ENCE 4340 Foundation Engineering Spring 2012 Homework # 5

Problem #1: Refer to Figure P12.1. Determine the net allowable point bearing capacity of the drilled shaft.

Given: $L_1 = 6\text{m}; L_2 = 3m; \gamma_c = 15.6\ \text{kN/m}^3; \gamma_s = 17.6\ \text{kN/m}^3$

$\phi' = 35^0; c_u = 35\ \text{kN/m}^2; D_b = 2m; D_s = 1.2\text{m}$, Factor of safety $= 3$

Use Equation 12.18

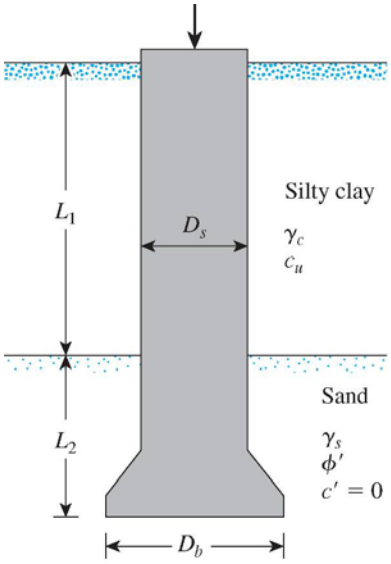

Figure P12.1

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Problem # 2 : A concrete pile 15 m long having a cross section of 0.38m x 0.38 m is fully embedded in a saturated clay layer.

For the clay, given : $\gamma_{sat} = 18\text{kN/m}^3; \phi = 0;$ and $c_u = 80\text{kN/m}^2$.

Determine the allowable load that the pile can carry (FS = 3).

Use the λ method to estimate the skin resistance.