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Effect of Bagasse Ash on engineering properties of low plastic DGK Soils

Roads constructed on expansive clays may be adversely affected by the behavior of the clay. Expansive clays which contain the montmorillonite mineral suffer volume change due to changes in the seasonal moisture content which causes heaving, cracking and the breakup of the road pavement. Stabilization of these types of soil is necessary to counteract swelling and increase the strength of the soil and thus partially decrease the thickness of road pavement layers. The use of by-product materials for stabilization has environmental and economic benefits. The study has been carried out to investigate the stabilization potential of the subgrade soil of D.G.Khan. Bagasse ash is a by-product of sugar industry, while bagasse is burnt for the purpose of electricity generation. Bagasse ash contains high silica and alumina contents and is therefore a pozzolanic material, reacting with calcium to form cementitious calcium silicate and aluminate hydrates. Result of unconfined compression tests show an increase of almost 30 times in soaked strength. Soil also experienced an increase in CBR value. Swell potential of the soil also reduced from 2.5 percent to almost zero.

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