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APPENDIX E

GROUND MOTION ANALYSIS

PSH Deaggregation on NEHRP BC rock

Unnamed 116.007° W, 33.111 N.

Peak Horiz. Ground Accel. ≥ 0.5110 g

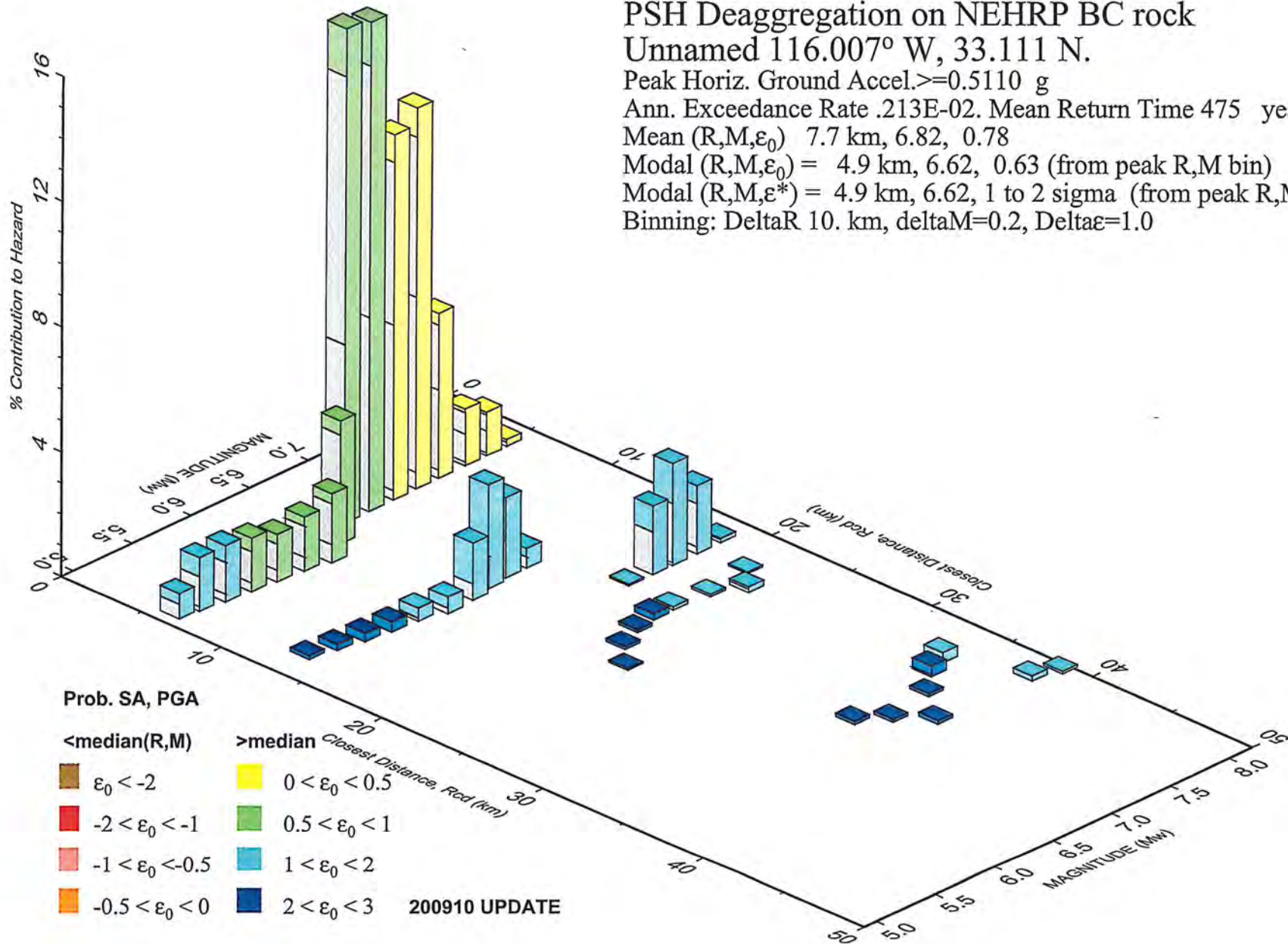
Ann. Exceedance Rate .213E-02. Mean Return Time 475 years

Mean (R,M, ϵ_0) 7.7 km, 6.82, 0.78

Modal (R,M, ϵ_0) = 4.9 km, 6.62, 0.63 (from peak R,M bin)

Modal (R,M, ϵ^*) = 4.9 km, 6.62, 1 to 2 sigma (from peak R,M, ϵ bin)

Binning: DeltaR 10. km, deltaM=0.2, Delta ϵ =1.0



Unnamed Geographic Deagg. Seismic Hazard
for 0.00-s Spectral Accel, 0.5109 g

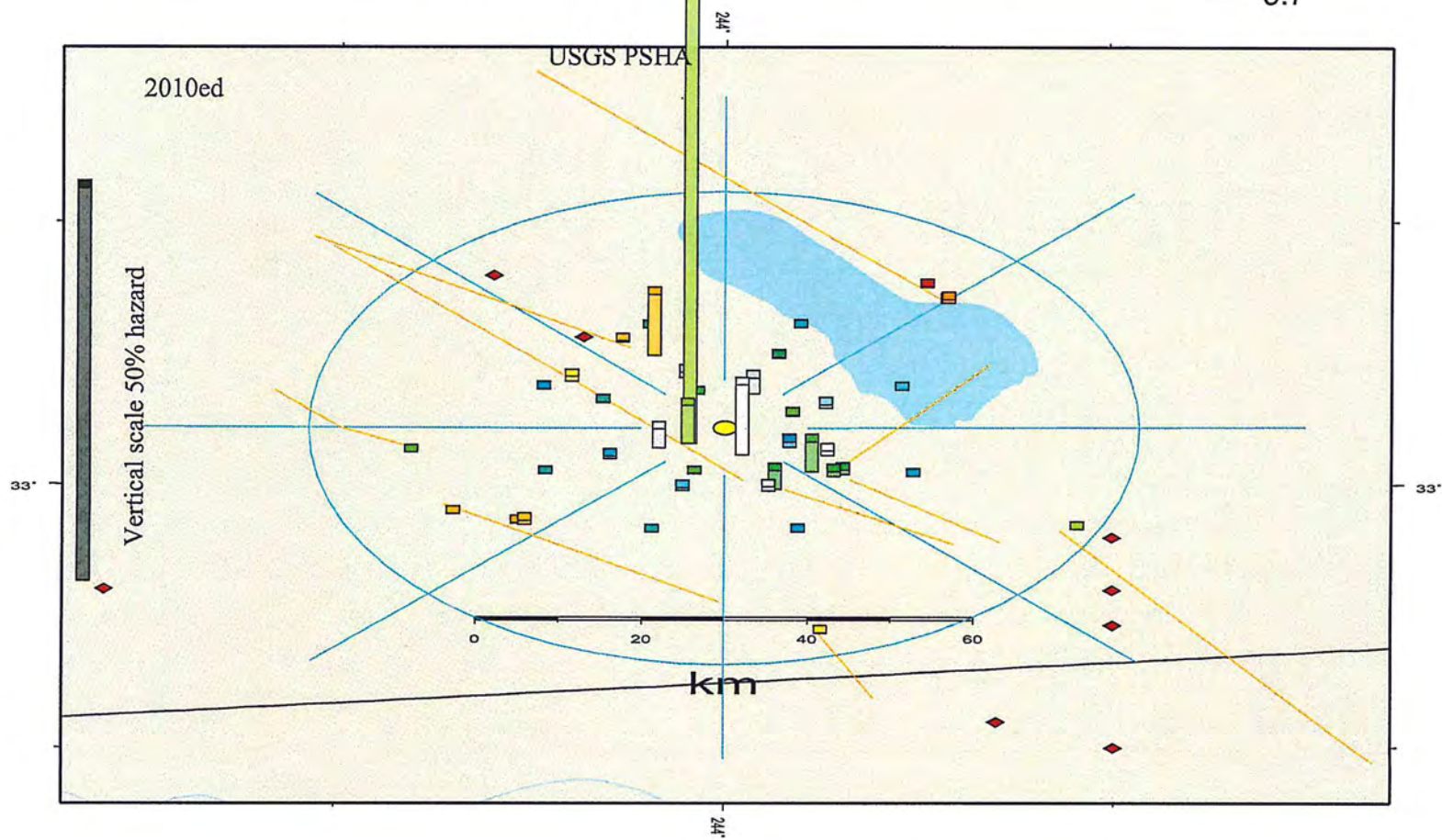
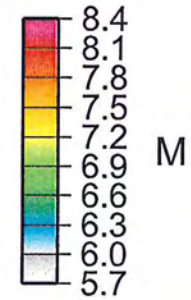
PGA Exceedance Return Time: 475 year

Max. significant source distance 47. km.

View angle is 35 degrees above horizon

Gridded-source hazard accum. in 45° intervals

Rock site. Vs30(m/s)= 760.0



APPENDIX F

PILE ANALYSIS

ALLPILE 7
VERTICAL ANALYSIS DETAILED OUTPUT
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Licensed to
Date: 12/19/2012 File: S:\Monty Schultz\332-12 Regenerate Power\4.5inPP.alp 1.0

Title 1: 332-12 Regenerate Power - Seville Solar
Title 2: 4 Inch Diam Nominal PP - Closed Ended - Schedule 40 Steel - Free Head

ALLPILE INPUT DATA:

* Pile Type Page *

Unit: English

Displacement pile: Closed end pipe. Soil is displaced during driving. Higher friction expected. Total area is used in bearing calculation.

Pile Type: Driving Steel Pile (Closed end)

* Pile Profile *

Foundation Depth: 14.0 -ft

Top Height: 4 -ft

Slope Angle: 0.0

Pile Angle: 0.0

* Pile Properties *

Zs -ft	width -in	Area -in2	Perim. -in	I -in4	E -kp/in2	Weight -kp/f	Mix %	Out Side	In Side	Other. Par.	Type
0.0	4.5	3.2	14.1	7.2	29000	0.011	80.0	2	2		Steel (smooth)
14.0	4.5	3.2	14.1								Pile Tip

Note: Mix = % of Inside material/Outside material

Group Type: 0

Top Type: 1

No Water Table

Ground Elevation: -20 -ft

* Soil Properties *

Zs -ft	Gamma -lb/f3	Phi o	C -kp/f2	K -lb/i3	ES0/Dr - %	Nspt	Type	Soil
0.0	103.2	33.0	0.00	108.9	54.21	20	4	Sand/Gravel
3.0	104.8	22.0	0.36	301.0	0.56	21	3	Silt (Phi + C)
14.0	108.1	35.0	0.00	198.7	72.92	38	4	Sand/Gravel
18.0	108.8	26.0	0.36	602.0	0.35	45	3	Silt (Phi + C)
23.0	105.1	35.0	0.00	213.6	75.52	40	4	Sand/Gravel

Surcharge Pressure on ground: 0 -kp/f2

ALLPILE ANALYSIS AND RESULTS:

Pile Profile and Loading:

Piletype: Driving Steel Pile (Closed end)

Pile Length, L= 14.0 -ft

Top Height, H= 4 -ft

Slope Angle, As= 0.0

Batter Angle, Ab= 0.00

Single Pile, Vertical Analysis:

Vertical Load with Load factor, Q= -1.0 -kp

Load Factor for Vertical Loads= 1.0

Loads Supported by Pile Cap: 0 %

Kdown= 1.2 Kup= 0.7 Ka= 1.00

At Ztip=10.0-ft Soil Properties: Es= 235.48-kp/f2 C=0.36-kp/f2 Friction=22.00 Cp=0.040 Ksand=0.00

Limits of Max. tip resistance, q_{lim}= 250.0

Batter Angle, Ab= 0.00 Batter Factor, Kbat= 1.00

Qtip_dw=1.3-kp based on qult=11.5-kp/f2 and Base Area=0.1-ft2

Qtip_up=0.0-kp and Base Area=0.0-ft2

TIP RESISTANCE (Down) CALCULATION:

Tip Depth= 10.0-ft Critical Depth Ratio Z/D= 100 Critical Depth= 37.5-ft

Equivalent Width of Tip= 0.38-ft, Tip Area= 0.11-ft² Tip Diameter= 0.38-ft
 Bearing stratum from pile tip extending to 0 Diameter of pile, Bearing stratum= 0.00-ft
 Btip: width at pile tip= 0.38-ft (For group pile, it is equivalent width).
 Phi & C are average value in bearing stratum.
 Batter Angle= 0.00, Batter Factor for Tip and Side= 1.00

Ztip -ft	Z/D	Z_lim -ft	q_lim -kp/f2	Width -ft	Area' -ft2	Phi - o	C -kp/f2	Nq	Nc	Sv -kp/f2	qult -kp/f2	Qtip_dw -kp
10.0	100.0	37.5	250.0	0.38	0.11	22.0	0.36	7.9	9.0	1.0	11.5	1.3

