Example 1

A 1.5m wide wall footing is located 1m below ground level in a sand with $\gamma = 17.5 kN/m^3$. and $\phi = 32°$. Determine its ultimate bearing capacity using:

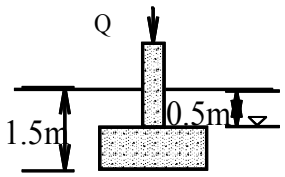
Example 2

A square footing is resting 4ft below ground in sand with $\gamma = 105$ pcf, $\gamma_{sat} = 118$ pcf, and $\phi = 35°$. Water table is at 2 ft depth. The footing must carry an ultimate load of $Q_{ult} =$ 432,000 lb. Determine its size.

Example 3

A square footing is resting 1.5m below ground in sand with $\gamma = 16.5 kN/m^3$, $\gamma_{sat} = 18.3$ kN/m^3, and $\phi = 40°$. Water table is at 0.5m depth. The footing must carry an ultimate load of $Q_{ult} = 8MN$. Determine its size.

Solution:



Example 4

B = 1.5 m, L = 1.5 m; e_L = 0.3 m and e_B = 0.15. D_f = 0.7 m, ϕ = 30, c = 0, γ = 18 kN/m^3

Determine Q_{ult}.

Solution

Example 5

A column carries a load of 15 tons on a 5' by 5' footing located 4' below ground in a clay deposit. The clay has an unconfined compressive strength of 1000psf. Compute FS for the footing using Skempton's equation and the general b.c. eq.