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	Client: Stealth (R)	Designed by: sbushnell

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
0.9 Dead+1.0 Wind 135 deg - No Ice	42047.33	84431.92	84431.92	5541946.60	-5541946.60	0.00
1.2 Dead+1.0 Wind 180 deg - No Ice	56062.99	0.00	119401.50	7853524.59	0.00	0.00
0.9 Dead+1.0 Wind 180 deg - No Ice	42047.24	0.00	119402.38	7837304.81	0.00	0.00
1.2 Dead+1.0 Wind 225 deg - No Ice	56063.11	-84431.92	84431.92	5553468.53	5553468.53	0.00
0.9 Dead+1.0 Wind 225 deg - No Ice	42047.33	-84431.92	84431.92	5541946.60	5541946.60	0.00
1.2 Dead+1.0 Wind 270 deg - No Ice	56062.99	-119401.50	0.00	0.00	7853524.59	0.00
0.9 Dead+1.0 Wind 270 deg - No Ice	42047.24	-119402.38	0.00	0.00	7837304.81	0.00
1.2 Dead+1.0 Wind 315 deg - No Ice	56063.11	-84431.92	-84431.92	-5553468.53	5553468.53	0.00
0.9 Dead+1.0 Wind 315 deg - No Ice	42047.33	-84431.92	-84431.92	-5541946.60	5541946.60	0.00
1.2 Dead+1.0 Ice+1.0 Temp	165690.93	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	165690.93	0.00	-5278.62	-352250.09	0.00	0.00
1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp	165690.93	3732.55	-3732.55	-249078.43	-249078.43	0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	165690.93	5278.62	0.00	0.00	-352250.09	0.00
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp	165690.93	3732.55	3732.55	249078.43	-249078.43	0.00
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	165690.93	0.00	5278.62	352250.09	0.00	0.00
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp	165690.93	-3732.55	3732.55	249078.43	249078.43	0.00
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	165690.93	-5278.62	0.00	0.00	352250.09	0.00
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp	165690.93	-3732.55	-3732.55	-249078.43	249078.43	0.00
Dead+Wind 0 deg - Service	46719.25	0.00	-13790.38	-906286.36	0.00	0.00
Dead+Wind 45 deg - Service	46719.23	9750.26	-9750.26	-640760.45	-640760.45	0.00
Dead+Wind 90 deg - Service	46719.25	13790.38	0.00	0.00	-906286.36	0.00
Dead+Wind 135 deg - Service	46719.23	9750.26	9750.26	640760.45	-640760.45	0.00
Dead+Wind 180 deg - Service	46719.25	0.00	13790.38	906286.36	0.00	0.00
Dead+Wind 225 deg - Service	46719.23	-9750.26	9750.26	640760.45	640760.45	0.00
Dead+Wind 270 deg - Service	46719.25	-13790.38	0.00	0.00	906286.36	0.00
Dead+Wind 315 deg - Service	46719.23	-9750.26	-9750.26	-640760.45	640760.45	0.00

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-46719.26	0.00	0.00	46719.26	0.00	0.000%
2	0.00	-56063.11	-119404.77	0.00	56062.99	119401.50	0.002%
3	0.00	-42047.33	-119404.77	0.00	42047.24	119402.38	0.002%
4	84431.92	-56063.11	-84431.92	-84431.92	56063.11	84431.92	0.000%
5	84431.92	-42047.33	-84431.92	-84431.92	42047.33	84431.92	0.000%
6	119404.77	-56063.11	0.00	-119401.50	56062.99	0.00	0.002%
7	119404.77	-42047.33	0.00	-119402.38	42047.24	0.00	0.002%
8	84431.92	-56063.11	84431.92	-84431.92	56063.11	-84431.92	0.000%
9	84431.92	-42047.33	84431.92	-84431.92	42047.33	-84431.92	0.000%

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	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
10	0.00	-56063.11	119404.77	0.00	56062.99	-119401.50	0.002%
11	0.00	-42047.33	119404.77	0.00	42047.24	-119402.38	0.002%
12	-84431.92	-56063.11	84431.92	84431.92	56063.11	-84431.92	0.000%
13	-84431.92	-42047.33	84431.92	84431.92	42047.33	-84431.92	0.000%
14	-119404.77	-56063.11	0.00	119401.50	56062.99	0.00	0.002%
15	-119404.77	-42047.33	0.00	119402.38	42047.24	0.00	0.002%
16	-84431.92	-56063.11	-84431.92	84431.92	56063.11	84431.92	0.000%
17	-84431.92	-42047.33	-84431.92	84431.92	42047.33	84431.92	0.000%
18	0.00	-165690.93	0.00	0.00	165690.93	0.00	0.000%
19	0.00	-165690.93	-5278.70	0.00	165690.93	5278.62	0.000%
20	3732.61	-165690.93	-3732.61	-3732.55	165690.93	3732.55	0.000%
21	5278.70	-165690.93	0.00	-5278.62	165690.93	0.00	0.000%
22	3732.61	-165690.93	3732.61	-3732.55	165690.93	-3732.55	0.000%
23	0.00	-165690.93	5278.70	0.00	165690.93	-5278.62	0.000%
24	-3732.61	-165690.93	3732.61	3732.55	165690.93	-3732.55	0.000%
25	-5278.70	-165690.93	0.00	5278.62	165690.93	0.00	0.000%
26	-3732.61	-165690.93	-3732.61	3732.55	165690.93	3732.55	0.000%
27	0.00	-46719.26	-13790.71	0.00	46719.25	13790.38	0.001%
28	9751.50	-46719.26	-9751.50	-9750.26	46719.23	9750.26	0.004%
29	13790.71	-46719.26	0.00	-13790.38	46719.25	0.00	0.001%
30	9751.50	-46719.26	9751.50	-9750.26	46719.23	-9750.26	0.004%
31	0.00	-46719.26	13790.71	0.00	46719.25	-13790.38	0.001%
32	-9751.50	-46719.26	9751.50	9750.26	46719.23	-9750.26	0.004%
33	-13790.71	-46719.26	0.00	13790.38	46719.25	0.00	0.001%
34	-9751.50	-46719.26	-9751.50	9750.26	46719.23	9750.26	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	8	0.00000001	0.00010255
3	Yes	8	0.00000001	0.00008436
4	Yes	11	0.00000001	0.00004365
5	Yes	11	0.00000001	0.00003116
6	Yes	8	0.00000001	0.00010255
7	Yes	8	0.00000001	0.00008436
8	Yes	11	0.00000001	0.00004365
9	Yes	11	0.00000001	0.00003116
10	Yes	8	0.00000001	0.00010255
11	Yes	8	0.00000001	0.00008436
12	Yes	11	0.00000001	0.00004365
13	Yes	11	0.00000001	0.00003116
14	Yes	8	0.00000001	0.00010255
15	Yes	8	0.00000001	0.00008436
16	Yes	11	0.00000001	0.00004365
17	Yes	11	0.00000001	0.00003116
18	Yes	6	0.00000001	0.00000001
19	Yes	9	0.00000001	0.00009103
20	Yes	9	0.00000001	0.00009159
21	Yes	9	0.00000001	0.00009103
22	Yes	9	0.00000001	0.00009159
23	Yes	9	0.00000001	0.00009103
24	Yes	9	0.00000001	0.00009159
25	Yes	9	0.00000001	0.00009103
26	Yes	9	0.00000001	0.00009159

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27	Yes	8	0.00000001	0.00003449
28	Yes	7	0.00000001	0.00012564
29	Yes	8	0.00000001	0.00003449
30	Yes	7	0.00000001	0.00012564
31	Yes	8	0.00000001	0.00003449
32	Yes	7	0.00000001	0.00012564
33	Yes	8	0.00000001	0.00003449
34	Yes	7	0.00000001	0.00012564

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	100 - 80	5.164	29	0.4254	0.0000
L2	80 - 60	3.413	29	0.3939	0.0000
L3	60 - 35	1.922	29	0.3063	0.0000
L4	41.25 - 1	0.914	29	0.2014	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
98.80	(6) 4 ft branches	29	5.057	0.4243	0.0000	68767
95.00	12'-6" T-arm EPA = 6.83 ft^2 (190 lbs)	29	4.716	0.4206	0.0000	68767
92.40	(25) 6 ft branches	29	4.484	0.4177	0.0000	45242
85.00	12'-6" T-arm EPA = 6.83 ft^2 (190 lbs)	29	3.836	0.4061	0.0000	22922
82.00	(26) 6 ft branches	29	3.581	0.3993	0.0000	19185
75.00	12'-6" T-arm EPA = 6.83 ft^2 (190 lbs)	29	3.008	0.3772	0.0000	15056
71.60	(25) 8 ft branches	29	2.744	0.3634	0.0000	13884
65.00	12'-6" T-arm EPA = 6.83 ft^2 (190 lbs)	29	2.260	0.3325	0.0000	12060
61.20	(26) 8 ft branches	29	2.000	0.3128	0.0000	11225
55.00	12'-6" T-arm EPA = 6.83 ft^2 (190 lbs)	29	1.611	0.2788	0.0000	10197
45.40	(51) 10 ft branches	29	1.098	0.2246	0.0000	8985
45.00	12'-6" T-arm EPA = 6.83 ft^2 (190 lbs)	29	1.079	0.2223	0.0000	8943

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	100 - 80	44.735	2	3.6865	0.0000
L2	80 - 60	29.572	2	3.4136	0.0000
L3	60 - 35	16.650	2	2.6548	0.0000

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L4	41.25 - 1	7.919	2	1.7455	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
98.80	(6) 4 ft branches	2	43.801	3.6770	0.0000	8002
95.00	12'-6" T-arm EPA = 6.83 ft^2 (190 lbs)	2	40.850	3.6450	0.0000	8002
92.40	(25) 6 ft branches	2	38.843	3.6198	0.0000	5264
85.00	12'-6" T-arm EPA = 6.83 ft^2 (190 lbs)	2	33.231	3.5192	0.0000	2666
82.00	(26) 6 ft branches	2	31.020	3.4603	0.0000	2231
75.00	12'-6" T-arm EPA = 6.83 ft^2 (190 lbs)	2	26.062	3.2684	0.0000	1749
71.60	(25) 8 ft branches	2	23.772	3.1492	0.0000	1612
65.00	12'-6" T-arm EPA = 6.83 ft^2 (190 lbs)	2	19.579	2.8812	0.0000	1399
61.20	(26) 8 ft branches	2	17.332	2.7105	0.0000	1301
55.00	12'-6" T-arm EPA = 6.83 ft^2 (190 lbs)	2	13.957	2.4166	0.0000	1181
45.40	(51) 10 ft branches	2	9.516	1.9464	0.0000	1039
45.00	12'-6" T-arm EPA = 6.83 ft^2 (190 lbs)	2	9.353	1.9269	0.0000	1034

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	100 - 99	TP32x32x0.1875	20.00	0.00	0.0	18.9324	-80.49	1161080.00	0.000
	99 - 98					18.9324	-163.72	1161080.00	0.000
	98 - 97					18.9324	-244.21	1161080.00	0.000
	97 - 96					18.9324	-324.71	1161080.00	0.000
	96 - 95					18.9324	-405.23	1161080.00	0.000
	95 - 94					18.9324	-2648.77	1161080.00	0.002
	94 - 93					18.9324	-2729.80	1161080.00	0.002
	93 - 92					18.9324	-2856.49	1161080.00	0.002
	92 - 91					18.9324	-2939.04	1161080.00	0.003
	91 - 90					18.9324	-3022.48	1161080.00	0.003
	90 - 89					18.9324	-3106.82	1161080.00	0.003
	89 - 88					18.9324	-3192.11	1161080.00	0.003
	88 - 87					18.9324	-3278.37	1161080.00	0.003
	87 - 86					18.9324	-3365.63	1161080.00	0.003
	86 - 85					18.9324	-3453.91	1161080.00	0.003
	85 - 84					18.9324	-5744.44	1161080.00	0.005
	84 - 83					18.9324	-5840.25	1161080.00	0.005

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	Client: Stealth (R)	Designed by: sbushnell

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
	83 - 82					18.9324	-5938.36	1161080.00	0.005
	82 - 81					18.9324	-6117.99	1161080.00	0.005
	81 - 80					18.9324	-6225.98	1161080.00	0.005
L2	80 - 79	TP38x32x0.375	20.00	0.00	0.0	37.9987	-6435.16	2823120.00	0.002
	79 - 78					38.3558	-6639.52	2849640.00	0.002
	78 - 77					38.7129	-6846.52	2876170.00	0.002
	77 - 76					39.0700	-7055.63	2902700.00	0.002
	76 - 75					39.4270	-7267.75	2929230.00	0.002
	75 - 74					39.7841	-9753.80	2955760.00	0.003
	74 - 73					40.1412	-9976.91	2982290.00	0.003
	73 - 72					40.4983	-10203.10	3008820.00	0.003
	72 - 71					40.8553	-10635.50	3035350.00	0.004
	71 - 70					41.2124	-10873.10	3061880.00	0.004
	70 - 69					41.5695	-11114.20	3088400.00	0.004
	69 - 68					41.9266	-11358.70	3114930.00	0.004
	68 - 67					42.2836	-11606.50	3141460.00	0.004
	67 - 66					42.6407	-11857.60	3167990.00	0.004
	66 - 65					42.9978	-12111.70	3194520.00	0.004
	65 - 64					43.3549	-14450.90	3221050.00	0.004
	64 - 63					43.7119	-14717.40	3247580.00	0.005
	63 - 62					44.0690	-14987.40	3274110.00	0.005
	62 - 61					44.4261	-15548.00	3300640.00	0.005
	61 - 60					44.7832	-15832.30	3324900.00	0.005
L3	60 - 58.9583	TP45.5x38x0.5	25.00	0.00	0.0	60.0084	-16216.20	4458330.00	0.004
	58.9583 - 57.9167					60.5044	-16597.10	4495170.00	0.004
	57.9167 - 56.875					61.0003	-16981.90	4532020.00	0.004
	56.875 - 55.8333					61.4963	-17370.50	4568860.00	0.004
	55.8333 - 54.7917					61.9922	-19907.10	4605710.00	0.004
	54.7917 - 53.75					62.4881	-20308.60	4642560.00	0.004
	53.75 - 52.7083					62.9841	-20714.10	4679400.00	0.004
	52.7083 - 51.6667					63.4800	-21123.30	4716250.00	0.004
	51.6667 - 50.625					63.9759	-21536.40	4753090.00	0.005
	50.625 - 49.5833					64.4719	-21953.10	4789940.00	0.005
	49.5833 - 48.5417					64.9678	-22373.40	4826780.00	0.005
	48.5417 - 47.5					65.4638	-22797.20	4863630.00	0.005
	47.5 - 46.4583					65.9597	-23224.60	4900480.00	0.005
	46.4583 - 45.4167					66.4556	-23655.30	4937320.00	0.005
	45.4167 - 44.375					66.9516	-27380.30	4974170.00	0.006
	44.375 - 43.3333					67.4475	-27843.10	5011010.00	0.006
	43.3333 - 42.2917					67.9434	-28310.30	5047860.00	0.006
	42.2917 - 41.25					68.4394	-28782.00	5084700.00	0.006
	41.25 - 35					71.4150	-13869.20	5305780.00	0.003
L4	41.25 - 35	TP54.7x42.625x0.75	40.25	0.00	0.0	104.1470	-19913.10	7737590.00	0.003
	35 - 33.2105					105.425	-34923.00	7832540.00	0.004

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Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
						0			
	33.2105 - 31.4211					106.703	-35996.90	7927480.00	0.005
						0			
	31.4211 - 29.6316					107.981	-37083.00	8022430.00	0.005
						0			
	29.6316 - 27.8421					109.259	-38181.10	8117370.00	0.005
						0			
	27.8421 - 26.0526					110.537	-39291.10	8212320.00	0.005
						0			
	26.0526 - 24.2632					111.815	-40412.60	8307270.00	0.005
						0			
	24.2632 - 22.4737					113.093	-41545.60	8402210.00	0.005
						0			
	22.4737 - 20.6842					114.370	-42689.80	8497160.00	0.005
						0			
	20.6842 - 18.8947					115.648	-43845.00	8592100.00	0.005
						0			
	18.8947 - 17.1053					116.926	-45011.10	8687050.00	0.005
						0			
	17.1053 - 15.3158					118.204	-46188.00	8781990.00	0.005
						0			
	15.3158 - 13.5263					119.482	-47375.40	8876940.00	0.005
						0			
	13.5263 - 11.7368					120.760	-48573.30	8971880.00	0.005
						0			
	11.7368 - 9.94737					122.038	-49781.60	9066830.00	0.005
						0			
	9.94737 - 8.15789					123.316	-51000.10	9161770.00	0.006
						0			
	8.15789 - 6.36842					124.594	-52228.70	9256720.00	0.006
						0			
	6.36842 - 4.57895					125.872	-53467.30	9351670.00	0.006
						0			
	4.57895 - 2.78947					127.150	-54715.90	9446610.00	0.006
						0			
	2.78947 - 1					128.428	-55974.40	9541560.00	0.006
						0			

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	100 - 99	TP32x32x0.1875	84.33	761025.83	0.000	0.00	761025.83	0.000
	99 - 98		1287.71	761025.83	0.002	0.00	761025.83	0.000
	98 - 97		2897.28	761025.83	0.004	0.00	761025.83	0.000
	97 - 96		4674.92	761025.83	0.006	0.00	761025.83	0.000
	96 - 95		6620.63	761025.83	0.009	0.00	761025.83	0.000
	95 - 94		19587.08	761025.83	0.026	0.00	761025.83	0.000
	94 - 93		32721.50	761025.83	0.043	0.00	761025.83	0.000
	93 - 92		48735.50	761025.83	0.064	0.00	761025.83	0.000
	92 - 91		68983.25	761025.83	0.091	0.00	761025.83	0.000
	91 - 90		89398.33	761025.83	0.117	0.00	761025.83	0.000
	90 - 89		109981.67	761025.83	0.145	0.00	761025.83	0.000
	89 - 88		130731.67	761025.83	0.172	0.00	761025.83	0.000
	88 - 87		151649.17	761025.83	0.199	0.00	761025.83	0.000

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Vector Structural Engineering, LLC 9138 S. State St. Ste 101 Sandy, Utah 84070 Phone: (801) 990-1775 FAX: (801) 990-1775	Project: U0142-870-163	Date: 14:19:18 08/17/16
	Client: Stealth (R)	Designed by: sbushnell

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	87 - 86		172733.33	761025.83	0.227	0.00	761025.83	0.000
	86 - 85		193984.17	761025.83	0.255	0.00	761025.83	0.000
	85 - 84		226002.50	761025.83	0.297	0.00	761025.83	0.000
	84 - 83		258186.67	761025.83	0.339	0.00	761025.83	0.000
	83 - 82		290535.00	761025.83	0.382	0.00	761025.83	0.000
	82 - 81		329985.00	761025.83	0.434	0.00	761025.83	0.000
	81 - 80		369597.50	761025.83	0.486	0.00	761025.83	0.000
L2	80 - 79	TP38x32x0.375	409351.67	1846208.33	0.222	0.00	1846208.33	0.000
	79 - 78		449290.83	1881275.00	0.239	0.00	1881275.00	0.000
	78 - 77		489394.17	1916666.67	0.255	0.00	1916666.67	0.000
	77 - 76		529692.50	1952391.67	0.271	0.00	1952391.67	0.000
	76 - 75		570132.50	1988441.67	0.287	0.00	1988441.67	0.000
	75 - 74		621038.33	2024825.00	0.307	0.00	2024825.00	0.000
	74 - 73		672143.33	2061541.67	0.326	0.00	2061541.67	0.000
	73 - 72		723417.50	2098583.33	0.345	0.00	2098583.33	0.000
	72 - 71		779824.17	2135958.33	0.365	0.00	2135958.33	0.000
	71 - 70		839708.33	2173658.33	0.386	0.00	2173658.33	0.000
	70 - 69		899766.67	2211691.67	0.407	0.00	2211691.67	0.000
	69 - 68		960000.00	2250058.33	0.427	0.00	2250058.33	0.000
	68 - 67		1020408.33	2288750.00	0.446	0.00	2288750.00	0.000
	67 - 66		1080991.67	2327775.00	0.464	0.00	2327775.00	0.000
	66 - 65		1141750.00	2367125.00	0.482	0.00	2367125.00	0.000
	65 - 64		1209825.00	2406808.33	0.503	0.00	2406808.33	0.000
	64 - 63		1278075.00	2446816.67	0.522	0.00	2446816.67	0.000
	63 - 62		1346500.00	2487158.33	0.541	0.00	2487158.33	0.000
	62 - 61		1416783.33	2527833.33	0.560	0.00	2527833.33	0.000
	61 - 60		1493941.67	2567083.33	0.582	0.00	2567083.33	0.000
L3	60 - 58.9583	TP45.5x38x0.5	1574566.67	3448216.67	0.457	0.00	3448216.67	0.000
	58.9583 - 57.9167		1655316.67	3505825.00	0.472	0.00	3505825.00	0.000
	57.9167 - 56.875		1736258.33	3563908.33	0.487	0.00	3563908.33	0.000
	56.875 - 55.8333		1817383.33	3622466.67	0.502	0.00	3622466.67	0.000
	55.8333 - 54.7917		1900133.33	3681508.33	0.516	0.00	3681508.33	0.000
	54.7917 - 53.75		1988825.00	3741016.67	0.532	0.00	3741016.67	0.000
	53.75 - 52.7083		2077700.00	3801008.33	0.547	0.00	3801008.33	0.000
	52.7083 - 51.6667		2166766.67	3861483.33	0.561	0.00	3861483.33	0.000
	51.6667 - 50.625		2256025.00	3922425.00	0.575	0.00	3922425.00	0.000
	50.625 - 49.5833		2345466.67	3983850.00	0.589	0.00	3983850.00	0.000
	49.5833 - 48.5417		2435100.00	4045750.00	0.602	0.00	4045750.00	0.000
	48.5417 - 47.5		2524933.33	4108133.33	0.615	0.00	4108133.33	0.000
	47.5 - 46.4583		2614950.00	4170991.67	0.627	0.00	4170991.67	0.000
	46.4583 - 45.4167		2705158.33	4234316.67	0.639	0.00	4234316.67	0.000
	45.4167 - 44.375		2818891.67	4298133.33	0.656	0.00	4298133.33	0.000
	44.375 - 43.3333		2935983.33	4362416.67	0.673	0.00	4362416.67	0.000
	43.3333 - 42.2917		3053266.67	4427183.33	0.690	0.00	4427183.33	0.000
	42.2917 - 41.25		3170741.67	4492425.00	0.706	0.00	4492425.00	0.000

tnxTower	Job: Kenai	Page: 24 of 30
Vector Structural Engineering, LLC 9138 S. State St. Ste 101 Sandy, Utah 84070 Phone: (801) 990-1775 FAX: (801) 990-1775	Project: U0142-870-163	Date: 14:19:18 08/17/16
	Client: Stealth (R)	Designed by: sbushnell

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	41.25 - 35		1633433.33	4893900.00	0.334	0.00	4893900.00	0.000
L4	41.25 - 35	TP54.7x42.625x0.75	2246775.00	6897541.33	0.326	0.00	6897541.33	0.000
	35 - 33.2105		4084916.67	7069300.00	0.578	0.00	7069300.00	0.000
	33.2105 - 31.4211		4290008.33	7243174.67	0.592	0.00	7243174.67	0.000
	31.4211 - 29.6316		4495633.33	7419158.00	0.606	0.00	7419158.00	0.000
	29.6316 - 27.8421		4701783.33	7597250.00	0.619	0.00	7597250.00	0.000
	27.8421 - 26.0526		4908458.33	7777458.00	0.631	0.00	7777458.00	0.000
	26.0526 - 24.2632		5115641.67	7959783.33	0.643	0.00	7959783.33	0.000
	24.2632 - 22.4737		5323341.67	8144216.67	0.654	0.00	8144216.67	0.000
	22.4737 - 20.6842		5531541.67	8330758.00	0.664	0.00	8330758.00	0.000
	20.6842 - 18.8947		5740250.00	8519416.67	0.674	0.00	8519416.67	0.000
	18.8947 - 17.1053		5949450.00	8710166.67	0.683	0.00	8710166.67	0.000
	17.1053 - 15.3158		6159141.33	8903083.33	0.692	0.00	8903083.33	0.000
	15.3158 - 13.5263		6369324.67	9098083.33	0.700	0.00	9098083.33	0.000
	13.5263 - 11.7368		6579983.33	9295166.67	0.708	0.00	9295166.67	0.000
	11.7368 - 9.94737		6791124.67	9494416.67	0.715	0.00	9494416.67	0.000
	9.94737 - 8.15789		7002733.33	9695750.00	0.722	0.00	9695750.00	0.000
	8.15789 - 6.36842		7214808.00	9899166.67	0.729	0.00	9899166.67	0.000
	6.36842 - 4.57895		7427350.00	10104750.00	0.735	0.00	10104750.00	0.000
	4.57895 - 2.78947		7640341.33	10312416.67	0.741	0.00	10312416.67	0.000
	2.78947 - 1		7853791.33	10522250.00	0.746	0.00	10522250.00	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	100 - 99	TP32x32x0.1875	168.65	580539.00	0.000	0.00	1523916.67	0.000
	99 - 98		1526.11	580539.00	0.003	0.00	1523916.67	0.000
	98 - 97		1694.18	580539.00	0.003	0.00	1523916.67	0.000
	97 - 96		1862.26	580539.00	0.003	0.00	1523916.67	0.000
	96 - 95		2030.33	580539.00	0.003	0.00	1523916.67	0.000
	95 - 94		13051.10	580539.00	0.022	0.00	1523916.67	0.000
	94 - 93		13219.00	580539.00	0.023	0.00	1523916.67	0.000
	93 - 92		20164.50	580539.00	0.035	0.00	1523916.67	0.000
	92 - 91		20332.30	580539.00	0.035	0.00	1523916.67	0.000
	91 - 90		20499.90	580539.00	0.035	0.00	1523916.67	0.000
	90 - 89		20667.40	580539.00	0.036	0.00	1523916.67	0.000
	89 - 88		20834.70	580539.00	0.036	0.00	1523916.67	0.000

tnxTower	Job: Kenai	Page: 25 of 30
Vector Structural Engineering, LLC 9138 S. State St. Ste 101 Sandy, Utah 84070 Phone: (801) 990-1775 FAX: (801) 990-1775	Project: U0142-870-163	Date: 14:19:18 08/17/16
	Client: Stealth (R)	Designed by: sbushnell

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
	88 - 87		21001.80	580539.00	0.036	0.00	1523916.67	0.000
	87 - 86		21168.80	580539.00	0.036	0.00	1523916.67	0.000
	86 - 85		21335.50	580539.00	0.037	0.00	1523916.67	0.000
	85 - 84		32103.20	580539.00	0.055	0.00	1523916.67	0.000
	84 - 83		32268.30	580539.00	0.056	0.00	1523916.67	0.000
	83 - 82		32433.10	580539.00	0.056	0.00	1523916.67	0.000
	82 - 81		39533.80	580539.00	0.068	0.00	1523916.67	0.000
	81 - 80		39697.30	580539.00	0.068	0.00	1523916.67	0.000
L2	80 - 79	TP38x32x0.375	39858.30	1398290.00	0.029	0.00	3696933.33	0.000
	79 - 78		40023.10	1411560.00	0.028	0.00	3767141.67	0.000
	78 - 77		40189.20	1424820.00	0.028	0.00	3838016.67	0.000
	77 - 76		40358.50	1451350.00	0.028	0.00	3909550.00	0.000
	76 - 75		40526.90	1464620.00	0.028	0.00	3981750.00	0.000
	75 - 74		51023.90	1464620.00	0.035	0.00	4054608.33	0.000
	74 - 73		51193.20	1477880.00	0.035	0.00	4128125.00	0.000
	73 - 72		51363.50	1491140.00	0.034	0.00	4202300.00	0.000
	72 - 71		59805.60	1504410.00	0.040	0.00	4277141.67	0.000
	71 - 70		59977.70	1517670.00	0.040	0.00	4352633.33	0.000
	70 - 69		60150.70	1530940.00	0.039	0.00	4428791.67	0.000
	69 - 68		60324.60	1544200.00	0.039	0.00	4505616.67	0.000
	68 - 67		60499.40	1557470.00	0.039	0.00	4583091.67	0.000
	67 - 66		60675.10	1570730.00	0.039	0.00	4661233.33	0.000
	66 - 65		60851.70	1584000.00	0.038	0.00	4740033.33	0.000
	65 - 64		68170.10	1597260.00	0.043	0.00	4819500.00	0.000
	64 - 63		68346.60	1610520.00	0.042	0.00	4899625.00	0.000
	63 - 62		68523.90	1623790.00	0.042	0.00	4980408.33	0.000
	62 - 61		77078.50	1637050.00	0.047	0.00	5061850.00	0.000
	61 - 60		77257.00	1650320.00	0.047	0.00	5140450.00	0.000
L3	60 - 58.9583	TP45.5x38x0.5	77436.80	2229160.00	0.035	0.00	6904866.67	0.000
	58.9583 - 57.9167		77617.00	2247590.00	0.035	0.00	7020224.67	0.000
	57.9167 - 56.875		77797.90	2266010.00	0.034	0.00	7136533.33	0.000
	56.875 - 55.8333		77979.50	2284430.00	0.034	0.00	7253791.33	0.000
	55.8333 - 54.7917		85058.50	2302850.00	0.037	0.00	7372016.67	0.000
	54.7917 - 53.75		85239.60	2321280.00	0.037	0.00	7491191.33	0.000
	53.75 - 52.7083		85421.20	2339700.00	0.037	0.00	7611324.67	0.000
	52.7083 - 51.6667		85603.40	2358120.00	0.036	0.00	7732408.00	0.000
	51.6667 - 50.625		85786.10	2376550.00	0.036	0.00	7854450.00	0.000
	50.625 - 49.5833		85969.40	2394970.00	0.036	0.00	7977450.00	0.000
	49.5833 - 48.5417		86153.20	2413390.00	0.036	0.00	8101400.00	0.000
	48.5417 - 47.5		86337.50	2431810.00	0.036	0.00	8226308.00	0.000
	47.5 - 46.4583		86522.40	2450240.00	0.035	0.00	8352166.67	0.000
	46.4583 - 45.4167		86707.80	2468660.00	0.035	0.00	8479000.00	0.000
	45.4167 - 44.375		112335.00	2468660.00	0.046	0.00	8606750.00	0.000
	44.375 - 43.3333		112519.00	2487080.00	0.045	0.00	8735500.00	0.000
	43.3333 - 42.2917		112702.00	2505510.00	0.045	0.00	8865166.67	0.000
	42.2917 -		112885.00	2523930.00	0.045	0.00	8995833.33	0.000

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	Client: Stealth (R)	Designed by: sbushnell

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
	41.25							
	41.25 - 35		48428.90	2542350.00	0.019	0.00	9799750.00	0.000
L4	41.25 - 35	TP54.7x42.625x0.75	65776.90	3702990.00	0.018	0.00	13811916.00	0.000
	35 - 33.2105		114487.00	3916270.00	0.029	0.00	14155916.00	0.000
	33.2105 - 31.4211		114786.00	3963740.00	0.029	0.00	14504082.67	0.000
	31.4211 - 29.6316		115082.00	4011210.00	0.029	0.00	14856416.00	0.000
	29.6316 - 27.8421		115375.00	4058690.00	0.028	0.00	15213082.67	0.000
	27.8421 - 26.0526		115666.00	4106160.00	0.028	0.00	15573916.00	0.000
	26.0526 - 24.2632		115954.00	4153630.00	0.028	0.00	15939000.00	0.000
	24.2632 - 22.4737		116239.00	4201110.00	0.028	0.00	16308333.33	0.000
	22.4737 - 20.6842		116521.00	4248580.00	0.027	0.00	16681916.00	0.000
	20.6842 - 18.8947		116801.00	4296050.00	0.027	0.00	17059666.67	0.000
	18.8947 - 17.1053		117078.00	4343520.00	0.027	0.00	17441666.67	0.000
	17.1053 - 15.3158		117352.00	4391000.00	0.027	0.00	17827916.00	0.000
	15.3158 - 13.5263		117623.00	4438470.00	0.027	0.00	18218416.00	0.000
	13.5263 - 11.7368		117892.00	4485940.00	0.026	0.00	18613082.67	0.000
	11.7368 - 9.94737		118158.00	4533410.00	0.026	0.00	19012082.67	0.000
	9.94737 - 8.15789		118421.00	4580890.00	0.026	0.00	19415166.67	0.000
	8.15789 - 6.36842		118682.00	4628360.00	0.026	0.00	19822582.67	0.000
	6.36842 - 4.57895		118939.00	4675830.00	0.025	0.00	20234249.33	0.000
	4.57895 - 2.78947		119194.00	4723310.00	0.025	0.00	20650082.67	0.000
	2.78947 - 1		119446.00	4770780.00	0.025	0.00	21070166.67	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	100 - 99	0.000	0.000	0.000	0.000	0.000	0.000 ✔	1.000	4.8.2 ✔
	99 - 98	0.000	0.002	0.000	0.003	0.000	0.002 ✔	1.000	4.8.2 ✔
	98 - 97	0.000	0.004	0.000	0.003	0.000	0.004 ✔	1.000	4.8.2 ✔
	97 - 96	0.000	0.006	0.000	0.003	0.000	0.006 ✔	1.000	4.8.2 ✔

tnxTower	Job: Kenai	Page: 27 of 30
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	Client: Stealth (R)	Designed by: sbushnell

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	96 - 95	0.000	0.009	0.000	0.003	0.000	0.009	1.000	4.8.2
	95 - 94	0.002	0.026	0.000	0.022	0.000	0.029	1.000	4.8.2
	94 - 93	0.002	0.043	0.000	0.023	0.000	0.046	1.000	4.8.2
	93 - 92	0.002	0.064	0.000	0.035	0.000	0.068	1.000	4.8.2
	92 - 91	0.003	0.091	0.000	0.035	0.000	0.094	1.000	4.8.2
	91 - 90	0.003	0.117	0.000	0.035	0.000	0.121	1.000	4.8.2
	90 - 89	0.003	0.145	0.000	0.036	0.000	0.148	1.000	4.8.2
	89 - 88	0.003	0.172	0.000	0.036	0.000	0.176	1.000	4.8.2
	88 - 87	0.003	0.199	0.000	0.036	0.000	0.203	1.000	4.8.2
	87 - 86	0.003	0.227	0.000	0.036	0.000	0.231	1.000	4.8.2
	86 - 85	0.003	0.255	0.000	0.037	0.000	0.259	1.000	4.8.2
	85 - 84	0.005	0.297	0.000	0.055	0.000	0.305	1.000	4.8.2
	84 - 83	0.005	0.339	0.000	0.056	0.000	0.347	1.000	4.8.2
	83 - 82	0.005	0.382	0.000	0.056	0.000	0.390	1.000	4.8.2
	82 - 81	0.005	0.434	0.000	0.068	0.000	0.444	1.000	4.8.2
	81 - 80	0.005	0.486	0.000	0.068	0.000	0.496	1.000	4.8.2
L2	80 - 79	0.002	0.222	0.000	0.029	0.000	0.225	1.000	4.8.2
	79 - 78	0.002	0.239	0.000	0.028	0.000	0.242	1.000	4.8.2
	78 - 77	0.002	0.255	0.000	0.028	0.000	0.259	1.000	4.8.2
	77 - 76	0.002	0.271	0.000	0.028	0.000	0.275	1.000	4.8.2
	76 - 75	0.002	0.287	0.000	0.028	0.000	0.290	1.000	4.8.2
	75 - 74	0.003	0.307	0.000	0.035	0.000	0.311	1.000	4.8.2
	74 - 73	0.003	0.326	0.000	0.035	0.000	0.331	1.000	4.8.2
	73 - 72	0.003	0.345	0.000	0.034	0.000	0.349	1.000	4.8.2
	72 - 71	0.004	0.365	0.000	0.040	0.000	0.370	1.000	4.8.2
	71 - 70	0.004	0.386	0.000	0.040	0.000	0.391	1.000	4.8.2

tnxTower	Job: Kenai	Page: 28 of 30
Vector Structural Engineering, LLC 9138 S. State St. Ste 101 Sandy, Utah 84070 Phone: (801) 990-1775 FAX: (801) 990-1775	Project: U0142-870-163	Date: 14:19:18 08/17/16
	Client: Stealth (R)	Designed by: sbushnell

