

Abstract

Soil swelling is a term generally applied to the ability of a soil to undergo large changes in volume due to increased moisture content. Several commonly used swelling potential indices, namely Atterberg limits, coefficient of linear extensibility (COLE), cation exchange capacity (CEC) tests and saturated moisture content test (SP) were used to estimate the swelling potential of a group of soil samples representing the whole range of swelling potential. Correlations between the various indices and the potential volume change were obtained and used to determine the potential of each to be included in the establishment of an expansive soil index (ESI), a summation of the indices. The outcome is a set of reliable soil-swelling indices for different levels of risk.