Structural Design and Fall Radius

Sabre™
Towers & Poles

Structural Design Report

125' Monopole
located at: East Key West, FL

prepared for: NSORO LLC
by: Sabre Towers & Poles ™

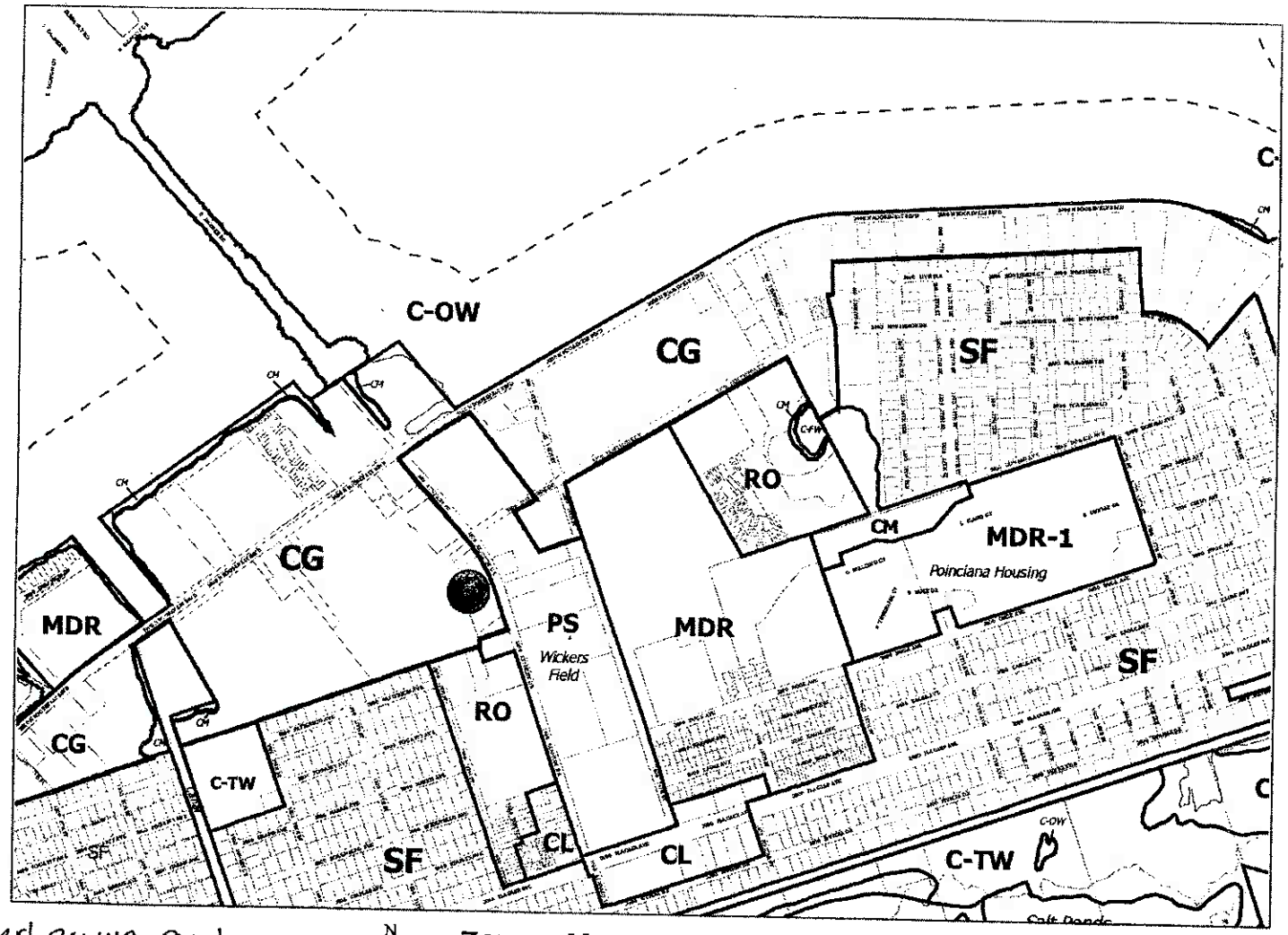
Job Number: 10-04137

April 19, 2010

Monopole by MAC

Foundation by RAB

Approved by KJT



125' RADIUS PLAN

0 500 1,000 1,500

FEET

N

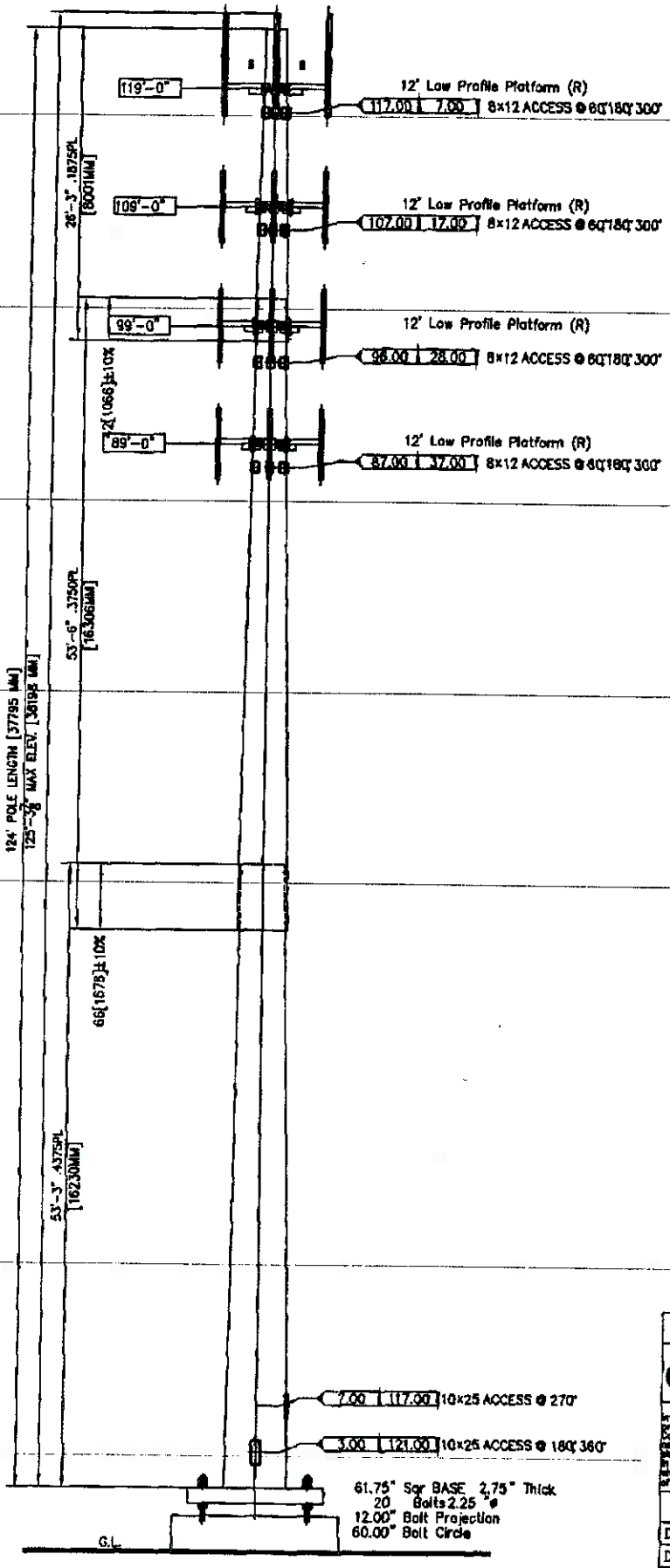
W E

S

ZONING MAP OF THE CITY OF KEY WEST

PLATE 5 OF 8.