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	70 - 69	0.004	0.407	0.000	0.039	0.000	0.412	1.000	4.8.2
	69 - 68	0.004	0.427	0.000	0.039	0.000	0.432	1.000	4.8.2
	68 - 67	0.004	0.446	0.000	0.039	0.000	0.451	1.000	4.8.2
	67 - 66	0.004	0.464	0.000	0.039	0.000	0.470	1.000	4.8.2
	66 - 65	0.004	0.482	0.000	0.038	0.000	0.488	1.000	4.8.2
	65 - 64	0.004	0.503	0.000	0.043	0.000	0.509	1.000	4.8.2
	64 - 63	0.005	0.522	0.000	0.042	0.000	0.529	1.000	4.8.2
	63 - 62	0.005	0.541	0.000	0.042	0.000	0.548	1.000	4.8.2
	62 - 61	0.005	0.560	0.000	0.047	0.000	0.567	1.000	4.8.2
	61 - 60	0.005	0.582	0.000	0.047	0.000	0.589	1.000	4.8.2
L3	60 - 58.9583	0.004	0.457	0.000	0.035	0.000	0.461	1.000	4.8.2
	58.9583 - 57.9167	0.004	0.472	0.000	0.035	0.000	0.477	1.000	4.8.2
	57.9167 - 56.875	0.004	0.487	0.000	0.034	0.000	0.492	1.000	4.8.2
	56.875 - 55.8333	0.004	0.502	0.000	0.034	0.000	0.507	1.000	4.8.2
	55.8333 - 54.7917	0.004	0.516	0.000	0.037	0.000	0.522	1.000	4.8.2
	54.7917 - 53.75	0.004	0.532	0.000	0.037	0.000	0.537	1.000	4.8.2
	53.75 - 52.7083	0.004	0.547	0.000	0.037	0.000	0.552	1.000	4.8.2
	52.7083 - 51.6667	0.004	0.561	0.000	0.036	0.000	0.567	1.000	4.8.2
	51.6667 - 50.625	0.005	0.575	0.000	0.036	0.000	0.581	1.000	4.8.2
	50.625 - 49.5833	0.005	0.589	0.000	0.036	0.000	0.595	1.000	4.8.2
	49.5833 - 48.5417	0.005	0.602	0.000	0.036	0.000	0.608	1.000	4.8.2
	48.5417 - 47.5	0.005	0.615	0.000	0.036	0.000	0.621	1.000	4.8.2
	47.5 - 46.4583	0.005	0.627	0.000	0.035	0.000	0.633	1.000	4.8.2
	46.4583 - 45.4167	0.005	0.639	0.000	0.035	0.000	0.645	1.000	4.8.2
	45.4167 - 44.375	0.006	0.656	0.000	0.046	0.000	0.663	1.000	4.8.2
	44.375 - 43.3333	0.006	0.673	0.000	0.045	0.000	0.681	1.000	4.8.2

tnxTower	Job: Kenai	Page: 29 of 30
Vector Structural Engineering, LLC 9138 S. State St. Ste 101 Sandy, Utah 84070 Phone: (801) 990-1775 FAX: (801) 990-1775	Project: U0142-870-163	Date: 14:19:18 08/17/16
	Client: Stealth (R)	Designed by: sbushnell

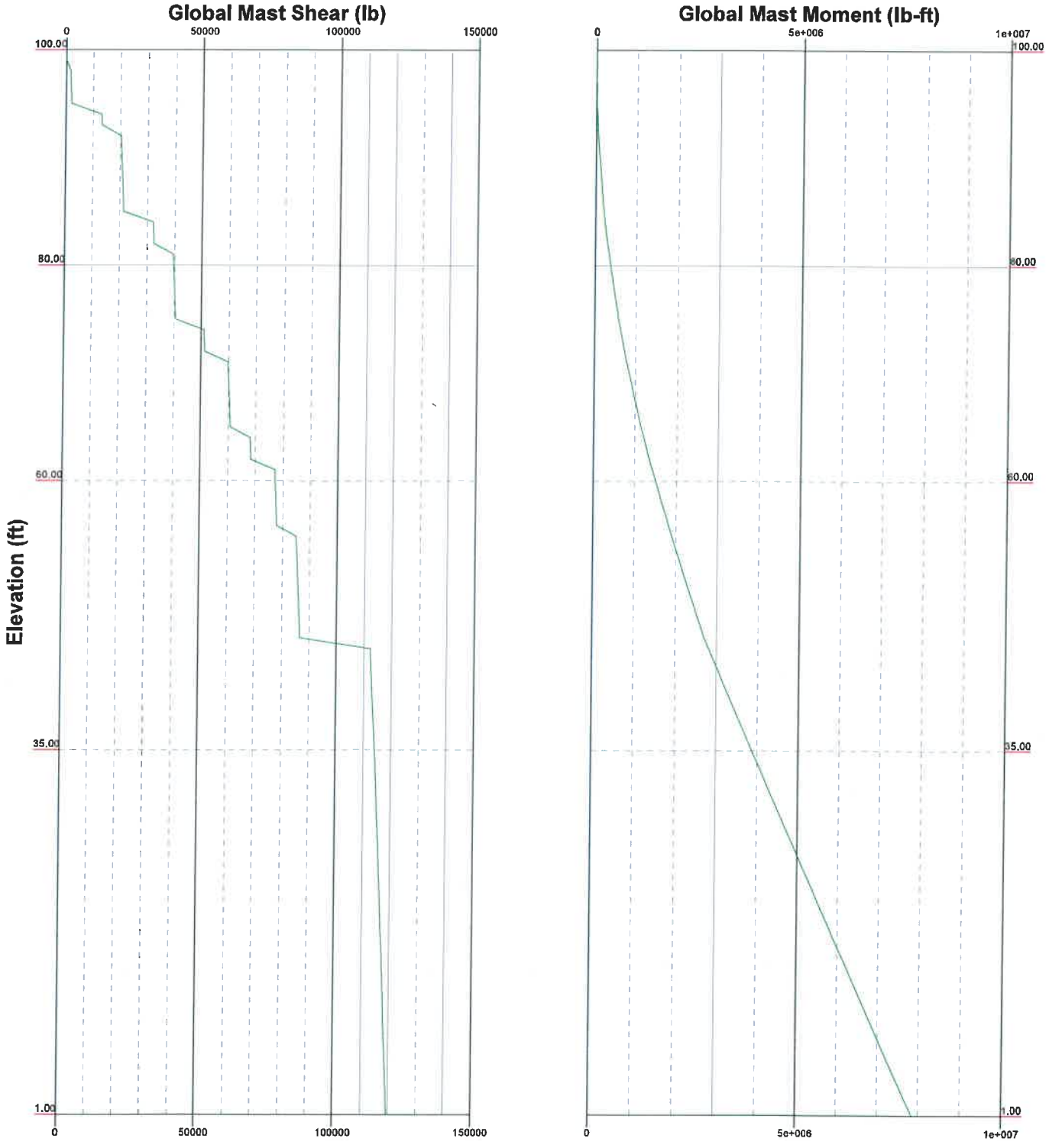
Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	43.3333 - 42.2917	0.006	0.690	0.000	0.045	0.000	0.697 ✔	1.000	4.8.2 ✔
	42.2917 - 41.25	0.006	0.706	0.000	0.045	0.000	0.713 ✔	1.000	4.8.2 ✔
	41.25 - 35	0.003	0.334	0.000	0.019	0.000	0.337 ✔	1.000	4.8.2 ✔
L4	41.25 - 35	0.003	0.326	0.000	0.018	0.000	0.329 ✔	1.000	4.8.2 ✔
	35 - 33.2105	0.004	0.578	0.000	0.029	0.000	0.583 ✔	1.000	4.8.2 ✔
	33.2105 - 31.4211	0.005	0.592	0.000	0.029	0.000	0.598 ✔	1.000	4.8.2 ✔
	31.4211 - 29.6316	0.005	0.606	0.000	0.029	0.000	0.611 ✔	1.000	4.8.2 ✔
	29.6316 - 27.8421	0.005	0.619	0.000	0.028	0.000	0.624 ✔	1.000	4.8.2 ✔
	27.8421 - 26.0526	0.005	0.631	0.000	0.028	0.000	0.637 ✔	1.000	4.8.2 ✔
	26.0526 - 24.2632	0.005	0.643	0.000	0.028	0.000	0.648 ✔	1.000	4.8.2 ✔
	24.2632 - 22.4737	0.005	0.654	0.000	0.028	0.000	0.659 ✔	1.000	4.8.2 ✔
	22.4737 - 20.6842	0.005	0.664	0.000	0.027	0.000	0.670 ✔	1.000	4.8.2 ✔
	20.6842 - 18.8947	0.005	0.674	0.000	0.027	0.000	0.680 ✔	1.000	4.8.2 ✔
	18.8947 - 17.1053	0.005	0.683	0.000	0.027	0.000	0.689 ✔	1.000	4.8.2 ✔
	17.1053 - 15.3158	0.005	0.692	0.000	0.027	0.000	0.698 ✔	1.000	4.8.2 ✔
	15.3158 - 13.5263	0.005	0.700	0.000	0.027	0.000	0.706 ✔	1.000	4.8.2 ✔
	13.5263 - 11.7368	0.005	0.708	0.000	0.026	0.000	0.714 ✔	1.000	4.8.2 ✔
	11.7368 - 9.94737	0.005	0.715	0.000	0.026	0.000	0.721 ✔	1.000	4.8.2 ✔
	9.94737 - 8.15789	0.006	0.722	0.000	0.026	0.000	0.728 ✔	1.000	4.8.2 ✔
	8.15789 - 6.36842	0.006	0.729	0.000	0.026	0.000	0.735 ✔	1.000	4.8.2 ✔
	6.36842 - 4.57895	0.006	0.735	0.000	0.025	0.000	0.741 ✔	1.000	4.8.2 ✔
	4.57895 - 2.78947	0.006	0.741	0.000	0.025	0.000	0.747 ✔	1.000	4.8.2 ✔
	2.78947 - 1	0.006	0.746	0.000	0.025	0.000	0.753 ✔	1.000	4.8.2 ✔

tnxTower	Job: Kenai	Page: 30 of 30
Vector Structural Engineering, LLC 9138 S. State St. Ste 101 Sandy, Utah 84070 Phone: (801) 990-1775 FAX: (801) 990-1775	Project: U0142-870-163	Date: 14:19:18 08/17/16
	Client: Stealth (R)	Designed by: sbushnell

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	100 - 80	Pole	TP32x32x0.1875	1	-6225.98	1161080.00	49.6	Pass
L2	80 - 60	Pole	TP38x32x0.375	2	-15832.30	3324900.00	58.9	Pass
L3	60 - 35	Pole	TP45.5x38x0.5	3	-28782.00	5084700.00	71.3	Pass
L4	35 - 1	Pole	TP54.7x42.625x0.75	4	-55974.40	9541560.00	75.3	Pass
							Summary	
						Pole (L4)	75.3	Pass
						RATING =	**75.3**	**Pass**

Program Version 7.0.3.0 - 12/3/2015 File:N:/2016 Projects/U0142 Stealth/U0142-870-163 Kenai RG15-01258W-05R1 - Rework/ENG/Tower/KENAI - Future.eri

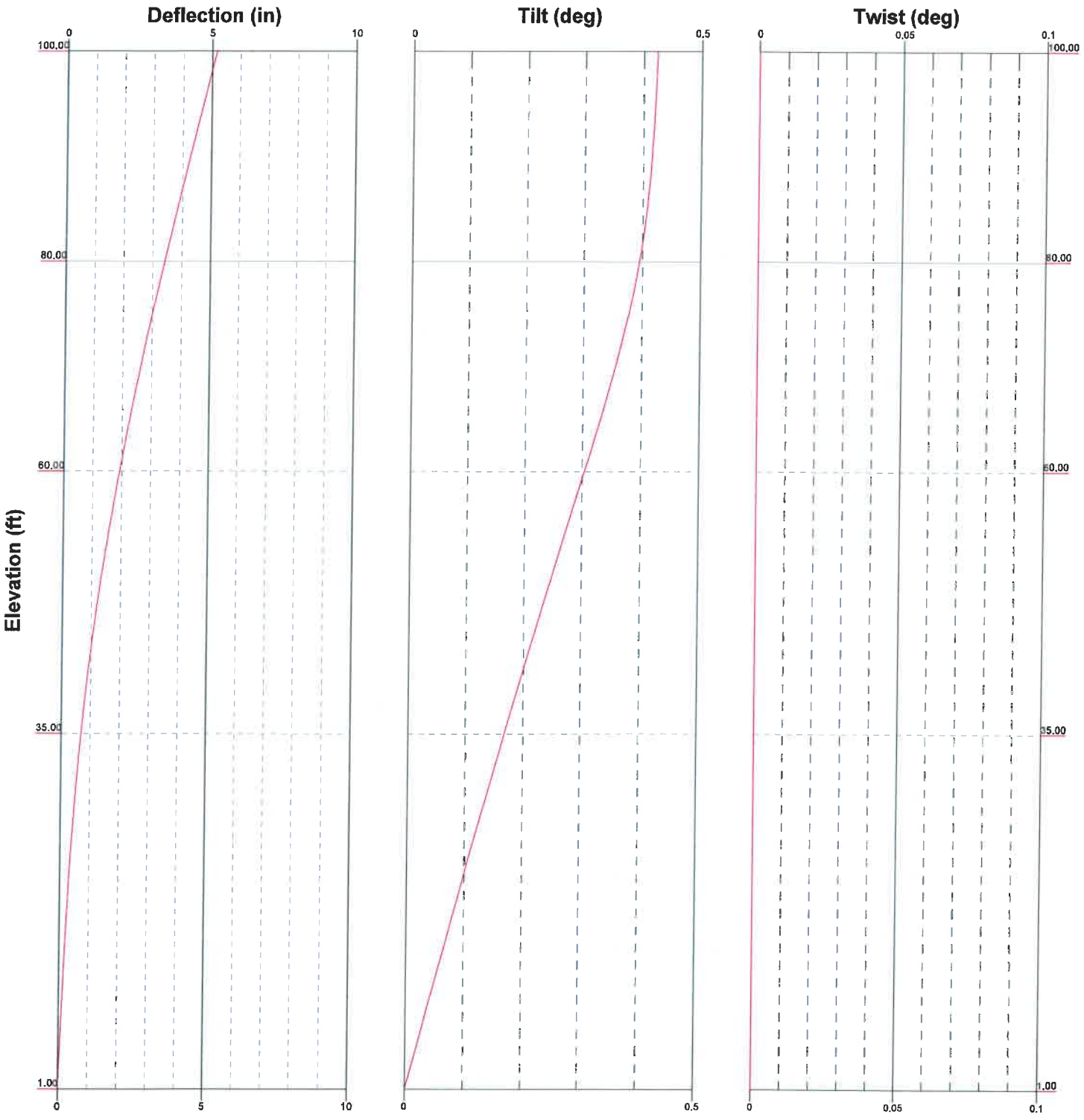


Vector Structural Engineering, LLC
9138 S. State St. Ste 101
Sandy, Utah 84070
Phone: (801) 990-1775
FAX: (801) 990-1775

Job: Kenai		
Project: U0142-870-163		
Client: Stealth (R)	Drawn by: sbushnell	App'd:
Code: TIA-222-G	Date: 08/17/16	Scale: NTS
Path:		Dwg No. E-4

TIA-222-G - Service - 60 mph

Maximum Values



Vector Structural Engineering, LLC
9138 S. State St. Ste 101
Sandy, Utah 84070
Phone: (801) 990-1775
FAX: (801) 990-1775

1638

Job: Kenai		
Project: U0142-870-163		
Client: Stealth (R)	Drawn by: sbushnell	App'd:
Code: TIA-222-G	Date: 08/17/16	Scale: NTS
Path:		Dwg No. E-5

VECTOR ENGINEERS

JOB NO.: U0142-870-163

PROJECT: KENAI

Bolted Annular Plates @ 80' A.G.L.

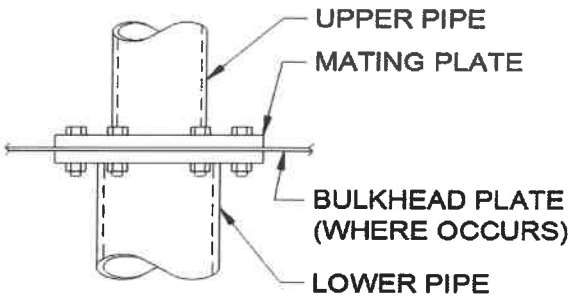
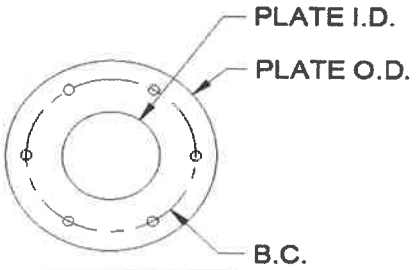


Plate F_y (ksi)	36
Upper Pipe Outer Diameter (in)	32
Upper Pipe Thickness t_1 (in)	0.1875
Lower Pipe Thickness t_2 (in)	3/8
Lower Pipe Outer Diameter (in)	32
Moment @ Splice M_u (kip-ft)	371.0
Axial @ Splice P_u (kips)	46.3
Shear @ Splice V_u (kips)	39.8

Bolt Design



Bolt Circle Diameter BC (in)	34.25	
Number of Bolts, n	18	
T_u / Bolt (kips)	28.9	
V_u / Bolt (kips)	2.2	
Bolt Designation	A325	
Bolt Diameter (in)	3/4	
ϕT_n (kips)	29.8	
ϕV_n (kips)	15.9	
Combined Tension and Shear	0.97	97%

$$T_u = \frac{2M_u}{nr_b}$$

Plate Design

Upper Plate Hole Radius, r_p (in)	16.0625	
Lower Plate Hole Radius, r_p (in)	16.0625	
Bolt Circle Radius, r_b (in)	17.125	
Plate OD (in)	36.5	
ϕ_{plate}	0.9	
Req'd Upper Plate Thickness, t (in)	1.00	70%
Req'd Lower Plate Thickness, t (in)	1.00	70%

$$t = \sqrt{\frac{M_u(r_b - r_p)}{\phi F_y r_p r_b}}$$

VECTOR ENGINEERS

JOB NO.: U0142-870-163

PROJECT: KENAI

Bolted Annular Plates @ 60'-0" A.G.L.

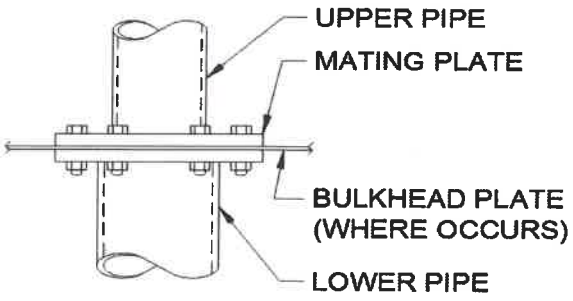
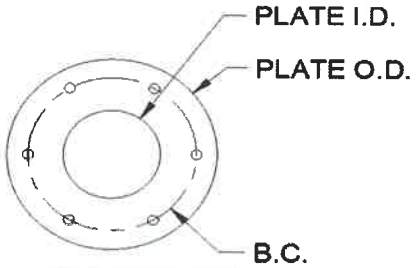


Plate F_y (ksi)	50
Upper Pipe Outer Diameter (in)	38
Upper Pipe Thickness t_1 (in)	0.375
Lower Pipe Thickness t_2 (in)	0.5
Lower Pipe Outer Diameter (in)	38.0
Moment @ Splice M_u (kip-ft)	1494.0
Axial @ Splice P_u (kips)	91.7
Shear @ Splice V_u (kips)	77.3

Bolt Design



Bolt Circle Diameter BC (in)	42	
Number of Bolts, n	18	
T_u / Bolt (kips)	94.9	
V_u / Bolt (kips)	4.3	
Bolt Designation	A325	
Bolt Diameter (in)	1 3/8	
ϕT_n (kips)	100.2	
ϕV_n (kips)	53.5	
Combined Tension and Shear	0.95	**95%**

$$T_u = \frac{2M_u}{nr_b}$$

Plate Design

Upper Plate Hole Radius, r_p (in)	15.5	
Lower Plate Hole Radius, r_p (in)	15.5	
Bolt Circle Radius, r_b (in)	21	
Plate OD (in)	45.75	
ϕ_{plate}	0.9	
Req'd Upper Plate Thickness, t (in)	3.00	**99%**
Req'd Lower Plate Thickness, t (in)	3.00	**99%**

$$t = \sqrt{\frac{M_u(r_b - r_p)}{\emptyset F_y r_p r_b}}$$

VECTOR ENGINEERS

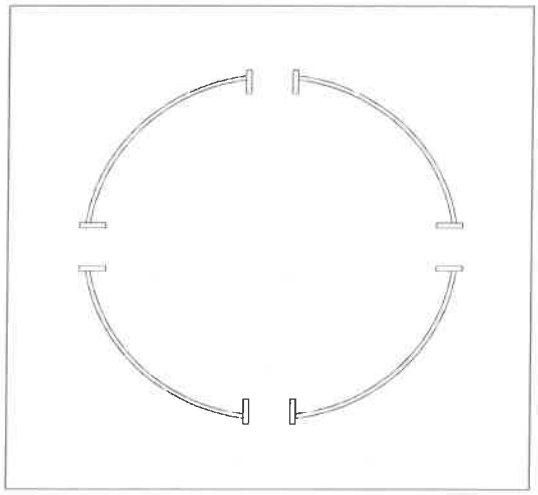
JOB NO.: U0142-870-163

PROJECT: KENAI

Reinforced Access Port Analysis @ 43'-0" A.G.L.

Reinforced Access Port:

Width, w:	6	inches
Height	12	inches
Thickness, t_1:	0.625	inches
Depth, d:	3	inches
Projection, p:	0.5	inches



Pole Shaft Loading:

M_u:	3057	kip-ft
P_u:	28.4	kips
V_u:	112.8	kips

Properties @ Access Port:

Flat-Flat Dia:	43.1	in
Pole Thickness, t_2:	0.5	in

$A_{PoleNoAccess}$:	66.9	in^2
$I_{PoleNoAccess}$:	15181.5	in^4
$S_{PoleNoAccess}$:	704.5	in^3
$A_{reinforced}$:	69.8	in^2
$I_{reinforced}$:	15657.5	in^4
$S_{reinforced}$:	710.1	in^3

E:	29000	ksi
Rim F_y:	50	ksi
Pole F_y:	65	ksi

K:	1	
L:	99.00	ft
r:	14.97	in
F'_y:	82.6	ksi
KL/r:	79.3	
λ_c:	1.3	
F_{cr}:	38.6	ksi

Note:
Section properities are base on an equivalent circular tube as shown in the illustration above. The outer diameter of the circle is equal to the flat-flat diameter of the polygon thus the properties are conservative.

Mn:	4884.8	kip-ft
Pn:	2696.3	kip
Vn:	2882.0	kip
Interaction Check:	0.71	OKAY

Added Weight Per Port	9	lbs

VECTOR ENGINEERS

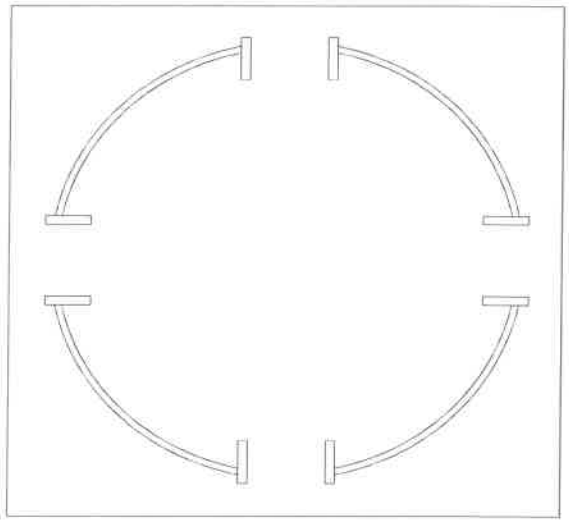
JOB NO.: U0142-870-163

PROJECT: KENAI

Reinforced Access Port Analysis @ 4'-0" A.G.L.

Reinforced Access Port:

Width, w:	10.5	inches
Height	25.5	inches
Thickness, t_1:	0.75	inches
Depth, d:	5	inches
Projection, p:	0.5	inches



Pole Shaft Loading:

M_u:	7646	kip-ft
P_u:	54.8	kips
V_u:	119.2	kips

Properties @ Access Port:

Flat-Flat Dia:	55.0	in
Pole Thickness, t_2:	0.75	in

$A_{PoleNoAccess}$:	127.8	in^2
$I_{PoleNoAccess}$:	47032.7	in^4
$S_{PoleNoAccess}$:	1710.3	in^3
$A_{reinforced}$:	126.0	in^2
$I_{reinforced}$:	45461.2	in^4
$S_{reinforced}$:	1623.6	in^3

E:	29000	ksi
Rim F_y:	65	ksi
Pole F_y:	65	ksi

K:	1	
L:	99.00	ft
r:	18.99	in
F'_y:	82.6	ksi
KL/r:	62.6	
λ_c:	1.1	
F_{cr}:	51.5	ksi

Note:
Section properities are base on an equivalent circular tube as shown in the illustration above. The outer diameter of the circle is equal to the flat-flat diameter of the polygon thus the properties are conservative.

Mn:	11169.1	kip-ft
Pn:	6487.6	kip
Vn:	5202.3	kip
Interaction Check:	0.77	**OKAY**

Added Weight Per Port: 20 lbs

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G

Site Data

Project #: U0142-870-163
Site Name: KENAI

Pole Manufacturer:	Other

Anchor Rod Data		
Qty:	34	
Diam:	2	in
Rod Material:	F1554	
Strength (Fu):	125	ksi
Yield (Fy):	105	ksi
Bolt Circle:	62	in

Plate Data		
Diam:	67.5	in
Thick:	3.25	in
Grade:	50	ksi
Single-Rod B-eff:	5.11	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.3125	in
Width:	5	in
Height:	18	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	54.7	in
Thick:	0.75	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0.5625	"0" if None

Reactions		
Mu:	7859	ft-kips
Axial, Pu:	165.8	kips
Shear, Vu:	119.5	kips

If No stiffeners, Criteria:	AISC LRFD	<-Only Applcable to Unstiffened Cases

Anchor Rod Results

		Rigid
Max Rod (Cu+ Vu/ṅ):	190.9 Kips	AISC LRFD
Allowable Axial, Φ*Fu*Anet:	250.0 Kips	φ*Tn
Anchor Rod Stress Ratio:	76.3% **Pass**	

Base Plate Results Flexural Check

		Rigid
Base Plate Stress:	30.3 ksi	AISC LRFD
Allowable Plate Stress:	45.0 ksi	φ*Fy
Base Plate Stress Ratio:	67.3% **Pass**	Y.L. Length: 29.19

n/a

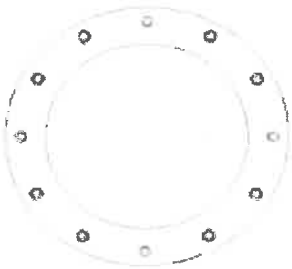
Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a

Note: images below are for illustration only and may not reflect actual bolt quantity, etc.



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

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VECTOR ENGINEERS

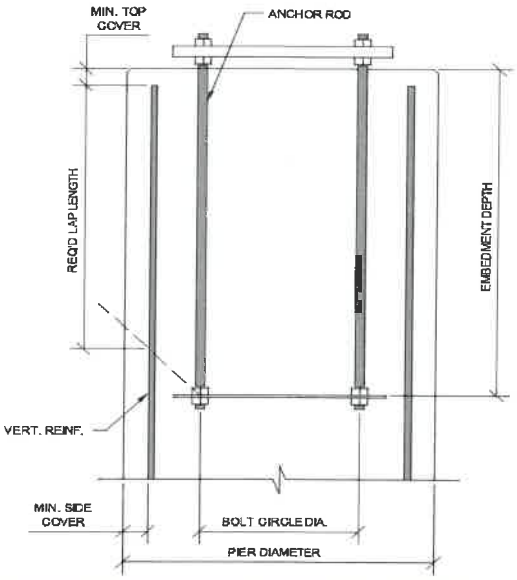
JOB NO.: U0142-870-163

PROJECT: KENAI

Anchorage Embedment Design

Vertical Bar Size:	#11	
Conc. Comp. Strength:	4000	psi
Pier Diameter:	8	ft
Pier Depth:	54	ft
Top of Pier Elevation:	6	inches
Concrete Volume	101.5	yards
Side Conc. Cover:	4	inches
Top Conc. Cover:	3	inches
Bolt Circle Dia.:	62	inches
Horizontal Tie Size:	#4	
# Anchor Rods:	34	
Anchor Rod Dia:	2.00	inches

ψ_t (bar loc. factor):	1.0	ACI 12.2.4a
ψ_e (epoxy coating factor):	1.0	ACI 12.2.4b
ψ_s (bar size factor):	1.0	ACI 12.2.4.c
λ (concrete type factor):	1.0	ACI 12.2.4.d
Bar Diameter:	1.4	in
Horiz. Tie Diameter:	0.5	in
Min.Clr Dist. Btwn Anchor & Rod:	10.1	in
Max. Clr Dist. Btwn Anchor & Rod:	10.6	in
Req'd Lap Length:	50.9	in ACI 12.2.2
Min. Required Embedment Depth:	**66.2**	**in**



Required Lap Length + Max distance between anchor and rod + 0.5*Bar diameter + 0.5*Anchor diameter + Top cover

Transverse Reinforcement Design

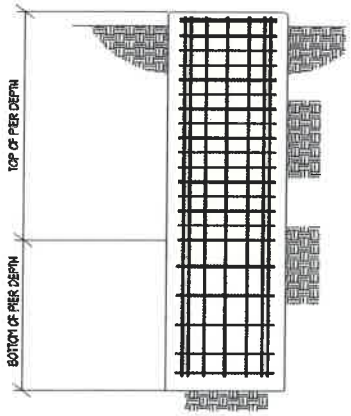
(see IBC Sections 1810.3.9.4.1 and 1810.3.9.4.2)

Seismic Design Category:	A
Site Class:	D

Type of Transverse Reinforcement:	Spiral	
Transverse f_{yt}:	60	ksi
Seismic Hooks Required?	No	
Tie Size OK?	Yes	

Spacing at Top of Pier:	6	in
Spacing at Bottom of Pier:	22	in

Total Pier Length	54.5	ft
Top Pier Length:	24	ft
Bottom Pier Length:	30.5	ft



VECTOR ENGINEERS

JOB NO.: U0142-870-163

PROJECT: KENAI

Drilled Pier Design

Design Loads (Factored / ϕ_c):

Max. Shear, V_u / 0.75 =	159.3	k	Max. Down, $P_{u\text{-down}}$ / 0.75 =	221.1	k
Max. Moment, M_u / 0.75 =	10,478.7	k-ft	Max. Uplift, $P_{u\text{-uplift}}$ / 0.75 (opt'l) =	0.0	k

Pier Properties:

Pier Diameter, b:	8.0	ft	Volume of Concrete:	2739	ft^3
Min. Pier Diameter, b_{min} (opt'l):	5.0	ft	Volume of Concrete:	101.5	yd^3
Top of Pier Elevation:	0.50	ft	Weight of Concrete:	410.9	k
Pier Depth, d:	54.0	ft			
Min. Pier Depth, d_{min} (opt'l):		ft			
Max. Pier Depth, d_{max} (opt'l):		ft			

Check Bearing:

Bearing Capacity: 5,000.0 k **Bearing capacity OK.**

Check Lateral Bearing:

See Attached Lpile Calculations

New LPile (USCS units).lp8o

LPile for Windows, Version 2015-08.005

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

This copy of LPile is being used by:

Vector Structural Engineers
Sandy, UT

Serial Number of Security Device: 151268600

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VECTOR STRUCTURAL ENGINEERING, S

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is a violation of the software license agreement.

Files Used for Analysis

Path to file locations:
\2016 Projects\U0142 Stealth\U0142-870-163 Kenai RG15-01258W-05R1 -
Rework\ENG\Future Calcs\LPile\

Name of input data file:
New LPile (USCS units).lp8d

Name of output report file:
New LPile (USCS units).lp8o

Name of plot output file:
New LPile (USCS units).lp8p

Name of runtime message file:
New LPile (USCS units).lp8r

Date and Time of Analysis

Date: November 3, 2016 Time: 15:25:45

Problem Title

Project Name:

Job Number:

Client:

Engineer:

Description:

Program Options and Settings

Computational Options:
- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:
- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- Maximum number of iterations allowed	=	750
- Deflection tolerance for convergence	=	1.0000E-05 in
- Maximum allowable deflection	=	100.0000 in
- Number of pile increments	=	100

Loading Type and Number of Cycles of Loading:
- Static loading specified

- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:
- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	54.500 ft
Depth of ground surface below top of pile	=	5.5000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	96.0000
2	54.500	96.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a round drilled shaft, bored pile, or CIDH pile

Length of section	=	54.500000 ft
Shaft Diameter	=	96.000000 in
Shear capacity of section	=	0.0000 lbs

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 7 layers

Layer 1 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	5.500000 ft
Distance from top of pile to bottom of layer	=	14.000000 ft
Effective unit weight at top of layer	=	48.000000 pcf
Effective unit weight at bottom of layer	=	48.000000 pcf
Friction angle at top of layer	=	31.000000 deg.
Friction angle at bottom of layer	=	31.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	14.000000 ft
Distance from top of pile to bottom of layer	=	19.000000 ft
Effective unit weight at top of layer	=	48.000000 pcf
Effective unit weight at bottom of layer	=	48.000000 pcf
Friction angle at top of layer	=	31.000000 deg.
Friction angle at bottom of layer	=	31.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

Layer 3 is stiff clay with water-induced erosion

Distance from top of pile to top of layer	=	19.000000 ft
Distance from top of pile to bottom of layer	=	24.000000 ft
Effective unit weight at top of layer	=	53.000000 pcf
Effective unit weight at bottom of layer	=	53.000000 pcf
Undrained cohesion at top of layer	=	1875. psf
Undrained cohesion at bottom of layer	=	1875. psf
Epsilon-50 at top of layer	=	0.0000
Epsilon-50 at bottom of layer	=	0.0000
Subgrade k at top of layer	=	140.000000 pci
Subgrade k at bottom of layer	=	140.000000 pci

NOTE: Default values for Epsilon-50 will be computed for this layer.

