

Circular Raft Footings Strengthened by Stone Columns under Dynamic Harmonic Loads

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Abstract : Stone column technique has been successfully employed to improve the load-settlement characteristics of foundations. A series of finite element numerical analyses of harmonic dynamic loading have been conducted on strengthened raft footing to study the effects of single and group stone columns on settlement of circular footings. The settlement of circular raft footing that improved by single and group of stone columns are studied under harmonic dynamic loading. This loading is caused by heavy machinery foundations. A detailed numerical investigation on behavior of single column and group of stone columns is carried out by varying parameters like weight of machinery, loading frequency and period. The result implies that presence of single and group of stone columns enhanced dynamic behavior of the footing so that the maximum and residual settlement of footing significantly decreased.

Keywords : finite element analysis, harmonic loading, settlement, stone column

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