Ztip - Depth of pile tip from ground surface (Zs)

D - Pile average diameter (below ground) for calculation of critical depth. D=0.38-ft

Z/D - Critical depth (for tip resistances) as ratio of depth/diameter. Vertical stress will be constant below critical depth

Z_lim - Critical depth, calculated from Z/D (for tip resistances)

q_lim - Limit of Maximum tip resistance

Btip: width or diameter at pile tip

Bearing stratum: A stratum from pile tip extending to some depth. Average soil properties in the stratum are used for bearing calculation

SIDE RESISTANCE (Up & Down) CALCULATION:

D -ft	Z/D	Z_lim -ft	Sf_lim -kp/f2	K_dw	K_up	dz -ft
0.38	100.0	37.50	N/A	1.2	0.7	0.020

D - Pile average diameter for calculation of critical depth

Z/D - Critical depth (for side resistances) as ratio of depth/diameter. Vertical stress will be constant below critical depth

Z_lim - Critical depth calculated from Z/D (for side resistances)

Sf_lim - Limit of Maximum side resistance

Users Setting: Ka=1, which is constant. Ca=KcKaC=KcC

SIDE RESISTANCE (Up & Down) CALCULATION vs DEPTH:

Calculation is based on segment dz= 0.02

Zs -ft	Prem -ft	Sv -kp/f2	Phi - o	Kf(<2) Delta	Delta - o	f_dw -kp/f2	f_up -kp/f2	C -kp/f2	Ka	Kc(<2) Ca	Ca_dw -kp/f2	Ca_up -kp/f2	Sf_dw -kp/f2	Sf_up -kp/f2	Weight -kp	Qneg -kp	Q_dw -kp	Q_up -kp
10.00	1.18	1.04	22.0	20.00	20.0	0.46	0.27	0.36	1.00	1.00	0.36	0.36	0.00	0.00	0.00	0.00	1.3	0.0
9.98	1.18	1.04	22.0	20.00	20.0	0.46	0.27	0.36	1.00	1.00	0.36	0.36	0.82	0.63	0.00	0.00	1.3	0.0
9.96	1.18	1.04	22.0	20.00	20.0	0.45	0.26	0.36	1.00	1.00	0.36	0.36	0.81	0.62	0.00	0.00	1.3	0.0
9.94	1.18	1.04	22.0	20.00	20.0	0.45	0.26	0.36	1.00	1.00	0.36	0.36	0.81	0.62	0.00	0.00	1.3	0.0
9.92	1.18	1.04	22.0	20.00	20.0	0.45	0.26	0.36	1.00	1.00	0.36	0.36	0.81	0.62	0.00	0.00	1.3	0.1
9.90	1.18	1.03	22.0	20.00	20.0	0.45	0.26	0.36	1.00	1.00	0.36	0.36	0.81	0.62	0.00	0.00	1.4	0.1
9.88	1.18	1.03	22.0	20.00	20.0	0.45	0.26	0.36	1.00	1.00	0.36	0.36	0.81	0.62	0.00	0.00	1.4	0.1
9.86	1.18	1.03	22.0	20.00	20.0	0.45	0.26	0.36	1.00	1.00	0.36	0.36	0.81	0.62	0.00	0.00	1.4	0.1
9.84	1.18	1.03	22.0	20.00	20.0	0.45	0.26	0.36	1.00	1.00	0.36	0.36	0.81	0.62	0.00	0.00	1.4	0.1
9.82	1.18	1.03	22.0	20.00	20.0	0.45	0.26	0.36	1.00	1.00	0.36	0.36	0.81	0.62	0.00	0.00	1.4	0.1
9.80	1.18	1.02	22.0	20.00	20.0	0.45	0.26	0.36	1.00	1.00	0.36	0.36	0.81	0.62	0.00	0.00	1.5	0.1
9.78	1.18	1.02	22.0	20.00	20.0	0.45	0.26	0.36	1.00	1.00	0.36	0.36	0.81	0.62	0.00	0.00	1.5	0.2
9.76	1.18	1.02	22.0	20.00	20.0	0.45	0.26	0.36	1.00	1.00	0.36	0.36	0.81	0.62	0.00	0.00	1.5	0.2
9.74	1.18	1.02	22.0	20.00	20.0	0.44	0.26	0.36	1.00	1.00	0.36	0.36	0.80	0.62	0.00	0.00	1.5	0.2
9.72	1.18	1.01	22.0	20.00	20.0	0.44	0.26	0.36	1.00	1.00	0.36	0.36	0.80	0.62	0.00	0.00	1.5	0.2
9.70	1.18	1.01	22.0	20.00	20.0	0.44	0.26	0.36	1.00	1.00	0.36	0.36	0.80	0.62	0.00	0.00	1.6	0.2
9.68	1.18	1.01	22.0	20.00	20.0	0.44	0.26	0.36	1.00	1.00	0.36	0.36	0.80	0.62	0.00	0.00	1.6	0.2
9.66	1.18	1.01	22.0	20.00	20.0	0.44	0.26	0.36	1.00	1.00	0.36	0.36	0.80	0.62	0.00	0.00	1.6	0.3
9.64	1.18	1.01	22.0	20.00	20.0	0.44	0.26	0.36	1.00	1.00	0.36	0.36	0.80	0.62	0.00	0.00	1.6	0.3
9.62	1.18	1.00	22.0	20.00	20.0	0.44	0.26	0.36	1.00	1.00	0.36	0.36	0.80	0.62	0.00	0.00	1.6	0.3
9.60	1.18	1.00	22.0	20.00	20.0	0.44	0.26	0.36	1.00	1.00	0.36	0.36	0.80	0.62	0.00	0.00	1.7	0.3
9.58	1.18	1.00	22.0	20.00	20.0	0.44	0.25	0.36	1.00	1.00	0.36	0.36	0.80	0.61	0.00	0.00	1.7	0.3
9.56	1.18	1.00	22.0	20.00	20.0	0.44	0.25	0.36	1.00	1.00	0.36	0.36	0.80	0.61	0.00	0.00	1.7	0.3
9.54	1.18	1.00	22.0	20.00	20.0	0.43	0.25	0.36	1.00	1.00	0.36	0.36	0.79	0.61	0.01	0.00	1.7	0.3
9.52	1.18	0.99	22.0	20.00	20.0	0.43	0.25	0.36	1.00	1.00	0.36	0.36	0.79	0.61	0.01	0.00	1.7	0.4
9.50	1.18	0.99	22.0	20.00	20.0	0.43	0.25	0.36	1.00	1.00	0.36	0.36	0.79	0.61	0.01	0.00	1.7	0.4
9.48	1.18	0.99	22.0	20.00	20.0	0.43	0.25	0.36	1.00	1.00	0.36	0.36	0.79	0.61	0.01	0.00	1.8	0.4
9.46	1.18	0.99	22.0	20.00	20.0	0.43	0.25	0.36	1.00	1.00	0.36	0.36	0.79	0.61	0.01	0.00	1.8	0.4
9.44	1.18	0.99	22.0	20.00	20.0	0.43	0.25	0.36	1.00	1.00	0.36	0.36	0.79	0.61	0.01	0.00	1.8	0.4
9.42	1.18	0.98	22.0	20.00	20.0	0.43	0.25	0.36	1.00	1.00	0.36	0.36	0.79	0.61	0.01	0.00	1.8	0.4
9.40	1.18	0.98	22.0	20.00	20.0	0.43	0.25	0.36	1.00	1.00	0.36	0.36	0.79	0.61	0.01	0.00	1.8	0.4
9.38	1.18	0.98	22.0	20.00	20.0	0.43	0.25	0.36	1.00	1.00	0.36	0.36	0.79	0.61	0.01	0.00	1.9	0.5
9.36	1.18	0.98	22.0	20.00	20.0	0.43	0.25	0.36	1.00	1.00	0.36	0.36	0.79	0.61	0.01	0.00	1.9	0.5
9.34	1.18	0.97	22.0	20.00	20.0	0.43	0.25	0.36	1.00	1.00	0.36	0.36	0.79	0.61	0.01	0.00	1.9	0.5
9.32	1.18	0.97	22.0	20.00	20.0	0.42	0.25	0.36	1.00	1.00	0.36	0.36	0.78	0.61	0.01	0.00	1.9	0.5
9.30	1.18	0.97	22.0	20.00	20.0	0.42	0.25	0.36	1.00	1.00	0.36	0.36	0.78	0.61	0.01	0.00	1.9	0.5
9.28	1.18	0.97	22.0	20.00	20.0	0.42	0.25	0.36	1.00	1.00	0.36	0.36	0.78	0.61	0.01	0.00	1.9	0.5

[illegible]

