



STRAIN-DEPENDENT SHEAR MODULUS OF CLAYEY SOIL

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Abstract:

This paper presents an investigation of the local dynamic shear modulus (G) of cohesive soil with associated shear strain level (ranging between $10^{-1}\%$ to $10^{-3}\%$) which was obtained from 31 vibratory model footing tests performed on plates of various sizes. The systems were excited with both constant and frequency dependent dynamic loads. A number of cyclic plate loading tests were also conducted to see the effect of high strain amplitudes (greater than $10^{-1}\%$) on shear modulus. The test results show that localized shear modulus of cohesive soil vary linearly with the associated strain level. From the dynamic shear modulus versus strain correlation curve obtained from such vibratory field tests for a particular soil or site, it is possible to select the appropriate modulus for prototype vibratory machine foundation design.

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