Coastal Construction Manual

FORMULA CALCULATOR

12.6 Ultimate Compression Capacity of a Single Pile

P_T :		P_o :		Q_{ult} =	lb
N_q :		δ :			
A_T :		**s** :			
k_{HC} :		**D** :			

$$Q_{ult} = P_T N_q A_T + (k_{HC})(P_o)D(\tan \delta)(s)$$

Compute Reset

Q_{ult} = ultimate load capacity in compression (lb)

P_T = effective vertical stress at pile tip (lb/ft^2)

N_q = bearing capacity factor

A_T = area of pile tip (ft^2)

k_{HC} = earth pressure coefficient in compression

P_o = effective vertical stress over depth of embedment, D (lb/ft^2)

δ = friction angle between pile and soil in degrees

s = surface area of pile per unit length (ft)

D = depth of embedment (ft)

Other Calculators