7.74	1.18	0.81	22.0	20.00	20.0	0.35	0.21	0.36	1.00	1.00	0.36	0.36	0.71	0.57	0.02	0.00	3.3	1.6
7.72	1.18	0.80	22.0	20.00	20.0	0.35	0.21	0.36	1.00	1.00	0.36	0.36	0.71	0.57	0.03	0.00	3.3	1.6
7.70	1.18	0.80	22.0	20.00	20.0	0.35	0.20	0.36	1.00	1.00	0.36	0.36	0.71	0.56	0.03	0.00	3.3	1.6
7.68	1.18	0.80	22.0	20.00	20.0	0.35	0.20	0.36	1.00	1.00	0.36	0.36	0.71	0.56	0.03	0.00	3.4	1.7
7.66	1.18	0.80	22.0	20.00	20.0	0.35	0.20	0.36	1.00	1.00	0.36	0.36	0.71	0.56	0.03	0.00	3.4	1.7
7.64	1.18	0.80	22.0	20.00	20.0	0.35	0.20	0.36	1.00	1.00	0.36	0.36	0.71	0.56	0.03	0.00	3.4	1.7
7.62	1.18	0.79	22.0	20.00	20.0	0.35	0.20	0.36	1.00	1.00	0.36	0.36	0.71	0.56	0.03	0.00	3.4	1.7
7.60	1.18	0.79	22.0	20.00	20.0	0.35	0.20	0.36	1.00	1.00	0.36	0.36	0.71	0.56	0.03	0.00	3.4	1.7
7.58	1.18	0.79	22.0	20.00	20.0	0.35	0.20	0.36	1.00	1.00	0.36	0.36	0.71	0.56	0.03	0.00	3.4	1.7
7.56	1.18	0.79	22.0	20.00	20.0	0.34	0.20	0.36	1.00	1.00	0.36	0.36	0.70	0.56	0.03	0.00	3.5	1.7
7.54	1.18	0.79	22.0	20.00	20.0	0.34	0.20	0.36	1.00	1.00	0.36	0.36	0.70	0.56	0.03	0.00	3.5	1.7
7.52	1.18	0.78	22.0	20.00	20.0	0.34	0.20	0.36	1.00	1.00	0.36	0.36	0.70	0.56	0.03	0.00	3.5	1.8
7.49	1.18	0.78	22.0	20.00	20.0	0.34	0.20	0.36	1.00	1.00	0.36	0.36	0.70	0.56	0.03	0.00	3.5	1.8
7.47	1.18	0.78	22.0	20.00	20.0	0.34	0.20	0.36	1.00	1.00	0.36	0.36	0.70	0.56	0.03	0.00	3.5	1.8
7.45	1.18	0.78	22.0	20.00	20.0	0.34	0.20	0.36	1.00	1.00	0.36	0.36	0.70	0.56	0.03	0.00	3.5	1.8
7.43	1.18	0.78	22.0	20.00	20.0	0.34	0.20	0.36	1.00	1.00	0.36	0.36	0.70	0.56	0.03	0.00	3.6	1.8
7.41	1.18	0.77	22.0	20.00	20.0	0.34	0.20	0.36	1.00	1.00	0.36	0.36	0.70	0.56	0.03	0.00	3.6	1.8
7.39	1.18	0.77	22.0	20.00	20.0	0.34	0.20	0.36	1.00	1.00	0.36	0.36	0.70	0.56	0.03	0.00	3.6	1.8
7.37	1.18	0.77	22.0	20.00	20.0	0.34	0.20	0.36	1.00	1.00	0.36	0.36	0.70	0.56	0.03	0.00	3.6	1.9
7.35	1.18	0.77	22.0	20.00	20.0	0.33	0.20	0.36	1.00	1.00	0.36	0.36	0.69	0.56	0.03	0.00	3.6	1.9
7.33	1.18	0.76	22.0	20.00	20.0	0.33	0.19	0.36	1.00	1.00	0.36	0.36	0.69	0.55	0.03	0.00	3.6	1.9
7.31	1.18	0.76	22.0	20.00	20.0	0.33	0.19	0.36	1.00	1.00	0.36	0.36	0.69	0.55	0.03	0.00	3.7	1.9
7.29	1.18	0.76	22.0	20.00	20.0	0.33	0.19	0.36	1.00	1.00	0.36	0.36	0.69	0.55	0.03	0.00	3.7	1.9
7.27	1.18	0.76	22.0	20.00	20.0	0.33	0.19	0.36	1.00	1.00	0.36	0.36	0.69	0.55	0.03	0.00	3.7	1.9
7.25	1.18	0.76	22.0	20.00	20.0	0.33	0.19	0.36	1.00	1.00	0.36	0.36	0.69	0.55	0.03	0.00	3.7	1.9
7.23	1.18	0.75	22.0	20.00	20.0	0.33	0.19	0.36	1.00	1.00	0.36	0.36	0.69	0.55	0.03	0.00	3.7	1.9
7.21	1.18	0.75	22.0	20.00	20.0	0.33	0.19	0.36	1.00	1.00	0.36	0.36	0.69	0.55	0.03	0.00	3.7	2.0
7.19	1.18	0.75	22.0	20.00	20.0	0.33	0.19	0.36	1.00	1.00	0.36	0.36	0.69	0.55	0.03	0.00	3.7	2.0
7.17	1.18	0.75	22.0	20.00	20.0	0.33	0.19	0.36	1.00	1.00	0.36	0.36	0.69	0.55	0.03	0.00	3.8	2.0
7.15	1.18	0.75	22.0	20.00	20.0	0.33	0.19	0.36	1.00	1.00	0.36	0.36	0.69	0.55	0.03	0.00	3.8	2.0
7.13	1.18	0.74	22.0	20.00	20.0	0.32	0.19	0.36	1.00	1.00	0.36	0.36	0.68	0.55	0.03	0.00	3.8	2.0
7.11	1.18	0.74	22.0	20.00	20.0	0.32	0.19	0.36	1.00	1.00	0.36	0.36	0.68	0.55	0.03	0.00	3.8	2.0
7.09	1.18	0.74	22.0	20.00	20.0	0.32	0.19	0.36	1.00	1.00	0.36	0.36	0.68	0.55	0.03	0.00	3.8	2.0
7.07	1.18	0.74	22.0	20.00	20.0	0.32	0.19	0.36	1.00	1.00	0.36	0.36	0.68	0.55	0.03	0.00	3.8	2.0
7.05	1.18	0.74	22.0	20.00	20.0	0.32	0.19	0.36	1.00	1.00	0.36	0.36	0.68	0.55	0.03	0.00	3.9	2.1
7.03	1.18	0.73	22.0	20.00	20.0	0.32	0.19	0.36	1.00	1.00	0.36	0.36	0.68	0.55	0.03	0.00	3.9	2.1
7.01	1.18	0.73	22.0	20.00	20.0	0.32	0.19	0.36	1.00	1.00	0.36	0.36	0.68	0.55	0.03	0.00	3.9	2.1
6.99	1.18	0.73	22.0	20.00	20.0	0.32	0.19	0.36	1.00	1.00	0.36	0.36	0.68	0.55	0.03	0.00	3.9	2.1
6.97	1.18	0.73	22.0	20.00	20.0	0.32	0.19	0.36	1.00	1.00	0.36	0.36	0.68	0.55	0.03	0.00	3.9	2.1
6.95	1.18	0.72	22.0	20.00	20.0	0.32	0.18	0.36	1.00	1.00	0.36	0.36	0.68	0.54	0.03	0.00	3.9	2.1
6.93	1.18	0.72	22.0	20.00	20.0	0.32	0.18	0.36	1.00	1.00	0.36	0.36	0.68	0.54	0.03	0.00	4.0	2.1
6.91	1.18	0.72	22.0	20.00	20.0	0.31	0.18	0.36	1.00	1.00	0.36	0.36	0.67	0.54	0.03	0.00	4.0	2.2
6.89	1.18	0.72	22.0	20.00	20.0	0.31	0.18	0.36	1.00	1.00	0.36	0.36	0.67	0.54	0.03	0.00	4.0	2.2
6.87	1.18	0.72	22.0	20.00	20.0	0.31	0.18	0.36	1.00	1.00	0.36	0.36	0.67	0.54	0.03	0.00	4.0	2.2
6.85	1.18	0.71	22.0	20.00	20.0	0.31	0.18	0.36	1.00	1.00	0.36	0.36	0.67	0.54	0.03	0.00	4.0	2.2
6.83	1.18	0.71	22.0	20.00	20.0	0.31	0.18	0.36	1.00	1.00	0.36	0.36	0.67	0.54	0.03	0.00	4.0	2.2
6.81	1.18	0.71	22.0	20.00	20.0	0.31	0.18	0.36	1.00	1.00	0.36	0.36	0.67	0.54	0.04	0.00	4.1	2.2
6.79	1.18	0.71	22.0	20.00	20.0	0.31	0.18	0.36	1.00	1.00	0.36	0.36	0.67	0.54	0.04	0.00	4.1	2.2
6.77	1.18	0.71	22.0	20.00	20.0	0.31	0.18	0.36	1.00	1.00	0.36	0.36	0.67	0.54	0.04	0.00	4.1	2.2
6.75	1.18	0.70	22.0	20.00	20.0	0.31	0.18	0.36	1.00	1.00	0.36	0.36	0.67	0.54	0.04	0.00	4.1	2.3
6.73	1.18	0.70	22.0	20.00	20.0	0.31	0.18	0.36	1.00	1.00	0.36	0.36	0.67	0.54	0.04	0.00	4.1	2.3
6.71	1.18	0.70	22.0	20.00	20.0	0.31	0.18	0.36	1.00	1.00	0.36	0.36	0.67	0.54	0.04	0.00	4.1	2.3
6.69	1.18	0.70	22.0	20.00	20.0	0.30	0.18	0.36	1.00	1.00	0.36	0.36	0.66	0.54	0.04	0.00	4.1	2.3
6.67	1.18	0.70	22.0	20.00	20.0	0.30	0.18	0.36	1.00	1.00	0.36	0.36	0.66	0.54	0.04	0.00	4.2	2.3
6.65	1.18	0.69	22.0	20.00	20.0	0.30	0.18	0.36	1.00	1.00	0.36	0.36	0.66	0.54	0.04	0.00	4.2	2.3
6.63	1.18	0.69	22.0	20.00	20.0	0.30	0.18	0.36	1.00	1.00	0.36	0.36	0.66	0.54	0.04	0.00	4.2	2.3
6.61	1.18	0.69	22.0	20.00	20.0	0.30	0.18	0.36	1.00	1.00	0.36	0.36	0.66	0.54	0.04	0.00	4.2	2.3
6.59	1.18	0.69	22.0	20.00	20.0	0.30	0.18	0.36	1.00	1.00	0.36	0.36	0.66	0.54	0.04	0.00	4.2	2.4
6.57	1.18	0.69	22.0	20.00	20.0	0.30	0.17	0.36	1.00	1.00	0.36	0.36	0.66	0.53	0.04	0.00	4.2	2.4
6.55	1.18	0.68	22.0	20.00	20.0	0.30	0.17	0.36	1.00	1.00	0.36	0.36	0.66	0.53	0.04	0.00	4.3	2.4
6.53	1.18	0.68	22.0	20.00	20.0	0.30	0.17	0.36	1.00	1.00	0.36	0.36	0.66	0.53	0.04	0.00	4.3	2.4
6.51	1.18	0.68	22.0	20.00	20.0	0.30	0.17	0.36	1.00	1.00	0.36	0.36	0.66	0.53	0.04	0.00	4.3	2.4
6.49	1.18	0.68	22.0	20.00	20.0	0.30	0.17	0.36	1.00	1.00	0.36	0.36	0.66	0.53	0.04	0.00	4.3	2.4
6.47	1.18	0.67	22.0	20.00	20.0	0.29	0.17	0.36	1.00	1.00	0.36	0.36	0.65	0.53	0.04	0.00	4.3	2.4
6.45	1.18	0.67	22.0	20.00	20.0	0.29	0.17	0.36	1.00	1.00	0.36	0.36	0.65	0.53	0.04	0.00	4.3	2.4
6.43	1.18	0.67	22.0	20.00	20.0	0.29	0.17	0.36	1.00	1.00	0.36	0.36	0.65	0.53	0.04	0.00	4.3	2.5
6.41	1.18	0.67	22.0	20.00	20.0	0.29	0.17	0.36	1.00	1.00	0.36	0.36	0.65	0.53	0.04	0.00	4.4	2.5
6.39	1.18	0.67	22.0	20.00	20.0	0.29	0.17	0.36	1.00	1.00	0.36	0.36	0.65	0.53	0.04	0.00	4.4	2.5
6.37	1.18	0.66	22.0	20.00	20.0	0.29	0.17	0.36	1.00	1.00	0.36	0.36	0.65	0.53	0.04	0.00	4.4	2.5
6.35	1.18	0.66	22.0	20.00	20.0	0.29	0.17	0.36	1.00	1.00	0.36	0.36	0.65	0.53	0.04	0.00	4.4	2.5
6.33	1.18	0.66	22.0	20.00	20.0	0.29	0.17	0.36	1.00	1.00	0.36	0.36	0.65	0.53	0.04	0.00	4.4	2.5
6.31	1.18	0.66																

[illegible]

[illegible]

0.12	1.18	0.01	33.0	20.00	20.0	0.01	0.00	0.00	1.00	1.00	0.00	0.00	0.01	0.00	0.11	0.00	6.9	4.6
0.10	1.18	0.01	33.0	20.00	20.0	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.11	0.00	6.9	4.6
0.08	1.18	0.01	33.0	20.00	20.0	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.11	0.00	6.9	4.6
0.06	1.18	0.01	33.0	20.00	20.0	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.11	0.00	6.9	4.6
0.04	1.18	0.01	33.0	20.00	20.0	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.11	0.00	6.9	4.6
0.02	1.18	0.00	33.0	20.00	20.0	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.11	0.00	6.9	4.6
0.00	1.18	0.00	33.0	20.00	20.0	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.15	0.00	6.9	4.7

SETTLEMENT based on Ultimate Loading by Vesic Method (1977):

Ztip=10.00 Btip= 0.38 Cp= 0.040 Cs= 0.070
 Xpp=0.000-in Xps= -0.033-in Xtip= -0.033-in
 Cp & Cs are average value at bearing stratum from pile tip extend to 0 Btip

At loading: Qtip=1.3-kp Qtop= 6.9-kp Qside= 5.6-kp
 Xtip=-0.033-in Xtop= -0.037-in Xshaft= -0.004-in

LOAD - TOTAL SETTLEMENT RELATION (from t-z, and q-w curves):
 Based on Reese and O'Neill Method (1988)

Xtop Weight Qside Qtotal * Loads and Capacity are Uplift, Settlement is Upward
 -in -kp -kp -kp

0.0000	1.3	0.0	1.3
-0.0003	1.3	2.7	4.0
-0.0005	1.3	3.6	4.8
-0.0007	1.3	4.2	5.5
-0.0008	1.3	4.7	6.0
-0.0010	1.3	5.0	6.3
-0.0012	1.3	5.3	6.5
-0.0013	1.3	5.4	6.7
-0.0015	1.3	5.5	6.8
-0.0017	1.3	5.6	6.8
-0.0018	1.3	5.6	6.9
-0.0020	1.3	5.6	6.9
-0.0021	1.3	5.6	6.9
-0.0023	1.3	5.6	6.9
-0.0025	1.3	5.6	6.9
-0.0026	1.3	5.6	6.9
-0.0028	1.3	5.6	6.9
-0.0030	1.3	5.6	6.9
-0.0031	1.3	5.6	6.9
-0.0033	1.3	5.6	6.9
-0.0035	1.3	5.6	6.9
-0.0036	1.3	5.6	6.9
-0.0038	1.3	5.6	6.8
-0.0040	1.3	5.5	6.8
-0.0041	1.3	5.5	6.8
-0.0043	1.3	5.5	6.7
-0.0045	1.3	5.4	6.7
-0.0046	1.3	5.4	6.6
-0.0048	1.3	5.3	6.6
-0.0050	1.3	5.3	6.6
-0.0051	1.3	5.2	6.5
-0.0053	1.3	5.2	6.5
-0.0055	1.3	5.2	6.4
-0.0056	1.3	5.2	6.4
-0.0058	1.3	5.1	6.4
-0.0060	1.3	5.1	6.4
-0.0061	1.3	5.1	6.4
-0.0063	1.3	5.1	6.3
-0.0064	1.3	5.0	6.3
-0.0066	1.3	5.0	6.3
-0.0068	1.3	5.0	6.2
-0.0069	1.3	5.0	6.2
-0.0071	1.3	5.0	6.2
-0.0073	1.3	4.9	6.2
-0.0074	1.3	4.9	6.2
-0.0076	1.3	4.9	6.2
-0.0078	1.3	4.9	6.2
-0.0079	1.3	4.9	6.2
-0.0081	1.3	4.9	6.2
-0.0083	1.3	4.9	6.2
-0.0084	1.3	4.9	6.1
-0.0086	1.3	4.9	6.1
-0.0088	1.3	4.9	6.1
-0.0089	1.3	4.8	6.1
-0.0091	1.3	4.8	6.1

