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Influence of Compactive Efforts on the Hydraulic Conductivity of Bagasse Ash Treated Black Cotton Soil

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Abstract : This study examines the influence of compactive efforts on hydraulic conductivity behaviour of compacted black cotton soil treated with bagasse ash which is necessary in assessing the performance of the soil - bagasse ash mixture for use as a suitable barrier material in waste containment application. Black cotton soil treated with up to 12% bagasse ash (obtained from burning the fibrous residue from the extraction of sugar juice from sugarcane) by dry weight of soil for use in waste containment application. The natural soil classifies as A-7-6 or CH in accordance with the AASHTO and the Unified Soil Classification System, respectively. The treated soil samples were prepared at molding water contents of -2, 0, +2, and +4 % of optimum moisture contents and compacted using four compactive efforts of Reduced British Standard Light (RBSL), British Standard light (BSL), West African Standard (WAS) and British Standard Heavy (BSH). The results obtained show that hydraulic conductivity decreased with increase in bagasse ash content, moulding water content and compaction energy.

Keywords : bagasse ash treatment, black cotton soil, hydraulic conductivity, moulding water contents, compactive efforts
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