Layer 4 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	24.000000 ft
Distance from top of pile to bottom of layer	=	34.000000 ft
Effective unit weight at top of layer	=	23.000000 pcf
Effective unit weight at bottom of layer	=	23.000000 pcf
Friction angle at top of layer	=	27.000000 deg.
Friction angle at bottom of layer	=	27.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 5 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	34.000000 ft
Distance from top of pile to bottom of layer	=	39.000000 ft
Effective unit weight at top of layer	=	48.000000 pcf
Effective unit weight at bottom of layer	=	48.000000 pcf
Friction angle at top of layer	=	30.000000 deg.
Friction angle at bottom of layer	=	30.000000 deg.
Subgrade k at top of layer	=	40.000000 pci
Subgrade k at bottom of layer	=	40.000000 pci

Layer 6 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	39.000000 ft
Distance from top of pile to bottom of layer	=	44.000000 ft
Effective unit weight at top of layer	=	48.000000 pcf
Effective unit weight at bottom of layer	=	48.000000 pcf

Friction angle at top of layer	=	27.000000 deg.
Friction angle at bottom of layer	=	27.000000 deg.
Subgrade k at top of layer	=	40.000000 pci
Subgrade k at bottom of layer	=	40.000000 pci

Layer 7 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	44.000000 ft
Distance from top of pile to bottom of layer	=	60.000000 ft
Effective unit weight at top of layer	=	63.000000 pcf
Effective unit weight at bottom of layer	=	63.000000 pcf
Friction angle at top of layer	=	33.000000 deg.
Friction angle at bottom of layer	=	33.000000 deg.
Subgrade k at top of layer	=	380.000000 pci
Subgrade k at bottom of layer	=	380.000000 pci

(Depth of the lowest soil layer extends 5.500 ft below the pile tip)

Summary of Input Soil Properties

Layer Num.	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.	E50 or krm pci
1	Sand	5.5000	48.0000	--	31.0000	
--	(Reese, et al.)	14.0000	48.0000	--	31.0000	
2	Sand	14.0000	48.0000	--	31.0000	
--	(Reese, et al.)	19.0000	48.0000	--	31.0000	
3	Stiff Clay with Free Water	24.0000	53.0000	1875.	--	default
4	Sand	24.0000	23.0000	--	27.0000	default
--		60.0000				20.0000

	(Reese, et al.)	34.0000	23.0000	--	27.0000
--	20.0000				
5	Sand	34.0000	48.0000	--	30.0000
--	40.0000				
	(Reese, et al.)	39.0000	48.0000	--	30.0000
--	40.0000				
6	Sand	39.0000	48.0000	--	27.0000
--	40.0000				
	(Reese, et al.)	44.0000	48.0000	--	27.0000
--	40.0000				
7	Sand	44.0000	63.0000	--	33.0000
--	380.0000				
	(Reese, et al.)	60.0000	63.0000	--	33.0000
--	380.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 3

Load No.	Load Compute Top y vs. Pile Length Type	Condition 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 159269. lbs	M = 125744512. in-lbs	221095.
	No			
2	1	V = 74658. lbs	M = 58942740. in-lbs	138184.
	No			
3	1	V = 27581. lbs	M = 21750873. in-lbs	93439.
	No			

V = shear force applied normal to pile axis
M = bending moment applied to pile head
y = lateral deflection normal to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).
Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

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Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	54.500000 ft
Shaft Diameter	=	96.000000 in
Concrete Cover Thickness	=	4.750000 in
Number of Reinforcing Bars	=	50 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	7238. sq. in.
Total Area of Reinforcing Steel	=	78.000000 sq. in.
Area Ratio of Steel Reinforcement	=	1.08 percent
Edge-to-Edge Bar Spacing	=	3.932845 in
Maximum Concrete Aggregate Size	=	0.750000 in
Ratio of Bar Spacing to Aggregate Size	=	5.24
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As	=	29024.780 kips
Tensile Load for Cracking of Concrete	=	-3238.976 kips
Nominal Axial Tensile Capacity	=	-4680.000 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.410000	1.560000	42.545000	0.00000

2	1.410000	1.560000	42.209520	5.332302
3	1.410000	1.560000	41.208371	10.580511
4	1.410000	1.560000	39.557341	15.661859
5	1.410000	1.560000	37.282468	20.496210
6	1.410000	1.560000	34.419628	25.007324
7	1.410000	1.560000	31.013970	29.124057
8	1.410000	1.560000	27.119204	32.781486
9	1.410000	1.560000	22.796751	35.921932
10	1.410000	1.560000	18.114780	38.495867
11	1.410000	1.560000	13.147128	40.462699
12	1.410000	1.560000	7.972138	41.791411
13	1.410000	1.560000	2.671423	42.461047
14	1.410000	1.560000	-2.671423	42.461047
15	1.410000	1.560000	-7.972138	41.791411
16	1.410000	1.560000	-13.147128	40.462699
17	1.410000	1.560000	-18.114780	38.495867
18	1.410000	1.560000	-22.796751	35.921932
19	1.410000	1.560000	-27.119204	32.781486
20	1.410000	1.560000	-31.013970	29.124057
21	1.410000	1.560000	-34.419628	25.007324
22	1.410000	1.560000	-37.282468	20.496210
23	1.410000	1.560000	-39.557341	15.661859
24	1.410000	1.560000	-41.208371	10.580511
25	1.410000	1.560000	-42.209520	5.332302
26	1.410000	1.560000	-42.545000	0.00000
27	1.410000	1.560000	-42.209520	-5.332302
28	1.410000	1.560000	-41.208371	-10.580511
29	1.410000	1.560000	-39.557341	-15.661859
30	1.410000	1.560000	-37.282468	-20.496210
31	1.410000	1.560000	-34.419628	-25.007324
32	1.410000	1.560000	-31.013970	-29.124057
33	1.410000	1.560000	-27.119204	-32.781486
34	1.410000	1.560000	-22.796751	-35.921932
35	1.410000	1.560000	-18.114780	-38.495867
36	1.410000	1.560000	-13.147128	-40.462699
37	1.410000	1.560000	-7.972138	-41.791411
38	1.410000	1.560000	-2.671423	-42.461047
39	1.410000	1.560000	2.671423	-42.461047
40	1.410000	1.560000	7.972138	-41.791411
41	1.410000	1.560000	13.147128	-40.462699
42	1.410000	1.560000	18.114780	-38.495867
43	1.410000	1.560000	22.796751	-35.921932
44	1.410000	1.560000	27.119204	-32.781486
45	1.410000	1.560000	31.013970	-29.124057
46	1.410000	1.560000	34.419628	-25.007324
47	1.410000	1.560000	37.282468	-20.496210
48	1.410000	1.560000	39.557341	-15.661859
49	1.410000	1.560000	41.208371	-10.580511

50	1.410000	1.560000	42.209520	-5.332302

NOTE: The positions of the above rebars were computed by LPile

Minimum spacing between any two bars not equal to zero = 3.933 inches
between bars 1 and 50.

Ratio of bar spacing to maximum aggregate size = 5.24

Concrete Properties:

Compressive Strength of Concrete	=	4000. psi
Modulus of Elasticity of Concrete	=	3604997. psi
Modulus of Rupture of Concrete	=	-474.341649 psi
Compression Strain at Peak Stress	=	0.001886
Tensile Strain at Fracture of Concrete	=	-0.0001154
Maximum Coarse Aggregate Size	=	0.750000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 3

Number	Axial Thrust Force kips
1	93.439
2	138.184
3	221.095

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than 0.003. See ACI 318, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = 93.439 kips

Bending Max Conc Curvature Stress rad/in. ksi	Bending Max Steel Moment Stress in-kip ksi	Run Msg	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in
3.12500E-07	6056.		1.93797E+10	57.1928434	0.00001787	-0.00001213
0.0748122	0.5139601					
6.25000E-07	12084.		1.93349E+10	52.6107567	0.00003288	-0.00002712
0.1369913	0.9448700					
9.37500E-07	18083.		1.92888E+10	51.0835139	0.00004789	-0.00004211
0.1986744	1.3757830					
0.00000125	24053.		1.92422E+10	50.3199496	0.00006290	-0.00005710
0.2598614	1.8066982					
0.00000156	29993.		1.91956E+10	49.8618516	0.00007791	-0.00007209
0.3205521	2.2376152					
0.00000188	35904.		1.91489E+10	49.5564858	0.00009292	-0.00008708
0.3807467	2.6685339					
0.00000219	41786.		1.91021E+10	49.3383956	0.0001079	-0.0001021
0.4404451	3.0994545					
0.00000250	41786.		1.67144E+10	27.9186631	0.00006980	-0.0001702
0.2856402	-4.9010969 C					
0.00000281	41786.		1.48572E+10	27.4893697	0.00007731	-0.0001927
0.3156885	-5.5487483 C					
0.00000313	41786.		1.33715E+10	27.1393301	0.00008481	-0.0002152
0.3455310	-6.1969982 C					
0.00000344	41786.		1.21559E+10	26.8502661	0.00009230	-0.0002377
0.3752152	-6.8455141 C					
0.00000375	41786.		1.11429E+10	26.6106024	0.00009979	-0.0002602
0.4047967	-7.4938970 C					
0.00000406	41786.		1.02858E+10	26.4089425	0.0001073	-0.0002827
0.4342755	-8.1421465 C					
0.00000438	41786.		9551065454.	26.2305992	0.0001148	-0.0003052
0.4635371	-8.7918927 C					
0.00000469	41786.		8914327757.	26.0767346	0.0001222	-0.0003278
0.4926911	-9.4399439 C					
0.00000500	41786.		8357182272.	25.9430538	0.0001297	-0.0003503
0.5217433	-10.0886572 C					
0.00000531	41786.		7865583315.	25.8259977	0.0001372	-0.0003728
0.5506934	-10.7372322 C					
0.00000563	41786.		7428606464.	25.7227985	0.0001447	-0.0003953
0.5795414	-11.3856685 C					
0.00000594	41786.		7037627176.	25.6312709	0.0001522	-0.0004178

0.6082869	-12.0339655 C					
0.00000625	41786.		6685745818.	25.5496665	0.0001597	-0.0004403
0.6369299	-12.6821229 C					
0.00000656	41786.		6367376969.	25.4765703	0.0001672	-0.0004628
0.6654701	-13.3301402 C					
0.00000688	41786.		6077950743.	25.4096051	0.0001747	-0.0004853
0.6938751	-13.9782680 C					
0.00000719	41786.		5813692015.	25.3477680	0.0001822	-0.0005078
0.7221393	-14.6265246 C					
0.00000750	41786.		5571454848.	25.2917556	0.0001897	-0.0005303
0.7503016	-15.2746431 C					
0.00000781	41786.		5348596654.	25.2408714	0.0001972	-0.0005528
0.7783615	-15.9226151 C					
0.00000813	41786.		5142881398.	25.1945257	0.0002047	-0.0005753
0.8063190	-16.5704399 C					
0.00000844	41786.		4952404309.	25.1522164	0.0002122	-0.0005978
0.8341739	-17.2181170 C					
0.00000875	41786.		4775532727.	25.1135131	0.0002197	-0.0006203
0.8619260	-17.8656460 C					
0.00000906	41786.		4610859184.	25.0780447	0.0002273	-0.0006427
0.8895750	-18.5130263 C					
0.00000938	41786.		4457163878.	25.0454897	0.0002348	-0.0006652
0.9171209	-19.1602575 C					
0.00000969	42127.		4348617708.	25.0155680	0.0002423	-0.0006877
0.9445634	-19.8073388 C					
0.00001000	43402.		4340202002.	24.9880345	0.0002499	-0.0007101
0.9719023	-20.4542700 C					
0.00001031	44676.		4332229509.	24.9626741	0.0002574	-0.0007326
0.9991375	-21.1010503 C					
0.00001063	45950.		4324660923.	24.9392965	0.0002650	-0.0007550
1.0262687	-21.7476792 C					
0.00001094	47222.		4317461428.	24.9177337	0.0002725	-0.0007775
1.0532958	-22.3941563 C					
0.00001125	48494.		4310599900.	24.8978361	0.0002801	-0.0007999
1.0802185	-23.0404812 C					
0.00001156	49766.		4304049107.	24.8794703	0.0002877	-0.0008223
1.1070368	-23.6866529 C					
0.00001188	51036.		4297784149.	24.8625169	0.0002952	-0.0008448
1.1337503	-24.3326709 C					
0.00001219	52306.		4291782861.	24.8468689	0.0003028	-0.0008672
1.1603589	-24.9785349 C					
0.00001281	54844.		4280493522.	24.8191132	0.0003180	-0.0009120
1.2132605	-26.2697982 C					
0.00001344	57379.		4270043265.	24.7955385	0.0003332	-0.0009568
1.2657401	-27.5604385 C					
0.00001406	59911.		4260319035.	24.7755988	0.0003484	-0.0010016
1.3177959	-28.8504511 C					
0.00001469	62440.		4251226747.	24.7588408	0.0003636	-0.0010464

1.3694265	-30.1398316 C				
0.00001531	64966.	4242688160.	24.7448857	0.0003789	-0.0010911
1.4206301	-31.4285744 C				
0.00001594	67490.	4234636770.	24.7334141	0.0003942	-0.0011358
1.4714052	-32.7166753 C				
0.00001656	70010.	4227016282.	24.7241548	0.0004095	-0.0011805
1.5217499	-34.0041295 C				
0.00001719	72527.	4219778574.	24.7168765	0.0004248	-0.0012252
1.5716627	-35.2909319 C				
0.00001781	75042.	4212882264.	24.7113803	0.0004402	-0.0012698
1.6211418	-36.5770776 C				
0.00001844	77554.	4206291569.	24.7074944	0.0004555	-0.0013145
1.6701855	-37.8625616 C				
0.00001906	80062.	4199975384.	24.7050697	0.0004709	-0.0013591
1.7187920	-39.1473786 C				
0.00001969	82568.	4193906543.	24.7039762	0.0004864	-0.0014036
1.7669596	-40.4315236 C				
0.00002031	85070.	4188061207.	24.7040999	0.0005018	-0.0014482
1.8146864	-41.7149911 C				
0.00002094	87569.	4182418373.	24.7053406	0.0005173	-0.0014927
1.8619706	-42.9977759 C				
0.00002156	90066.	4176959460.	24.7076100	0.0005328	-0.0015372
1.9088105	-44.2798726 C				
0.00002219	92559.	4171667967.	24.7108296	0.0005483	-0.0015817
1.9552041	-45.5612756 C				
0.00002281	95049.	4166529190.	24.7149298	0.0005638	-0.0016262
2.0011496	-46.8419793 C				
0.00002344	97536.	4161529981.	24.7198485	0.0005794	-0.0016706
2.0466451	-48.1219780 C				
0.00002406	100020.	4156658545.	24.7255301	0.0005950	-0.0017150
2.0916886	-49.4012661 C				
0.00002469	102500.	4151904270.	24.7319249	0.0006106	-0.0017594
2.1362782	-50.6798376 C				
0.00002531	104977.	4147257578.	24.7389882	0.0006262	-0.0018038
2.1804120	-51.9576866 C				
0.00002594	107452.	4142709803.	24.7466795	0.0006419	-0.0018481
2.2240879	-53.2348072 C				
0.00002656	109922.	4138253085.	24.7549625	0.0006576	-0.0018924
2.2673040	-54.5111931 C				
0.00002719	112390.	4133880270.	24.7638043	0.0006733	-0.0019367
2.3100582	-55.7868383 C				
0.00002781	114854.	4129584839.	24.7731750	0.0006890	-0.0019810
2.3523484	-57.0617364 C				
0.00002844	117315.	4125360833.	24.7830475	0.0007048	-0.0020252
2.3941726	-58.3358809 C				
0.00002906	119772.	4121202791.	24.7933971	0.0007206	-0.0020694
2.4355286	-59.6092655 C				
0.00002969	122227.	4117105703.	24.8042013	0.0007364	-0.0021136

2.4764142	-60.0000000 CY				
0.00003031	124677.	4113064959.	24.8154396	0.0007522	-0.0021578
2.5168274	-60.0000000 CY				
0.00003094	127125.	4109076310.	24.8270933	0.0007681	-0.0022019
2.5567660	-60.0000000 CY				
0.00003156	129517.	4103524647.	24.8358295	0.0007839	-0.0022461
2.5959646	-60.0000000 CY				
0.00003219	131623.	4089249399.	24.8266901	0.0007991	-0.0022909
2.6332246	-60.0000000 CY				
0.00003281	133467.	4067560216.	24.8019683	0.0008138	-0.0023362
2.6687049	-60.0000000 CY				
0.00003344	135154.	4041988115.	24.7688028	0.0008282	-0.0023818
2.7029621	-60.0000000 CY				
0.00003406	136692.	4012985326.	24.7279077	0.0008423	-0.0024277
2.7360464	-60.0000000 CY				
0.00003469	138164.	3983112070.	24.6848539	0.0008563	-0.0024737
2.7684068	-60.0000000 CY				
0.00003531	139509.	3950689753.	24.6356001	0.0008699	-0.0025201
2.7997139	-60.0000000 CY				
0.00003594	140773.	3917155722.	24.5834174	0.0008835	-0.0025665
2.8302354	-60.0000000 CY				
0.00003656	142029.	3884564552.	24.5331115	0.0008970	-0.0026130
2.8603715	-60.0000000 CY				
0.00003719	143154.	3849528913.	24.4761893	0.0009102	-0.0026598
2.8894241	-60.0000000 CY				
0.00003969	147199.	3708947153.	24.2310108	0.0009617	-0.0028483
2.9989029	-60.0000000 CY				
0.00004219	150600.	3569788633.	23.9791387	0.0010116	-0.0030384
3.0996698	-60.0000000 CY				
0.00004469	153436.	3433536346.	23.7232435	0.0010601	-0.0032299
3.1923524	-60.0000000 CY				
0.00004719	155963.	3305180277.	23.4763548	0.0011078	-0.0034222
3.2784635	-60.0000000 CY				
0.00004969	158146.	3182820881.	23.2253104	0.0011540	-0.0036160
3.3572744	-60.0000000 CY				
0.00005219	160104.	3067870457.	22.9860390	0.0011996	-0.0038104
3.4305037	-60.0000000 CY				
0.00005469	161796.	2958557964.	22.7534955	0.0012443	-0.0040057
3.4980614	-60.0000000 CY				
0.00005719	163439.	2857955481.	22.5406218	0.0012890	-0.0042010
3.5613019	-60.0000000 CY				
0.00005969	164772.	2760582000.	22.3146474	0.0013319	-0.0043981
3.6178694	-60.0000000 CY				
0.00006219	166030.	2669836777.	22.1045064	0.0013746	-0.0045954
3.6703570	-60.0000000 CY				
0.00006469	167269.	2585801281.	21.9124553	0.0014175	-0.0047925
3.7191032	-60.0000000 CY				
0.00006719	168333.	2505419432.	21.7234762	0.0014595	-0.0049905

3.7631739	-60.0000000 CY				
0.00006969	169259.	2428834453.	21.5361836	0.0015008	-0.0051892
3.8027077	-60.0000000 CY				
0.00007219	170161.	2357207113.	21.3555351	0.0015416	-0.0053884
3.8382444	-60.0000000 CY				
0.00007469	171055.	2290272755.	21.1892301	0.0015826	-0.0055874
3.8703836	-60.0000000 CY				
0.00007719	171869.	2226638566.	21.0292385	0.0016232	-0.0057868
3.8987347	-60.0000000 CY				
0.00007969	172553.	2165370512.	20.8701683	0.0016631	-0.0059869
3.9231647	-60.0000000 CY				
0.00008219	173196.	2107326505.	20.7196329	0.0017029	-0.0061871
3.9441808	-60.0000000 CY				
0.00008469	173824.	2052532885.	20.5749708	0.0017424	-0.0063876
3.9617403	-60.0000000 CY				
0.00008719	174435.	2000688014.	20.4343429	0.0017816	-0.0065884
3.9758711	-60.0000000 CY				
0.00008969	175035.	1951607972.	20.3029017	0.0018209	-0.0067891
3.9867887	-60.0000000 CY				
0.00009219	175603.	1904848113.	20.1778095	0.0018601	-0.0069899
3.9944315	-60.0000000 CY				
0.00009469	176051.	1859283271.	20.0493049	0.0018984	-0.0071916
3.9987532	-60.0000000 CY				
0.00009719	176475.	1815821200.	19.9272726	0.0019367	-0.0073933
3.9988209	-60.0000000 CY				
0.00009969	176888.	1774422165.	19.8128331	0.0019751	-0.0075949
3.9966327	-60.0000000 CY				
0.0001022	177295.	1734997617.	19.7055149	0.0020137	-0.0077963
3.9995609	-60.0000000 CY				
0.0001047	177685.	1697285157.	19.5980242	0.0020517	-0.0079983
3.9954077	-60.0000000 CY				
0.0001072	178064.	1661239862.	19.4950004	0.0020896	-0.0082004
3.9967338	-60.0000000 CY				
0.0001097	178440.	1626799472.	19.3979820	0.0021277	-0.0084023
3.9994655	60.0000000 CY				
0.0001122	178790.	1593675134.	19.3045163	0.0021657	-0.0086043
3.9968006	60.0000000 CY				
0.0001147	179098.	1561619397.	19.2123765	0.0022034	-0.0088066
3.9947708	60.0000000 CY				
0.0001172	179381.	1530717362.	19.1225397	0.0022409	-0.0090091
3.9982814	60.0000000 CY				
0.0001197	179626.	1500790368.	19.0332809	0.0022780	-0.0092120
3.9998790	60.0000000 CY				
0.0001222	179866.	1472046552.	18.9491591	0.0023154	-0.0094146
3.9941906	60.0000000 CY				
0.0001247	180102.	1444426357.	18.8695441	0.0023528	-0.0096172
3.9941518	60.0000000 CY				
0.0001272	180336.	1417873579.	18.7938915	0.0023903	-0.0098197

3.9976856	60.0000000 CY				
0.0001297	180567.	1392326165.	18.7219833	0.0024280	-0.0100220
3.9996147	60.0000000 CY				
0.0001322	180785.	1367640366.	18.6465736	0.0024648	-0.0102252
3.9976413	60.0000000 CY				
0.0001347	180998.	1343838739.	18.5750420	0.0025018	-0.0104282
3.9897264	60.0000000 CY				
0.0001372	181210.	1320892954.	18.5067604	0.0025389	-0.0106311
3.9942165	60.0000000 CY				
0.0001522	182281.	1197742318.	18.1360240	0.0027601	-0.0118499
3.9935330	60.0000000 CY				
0.0001672	183018.	1094688926.	17.8209919	0.0029794	-0.0130706
3.9862546	60.0000000 CY				
0.0001822	183605.	1007782464.	17.5666831	0.0032004	-0.0142896
3.9992447	60.0000000 CYT				
0.0001972	184017.	933206108.	17.3862804	0.0034284	-0.0155016
3.9949588	60.0000000 CYT				
0.0002122	184272.	868438454.	17.2351674	0.0036571	-0.0167129
3.9876578	60.0000000 CYT				
0.0002272	184272.	811100014.	17.2202430	0.0039122	-0.0178978
3.9976215	60.0000000 CYT				

Axial Thrust Force = 138.184 kips

Bending Max Conc Curvature Stress rad/in. ksi	Bending Max Steel Stress in-kip ksi	Run Msg	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in
3.12500E-07	6055.		1.93747E+10	61.5959484	0.00001925	-0.00001075
0.0805910	0.5538633					
6.25000E-07	12083.		1.93323E+10	54.8189498	0.00003426	-0.00002574
0.1427413	0.9848935					
9.37500E-07	18082.		1.92870E+10	52.5602277	0.00004928	-0.00004072
0.2043961	1.4159312					
0.00000125	24051.		1.92409E+10	51.4309705	0.00006429	-0.00005571
0.2655547	1.8469727					
0.00000156	29991.		1.91946E+10	50.7534827	0.00007930	-0.00007070
0.3262169	2.2780172					
0.00000188	35903.		1.91480E+10	50.3018755	0.00009432	-0.00008568
0.3863829	2.7090645					
0.00000219	41784.		1.91014E+10	49.9793412	0.0001093	-0.0001007
0.4460524	3.1401145					
0.00000250	41784.		1.67137E+10	29.7481438	0.00007437	-0.0001656

0.3043091	-4.7684596 C					
0.00000281	41784.	1.48566E+10	29.1496330	0.00008198	-0.0001880	
0.3346705	-5.4133331 C					
0.00000313	41784.	1.33710E+10	28.6584467	0.00008956	-0.0002104	
0.3647503	-6.0593283 C					
0.00000344	41784.	1.21554E+10	28.2555267	0.00009713	-0.0002329	
0.3946917	-6.7054272 C					
0.00000375	41784.	1.11425E+10	27.9103441	0.0001047	-0.0002553	
0.4243677	-7.3525501 C					
0.00000406	41784.	1.02854E+10	27.6193860	0.0001122	-0.0002778	
0.4539393	-7.9995411 C					
0.00000438	41784.	9550685836.	27.3710361	0.0001197	-0.0003003	
0.4834062	-8.6463998 C					
0.00000469	41784.	8913973447.	27.1490334	0.0001273	-0.0003227	
0.5126245	-9.2941783 C					
0.00000500	41784.	8356850106.	26.9553463	0.0001348	-0.0003452	
0.5417321	-9.9418748 C					
0.00000531	41784.	7865270688.	26.7853267	0.0001423	-0.0003677	
0.5707361	-10.5894356 C					
0.00000563	41784.	7428311206.	26.6350324	0.0001498	-0.0003902	
0.5996363	-11.2368603 C					
0.00000594	41784.	7037347458.	26.5013515	0.0001574	-0.0004126	
0.6284326	-11.8841485 C					
0.00000625	41784.	6685480085.	26.3810562	0.0001649	-0.0004351	
0.6571068	-12.5314335 C					
0.00000656	41784.	6367123890.	26.2692445	0.0001724	-0.0004576	
0.6855833	-13.1792844 C					
0.00000688	41784.	6077709168.	26.1683059	0.0001799	-0.0004801	
0.7139566	-13.8269940 C					
0.00000719	41784.	5813460943.	26.0768246	0.0001874	-0.0005026	
0.7422267	-14.4745619 C					
0.00000750	41784.	5571233404.	25.9936205	0.0001950	-0.0005250	
0.7703934	-15.1219875 C					
0.00000781	41784.	5348384068.	25.9177025	0.0002025	-0.0005475	
0.7984564	-15.7692705 C					
0.00000813	41784.	5142676988.	25.8482318	0.0002100	-0.0005700	
0.8264156	-16.4164103 C					
0.00000844	41784.	4952207470.	25.7844942	0.0002176	-0.0005924	
0.8542709	-17.0634065 C					
0.00000875	41784.	4775342918.	25.7258773	0.0002251	-0.0006149	
0.8820219	-17.7102586 C					
0.00000906	41784.	4610675921.	25.6718531	0.0002327	-0.0006373	
0.9096686	-18.3569661 C					
0.00000938	41920.	4471413382.	25.6219643	0.0002402	-0.0006598	
0.9372107	-19.0035284 C					
0.00000969	43194.	4458778291.	25.5758124	0.0002478	-0.0006822	
0.9646482	-19.6499452 C					
0.00001000	44469.	4446863258.	25.5330487	0.0002553	-0.0007047	

0.9919806	-20.2962158 C					
0.00001031	45742.	4435602620.	25.4933670	0.0002629	-0.0007271	
1.0192080	-20.9423399 C					
0.00001063	47015.	4424938441.	25.4564970	0.0002705	-0.0007495	
1.0463301	-21.5883168 C					
0.00001094	48287.	4414811874.	25.4214421	0.0002780	-0.0007720	
1.0733167	-22.2343863 C					
0.00001125	49558.	4405179145.	25.3881427	0.0002856	-0.0007944	
1.1001716	-22.8805184 C					
0.00001156	50829.	4396006520.	25.3571019	0.0002932	-0.0008168	
1.1269217	-23.5264967 C					
0.00001188	52099.	4387257491.	25.3281431	0.0003008	-0.0008392	
1.1535670	-24.1723207 C					
0.00001219	53368.	4378899294.	25.3011077	0.0003084	-0.0008616	
1.1801072	-24.8179897 C					
0.00001281	55904.	4363240307.	25.2522501	0.0003235	-0.0009065	
1.2328714	-26.1088608 C					
0.00001344	58437.	4348826145.	25.2095452	0.0003388	-0.0009512	
1.2852128	-27.3991053 C					
0.00001406	60968.	4335489540.	25.1721840	0.0003540	-0.0009960	
1.3371297	-28.6887187 C					
0.00001469	63495.	4323091681.	25.1394954	0.0003692	-0.0010408	
1.3886205	-29.9776961 C					
0.00001531	66020.	4311516403.	25.1109179	0.0003845	-0.0010855	
1.4396836	-31.2660330 C					
0.00001594	68542.	4300665750.	25.0859785	0.0003998	-0.0011302	
1.4903173	-32.5537243 C					
0.00001656	71061.	4290456536.	25.0642753	0.0004151	-0.0011749	
1.5405199	-33.8407652 C					
0.00001719	73577.	4280817663.	25.0454654	0.0004305	-0.0012195	
1.5902897	-35.1271508 C					
0.00001781	76089.	4271687814.	25.0292540	0.0004458	-0.0012642	
1.6396248	-36.4128765 C					
0.00001844	78599.	4263014536.	25.0153863	0.0004612	-0.0013088	
1.6885238	-37.6979360 C					
0.00001906	81106.	4254751657.	25.0036412	0.0004766	-0.0013534	
1.7369847	-38.9823248 C					
0.00001969	83610.	4246859057.	24.9938259	0.0004921	-0.0013979	
1.7850058	-40.2660377 C					
0.00002031	86111.	4239301542.	24.9857711	0.0005075	-0.0014425	
1.8325853	-41.5490693 C					
0.00002094	88609.	4232048108.	24.9793282	0.0005230	-0.0014870	
1.8797213	-42.8314142 C					
0.00002156	91103.	4225071332.	24.9743658	0.0005385	-0.0015315	
1.9264120	-44.1130669 C					
0.00002219	93595.	4218346868.	24.9707674	0.0005540	-0.0015760	
1.9726555	-45.3940218 C					
0.00002281	96083.	4211853025.	24.9684294	0.0005696	-0.0016204	

2.0184499	-46.6742734 C				
0.00002344	98568.	4205570414.	24.9672595	0.0005852	-0.0016648
2.0637933	-47.9538157 C				
0.00002406	101650.	4199481647.	24.9671750	0.0006008	-0.0017092
2.1086839	-49.2326432 C				
0.00002469	103529.	4193571085.	24.9681016	0.0006164	-0.0017536
2.1531196	-50.5107497 C				
0.00002531	106004.	4187824621.	24.9699727	0.0006321	-0.0017979
2.1970984	-51.7881294 C				
0.00002594	108477.	4182229495.	24.9727281	0.0006477	-0.0018423
2.2406183	-53.0647761 C				
0.00002656	110946.	4176774136.	24.9763133	0.0006634	-0.0018866
2.2836774	-54.3406836 C				
0.00002719	113411.	4171448024.	24.9806791	0.0006792	-0.0019308
2.3262735	-55.6158458 C				
0.00002781	115874.	4166241574.	24.9857808	0.0006949	-0.0019751
2.3684046	-56.8902562 C				
0.00002844	118333.	4161146030.	24.9915777	0.0007107	-0.0020193
2.4100686	-58.1639084 C				
0.00002906	120788.	4156153378.	24.9980327	0.0007265	-0.0020635
2.4512633	-59.4367957 C				
0.00002969	123240.	4151256264.	25.0051120	0.0007423	-0.0021077
2.4919866	-60.0000000 CY				
0.00003031	125689.	4146447933.	25.0127847	0.0007582	-0.0021518
2.5322362	-60.0000000 CY				
0.00003094	128135.	4141722158.	25.0210225	0.0007741	-0.0021959
2.5720101	-60.0000000 CY				
0.00003156	130555.	4136394626.	25.0283987	0.0007900	-0.0022400
2.6111954	-60.0000000 CY				
0.00003219	132698.	4122662889.	25.0186309	0.0008053	-0.0022847
2.6484982	-60.0000000 CY				
0.00003281	134567.	4101082077.	24.9924237	0.0008201	-0.0023299
2.6839516	-60.0000000 CY				
0.00003344	136287.	4075887808.	24.9584519	0.0008345	-0.0023755
2.7182319	-60.0000000 CY				
0.00003406	137840.	4046666665.	24.9155029	0.0008487	-0.0024213
2.7512347	-60.0000000 CY				
0.00003469	139312.	4016205473.	24.8696148	0.0008627	-0.0024673
2.7834431	-60.0000000 CY				
0.00003531	140684.	3983967097.	24.8193578	0.0008764	-0.0025136
2.8147421	-60.0000000 CY				
0.00003594	141952.	3949978866.	24.7647301	0.0008900	-0.0025600
2.8451322	-60.0000000 CY				
0.00003656	143208.	3916793132.	24.7116957	0.0009035	-0.0026065
2.8751050	-60.0000000 CY				
0.00003719	144357.	3881881047.	24.6540148	0.0009168	-0.0026532
2.9041531	-60.0000000 CY				
0.00003969	148444.	3740317749.	24.4103304	0.0009688	-0.0028412

3.0139459	-60.0000000 CY				
0.00004219	151868.	3599839458.	24.1509551	0.0010189	-0.0030311
3.1141957	-60.0000000 CY				
0.00004469	154716.	3462177329.	23.8876399	0.0010675	-0.0032225
3.2062923	-60.0000000 CY				
0.00004719	157276.	3332997421.	23.6378285	0.0011154	-0.0034146
3.2921233	-60.0000000 CY				
0.00004969	159465.	3209353173.	23.3862485	0.0011620	-0.0036080
3.3707973	-60.0000000 CY				
0.00005219	161453.	3093702335.	23.1427586	0.0012078	-0.0038022
3.4435170	-60.0000000 CY				
0.00005469	163141.	2983148007.	22.9039175	0.0012526	-0.0039974
3.5103442	-60.0000000 CY				
0.00005719	164799.	2881723026.	22.6877470	0.0012975	-0.0041925
3.5730398	-60.0000000 CY				
0.00005969	166157.	2783774314.	22.4656519	0.0013409	-0.0043891
3.6295930	-60.0000000 CY				
0.00006219	167412.	2692046328.	22.2502592	0.0013837	-0.0045863
3.6813003	-60.0000000 CY				
0.00006469	168651.	2607168837.	22.0537427	0.0014266	-0.0047834
3.7292813	-60.0000000 CY				
0.00006719	169736.	2526304022.	21.8622823	0.0014689	-0.0049811
3.7727004	-60.0000000 CY				
0.00006969	170669.	2449060035.	21.6752441	0.0015105	-0.0051795
3.8117300	-60.0000000 CY				
0.00007219	171576.	2376815851.	21.4959127	0.0015517	-0.0053783
3.8467716	-60.0000000 CY				
0.00007469	172467.	2309184441.	21.3256903	0.0015928	-0.0055772
3.8780479	-60.0000000 CY				
0.00007719	173293.	2245092173.	21.1634101	0.0016336	-0.0057764
3.9056028	-60.0000000 CY				
0.00007969	173989.	2183395025.	21.0022057	0.0016736	-0.0059764
3.9292251	-60.0000000 CY				
0.00008219	174629.	2124767088.	20.8483272	0.0017135	-0.0061765
3.9493542	-60.0000000 CY				
0.00008469	175262.	2069520152.	20.7054926	0.0017535	-0.0063765
3.9661879	-60.0000000 CY				
0.00008719	175879.	2017255552.	20.5671660	0.0017932	-0.0065768
3.9795350	-60.0000000 CY				
0.00008969	176478.	1967703072.	20.4330113	0.0018326	-0.0067774
3.9894799	-60.0000000 CY				
0.00009219	177061.	1920664816.	20.3070196	0.0018721	-0.0069779
3.9961569	-60.0000000 CY				
0.00009469	177512.	1874709208.	20.1763635	0.0019104	-0.0071796
3.9994913	-60.0000000 CY				
0.00009719	177936.	1830854991.	20.0522976	0.0019488	-0.0073812
3.9950113	-60.0000000 CY				
0.00009969	178346.	1789051064.	19.9353830	0.0019873	-0.0075827

3.9979682	-60.0000000 CY				
0.0001022	178751.	1749240985.	19.8257303	0.0020259	-0.0077841
3.9999371	-60.0000000 CY				
0.0001047	179147.	1711257309.	19.7233073	0.0020648	-0.0079852
3.9940521	-60.0000000 CY				
0.0001072	179531.	1674921503.	19.6221051	0.0021032	-0.0081868
3.9981763	-60.0000000 CY				
0.0001097	179903.	1640145544.	19.5229203	0.0021414	-0.0083886
3.9999262	60.0000000 CY				
0.0001122	180264.	1606810183.	19.4293738	0.0021797	-0.0085903
3.9924090	60.0000000 CY				
0.0001147	180570.	1574448642.	19.3351374	0.0022175	-0.0087925
3.9967069	60.0000000 CY				
0.0001172	180865.	1543379116.	19.2451128	0.0022553	-0.0089947
3.9993122	60.0000000 CY				
0.0001197	181107.	1513165264.	19.1539917	0.0022925	-0.0091975
3.9987232	60.0000000 CY				
0.0001222	181344.	1484142127.	19.0682139	0.0023299	-0.0094001
3.9920252	60.0000000 CY				
0.0001247	181578.	1456264198.	18.9867267	0.0023674	-0.0096026
3.9962813	60.0000000 CY				
0.0001272	181810.	1429463617.	18.9092885	0.0024050	-0.0098050
3.9989407	60.0000000 CY				
0.0001297	182039.	1403677750.	18.8356764	0.0024428	-0.0100072
3.9999840	60.0000000 CY				
0.0001322	182264.	1378827690.	18.7663298	0.0024807	-0.0102093
3.9926782	60.0000000 CY				
0.0001347	182483.	1354859909.	18.6981598	0.0025184	-0.0104116
3.9929815	60.0000000 CY				
0.0001372	182693.	1331701607.	18.6281763	0.0025556	-0.0106144
3.9965908	60.0000000 CY				
0.0001522	183781.	1207595575.	18.2526578	0.0027778	-0.0118322
3.9962058	60.0000000 CY				
0.0001672	184496.	1103528138.	17.9332883	0.0029982	-0.0130518
3.9905261	60.0000000 CY				
0.0001822	185077.	1015859687.	17.6933509	0.0032235	-0.0142665
3.9920094	60.0000000 CYT				
0.0001972	185483.	940640928.	17.5091658	0.0034526	-0.0154774
3.9979471	60.0000000 CYT				
0.0002122	185737.	875344477.	17.3629494	0.0036842	-0.0166858
3.9791570	60.0000000 CYT				
0.0002272	185737.	817550069.	17.3465644	0.0039409	-0.0178691
3.9996636	60.0000000 CYT				