-0.0093	1.3	4.8	6.1
-0.0094	1.3	4.8	6.1
-0.0096	1.3	4.8	6.1
-0.0098	1.3	4.8	6.1
-0.0099	1.3	4.8	6.1
-0.0101	1.3	4.8	6.0
-0.0103	1.3	4.8	6.0
-0.0104	1.3	4.8	6.0
-0.0106	1.3	4.7	6.0
-0.0107	1.3	4.7	6.0
-0.0109	1.3	4.7	6.0
-0.0111	1.3	4.7	6.0
-0.0112	1.3	4.7	6.0
-0.0114	1.3	4.7	6.0
-0.0116	1.3	4.7	6.0
-0.0117	1.3	4.7	5.9
-0.0119	1.3	4.7	5.9
-0.0121	1.3	4.7	5.9
-0.0122	1.3	4.6	5.9
-0.0124	1.3	4.6	5.9
-0.0126	1.3	4.6	5.9
-0.0127	1.3	4.6	5.9
-0.0129	1.3	4.6	5.9
-0.0131	1.3	4.6	5.9
-0.0132	1.3	4.6	5.9
-0.0134	1.3	4.6	5.8
-0.0136	1.3	4.6	5.8
-0.0137	1.3	4.6	5.8
-0.0139	1.3	4.5	5.8
-0.0141	1.3	4.5	5.8
-0.0142	1.3	4.5	5.8
-0.0144	1.3	4.5	5.8
-0.0145	1.3	4.5	5.8
-0.0147	1.3	4.5	5.8
-0.0149	1.3	4.5	5.8
-0.0150	1.3	4.5	5.7
-0.0152	1.3	4.5	5.7
-0.0154	1.3	4.5	5.7
-0.0155	1.3	4.4	5.7
-0.0165	1.3	4.4	5.7
-0.0198	1.3	4.2	5.5
-0.0231	1.3	4.0	5.3
-0.0265	1.3	3.8	5.1
-0.0298	1.3	3.6	4.9
-0.0331	1.3	3.4	4.7

At Qwork= -1.00-kp Settlement= 0.00000-in

At Qwork= -1.00-kp Secant Stiffness Kqx= -99999.00-kp/-in

At Qallow= -0.50-in Qallow= 99999.00-kp

Note: If the program cannot find a result or the result exceeds the upper limit. The result will be displayed as 99999.

SUMMARY:

Total Ultimate Capacity (Down)= 6.898-kp Total Ultimate Capacity (Up)= 4.669-kp
 Total Allowable Capacity (Down)= 3.237-kp Total Allowable Capacity (Up)= 2.411-kp
 Weight above Ground= 0.04 Total Pile Weight= 0.15-kp *Soil weight is not included
 Side Resistance (Down)= 5.627-kp Side Resistance (Up)= 4.515-kp
 Tip Resistance (Down)= 1.271-kp Tip Resistance (Up)= 0.000-kp
 Negative Friction, Qneg= 0.000-kp, which has been subtracted from Total Ultimate Capacity (Down)
 Negative friction does not affect Total Uplift Ultimate Capacity (Up)

OK! Qallow > Q * Vertical Load, Q= -1.0 -kp

FACTOR OF SAFETY:

FSside	FStip	FSup	FSweight
2.0	3.0	2.0	1.0

Notes:

* Settlement in the program is Elastic Settlement only. Consolidation Settlement is not calculated!

Length - Pile length, distance from pile top to tip (not from ground surface)

Width or D - Width of pile shaft (pile diameter)

Ds and Dl - Short Side and Long Side of Footing

Area - Section area of pile shaft or tip area of pile

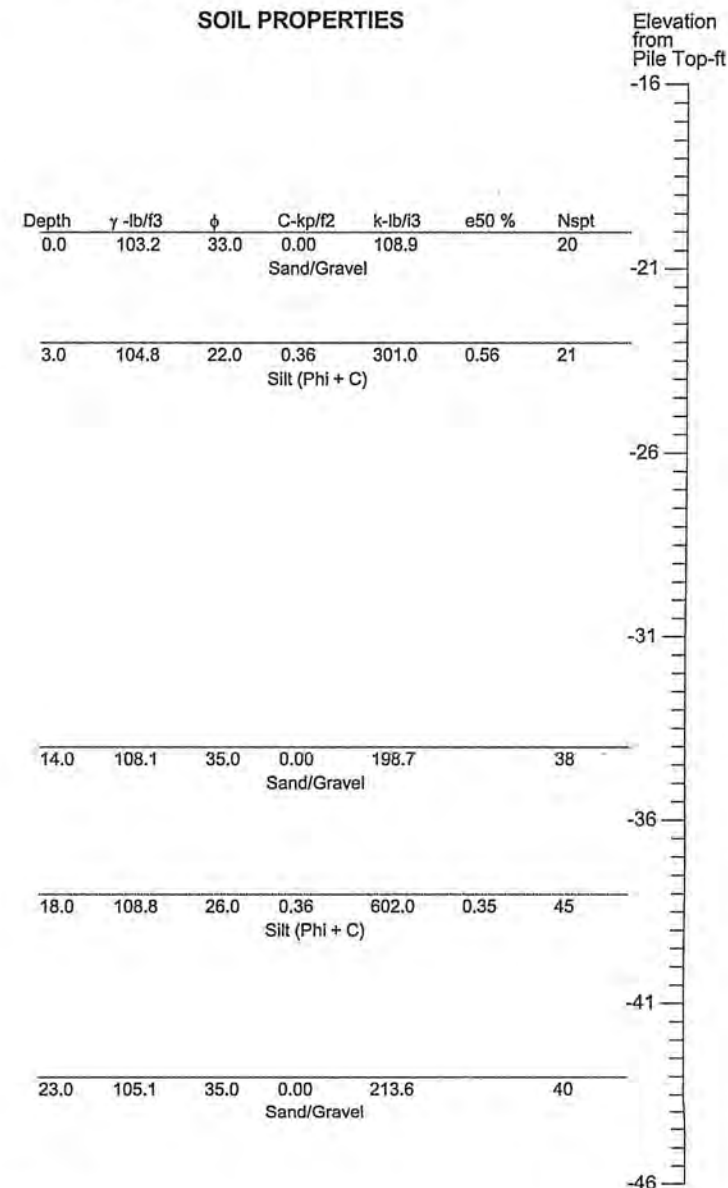
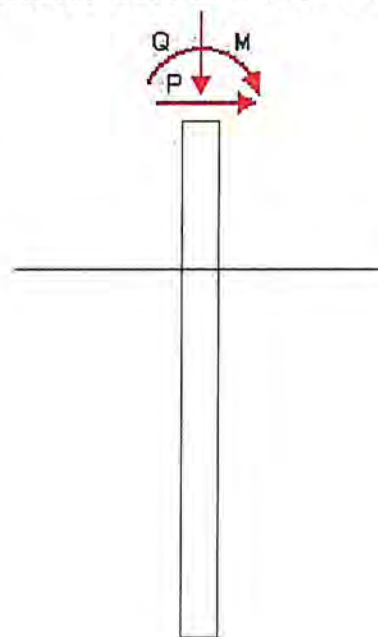
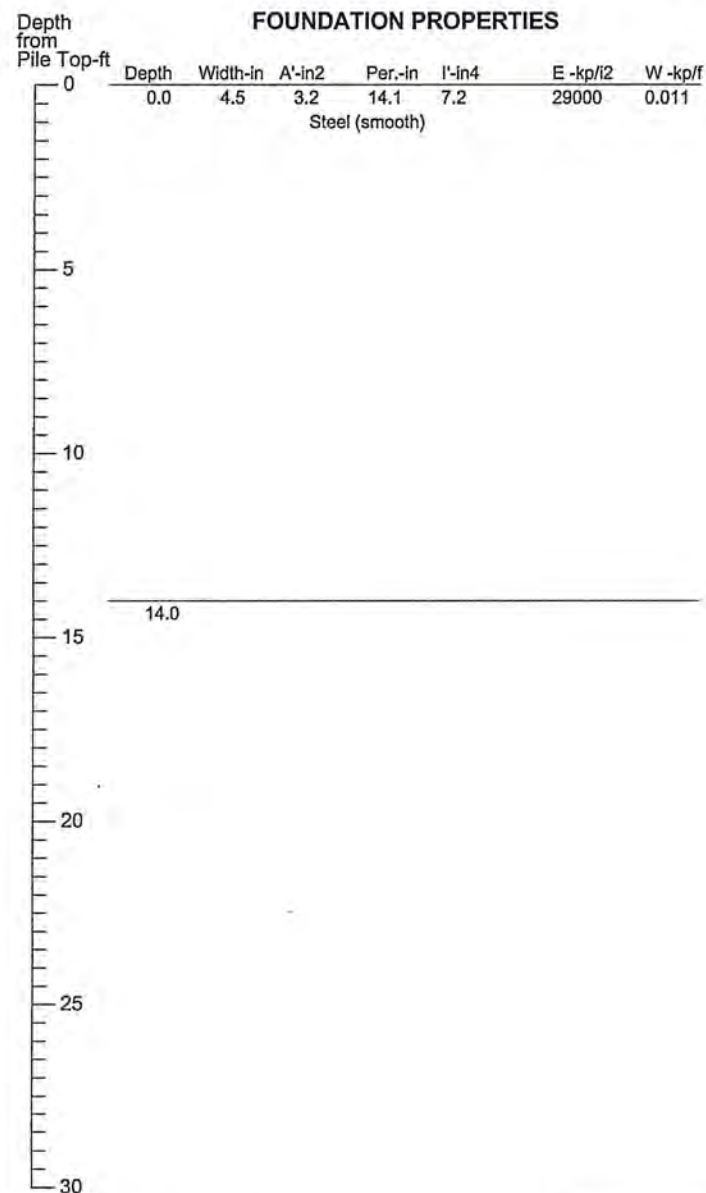
Sv - Vertical stress in soils (It may be limited based on critical depth, z_{lim} or z/D

qult - Ultimate tip resistance (pressure)

Qtip_dw - Ultimate downward tip resistance (Force or Capacity)
 Qtip_up - Ultimate uplift tip resistance for belled pile or uplift plate (Force or Capacity)
 dz - Small Segment of Depth for Calculation
 Zs - Soil Depth, Depth from ground surface
 Zp - Pile Depth, Depth from pile top
 Prem - Primer of pile shaft
 Phi - Soil internal friction angle (between soils)
 Kf - Friction factor to convert Phi to Delta
 Delta - Ski friction between soil and pile (function of Phi. It is different from Phi)
 f_dw - Resistance between soil and pile from Delta
 f_up - Resistance between soil and pile from Delta
 C - Soil cohesion (between soils)
 Ca - Adhesion between soil and pile (function of C. It is different from C) $Ca = KaKcC$
 Ka - Adhesion ratio, C/Ca
 Kc - Adhesion factor defended by users
 Ca_dw - Downward adhesion between pile and soil
 Ca_up - Uplift adhesion between pile and soil
 Sf_dw - Downward side resistance (sum of friction and adhesion, $f_{dw} + Ca_{dw}$)
 Sf_up - Uplift side resistance (sum of friction and adhesion, $f_{up} + Ca_{up}$)
 Weight - Weight of Pile shaft
 Qneg - negative friction Resistance
 Qside - Ultimate side resistance (Q_{side_dw} or Q_{side_up})
 Qtip - Ultimate tip resistance (Q_{tip_dw} or Q_{tip_up} for uplift plate)
 Q_dw - Ultimate downward capacity ($Q_{tip} + Q_{side_dw}$)
 Q_up - Ultimate uplift capacity ($Weight + Q_{side_up}$)
 E - Elastic modules
 Xs - Settlement due to axial deformation of pile shaft
 Xpp - Settlement due to point load from pile tip
 Xps - Settlement due to load from pile shaft
 Xtop - Total settlement, $Xs + Xpp + Xps$
 Xtip - Tip settlement, $Xpp + Xps$
 Xshaft - Shaft deformation, Xs
 Xallow - Allowable settlement specified by users
 Qwork - Vertical working load applied to pile
 Qallow - Vertical allowable load, $Q_{ult}/F.S.$

FOUNDATION PROFILE & SOIL CONDITIONS

Displacement pile: Closed End
pipe. Soil is displaced during
driving. Higher friction expected.
Total area is used in bearing
calculation.