Not official version. Please contact the Planning Department or City Clerk for the official version.



POLE SPECIFICATIONS		
POLE HEIGHT	124.00	FEET
TAPER	.3030	IN/FT
POLE SHAPE	18	SIDED POLYGON
ORIENTATION	FLAT-FLAT	

Lev	Qty	Elev ft.	Future	DESCRIPTION APPURTENANCE / ANTENNA
1	1	119.00	F	12' Low Profile Platform (R)
	9	121.00	F	800 10123
	18	121.00	F	CBC819-DF
2	1	109.00	F	12' Low Profile Platform (R)
	9	109.00	F	DBXLH-8585B-VTM.
	12	109.00	F	ETB19G8-12UB
3	1	99.00	F	12' Low Profile Platform (R)
	9	99.00	F	DBXLH-8585B-VTM.
	12	99.00	F	ETB19G8-12UB
4	1	89.00	F	12' Low Profile Platform (R)
	9	89.00	F	DBXLH-8585B-VTM.
	12	89.00	F	ETB19G8-12UB

Load Case DESCRIPTION	Wind (mph)	OLF Vert	Rad. Ice	Factors Gust	Cf	Wind (psf)
1) 3s Gusted Wind	150.0	1.20		1.10	.65	96.3
2) 3s Gusted Wind 0.9	150.0	.90		1.10	.65	96.3
3) 3s Gusted Wind&Ice	30.0	1.20		1.10	.65	2.4
4) Service Loads	60.0	1.00		1.10	.65	8.6

Load Case DESCRIPTION	Res. Axial (kips)	Base Shear (kips)	React Mom (ft-k)	Disp @Top DEFL. (ft)	SWAY (deg)
1) 3s Gusted Wind	43.5	63.2	5570	10.0	6.82
2) 3s Gusted Wind 0.9	33.0	63.2	5525	9.9	6.70
3) 3s Gusted Wind&Ice	41.8	1.6	140	.3	.22
4) Service Loads	34.8	5.7	498	.9	.79

Sec	LENGTH (ft)	Flat-Flat TOP#	BOT#	THICK (in)	WEIGHT (lbs)	STEEL SPEC	FINISH
1	26.25	17.00	24.95	.1875	1400	A572-65	Galv
2	53.50	23.52	39.73	.3750	7400	A572-65	Galv
3	53.25	37.31	53.45	.4375	13900	A572-65	Galv
				TOTAL	22700		

ABolt Cluster		Bolts	Holes			
AB	84.00	2.25	2.625	2700	A615-75	Galv-18"

1) FULL HEIGHT STEP BOLTS
2) ANTENNA FEED LINES RUN INSIDE POLE
3) THE MONOPOLE WAS DESIGNED IN ACCORDANCE WITH ANSI/TIA-222-G, STRUCTURE CLASS II, EXPOSURE CATEGORY C, TOPOGRAPHIC CATEGORY 1.

KEITH J. TINDALL LICENSE No. 64276 STATE OF FLORIDA PROFESSIONAL ENGINEER

4/19/10

NSORO LLC

East Key West, FL

125.00 MONOPOLE

Sabre Towers & Poles

10-04137	
DATE	16Apr10
DRAWN BY	-
CHECKED BY	HAC

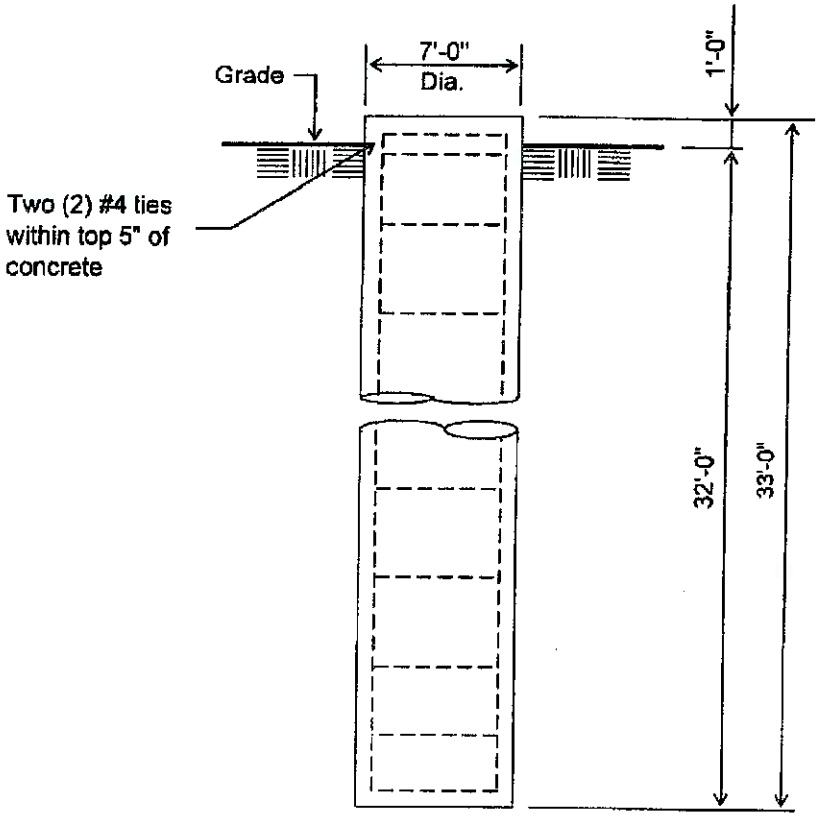
SIZE	DRAWING NO.	REV
A	10-04137-PE	-
REFERENCE DRAWING	SCALE N.T.S.	PAGE 1

Sabre Towers & Poles

No.: 10-04137
Page: 2
Date: 4/19/10
By: REB

Customer: NSORO LLC
Site: East Key West, FL

125' Monopole at
150 mph Wind with no ice per ANSI/TIA-222-G-2005.
Antenna Loading per Page 1
PRELIMINARY - NOT FOR CONSTRUCTION



ELEVATION VIEW
(47.04 Cu. Yds. each)
(1 REQUIRED; NOT TO SCALE)

Notes:

1). Concrete shall have a minimum 28-day compressive strength of 4000 PSI, in accordance with ACI 318-05.

2). Rebars to conform to ASTM specification A615 Grade 60.

3). All rebar to have a minimum of 3" concrete cover.

4). All exposed concrete corners to be chamfered 3/4".

5). The foundation is based on presumptive sand soil as defined in ANSI/TIA-222-G-2005. It is recommended that a soil analysis of the site be performed to verify the soil parameters used in the design.

6). The foundation is based on the following factored loads:
Moment (kip-ft) = 5570.83
Axial (kips) = 43.45
Shear (kips) = 63.208

Rebar Schedule per Pier	
Pier	(34) #10 vertical rebar w/#4 ties, two within top 5" of pier then 12" C/C

2101 Murray St - P.O. Box 658 - Sioux City, IA 51102-0658 - Phone 712.258.6690 - Fax 712.258.8250

SABRE COMMUNICATIONS CORP	JOB: 10-04137	16-Apr-10 12:55
2101 Murray Street	**NSORO LLC**	Ph 712.258.6690
Sioux City, IA 51101	**East Key West, FL**	Fx 712.258.8250

TOP	DIAMETER	17.00 in. [17.26 in. Point-Point]	
BOTTOM	DIAMETER	53.45 in. [54.27 in. Point-Point]	
POLE	HEIGHT	124.00 ft.	18 SIDED FLAT ORIENTATION
BASE	HEIGHT	1.00 ft.	ABOVE GROUND
E-MODULUS		29000 ksi	[12000 ksi SHEAR MODULUS]

APPURTENANCES

ATTACH POINTS:

NO.	X,ft	Qty	Description	Status
1	119.00	1	12' Low Profile Platform (R)	Future Appurt
2	109.00	1	12' Low Profile Platform (R)	Future Appurt
3	99.00	1	12' Low Profile Platform (R)	Future Appurt
4	89.00	1	12' Low Profile Platform (R)	Future Appurt

Some wind forces may have been derived from full-scale wind tunnel tests.