Axial Thrust Force = 221.095 kips

Bending	Bending	Bending	Depth to	Max Comp	Max Tens

Max Conc Curvature rad/in.	Max Steel Stress ksi	Moment in-kip	Run Stiffness kip-in2	N Axis in	Strain in/in	Strain in/in
3.12500E-07		6050.	1.93610E+10	69.7578387	0.00002180	-0.00000820
0.0912916	0.6278304					
6.25000E-07		12078.	1.93251E+10	58.9114485	0.00003682	-0.00002318
0.1533868	1.0590700					
9.37500E-07		18077.	1.92821E+10	55.2968867	0.00005184	-0.00003816
0.2149883	1.4903341					
0.00000125		24047.	1.92372E+10	53.4898594	0.00006686	-0.00005314
0.2760938	1.9216074					
0.00000156		29987.	1.91915E+10	52.4057775	0.00008188	-0.00006812
0.3367030	2.3528868					
0.00000188		35898.	1.91455E+10	51.6831498	0.00009691	-0.00008309
0.3968155	2.7841713					
0.00000219		41779.	1.90992E+10	51.1670613	0.0001119	-0.00009807
0.4564314	3.2154605					
0.00000250		47632.	1.90528E+10	50.7800563	0.0001270	-0.0001130
0.5155506	3.6467541					
0.00000281		47632.	1.69358E+10	31.9839467	0.00008995	-0.0001800
0.3669624	-5.1821593 C					
0.00000313		47632.	1.52422E+10	31.2719874	0.00009772	-0.0002023
0.3976972	-5.8224761 C					
0.00000344		47632.	1.38566E+10	30.6729030	0.0001054	-0.0002246
0.4280732	-6.4644450 C					
0.00000375		47632.	1.27018E+10	30.1703364	0.0001131	-0.0002469
0.4582707	-7.1067759 C					
0.00000406		47632.	1.17248E+10	29.7329801	0.0001208	-0.0002692
0.4881445	-7.7505333 C					
0.00000438		47632.	1.08873E+10	29.3591396	0.0001284	-0.0002916
0.5179098	-8.3941592 C					
0.00000469		47632.	1.01615E+10	29.0270250	0.0001361	-0.0003139
0.5473984	-9.0388888 C					
0.00000500		47632.	9526379484.	28.7347628	0.0001437	-0.0003363
0.5767291	-9.6838594 C					
0.00000531		47632.	8966004220.	28.4777485	0.0001513	-0.0003587
0.6059525	-10.3286969 C					
0.00000563		47632.	8467892875.	28.2474448	0.0001589	-0.0003811
0.6350103	-10.9738356 C					
0.00000594		47632.	8022214303.	28.0367948	0.0001665	-0.0004035
0.6638376	-11.6197644 C					
0.00000625		47632.	7621103587.	27.8479588	0.0001740	-0.0004260
0.6925590	-12.2655575 C					
0.00000656		47632.	7258193893.	27.6778225	0.0001816	-0.0004484

0.7211742	-12.9112144 C					
0.00000688	47632.	6928275989.	27.5238382	0.0001892	-0.0004708	
0.7496831	-13.5567347 C					
0.00000719	47632.	6627046598.	27.3839011	0.0001968	-0.0004932	
0.7780855	-14.2021181 C					
0.00000750	47632.	6350919656.	27.2522519	0.0002044	-0.0005156	
0.8062674	-14.8482352 C					
0.00000781	47632.	6096882870.	27.1309063	0.0002120	-0.0005380	
0.8343187	-15.4944040 C					
0.00000813	47632.	5862387375.	27.0194924	0.0002195	-0.0005605	
0.8622646	-16.1404321 C					
0.00000844	47632.	5645261917.	26.9169086	0.0002271	-0.0005829	
0.8901047	-16.7863189 C					
0.00000875	47632.	5443645420.	26.8222107	0.0002347	-0.0006053	
0.9178390	-17.4320640 C					
0.00000906	47632.	5255933509.	26.7345846	0.0002423	-0.0006277	
0.9454673	-18.0776670 C					
0.00000938	47632.	5080735725.	26.6533248	0.0002499	-0.0006501	
0.9729893	-18.7231273 C					
0.00000969	47632.	4916841024.	26.5778170	0.0002575	-0.0006725	
1.0004048	-19.3684445 C					
0.00001000	47632.	4763189742.	26.5075235	0.0002651	-0.0006949	
1.0277138	-20.0136182 C					
0.00001031	47711.	4626520473.	26.4419718	0.0002727	-0.0007173	
1.0549159	-20.6586478 C					
0.00001063	48983.	4610143883.	26.3799489	0.0002803	-0.0007397	
1.0819804	-21.3037782 C					
0.00001094	50254.	4594609007.	26.3203054	0.0002879	-0.0007621	
1.1088741	-21.9492781 C					
0.00001125	51524.	4579874115.	26.2644337	0.0002955	-0.0007845	
1.1356617	-22.5946285 C					
0.00001156	52793.	4565874157.	26.2120294	0.0003031	-0.0008069	
1.1623432	-23.2398288 C					
0.00001188	54062.	4552550930.	26.1628205	0.0003107	-0.0008293	
1.1889182	-23.8848787 C					
0.00001219	55329.	4539852200.	26.1165625	0.0003183	-0.0008517	
1.2153866	-24.5297774 C					
0.00001281	57863.	4516144760.	26.0320415	0.0003335	-0.0008965	
1.2680030	-25.8191196 C					
0.00001344	60394.	4494427565.	25.9569502	0.0003488	-0.0009412	
1.3201906	-27.1078589 C					
0.00001406	62922.	4474433976.	25.8900420	0.0003641	-0.0009859	
1.3719478	-28.3959672 C					
0.00001469	65447.	4455942722.	25.8302828	0.0003794	-0.0010306	
1.4232731	-29.6834639 C					
0.00001531	67969.	4438768646.	25.7768071	0.0003947	-0.0010753	
1.4741647	-30.9703366 C					
0.00001594	70488.	4422755622.	25.7288856	0.0004101	-0.0011199	

1.5246211	-32.2565806 C					
0.00001656	73004.	4407771074.	25.6858992	0.0004254	-0.0011646	
1.5746405	-33.5421915 C					
0.00001719	75517.	4393701697.	25.6473188	0.0004408	-0.0012092	
1.6242213	-34.8271645 C					
0.00001781	78027.	4380450077.	25.6126898	0.0004562	-0.0012538	
1.6733617	-36.1114949 C					
0.00001844	80534.	4367931994.	25.5816194	0.0004717	-0.0012983	
1.7220601	-37.3951778 C					
0.00001906	83038.	4356074262.	25.5537663	0.0004871	-0.0013429	
1.7703146	-38.6782085 C					
0.00001969	85539.	4344812972.	25.5288328	0.0005026	-0.0013874	
1.8181235	-39.9605820 C					
0.00002031	88036.	4334092074.	25.5065579	0.0005181	-0.0014319	
1.8654851	-41.2422932 C					
0.00002094	90531.	4323862193.	25.4867119	0.0005336	-0.0014764	
1.9123974	-42.5233371 C					
0.00002156	93022.	4314079669.	25.4690917	0.0005492	-0.0015208	
1.9588588	-43.8037085 C					
0.00002219	95511.	4304705749.	25.4535175	0.0005647	-0.0015653	
2.0048673	-45.0834023 C					
0.00002281	97996.	4295705886.	25.4398213	0.0005803	-0.0016097	
2.0504205	-46.3624181 C					
0.00002344	100478.	4287047305.	25.4273383	0.0005960	-0.0016540	
2.0954808	-47.6411064 C					
0.00002406	102956.	4278705035.	25.4165399	0.0006116	-0.0016984	
2.1400863	-48.9190711 C					
0.00002469	105432.	4270653956.	25.4073066	0.0006272	-0.0017428	
2.1842352	-50.1963067 C					
0.00002531	107904.	4262871575.	25.3995308	0.0006429	-0.0017871	
2.2279253	-51.4728071 C					
0.00002594	110373.	4255337554.	25.3931154	0.0006586	-0.0018314	
2.2711546	-52.7485661 C					
0.00002656	112838.	4248033458.	25.3879725	0.0006744	-0.0018756	
2.3139212	-54.0235775 C					
0.00002719	115301.	4240942533.	25.3840225	0.0006901	-0.0019199	
2.3562228	-55.2978348 C					
0.00002781	117760.	4234049519.	25.3811930	0.0007059	-0.0019641	
2.3980574	-56.5713315 C					
0.00002844	120215.	4227340485.	25.3794182	0.0007217	-0.0020083	
2.4394229	-57.8440610 C					
0.00002906	122667.	4220802686.	25.3786381	0.0007376	-0.0020524	
2.4803170	-59.1160165 C					
0.00002969	125116.	4214424437.	25.3787976	0.0007534	-0.0020966	
2.5207376	-60.0000000 CY					
0.00003031	127561.	4208195004.	25.3798466	0.0007693	-0.0021407	
2.5606825	-60.0000000 CY					
0.00003094	130003.	4202104510.	25.3817389	0.0007852	-0.0021848	

2.6801495	-60.0000000 CY				
0.00003156	132441.	4196143845.	25.3844324	0.0008012	-0.0022288
2.6391361	-60.0000000 CY				
0.00003219	134688.	4184480917.	25.3757311	0.0008168	-0.0022732
2.6766859	-60.0000000 CY				
0.00003281	136602.	4163106209.	25.3467938	0.0008317	-0.0023183
2.7120867	-60.0000000 CY				
0.00003344	138350.	4137582571.	25.3090599	0.0008463	-0.0023637
2.7462234	-60.0000000 CY				
0.00003406	139956.	4108795955.	25.2641624	0.0008606	-0.0024094
2.7792194	-60.0000000 CY				
0.00003469	141436.	4077447297.	25.2134633	0.0008746	-0.0024554
2.8111805	-60.0000000 CY				
0.00003531	142859.	4045555566.	25.1613769	0.0008885	-0.0025015
2.8424612	-60.0000000 CY				
0.00003594	144136.	4010727432.	25.1022113	0.0009021	-0.0025479
2.8726056	-60.0000000 CY				
0.00003656	145389.	3976440639.	25.0441044	0.0009157	-0.0025943
2.9022740	-60.0000000 CY				
0.00003719	146577.	3941577830.	24.9842448	0.0009291	-0.0026409
2.9312447	-60.0000000 CY				
0.00003969	150734.	3798020402.	24.7306358	0.0009815	-0.0028285
3.0405328	-60.0000000 CY				
0.00004219	154207.	3655274440.	24.4704244	0.0010323	-0.0030177
3.1408906	-60.0000000 CY				
0.00004469	157085.	3515195700.	24.1939138	0.0010812	-0.0032088
3.2319389	-60.0000000 CY				
0.00004719	159696.	3384276540.	23.9339136	0.0011294	-0.0034006
3.3168313	-60.0000000 CY				
0.00004969	161892.	3258212062.	23.6769403	0.0011764	-0.0035936
3.3948586	-60.0000000 CY				
0.00005219	163938.	3141333867.	23.4342156	0.0012230	-0.0037870
3.4673184	-60.0000000 CY				
0.00005469	165636.	3028670497.	23.1844375	0.0012679	-0.0039821
3.5328439	-60.0000000 CY				
0.00005719	167301.	2925478206.	22.9591249	0.0013130	-0.0041770
3.5942733	-60.0000000 CY				
0.00005969	168701.	2826398825.	22.7359026	0.0013570	-0.0043730
3.6501189	-60.0000000 CY				
0.00006219	169968.	2733160110.	22.5223237	0.0014006	-0.0045694
3.7012330	-60.0000000 CY				
0.00006469	171208.	2646695020.	22.3173456	0.0014437	-0.0047663
3.7477686	-60.0000000 CY				
0.00006719	172334.	2564968215.	22.1214928	0.0014863	-0.0049637
3.7899668	-60.0000000 CY				
0.00006969	173265.	2486312369.	21.9268079	0.0015280	-0.0051620
3.8275151	-60.0000000 CY				
0.00007219	174179.	2412863970.	21.7472685	0.0015699	-0.0053601

3.8614633	-60.0000000 CY				
0.00007469	175082.	2344189118.	21.5807598	0.0016118	-0.0055582
3.8917476	-60.0000000 CY				
0.00007719	175930.	2279250648.	21.4142740	0.0016529	-0.0057571
3.9177972	-60.0000000 CY				
0.00007969	176648.	2216760987.	21.2491514	0.0016933	-0.0059567
3.9398914	-60.0000000 CY				
0.00008219	177283.	2157051081.	21.0890442	0.0017333	-0.0061567
3.9583557	-60.0000000 CY				
0.00008469	177910.	2100784991.	20.9403865	0.0017734	-0.0063566
3.9734998	-60.0000000 CY				
0.00008719	178531.	2047664813.	20.8022260	0.0018137	-0.0065563
3.9852800	-60.0000000 CY				
0.00008969	179144.	1997425813.	20.6737179	0.0018542	-0.0067558
3.9936515	-60.0000000 CY				
0.00009219	179727.	1949580577.	20.5455738	0.0018940	-0.0069560
3.9985042	-60.0000000 CY				
0.00009469	180215.	1903258026.	20.4145089	0.0019330	-0.0071570
3.9995993	-60.0000000 CY				
0.00009719	180640.	1858679930.	20.2866405	0.0019716	-0.0073584
3.9966469	-60.0000000 CY				
0.00009969	181045.	1816125608.	20.1651158	0.0020102	-0.0075598
3.9995676	-60.0000000 CY				
0.0001022	181443.	1775586796.	20.0513980	0.0020490	-0.0077610
3.9951149	-60.0000000 CY				
0.0001047	181834.	1736920164.	19.9449130	0.0020880	-0.0079620
3.9972412	-60.0000000 CY				
0.0001072	182220.	1700013083.	19.8447953	0.0021271	-0.0081629
3.9996974	60.0000000 CY				
0.0001097	182600.	1664726945.	19.7510050	0.0021664	-0.0083636
3.9946960	60.0000000 CY				
0.0001122	182971.	1630936597.	19.6613233	0.0022058	-0.0085642
3.9962874	60.0000000 CY				
0.0001147	183292.	1598190156.	19.5657372	0.0022439	-0.0087661
3.9991389	60.0000000 CY				
0.0001172	183590.	1566636392.	19.4729545	0.0022820	-0.0089680
3.9993836	60.0000000 CY				
0.0001197	183846.	1536050083.	19.3813824	0.0023197	-0.0091703
3.9921407	60.0000000 CY				
0.0001222	184079.	1506529695.	19.2919428	0.0023572	-0.0093728
3.9963619	60.0000000 CY				
0.0001247	184310.	1478174070.	19.2069656	0.0023949	-0.0095751
3.9989847	60.0000000 CY				
0.0001272	184538.	1450914182.	19.1261995	0.0024326	-0.0097774
3.9999891	60.0000000 CY				
0.0001297	184761.	1424664324.	19.0500978	0.0024706	-0.0099794
3.9924633	60.0000000 CY				
0.0001322	184982.	1399390288.	18.9776794	0.0025086	-0.0101814

3.9935732	60.0000000 CY				
0.0001347	185201.	1375040533.	18.9086539	0.0025468	-0.0103832
3.9971146	60.0000000 CY				
0.0001372	185418.	1351564293.	18.8428446	0.0025850	-0.0105850
3.9992622	60.0000000 CY				
0.0001522	186557.	1225834446.	18.4726154	0.0028113	-0.0117987
3.9993186	60.0000000 CY				
0.0001672	187231.	1119887564.	18.1452845	0.0030337	-0.0130163
3.9964295	60.0000000 CYT				
0.0001822	187769.	1030638512.	17.9119012	0.0032633	-0.0142267
3.9864965	60.0000000 CYT				
0.0001972	188188.	954360025.	17.7449977	0.0034991	-0.0154309
3.9988177	60.0000000 CYT				
0.0002122	188447.	888116266.	17.6069911	0.0037360	-0.0166340
3.9917937	60.0000000 CYT				
0.0002272	188447.	829478603.	17.5922257	0.0039967	-0.0178133
3.9879253	60.0000000 CYT				

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	93.439	183072.986	0.00300000
2	138.184	184500.696	0.00300000
3	221.095	187129.083	0.00300000

Note that the values of moment capacity in the table above are not
factored by a strength reduction factor (phi-factor).

In ACI 318, the value of the strength reduction factor depends on whether
the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction
factor to compute ultimate moment capacity according to ACI 318, Section
9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding
bending stiffnesses computed for common resistance factor values used for
reinforced concrete sections.

Axial Resist. Nominal Ult. (Fac) Ult. (Fac) Bend. Stiff.

Load No.	Factor for Moment	Moment Cap in-kips	Ax. Thrust kips	Moment Cap in-kips	at Ult Mom kip-in^2
1	0.65	183073.	60.735350	118997.	4.1225E+09
2	0.65	184501.	89.819600	119925.	4.1579E+09
3	0.65	187129.	143.711750	121634.	4.2236E+09
1	0.70	183073.	65.407300	128151.	4.1067E+09
2	0.70	184501.	96.728800	129150.	4.1395E+09
3	0.70	187129.	154.766500	130990.	4.1997E+09
1	0.75	183073.	70.079250	137305.	4.0006E+09
2	0.75	184501.	103.638000	138376.	4.0356E+09
3	0.75	187129.	165.821250	140347.	4.1005E+09

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Pile Head ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	5.5000	5.5000	N.A.	No	0.00	134806.
2	14.0000	14.0000	Yes	No	134806.	214027.
3	19.0000	112.8975	No	No	214027.	72339.
4	24.0000	20.2347	No	No	286366.	576629.
5	34.0000	30.2347	Yes	No	862995.	464647.
6	39.0000	35.2347	Yes	No	464647.	487119.
7	44.0000	40.2347	Yes	No	487119.	N.A.

Note: F0 for Layer n+1 = F0 + F1 for Layer n

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 159269.0 lbs

Applied moment at pile head = 125744512.0 in-lbs
Axial thrust load on pile head = 221095.0 lbs

Depth X	Deflect. y	Bending Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil Res. Spr. Distrib. p
Es*h	Lat. Load						
feet	inches	in-lbs	lbs	radians	psi*	in-lb^2	
lb/inch	lb/inch	lb/inch					
0.00	3.1734	1.26E+08	159269.	-0.01487	0.00	4.21E+12	
0.00	0.00	0.00					
0.5450	3.0767	1.27E+08	159269.	-0.01468	0.00	4.21E+12	
0.00	0.00	0.00					
1.0900	2.9814	1.28E+08	159269.	-0.01448	0.00	4.21E+12	
0.00	0.00	0.00					
1.6350	2.8873	1.29E+08	159269.	-0.01428	0.00	4.20E+12	
0.00	0.00	0.00					
2.1800	2.7946	1.30E+08	159269.	-0.01408	0.00	4.20E+12	
0.00	0.00	0.00					
2.7250	2.7031	1.31E+08	159269.	-0.01388	0.00	4.20E+12	
0.00	0.00	0.00					
3.2700	2.6130	1.32E+08	159269.	-0.01367	0.00	4.20E+12	
0.00	0.00	0.00					
3.8150	2.5243	1.33E+08	159269.	-0.01346	0.00	4.19E+12	
0.00	0.00	0.00					
4.3600	2.4369	1.34E+08	159269.	-0.01326	0.00	4.19E+12	
0.00	0.00	0.00					
4.9050	2.3509	1.35E+08	159269.	-0.01305	0.00	4.18E+12	
0.00	0.00	0.00					
5.4500	2.2663	1.36E+08	159269.	-0.01283	0.00	4.17E+12	
0.00	0.00	0.00					
5.9950	2.1831	1.37E+08	158919.	-0.01262	0.00	4.15E+12	
-106.9244	320.3226	0.00					
6.5400	2.1013	1.38E+08	157823.	-0.01240	0.00	4.14E+12	
-228.2161	710.3051	0.00					
7.0850	2.0209	1.40E+08	155925.	-0.01218	0.00	4.12E+12	
-352.3640	1140.	0.00					
7.6300	1.9420	1.41E+08	153208.	-0.01196	0.00	4.10E+12	
-478.4837	1611.	0.00					
8.1750	1.8645	1.42E+08	149663.	-0.01173	0.00	4.07E+12	
-605.7167	2125.	0.00					
8.7200	1.7885	1.43E+08	145284.	-0.01150	0.00	4.05E+12	
-733.2301	2681.	0.00					
9.2650	1.7141	1.43E+08	140074.	-0.01127	0.00	4.03E+12	
-860.2166	3282.	0.00					
9.8100	1.6411	1.44E+08	134034.	-0.01104	0.00	4.00E+12	

-986.6992	3932.	0.00				
10.3550	1.5697	1.45E+08	127171.	-0.01080	0.00	3.98E+12
-1112.	4634.	0.00				
10.9000	1.4999	1.46E+08	119494.	-0.01056	0.00	3.96E+12
-1235.	5387.	0.00				
11.4450	1.4316	1.47E+08	111022.	-0.01032	0.00	3.93E+12
-1355.	6192.	0.00				
11.9900	1.3649	1.48E+08	101779.	-0.01007	0.00	3.91E+12
-1471.	7050.	0.00				
12.5350	1.2999	1.48E+08	91793.	-0.00982	0.00	3.88E+12
-1583.	7963.	0.00				
13.0800	1.2365	1.49E+08	81095.	-0.00957	0.00	3.86E+12
-1689.	8932.	0.00				
13.6250	1.1747	1.49E+08	69721.	-0.00932	0.00	3.84E+12
-1790.	9963.	0.00				
14.1700	1.1146	1.50E+08	57817.	-0.00906	0.00	3.83E+12
-1851.	10859.	0.00				
14.7150	1.0562	1.50E+08	45480.	-0.00881	0.00	3.82E+12
-1922.	11903.	0.00				
15.2600	0.9994	1.50E+08	32700.	-0.00855	0.00	3.81E+12
-1986.	12994.	0.00				
15.8050	0.9444	1.51E+08	19533.	-0.00829	0.00	3.80E+12
-2041.	14133.	0.00				
16.3500	0.8910	1.51E+08	6015.	-0.00803	0.00	3.80E+12
-2093.	15365.	0.00				
16.8950	0.8393	1.51E+08	-7831.	-0.00777	0.00	3.80E+12
-2141.	16684.	0.00				
17.4400	0.7893	1.51E+08	-21965.	-0.00751	0.00	3.80E+12
-2181.	18071.	0.00				
17.9850	0.7411	1.50E+08	-36333.	-0.00725	0.00	3.81E+12
-2213.	19527.	0.00				
18.5300	0.6945	1.50E+08	-50879.	-0.00700	0.00	3.82E+12
-2236.	21055.	0.00				
19.0750	0.6496	1.50E+08	-78957.	-0.00674	0.00	3.83E+12
-6351.	63942.	0.00				
19.6200	0.6063	1.49E+08	-120028.	-0.00649	0.00	3.85E+12
-6209.	66978.	0.00				
20.1650	0.5647	1.48E+08	-160154.	-0.00623	0.00	3.88E+12
-6061.	70196.	0.00				
20.7100	0.5248	1.47E+08	-199289.	-0.00599	0.00	3.93E+12
-5906.	73610.	0.00				
21.2550	0.4864	1.46E+08	-237385.	-0.00574	0.00	3.97E+12
-5744.	77229.	0.00				
21.8000	0.4496	1.44E+08	-274392.	-0.00551	0.00	4.02E+12
-5573.	81059.	0.00				
22.3450	0.4144	1.42E+08	-310241.	-0.00528	0.00	4.06E+12
-5390.	85071.	0.00				
22.8900	0.3806	1.40E+08	-344786.	-0.00505	0.00	4.11E+12

-5174.	88904.	0.00				
23.4350	0.3483	1.38E+08	-377891.	-0.00483	0.00	4.15E+12
-4950.	92934.	0.00				
23.9800	0.3174	1.35E+08	-409528.	-0.00462	0.00	4.18E+12
-4725.	97350.	0.00				
24.5250	0.2879	1.32E+08	-429279.	-0.00441	0.00	4.20E+12
-1315.	29862.	0.00				
25.0700	0.2598	1.29E+08	-437568.	-0.00420	0.00	4.20E+12
-1220.	30717.	0.00				
25.6150	0.2329	1.26E+08	-445235.	-0.00401	0.00	4.21E+12
-1125.	31573.	0.00				
26.1600	0.2074	1.24E+08	-452275.	-0.00381	0.00	4.22E+12
-1028.	32428.	0.00				
26.7050	0.1831	1.21E+08	-458685.	-0.00362	0.00	4.23E+12
-931.8005	33283.	0.00				
27.2500	0.1600	1.18E+08	-464463.	-0.00344	0.00	4.23E+12
-835.2694	34139.	0.00				
27.7950	0.1381	1.15E+08	-469611.	-0.00326	0.00	4.24E+12
-739.0542	34994.	0.00				
28.3400	0.1174	1.11E+08	-474132.	-0.00309	0.00	4.25E+12
-643.4394	35850.	0.00				
28.8850	0.09776	1.08E+08	-478030.	-0.00292	0.00	4.26E+12
-548.6900	36705.	0.00				
29.4300	0.07923	1.05E+08	-481313.	-0.00275	0.00	4.27E+12
-455.0524	37561.	0.00				
29.9750	0.06176	1.02E+08	-483987.	-0.00259	0.00	4.28E+12
-362.7542	38416.	0.00				
30.5200	0.04530	9.89E+07	-486063.	-0.00244	0.00	4.29E+12
-272.0042	39271.	0.00				
31.0650	0.02982	9.57E+07	-487550.	-0.00229	0.00	4.30E+12
-182.9928	40127.	0.00				
31.6100	0.01530	9.25E+07	-488462.	-0.00215	0.00	4.32E+12
-95.8920	40982.	0.00				
32.1550	0.00170	8.93E+07	-488811.	-0.00201	0.00	4.33E+12
-10.8558	41838.	0.00				
32.7000	-0.01103	8.61E+07	-488612.	-0.00188	0.00	4.34E+12
71.9797	42693.	0.00				
33.2450	-0.02290	8.29E+07	-487878.	-0.00175	0.00	4.36E+12
152.4961	43549.	0.00				
33.7900	-0.03396	7.97E+07	-486625.	-0.00163	0.00	4.37E+12
230.5922	44404.	0.00				
34.3350	-0.04424	7.66E+07	-483868.	-0.00151	0.00	4.39E+12
612.3676	90519.	0.00				
34.8800	-0.05378	7.34E+07	-479529.	-0.00140	0.00	4.41E+12
714.5421	86895.	0.00				
35.4250	-0.06260	7.03E+07	-474743.	-0.00130	0.00	4.42E+12
749.1122	78261.	0.00				
35.9700	-0.07074	6.72E+07	-469711.	-0.00120	0.00	4.44E+12

789.8056	73015.	0.00				
36.5150	-0.07824	6.41E+07	-464341.	-0.00110	0.00	4.47E+12
852.3746	71250.	0.00				
37.0600	-0.08512	6.11E+07	-458574.	-0.00101	0.00	4.49E+12
911.3689	70022.	0.00				
37.6050	-0.09142	5.81E+07	-452431.	-9.21E-04	0.00	4.51E+12
967.2094	69192.	0.00				
38.1500	-0.09717	5.52E+07	-445932.	-8.39E-04	0.00	4.54E+12
1020.	68666.	0.00				
38.6950	-0.1024	5.23E+07	-439095.	-7.62E-04	0.00	4.57E+12
1071.	68377.	0.00				
39.2400	-0.1071	4.95E+07	-432716.	-6.89E-04	0.00	4.60E+12
880.1820	53731.	0.00				
39.7850	-0.1114	4.67E+07	-426843.	-6.46E-04	0.00	1.91E+13
915.7875	53757.	0.00				
40.3300	-0.1156	4.39E+07	-420738.	-6.31E-04	0.00	1.91E+13
951.2302	53821.	0.00				
40.8750	-0.1197	4.12E+07	-414402.	-6.16E-04	0.00	1.91E+13
986.5232	53917.	0.00				
41.4200	-0.1236	3.85E+07	-407835.	-6.03E-04	0.00	1.91E+13
1022.	54039.	0.00				
41.9650	-0.1275	3.58E+07	-401038.	-5.90E-04	0.00	1.91E+13
1057.	54184.	0.00				
42.5100	-0.1314	3.32E+07	-394013.	-5.78E-04	0.00	1.92E+13
1092.	54348.	0.00				
43.0550	-0.1351	3.07E+07	-386760.	-5.67E-04	0.00	1.92E+13
1126.	54527.	0.00				
43.6000	-0.1388	2.82E+07	-379280.	-5.57E-04	0.00	1.92E+13
1161.	54718.	0.00				
44.1450	-0.1424	2.57E+07	-369078.	-5.48E-04	0.00	1.92E+13
1959.	89965.	0.00				
44.6900	-0.1459	2.33E+07	-355963.	-5.40E-04	0.00	1.92E+13
2052.	91959.	0.00				
45.2350	-0.1494	2.11E+07	-342229.	-5.32E-04	0.00	1.93E+13
2148.	93981.	0.00				
45.7800	-0.1529	1.89E+07	-327865.	-5.25E-04	0.00	1.93E+13
2245.	96030.	0.00				
46.3250	-0.1563	1.68E+07	-312855.	-5.19E-04	0.00	1.93E+13
2345.	98104.	0.00				
46.8700	-0.1597	1.48E+07	-297186.	-5.14E-04	0.00	1.93E+13
2447.	100203.	0.00				
47.4150	-0.1630	1.29E+07	-280844.	-5.09E-04	0.00	1.93E+13
2551.	102325.	0.00				
47.9600	-0.1664	1.11E+07	-263813.	-5.05E-04	0.00	1.93E+13
2657.	104468.	0.00				
48.5050	-0.1696	9439807.	-246078.	-5.02E-04	0.00	1.93E+13
2766.	106633.	0.00				
49.0500	-0.1729	7890334.	-227625.	-4.99E-04	0.00	1.93E+13

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2877.     108817.       0.00
   49.5950    -0.1762   6463917.   -208437.  -4.96E-04       0.00   1.94E+13
2991.     111021.       0.00
   50.1400    -0.1794   5165411.   -188499.  -4.94E-04       0.00   1.94E+13
3107.     113242.       0.00
   50.6850    -0.1826   3999775.   -167795.  -4.93E-04       0.00   1.94E+13
3225.     115482.       0.00
   51.2300    -0.1859   2972074.   -146308.  -4.92E-04       0.00   1.94E+13
3346.     117738.       0.00
   51.7750    -0.1891   2087482.   -124022.  -4.91E-04       0.00   1.94E+13
3469.     120010.       0.00
   52.3200    -0.1923   1351281.   -100920.  -4.90E-04       0.00   1.94E+13
3596.     122298.       0.00
   52.8650    -0.1955    768868.    -76984.  -4.90E-04       0.00   1.94E+13
3724.     124601.       0.00
   53.4100    -0.1987    345749.    -52197.  -4.90E-04       0.00   1.94E+13
3856.     126920.       0.00
   53.9550    -0.2019     87547.    -26542.  -4.90E-04       0.00   1.94E+13
3990.     129252.       0.00
   54.5000    -0.2051       0.00       0.00  -4.90E-04       0.00   1.94E+13
4127.      65800.       0.00

* This analysis computed pile response using nonlinear moment-curvature rela-
  tionships. Values of total stress due to combined axial and bending stresses
  are computed only for elastic sections only and do not equal the actual
  stresses in concrete and steel. Stresses in concrete and steel may be inter-
  polated from the output for nonlinear bending properties relative to the
  magnitude of bending moment developed in the pile.