Batter Angle=0.0

(Pile diameter not to scale)

Surface Angle=0.0

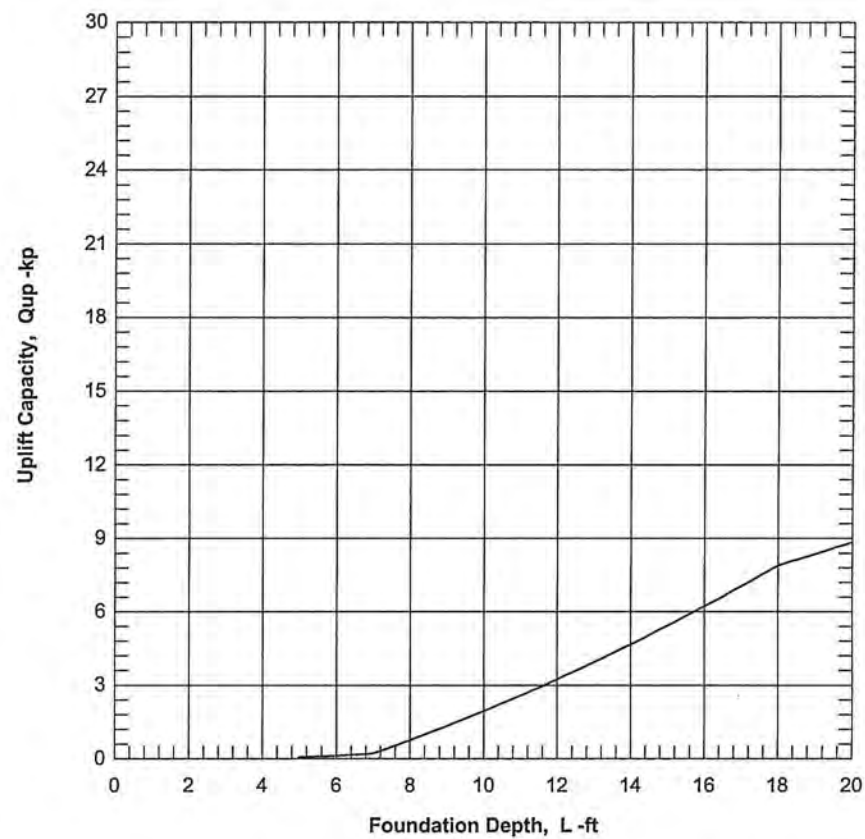
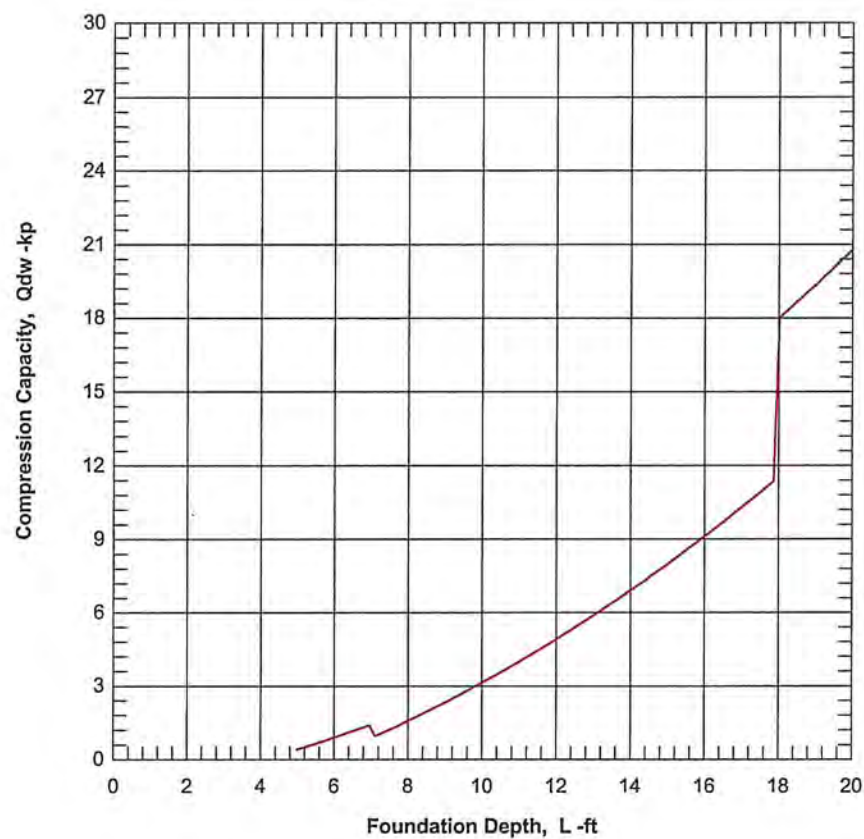


**CivilTech
Software**

**332-12 Regenerate Power - Seville Solar
4 Inch Diam Nominal PP - Closed Ended - Schedule 40 Steel - Free Head**

Figure 1

ULTIMATE CAPACITY vs FOUNDATION DEPTH



ALLPILE 7
LATERAL ANALYSIS SUMMARY OUTPUT
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Date: 12/19/2012 File: S:\Monty Schultz\332-12 Regenerate Power\4.5inPP.alp

1.0

Title 1: 332-12 Regenerate Power - Seville Solar

Title 2: 4 Inch Diam Nominal PP - Closed Ended - Schedule 40 Steel - Free Head

ALLPILE INPUT DATA:

* Pile Type Page *

Unit: English

Displacement pile: Closed End pipe. Soil is displaced during driving. Higher friction expected. Total area is used in bearing calculation.

Pile Type: Driving Steel Pile (Closed end)

* Pile Profile *

Foundation Depth: 14.0 -ft

Top Height: 4 -ft

Slope Angle: 0.0

Pile Angle: 0.0

* Pile Properties *

Zs -ft	Width -in	Area -in2	Perim. -in	I -in4	E -kp/i2	Weight -kp/f	Mix* %	Out Side	In Side	Other Par.	Type
0.0	4.5	3.2	14.1	7.2	29000	0.011	80.0	2	2		Steel (smooth)
14.0	4.5	3.2	14.1								Pile Tip

Note: Mix = % of Inside material/Outside material

Other Pra. = Crack deduction (%) for concrete pile

Group Type: 0

Top Type: 1

No Water Table

Ground Elevation: -20 -ft

* Soil Properties *

Zs -ft	Gamma -lb/f3	Phi o	C -kp/f2	K -lb/i3	E50/Dr - %	Nspt	Type	Soil
0.0	103.2	33.0	0.00	108.9	54.21	20	4	Sand/Gravel
3.0	104.8	22.0	0.36	301.0	0.56	21	3	Silt (Phi + C)
14.0	108.1	35.0	0.00	198.7	72.92	38	4	Sand/Gravel
18.0	108.8	26.0	0.36	602.0	0.35	45	3	Silt (Phi + C)
23.0	105.1	35.0	0.00	213.6	75.52	40	4	Sand/Gravel

ALLPILE ANALYSIS AND RESULTS:

FACTORS AND CONDITIONS:

Load Factor for Vertical Loads: 1.0 1.0

Load Factor for Lateral Loads: 1.0

Loads Supported by Pile Cap: 0 %

Shear Condition: Cyclic

Number of Cycles: 100

SINGLE PILE:

Deduction factor due to Group Effect, R (Rfront and Rside) = 1.00

Vertical Load= -1.00 -kp

Shear= 0.50 -kp

Moment= 2.00 -kp-f

Results:

Top Deflection, yt= 1.08000-in

Max. Moment, M= 4.51-kp-f

Top Deflection Slope, St= -0.02010

!!! Top Deflection, 1.0800-in, Exceeds the Allowable Deflection= 1.00-in

Note: If the program cannot find a result or the result exceeds the upper limit. The result will be displayed as 99999.

Notes:

Q - Vertical Load at pile top

P - Lateral Shear Load at pile top

M - Moment at pile top

Xtop - Pile top total settlement

yt - Pile top deflection

St - Pile top deflection slope (deflection/unit length)

The Max. Moment calculated by program is an internal moment of shaft due to the loading. Engineers have to check whether the pile has enough moment capacity to resist the Max. Moment with adequate factor of safety. If not, the pile may be damaged under the loading.

1

1

1

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ALLPILE 7
PILE STIFFNESS ANALYSIS SUMMARY
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Date: 12/19/2012 File: S:\Monty Schultz\332-12 Regenerate Power\4.5inPP.alp

1.0

Title 1: 332-12 Regenerate Power - Seville Solar

Title 2: 4 Inch Diam Nominal PP - Closed Ended - Schedule 40 Steel - Free Head

ALLPILE INPUT DATA:

* Pile Type Page *

Unit: English

Displacement pile: Closed End pipe. Soil is displaced during driving. Higher friction expected. Total area is used in bearing calculation.

Pile Type: Driving Steel Pile (Closed end)

* Pile Profile *

Foundation Depth: 14.0 -ft

Top Height: 4 -ft

Slope Angle: 0.0

Pile Angle: 0.0

* Pile Properties *

Zs -ft	Width -in	Area -in ²	Perim. -in	I -in ⁴	E -kp/12	Weight -kp/f	Mix* %	Out Side	In Side	Other Par.	Type
0.0	4.5	3.2	14.1	7.2	29000	0.011	80.0	2	2		Steel (smooth)
14.0	4.5	3.2	14.1								Pile Tip

Note: Mix = % of Inside material/Outside material

Group Type: 0

Top Type: 1

No Water Table

Ground Elevation: -20 -ft

* Soil Properties *

Zs -ft	Gamma -lb/f ³	Phi o	C -kp/f ²	K -lb/i ³	E50/dr -%	Nspt	Type	Soil
0.0	103.2	33.0	0.00	108.9	54.21	20	4	Sand/Gravel
3.0	104.8	22.0	0.36	301.0	0.56	21	3	Silt (Phi + C)
14.0	108.1	35.0	0.00	198.7	72.92	38	4	Sand/Gravel
18.0	108.8	26.0	0.36	602.0	0.35	45	3	Silt (Phi + C)
23.0	105.1	35.0	0.00	213.6	75.52	40	4	Sand/Gravel

ALLPILE ANALYSIS AND RESULTS:

Single Pile Vertical Analysis:

Q= -1.00 -kp

Results:

At Work Load= -1.00-kp, Settlement, Xtop= 0.00000-in
Stiffness Kqx= -99999.00-kp/-in

Single Pile Lateral Analysis - Free Head:

M= 0, P= 0.50 -kp

Results:

At Shear= 0.50-kp, Top Deflection, yt= 0.57200-in
Stiffness Kpy= 0.87-kp/-in
At Shear= 0.50-kp, Top Slope, St= -0.00940 Slope
Stiffness Kps= -53.19-kp/Slope
Or St= -0.53856444 Degree, Stiffness Kps= -0.93-kp/Degree

P= 0, M= 2.00 -kp-f

Results:

At Moment= 2.00-kp, Top Deflection, yt= 0.42100-in
Stiffness Kmy= 4.75-kp-f/-in
At Moment= 2.00-kp, Top Slope, St= -0.00973 Slope
Stiffness Kms= -205.55-kp-f/Slope
Or St= -0.55747032 Degree, Stiffness Kms= -3.59-kp-f/Degree

Single Pile Lateral Analysis - Fixed Head:

M= 0, P= 0.50 -kp

Results:

At Shear= 0.50-kp, Top Deflection, yt= 0.13600-in
Stiffness Kpy= 3.68-kp/-in
At Shear= 0.50-kp, Top Slope, St= 0.00000
Stiffness Kps= N/A

P= 0, M= 2.00 -kp-f

Results:

At Moment= 2.00-kp, Top Deflection, yt= 0.00000-in
Stiffness Kmy= N/A
At Moment= 2.00-kp, Top Slope, St= 0.00000
Stiffness Kms= N/A

Notes:

Q - Vertical Load at pile top
P - Lateral Shear Load at pile top
M - Moment at pile top
Xtop - Pile top total settlement
yt - Pile top deflection

St - Pile top deflection slope (deflection/unit length). Clockwise is negative
Kqx - Secant Stiffness: Vertical load vs. Vertical movement (settlement)
Kpy - Secant Stiffness: Lateral Shear vs. Lateral movement (deflection)
Kps - Secant Stiffness: Lateral Shear vs. Slope (rotation). Clockwise is negative
Kmy - Secant Stiffness: Moment vs. Lateral movement (deflection)
Kms - Secant Stiffness: Moment vs. Slope (rotation). Clockwise is negative

Note: If the program cannot find a result or the result exceeds the upper limit. The result will be displayed as 99999.

