

The Effect of Treated Waste-Water on Compaction and Compression of Fine Soil

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Abstract : —The main objective of this paper is to study the effect of treated waste-water (TWW) on the compaction and compressibility properties of fine soil. Two types of fine soils (clayey soils) were selected for this study and classified as CH soil and Cl type of soil. Compaction and compressibility properties such as optimum water content, maximum dry unit weight, consolidation index and swell index, maximum past pressure and volume change were evaluated using both tap and treated waste water. It was found that the use of treated waste water affects all of these properties. The maximum dry unit weight increased for both soils and the optimum water content decreased as much as 13.6% for highly plastic soil. The significant effect was observed in swell index and swelling pressure of the soils. The swell indexed decreased by as much as 42% and 33% for highly plastic and low plastic soils, respectively, when TWW is used. Additionally, the swelling pressure decreased by as much as 16% for both soil types. The result of this research pointed out that the use of treated waste water has a positive effect on compaction and compression properties of clay soil and promise for potential use of this water in engineering applications. Keywords—Consolidation, proctor compaction, swell index, treated waste-water, volume change.

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