Output Summary for Load Case No. 1:

Pile-head deflection             =     3.17335542 inches
Computed slope at pile head      =    -0.01487490 radians
Maximum bending moment           =     150657775. inch-lbs
Maximum shear force              =       -488811. lbs
Depth of maximum bending moment  =    16.89500000 feet below pile head
Depth of maximum shear force     =    32.15500000 feet below pile head
Number of iterations             =             41
Number of zero deflection points =              1


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                Computed Values of Pile Loading and Deflection
                  for Lateral Loading for Load Case Number 2
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Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 74658.0 lbs
Applied moment at pile head = 58942740.0 in-lbs
Axial thrust load on pile head = 138184.0 lbs

Depth X	Deflect. y	Bending Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil Res. Spr. Distrib. p
Es*h Lat. Load							
feet	inches	in-lbs	lbs	radians	psi*	in-lb^2	
lb/inch	lb/inch	lb/inch					
0.00	1.0121	5.89E+07	74658.	-0.00553	0.00	4.35E+12	
0.00	0.00	0.00					
0.5450	0.9762	5.94E+07	74658.	-0.00544	0.00	4.35E+12	
0.00	0.00	0.00					
1.0900	0.9409	5.99E+07	74658.	-0.00535	0.00	4.34E+12	
0.00	0.00	0.00					
1.6350	0.9062	6.04E+07	74658.	-0.00526	0.00	4.34E+12	
0.00	0.00	0.00					
2.1800	0.8721	6.09E+07	74658.	-0.00517	0.00	4.34E+12	
0.00	0.00	0.00					
2.7250	0.8386	6.14E+07	74658.	-0.00508	0.00	4.33E+12	
0.00	0.00	0.00					
3.2700	0.8057	6.19E+07	74658.	-0.00498	0.00	4.33E+12	
0.00	0.00	0.00					
3.8150	0.7734	6.24E+07	74658.	-0.00489	0.00	4.33E+12	
0.00	0.00	0.00					
4.3600	0.7417	6.29E+07	74658.	-0.00480	0.00	4.33E+12	
0.00	0.00	0.00					
4.9050	0.7106	6.34E+07	74658.	-0.00470	0.00	4.32E+12	
0.00	0.00	0.00					
5.4500	0.6802	6.39E+07	74658.	-0.00460	0.00	4.32E+12	
0.00	0.00	0.00					
5.9950	0.6504	6.44E+07	74406.	-0.00451	0.00	4.32E+12	
-77.2166	776.4148	0.00					
6.5400	0.6213	6.49E+07	73616.	-0.00441	0.00	4.32E+12	
-164.2000	1729.	0.00					
7.0850	0.5927	6.53E+07	72254.	-0.00431	0.00	4.31E+12	
-252.4485	2785.	0.00					
7.6300	0.5649	6.58E+07	70313.	-0.00421	0.00	4.31E+12	
-341.1508	3950.	0.00					
8.1750	0.5377	6.63E+07	67793.	-0.00411	0.00	4.31E+12	
-429.5072	5224.	0.00					
8.7200	0.5111	6.67E+07	64698.	-0.00401	0.00	4.31E+12	
-516.7313	6612.	0.00					

9.2650	0.4852	6.71E+07	61040.	-0.00391	0.00	4.31E+12
-602.0518	8115.	0.00				
9.8100	0.4600	6.75E+07	56826.	-0.00381	0.00	4.31E+12
-686.6850	9763.	0.00				
10.3550	0.4354	6.79E+07	52061.	-0.00370	0.00	4.30E+12
-770.4045	11571.	0.00				
10.9000	0.4115	6.82E+07	46758.	-0.00360	0.00	4.30E+12
-851.3821	13529.	0.00				
11.4450	0.3883	6.85E+07	40936.	-0.00350	0.00	4.30E+12
-929.0524	15646.	0.00				
11.9900	0.3658	6.87E+07	34618.	-0.00339	0.00	4.30E+12
-1003.	17929.	0.00				
12.5350	0.3440	6.89E+07	27833.	-0.00329	0.00	4.30E+12
-1072.	20388.	0.00				
13.0800	0.3228	6.91E+07	20608.	-0.00318	0.00	4.30E+12
-1137.	23032.	0.00				
13.6250	0.3024	6.92E+07	12977.	-0.00308	0.00	4.30E+12
-1197.	25888.	0.00				
14.1700	0.2826	6.93E+07	5152.	-0.00297	0.00	4.30E+12
-1196.	27683.	0.00				
14.7150	0.2635	6.93E+07	-2786.	-0.00287	0.00	4.30E+12
-1232.	30567.	0.00				
15.2600	0.2451	6.92E+07	-10934.	-0.00276	0.00	4.30E+12
-1260.	33627.	0.00				
15.8050	0.2274	6.92E+07	-19247.	-0.00266	0.00	4.30E+12
-1282.	36872.	0.00				
16.3500	0.2104	6.90E+07	-27698.	-0.00255	0.00	4.30E+12
-1302.	40484.	0.00				
16.8950	0.1940	6.88E+07	-36269.	-0.00245	0.00	4.30E+12
-1319.	44460.	0.00				
17.4400	0.1784	6.85E+07	-44930.	-0.00234	0.00	4.30E+12
-1329.	48743.	0.00				
17.9850	0.1634	6.82E+07	-53637.	-0.00224	0.00	4.30E+12
-1333.	53364.	0.00				
18.5300	0.1491	6.78E+07	-62349.	-0.00213	0.00	4.30E+12
-1331.	58359.	0.00				
19.0750	0.1355	6.74E+07	-76795.	-0.00203	0.00	4.31E+12
-3087.	149003.	0.00				
19.6200	0.1226	6.68E+07	-96397.	-0.00193	0.00	4.31E+12
-2907.	155139.	0.00				
20.1650	0.1103	6.61E+07	-114787.	-0.00183	0.00	4.31E+12
-2717.	161127.	0.00				
20.7100	0.09865	6.53E+07	-131914.	-0.00173	0.00	4.31E+12
-2521.	167115.	0.00				
21.2550	0.08767	6.44E+07	-147744.	-0.00163	0.00	4.32E+12
-2320.	173103.	0.00				
21.8000	0.07733	6.34E+07	-162256.	-0.00153	0.00	4.32E+12
-2117.	179091.	0.00				

22.3450	0.06761	6.23E+07	-175437.	-0.00144	0.00	4.33E+12
-1913.	185079.	0.00				
22.8900	0.05851	6.11E+07	-187284.	-0.00135	0.00	4.33E+12
-1709.	191067.	0.00				
23.4350	0.05002	5.99E+07	-197802.	-0.00125	0.00	4.34E+12
-1507.	197055.	0.00				
23.9800	0.04211	5.85E+07	-207005.	-0.00116	0.00	4.35E+12
-1307.	203043.	0.00				
24.5250	0.03478	5.71E+07	-211799.	-0.00108	0.00	4.36E+12
-158.8093	29862.	0.00				
25.0700	0.02801	5.58E+07	-212749.	-9.93E-04	0.00	4.36E+12
-131.5659	30717.	0.00				
25.6150	0.02179	5.44E+07	-213523.	-9.11E-04	0.00	4.37E+12
-105.1899	31573.	0.00				
26.1600	0.01610	5.30E+07	-214128.	-8.31E-04	0.00	4.38E+12
-79.8231	32428.	0.00				
26.7050	0.01092	5.16E+07	-214571.	-7.53E-04	0.00	4.39E+12
-55.5991	33283.	0.00				
27.2500	0.00625	5.02E+07	-214859.	-6.77E-04	0.00	4.40E+12
-32.6438	34139.	0.00				
27.7950	0.00207	4.88E+07	-215002.	-6.04E-04	0.00	4.41E+12
-11.0752	34994.	0.00				
28.3400	-0.00164	4.74E+07	-215009.	-5.32E-04	0.00	4.42E+12
8.9962	35850.	0.00				
28.8850	-0.00489	4.59E+07	-214890.	-4.64E-04	0.00	4.43E+12
27.4681	36705.	0.00				
29.4300	-0.00770	4.45E+07	-214655.	-3.97E-04	0.00	4.45E+12
44.2454	37561.	0.00				
29.9750	-0.01009	4.31E+07	-214317.	-3.32E-04	0.00	4.46E+12
59.2407	38416.	0.00				
30.5200	-0.01205	4.17E+07	-213887.	-2.91E-04	0.00	1.35E+13
72.3743	39271.	0.00				
31.0650	-0.01389	4.03E+07	-213371.	-2.74E-04	0.00	1.91E+13
85.2088	40127.	0.00				
31.6100	-0.01563	3.89E+07	-212772.	-2.60E-04	0.00	1.91E+13
97.9576	40982.	0.00				
32.1550	-0.01729	3.76E+07	-212090.	-2.47E-04	0.00	1.91E+13
110.6054	41838.	0.00				
32.7000	-0.01886	3.62E+07	-211326.	-2.34E-04	0.00	1.91E+13
123.1387	42693.	0.00				
33.2450	-0.02036	3.48E+07	-210480.	-2.22E-04	0.00	1.92E+13
135.5454	43549.	0.00				
33.7900	-0.02177	3.34E+07	-209554.	-2.11E-04	0.00	1.92E+13
147.8151	44404.	0.00				
34.3350	-0.02311	3.21E+07	-208024.	-1.99E-04	0.00	1.92E+13
319.8776	90519.	0.00				
34.8800	-0.02438	3.07E+07	-205854.	-1.89E-04	0.00	1.92E+13
343.8180	92230.	0.00				

35.4250	-0.02558	2.94E+07	-203528.	-1.79E-04	0.00	1.92E+13
367.4391	93941.	0.00				
35.9700	-0.02672	2.80E+07	-201049.	-1.69E-04	0.00	1.92E+13
390.7316	95651.	0.00				
36.5150	-0.02779	2.67E+07	-198418.	-1.59E-04	0.00	1.92E+13
413.6884	97362.	0.00				
37.0600	-0.02880	2.54E+07	-195639.	-1.51E-04	0.00	1.92E+13
436.3049	99073.	0.00				
37.6050	-0.02976	2.42E+07	-192713.	-1.42E-04	0.00	1.92E+13
458.5793	100784.	0.00				
38.1500	-0.03066	2.29E+07	-189642.	-1.34E-04	0.00	1.92E+13
480.5118	102495.	0.00				
38.6950	-0.03151	2.17E+07	-186429.	-1.27E-04	0.00	1.93E+13
502.1049	104206.	0.00				
39.2400	-0.03232	2.05E+07	-183349.	-1.19E-04	0.00	1.93E+13
439.5832	88961.	0.00				
39.7850	-0.03307	1.93E+07	-180436.	-1.13E-04	0.00	1.93E+13
451.3093	89241.	0.00				
40.3300	-0.03379	1.81E+07	-177447.	-1.06E-04	0.00	1.93E+13
462.6636	89549.	0.00				
40.8750	-0.03446	1.70E+07	-174386.	-1.00E-04	0.00	1.93E+13
473.6511	89880.	0.00				
41.4200	-0.03510	1.58E+07	-171253.	-9.48E-05	0.00	1.93E+13
484.2770	90228.	0.00				
41.9650	-0.03570	1.47E+07	-168053.	-8.96E-05	0.00	1.93E+13
494.5469	90587.	0.00				
42.5100	-0.03627	1.36E+07	-164786.	-8.48E-05	0.00	1.93E+13
504.4669	90952.	0.00				
43.0550	-0.03681	1.26E+07	-161455.	-8.04E-05	0.00	1.93E+13
514.0437	91321.	0.00				
43.6000	-0.03733	1.15E+07	-158063.	-7.63E-05	0.00	1.93E+13
523.2844	91688.	0.00				
44.1450	-0.03781	1.05E+07	-153492.	-7.26E-05	0.00	1.93E+13
874.6823	151289.	0.00				
44.6900	-0.03827	9529125.	-147658.	-6.92E-05	0.00	1.93E+13
909.4581	155401.	0.00				
45.2350	-0.03872	8582954.	-141595.	-6.61E-05	0.00	1.93E+13
944.7100	159583.	0.00				
45.7800	-0.03914	7677188.	-135299.	-6.34E-05	0.00	1.94E+13
980.4515	163831.	0.00				
46.3250	-0.03954	6813354.	-128769.	-6.09E-05	0.00	1.94E+13
1017.	168144.	0.00				
46.8700	-0.03994	5993004.	-121999.	-5.87E-05	0.00	1.94E+13
1053.	172520.	0.00				
47.4150	-0.04031	5217711.	-114988.	-5.69E-05	0.00	1.94E+13
1091.	176956.	0.00				
47.9600	-0.04068	4489070.	-107730.	-5.52E-05	0.00	1.94E+13
1129.	181450.	0.00				

48.5050	-0.04104	3808701.	-100223.	-5.38E-05	0.00	1.94E+13
1167.	186001.	0.00				
49.0500	-0.04138	3178248.	-92463.	-5.26E-05	0.00	1.94E+13
1206.	190606.	0.00				
49.5950	-0.04172	2599380.	-84446.	-5.17E-05	0.00	1.94E+13
1246.	195263.	0.00				
50.1400	-0.04206	2073794.	-76167.	-5.09E-05	0.00	1.94E+13
1286.	199970.	0.00				
50.6850	-0.04239	1603212.	-67622.	-5.03E-05	0.00	1.94E+13
1327.	204725.	0.00				
51.2300	-0.04272	1189384.	-58808.	-4.98E-05	0.00	1.94E+13
1369.	209527.	0.00				
51.7750	-0.04304	834089.	-49720.	-4.94E-05	0.00	1.94E+13
1411.	214374.	0.00				
52.3200	-0.04336	539138.	-40353.	-4.92E-05	0.00	1.94E+13
1454.	219264.	0.00				
52.8650	-0.04368	306367.	-30702.	-4.91E-05	0.00	1.94E+13
1498.	224196.	0.00				
53.4100	-0.04400	137648.	-20763.	-4.90E-05	0.00	1.94E+13
1542.	229169.	0.00				
53.9550	-0.04432	34881.	-10530.	-4.90E-05	0.00	1.94E+13
1587.	234182.	0.00				
54.5000	-0.04464	0.00	0.00	-4.90E-05	0.00	1.94E+13
1633.	119617.	0.00				

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 2:

Pile-head deflection	=	1.01207187 inches
Computed slope at pile head	=	-0.00553083 radians
Maximum bending moment	=	69290545. inch-lbs
Maximum shear force	=	-215009. lbs
Depth of maximum bending moment	=	14.71500000 feet below pile head
Depth of maximum shear force	=	28.34000000 feet below pile head
Number of iterations	=	38
Number of zero deflection points	=	1

Computed Values of Pile Loading and Deflection

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 27581.0 lbs
Applied moment at pile head = 21750873.0 in-lbs
Axial thrust load on pile head = 93439.0 lbs

Depth X	Deflect. y	Bending Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil Res. Spr. Distrib. p
Es*h	Lat. Load						
feet	inches	in-lbs	lbs	radians	psi*	in-lb^2	
lb/inch	lb/inch	lb/inch					
0.00	0.1413	2.18E+07	27581.	-5.92E-04	0.00	1.93E+13	
0.00	0.00	0.00					
0.5450	0.1375	2.19E+07	27581.	-5.85E-04	0.00	1.93E+13	
0.00	0.00	0.00					
1.0900	0.1337	2.21E+07	27581.	-5.77E-04	0.00	1.93E+13	
0.00	0.00	0.00					
1.6350	0.1299	2.23E+07	27581.	-5.70E-04	0.00	1.93E+13	
0.00	0.00	0.00					
2.1800	0.1262	2.25E+07	27581.	-5.62E-04	0.00	1.93E+13	
0.00	0.00	0.00					
2.7250	0.1226	2.27E+07	27581.	-5.54E-04	0.00	1.93E+13	
0.00	0.00	0.00					
3.2700	0.1190	2.28E+07	27581.	-5.47E-04	0.00	1.92E+13	
0.00	0.00	0.00					
3.8150	0.1154	2.30E+07	27581.	-5.39E-04	0.00	1.92E+13	
0.00	0.00	0.00					
4.3600	0.1119	2.32E+07	27581.	-5.31E-04	0.00	1.92E+13	
0.00	0.00	0.00					
4.9050	0.1085	2.34E+07	27581.	-5.23E-04	0.00	1.92E+13	
0.00	0.00	0.00					
5.4500	0.1051	2.36E+07	27581.	-5.15E-04	0.00	1.92E+13	
0.00	0.00	0.00					
5.9950	0.1018	2.37E+07	27462.	-5.07E-04	0.00	1.92E+13	
-36.2637	2331.	0.00					
6.5400	0.09846	2.39E+07	27103.	-4.99E-04	0.00	1.92E+13	
-73.7264	4897.	0.00					
7.0850	0.09522	2.41E+07	26506.	-4.91E-04	0.00	1.92E+13	
-108.6671	7463.	0.00					
7.6300	0.09204	2.43E+07	25689.	-4.83E-04	0.00	1.92E+13	
-141.1492	10030.	0.00					
8.1750	0.08891	2.44E+07	24668.	-4.74E-04	0.00	1.92E+13	

-171.2363	12596.	0.00				
8.7200	0.08583	2.46E+07	23457.	-4.66E-04	0.00	1.92E+13
-198.9928	15162.	0.00				
9.2650	0.08281	2.47E+07	22073.	-4.58E-04	0.00	1.92E+13
-224.4837	17729.	0.00				
9.8100	0.07984	2.49E+07	20528.	-4.49E-04	0.00	1.92E+13
-247.7743	20295.	0.00				
10.3550	0.07693	2.50E+07	18839.	-4.41E-04	0.00	1.92E+13
-268.9305	22861.	0.00				
10.9000	0.07408	2.51E+07	17017.	-4.32E-04	0.00	1.92E+13
-288.0185	25428.	0.00				
11.4450	0.07128	2.52E+07	15078.	-4.24E-04	0.00	1.92E+13
-305.1050	27994.	0.00				
11.9900	0.06854	2.53E+07	13033.	-4.15E-04	0.00	1.92E+13
-320.2568	30560.	0.00				
12.5350	0.06585	2.54E+07	10895.	-4.07E-04	0.00	1.92E+13
-333.5411	33126.	0.00				
13.0800	0.06322	2.55E+07	8676.	-3.98E-04	0.00	1.92E+13
-345.0251	35693.	0.00				
13.6250	0.06065	2.55E+07	6388.	-3.89E-04	0.00	1.92E+13
-354.7761	38259.	0.00				
14.1700	0.05813	2.55E+07	4041.	-3.81E-04	0.00	1.92E+13
-362.8616	40825.	0.00				
14.7150	0.05567	2.56E+07	1647.	-3.72E-04	0.00	1.92E+13
-369.3488	43392.	0.00				
15.2600	0.05327	2.56E+07	-785.0034	-3.63E-04	0.00	1.92E+13
-374.3050	45958.	0.00				
15.8050	0.05092	2.56E+07	-3244.	-3.54E-04	0.00	1.92E+13
-377.7972	48524.	0.00				
16.3500	0.04863	2.55E+07	-5722.	-3.46E-04	0.00	1.92E+13
-379.8921	51090.	0.00				
16.8950	0.04640	2.55E+07	-8209.	-3.37E-04	0.00	1.92E+13
-380.6560	53657.	0.00				
17.4400	0.04422	2.54E+07	-10697.	-3.28E-04	0.00	1.92E+13
-380.1551	56223.	0.00				
17.9850	0.04210	2.53E+07	-13178.	-3.20E-04	0.00	1.92E+13
-378.4547	58789.	0.00				
18.5300	0.04004	2.53E+07	-15643.	-3.11E-04	0.00	1.92E+13
-375.6197	61356.	0.00				
19.0750	0.03803	2.51E+07	-19708.	-3.03E-04	0.00	1.92E+13
-867.3340	149151.	0.00				
19.6200	0.03608	2.50E+07	-25343.	-2.94E-04	0.00	1.92E+13
-855.8731	155139.	0.00				
20.1650	0.03418	2.48E+07	-30895.	-2.86E-04	0.00	1.92E+13
-842.2088	161127.	0.00				
20.7100	0.03234	2.46E+07	-36352.	-2.77E-04	0.00	1.92E+13
-826.4831	167115.	0.00				
21.2550	0.03056	2.43E+07	-41700.	-2.69E-04	0.00	1.92E+13

-808.8345	173103.	0.00				
21.8000	0.02883	2.40E+07	-46926.	-2.61E-04	0.00	1.92E+13
-789.3975	179091.	0.00				
22.3450	0.02715	2.37E+07	-52019.	-2.53E-04	0.00	1.92E+13
-768.3022	185079.	0.00				
22.8900	0.02552	2.34E+07	-56970.	-2.45E-04	0.00	1.92E+13
-745.6742	191067.	0.00				
23.4350	0.02395	2.30E+07	-61768.	-2.37E-04	0.00	1.92E+13
-721.6343	197055.	0.00				
23.9800	0.02243	2.26E+07	-66405.	-2.29E-04	0.00	1.93E+13
-696.2981	203043.	0.00				
24.5250	0.02096	2.21E+07	-68995.	-2.21E-04	0.00	1.93E+13
-95.6823	29862.	0.00				
25.0700	0.01953	2.17E+07	-69608.	-2.14E-04	0.00	1.93E+13
-91.7389	30717.	0.00				
25.6150	0.01816	2.12E+07	-70194.	-2.07E-04	0.00	1.93E+13
-87.6554	31573.	0.00				
26.1600	0.01683	2.07E+07	-70754.	-2.00E-04	0.00	1.93E+13
-83.4455	32428.	0.00				
26.7050	0.01555	2.03E+07	-71285.	-1.93E-04	0.00	1.93E+13
-79.1226	33283.	0.00				
27.2500	0.01431	1.98E+07	-71788.	-1.86E-04	0.00	1.93E+13
-74.6992	34139.	0.00				
27.7950	0.01312	1.93E+07	-72262.	-1.79E-04	0.00	1.93E+13
-70.1873	34994.	0.00				
28.3400	0.01197	1.89E+07	-72706.	-1.73E-04	0.00	1.93E+13
-65.5986	35850.	0.00				
28.8850	0.01086	1.84E+07	-73120.	-1.66E-04	0.00	1.93E+13
-60.9437	36705.	0.00				
29.4300	0.00979	1.79E+07	-73503.	-1.60E-04	0.00	1.93E+13
-56.2331	37561.	0.00				
29.9750	0.00876	1.74E+07	-73855.	-1.54E-04	0.00	1.93E+13
-51.4764	38416.	0.00				
30.5200	0.00777	1.69E+07	-74176.	-1.48E-04	0.00	1.93E+13
-46.6827	39271.	0.00				
31.0650	0.00682	1.65E+07	-74466.	-1.43E-04	0.00	1.93E+13
-41.8607	40127.	0.00				
31.6100	0.00591	1.60E+07	-74724.	-1.37E-04	0.00	1.93E+13
-37.0181	40982.	0.00				
32.1550	0.00503	1.55E+07	-74950.	-1.32E-04	0.00	1.93E+13
-32.1625	41838.	0.00				
32.7000	0.00418	1.50E+07	-75144.	-1.27E-04	0.00	1.93E+13
-27.3005	42693.	0.00				
33.2450	0.00337	1.45E+07	-75307.	-1.22E-04	0.00	1.93E+13
-22.4383	43549.	0.00				
33.7900	0.00259	1.40E+07	-75438.	-1.17E-04	0.00	1.93E+13
-17.5815	44404.	0.00				
34.3350	0.00184	1.35E+07	-75579.	-1.12E-04	0.00	1.93E+13

-25.4703	90519.	0.00				
34.8800	0.00112	1.30E+07	-75714.	-1.08E-04	0.00	1.93E+13
-15.8071	92230.	0.00				
35.4250	4.30E-04	1.25E+07	-75785.	-1.03E-04	0.00	1.93E+13
-6.1812	93941.	0.00				
35.9700	-2.33E-04	1.20E+07	-75795.	-9.93E-05	0.00	1.93E+13
3.4010	95651.	0.00				
36.5150	-8.69E-04	1.15E+07	-75741.	-9.53E-05	0.00	1.93E+13
12.9342	97362.	0.00				
37.0600	-0.00148	1.10E+07	-75626.	-9.15E-05	0.00	1.93E+13
22.4142	99073.	0.00				
37.6050	-0.00207	1.05E+07	-75448.	-8.79E-05	0.00	1.93E+13
31.8378	100784.	0.00				
38.1500	-0.00263	1.00E+07	-75209.	-8.44E-05	0.00	1.93E+13
41.2033	102495.	0.00				
38.6950	-0.00317	9550463.	-74909.	-8.11E-05	0.00	1.93E+13
50.5095	104206.	0.00				
39.2400	-0.00369	9061684.	-74549.	-7.79E-05	0.00	1.93E+13
59.7568	105917.	0.00				
39.7850	-0.00419	8575459.	-74128.	-7.50E-05	0.00	1.94E+13
68.9465	107627.	0.00				
40.3300	-0.00467	8092182.	-73647.	-7.22E-05	0.00	1.94E+13
78.0807	109338.	0.00				
40.8750	-0.00513	7612242.	-73107.	-6.95E-05	0.00	1.94E+13
87.1629	111049.	0.00				
41.4200	-0.00558	7136029.	-72507.	-6.70E-05	0.00	1.94E+13
96.1974	112760.	0.00				
41.9650	-0.00601	6663929.	-71849.	-6.47E-05	0.00	1.94E+13
105.1894	114471.	0.00				
42.5100	-0.00643	6196327.	-71132.	-6.25E-05	0.00	1.94E+13
114.1451	116182.	0.00				
43.0550	-0.00683	5733605.	-70356.	-6.05E-05	0.00	1.94E+13
123.0718	117893.	0.00				
43.6000	-0.00722	5276147.	-69522.	-5.86E-05	0.00	1.94E+13
131.9774	119604.	0.00				
44.1450	-0.00759	4824332.	-68012.	-5.69E-05	0.00	1.94E+13
329.6828	283915.	0.00				
44.6900	-0.00796	4386617.	-65789.	-5.54E-05	0.00	1.94E+13
350.1677	287654.	0.00				
45.2350	-0.00832	3963879.	-63431.	-5.40E-05	0.00	1.94E+13
370.9821	291662.	0.00				
45.7800	-0.00867	3557007.	-60935.	-5.27E-05	0.00	1.94E+13
392.1481	295903.	0.00				
46.3250	-0.00901	3166907.	-58300.	-5.16E-05	0.00	1.94E+13
413.6873	300349.	0.00				
46.8700	-0.00934	2794501.	-55523.	-5.06E-05	0.00	1.94E+13
435.6207	304974.	0.00				
47.4150	-0.00967	2440726.	-52601.	-4.97E-05	0.00	1.94E+13

457.9691	309758.	0.00				
47.9600	-0.00999	2106539.	-49531.	-4.89E-05	0.00	1.94E+13
480.7528	314683.	0.00				
48.5050	-0.01031	1792914.	-46311.	-4.83E-05	0.00	1.94E+13
503.9922	319733.	0.00				
49.0500	-0.01062	1500845.	-42938.	-4.77E-05	0.00	1.94E+13
527.7071	324895.	0.00				
49.5950	-0.01093	1231347.	-39407.	-4.72E-05	0.00	1.94E+13
551.9169	330157.	0.00				
50.1400	-0.01124	985455.	-35717.	-4.69E-05	0.00	1.94E+13
576.6406	335508.	0.00				
50.6850	-0.01155	764226.	-31863.	-4.66E-05	0.00	1.94E+13
601.8965	340941.	0.00				
51.2300	-0.01185	568742.	-27842.	-4.63E-05	0.00	1.94E+13
627.7023	346446.	0.00				
51.7750	-0.01215	400105.	-23651.	-4.62E-05	0.00	1.94E+13
654.0744	352017.	0.00				
52.3200	-0.01245	259444.	-19285.	-4.61E-05	0.00	1.94E+13
681.0284	357648.	0.00				
52.8650	-0.01275	147911.	-14741.	-4.60E-05	0.00	1.94E+13
708.5782	363335.	0.00				
53.4100	-0.01306	66686.	-10015.	-4.60E-05	0.00	1.94E+13
736.7364	369073.	0.00				
53.9550	-0.01336	16972.	-5103.	-4.59E-05	0.00	1.94E+13
765.5134	374861.	0.00				
54.5000	-0.01366	0.00	0.00	-4.59E-05	0.00	1.94E+13
794.9179	190348.	0.00				

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 3:

Pile-head deflection	=	0.14134151	inches
Computed slope at pile head	=	-0.00059220	radians
Maximum bending moment	=	25571401.	inch-lbs
Maximum shear force	=	-75795.	lbs
Depth of maximum bending moment	=	15.26000000	feet below pile head
Depth of maximum shear force	=	35.97000000	feet below pile head
Number of iterations	=	9	
Number of zero deflection points	=	1	

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

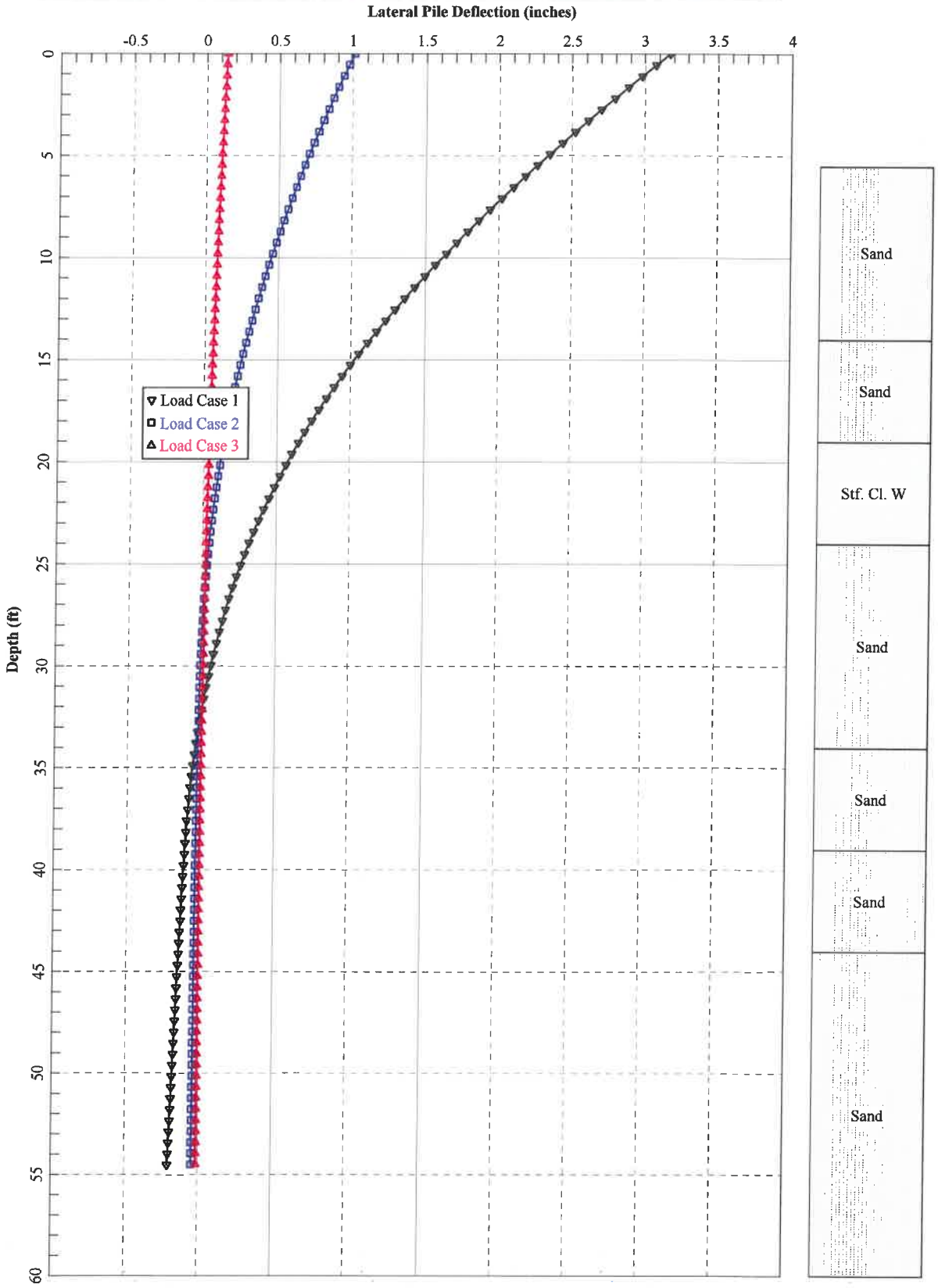
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

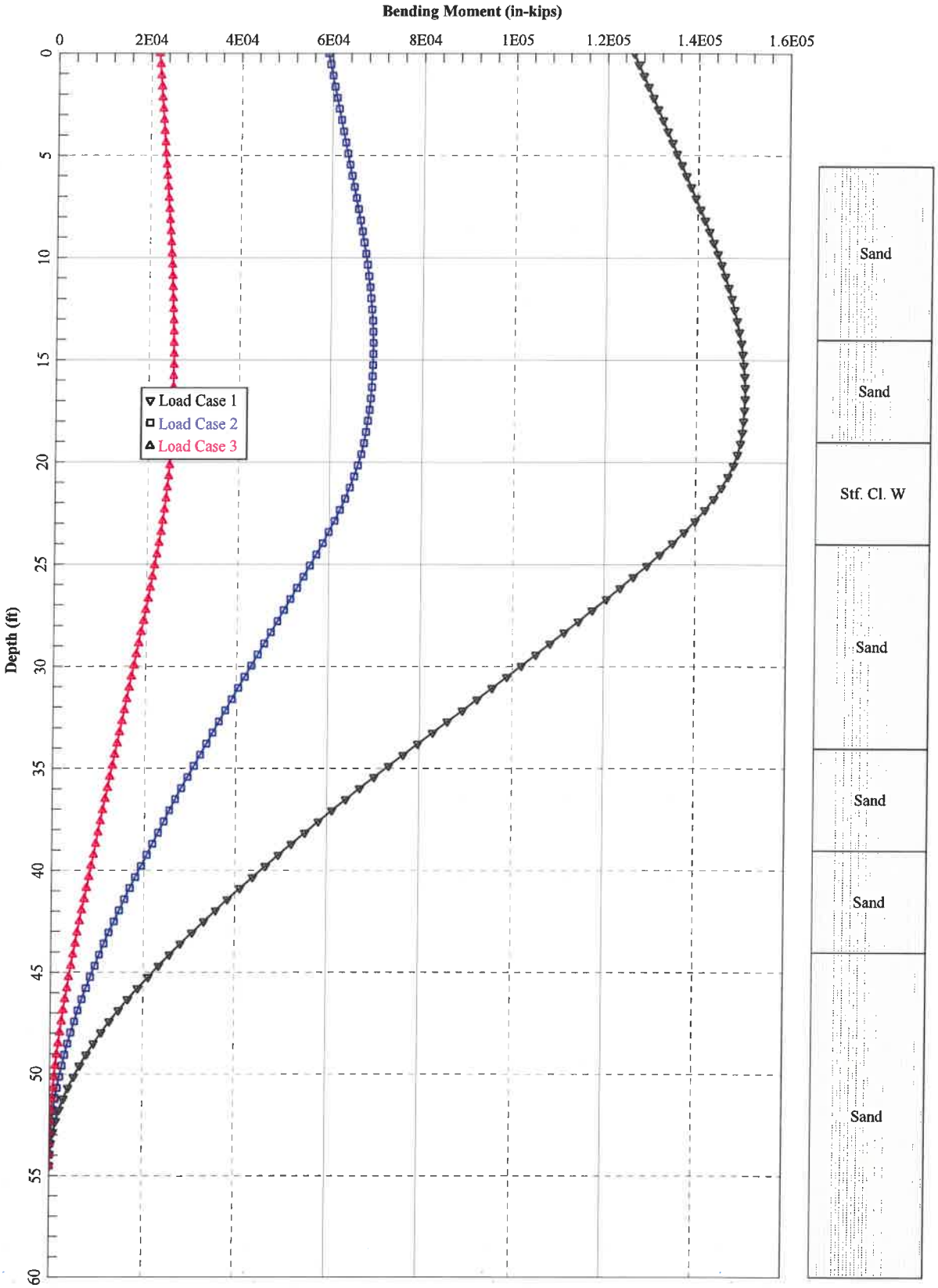
Load Case No.	Load Type	Pile-head Load 1	Load Type	Pile-head Load 2	Axial Loading lbs	Pile-head Deflection inches	Pile-head Rotation radians	Max Shear in Pile lbs	Max Moment in Pile in-lbs
1	V, lb	159269.	M, in-lb	1.26E+08	221095.	3.1734	-0.01487	-488811.	1.51E+08
2	V, lb	74658.	M, in-lb	5.89E+07	138184.	1.0121	-0.00553	-215009.	6.93E+07
3	V, lb	27581.	M, in-lb	2.18E+07	93439.	0.1413	-5.92E-04	-75795.	2.56E+07

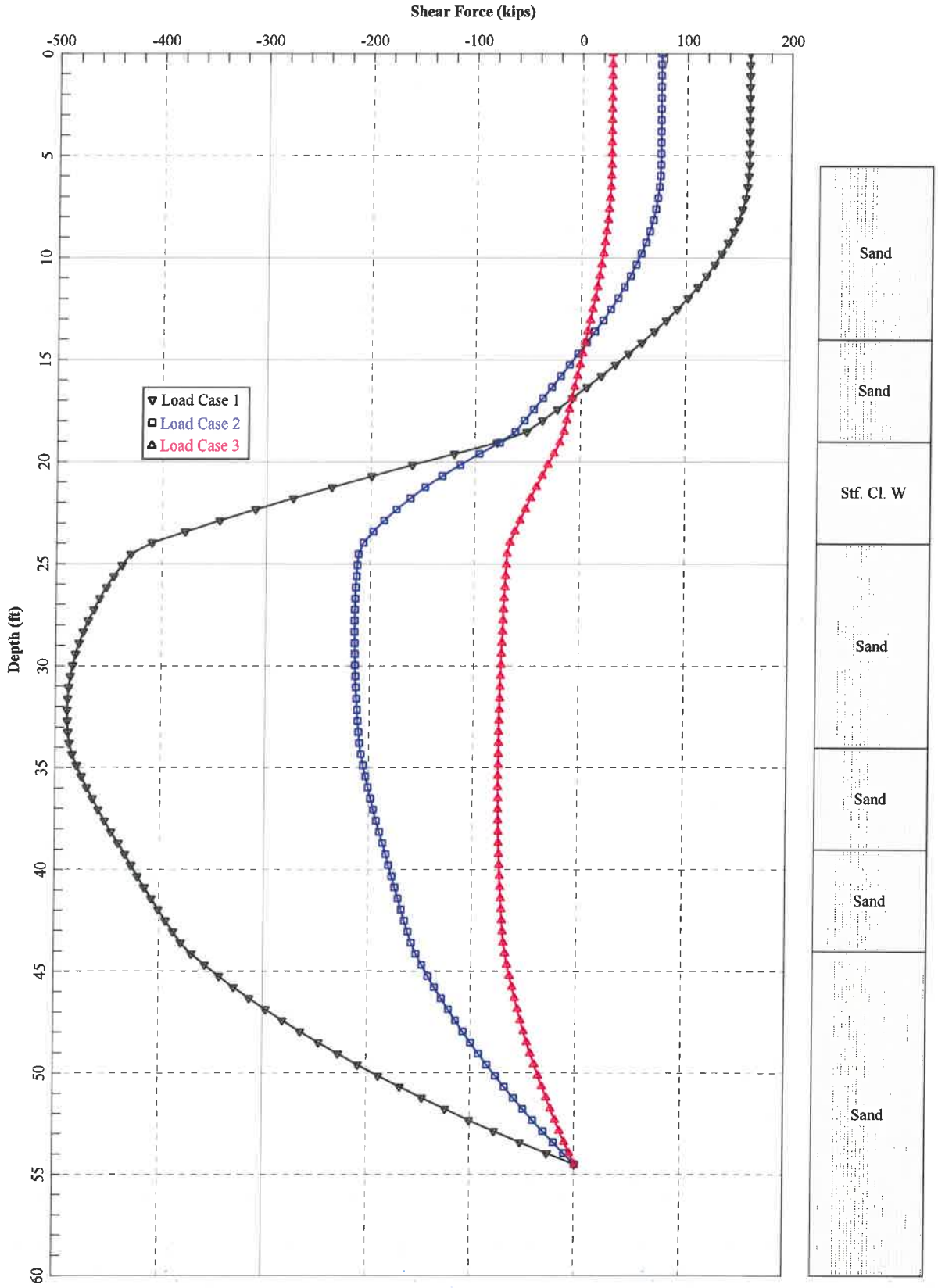
Maximum pile-head deflection = 3.1733554159 inches
Maximum pile-head rotation = -0.0148748979 radians = -0.852269 deg.