Depth vs. Deflection, Moment, Shear, and Slope in Single Pile:

Zp -ft	yt -in	Moment -kp-f	Shear -kp	Pressure -kp/f2	Slope
0.0	1.08	2.0	0.5	0.0	-0.02010
0.1	1.04	2.1	0.5	0.0	-0.02353
0.3	1.01	2.1	0.5	0.0	-0.01775
0.4	0.98	2.2	0.5	0.0	-0.01882
0.6	0.94	2.3	0.5	0.0	-0.01941
0.7	0.91	2.3	0.5	0.0	-0.01953
0.8	0.88	2.4	0.5	0.0	-0.01882
1.0	0.85	2.5	0.5	0.0	-0.01882
1.1	0.82	2.5	0.5	0.0	-0.01824
1.3	0.79	2.6	0.5	0.0	-0.01834
1.4	0.76	2.7	0.5	0.0	-0.01765
1.6	0.73	2.8	0.5	0.0	-0.01765
1.7	0.70	2.8	0.5	0.0	-0.01775
1.8	0.67	2.9	0.5	0.0	-0.01706
2.0	0.64	3.0	0.5	0.0	-0.01647
2.1	0.61	3.0	0.5	0.0	-0.01657
2.3	0.58	3.1	0.5	0.0	-0.01647
2.4	0.56	3.2	0.5	0.0	-0.01588
2.5	0.53	3.2	0.5	0.0	-0.01588
2.7	0.50	3.3	0.5	0.0	-0.01538
2.8	0.48	3.4	0.5	0.0	-0.01471
3.0	0.45	3.4	0.5	0.0	-0.01471
3.1	0.43	3.5	0.5	0.0	-0.01420
3.3	0.41	3.6	0.5	0.0	-0.01412
3.4	0.38	3.6	0.5	0.0	-0.01353
3.5	0.36	3.7	0.5	0.0	-0.01361
3.7	0.34	3.8	0.5	0.0	-0.01294
3.8	0.32	3.8	0.5	0.0	-0.01235
4.0	0.29	3.9	0.5	0.0	-0.01235
4.1	0.28	4.0	0.5	0.0	-0.01183
4.2	0.26	4.1	0.5	0.0	-0.01118
4.4	0.24	4.1	0.5	-0.1	-0.01118
4.5	0.22	4.2	0.5	-0.1	-0.01065
4.7	0.20	4.3	0.4	-0.1	-0.01059
4.8	0.19	4.3	0.4	-0.2	-0.00941
4.9	0.17	4.4	0.4	-0.2	-0.00947
5.1	0.15	4.4	0.3	-0.3	-0.00882
5.2	0.14	4.4	0.3	-0.3	-0.00882
5.4	0.13	4.5	0.2	-0.3	-0.00828
5.5	0.11	4.5	0.1	-0.4	-0.00765
5.7	0.10	4.5	0.1	-0.4	-0.00706
5.8	0.09	4.5	0.0	-0.4	-0.00671
5.9	0.08	4.5	-0.1	-0.4	-0.00639
6.1	0.07	4.5	-0.2	-0.5	-0.00588
6.2	0.06	4.4	-0.3	-0.5	-0.00547
6.4	0.05	4.4	-0.4	-0.5	-0.00509
6.5	0.04	4.3	-0.5	-0.5	-0.00459
6.6	0.04	4.2	-0.6	-0.5	-0.00418
6.8	0.03	4.1	-0.8	-0.6	-0.00385
6.9	0.02	4.0	-0.9	-0.9	-0.00335
7.1	0.02	3.8	-1.1	-1.1	-0.00300
7.2	0.01	3.7	-1.3	-1.0	-0.00259
7.4	0.01	3.5	-1.5	-0.8	-0.00229
7.5	0.01	3.2	-1.7	-0.6	-0.00193
7.6	0.00	2.9	-1.8	-0.4	-0.00161
7.8	0.00	2.7	-1.9	-0.2	-0.00134
7.9	0.00	2.4	-1.9	0.0	-0.00107
8.1	0.00	2.1	-1.9	0.2	-0.00084
8.2	0.00	1.8	-1.8	0.4	-0.00063
8.3	0.00	1.6	-1.8	0.5	-0.00046
8.5	0.00	1.3	-1.7	0.6	-0.00030
8.6	0.00	1.1	-1.6	0.6	-0.00018
8.8	0.00	0.9	-1.5	0.6	-0.00007
8.9	0.00	0.7	-1.3	0.7	0.00002
9.1	0.00	0.5	-1.2	0.7	0.00009
9.2	0.00	0.4	-1.0	0.7	0.00014
9.3	0.00	0.3	-0.9	0.6	0.00018
9.5	0.00	0.2	-0.8	0.6	0.00020
9.6	0.00	0.1	-0.7	0.5	0.00022
9.8	0.00	0.0	-0.5	0.5	0.00023
9.9	0.00	-0.1	-0.4	0.5	0.00022
10.0	0.00	-0.1	-0.3	0.4	0.00022
10.2	0.00	-0.1	-0.2	0.3	0.00021
10.3	0.00	-0.2	-0.2	0.3	0.00019
10.5	0.00	-0.2	-0.1	0.3	0.00017
10.6	0.00	-0.2	-0.1	0.2	0.00016
10.7	0.00	-0.2	0.0	0.2	0.00014
10.9	0.00	-0.2	0.0	0.1	0.00012
11.0	0.00	-0.2	0.0	0.1	0.00011
11.2	0.00	-0.2	0.1	0.1	0.00009
11.3	0.00	-0.1	0.1	0.0	0.00007
11.5	0.00	-0.1	0.1	0.0	0.00006
11.6	0.00	-0.1	0.1	0.0	0.00005
11.7	0.00	-0.1	0.1	0.0	0.00004
11.9	0.00	-0.1	0.1	0.0	0.00003
12.0	0.00	-0.1	0.1	0.0	0.00002
12.2	0.00	-0.1	0.1	0.0	0.00001
12.3	0.00	0.0	0.1	0.0	0.00001
12.4	0.00	0.0	0.1	0.0	0.00000
12.6	0.00	0.0	0.1	0.0	0.00000
12.7	0.00	0.0	0.1	0.0	-0.00001
12.9	0.00	0.0	0.0	0.0	-0.00001
13.0	0.00	0.0	0.0	0.0	-0.00001

13.2	0.00	0.0	0.0	0.0	-0.00001
13.3	0.00	0.0	0.0	0.0	-0.00001
13.4	0.00	0.0	0.0	0.0	-0.00001
13.6	0.00	0.0	0.0	0.0	-0.00001
13.7	0.00	0.0	0.0	0.0	-0.00001
13.9	0.00	0.0	0.0	0.0	-0.00001
14.0	0.00	0.0	0.0	0.0	-0.00001

Zp - Depth from pile Top

yt - Pile top deflection

Moment - Internal moment in pile shaft

Shear - Internal shear force in pile shaft

Pressure - Soil-Pile interactive pressure (Arching is considered)

Slope - Deflection slope at pile top

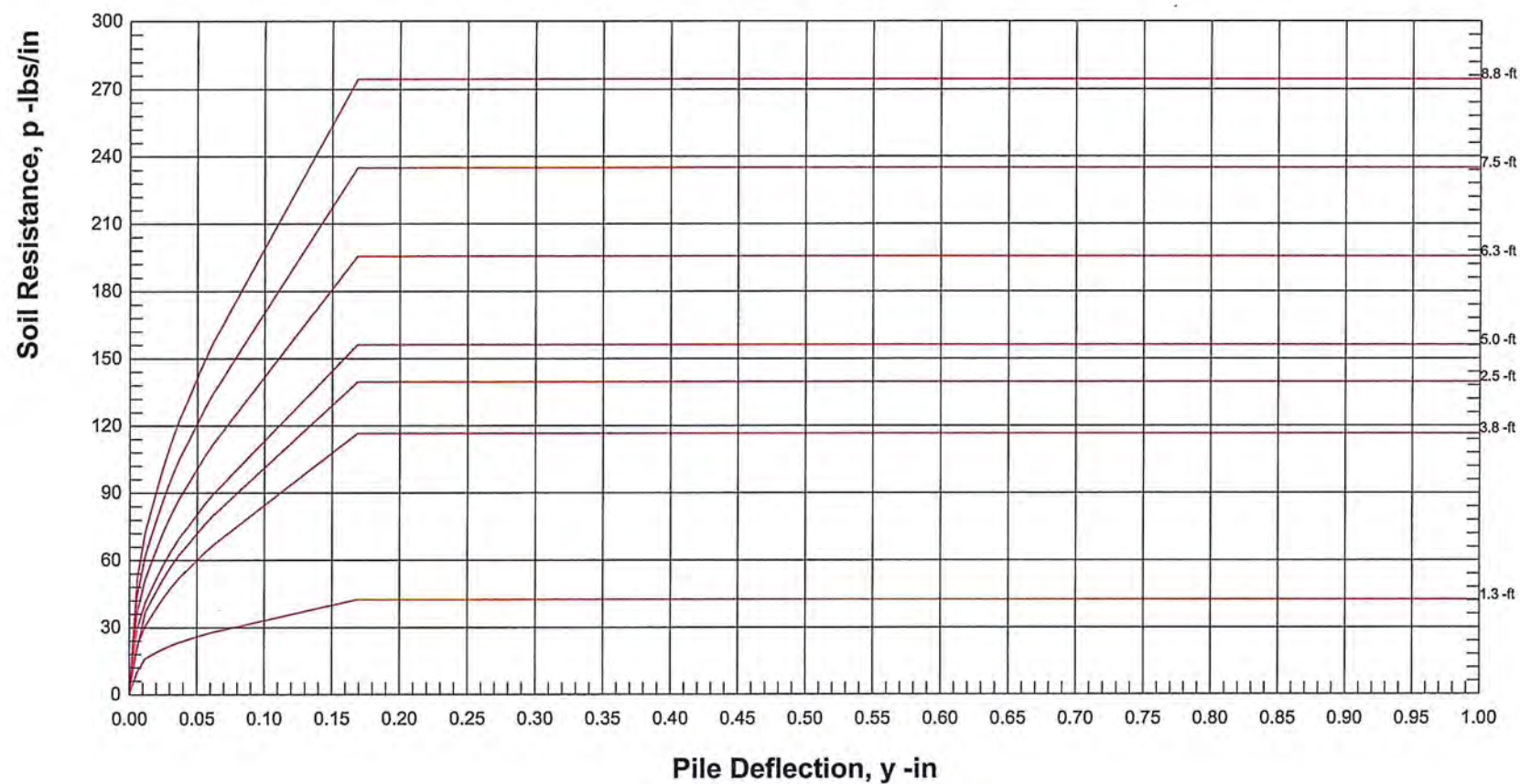
Soil Resistance vs. Pile Deflection (p-y)

zs -ft	p -lbs/in	y -in
1.25	0.0	0.00
1.25	10.2	0.01
1.25	16.2	0.01
1.25	18.6	0.02
1.25	20.6	0.03
1.25	22.2	0.03
1.25	23.6	0.04
1.25	24.9	0.04
1.25	26.0	0.05
1.25	27.1	0.06
1.25	28.1	0.06
1.25	29.0	0.07
1.25	29.9	0.08
1.25	42.6	0.17
1.25	42.6	4.67
1.25	42.6	9.17
1.25	42.6	13.67
2.50	0.0	0.00
2.50	20.4	0.01
2.50	37.0	0.01
2.50	44.9	0.02
2.50	51.6	0.03
2.50	57.4	0.03
2.50	62.7	0.04
2.50	67.5	0.04
2.50	71.9	0.05
2.50	76.1	0.06
2.50	80.1	0.06
2.50	83.8	0.07
2.50	87.4	0.08
2.50	139.8	0.17
2.50	139.8	4.67
2.50	139.8	9.17
2.50	139.8	13.67
3.75	0.0	0.00
3.75	22.1	0.01
3.75	30.9	0.01
3.75	37.5	0.02
3.75	43.1	0.03
3.75	47.9	0.03
3.75	52.3	0.04
3.75	56.3	0.04
3.75	60.1	0.05
3.75	63.5	0.06
3.75	66.8	0.06
3.75	70.0	0.07
3.75	73.0	0.08
3.75	116.7	0.17
3.75	116.7	4.67
3.75	116.7	9.17
3.75	116.7	13.67
5.00	0.0	0.00
5.00	29.6	0.01
5.00	41.3	0.01
5.00	50.2	0.02
5.00	57.6	0.03
5.00	64.2	0.03
5.00	70.0	0.04
5.00	75.4	0.04
5.00	80.4	0.05
5.00	85.1	0.06
5.00	89.5	0.06
5.00	93.7	0.07
5.00	97.7	0.08
5.00	156.3	0.17
5.00	156.3	4.67
5.00	156.3	9.17
5.00	156.3	13.67
6.25	0.0	0.00
6.25	37.1	0.01
6.25	51.8	0.01
6.25	62.9	0.02
6.25	72.2	0.03
6.25	80.3	0.03
6.25	87.7	0.04
6.25	94.4	0.04
6.25	100.7	0.05
6.25	106.5	0.06
6.25	112.1	0.06
6.25	117.3	0.07
6.25	122.3	0.08
6.25	195.7	0.17
6.25	195.7	4.67
6.25	195.7	9.17
6.25	195.7	13.67
7.50	0.0	0.00
7.50	44.6	0.01

