DESIGN OF PILE FOUNDATIONS

QUESTION 1

The allowable working load on a prestressed concrete pile 21 m long (D= 356 mm) that has been driven into sand is 502 kN.

Skin resistance carries 350 kN of the allowable load and the point bearing carries the rest.

Given:

$E_p = 21 \times 10^6$ kN/m^2 $\quad E_s = 25 \times 10^3$ kN/m^2

$\mu_s = 0.35$ $\quad \zeta = 0.62$ $\quad I_{wp} = 0.8$

Determine the elastic settlement of the pile.

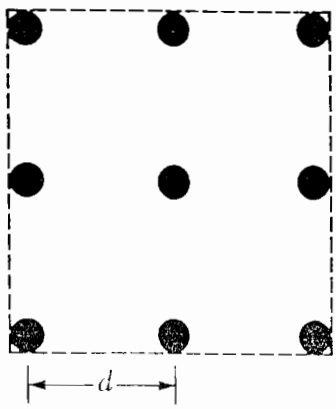
QUESTION 2

The plan of a group pile in sand is shown in the figure below. The piles are circular in cross section and have an outside diameter of 460 mm. The center-to-center spacings of the piles (d) are 920 mm.

Calculate the efficiency of the pile group using:

(a) general method

(b) Converse-Labarre equation.



QUESTION 3

For the group pile shown in the figure below. Determine the consolidation settlement of the group.