Pole Section	Bottom X,ft.	Thick in.	Connect Type	LAP in.	Taper in/ft	Length ft.	Weight lbs	Steel Spec	Pole Finish
1	26.25	.18750	SLIP-JNT	42.	.3030	26.25	1105	A572-65	GALVANIZE
2	76.25	.37500	SLIP-JNT	66.	.3030	53.50	6770	A572-65	GALVANIZE
3	124.00	.43750	C-WELD		.3030	53.25	11307	A572-65	GALVANIZE

SECTION PROPERTIES

X,ft	UP,ft	D,in	T,in	Area in^2	Iz in^4	IxIy in^4	SxSy in^3	w/t	d/t	F_y(ksi)	
124.00	.00	17.00	.1875	10.01	714	357	41.4	14.22	90.7	65.00	TOP
119.00	5.00	18.51	.1875	10.91	926	463	49.3	15.65	98.7	65.00	P01
114.00	10.00	20.03	.1875	11.81	1176	588	57.8	17.07	106.8	65.00	
109.00	15.00	21.54	.1875	12.71	1464	732	66.9	18.50	114.9	65.00	P02
104.00	20.00	23.06	.1875	13.61	1798	899	76.8	19.92	123.0	65.00	
101.25	22.75	23.89	.1875	14.11	2004	1002	82.6	20.71	127.4	65.00	Slip-B01
99.00	25.00	24.20	.3750	28.36	4068	2034	165.5	9.62	64.5	65.00	P03
97.75	26.25	24.58	.3750	28.81	4264	2132	170.8	9.79	65.5	65.00	Slip-T02
92.75	31.25	26.09	.3750	30.61	5116	2558	193.1	10.51	69.6	65.00	
89.00	35.00	27.23	.3750	31.96	5824	2912	210.6	11.04	72.6	65.00	P04
84.00	40.00	28.74	.3750	33.77	6866	3433	235.2	11.75	76.7	65.00	
79.00	45.00	30.26	.3750	35.57	8026	4013	261.2	12.47	80.7	65.00	
74.00	50.00	31.77	.3750	37.37	9308	4654	288.5	13.18	84.7	65.00	
69.00	55.00	33.29	.3750	39.18	10722	5361	317.2	13.89	88.8	65.00	
64.00	60.00	34.80	.3750	40.98	12272	6136	347.2	14.60	92.8	65.00	
59.00	65.00	36.32	.3750	42.78	13964	6982	378.6	15.31	96.9	65.00	
54.00	70.00	37.83	.3750	44.59	15804	7902	411.4	16.03	100.9	65.00	
53.25	70.75	38.06	.3750	44.86	16094	8047	416.4	16.13	101.5	65.00	Slip-B02
48.25	75.75	38.83	.4375	53.31	19846	9923	503.4	13.89	88.7	65.00	
47.75	76.25	38.98	.4375	53.52	20082	10041	507.4	13.95	89.1	65.00	Slip-T03
42.75	81.25	40.49	.4375	55.62	22544	11272	548.3	14.56	92.6	65.00	
37.75	86.25	42.01	.4375	57.72	25202	12601	590.8	15.17	96.0	65.00	
32.75	91.25	43.52	.4375	59.83	28058	14029	634.9	15.78	99.5	65.00	
27.75	96.25	45.04	.4375	61.93	31122	15561	680.5	16.39	102.9	65.00	
22.75	101.25	46.55	.4375	64.04	34404	17202	727.8	17.00	106.4	65.00	
17.75	106.25	48.07	.4375	66.14	37904	18952	776.6	17.61	109.9	65.00	
12.75	111.25	49.58	.4375	68.24	41638	20819	827.0	18.22	113.3	65.00	
7.75	116.25	51.10	.4375	70.35	45610	22805	879.0	18.83	116.8	65.00	
2.75	121.25	52.61	.4375	72.45	49824	24912	932.6	19.44	120.3	65.00	
.00	124.00	53.45	.4375	73.61	52248	26124	962.7	19.78	122.2	65.00	BASE

SABRE COMMUNICATIONS CORP	JOB: 10-04137	16-Apr-10 12:55
2101 Murray Street	NSORO LLC	Ph 712.258.6690
Sioux City, IA 51101	East Key West, FL	Fx 712.258.8250

CASE - 1: 3s Gusted Wind — **ANSI-TIA-222-G**

WIND OLF	1.60	GUSTED WIND (3sec)	150.0 mph	241.4 kph
VERTICAL OLF	1.20	EXP-CAT/STRUC CLASS	C-II	
DESIGN ICE	.00 in	EXP-POWER COEFF.	.2105	
GUST FACTOR (Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF (Cf)	.65	PRESSURE @ 32.7 ft	96.3 psf	4608.4 Pa
IMPORTANCE FAC (I)	1.00	BASE ABOVE Grd	1.0	
DIRECTION FAC (Kd)	.95	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT	1			

APPURTENANCES — **Sabre Areas**

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	Ax-Z Kips	MOM. Lg-X Ft-K
_	1	12' Low Profile Platform (R)	119.0	1239	104.1				126.7	13.20	-1.5	-3.3
	9	800 10123	121.0	72		1 5/8"	18	1.04	127.1		-3.5	
	18	CBC819-DF	121.0	4		None	1	.00	127.1		-.1	
_	2	1 12' Low Profile Platform (R)	109.0	1239	67.4				124.4	8.39	-1.5	-2.1
	9	DBXLH-8585B-VTM.	109.0	44		1 5/8"	18	1.04	124.4		-2.9	
	12	ETB19G8-12UB	109.0	20		None	1	.00	124.4		-.3	
_	3	1 12' Low Profile Platform (R)	99.0	1239	67.4				122.0	8.23	-1.5	-2.1
	9	DBXLH-8585B-VTM.	99.0	44		1 5/8"	18	1.04	121.9		-2.7	
	12	ETB19G8-12UB	99.0	20		None	1	.00	121.9		-.3	
_	4	1 12' Low Profile Platform (R)	89.0	1239	67.4				119.3	8.05	-1.5	-2.0
	9	DBXLH-8585B-VTM.	89.0	44		1 5/8"	18	1.04	119.2		-2.5	
	12	ETB19G8-12UB	89.0	20		None	1	.00	119.2		-.3	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
124.00	1.00	83.04	.00	.0	.01	-.1	.0	.0	.0	82.55	.000
119.00	1.00	82.33	.00	.0	14.48	-3.3	-4.9	.0	.0	82.55	.021
114.00	1.00	81.59	.00	.0	15.49	-3.6	-78.9	.0	.0	81.30	.229
109.00	1.00	80.83	.00	.0	25.21	-7.4	-158.4	.0	.0	79.62	.408
104.00	1.00	80.05	.00	.0	25.79	-7.8	-284.5	.0	.0	77.95	.645
101.25	1.00	79.60	.00	.0	26.18	-8.1	-355.4	.0	.0	77.02	.756
99.00	1.00	79.23	.00	.0	35.22	-11.8	-416.3	.0	.0	82.55	.413
97.75	1.00	79.02	.00	.0	35.77	-12.4	-460.4	.0	.0	82.55	.442
92.75	1.00	78.16	.00	.0	36.52	-13.3	-639.3	.0	.0	82.55	.542
89.00	1.00	77.49	.00	.0	45.78	-17.4	-778.2	.0	.0	82.55	.606
84.00	1.00	76.56	.00	.0	46.64	-18.4	-1006.7	.0	.0	82.55	.700
79.00	1.00	75.59	.00	.0	47.53	-19.5	-1240.0	.0	.0	82.55	.775
74.00	1.00	74.57	.00	.0	48.44	-20.6	-1478.3	.0	.0	82.55	.836
69.00	1.00	73.50	.00	.0	49.37	-21.8	-1720.0	.0	.0	82.55	.885
64.00	1.00	72.36	.00	.0	50.32	-23.0	-1966.7	.0	.0	82.55	.923
59.00	1.00	71.15	.00	.0	51.29	-24.3	-2218.3	.0	.0	82.55	.955
54.00	1.00	69.86	.00	.0	51.85	-25.1	-2475.0	-.1	.0	82.55	.980
53.25	1.00	69.66	.00	.0	52.44	-26.1	-2514.2	-.1	.0	82.41	.986
48.25	1.00	68.25	.00	.0	52.99	-27.2	-2775.8	-.1	.0	82.55	.898
47.75	1.00	68.11	.00	.0	53.56	-28.3	-2802.5	-.1	.0	82.55	.900
42.75	1.00	66.57	.00	.0	54.58	-30.0	-3070.8	-.1	.0	82.55	.913
37.75	1.00	64.89	.00	.0	55.58	-31.6	-3343.3	-.1	.0	82.55	.922
32.75	1.00	63.03	.00	.0	56.58	-33.2	-3620.8	-.1	.0	82.55	.929
27.75	1.00	60.94	.00	.0	57.60	-34.8	-3904.2	-.1	.0	82.11	.940
22.75	1.00	58.54	.00	.0	58.65	-36.4	-4191.7	-.1	.0	81.39	.952
17.75	1.00	55.70	.00	.0	59.73	-38.1	-4485.0	-.1	.0	80.67	.963
12.75	1.00	53.21	.00	.0	60.84	-39.9	-4784.2	-.1	.0	79.95	.974
7.75	1.00	53.21	.00	.0	61.98	-41.6	-5088.3	-.1	.0	79.23	.983
2.75	1.00	53.21	.00	.0	62.88	-43.0	-5398.3	-.1	.0	78.51	.992
.00	1.00	53.21	.00	.0	63.21	-43.5	5570.8	.1	.0	78.12	.997