7.50	62.2	0.01
7.50	75.5	0.02
7.50	86.7	0.03
7.50	96.5	0.03
7.50	105.4	0.04
7.50	113.5	0.04
7.50	121.0	0.05
7.50	128.0	0.06
7.50	134.6	0.06
7.50	140.9	0.07
7.50	147.0	0.08
7.50	235.1	0.17
7.50	235.1	4.67
7.50	235.1	9.17
7.50	235.1	13.67
8.75	0.0	0.00
8.75	52.1	0.01
8.75	72.6	0.01
8.75	88.2	0.02
8.75	101.3	0.03
8.75	112.7	0.03
8.75	123.0	0.04
8.75	132.5	0.04
8.75	141.2	0.05
8.75	149.5	0.06
8.75	157.2	0.06
8.75	164.6	0.07
8.75	171.6	0.08
8.75	274.5	0.17
8.75	274.5	4.67
8.75	274.5	9.17
8.75	274.5	13.67

Zs - Depth from Soil Top
 p - Soil Resistance
 y - Pile Deflection

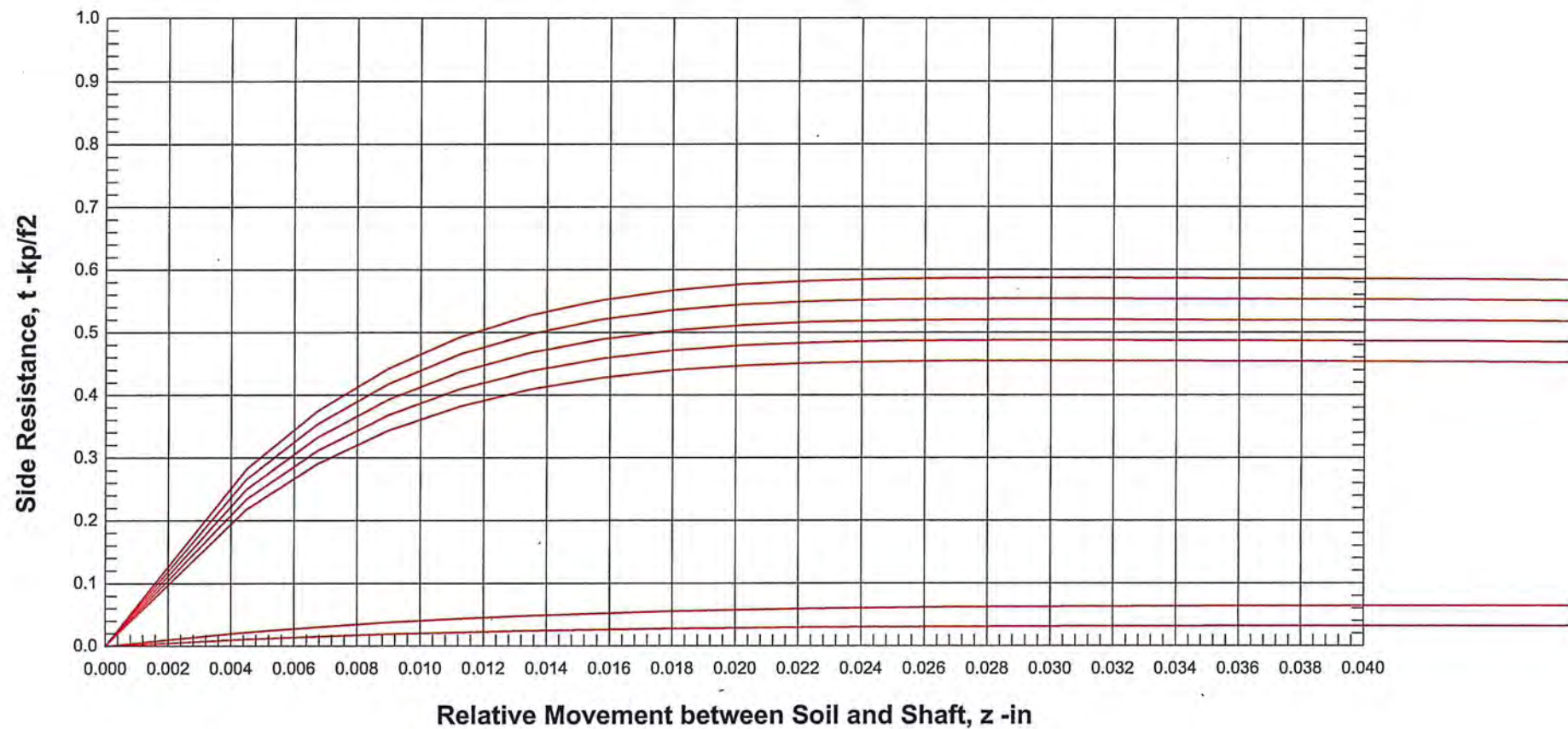
Soil Resistance vs. Pile Deflection (p-y)



Soil Depth (Z_s): 1.3, 2.5, 3.8, 5.0, 6.3, 7.5, 8.8 -ft



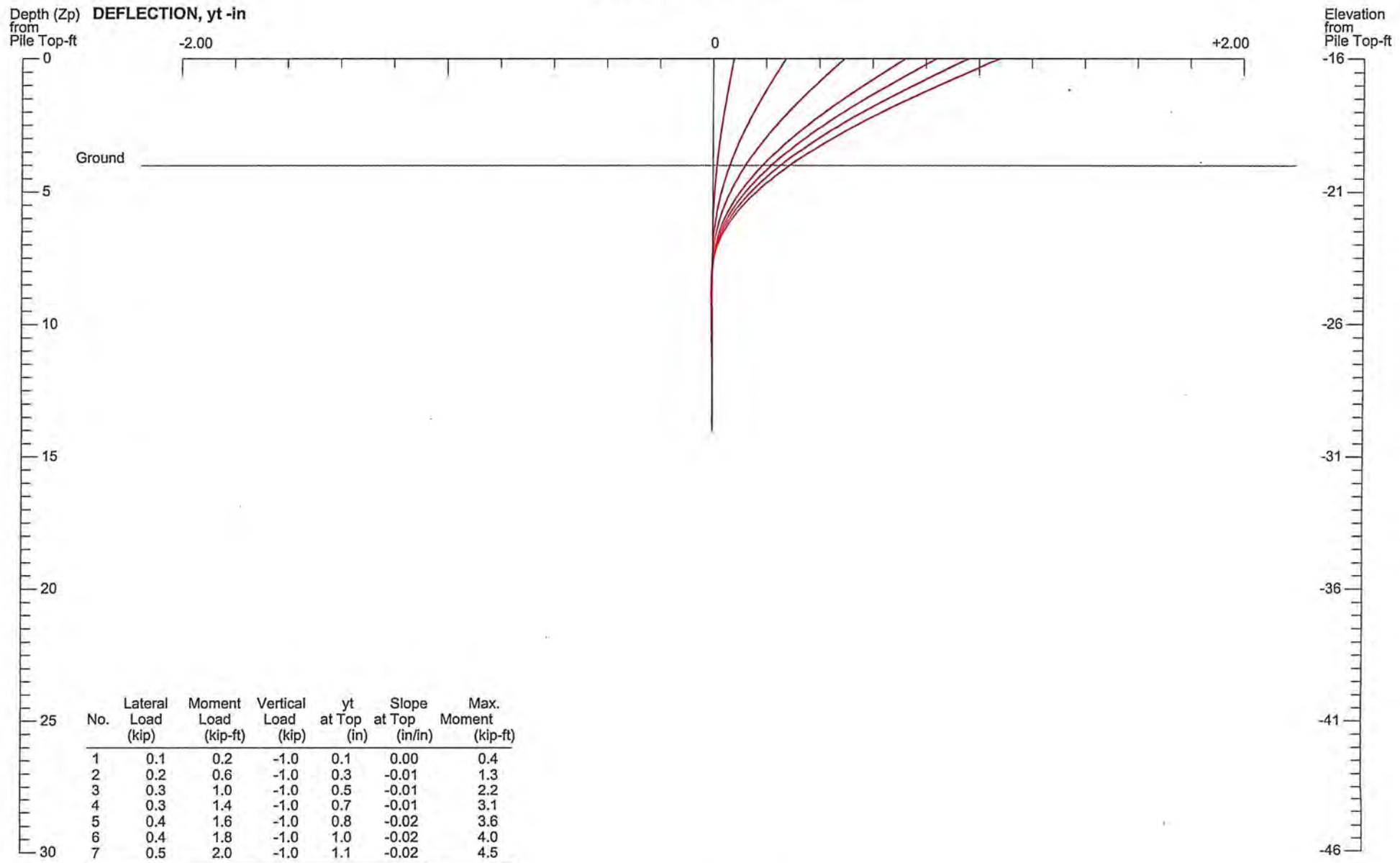
Side Resistance vs. Relative Movement between Soil and Shaft (t-z)



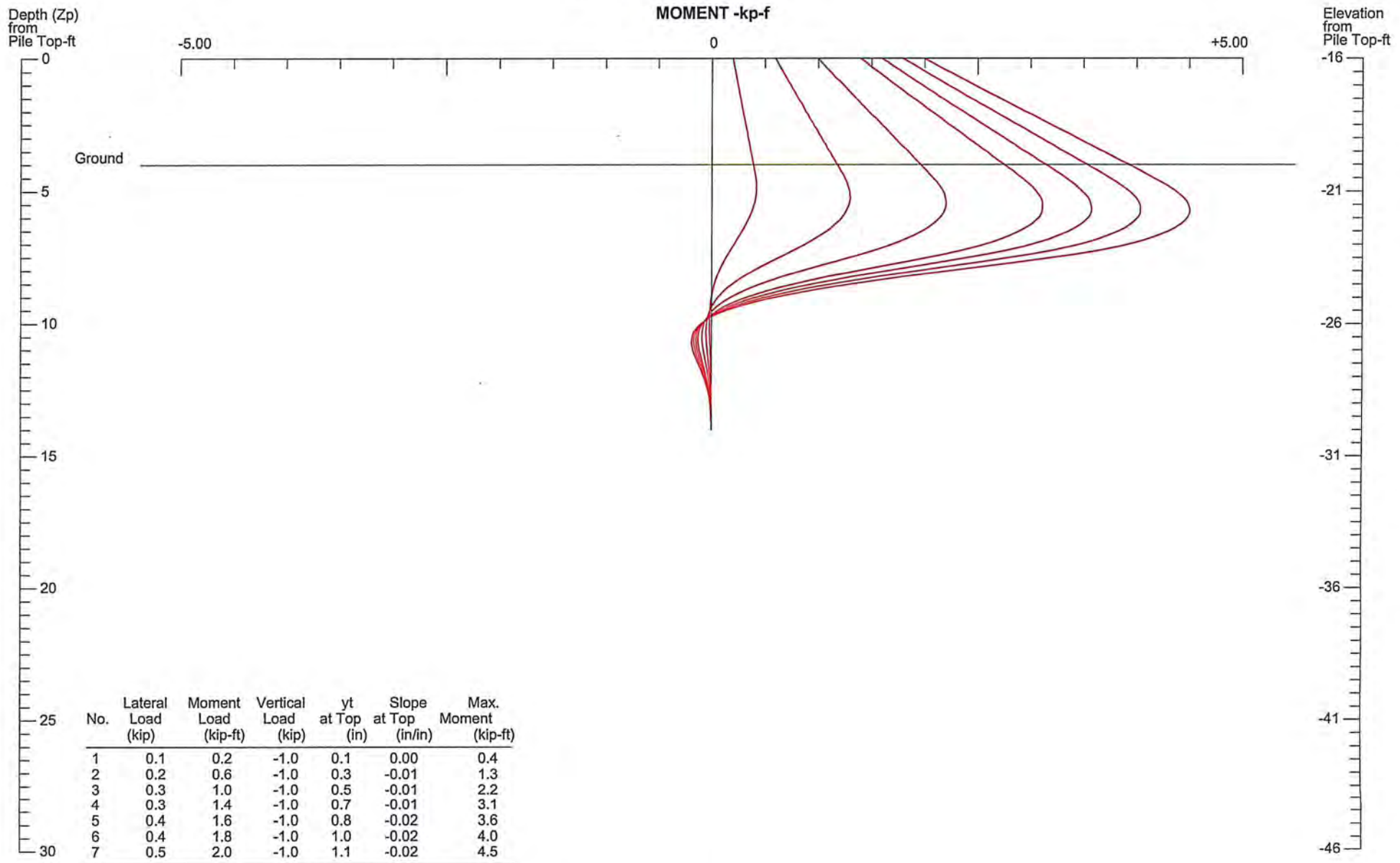
Soil Depth (Z_s): 1.3, 2.5, 3.8, 5.0, 6.3, 7.5, 8.8 -ft