The analysis ended normally.

LOAD CASE 1: LRFD LOADS/0.75; MAX ALLOWABLE DEFLECTION = 6"
LOAD CASE 2: ASD LOADS; MAX. ALLOWABLE DEFLECTION = 1"
LOAD CASE 3: SERVICE LOADS*2, MAX. ALLOWABLE DEFLECTION = 0.75"




Bending Moment (in-kips)
0
2E04
4E04
6E04
8E04
1E05
1.2E05
1.4E05
1.6E05
Depth (ft)
0
5
10
15
20
25
30
35
40
45
50
55
60
Load Case 1
Load Case 2
Load Case 3
Sand
Sand
Stf. Cl. W
Sand
Sand
Sand
Sand


Shear Force (kips)
-500
-400
-300
-200
-100
0
100
200
Depth (ft)
0
5
10
15
20
25
30
35
40
45
50
55
60
Load Case 1
Load Case 2
Load Case 3
Sand
Sand
Stf. Cl. W
Sand
Sand
Sand
Sand

Title Block Line 1
You can change this area using the "Settings" menu item and then using the "Printing & Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 3 NOV 2016, 3:41PM

Concrete Column

Projects\U0142 Stealth\U0142-870-163 Kenai RG15-01258W-05R1 - Rework\ENG\Future Calcs\Enercalc\pier.ecf
ENERCALC, INC. 1983-2016, Build:6.16.6.7, Ver:6.16.6.7

Lic. # : KW-06004714
Licensee : VECTOR STRUCTURAL ENGINEERS

Description : Pier

Code References

Calculations per ACI 318-11, IBC 2012, CBC 2013, ASCE 7-10
Load Combinations Used : ASCE 7-10

General Information

f'c : Concrete 28 day strength	=	4.0 ksi
E =	=	3,605.0 ksi
Density	=	145.0 pcf
β	=	0.850
fy - Main Rebar	=	60.0 ksi
E - Main Rebar	=	29,000.0 ksi
Allow. Reinforcing Limits		*ASTM A615 Bars Used*
Min. Reinf.	=	0.50 %
Max. Reinf.	=	8.0 %

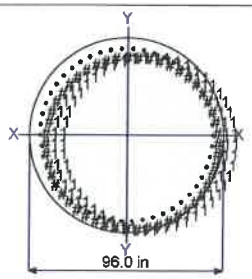
Overall Column Height = 30.0 ft
End Fixity: Top Free, Bottom Fixed

Brace condition for deflection (buckling) along columns :
X-X (width) axis :
Fully braced against buckling along X-X Axis
Y-Y (depth) axis :
Fully braced against buckling along Y-Y Axis

Column Cross Section

Column Dimensions : 96.0in Diameter, Column Edge to Rebar
Edge Cover = 4.750in

Column Reinforcing : 50 - #11 bars



Applied Loads

Entered loads are factored per load combinations specified by user.

Column self weight included : 218,655 lbs * Dead Load Factor
AXIAL LOADS . . .
Axial Load at 30.0 ft above base, D = 46.720 k
BENDING LOADS . . .
Lat. Point Load at 54.50 ft creating Mx-x, W = 119.405 k
Moment acting about X-X axis, W = 7,853.79 k-ft

DESIGN SUMMARY

Load Combination +1.20D+0.50Lr+0.50L+W+1.60H
Location of max.above base 29.799 ft

Maximum Stress Ratio **0.797 : 1**
Ratio = (Pu^2+Mu^2)^.5 / (PhiPn^2+PhiMn^2)^.5

Pu =	318.450 k	φ * Pn =	356.508 k
Mu-x =	-11,435.9 k-ft	φ * Mn-x =	14,496.6 k-ft
Mu-y =	0.0 k-ft	φ * Mn-y =	0.0 k-ft
Mu Angle =	180.0 deg		
Mu at Angle =	11,435.9 k-ft	φMn at Angle =	14,342.6 k-ft

Pn & Mn values located at Pu-Mu vector intersection with capacity curve

Column Capacities . . .

Pnmax : Nominal Max. Compressive Axial Capacity	29,024.8 k
Pnmin : Nominal Min. Tension Axial Capacity	-4,680.0 k
φ Pn, max : Usable Compressive Axial Capacity	18,503.3 k
φ Pn, min : Usable Tension Axial Capacity	-3,510.0 k

Maximum SERVICE Load Reactions . .

Top along Y-Y	0.0 k	Bottom along Y-Y	0.0 k
Top along X-X	119.405 k	Bottom along X-X	119.405 k

Maximum SERVICE Load Deflections . . .

Along Y-Y 0.5270 in at 30.0 ft above base
for load combination : W Only

Along X-X 0.0 in at 0.0 ft above base
for load combination :

General Section Information . φ = 0.750 β = 0.850 θ = 0.850

ρ : % Reinforcing	1.078 %	Rebar % Ok
Reinforcing Area	78.0 in^2	
Concrete Area	7,238.23 in^2	

Title Block Line 1
You can change this area using the "Settings" menu item and then using the "Printing & Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 3 NOV 2016, 3:41PM

Concrete Column

Projects\U0142 Stealth\U0142-870-163 Kenai RG15-01258W-05R1 - Rework\ENG\Future Calcs\Enercalc\pier.ecf
ENERCALC, INC. 1983-2016, Build:6.16.6.7, Ver:6.16.6.7

Lic. # : KW-06004714
Licensee : VECTOR STRUCTURAL ENGINEERS

Description : Pier

Governing Load Combination Results

Governing Factored Load Combination	Moment X-X	Moment Y-Y	Dist. from base ft	Axial Load k Pu	φ * Pn	Bending Analysis k-ft δx	δx * Mux	δy	δy * Muy	Alpha (deg)	δ Mu	φ Mn	Utilization Ratio
+1.40D+1.60H			29.80	371.52	18,503.30					0.000			**0.020**
+1.20D+0.50Lr+1.60L+1.60H			29.80	318.45	18,503.30					0.000			**0.017**
+1.20D+1.60L+0.50S+1.60H			29.80	318.45	18,503.30					0.000			**0.017**
+1.20D+1.60Lr+0.50L+1.60H			29.80	318.45	18,503.30					0.000			**0.017**
+1.20D+1.60Lr+0.50W+1.60H	Actual		29.80	318.45	844.12	1.000	-5,717.97			180.000	5,717.97	15,539.84	**0.368**
+1.20D+0.50L+1.60S+1.60H			29.80	318.45	18,503.30					0.000			**0.017**
+1.20D+1.60S+0.50W+1.60H	Actual		29.80	318.45	844.12	1.000	-5,717.97			180.000	5,717.97	15,539.84	**0.368**
+1.20D+0.50Lr+0.50L+W+1.60H	Actual		29.80	318.45	356.51	1.000	-11,435.94			180.000	11,435.94	14,342.59	**0.797**
+1.20D+0.50L+0.50S+W+1.60H	Actual		29.80	318.45	356.51	1.000	-11,435.94			180.000	11,435.94	14,342.59	**0.797**
+1.20D+0.50L+0.20S+E+1.60H			29.80	318.45	18,503.30					0.000			**0.017**
+0.90D+W+0.90H	Actual		29.80	238.84	356.51	1.000	-11,435.94			180.000	11,435.94	14,342.59	**0.797**
+0.90D+E+0.90H			29.80	238.84	18,503.30					0.000			**0.013**

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Reaction along X-X Axis @ Base	@ Top	Reaction along Y-Y Axis @ Base	@ Top	Axial Reaction @ Base
+D+H	k			k	265.375 k
+D+L+H	k			k	265.375 k
+D+Lr+H	k			k	265.375 k
+D+S+H	k			k	265.375 k
+D+0.750Lr+0.750L+H	k			k	265.375 k
+D+0.750L+0.750S+H	k			k	265.375 k
+D+0.60W+H	k		71.643	71.643 k	265.375 k
+D+0.70E+H	k			k	265.375 k
+D+0.750Lr+0.750L+0.450W+H	k		53.732	53.732 k	265.375 k
+D+0.750L+0.750S+0.450W+H	k		53.732	53.732 k	265.375 k
+D+0.750L+0.750S+0.5250E+H	k			k	265.375 k
+0.60D+0.60W+0.60H	k		71.643	71.643 k	159.225 k
+0.60D+0.70E+0.60H	k			k	159.225 k
D Only	k			k	265.375 k
Lr Only	k			k	k
L Only	k			k	k
S Only	k			k	k
W Only	k		119.405	119.405 k	k
E Only	k			k	k
H Only	k			k	k

Maximum Moments

Note: Only non-zero reactions are listed.

Load Combination	Moment About X-X Axis @ Base	@ Top		Moment About Y-Y Axis @ Base	@ Top	
+D+H			k-ft			k-ft
+D+L+H			k-ft			k-ft
+D+Lr+H			k-ft			k-ft
+D+S+H			k-ft			k-ft
+D+0.750Lr+0.750L+H			k-ft			k-ft
+D+0.750L+0.750S+H			k-ft			k-ft
+D+0.60W+H			k-ft	4,712.275	6,861.565	k-ft
+D+0.70E+H			k-ft			k-ft
+D+0.750Lr+0.750L+0.450W+H			k-ft	3,534.206	5,146.173	k-ft
+D+0.750L+0.750S+0.450W+H			k-ft	3,534.206	5,146.173	k-ft
+D+0.750L+0.750S+0.5250E+H			k-ft			k-ft
+0.60D+0.60W+0.60H			k-ft	4,712.275	6,861.565	k-ft
+0.60D+0.70E+0.60H			k-ft			k-ft
D Only			k-ft			k-ft
Lr Only			k-ft			k-ft
L Only			k-ft			k-ft
S Only			k-ft			k-ft
W Only			k-ft	7,853.791	11,435.941	k-ft

Title Block Line 1
You can change this area using the "Settings" menu item and then using the "Printing & Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 3 NOV 2016, 3:41PM

Concrete Column

Projects\U0142 Stealth\U0142-870-163 Kenai RG15-01258W-05R1 - Rework\ENG\Future Calcs\Enercalc\pier.ecf
ENERCALC, INC. 1983-2016, Build:6.16.6.7, Ver:6.16.6.7

Lic. # : KW-06004714 — Licensee : VECTOR STRUCTURAL ENGINEERS

Description : Pier

Maximum Moments

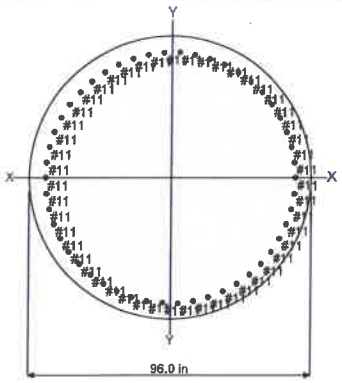
Note: Only non-zero reactions are listed.

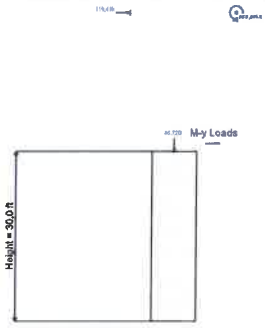
Load Combination	Moment About X-X Axis @ Base	Moment About X-X Axis @ Top	Moment About Y-Y Axis @ Base	Moment About Y-Y Axis @ Top
E Only	k-ft		k-ft	
H Only	k-ft		k-ft	

Maximum Deflections for Load Combinations

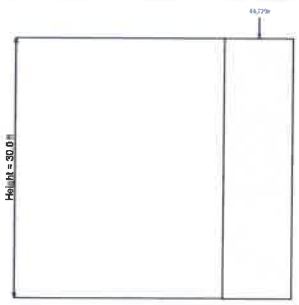
Load Combination	Max. X-X Deflection		Distance		Max. Y-Y Deflection		Distance	
+D+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+L+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+Lr+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+S+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.750Lr+0.750L+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.750L+0.750S+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.60W+H	0.0000	in	0.000	ft	0.316	in	30.000	ft
+D+0.70E+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.750Lr+0.750L+0.450W+H	0.0000	in	0.000	ft	0.237	in	30.000	ft
+D+0.750L+0.750S+0.450W+H	0.0000	in	0.000	ft	0.237	in	30.000	ft
+D+0.750L+0.750S+0.5250E+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+0.60D+0.60W+0.60H	0.0000	in	0.000	ft	0.316	in	30.000	ft
+0.60D+0.70E+0.60H	0.0000	in	0.000	ft	0.000	in	0.000	ft
D Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
Lr Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
L Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
S Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
W Only	0.0000	in	0.000	ft	0.527	in	30.000	ft
E Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
H Only	0.0000	in	0.000	ft	0.000	in	0.000	ft

Sketches





Looking along X-X Axis



Looking along Y-Y Axis

Interaction Diagrams

Title Block Line 1
You can change this area
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and then using the "Printing &
Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 3 NOV 2016, 3:41PM

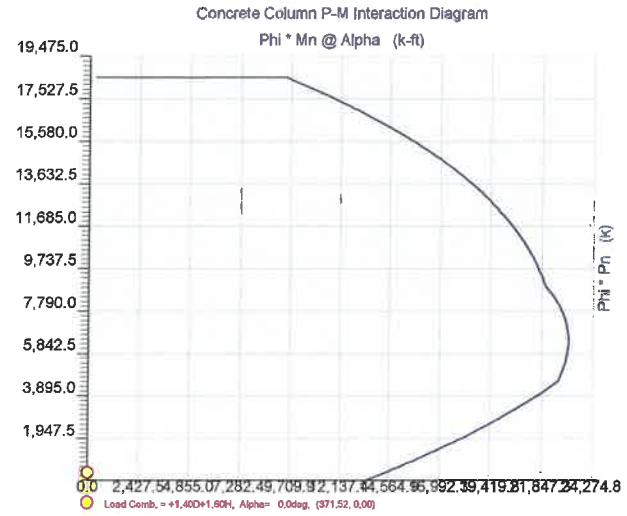
Concrete Column

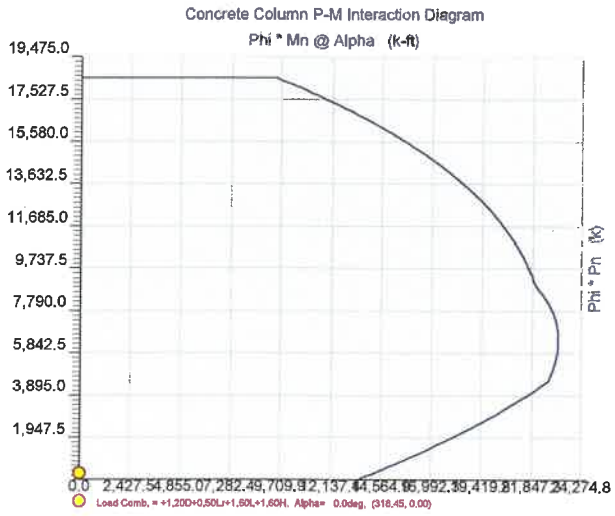
Projects\U0142 Stealth\U0142-870-163 Kenai RG15-01258W-05R1 - Rework\ENG\Future Calcs\Enercalc\pier.ecf
ENERCALC, INC. 1983-2016, Build:6.16.6.7, Ver:6.16.6.7

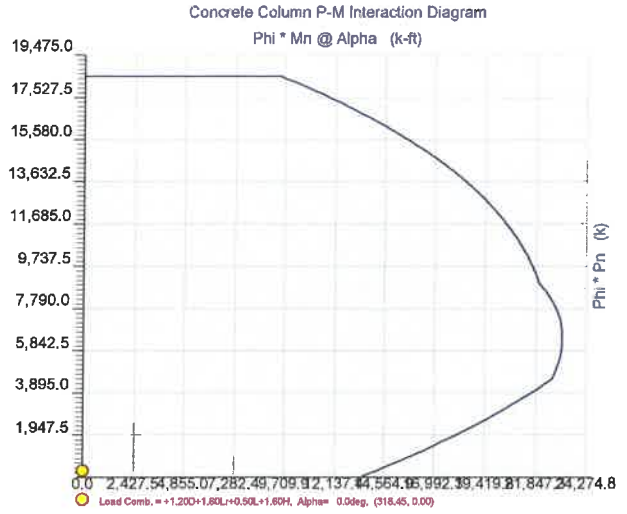
Lic. # : KW-06004714

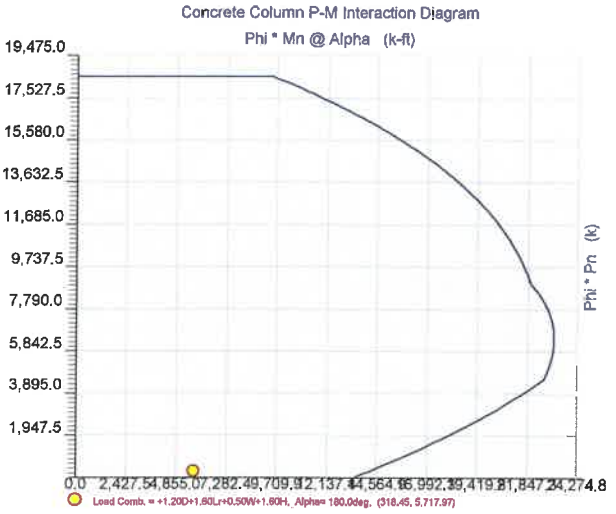
Licensee : VECTOR STRUCTURAL ENGINEERS

Description : Pier









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Concrete Column

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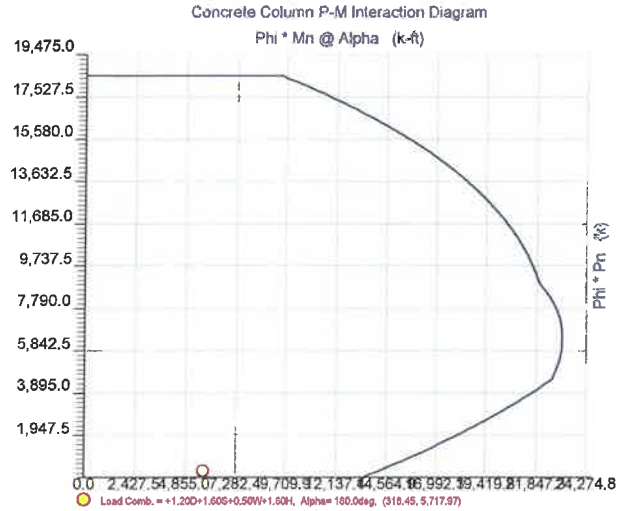
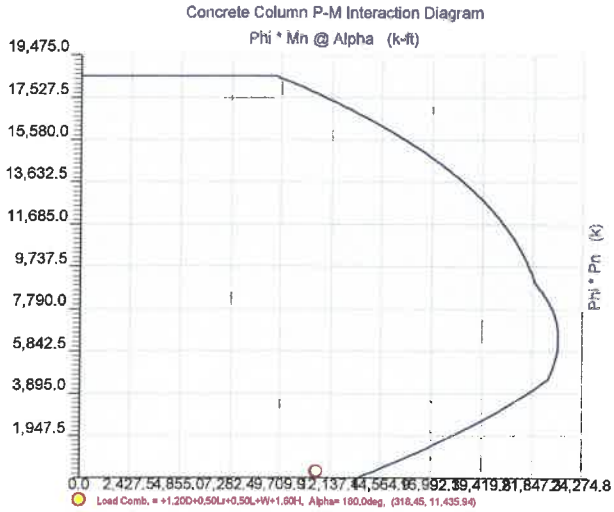
ENERCALC, INC. 1983-2016, Build:6.16.6.7, Ver:6.16.6.7

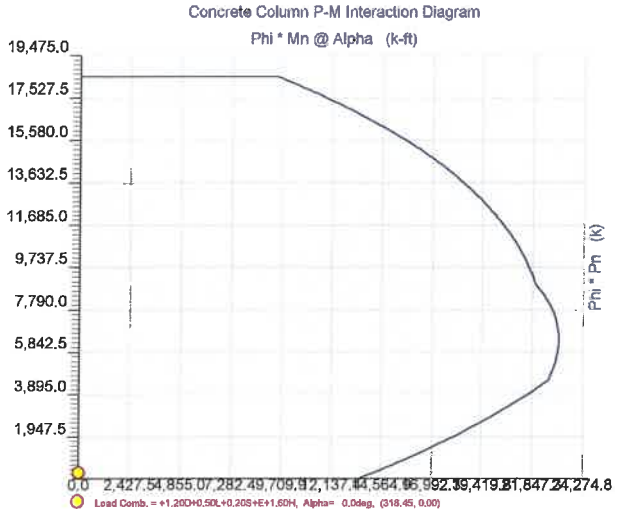
Lic. # : KW-06004714

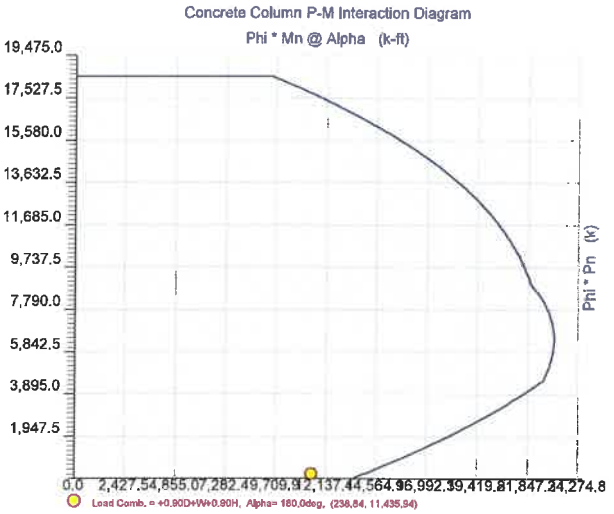
Licensee : VECTOR STRUCTURAL ENGINEERS

Description : Pier









ATC Applied Technology Council

WINDSPEED BY LOCATION

ASCE 7 Windspeed | ASCE 7 Ground Snow Load | Related Resources | Sponsors | About ATC | Contact

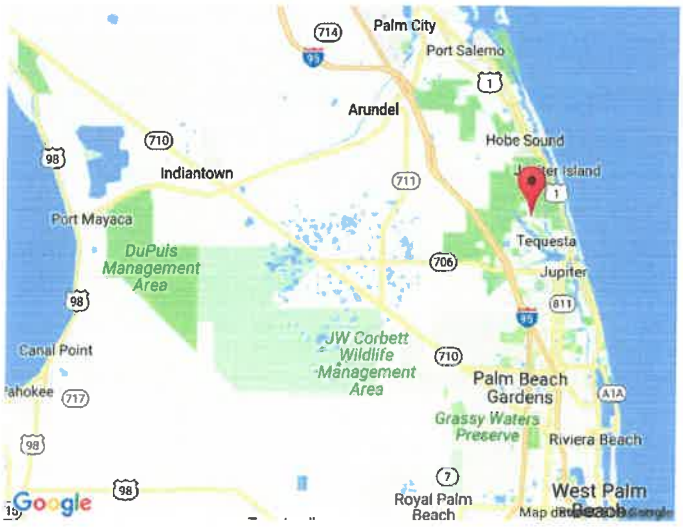
Search Results

Query Date: Wed Aug 17 2016
Latitude: 26.9854
Longitude: -80.1285

ASCE 7-10 Windspeeds (3-sec peak gust in mph*):

Risk Category I: 153
Risk Category II: 167
Risk Category III-IV: 177
MRI 10-Year:** 89
MRI 25-Year:** 111
MRI 50-Year:** 125
MRI 100-Year:** 136

ASCE 7-05 Windspeed:
143 (3-sec peak gust in mph)
ASCE 7-93 Windspeed:
102 (fastest mile in mph)



*Miles per hour
**Mean Recurrence Interval

Users should consult with local building officials to determine if there are community-specific wind speed requirements that govern.

Print your results

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NORTH CHARLESTON, SC 29418
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WWW.STEALTHCONCEALMENT.COM
PROJECT MANAGER: BRANDON BAILEY ; 843-377-2604

FINAL ENGINEERING

RG TOWERS (FL-JUPITER)
SITE: KENAI
FUTURE MONOPINE EXTENSION
COUNTRY CLUB DRIVE
TEQUESTA, FL 33469

STEALTH JOB #: RG15-01258W-05R7

DRAWING INDEX

JACOB S. PROCTOR LICENSE No. 74277 STATE OF FLORIDA PROFESSIONAL ENGINEER

11/4/16

VECTOR ENGINEERS
8130 S. STATE STREET, SUITE 101
SANDY, UT 84070
P: (801) 990-1775 F: (801) 990-1776
VECTOR PROJECT: U0142-670-183
JACOB S. PROCTOR, P.E.
FL LICENSE: 74277
FL FIRM LICENSE NUMBER: COA 28026

T1
11/4/16
2

DESIGN NOTES:

STRUCTURAL DESIGN IS BASED ON THE FLORIDA BUILDING CODE, 2014 EDITION (2012 IBC) & THE TIA-222-G STANDARD

DESIGN LOADS:
WIND:
BASIC WIND SPEED: 167 MPH (3-SEC GUST)
STRUCTURE CLASS / OCCUPANCY CATEGORY: II
EXPOSURE: C
TOPOGRAPHIC CATEGORY: 1
CREST HEIGHT: 0 FT

ICE: 1.00" RADIAL ICE THICKNESS @ 30 MPH (3-SEC GUST)

ESTIMATED WEIGHT (INCLUDING ANTENNAS AND COAX):
46.8 k (1.0 DEAD)

REACTIONS:

SHEAR, V = 119.5 k (1.0 WIND)
AXIAL, P = 165.8 k (1.2 DEAD + 1.0 ICE)
MOMENT, M = 7,859 k-ft (1.0 WIND)

LOCATION:
MARTIN COUNTY, FL

GENERAL

1. THE TYPICAL NOTES SHALL APPLY FOR ALL CASES UNLESS OTHERWISE SPECIFICALLY DETAILED WITHIN THE DRAWINGS. SOME NOTES MAY NOT BE APPLICABLE IN PART OR IN WHOLE FOR EVERY PROJECT.
2. ANY ITEMS REFERENCED AS BEING ON "HOLD" ARE TO BE INCLUDED IN THE WORK AS SHOWN. HOWEVER, CONSTRUCTION OR FABRICATION IS NOT TO BEGIN UNTIL THE "HOLD" REFERENCE IS REMOVED.
3. DIMENSIONS CONTAINED WITHIN MUST BE FIELD VERIFIED AND CUSTOMER APPROVED PRIOR TO FABRICATION OF MATERIALS.
4. THE MODIFICATIONS DEPICTED IN THESE DRAWINGS ARE INTENDED TO PROVIDE STRUCTURAL SUPPORT FOR THE ADDITION OF THE ANTENNA SCREENING SYSTEMS OUTLINED WITHIN. THE EXISTING STRUCTURE OR BUILDING SHALL BE ANALYZED AND RETROFITTED AS REQUIRED, BY OTHERS, TO WITHSTAND THE LOADS IMPOSED BY THE NEW STEALTH) ENCLOSURE SHOWN ON THE DRAWINGS.
5. ANTENNA CONCEALMENT PRODUCTS SHALL BE INSTALLED BY A CONTRACTOR EXPERIENCED IN SIMILAR WORK. CARE SHALL BE TAKEN IN THE INSTALLATION OF ANY AND ALL MEMBERS IN ACCORDANCE WITH RECOGNIZED INDUSTRY STANDARDS AND PROCEDURES. ALL APPLICABLE OSHA SAFETY GUIDELINES ARE TO BE FOLLOWED. STEALTH® IS NOT PROVIDING FIELD INSTALLATION SUPERVISION.
6. THESE DRAWINGS INDICATE THE MAJOR OPERATIONS TO BE PERFORMED, BUT DO NOT SHOW EVERY FIELD CONDITION THAT MAY BE ENCOUNTERED. THEREFORE, PRIOR TO BEGINNING OF WORK THE CONTRACTOR SHOULD SURVEY THE JOB SITE THOROUGHLY TO MINIMIZE FIELD PROBLEMS.
7. PROTECTION OF EXISTING STRUCTURES DURING THE COURSE OF THE CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
8. THE STRUCTURAL INTEGRITY OF THIS STRUCTURE IS DESIGNED TO BE ATTAINED IN ITS COMPLETED STATE. WHILE UNDER CONSTRUCTION ANY TEMPORARY BRACING OR SHORING WHICH MAY BE REQUIRED TO MAINTAIN STABILITY PRIOR TO COMPLETION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
9. THE PLANS AND DETAILS WITHIN DO NOT INCLUDE DETAILS OR DESIGN FOR DRAINAGE FROM OR WATERPROOFING OF EXTERIOR OR INTERIOR SURFACES OF THE EXISTING BUILDING OR STRUCTURE. THESE DETAILS MUST BE COMPLETED BY OTHERS.

SPECIAL INSPECTIONS & STRUCTURAL OBSERVATION:

1. STEEL FABRICATION SHALL BE DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED AS REQUIRED BY THE IBC TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION.
2. NO FIELD WELDING SHALL BE PERMITTED.
3. THE FOLLOWING SPECIAL INSPECTIONS (WHERE APPLICABLE) SHALL BE REQUIRED PER CHAPTER 17 OF THE BUILDING CODE.
   - CONTINUOUS SPECIAL INSPECTION OF ANCHOR BOLTS PRIOR TO AND DURING CONCRETE PLACEMENT
   - PERIODIC SPECIAL INSPECTION OF HIGH STRENGTH BOLTING.
   - CONTINUOUS SPECIAL INSPECTION OF DRILLING OPERATIONS FOR PIER FOUNDATIONS.
   - CONTINUOUS SPECIAL INSPECTION TO VERIFY LOCATION, PLUMBNESS, DIAMETER AND LENGTH OF DRILLING PIER FOUNDATIONS.
   - PERIODIC SPECIAL INSPECTION OF PLACEMENT OF REINFORCING STEEL.
   - CONTINUOUS SPECIAL INSPECTION OF CONCRETE PLACEMENT.
4. NO STRUCTURAL OBSERVATION IS REQUIRED.

MATERIAL NOTES:

1. 18-SIDED MONOPOLE SHAFT STEEL SHALL CONFORM w/ ASTM A572 GR. 65, U.N.O.
2. BASE PLATE STEEL SHALL CONFORM w/ ASTM A572, GR. 50, U.N.O.
3. REINFORCED ACCESS PORT STEEL SHALL CONFORM w/ ASTM A572 GR. 65, U.N.O.
4. ALL OTHER STRUCTURAL STEEL SHAPES & PLATES SHALL CONFORM TO ASTM A36, U.N.O.
5. ALL BOLTS FOR THE STEEL-TO-STEEL CONNECTIONS SHALL CONFORM w/ ASTM A325N, U.N.O.
6. ALL ANCHOR BOLTS SHALL CONFORM w/ ASTM F1554 GR. 105, U.N.O.
7. ALL WELDING SHALL BE PEFORMED BY CERTIFIED WELDERS IN ACCORDANCE WITH THE LATEST VERSION OF THE AMERICAN WELDING SOCIETY (AWS) D1.1. ALL WELDING SHALL BE PREFORMED IN A SHOP APPROVED BY THE BUILDING OFFICIAL. STEEL WELDS SHALL BE BY E70XX LOW HYDROGEN ELECTRODES.
8. ALL STEEL SURFACES SHALL BE GALVANIZED IN ACCORDANCE w/ ASTM A153 ASTM A123 STANDARDS.
9. ALL BOLTED CONNECTIONS SHALL BE TIGHTENED PER THE "TURN-OF-NUT" METHOD AS DEFINED BY AISC.

STEALTHSKIN PANELS

1. FASTENER HOLES IN STEALTHSKIN FOAM COMPOSITE PANELS ARE NOT FACTORY DRILLED AND MUST BE DRILLED IN THE FIELD.
2. PANEL FASTENERS TO BE SPACED 12" O.C. MAX. AND LOCATED 6" MAX. HORIZONTALLY FROM EACH EDGE AT TOP AND BOTTOM OF PANEL. MAINTAIN 1 ½" MIN. EDGE DISTANCE FROM ALL EDGES. 4' WIDE PANELS REQUIRE (4) FASTENERS TOP AND BOTTOM. 5' WIDE PANELS REQUIRE (4) FASTENERS TOP AND BOTTOM. CORNER PANELS REQUIRE (3) FASTENERS TOP AND BOTTOM PER SIDE.
3. WHEN FASTENER BOLT HEAD OR NUT BEARS DIRECTLY ON SURFACE OF STEALTHSKIN PANEL, TIGHTEN PANEL BOLTS ONLY ½ TURN PAST SNUG. APPLY THREAD LOCK COMPOUND TO THE THREADS OF METAL BOLTS. USE THIN BEAD OF EPOXY TO LOCK THE NUTS OF FRP BOLTS AND STEALTH® STAINLESS STEEL PANEL BOLTS. USE WASHER OR FLANGED HEAD BOLT, OR FASTENER WITH LARGE BEARING SURFACE.
4. PANELS WILL EXPAND AND CONTRACT DUE TO TEMPERATURE. WHEN INSTALLING PANELS IN COLD TEMPERATURES, EVENLY SPACE PANELS ALONG LENGTH OF SCREEN WALL WITH EQUAL GAPS BETWEEN PANELS TO ALLOW FOR EXPANSION DURING WARM TEMPERATURES.
5. ADJACENT FLAT PANELS ARE JOINED BY A VERTICAL FOAM SPLINE THAT IS INSERTED INTO GROOVES CUT INTO THE SIDE OF EACH PANEL. DO NOT LIFT PANELS BY GROOVES. PANELS MUST BE LIFTED WITH FORCE DIRECTED ONTO PANEL SURFACE.
6. ADJACENT RADIUS PANELS ARE JOINED BY A VERTICAL H-CHANNEL. INSERT PANELS INTO EACH SIDE OF H-CHANNEL.
7. RADIUS PANELS MUST BE EVENLY SPACED ALONG RADIUS SUPPORT. CONTRACTOR TO MEASURE LENGTH OF RADIUS SUPPORT AND DIVIDE BY THE NUMBER OF RADIUS PANELS TO DETERMINE PROPER SPACING. H-CHANNEL CONNECTORS ARE USED TO COVER THE GAP BETWEEN PANELS AND TO ALLOW FOR PANEL EXPANSION AND CONTRACTION.
8. SURFACES OF PANELS SHALL BE COATED WITH SUITABLE PAINT FOR UV PROTECTION. TOP EDGE OF PANEL MUST BE COVERED TO PREVENT WATER TRAVEL BETWEEN PANELS. USE SHERWIN WILLIAMS "COROTHANE II" OR PRE APPROVED EQUIVALENT.
9. EXPOSED TOP AND SIDE FOAM EDGES OF PANELS MUST BE COVERED OR COATED FOR UV PROTECTION. STEALTH® WILL PROVIDE PANEL EDGE CAPS TO BE FIELD APPLIED FOR THIS PURPOSE FOR MOST APPLICATIONS. PANEL EDGE CAPS TO BE SECURED WITH TEK SCREW INSTALLED @ 18" MAXIMUM SPACING ON THE INSIDE FACE OF THE PANEL.

DISCLAIMERS:

1. ALL STRUCTURAL COMPONENTS TO BE CONNECTED TOGETHER SHALL BE COMPLETELY FIT UP ON THE GROUND OR OTHERWISE VERIFIED FOR COMPATIBILITY PRIOR TO LIFTING ANY COMPONENT INTO PLACE. REPAIRS REQUIRED DUE TO FIT-UP OR CONNECTION COMPATIBILITY PROBLEMS AFTER PARTIAL ERECTION ARE THE FINANCIAL RESPONSIBILITY OF THE CONTRACTOR.

DESIGN:

1. ENGINEERING AND DESIGN CALCULATIONS FOR STEALTH® POLE AND TOWER PRODUCTS ARE PREPARED IN ACCORDANCE WITH THE LATEST VERSION OF THE TIA/EIA-222. OTHER STRUCTURES ARE DESIGNED IN ACCORDANCE WITH APPLICABLE LOCAL OR NATIONAL STANDARDS AND PER CLIENT INPUT.

