

Site Name: **Portland ME, ME**
 Site Number: **10047**
 Engineering Number: **OAA702064_C3_07**
 Engineer: **Brendan M Smith**
 Date: **06/21/17**

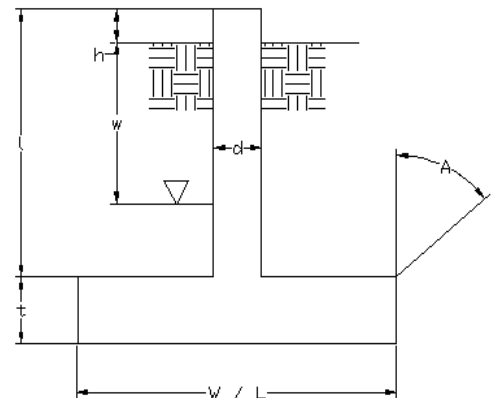
Program Last Updated: **5/13/2014**
 American Tower Corporation

Design Base Loads (Factored) per TIA-222-G

Foundation Mapped:	N		
Moment (M_u):	0.0 k-ft	Concrete Compressive Strength (f'_c):	3000 psi
Shear/Leg (V_u):	0.6 k	Vertical Steel Rebar Size #:	6
Compression/Leg (P_u):	355.8 k	Vertical Steel Rebar Area:	0.44 in ²
Uplift/Leg (T_u):	0.0 k	# of Vertical Steel Rebars:	8
Tower Type (GT / SST):	GT	Vertical Steel Rebar Yield Strength (F_y):	60 ksi
Diameter of Prismatic Portion of Pier (d):	4.0 ft	Tie / Stirrup Size #:	4
Depth to Base of Foundation:	4.0 ft	Tie / Stirrup Area:	0.20 in ²
Pier Height Above Ground (h):	0.50 ft	Tie / Stirrup Spacing:	18.0 in
Length / Width of Pad (w):	11.0 ft	Tie / Stirrup Steel Yield Strength (F_y):	60 ksi
Thickness of Pad (t):	1.5 ft	Rebar Cage Diameter:	40.0 in
Depth Below Ground Surface to Water Table (w):	99.0 ft	Bending/Tension Reduction Factor (ϕ_B):	0.90
Unit Weight of Concrete:	150.0 pcf	Shear Reduction Factor (ϕ_V):	0.75
Unit Weight of Water:	62.4 pcf	Compression Reduction Factor (ϕ_C):	0.65
Unit Weight of Soil Above Water Table:	110.0 pcf	Steel Elastic Modulus:	29000 ksi
Unit Weight of Soil Below Water Table:	55.0 pcf	Pad Steel Rebar Size #:	8
Friction Angle of Uplift from Top of Pad:	20 Degrees	Pad Steel Rebar Area:	0.79 in ²
Friction Angle of Uplift from Base of Pad:	20 Degrees	Pad Steel Rebar Yield Strength (F_y):	60 ksi
Uplift Angle Started at Top or Base of Pad (T/B):	T	# of Rebar in Top of Pad:	0
Ultimate Skin Friction:	220 psf	# of Rebar in Base of Pad:	11
Ultimate Compressive Bearing Pressure:	4500 psf	Pad Clear Cover:	3 in
Capacity Increase (Due to Transient Loads):	1.00		
Bearing Strength Reduction Factor (ϕ_s):	0.60		
Uplift Strength Reduction Factor (ϕ_s):	0.75		

Axial Capacities and Design Moment

Weight of Concrete (Bouyancy Considered):	32.9 k
Weight of Soil (Bouyancy Considered):	35.6 k
Ultimate Skin Friction Resistance:	14.5 k
Controlling Failure Mode (Top / Base):	Top
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	57.9 k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	326.7 k
P_u :	362.9 k
$T_u / \phi_s T_n$:	0.00 Result: OK
$P_u / \phi_s P_n$:	1.11 Result: NG



Depth (ft)		Ultimate Lateral Bearing Pressure (psf)	Increment (psf/ft)	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)
Top	Bottom					
0.0	2.0	0.0	110.0	110	0	0
2.0	2.5	1020.0	110.0	110	400	0

Inflection Point (Below Ground Surface): 1.6 ft
 Factored Design Moment At Inflection Point (M_u): 0.5 k-ft