DISPLACEMENTS

ELEV X, ft	DEFLECTION feet X	Y	Z	XY-Result	ROTATION, degrees X	Y	Z	XY-Result
124.00	.00	10.00	-.56	10.00< 8.06%>	-8.82	.00	.00	8.82

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CASE - 2: 3s Gusted Wind 0.9 Dead — **ANSI-TIA-222-G**

WIND OLF	1.60		GUSTED WIND (3sec)	150.0 mph	241.4 kph
VERTICAL OLF	.90		EXP-CAT/STRUC CLASS	C-II	
DESIGN ICE	.00	in	EXP-POWER COEFF.	.2105	
GUST FACTOR (Gh)	1.10		REFERENCE HEIGHT	900.0 ft	
FORCE COEFF (Cf)	.65		PRESSURE @ 32.7 ft	96.3 psf	4608.4 Pa
IMPORTANCE FAC (I)	1.00		BASE ABOVE Grd	1.0	
DIRECTION FAC (Kd)	.95		CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT	1				

APPURTENANCES — **Sabre Areas**

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	Ax-Z Kips	MOM. Lg-X Ft-K
_ 1	1	12' Low Profile Platform (R)	119.0	1239	104.1				126.7	13.20	-1.1	-3.3
	9	800 10123	121.0	72		1 5/8"	18	1.04	127.1		-2.6	
	18	CBC819-DF	121.0	4		None	1	.00	127.1		-.1	
_ 2	1	12' Low Profile Platform (R)	109.0	1239	67.4				124.4	8.39	-1.1	-2.1
	9	DBXLH-8585B-VTM.	109.0	44		1 5/8"	18	1.04	124.4		-2.2	
	12	ETB19G8-12UB	109.0	20		None	1	.00	124.4		-.2	
_ 3	1	12' Low Profile Platform (R)	99.0	1239	67.4				122.0	8.23	-1.1	-2.1
	9	DBXLH-8585B-VTM.	99.0	44		1 5/8"	18	1.04	121.9		-2.0	
	12	ETB19G8-12UB	99.0	20		None	1	.00	121.9		-.2	
_ 4	1	12' Low Profile Platform (R)	89.0	1239	67.4				119.3	8.05	-1.1	-2.0
	9	DBXLH-8585B-VTM.	89.0	44		1 5/8"	18	1.04	119.2		-1.9	
	12	ETB19G8-12UB	89.0	20		None	1	.00	119.2		-.2	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
124.00	1.00	83.04	.00	.0	.00	-.1	.0	.0	.0	82.55	.000
119.00	1.00	82.33	.00	.0	14.27	-2.0	-4.9	.0	.0	82.55	.020
114.00	1.00	81.59	.00	.0	15.28	-2.2	-77.8	.0	.0	81.30	.224
109.00	1.00	80.83	.00	.0	24.82	-4.8	-156.3	.0	.0	79.62	.399
104.00	1.00	80.05	.00	.0	25.41	-5.1	-280.4	.0	.0	77.95	.633
101.25	1.00	79.60	.00	.0	25.80	-5.4	-350.3	.0	.0	77.02	.742
99.00	1.00	79.23	.00	.0	34.69	-7.9	-410.4	.0	.0	82.55	.405
97.75	1.00	79.02	.00	.0	35.23	-8.4	-453.8	.0	.0	82.55	.434
92.75	1.00	78.16	.00	.0	35.99	-9.1	-629.9	.0	.0	82.55	.532
89.00	1.00	77.49	.00	.0	45.12	-12.0	-766.8	.0	.0	82.55	.595
84.00	1.00	76.56	.00	.0	46.01	-12.8	-992.5	.0	.0	82.55	.688
79.00	1.00	75.59	.00	.0	46.92	-13.7	-1222.5	.0	.0	82.55	.762
74.00	1.00	74.57	.00	.0	47.86	-14.7	-1456.7	.0	.0	82.55	.822
69.00	1.00	73.50	.00	.0	48.82	-15.6	-1696.7	.0	.0	82.55	.870
64.00	1.00	72.36	.00	.0	49.80	-16.7	-1940.8	.0	.0	82.55	.909
59.00	1.00	71.15	.00	.0	50.81	-17.7	-2189.2	.0	.0	82.55	.940
54.00	1.00	69.86	.00	.0	51.39	-18.3	-2443.3	-.1	.0	82.55	.966
53.25	1.00	69.66	.00	.0	51.99	-19.2	-2481.7	-.1	.0	82.41	.971
48.25	1.00	68.25	.00	.0	52.56	-20.0	-2741.7	-.1	.0	82.55	.885
47.75	1.00	68.11	.00	.0	53.15	-20.9	-2768.3	-.1	.0	82.55	.887
42.75	1.00	66.57	.00	.0	54.19	-22.3	-3034.2	-.1	.0	82.55	.900
37.75	1.00	64.89	.00	.0	55.24	-23.5	-3305.0	-.1	.0	82.55	.910
32.75	1.00	63.03	.00	.0	56.28	-24.8	-3580.8	-.1	.0	82.55	.917
27.75	1.00	60.94	.00	.0	57.35	-26.1	-3862.5	-.1	.0	82.11	.928
22.75	1.00	58.54	.00	.0	58.44	-27.4	-4149.2	-.1	.0	81.39	.940
17.75	1.00	55.70	.00	.0	59.57	-28.8	-4441.7	-.1	.0	80.67	.952
12.75	1.00	53.21	.00	.0	60.73	-30.2	-4739.2	-.1	.0	79.95	.962
7.75	1.00	53.21	.00	.0	61.93	-31.6	-5043.3	-.1	.0	79.23	.972
2.75	1.00	53.21	.00	.0	62.87	-32.7	-5352.5	-.1	.0	78.51	.982
.00	1.00	53.21	.00	.0	63.20	-33.0	5525.8	.1	.0	78.12	.987