VECTOR ENGINEERS
9138 S. STATE STREET, SUITE 101
SANDY, UT 84070
P: (801) 990-1775 F: (801) 990-1776

VECTOR PROJECT: U0142-870-163
JACOB S. PROCTOR, P.E.
FL LICENSE: 74277
FL FIRM LICENSE NUMBER: COA 26828

1678

STEALTH®
GO UNNOTICED™

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

JACOB S. PROCTOR
LICENSE
No 74277
STATE OF FLORIDA
PROFESSIONAL ENGINEER

11/4/16

DRAWING NOT TO SCALE. UNLESS SPECIFIED OTHERWISE DIMENSIONS SHOWN ARE IN INCHES
TOLERANCES
DECIMALS: X ± 1/16", .XXX ± 0.01"
ANGULAR: X ± 0.5°

NOTES & SPECIFICATIONS

RG TOWERS (FL-JUPITER)
SITE: KENAI
20'-0" MONOPINE EXTENSION
COUNTRY CLUB DRIVE
TEQUESTA, FL 33469

JOB #: [illegible]
DRAWN: [illegible]
DESIGNED: [illegible]
REVIEWED: [illegible]

N1
11/4/16
2

REVISION TABLE			
REVISION	DESIGNER	DATE	SCOPE OF REVISION
0	SHB-VSE	8-9-16	FINAL ENGINEERING
1	SHB-VSE	8-17-16	INITIAL POLE EXTENDED 5'
2	SHB-VSE	8-17-16	REMOVED LIGHTNING ROD

1679

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11/4/16

DRAWING NOT TO SCALE, UNLESS SPECIFIED OTHERWISE DIMENSIONS SHOWN ARE IN INCHES

TOLERANCES

DECIMALS
X ± 1/16"
.XXX ± 0.01"

ANGULAR
X ± 0.5°

NOTES & SPECIFICATIONS

RG TOWERS (FL-JUPITER)
SITE: KENAI
20'-0" MONOPINE EXTENSION
COUNTRY CLUB DRIVE
TEQUESTA, FL 33469

JOB #: RG[illegible]
DRAWN: [illegible]
DESIGNED: SHB-VSE
REVISED: SHB-VSE

N2

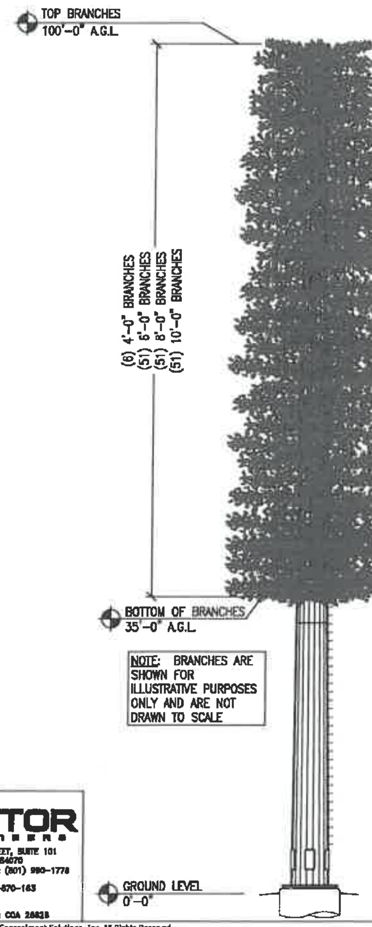
11/4/16

2

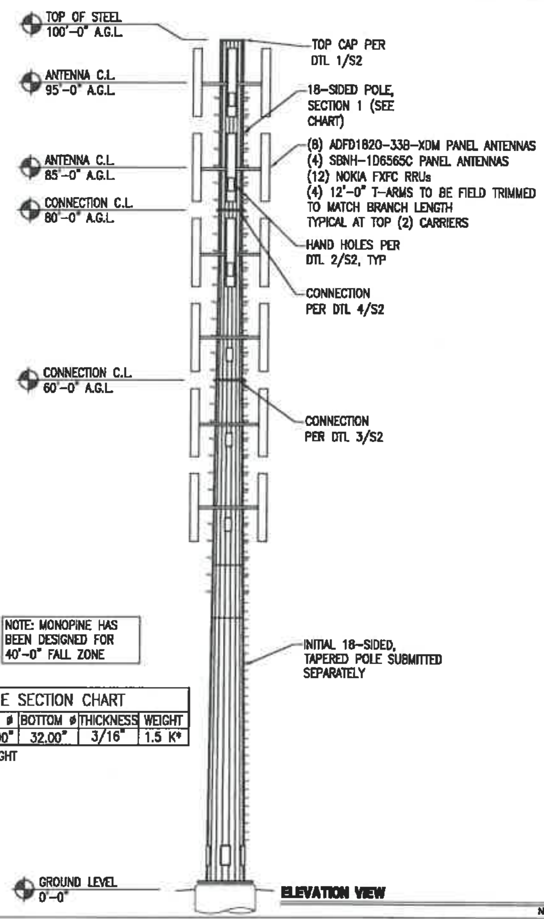
VECTOR
ENGINEERS

9138 S. STATE STREET, SUITE 101
SANDY, UT 84070
P: (801) 990-1775 F: (801) 990-1776

VECTOR PROJECT: U0142-870-163
JACOB S. PROCTOR, P.E.
FL LICENSE: 74277
FL FIRM LICENSE NUMBER: COA 28828



NOTE: BRANCHES ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY AND ARE NOT DRAWN TO SCALE



NOTE: MONOPINE HAS BEEN DESIGNED FOR 40'-0" FALL ZONE

MONOPINE SECTION CHART

SECTION	LENGTH	TOP ø	BOTTOM ø	THICKNESS	WEIGHT
1	20'-0"	32.00"	32.00"	3/16"	1.5 K*

*INCLUDES PLATE WEIGHT
TAPER = 0 IN/FT

ELEVATION VIEW (1) NTS

VECTOR ENGINEERS
9138 S. STATE STREET, SUITE 101
SANDY, UT 84070
P: (801) 990-1775 F: (801) 990-1778

VECTOR PROJECT: U0142-870-163
JACOB S. PROCTOR, P.E.
FL LICENSE: 74277
FL FIRM LICENSE NUMBER: COA 28828

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JACOB S. PROCTOR
LICENSE
No 74277
STATE OF FLORIDA
PROFESSIONAL ENGINEER
11/4/16

DRAWING NOT TO SCALE. UNLESS SPECIFIED OTHERWISE DIMENSIONS SHOWN ARE IN INCHES
TOLERANCES
DECIMALS X ± 1/16" .XXX ± 0.01"
ANGULAR X ± 0.5°

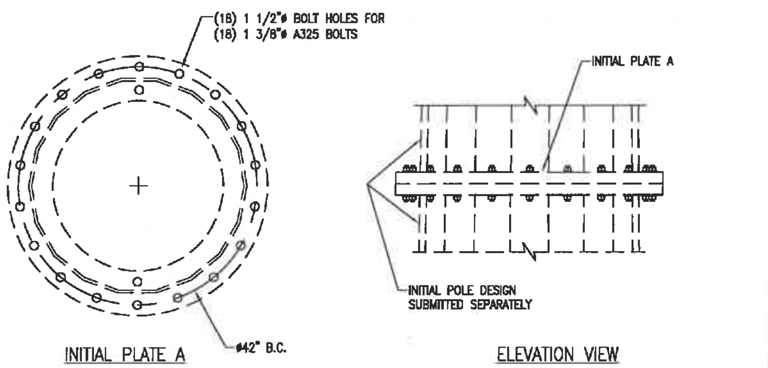
ELEVATIONS

RG TOWERS (FL-JUPITER)
SITE: KENAI
20'-0" MONOPINE EXTENSION
COUNTRY CLUB DRIVE
TEQUESTA, FL 33469

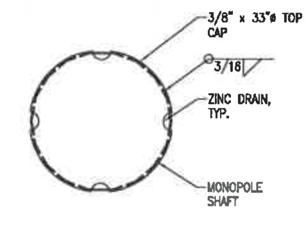
JOB #: R[illegible]58W-05R7
DRAWN: [illegible]
DESIGNED: SHB-[illegible]
REVISED: SHB-[illegible]

S1
11/4/16
REVISION 2

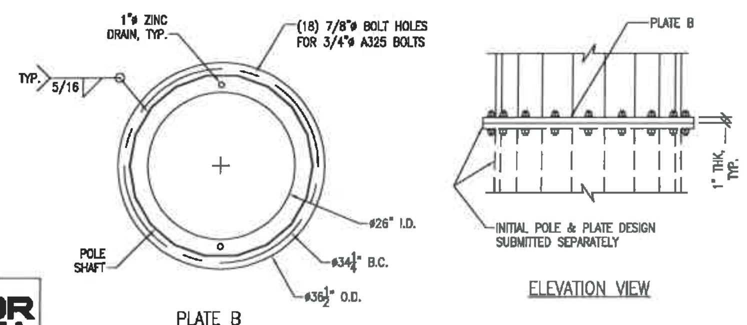
We are STEALTH®. The ® Makes the Difference!



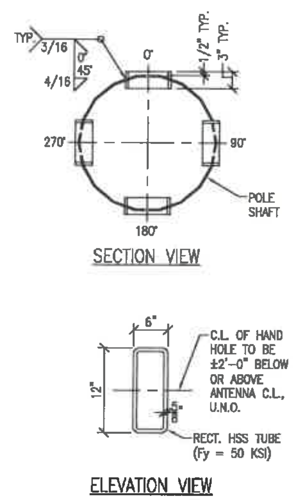
BOLTED ANNULAR PLATE @ 60'-0" A.G.L.
N.T.S. (3)



TOP CAP
N.T.S. (1)



BOLTED ANNULAR PLATE @ 60'-0" A.G.L.
N.T.S. (4)



HAND HOLES
N.T.S. (2)

VECTOR ENGINEERS
9138 S. STATE STREET, SUITE 101
SANDY, UT 84070
P: (801) 990-1775 F: (801) 990-1776

VECTOR PROJECT: U0142-870-163
JACOB S. PROCTOR, P.E.
FL LICENSE: 74277
FL FIRM LICENSE NUMBER: COA 29626

1681

STEALTH®
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3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

JACOB S. PROCTOR
LICENSE
No 74277
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

11/4/16

DRAWING NOT TO SCALE. UNLESS SPECIFIED OTHERWISE DIMENSIONS SHOWN ARE IN INCHES
TOLERANCES
DECIMALS
X ± 1/16"
.XXX ± 0.01"
ANGULAR
X ± 0.5°

DETAILS

RG TOWERS (FL-JUPITER)
SITE: KENAI
20'-0" MONOPINE EXTENSION
COUNTRY CLUB DRIVE
TEQUESTA, FL 33469

JOB #: R015-01758W-05R7
DRAWN: MGP-VSE
DESIGNED: SHB-VSE
REVIEWED: SHB-VSE

S2
11/4/16
REVISION
2

LOCATION MAP

Kimley»Horn

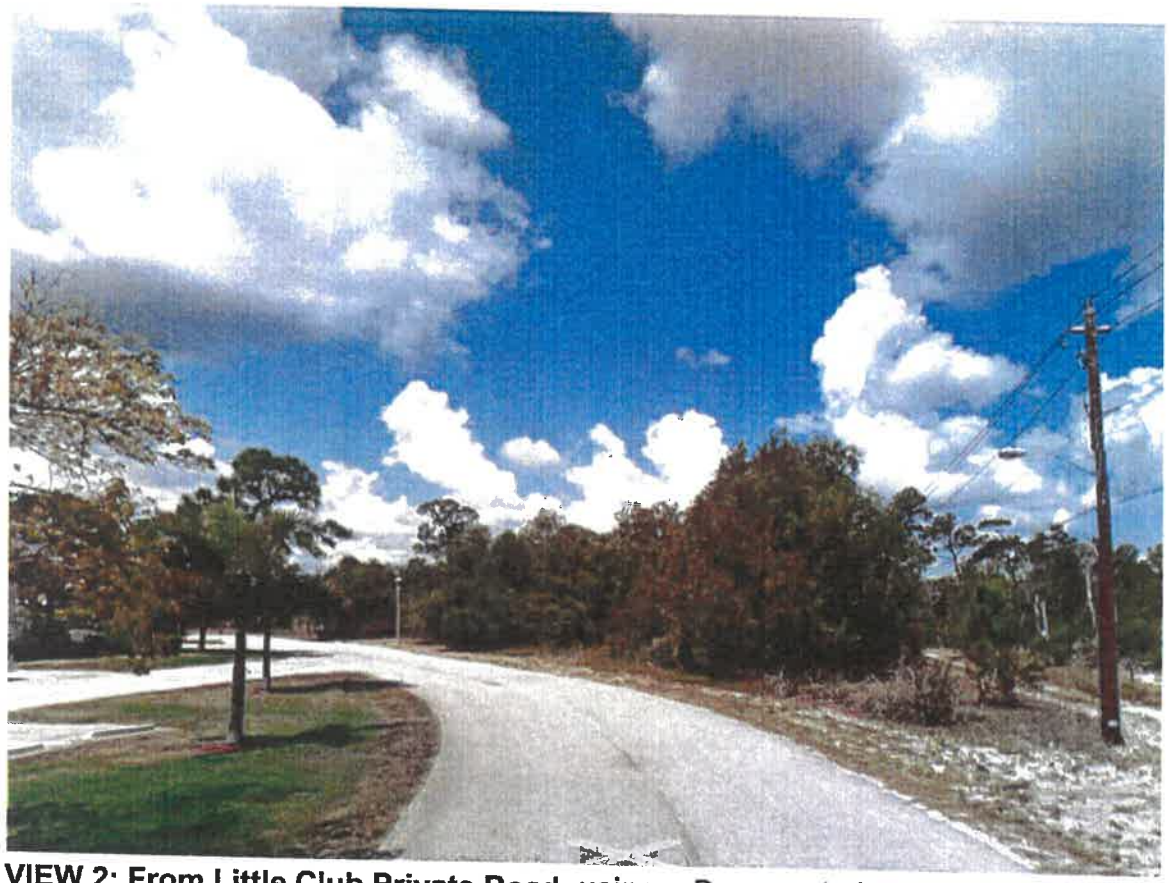
PS-1

VIEW 1: From SE Riverfront Terrace and SE Country Club Dr Intersection, using a Panasonic Lumix 12 MP camera from 215' plus or minus.

VIEW 1: 100' From SE Riverfront Terrace and SE Country Club Dr Intersection, using a Panasonic Lumix 12 MP camera from 215' plus or minus.

LOCATION MAP

Kimley»Horn



VIEW 2: From Little Club Private Road, using a Panasonic Lumix 12 MP camera from 329' plus or minus.

VIEW 2: 100' From Little Club Private Road, using a Panasonic Lumix 12 MP camera from 329' plus or minus.

LOCATION MAP

Kimley»Horn

VIEW 3: From Little Club Building #7 - Second Floor, using a Panasonic Lumix 12 MP camera from 204' plus or minus.

VIEW 3: 100' From Little Club Building #7 - Second Floor, using a Panasonic Lumix 12 MP camera from 204' plus or minus.

LOCATION MAP

Kimley»Horn

PS-22

VIEW 4: From Riverbend Community, using a Panasonic Lumix 12 MP camera from 1,129' plus or minus.

VIEW 4: 100' From Riverbend Community, using a Panasonic Lumix 12 MP camera from 1,129' plus or minus.

Kimley»Horn

RG Towers, LLC

3/28/19

Martin County Growth Management Department
2401 SE Monterey Rd
Stuart, FL 34996

RE: Kenai Tower Extension Major Final Site Plan Checklist #51

Attached please find the following shared use statement to complete checklist item #51 regarding our application for Major Final Site Plan in relation to:

Kenai Tower Extension Parcel # 22-40-42-000-000-00030-6

Requirement number 51 requests, *"TOWERS SHARED USE: An application for a tower shall include a letter of intent, in a form approved by the County, committing the tower owner and successors to allow the shared use of the tower if additional users agree in writing to meet reasonable terms and conditions for shared use"*

RG Towers, LLC is applying for approval to increase the height of the existing 80 tower to 100' which will be available for collocation in Tequesta, Martin County. The following information has been provided pursuant to the requirements of the Martin County Division 18 Section 4.794.C. and notices have been provided to all major carriers.

-

Tower Height/Type	100' Monopine communications tower
Address	S.E Country Club Drive, Tequesta FL
Coordinates	Approximately 26-59-6.6, 80-7-44.3
General Rate	Dependent upon height, loading and ground space required
Construction date	Tentative Q4, 2019
ASR #	1300428

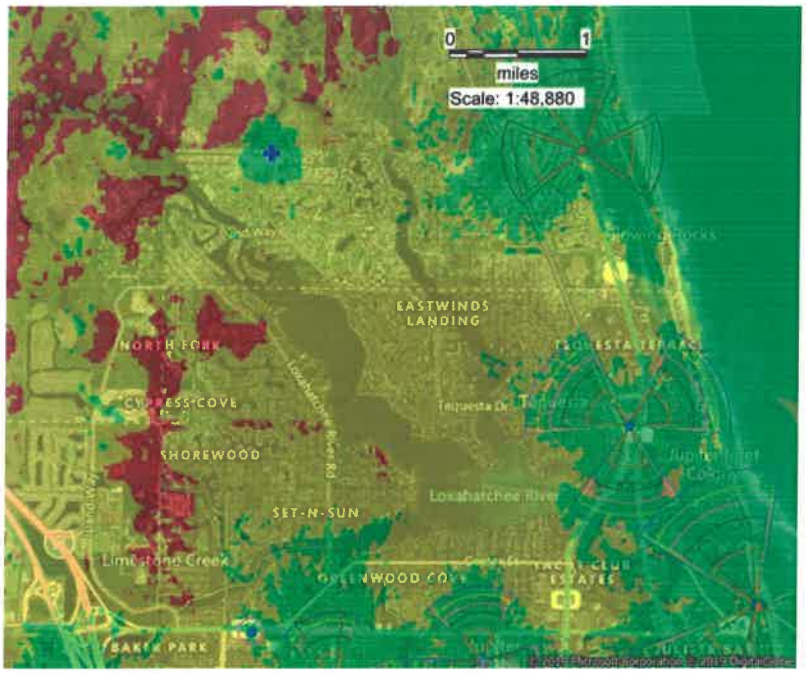
RG Towers, LLC and its successors will agree to the shared use of the tower if an additional user agrees, in writing, to meet reasonable terms and conditions for shared use

Please let me know if you need any additional information.

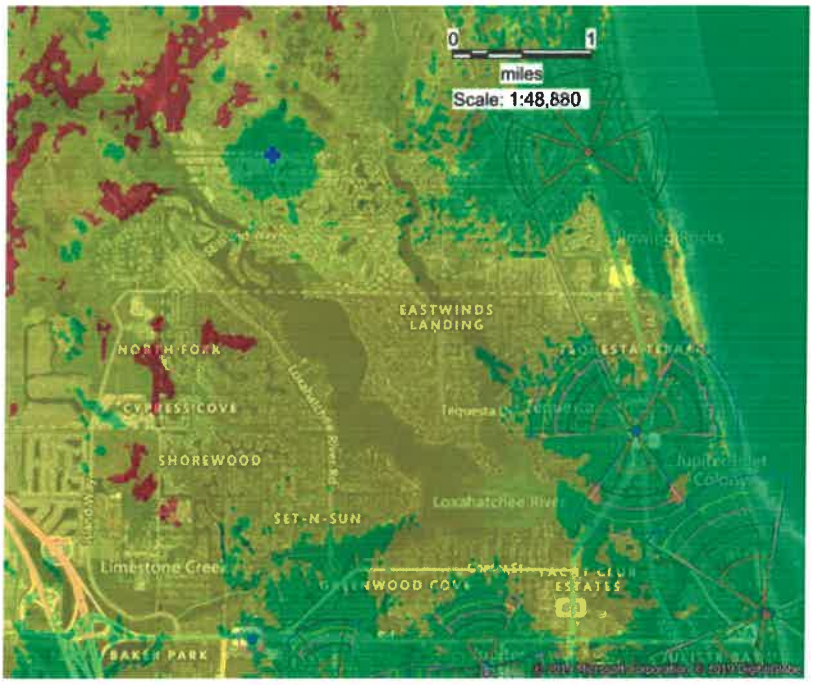
Sincerely,

Holly Valdez
V.P. Leasing and Operations
RG Towers, LLC

1694



Kenai site with AT&T at 70'



Kenai site with AT&T at 100'

This coverage prediction presents a comparison of service level from antennas on the same site (Kenai), at a height of 70' and 100'. The color theme is; green = good/reliable service inside and outside most structures, yellow = usable outdoor/questionable indoor dependent on structure density, and red = weak outdoor/unlikely indoor service.

1695

T··Mobile·
Engineering & Operations

6WP1267G

Kenai Monopine Wireless Telecommunication Facility

Radio Frequency (RF) Engineering Report

Last Updated	04/26/19
Revision Number	V1.1

Table of Contents

Search Ring Area

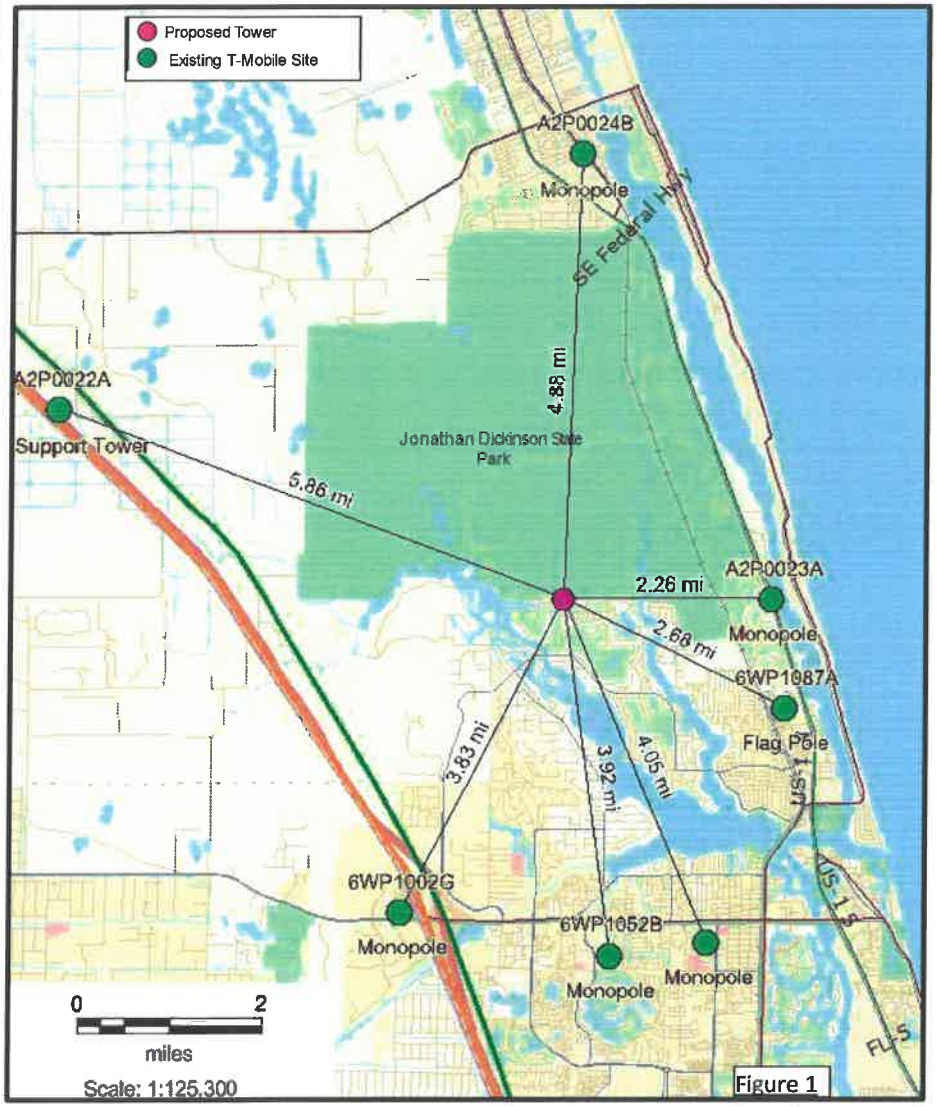


Figure 1

As part of T-Mobile's commitment to improve service in the south Florida market a number of "search rings" have been issued to address coverage deficiencies in the cellular network. Each search ring is in an area where service levels are inadequate to provide the necessary cell phone coverage or capacity. Within the search ring existing towers or structures of sufficient height are sought with the goal of deploying radio transceivers and antennas to improve the local area service levels.

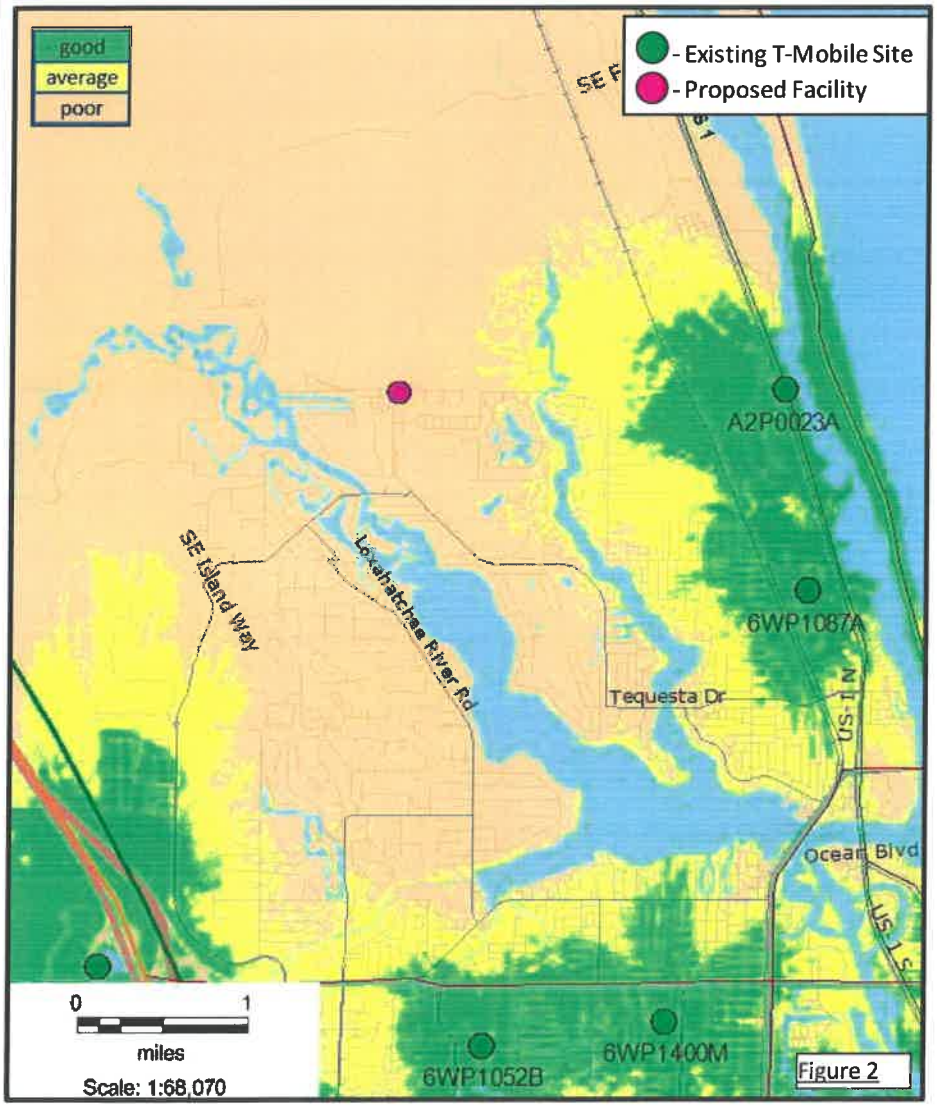
Due to the dramatic increase in cell phone traffic and the popularity of wireless data applications over the last few years, significant demands have been placed on network coverage and capacity. One such area in need of improved services is in and around the city of Tequestra, FL. A new facility that supports a full technology suite must be deployed in the area to meet the coverage and capacity requirements for this part of the network. There were no towers or structures of sufficient height within the T-Mobile search area that could accommodate the addition of new facility that would provide an adequate coverage improvement. The surrounding facilities have undergone extensive upgrades over the last decade with no appreciable improvement in service levels in the area of concern.

Shown above in Figure 1 is the T-Mobile search area and the proposed location surrounded by existing T-Mobile cellular facilities ("cell sites").

T-Mobile ID	T-Mobile Name	Tower Class	Address	City	County	Antenna Elevation (ft)	Structure Height (ft)
6WP1002G	FTP at Indiantown	Monopole	7901 Indian Town Road	Jupiter	Palm Beach	140	140
6WP1052B	ACT JUPITER TOWER	Monopole	509 COMMERCE WAY WEST	Jupiter	Palm Beach	120	150
6WP1087A	Sprint Tequesta/Md7	Flag Pole	901 Old Dixie Hwy	Tequesta	Palm Beach	117	129
6WP1400M	SFL022 - 3_22	Monopole	200 North Military Trail	Jupiter	Palm Beach	95	135
A2P0022A	Crown Hobe Sound	Self Support Tower	2400 SE Bridge Rd	Hobe Sound	Martin	160	200
A2P0023A	SBA	Monopole	17967 Federal Highway	Tequesta	Martin	130	147
A2P0024B	SBA # FL01127-B	Monopole	12030 SE SHELL AV	Hobe Sound	Martin	120	150

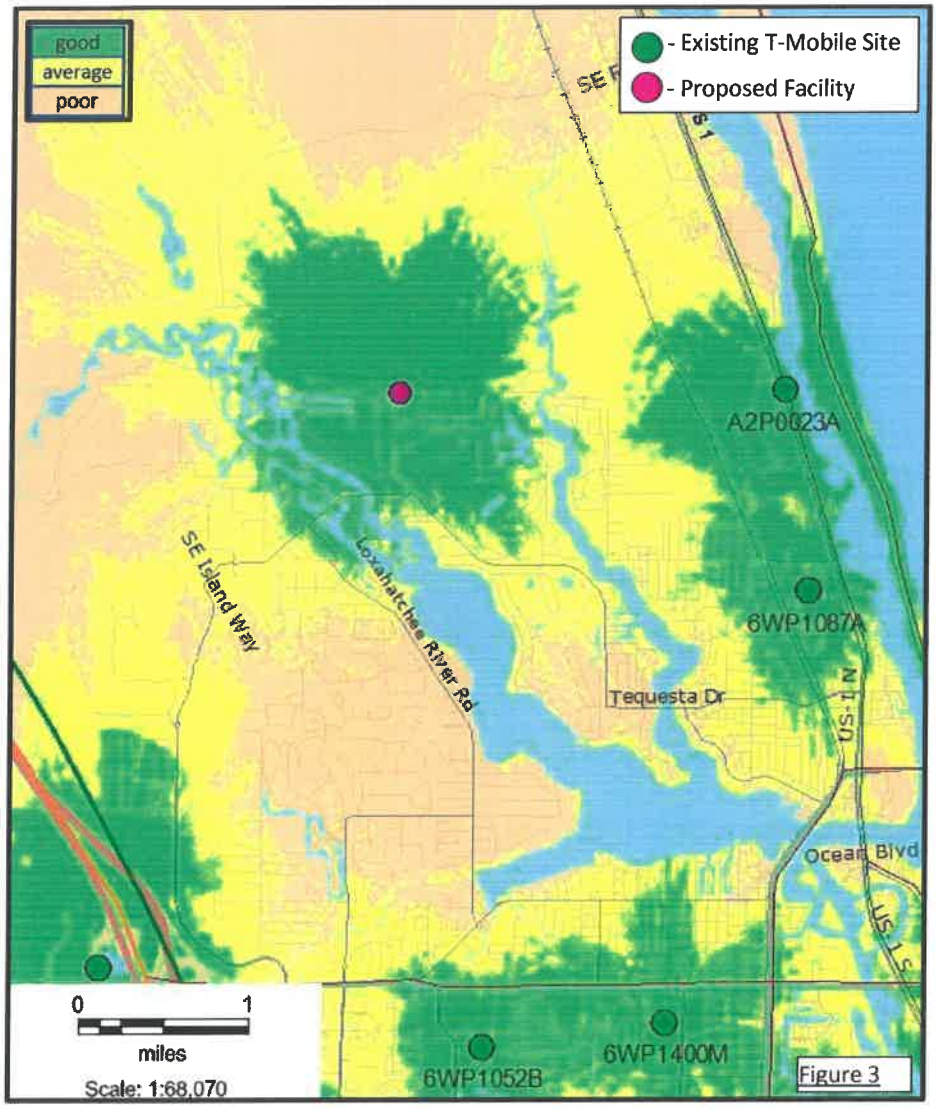
Current Cell Site Coverage and Predicted Improvements

Good (reliable indoor service)	Average (reliable outdoor service)	below average (poor service)
Signal power levels able to support a wide range of wireless services both indoors and outdoors. These services include voice calls and high-speed data.	Users may experience call quality issues depending on the signal power levels at their specific location. These issues could include dropped calls, ineffective attempts (blocked calls) or slow data speeds. Service in outdoor locations would be markedly better than indoors in many instances.	A user would encounter call quality issues especially indoors or during network busy hours due to low signal power levels. These issues could include dropped calls, ineffective attempts (blocked calls) and slow data speeds. Service may only be available in outdoor locations. In the worst case a user may not be able to place an emergency (E911) call.



As part of T-Mobile's design and development process a number of engineering studies are completed to ensure a best-fit approach for cell site additions in the network. Propagation or prediction plots are one of the most important of these and are used extensively to determine if a new proposal is adequate.

In Figure 2 the cell site propagation is shown as shades of color which represent signal power levels that a user would experience at a particular location. The propagation model is based on a predictive computer simulator application that is derived from proprietary methodologies. Green areas indicate signal power levels able to support a wide range of wireless services both indoors and outdoors. These services include voice calls and high speed data. The yellow color indicates areas where a user may experience call quality issues due to inconsistent signal power levels. This may depend on their specific location. For instance, a person may be able to use the cell phone on one side of their house near a window but unable to connect in another part of the house. The red areas represent where a user would encounter call quality issues due to low or unusable signal power levels. This would be especially true indoors or during network busy hours. These issues could include dropped calls, ineffective attempts and



The propagation map shown in Figure 3 depicts the predicted signal power levels for the proposed eighty-foot tower when added to the existing network. As can be seen not all the residential areas have a minimum of average service levels. This is especially important for users who are transitioning from one geographic area to another due to a more consistent coverage overlay. Users indoors will also benefit tremendously due to the closer proximity to the antenna locations. Areas where below average signal power levels still exist can sometimes be alleviated through network optimization methods after the new site comes on line. (These processes are iterative and require a more medium to long term engineering approach)

In summary, T-Mobile has recognized the demand for advanced telecommunication services in these communities. The existing T-Mobile facilities cannot provide these services through upgrade or expansion, due to the distances from the existing tower facilities and cell phone users in this area. Further, no towers or structures of sufficient height were identified in the search ring that could provide the necessary improvements to the network coverage.

Antenna Height Calculations

In general, the most efficient network topology would consist of equidistant cellular facilities with antennas of equal elevation. The spacing between facilities and the antenna elevations are dependent on the local area morphology. In urban areas, the facilities would be closer together and of less height than those in a suburban area. As noted in Table 1, the seven neighboring facilities have an average antenna elevation of approximately one-hundred twenty-five feet.

