

عنوان مقاله:

A Numerical Approach on Bearing Capacity of Drilled Shafts Embedded in Clay

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خلاصه مقاله:

This study numerically investigates the bearing capacity of drilled shafts (bored piles) in clay using FLAC^{3D}. The results obtained in this study are compared with centrifuge test results. The results of the empirical relationships available in the literature are compared with the results of the present numerical study. A series of analyses is also conducted to assess the effects of various soil and pile parameters on the magnitude of tip and side resistance of bored piles embedded in clay. These parameters include the soil elastic modulus, pile length and diameter, undrained shear strength, unit weight, and Poisson's ratio of soil. Furthermore, the coupling effect of soil undrained shear strength and elastic modulus of soil on tip resistance are investigated. The results show that the lower value of soil elastic modulus results to lower effect of soil undrained shear strength. The effect of soil undrained shear strength on tip resistance is approximately constant (about ۸۳% for a change of soil undrained shear strength between ۲۵ to ۲۰۰ kPa) for the range of elastic modulus between ۲۰ and ۱۸۰ MPa. Also, a new equation is proposed to estimate the bearing capacity

کلمات کلیدی:

Bearing capacity, Side resistance, Tip resistance, Drilled shaft, Bored pile, Numerical modelling, clay, Sensitivity analysis, FLAC

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