DISPLACEMENTS

ELEV X, ft	DEFLECTION feet X	Y	Z	XY-Result	ROTATION, degrees X	Y	Z	XY-Result
124.00	.00	9.88	-.54	9.88< 7.97%>	-8.70	.00	.00	8.70

SABRE COMMUNICATIONS CORP	JOB: 10-04137	16-Apr-10 12:55
2101 Murray Street	NSORO LLC	Ph 712.258.6690
Sioux City, IA 51101	East Key West, FL	Fx 712.258.8250

CASE - 3: 3s Gusted Wind&Ice — **ANSI-TIA-222-G**

WIND OLF		1.00	GUSTED WIND (3sec)	30.0 mph	48.3 kph
VERTICAL OLF		1.20	EXP-CAT/STRUC CLASS	C-II	
DESIGN ICE		.00 in	EXP-POWER COEFF.	.2105	
GUST FACTOR	(Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF	(Cf)	.65	PRESSURE @ 32.7 ft	2.4 psf	115.2 Pa
IMPORTANCE FAC	(I)	1.00	BASE ABOVE Grd	1.0	
DIRECTION FAC	(Kd)	.95	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT		1			

APPURTENANCES — **Sabre Areas**

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	Ax-Z Kips	MOM. Lg-X Ft-K
_ 1	1	12' Low Profile Platform (R)	119.0	1239	104.1				3.2	.33	-1.5	-.1
	9	800 10123	121.0	72		1 5/8"	18	1.04	3.2		-3.5	
	18	CBC819-DF	121.0	4		None	1	.00	3.2		-.1	
_ 2	1	12' Low Profile Platform (R)	109.0	1239	67.4				3.1	.21	-1.5	-.1
	9	DBXLH-8585B-VTM.	109.0	44		1 5/8"	18	1.04	3.1		-2.9	
	12	ETB19G8-12UB	109.0	20		None	1	.00	3.1		-.3	
_ 3	1	12' Low Profile Platform (R)	99.0	1239	67.4				3.0	.21	-1.5	-.1
	9	DBXLH-8585B-VTM.	99.0	44		1 5/8"	18	1.04	3.0		-2.7	
	12	ETB19G8-12UB	99.0	20		None	1	.00	3.0		-.3	
_ 4	1	12' Low Profile Platform (R)	89.0	1239	67.4				3.0	.20	-1.5	-.1
	9	DBXLH-8585B-VTM.	89.0	44		1 5/8"	18	1.04	3.0		-2.5	
	12	ETB19G8-12UB	89.0	20		None	1	.00	3.0		-.3	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
124.00	1.00	2.08	.00	.0	.00	-.1	.0	.0	.0	82.55	.000
119.00	1.00	2.06	.00	.0	.37	-5.4	-.1	.0	.0	82.55	.007
114.00	1.00	2.04	.00	.0	.39	-5.6	-2.0	.0	.0	81.30	.012
109.00	1.00	2.02	.00	.0	.64	-10.6	-4.0	.0	.0	79.62	.022
104.00	1.00	2.00	.00	.0	.65	-10.8	-7.2	.0	.0	77.95	.027
101.25	1.00	1.99	.00	.0	.66	-11.1	-9.0	.0	.0	77.02	.030
99.00	1.00	1.98	.00	.0	.89	-15.8	-10.5	.0	.0	82.55	.018
97.75	1.00	1.98	.00	.0	.90	-16.3	-11.6	.0	.0	82.55	.019
92.75	1.00	1.95	.00	.0	.92	-17.0	-16.1	.0	.0	82.55	.021
89.00	1.00	1.94	.00	.0	1.15	-21.9	-19.6	.0	.0	82.55	.024
84.00	1.00	1.91	.00	.0	1.17	-22.5	-25.4	.0	.0	82.55	.026
79.00	1.00	1.89	.00	.0	1.20	-23.3	-31.3	.0	.0	82.55	.028
74.00	1.00	1.86	.00	.0	1.22	-24.0	-37.3	.0	.0	82.55	.030
69.00	1.00	1.84	.00	.0	1.24	-24.8	-43.3	.0	.0	82.55	.031
64.00	1.00	1.81	.00	.0	1.26	-25.7	-49.6	.0	.0	82.55	.031
59.00	1.00	1.78	.00	.0	1.29	-26.5	-55.9	.0	.0	82.55	.032
54.00	1.00	1.75	.00	.0	1.30	-27.1	-62.3	.0	.0	82.55	.033
53.25	1.00	1.74	.00	.0	1.32	-27.9	-63.3	.0	.0	82.41	.033
48.25	1.00	1.71	.00	.0	1.33	-28.7	-69.9	.0	.0	82.55	.030
47.75	1.00	1.70	.00	.0	1.34	-29.7	-70.5	.0	.0	82.55	.030
42.75	1.00	1.66	.00	.0	1.37	-31.1	-77.3	.0	.0	82.55	.030
37.75	1.00	1.62	.00	.0	1.39	-32.2	-84.1	.0	.0	82.55	.031
32.75	1.00	1.58	.00	.0	1.42	-33.5	-91.1	.0	.0	82.55	.031
27.75	1.00	1.52	.00	.0	1.45	-34.7	-98.2	.0	.0	82.11	.031
22.75	1.00	1.46	.00	.0	1.47	-36.0	-105.4	.0	.0	81.39	.031
17.75	1.00	1.39	.00	.0	1.50	-37.4	-112.8	.0	.0	80.67	.032
12.75	1.00	1.33	.00	.0	1.53	-38.8	-120.3	.0	.0	79.95	.032
7.75	1.00	1.33	.00	.0	1.56	-40.2	-127.9	.0	.0	79.23	.033
2.75	1.00	1.33	.00	.0	1.58	-41.4	-135.7	.0	.0	78.51	.033
.00	1.00	1.33	.00	.0	1.59	-41.8	140.0	.0	.0	78.12	.033

DISPLACEMENTS

ELEV X, ft	DEFLECTION feet X	Y	Z	XY-Result	ROTATION, degrees X	Y	Z	XY-Result
124.00	.00	.25	.00	.25< .20%>	-.22	.00	.00	.22

SABRE COMMUNICATIONS CORP	JOB: 10-04137	16-Apr-10 12:55
2101 Murray Street	NSORO LLC	Ph 712.258.6690
Sioux City, IA 51101	East Key West, FL	Fx 712.258.8250

CASE - 4: Service Loads — **ANSI-TIA-222-G**

WIND OLF		1.00	GUSTED WIND (3sec)	60.0 mph	96.6 kph
VERTICAL OLF		1.00	EXP-CAT/STRUC CLASS	C-II	
DESIGN ICE		.00 in	EXP-POWER COEFF.	.2105	
GUST FACTOR	(Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF	(Cf)	.65	PRESSURE @ 32.7 ft	8.6 psf	412.3 Pa
IMPORTANCE FAC	(I)	1.00	BASE ABOVE Grd	1.0	
DIRECTION FAC	(Kd)	.85	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT		1			