During initial network planning it is customary to compare signal coverage predictions of different antenna elevations. A review of the data for this analysis indicated that antennas would need to be located at one-hunderd-thirty-five to one-hundred-fifty feet in order to fulfill the requirements for adequate network service in this area. The final approved height of the tower was eighty feet which results in an antenna elevation of seventy-five feet. Calculations have showed that by increasing the forward link budget by 2dB, significant enough gains would be made to better guarantee a reduction of the potential for future towers in the surrounding areas. Based on the theoretical gain, the minimum increase in antenna elevation to achieve the target level is twenty-feet.

$$20log\left(\frac{height_1}{height_2}\right) 20log\left(\frac{95'}{75'}\right) = 2.05\ \text{dB}$$

1700

Increased Antenna Height and Predicted Improvements

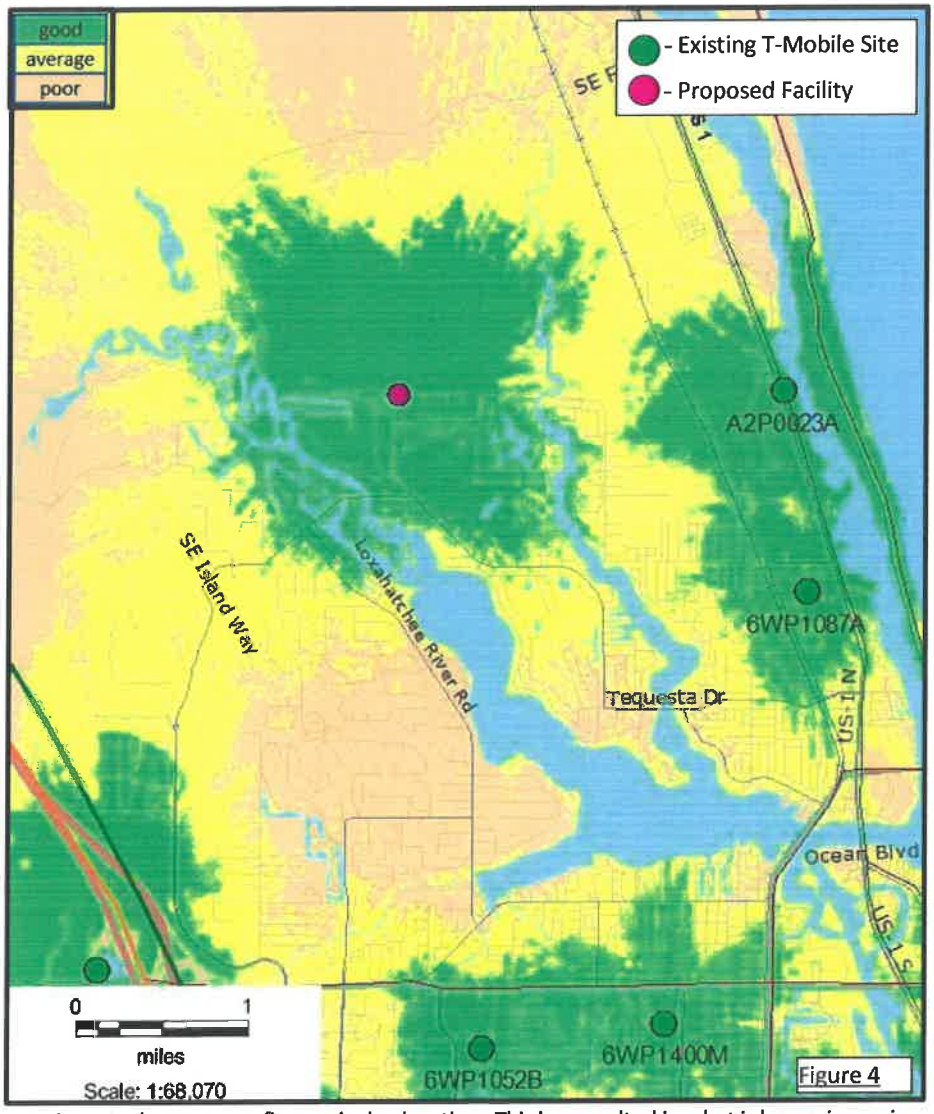


Figure 4

To the left in figure 4, the coverage footprint for a one-hundred-foot tower is shown. A tower at this elevation would provide a wider coverage area than one of eighty-feet elevation. (antenna elevation is one of the primary factors in the range of a wireless facility -- the higher the antenna, the further the signal range)

The approval for a wireless telecommunications tower of eighty-feet will significantly improve the cellular services for customers in some areas of Tequesta. But due to this relatively low tower elevation the facility will provide a modest service footprint considering scale of the coverage deficiencies. Nearby residents will have access to a broad range of wireless applications from their service provider but users at distance will still experience unsatisfactory service levels.

At the currently approved elevation, the T-Mobile antennas will be above the foliage but additional technology deployments at different (lower) elevations may not be. This is important because radio waves are absorbed or blocked by trees. The tree type and density of growth, as well as the frequency of the signal determines how much signal degradation occurs. With the advent of 5G services on the horizon, new equipment deployments must be considered. Among T-Mobile's 5G plans, upgrades to the current spectrum holdings, low-band (lower frequency) 5G services for greater range and millimeter-wave equipment for ultra- high-speed applications are all included. There are even plans for T-Mobile to provide broadband service to homes using existing facilities. All of these technologies require new equipment that may not fit at a single elevation. This has resulted in what is becoming an increasingly more common practice of the service providers accommodating equipment at more than one elevation. A tower that is only eighty-feet tall may not have adequate space for each of the service providers to install the necessary equipment, such as radios transceivers, antennas and the associated supporting gear. It is also not uncommon for police or emergency services to locate antennas on cellular towers and with the dearth of telecommunication facilities in the area, the approved facility may be an appealing option. If there is room on the tower.

In order for T-Mobile's to provide more reliable and robust wireless services, it is recommended that an extension be added to increase the antenna elevation and provide additional equipment mounting locations.

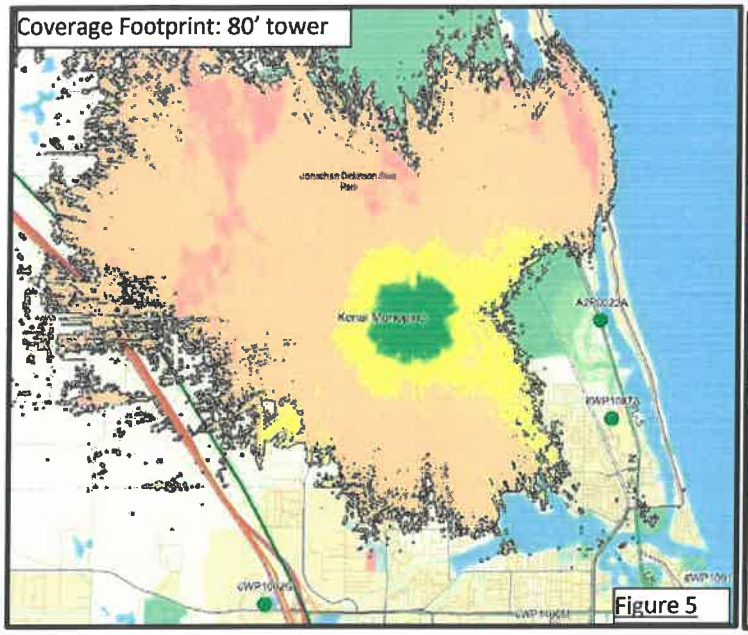


Figure 5

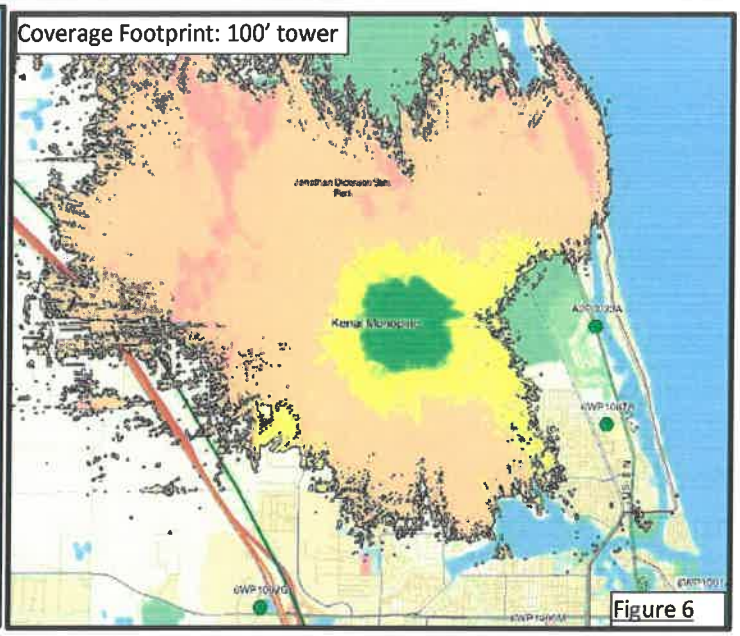


Figure 6

Propagation studies of the different antenna elevations were conducted in order to determine the impact of raising the height of the tower and antennas. The coverage footprint for the eighty-foot tower is slightly smaller than the footprint of the one-hundred-foot tower and provides less improvement in service levels. The one-hundred-foot tower would provide approximately thirty-three percent more area covered at average and good levels within the coverage footprint as compared to the eighty-foot tower. In addition, the taller tower would provide average and good service levels to six percent more of the population than the shorter tower.

Certification Statement of Non-interference

This letter provides information about the proposed T-Mobile transceiving equipment on the proposed facility in Tequesta, FL and its potential interference with communication facilities located nearby; as well as the FCC rules governing the human exposure to radio frequency energy (OET 65 guidelines). T-Mobile shall comply with all FCC rules regarding interference to other radio services and T-Mobile shall comply with all FCC rules regarding human exposure to radio frequency energy. The proposed tower facilities, and reception and transmission functions will not interfere with the visual and customary transmission or reception of radio, television or similar services as well as other wireless services enjoyed by surrounding properties.

T-Mobile radio signals are transmitted on exclusively assigned channels within the E, F and C bands in the PCS spectrum and the D, E, F1 and F2 in the AWS spectrum and A Band in 700MHz. In the future AWS-3 Block H and B, C and D blocks in 600 MHz will be active. The Federal Communication Commission (FCC) has allocated these frequencies exclusively for use by cellular service providers. Each cellular service provider is assigned specific frequencies (channels) on which to transmit and receive radio signals.

Cellular transmitters must be type-accepted by the FCC to ensure compliance with technical standards that limit the frequencies, output power, radio frequency emissions, spurious radio noise and other technical parameters. Cellular licensees like T-Mobile owns are required to use type-accepted equipment. The assignment of frequencies and FCC rules keep cellular radio signals from interfering with or being interfered with by other radio transmissions and provide guidelines outlining the limits for permissible human RF exposure. In the event of a complaint of interference or other concerns about cellular antenna facilities, the FCC has a resolution process to determine the source of interference and whether a facility is in compliance with FCC rules.

In the event of interference or other known issues with the transmission facility contact with the T-Mobile Network Operations Center (NOC) can be established 24 hours a day, 7 days a week 365/366 days per year at the following numbers: (877) 611-5868 (DAY), (877) 611-5868 (NIGHT)

Name Patrick Keane Title T-Mobile Sr Engineer, Radio Frequency

Signature 

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-ASO-4831-OE
Prior Study No.
2016-ASO-19081-OE

Issued Date: 04/04/2019

Scott Richards
RG Towers, LLC
2141 Alternate A1A, South
Suite 440
Jupiter, FL 33477

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna Tower Kenai - 100'
Location:	Tequesta, FL
Latitude:	26-59-06.60N NAD 83
Longitude:	80-07-44.30W
Heights:	10 feet site elevation (SE)
	100 feet above ground level (AGL)
	110 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 10/04/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the applicatio 1704

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (404) 305-6462, or mike.blaich@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-ASO-4831-OE.

Signature Control No: 396802814-401647852 (DNE)
Michael Blaich
Supervisor

Attachment(s)
Frequency Data
Map(s)

cc: FCC

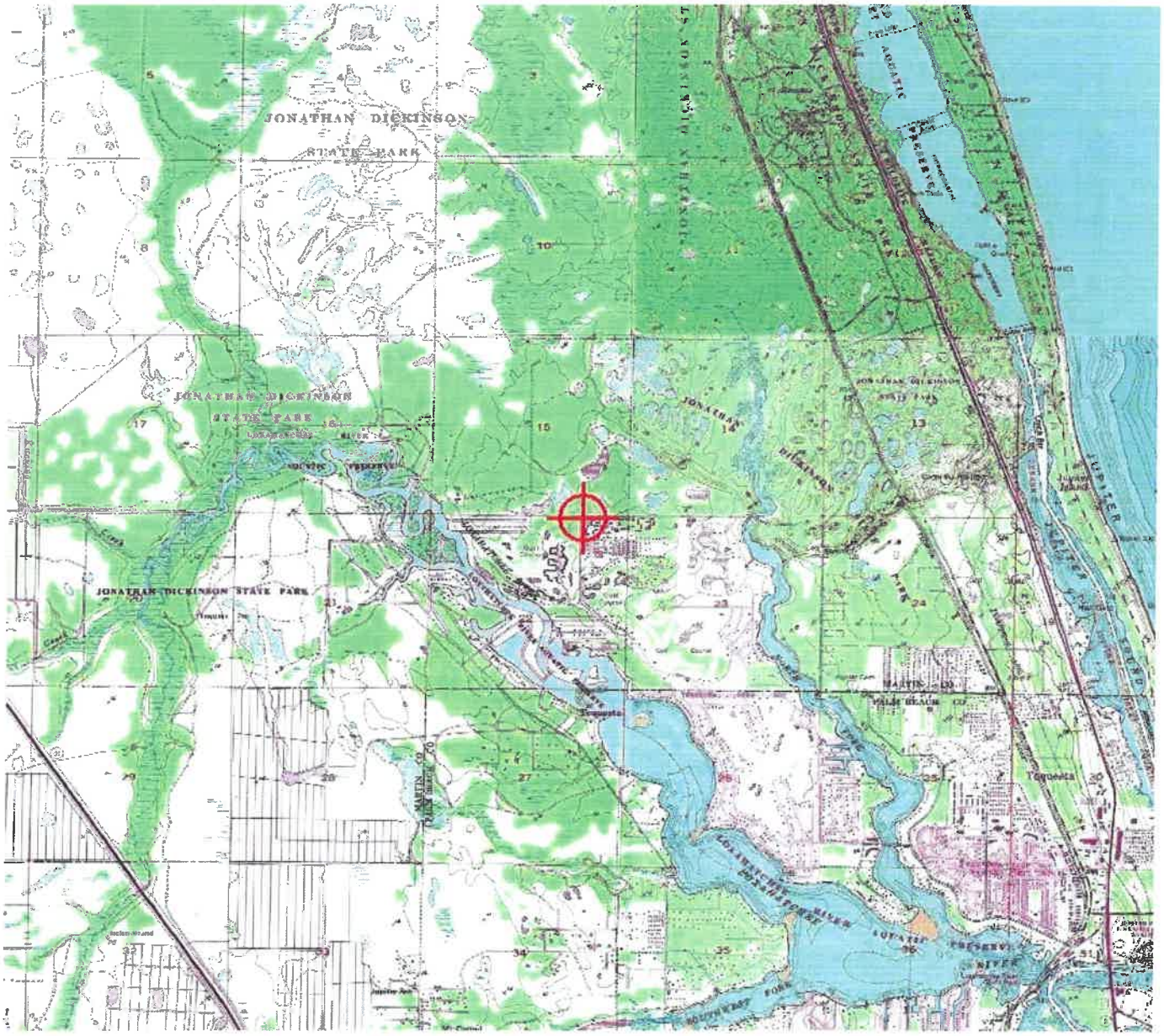
1705

Frequency Data for ASN 2019-ASO-4831-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
698	806	MHz	1000	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1850	1910	MHz	1640	W
1930	1990	MHz	1640	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W

1706

TOPO Map for ASN 2019-ASO-4831-OE



1707

VECTOR ENGINEERS

UTAH OFFICES
Sandy
Layton
St. George

Project Number: U0142-870-163

November 4, 2016

RG Towers
2141 Alternate A1A South, Suite 440
Jupiter, FL 33477

ATTENTION: Scott Richards

REFERENCE: **Kenai (STEALTH#: RG15-01258W-05R7)**
Fall Zone Letter

Dear Mr. Richards:

It is our understanding that a 100 ft monopine has been proposed for this site. This monopine will consist of a 100 ft tall 18-sided tapered steel base pole.

The above-mentioned pole will be designed in accordance with the Florida Building Code, 2014 Edition and the ANSI TIA-222-G "Structural Standard for Antenna Supporting Structures and Antennas". Additionally, all steel members and connections will be designed to meet the requirements of the AISC Steel Construction Manual.

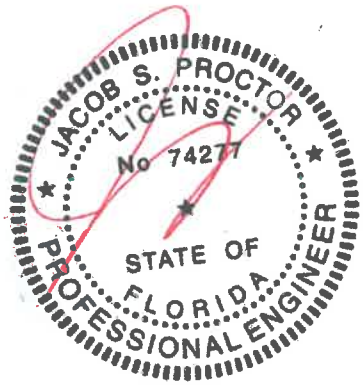
The pole has been designed for the following criteria:

1. Wind speed (V): 167 mph (3-second gust)
2. Ice: 1" radial ice (nominal) with concurrent 30 mph wind (3-second gust)
3. Basic wind speed of 60 mph (3-second gust) for the service condition (deflection limitations only)
4. Structure Class II, Exposure C, Topographic Category 1

It has been requested that the proposed monopine be designed for a fall zone radius of 40 ft. We will satisfy this requirement by ensuring that in the unlikely event of failure, the point of maximum stress will occur in the upper 40 ft (or less) of the structure. The structure supporting the top section will be designed such that the highest stress within the fall zone will be 99% of capacity at the bolted annular plate connection at 60 ft above grade level. Expected stress ratios of all other structural elements below this point, including the base pole, anchor rods, etc., will be at least 20% less than the highest stress ratio within the top 40 ft of the structure. If the structure fails, it will likely do so within 40 ft from the top of the initial top section. Therefore, this structure will be designed to have a maximum 40 ft fall zone.

We hope this meets your needs. If you have any further questions regarding this matter, please call this office at your convenience.

Very truly yours,
VECTOR STRUCTURAL ENGINEERING, LLC
Firm License Number: COA 26626



11/4/16

Jacob S. Proctor, S.E.
Principal Engineer

JSP/shb

1708

ULS License

PCS Broadband License - KNLG729 - T-Mobile License LLC

This license has pending applications: 0008253402

Call Sign	KNLG729	Radio Service	CW - PCS Broadband
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	BTA152 - Ft. Pierce-Vero Beach-Stuart, FL	Channel Block	F
Submarket	0	Associated Frequencies (MHz)	001890.00000000-001895.00000000 001970.00000000-001975.00000000

Dates

Grant	04/21/2017	Expiration	04/28/2027
Effective	04/21/2017	Cancellation	

Buildout Deadlines

1st	04/28/2002	2nd	

Notification Dates

1st	01/09/2002	2nd	

Licensee

FRN	0001565449	Type	Limited Liability Company

Licensee

T-Mobile License LLC
12920 SE 38th Street
Bellevue, WA 98006
ATTN FCC Regulatory Compliance

P:(425)383-8401
F:(425)383-4840
E:FCCregulatorycompliancecontact@t-mobile.com

Contact

1709

T-Mobile USA, Inc.
FCC REGULATORY COMPLIANCE
12920 SE 38th Street
Bellevue, WA 98006
ATTN FCC Regulatory

P:(425)383-8401
F:(425)383-4840
E:FCCRegulatoryCompliance@t-mobile.com

Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership

Is the applicant a foreign government or the representative of any foreign government?	No
Is the applicant an alien or the representative of an alien?	No
Is the applicant a corporation organized under the laws of any foreign government?	No
Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	**Yes**
Is the applicant directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country?	**Yes**
If the answer to the above question is 'Yes', has the applicant received a ruling(s) under Section 310(b)(4) of the Communications Act with respect to the same radio service involved in this application?	**Yes**

Basic Qualifications

The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits

This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

1710

RG Towers, LLC

3/28/19

Martin County Growth Management Department
2401 SE Monterey Rd
Stuart, FL 34996

RE: Kenai Tower Extension Major Final Site Plan Checklist #56

Attached please find the following shared use statement to complete checklist item #56 regarding our application for Major Final Site Plan in relation to:

Kenai Tower Extension Parcel # 22-40-42-000-000-00030-6

Requirement number 56 requests, *"TOWER INVENTORY: Each applicant for a WTCF shall provide the County with an inventory report of the applicant's existing WTCFs located within the county and for a distance of one mile beyond the County limits. By requiring this information, the county does not warrant its accuracy or its applicability. The inventory report shall specify the following" The location, type and design of each tower or antenna support structure; The ability of the tower or antenna support structure to accommodate additional antennas; The longitude and latitude of each tower or antenna support structure; and where applicable, the height of the support structures on which the applicant's existing WTCFs are located. [Section 4.811, LDR]*

TOWER INVENTORY

1	Location	S.E Country Club Drive, Tequesta FL
	Type/ Design	Stealth Monopine
	Ability to accommodate	69' and below
	Lat/Long.	26-59-6.6, 80-7-44.3
	Height	80'
	ASR #	1300428

Please let me know if you need any additional information.

Sincerely,
Holly Valdez
Holly Valdez
V.P. Leasing and Operations
RG Towers, LLC

1711

DISCLOSURE OF INTEREST AFFIDAVIT

BEFORE ME, the undersigned authority, duly authorized to take acknowledgments and administer oaths, personally appeared the undersigned person on the date set forth below, who, first being duly sworn, deposes and says under penalties of perjury:

1. That the record property owner(s) of the Real Property described in **Exhibit "A"** to this Affidavit is (are) as follows:

Name	**Address**
Kenai Properties, LLC	19100 SE Jupiter Road, Jupiter FL 33458

(If more space is needed attach separate sheet)

2. That the following is a list of every natural person and entity with any legal or equitable interest in the property (as defined in Section 10.2.B.3. Land Development Regulations, Martin County Code):

Name	**Address**	**Interest**
Eugene B. Albrecht	19100 SE Jupiter Road, Jupiter FL 33458	Managing Member
Linda Albrecht	19100 SE Jupiter Road, Jupiter FL 33458	Managing Member

(If more space is needed attach separate sheet)

3. That the following is a list of those, who have any interest in a contract for sale of the property, or a conveyance of any interest in the property, including but not limited to, real estate brokers and salespersons; and any and all mortgagees of the property:

Name	Address	Interest
RG Towers, LLC	2141 Alt A1A S, Suite 440, Jupiter FL 33477	Lessee
Scott Richards	2141 Alt A1A S, Suite 440 Jupiter FL 33477	MGR
Howard Mandel	86 West Street, Chagrin Falls, OH 44022	MGR

(If more space is needed attach separate sheet)

4. That the following is a list of all other applications for which the applicant has an interest as defined in subsection b. and c. of Section 10.2.B.3. Land Development Regulations, Martin County Code currently pending before Martin County. The list shall include any development applications, waiver applications, road opening applications, and lien reduction requests.

Application Name and/or Project Number	Names & Addresses of Parties involved	Date	Type of Application	Status of Application*
Kenai TC03 Telecommunications Tower/ Project # K041-002	Kenai Properties, LLC RG Towers, LLC Gunster, Robert S. Raynes, Jr. T-Mobile	5/31/16	Major Final Site Plan - Tower D09T 201500315	A-Approved

(If more space is needed attach separate sheet)

- Status defined as:
  A = Approved

P = Pending
D = Denied
W = Withdrawn

This Affidavit is given for the purpose of establishing compliance with the provisions of Section 10.2.B.3 Land Development Regulations; Martin County Code.

FURTHER AFFIANT SAYETH NOT.

AFFIANT

S Pedrall

STATE OF Florida
COUNTY OF Palm Beach

The foregoing Disclosure of Interest Affidavit was sworn to, affirmed and subscribed before me this 24th day of April 2019, by Scott Richards, who is personally known to me or have produced _____ as identification.

Holly Valdez

Notary Public, State of Florida
Print Name: Holly Valdez
My Commission Expires: 8/4/21

(Notary Seal)

HOLLY VALDEZ
Notary Public – State of Florida
Commission # GG 118687
My Comm. Expires Aug 4, 2021
Bonded through National Notary Assn.

#3 continued;

Ryan Lepene	86 West Steet, Chagrin Falls, OH 44022	MGR
Sean Lojek	86 West Street, Chagrin Falls OH 44022	MGR
T-Mobile US, Inc	12920 SE 38th St , Bellevue WA 98006	Tenant

P = Pending
D = Denied
W = Withdrawn

This Affidavit is given for the purpose of establishing compliance with the provisions of Section 10.2.B.3 Land Development Regulations; Martin County Code.

FURTHER AFFIANT SAYETH NOT.

Eugene B. Albrecht

AFFIANT

Linda J Albrecht
Linda J Albrecht

STATE OF Florida
COUNTY OF Palm Beach

The foregoing Disclosure of Interest Affidavit was sworn to, affirmed and subscribed before me this 24th day of April 2019, by Eugene & Linda Albrecht, who is personally known to me or have produced _____ as identification.

Holly Valdez
Notary Public, State of Florida
Print Name: Holly Valdez
My Commission Expires: 8/4/21

(Notary Seal)

HOLLY VALDEZ
Notary Public – State of Florida
Commission # GG 118687
My Comm. Expires Aug 4, 2021
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#3 continued;

Ryan Lepene	86 West Steet, Chagrin Falls, OH 44022	MGR
Sean Lojek	86 West Street, Chagrin Falls OH 44022	MGR
T-Mobile US, Inc	12920 SE 38th St , Bellevue WA 98006	Tenant

Exhibit "A"
(Disclosure of Interest and Affidavit)
(Legal Description)

See Attached

Appendix
Article 10.2.B.3. Article 10, Development Review Procedures; Land Development Regulations; Martin County Code

10.2.B. Application submittal for development approval. Applications for development approval shall comply with the following described procedures:

1. Initiation. A development application shall be filed with the County Administrator by the owner or other person having a power of attorney from the owner to make the application.

2. Acceptance of the application. A development application will be received for processing on any working day.

3. Verification of property ownership. The documents required below are required prior to an application being determined complete. After the application is determined to be complete, the applicant has a continuing obligation to provide revised documents to reflect any changes to the information provided that may occur before and as of the date of the final public hearing or final action on the application.

a. Proof of ownership must be provided for any application for any type of development order. The applicant shall provide a copy of the recorded deed for the subject property, and shall certify any subsequent transfers of interests in the property. If the applicant is not the owner of record, the applicant is required to report its interest in the subject property.

b. The applicant must disclose the names and addresses of each and every natural person or entity with any legal or equitable interest in the property of the proposed development, including all individuals, children, firms, associations, joint adventures, partnerships, estates, trusts, business trusts, syndicates, fiduciaries, corporations, limited liability company, professional associations and all other groups or combinations.

c. For those entities that are a firm, association, joint adventure, partnership, estate, trust, business trust, syndicate, fiduciary, corporation, limited liability company, professional associations and all other groups or combinations thereof, every natural person or entity that enjoys a legal or equitable interest in property of the proposed development shall be disclosed including but not limited to any partners, members, shareholders, trustees, and stockholders.

d. The disclosure required in b. and c. above shall not apply to companies that are publicly traded and to consultants and contractors who may perform professional services or work related to the property.

e. In addition, the disclosure must include those having any interest in a contract for sale of the property, or a conveyance of any interest in the property, including but not limited to, real estate brokers and salespersons; and any and all mortgagees of the property.

f. The applicant must list all other applications for which they have an interest as defined in subsection b. and c. above that is currently pending before Martin County. The list shall include any development applications, waiver applications, road opening applications, and lien reduction requests.

g. Any development order, including applications for Planned Unit Developments which was granted or approved based on false or incomplete disclosure will be presumed to have been fraudulently induced and will be deemed by the Martin County Board of County Commissioners to be void ab initio and set aside, repealed, or vacated.

EXHIBIT A
LEGAL DESCRIPTION

KENAI – TC 03

PARENT TRACT
(PER OFFICIAL RECORD BOOK 2633, PAGE 1144 OF THE PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA)

BEGIN AT THE NORTHWEST CORNER OF THE NORTHEAST ONE QUARTER (NE1/4) OF THE NORTHEAST ONE QUARTER (NE1/4) OF SAID SECTION 22-40-42, AND THE NORTH BOUNDARY OF SAID SECTION 22-40-42;

THENCE EASTERLY, ALONG THE NORTH BOUNDARY OF SAID SECTION 22-40-42, A DISTANCE OF 294 FEET TO A POINT;

THENCE, SOUTHERLY, PERPENDICULAR TO THE PREVIOUS LINE, 45 FEET TO A POINT;

THENCE, SOUTHWESTERLY, ALONG A LINE TURNED AT AN ANGLE OF 135°00'00" IN THE NORTHWEST QUADRANT FROM THE PREVIOUS LINE, 162.63 FEET TO A POINT;

THENCE, WESTERLY, ALONG A LINE PARALLEL WITH AND 160 FEET SOUTH OF THE NORTH BOUNDARY OF SAID SECTION 22-40-42, A DISTANCE OF 178.28 FEET, MORE OR LESS, TO THE WEST BOUNDARY OF THE NORTHEAST ONE QUARTER (NE1/4) OF THE NORTHEAST ONE QUARTER (NE1/4) OF SAID SECTION 22-40-42;

THENCE, NORTHERLY, ALONG SAID WEST BOUNDARY OF THE NORTHEAST ONE QUARTER (NE1/4) OF THE NORTHEAST ONE QUARTER (NE1/4) OF SAID SECTION 22-40-42, A DISTANCE OF 160 FEET TO THE POINT OF BEGINNING;

RG TOWERS LEASE PARCEL
A PARCEL OF LAND BEING A PORTION OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SECTION 22, TOWNSHIP 40 SOUTH, RANGE 42 EAST, MARTIN COUNTY, FLORIDA, SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22 (FOUND NAIL & DISK - NO I.D.);

THENCE ON A GRID BEARING OF S89°48'00"E ALONG THE NORTH LINE OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22, A DISTANCE OF 30.00 FEET;

THENCE CONTINUE S89°48'00"E CONTINUING ALONG THE NORTH LINE OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22, A DISTANCE OF 60.00 FEET;

EXHIBIT A
LEGAL DESCRIPTION

THENCE S00°03'00"E A DISTANCE OF 100.00 FEET TO THE POINT OF BEGINNING;

THENCE S89°48'00"E A DISTANCE OF 60.00 FEET;

THENCE S00°03'00"E A DISTANCE OF 40.00 FEET;

THENCE N89°48'00"W A DISTANCE OF 60.00 FEET;

THENCE N00°03'00"W A DISTANCE OF 40.00 FEET TO THE POINT OF BEGINNING;

SAID PARCEL OF LAND SITUATE WITHIN MARTIN COUNTY, FLORIDA CONTAINING 2,400.0 SQUARE FEET MORE OR LESS.

RG TOWERS ACCESS AND UTILITY EASEMENT

A PARCEL OF LAND BEING A PORTION OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SECTION 22, TOWNSHIP 40 SOUTH, RANGE 42 EAST, MARTIN COUNTY, FLORIDA, SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22 (FOUND NAIL & DISK - NO I.D.);

THENCE ON A GRID BEARING OF S89°48'00"E ALONG THE NORTH LINE OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22, A DISTANCE OF 30.00 FEET;

THENCE CONTINUE S89°48'00"E CONTINUING ALONG THE NORTH LINE OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22, A DISTANCE OF 60.00 FEET;

THENCE S00°03'00"E A DISTANCE OF 100.00 FEET;

THENCE S89°48'00"E A DISTANCE OF 60.00 FEET;

THENCE S00°03'00"E A DISTANCE OF 40.00 FEET;

THENCE N89°48'00"W A DISTANCE OF 60.00 FEET;

THENCE N00°03'00"W A DISTANCE OF 10.00 FEET TO THE POINT OF BEGINNING;

THENCE N89°48'00"W A DISTANCE OF 60.00 FEET TO A POINT ON A LINE 30.00 FEET EAST OF AND PARALLEL WITH THE WEST LINE OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22,

SAID LINE ALSO BEING THE PROPOSED EAST RIGHT-OF-WAY LINE OF S.E. COUNTRY CLUB DRIVE (PUBLIC RIGHT-OF-WAY);

THENCE N00°03'00"W ALONG SAID PARALLEL LINE AND PROPOSED EAST RIGHT-OF-WAY LINE, A DISTANCE OF 20.00 FEET;

THENCE S89°48'00"E A DISTANCE OF 60.00 FEET;

THENCE S00°03'00"E A DISTANCE OF 20.00 FEET TO THE POINT OF BEGINNING;

SAID PARCEL OF LAND SITUATE WITHIN MARTIN COUNTY, FLORIDA CONTAINING 1,200.0 SQUARE FEET MORE OR LESS.

RIGHT-OF-WAY DEDICATION PARCEL

A PARCEL OF LAND BEING A PORTION OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SECTION 22, TOWNSHIP 40 SOUTH, RANGE 42 EAST, MARTIN COUNTY, FLORIDA, SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGIN AT THE NORTHWEST CORNER OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22 (FOUND NAIL & DISK - NO I.D.);

THENCE ON A GRID BEARING OF S89°48'00"E ALONG THE NORTH LINE OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22, A DISTANCE OF 30.00 FEET TO A POINT ON A LINE 30.00 FEET EAST OF AND PARALLEL WITH THE WEST LINE OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22;

THENCE S00°03'00"E ALONG SAID PARALLEL LINE, A DISTANCE OF 160.00 FEET TO A POINT ON A LINE 160.00 FEET SOUTH OF AND PARALLEL WITH THE NORTH LINE OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22;

THENCE N89°48'00"W ALONG SAID PARALLEL LINE, A DISTANCE OF 30.00 FEET TO A POINT ON THE WEST LINE OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22 (FOUND NAIL & DISK - NO I.D.);

THENCE N00°03'00"W ALONG THE WEST LINE OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22, A DISTANCE OF 160.00 FEET TO THE POINT OF BEGINNING;

SAID PARCEL OF LAND SITUATE WITHIN MARTIN COUNTY, FLORIDA CONTAINING 4,800.0 SQUARE FEET MORE OR LESS.

EXHIBIT A
LEGAL DESCRIPTION

RG TOWERS LANDSCAPE BUFFER EASEMENT

A PARCEL OF LAND BEING A PORTION OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SECTION 22, TOWNSHIP 40 SOUTH, RANGE 42 EAST, MARTIN COUNTY, FLORIDA, SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22 (FOUND NAIL & DISK - NO I.D.);

THENCE ON A GRID BEARING OF S89°48'00"E ALONG THE NORTH LINE OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22, A DISTANCE OF 30.00 FEET;

THENCE CONTINUE S89°48'00"E CONTINUING ALONG THE NORTH LINE OF THE NORTHEAST ONE-QUARTER (1/4) OF THE NORTHEAST ONE-QUARTER (1/4) OF SAID SECTION 22, A DISTANCE OF 60.00 FEET;

THENCE S00°03'00"E A DISTANCE OF 100.00 FEET TO THE POINT OF BEGINNING;

THENCE S89°48'00"E A DISTANCE OF 60.00 FEET;

THENCE S00°03'00"E A DISTANCE OF 40.00 FEET;

THENCE N89°48'00"W A DISTANCE OF 60.00 FEET;

THENCE N00°03'00"W A DISTANCE OF 10.00 FEET;

THENCE N89°48'00"W A DISTANCE OF 10.00 FEET;

THENCE S00°03'00"E A DISTANCE OF 20.00 FEET;

THENCE S89°48'00"E A DISTANCE OF 80.00 FEET;

THENCE N00°03'00"W A DISTANCE OF 100.00 FEET;

THENCE N89°48'00"W A DISTANCE OF 80.00 FEET;

THENCE S00°03'00"E A DISTANCE OF 60.00 FEET;

THENCE S89°48'00"E A DISTANCE OF 10.00 FEET;

THENCE N00°03'00"W A DISTANCE OF 10.00 FEET TO THE POINT OF BEGINNING;

SAID PARCEL OF LAND SITUATE WITHIN MARTIN COUNTY, FLORIDA CONTAINING 5,400.0 SQUARE FEET MORE OR LESS.

Martin County Growth Management

2401 SE Monterey Road

Stuart, FL 34996

2/3/20

RE:

KENAI TOWER EXTENSION

MAJOR REVISED FINAL SITE PLAN - TOWER

Applicant: RG Towers, LLC, Scott Richards

Property Owner: Kenai Properties, LLC, Linda Albrecht

Agent for the Applicant: Gunster, Robert S. Raynes, Jr.

Enclosed please see the following in response to staff report dated 12/2/19

- Written Responses
- Narrative
- Engineering Report
- FAA
- Site Plan
- Construction Plan
- Engineers cost of removal letter revised
- Draft Commitment for maintenance and removal
- Color Illustrations
- CD with: Autocad survey
  Autocad site plan
  Autocad Construction Plan
  Combined, bookmarked pdf submittal package
- Unity of Title
- Public facilities statement
- Stormwater statement
- Shared use letter
- RF propagation report
- Infeasibility report
- Tower inventory

Sincerely,

Holly Valdez

V.P. Leasing and Operations

RG Towers, LLC