a different composition, but is determined by grain size.

Sand grains are smaller than gravel and coarser than mud. Mortar Waste Sand

Mortar waste sand is the sand which is obtained from the demolished waste of building specially from wall plastering which we can use as a replacement of sand in some percentage. So that the cost required for the sand will decrease by some manner.

Aggregates

Natural gravel and sand are usually dug or dredged from a well, river, lake or seabed. Crushed aggregate is obtained by crushing quarry, rocks, cobblestones or large-scale gravel.

Granite

Granite is the most common intrusive rock in the Earth's continental crust. It is known as pink, white, gray and black decorative stone.

It is coarse or medium grained. Its three main minerals are feldspar, quartz and mica, occurring as silvery muscovite or dark biotite.

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REFERENCES

A) GEOSYNTHETIC MATERIALS

1. Wilmers, W. (2016). The revised German regulations for the use of geosynthetics in road construction. In Geosynthetics: State of The Art-Recent Developments. Proceedings of The Seventh International Conference On Geosynthetics, 7(4), 22-27
2. Van Santvoort, G. P. (2016). Geotextiles and geomembranes in civil engineering. CRC Press. Agyekum, K., Ayarkwa, J and Adjei-Kumi, T. (2013). Minimization of malsparo material in built – malpeza aliro to the built. Journal of Engineering and Applied Science 5(1): 125-146.

B) POROUS ASPHALT PAVEMENT

1. [https://www.forconstructionpros.com/asphalt/article/21134321/ how-it-works-porous-asphalt-pavements](https://www.forconstructionpros.com/asphalt/article/21134321/how-it-works-porous-asphalt-pavements)
2. Indian Highways Journal