APPURTENANCES — **Sabre Areas**

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	FORCES Ax-Z Kips	MOM. Lg-X Ft-K
_ 1	1	12' Low Profile Platform (R)	119.0	1239	104.1				11.3	1.18	-1.2	-.3
	9	800 10123	121.0	72		1 5/8"	18	1.04	11.4		-2.9	
	18	CBC819-DF	121.0	4		None	1	.00	11.4		-.1	
_ 2	1	12' Low Profile Platform (R)	109.0	1239	67.4				11.1	.75	-1.2	-.2
	9	DBXLH-8585B-VTM.	109.0	44		1 5/8"	18	1.04	11.1		-2.4	
	12	ETB19G8-12UB	109.0	20		None	1	.00	11.1		-.2	
_ 3	1	12' Low Profile Platform (R)	99.0	1239	67.4				10.9	.74	-1.2	-.2
	9	DBXLH-8585B-VTM.	99.0	44		1 5/8"	18	1.04	10.9		-2.2	
	12	ETB19G8-12UB	99.0	20		None	1	.00	10.9		-.2	
_ 4	1	12' Low Profile Platform (R)	89.0	1239	67.4				10.7	.72	-1.2	-.2
	9	DBXLH-8585B-VTM.	89.0	44		1 5/8"	18	1.04	10.7		-2.1	
	12	ETB19G8-12UB	89.0	20		None	1	.00	10.7		-.2	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
124.00	1.00	7.43	.00	.0	.00	-.1	.0	.0	.0	82.55	.000
119.00	1.00	7.37	.00	.0	1.30	-4.5	-.4	.0	.0	82.55	.007
114.00	1.00	7.30	.00	.0	1.39	-4.7	-7.1	.0	.0	81.30	.025
109.00	1.00	7.23	.00	.0	2.26	-8.8	-14.2	.0	.0	79.62	.045
104.00	1.00	7.16	.00	.0	2.31	-9.0	-25.5	.0	.0	77.95	.066
101.25	1.00	7.12	.00	.0	2.34	-9.2	-31.9	.0	.0	77.02	.076
99.00	1.00	7.09	.00	.0	3.15	-13.1	-37.3	.0	.0	82.55	.043
97.75	1.00	7.07	.00	.0	3.20	-13.6	-41.3	.0	.0	82.55	.045
92.75	1.00	6.99	.00	.0	3.27	-14.2	-57.2	.0	.0	82.55	.054
89.00	1.00	6.93	.00	.0	4.09	-18.2	-69.7	.0	.0	82.55	.061
84.00	1.00	6.85	.00	.0	4.17	-18.8	-90.1	.0	.0	82.55	.069
79.00	1.00	6.76	.00	.0	4.25	-19.4	-110.9	.0	.0	82.55	.076
74.00	1.00	6.67	.00	.0	4.33	-20.0	-132.2	.0	.0	82.55	.081
69.00	1.00	6.58	.00	.0	4.41	-20.7	-153.8	.0	.0	82.55	.085
64.00	1.00	6.47	.00	.0	4.50	-21.4	-175.9	.0	.0	82.55	.089
59.00	1.00	6.37	.00	.0	4.59	-22.1	-198.4	.0	.0	82.55	.092
54.00	1.00	6.25	.00	.0	4.64	-22.6	-221.3	.0	.0	82.55	.094
53.25	1.00	6.23	.00	.0	4.69	-23.3	-224.8	.0	.0	82.41	.094
48.25	1.00	6.11	.00	.0	4.74	-23.9	-248.3	.0	.0	82.55	.086
47.75	1.00	6.09	.00	.0	4.79	-24.7	-250.6	.0	.0	82.55	.086
42.75	1.00	5.96	.00	.0	4.88	-25.9	-274.5	.0	.0	82.55	.087
37.75	1.00	5.81	.00	.0	4.97	-26.9	-298.9	.0	.0	82.55	.088
32.75	1.00	5.64	.00	.0	5.07	-27.9	-323.8	.0	.0	82.55	.089
27.75	1.00	5.45	.00	.0	5.16	-28.9	-349.2	.0	.0	82.11	.090
22.75	1.00	5.24	.00	.0	5.26	-30.0	-374.9	.0	.0	81.39	.091
17.75	1.00	4.98	.00	.0	5.36	-31.2	-401.3	.0	.0	80.67	.092
12.75	1.00	4.76	.00	.0	5.46	-32.3	-428.0	.0	.0	79.95	.093
7.75	1.00	4.76	.00	.0	5.57	-33.5	-455.3	.0	.0	79.23	.094
2.75	1.00	4.76	.00	.0	5.65	-34.5	-483.2	.0	.0	78.51	.095
.00	1.00	4.76	.00	.0	5.68	-34.8	498.7	.0	.0	78.12	.095

DISPLACEMENTS

ELEV X, ft	DEFLECTION feet X	Y	Z	XY-Result	ROTATION, degrees X	Y	Z	XY-Result	MicroW AlloW
124.00	.00	.90	-.01	.90< .72%>	-.79	.00	.00	.79	

SABRE COMMUNICATIONS CORP	JOB: 10-04137	16-Apr-10 12:55
2101 Murray Street	**NSORO LLC**	Ph 712.258.6690
Sioux City, IA 51101	**East Key West, FL**	Fx 712.258.8250

SHAPE: 18 SIDED POLYGON with FLAT-FLAT ORIENTATION
BOLTS: QUADRANT SPACED BOLTS 6.00 in. ON CENTER
LOCATE:

POLE DATA

DIAMETER =	53.45 in.	BASE	AXIAL FORCE=	-43.5 kips	Vert
PLATE =	.4375 in.	ACTIONS	SHEAR X =	44.7 kips	Long
TAPER =	.3030 in/ft		SHEAR Y =	44.7 kips	Tran
POLE Fy =	65.00 ksi		X-AXIS MOM =	3938.6 ft-kips	Tran
			Y-Axis MOM =	3938.6 ft-kips	Long
			Z-Axis MOM =	.0 ft-kips	Vert

DESIGN CASE = 1 3s Gusted Wind

Design: ANY Orientation Reactions at 45.00 deg to X-AXIS

BOLT LOADS

	AXIAL - COMPRESSION	= 225.01 kips		
	AXIAL - TENSION	= 220.66 kips		
	SHEAR	= 4.47 kips		
AXIAL	STRESS	= 69.23 ksi		
SHEAR	STRESS	= 1.46 ksi		
YIELD	STRENGTH Fy	= 75.00 ksi		
ULT.	STRENGTH Fu	= 100.00 ksi		
ALLOW	STRESS Fa [.80 x 1.00]	= 80.00 ksi	.902	Interaction TIA-G
	SHEAR Fv [.80 x .40]	= 32.00 ksi		
	TENSION AREA REQUIRED	= 2.81 in^2		
	TENSION AREA FURNISHED	= 3.25 in^2		
	ROOT AREA FURNISHED	= 3.07 in^2		

A615 ::: ANCHOR BOLT DESIGN USED

20 Bolts on a	60.000 in.	Bolt Circle	SHIP
2.250 in.	Diameter 67.13 in.	Embedded	(lbs)
12.00 in.	Exposed 84.00 in.	Total Length	2670

CONCRETE - Fc= 4000 psi

ANCHOR BOLTS are STRAIGHT w\ UPLIFT NUT

BASE PLATE

[Bend Model: 1/4 Circ]

YIELD STRENGTH	= 50.0	ksi
BEND LINE WIDTH	= 42.4	in.
PLATE MOMENT	= 3397.0	in-k
THICKNESS REQD	= 2.668	in.
BENDING STRESS	= 42.4	ksi
ALLOWABLE STRESS	= 45.0	ksi
[Fy x .90 x 1.00]		

BASE PLATE USED

2.75	in.	THICK	SHIP
61.75	in.	SQUARE	(lbs)
41.00	in.	CENTER HOLE	1545
14.00	in.	CORNER CLIP	

