

This study aims to unify the structural and geotechnical aspects of the partially embedded concrete pile-soil system together, specifically for reinforced concrete and prestressed concrete piles, to determine the buckling capacity of the piles. Twenty eight specimens consist of both reinforced and prestressed concrete piles, partially embedded in sand as foundation medium, were tested with the critical combinations of unsupported length and coefficient of horizontal subgrade modulus of the sand medium, under axial and eccentric loading. Apart from that, nine tests were conducted on sand medium, to estimate the coefficient of horizontal subgrade modulus at various relative densities. Further, a simple approach was formulated to predict the buckling capacity of axially and eccentrically loaded partially embedded reinforced and prestressed concrete piles in sand. Finally, the comparison was made between the theoretical predictions and the test results.