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Performance of Stone Column in Soft Clay- Numerical Evaluation

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Abstract: *Stone columns are an efficient ground improvement technique for treating problematic soils. The confidence in the prediction accuracy of bearing capacity remains unsatisfactory. Soil samples were collected from vellayani paddy field and basic laboratory experiments were done. This paper aims to investigate the bearing capacity of single stone column using three-dimensional numerical analysis. Failure modes were observed and the effect of key parameters such as column's friction angle, undrained shear strength of surrounding soil and modular ratio were investigated. Numerical results showed bulging and a combination of bulging and punching are two dominant failure modes for the single stone column. Ultimate bearing capacity is mainly influenced by the column's friction angle and the undrained shear strength of the surrounding soil. Based on the results, a new prediction method is developed and compared reasonably well with the existing analytical solution and the field measurements.*

Keywords: Stone Column

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