LOAD CASE SUMMARY

	FORCES-(kips)			MOMENTS-(ft-k)			ABolt-Str	Plate-Str		
							Allow	Actual	Allow	Design
LC	Axial	ShearX	ShearY	X-axis	Y-axis	TorQ	CSR	ksi	ksi	ksi	Code
1	43.5	44.7	44.7	3939	3939	0	.902	75.00	42.37	45.00	TIA-G
2	33.0	44.7	44.7	3907	3907	0	.893	75.00	41.93	45.00	TIA-G
3	41.8	1.1	1.1	98	98	0	.030	75.00	1.46	45.00	TIA-G
4	34.8	4.0	4.0	352	352	0	.087	75.00	4.10	45.00	TIA-G

LPILE Plus for Windows, Version 5.0 (5.0.39)

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

This program is licensed to:

Rob Beacom
Sabre Towers and Poles

Path to file locations:	C:\Progra~1\Ensoft\LpilePS\
Name of input data file:	1004137P.lpd
Name of output file:	1004137P.lpo
Name of plot output file:	1004137P.lpp
Name of runtime file:	1004137P.lpr

Time and Date of Analysis

Date: April 19, 2010 Time: 10:55:45

Problem Title

125' Monopole NSORO LLC East Key West, FL (10-04137) 4-19-10 REB

Program Options

Units Used in Computations - US Customary Units: Inches, Pounds

Basic Program Options:

Analysis Type 3:
- Computation of Nonlinear Bending Stiffness and Ultimate Bending Moment Capacity with Pile Response Computed Using Nonlinear EI

Computation Options:
- Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis assumes no shear resistance at pile tip
- Analysis for fixed-length pile or shaft only
- No computation of foundation stiffness matrix elements
- Output summary table of values for pile-head deflection, maximum bending moment, and shear force only
- Analysis assumes no soil movements acting on pile
- No additional p-y curves to be computed at user-specified depths

Solution Control Parameters:
- Number of pile increments = 100
- Maximum number of iterations allowed = 300
- Deflection tolerance for convergence = 1.0000E-05 in

- Maximum allowable deflection = 1.0000E+03 in

Printing Options:
- Only summary tables of pile-head deflection, maximum bending moment, and maximum shear force are to be printed in output file.

Pile Structural Properties and Geometry

Pile Length = 396.00 in

Depth of ground surface below top of pile = 12.00 in

Slope angle of ground surface = .00 deg.

Structural properties of pile defined using 2 points

Point	Depth X in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus of Elasticity lbs/Sq.in
1	0.0000	84.00000000	2443920.	5541.8000	3604997.
2	396.0000	84.00000000	2443920.	5541.8000	3604997.

Please note that because this analysis makes computations of ultimate moment capacity and pile response using nonlinear bending stiffness that the above values of moment of inertia and modulus of are not used for any computations other than total stress due to combined axial loading and bending.

Soil and Rock Layering Information

The soil profile is modelled using 1 layers

Layer 1 is sand, p-y criteria by Reese et al., 1974
Distance from top of pile to top of layer = 12.000 in
Distance from top of pile to bottom of layer = 612.000 in
p-y subgrade modulus k for top of soil layer = 35.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 35.000 lbs/in**3

(Depth of lowest layer extends 216.00 in below pile tip)

Effective Unit Weight of Soil vs. Depth

Effective unit weight of soil with depth defined using 2 points

Point No.	Depth X in	Eff. Unit Weight lbs/in**3
1	12.00	.06370
2	612.00	.06370

Shear Strength of Soils

Shear strength parameters with depth defined using 2 points

Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50 or k_rm	RQD %
1	12.000	.00000	30.00	------	------
2	612.000	.00000	30.00	------	------

Notes:

(1) Cohesion = uniaxial compressive strength for rock materials.
(2) Values of E50 are reported for clay strata.
(3) Default values will be generated for E50 when input values are 0.
(4) RQD and k_rm are reported only for weak rock strata.

Loading Type

Static loading criteria was used for computation of p-y curves.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Case Number 1

Pile-head boundary conditions are Shear and Moment (BC Type 1)
Shear force at pile head = 84277.333 lbs
Bending moment at pile head = 89133280.000 in-lbs
Axial load at pile head = 57933.333 lbs

Non-zero moment at pile head for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment) condition.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

---

Number of sections = 1

Pile Section No. 1

The sectional shape is a circular drilled shaft (bored pile).

Outside Diameter = 84.0000 in

Material Properties:

Compressive Strength of Concrete = 4.000 kip/in**2
Yield Stress of Reinforcement = 60. kip/in**2
Modulus of Elasticity of Reinforcement = 29000. kip/in**2
Number of Reinforcing Bars = 34

Area of Single Bar	=	1.27000 in**2
Number of Rows of Reinforcing Bars	=	17
Area of Steel	=	43.180 in**2
Area of Shaft	=	5541.769 in**2
Percentage of Steel Reinforcement	=	.779 percent
Cover Thickness (edge to bar center)	=	4.135 in

Unfactored Axial Squash Load Capacity = 21286.00 kip

Distribution and Area of Steel Reinforcement

Row Number	Area of Reinforcement in**2	Distance to Centroidal Axis in
1	2.540	37.703
2	2.540	36.420
3	2.540	33.895
4	2.540	30.217
5	2.540	25.509
6	2.540	19.933
7	2.540	13.678
8	2.540	6.958
9	2.540	0.000
10	2.540	-6.958
11	2.540	-13.678
12	2.540	-19.933
13	2.540	-25.509
14	2.540	-30.217
15	2.540	-33.895
16	2.540	-36.420
17	2.540	-37.703

Axial Thrust Force = 57933.33 lbs

Bending Moment in-lbs	Bending Stiffness lb-in2	Bending Curvature rad/in	Maximum Strain in/in	Neutral Axis Position inches	Max. Concrete Stress psi	Max. Steel Stress psi
6102486.	9.763978E+12	6.250000E-07	.00002907	46.51040572	103.32472	765.12658
12153807.	9.723046E+12	.00000125	.00005544	44.35142773	195.53436	1451.99021
18150102.	9.680055E+12	.00000188	.00008177	43.61243302	286.30991	2137.80248
24095547.	9.638219E+12	.00000250	.00010818	43.27205139	376.03082	2825.72563
29986518.	9.595686E+12	.00000313	.00013453	43.05031067	464.25520	3512.06179
29986518.	7.996405E+12	.00000375	.00008559	22.82268065	295.00153	6185.78634
29986518.	6.854061E+12	.00000438	.00009813	22.43018836	336.94284	7266.54819
29986518.	5.997304E+12	.00000500	.00011086	22.17101687	379.20225	8342.20637
29986518.	5.330936E+12	.00000563	.00012335	21.92959446	420.40515	9424.36420
29986518.	4.797843E+12	.00000625	.00013587	21.73860794	461.37058	10506.13208
29986518.	4.361675E+12	.00000688	.00014839	21.58431369	502.09787	11587.50770

