PERFORMANCE PARAMETERS OF REALISTICALLY CURED LIME-TREATED OXFORD CLAY CAPPING LAYERS FOR ANALYTICAL PAVEMENT DESIGN

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ABSTRACT
A significant amount of research has been carried out in the UK during the last decade in order to establish an analytical specification for pavement foundation design. The new approach aims to establish the performance parameters of the materials prior to designing using modern laboratory testing techniques, and hence set target values for the end product. The method seeks to abandon CBR testing, an empirical assessment of disputable effectiveness in establishing detailed design parameters. Research on the performance parameters of untreated soils has been done, however the area of stabilised materials requires further investigation. Clay soils consisting predominantly of illite, such as Oxford Clay, are commonly found in the UK and elsewhere. Due to their mineralogy, these soils are susceptible to water ingress so when they are to be used as pavement subgrades in wet environments it is common to treat them with arbitrary amounts of lime/cement prior to mixing and recompaction to achieve high post-compaction CBR values. The result is often uneconomical design, let alone questionable performance. This paper presents the performance parameters of lime-treated Oxford Clay as established through a repeated load triaxial testing regime. Clearly, for the soil used herein, the addition of lime alone at the appropriate amount creates a layer that can confidently be used for pavement foundation construction since it performs satisfactorily under adverse, though realistic, curing and testing conditions.

KEY WORDS: Lime stabilisation, resilient modulus, permanent deformation