

A Dissertation

On

**INTERACTION BETWEEN PILE AND RAFT IN PILED RAFT
FOUNDATION**

Submitted in partial fulfillment of the requirement for

The award of Degree of

MASTER OF TECHNOLOGY

(Geotechnical Engineering)

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CERTIFICATE

This is to certify that the thesis work entitled “**INTERACTION BETWEEN PILE AND RAFT IN PILED RAFT FOUNDATION**”, being submitted by me, is a bonafide record of my own work carried by me under the guidance and supervision of Asso. Prof. Dr.A.K. Shrivastava in partial fulfillment of the requirements for the award of the **Degree of Master of Engineering in Geotechnical Engineering** in Civil Engineering.

The matter embodied in this project has not been submitted for the award of any other degree

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ABSTRACT

For a given geotechnical condition, when the raft foundation is not able to meet load requirement, in that case it is possible to enhance the performance of the raft by the adding piles beneath the raft. Strategically located number of piles may improve both the ultimate load capacity and the settlement of the raft. In recent years, combined piled raft foundation has been proved effective and appropriate method instead of conventional pile or raft foundation.

In present work, Bearing capacity and settlement of raft and pile group have been calculated from analytically and same is simulated by finite element based software PLAXIS 2D. Based on this simulation between analytically and numerical methods, piled raft foundation is analyzed in Geo 5 And Settlement behavior of piled raft is studied by varying different parameters of soil, raft and pile.

After carrying out analysis of piled-raft foundation in sandy soil, using Geo 5 2D, it was observed that settlement reduces as the pile length and number of pile group increases. The settlement of the pile group increases as spacing ratio(s/d) increases up to certain spacing.. Settlement decreases as number of piles, pile length and modulus of elasticity of soil increases.

Comparison of results obtained from analyzing piled raft foundation from Geo 5 and PLAXIS wa done. After comparison it was found that results obtained from PLAXIS are comparatively more near to actual results. As in some cases Geo 5 is giving large amount of variation in settlement. Variation in pile length and pile diameter effects very much to the settlement of piled raft foundation.

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