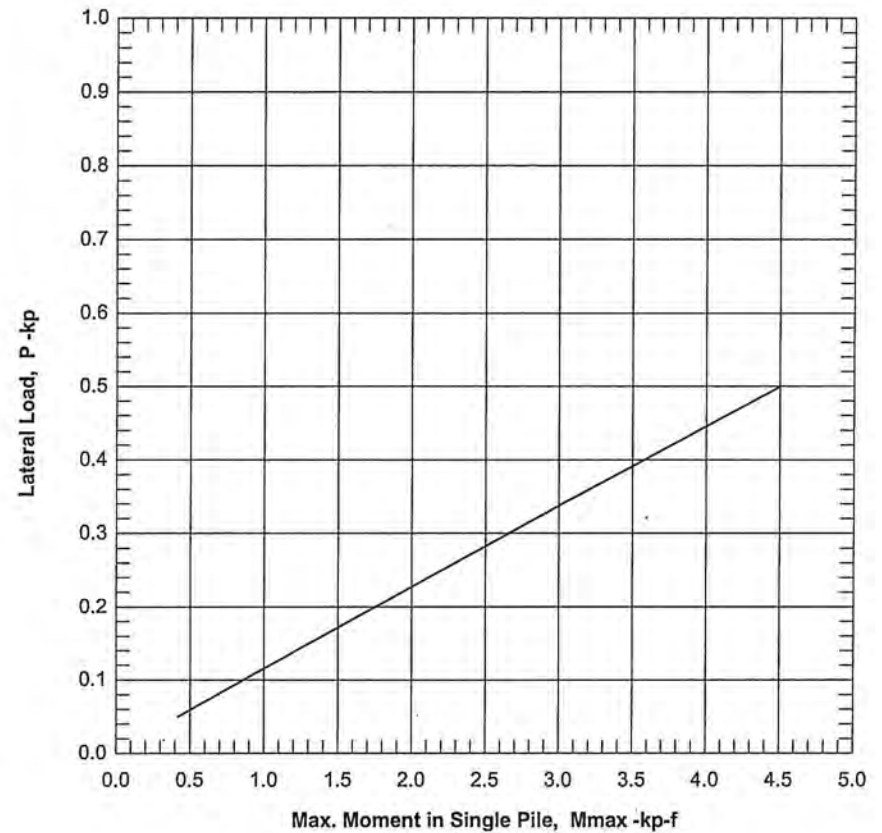
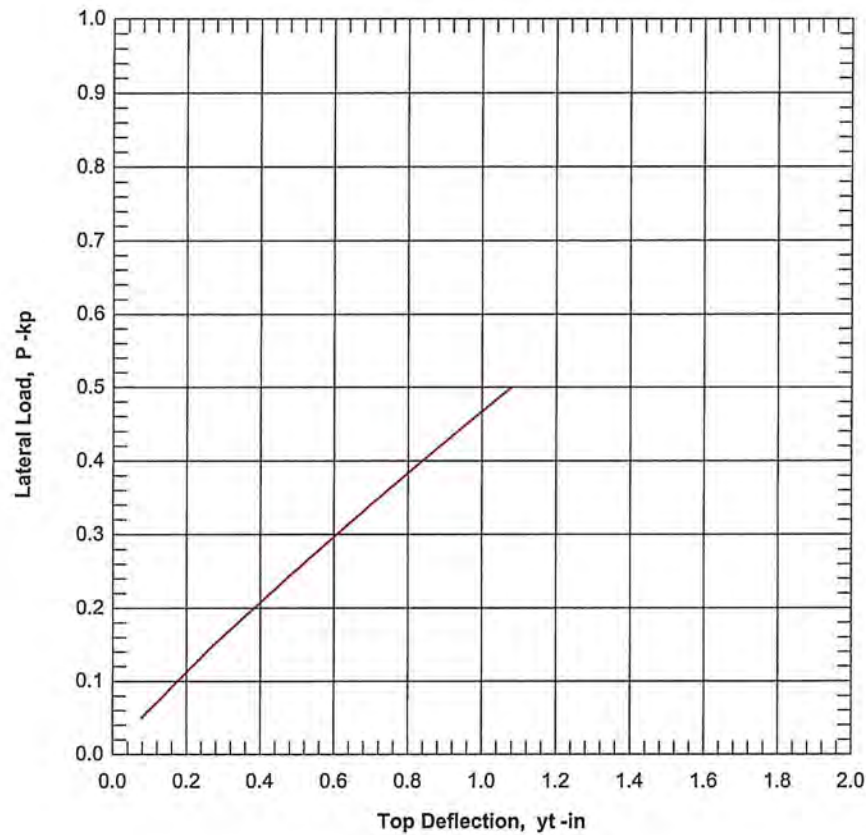
PILE DEFLECTION vs LOADING Single Pile, Khead=1, Kbc=1



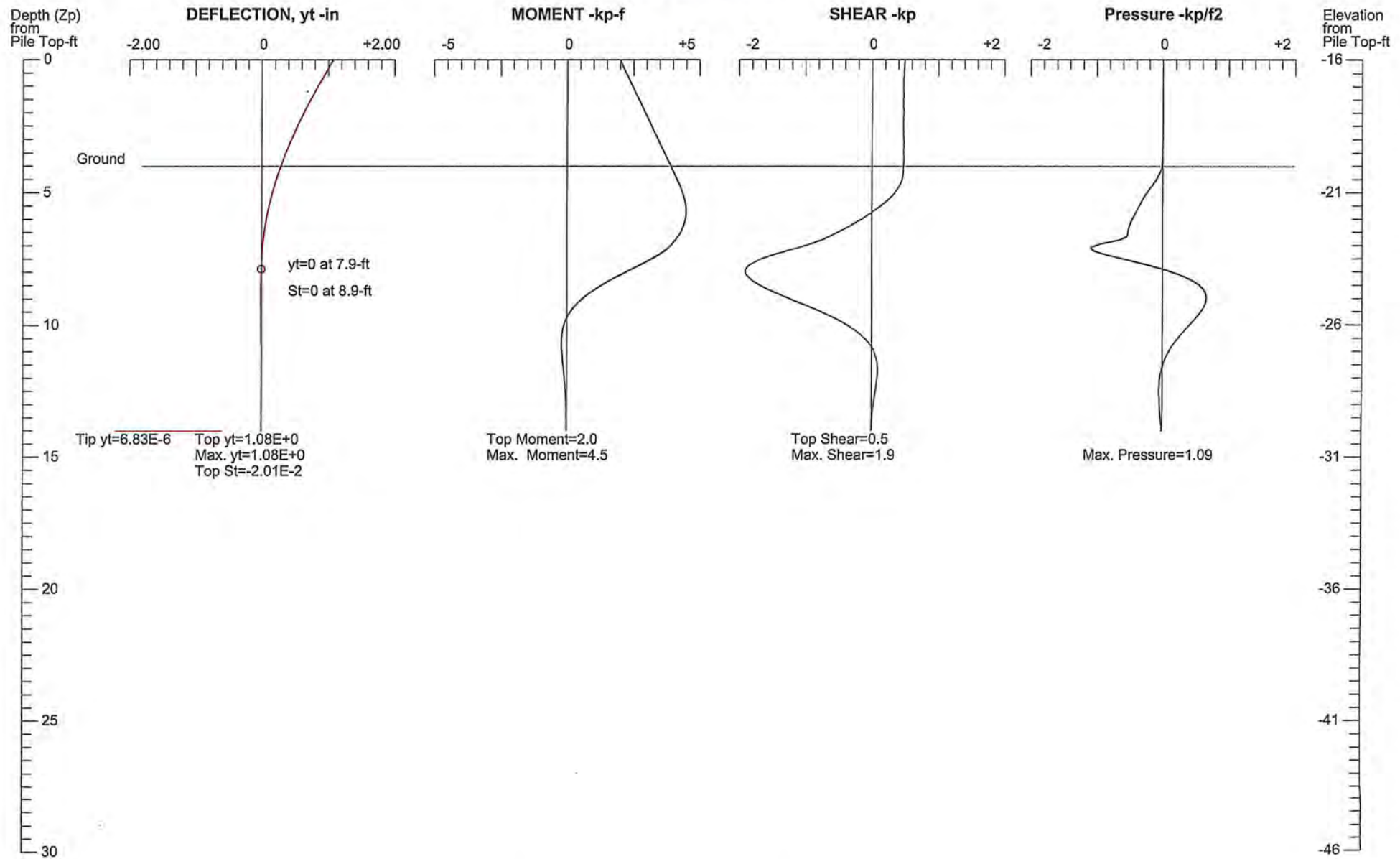
PILE MOMENT vs LOADING Single Pile, Khead=1, Kbc=1



LATERAL LOAD vs DEFLECTION & MAX. MOMENT

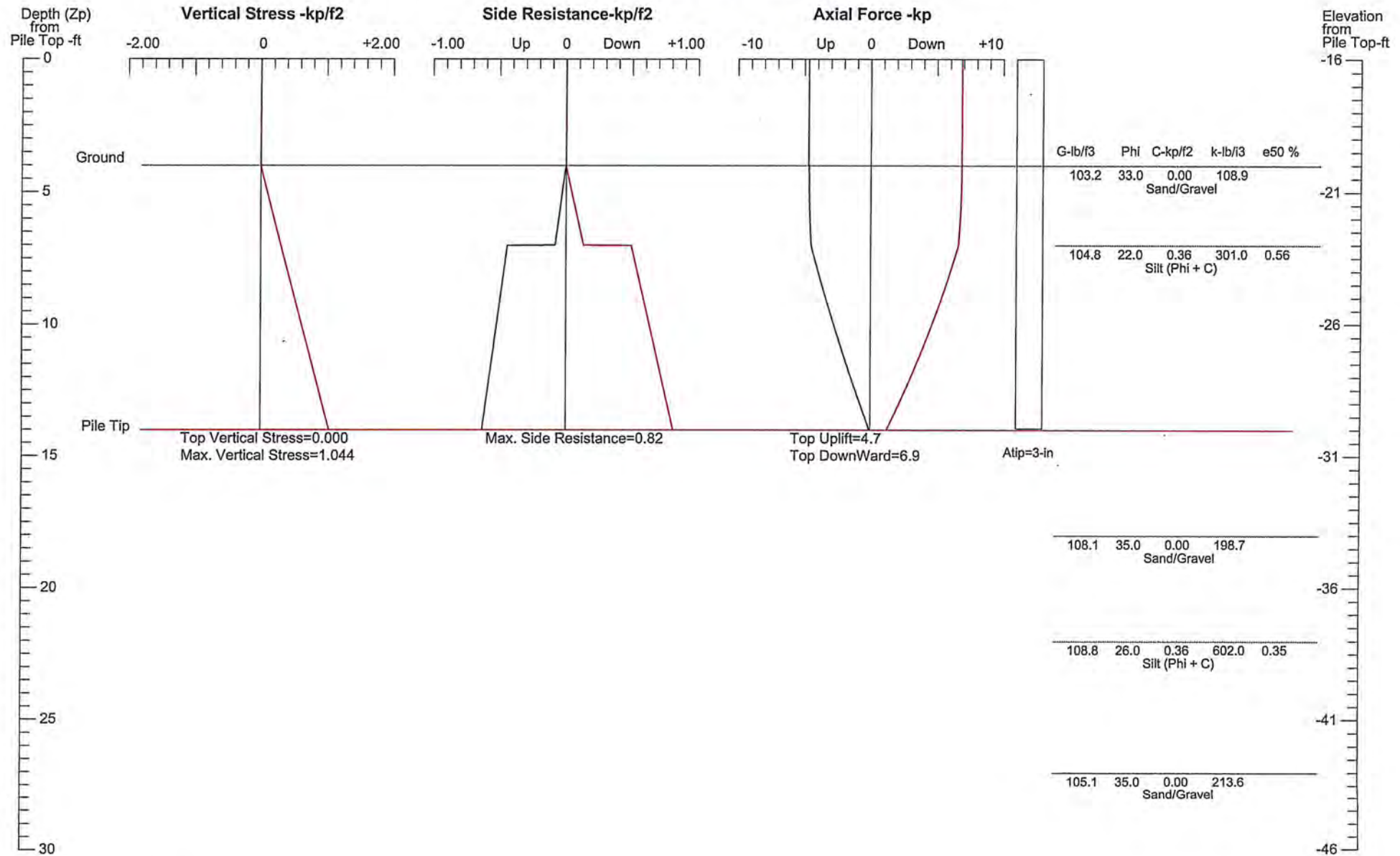


PILE DEFLECTION & FORCE vs DEPTH Single Pile, Khead=1, Kbc=1



SOIL STRESS, SIDE RESISTANCE, & AXIAL FORCE vs DEPTH

Based on Ultimate Load Condition



**CivilTech
Software**

332-12 Regenerate Power - Seville Solar
4 Inch Diam Nominal PP - Closed Ended - Schedule 40 Steel - Free Head

Figure 1

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