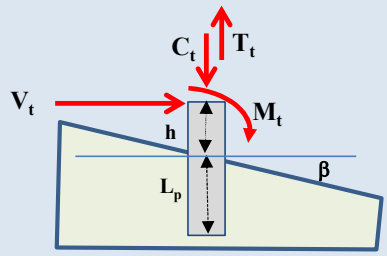
ANALYSIS OF LATERAL AND AXIAL CAPACITIES OF A SHORT DRILLED PILE

PROJECT INFORMATION	
Project Name	
Project No.	
Project Location	
Analyzed By	
Reviewed By	

INPUT PARAMETERS		
Design Method	ASD	(Allowable Stress Design)
Pile Diameter, D_p	60.00	inches
Pile Length, L_p	15.00	feet
Ground Slope Angle, β	0.00	degrees
Effective Unit Weight, ϒ'	130.00	pcf
Average SPT Blow Count, N_{60}	30.00	blows/ft
Friction Angle, ϕ (for sand/gravel/rock)	32.00	degrees
Undrained Shear Strength, S_u (for clay/rock)	0.00	psf
Lateral Load, V_t	25.00	kips
Compression Load, C_t	200.00	kips
Tension Load, T_t	75.00	kips
Bending Moment Load, M_t	80.00	kip-ft
Lateral Load Height, h	10.00	feet
Factor of Safety for Passive Pressure	1.50	
Factor of Safety for Skin Friction	2.00	
Factor of Safety for End Bearing	3.00	



REFERENCES:

1. Broms, B.B., "Lateral Resistance of Piles in Cohesive Soils," Journal of the Soil Mechanics and Foundation Division, ASCE, Vol. 90, SM2, 1964.
2. Broms, B.B., "Lateral Resistance of Piles in Cohesionless Soils," Journal of the Soil Mechanics and Foundation Division, ASCE, Vol. 90, SM3, 1964.
3. O'Neill, M.W. and Reese, L.C., Federal Highway Admin. (FHWA), "Drilled Shafts: Construction Proc. and Design Methods," Pub. No. HI-88-042, 1988.

COMPUTED LATERAL CAPACITIES			
Passive Earth Pressure Coefficient, K_p	3.25		(Rankine Passive Earth Pressure Theory)
Load Eccentricity, e_c	13.20	feet	
Ultimate Lateral Capacity, V_{ult}	126.59	kips	Based on Brom's (1964) rigid pile analysis method
Design Lateral Capacity, V_{des}	84.39	kips	*> Vt, OK.*
Maximum Bending Moment, M_{max}	376.75	kip-ft	
Depth to Maximum Bending Moment, d	2.81	feet, below ground surface	

COMPUTED AXIAL CAPACITIES			
Ultimate Unit Skin Friction, $f_{s,ult}$	0.95	ksf	Based on O'Neill and Reese (1988) method
Ultimate Unit End Bearing, $q_{t,ult}$	36.00	ksf	Based on O'Neill and Reese (1988) method
Ultimate Compression Capacity	931.34	kips	
Ultimate Tension Capacity	201.31	kips	
Design Compression Capacity, C_{des}	230.05	kips	*> Ct, OK.*
Design Tension Capacity, T_{des}	100.66	kips	*> Tt, OK.*