29986518.	3.998202E+12	.00000750	.00016093	21.45755178	542.58637
12668.48821					
29986518.	3.690648E+12	.00000813	.00017348	21.35197359	582.83528
13749.07242					
29986518.	3.427031E+12	.00000875	.00018605	21.26305300	622.84400
14829.25698					
29986518.	3.198562E+12	.00000938	.00019863	21.18746549	662.61176
15909.03997					
29986518.	2.998652E+12	.00001000	.00021123	21.12272018	702.13789
16988.41878					
29986518.	2.822260E+12	.00001063	.00022384	21.06690949	741.42160
18067.39162					
29986518.	2.665468E+12	.00001125	.00023646	21.01855391	780.46222
19145.95537					
29986518.	2.525180E+12	.00001188	.00024937	20.99999875	820.14370
20216.00949					
29986518.	2.398921E+12	.00001250	.00026239	20.99124688	859.83461
21283.18254					
29986518.	2.284687E+12	.00001313	.00027506	20.95663744	898.12511
22360.51489					
29986518.	2.180838E+12	.00001375	.00028774	20.92630631	936.17300
23437.39585					
29986518.	2.086019E+12	.00001438	.00030043	20.89970773	973.97772
24513.82031					
29986518.	1.999101E+12	.00001500	.00031315	20.87638110	1011.53841
25589.78567					
30437541.	1.948003E+12	.00001563	.00032587	20.85593837	1048.85415
26665.28985					
31587378.	1.943839E+12	.00001625	.00033862	20.83805412	1085.92417
27740.32939					
32736040.	1.939913E+12	.00001688	.00035138	20.82245046	1122.74762
28814.90118					
33883521.	1.936201E+12	.00001750	.00036416	20.80888957	1159.32369
29889.00190					
35029819.	1.932680E+12	.00001813	.00037695	20.79716867	1195.65167
30962.62705					
36174917.	1.929329E+12	.00001875	.00038976	20.78710502	1231.73044
32035.77595					
37318820.	1.926133E+12	.00001938	.00040258	20.77854842	1267.55937
33108.44289					
38461509.	1.923075E+12	.00002000	.00041543	20.77135867	1303.13734
34180.62723					
39602991.	1.920145E+12	.00002063	.00042829	20.76542312	1338.46382
35252.32203					
40743248.	1.917329E+12	.00002125	.00044116	20.76063162	1373.53760
36323.52698					
41882278.	1.914618E+12	.00002188	.00045406	20.75689405	1408.35796
37394.23703					
43020075.	1.912003E+12	.00002250	.00046697	20.75412780	1442.92398
38464.44878					
44156628.	1.909476E+12	.00002313	.00047990	20.75225776	1477.23462
39534.15978					
45291936.	1.907029E+12	.00002375	.00049284	20.75122136	1511.28917
40603.36441					
46425983.	1.904656E+12	.00002438	.00050580	20.75095600	1545.08645
41672.06158					
48690287.	1.900109E+12	.00002563	.00053178	20.75254065	1611.90597
43807.91278					
50949476.	1.895794E+12	.00002688	.00055783	20.75664622	1677.68540
45941.68436					
53203491.	1.891680E+12	.00002813	.00058396	20.76297480	1742.41694
48073.34514					
55452272.	1.887737E+12	.00002938	.00061016	20.77128106	1806.09269
50202.86236					
57695749.	1.883943E+12	.00003063	.00063643	20.78135723	1868.70430
52330.20548					

59933862.	1.880278E+12	.00003188	.00066278	20.79303306	1930.24354
54455.33938					
62166543.	1.876726E+12	.00003313	.00068920	20.80616337	1990.70189
56578.22959					
64393718.	1.873272E+12	.00003438	.00071571	20.82062298	2050.07044
58698.84269					
66490905.	1.866411E+12	.00003563	.00074178	20.82202238	2107.19934
60000.00000					
68140606.	1.847881E+12	.00003688	.00076609	20.77544922	2159.21758
60000.00000					
69564131.	1.824633E+12	.00003813	.00078950	20.70818299	2208.21921
60000.00000					
70828453.	1.798818E+12	.00003938	.00081227	20.62902564	2254.89098
60000.00000					
71968164.	1.771524E+12	.00004063	.00083451	20.54174227	2299.53838
60000.00000					
72951345.	1.742122E+12	.00004188	.00085606	20.44325370	2341.90387
60000.00000					
73932115.	1.714368E+12	.00004313	.00087766	20.35145420	2383.52178
60000.00000					
74805908.	1.685767E+12	.00004438	.00089874	20.25340122	2423.31677
60000.00000					
75543453.	1.655747E+12	.00004563	.00091917	20.14609319	2461.04213
60000.00000					
76279037.	1.627286E+12	.00004688	.00093962	20.04527897	2498.09215
60000.00000					
77012650.	1.600263E+12	.00004813	.00096012	19.95046037	2534.46338
60000.00000					
77715453.	1.573984E+12	.00004938	.00098047	19.85769707	2569.84249
60000.00000					
78248942.	1.545658E+12	.00005063	.00099986	19.75038904	2602.77926
60000.00000					
78780835.	1.518667E+12	.00005188	.00101928	19.64886385	2635.10405
60000.00000					
79549677.	1.497406E+12	.00005313	.00104125	19.60000008	2671.04963
60000.00000					
79884327.	1.469137E+12	.00005438	.00106163	19.52419728	2703.52054
60000.00000					
80405092.	1.445485E+12	.00005563	.00108070	19.42831975	2733.14971
60000.00000					
80924332.	1.422845E+12	.00005688	.00109980	19.33722872	2762.18612
60000.00000					
81293165.	1.398592E+12	.00005813	.00111778	19.23067671	2788.84075
60000.00000					
81654449.	1.375233E+12	.00005938	.00113574	19.12824529	2814.89370
60000.00000					
82014550.	1.352817E+12	.00006063	.00115372	19.03050023	2840.42055
60000.00000					
82373435.	1.331288E+12	.00006188	.00117174	18.93715614	2865.41837
60000.00000					
82731112.	1.310592E+12	.00006313	.00118978	18.84795767	2889.88491
60000.00000					
83087563.	1.290681E+12	.00006438	.00120785	18.76266450	2913.81744
60000.00000					
83442777.	1.271509E+12	.00006563	.00122594	18.68105632	2937.21336
60000.00000					
83796764.	1.253036E+12	.00006688	.00124407	18.60293287	2960.07035
60000.00000					
84138857.	1.235066E+12	.00006813	.00126213	18.52661437	2982.25628
60000.00000					
84377445.	1.216251E+12	.00006938	.00127923	18.43937856	3002.69037
60000.00000					
84615037.	1.198089E+12	.00007063	.00129636	18.35558993	3022.64281
60000.00000					
84851625.	1.180544E+12	.00007188	.00131352	18.27507073	3042.11137
60000.00000					

84851625.	1.160364E+12	.00007313	.00133087	18.19999892	3061.29054
60000.00000					
85359612.	1.147692E+12	.00007438	.00135362	18.19999892	3085.93368
60000.00000					
85845582.	1.116690E+12	.00007688	.00138739	18.04738945	3120.32555
60000.00000					
86292746.	1.087153E+12	.00007938	.00142079	17.89974421	3152.36158
60000.00000					
86736206.	1.059374E+12	.00008188	.00145429	17.76237541	3182.54441
60000.00000					
87175880.	1.033196E+12	.00008438	.00148790	17.63438183	3210.85580
60000.00000					
87484708.	1.007018E+12	.00008688	.00151985	17.49471492	3235.87453
60000.00000					
87761809.	9.819503E+11	.00008938	.00155150	17.35946149	3258.89415
60000.00000					
88035853.	9.582134E+11	.00009188	.00158324	17.23257440	3280.23829
60000.00000					
88306800.	9.357012E+11	.00009438	.00161508	17.11340028	3299.89147
60000.00000					
88574609.	9.143185E+11	.00009688	.00164701	17.00135332	3317.83790
60000.00000					
88839226.	8.939796E+11	.00009938	.00167903	16.89590532	3334.06140
60000.00000					
89124868.	8.748453E+11	.00010188	.00171150	16.80000025	3348.70131
60000.00000					
90057382.	8.628252E+11	.00010438	.00175350	16.80000025	3365.10542
60000.00000					
90057382.	8.426422E+11	.00010688	.00178470	16.69897324	3375.11273
60000.00000					
90057382.	8.233818E+11	.00010938	.00181590	16.60250241	3383.43121
60000.00000					
90154069.	8.058464E+11	.00011188	.00184703	16.50980419	3390.05153
60000.00000					
90291969.	7.894380E+11	.00011438	.00187627	16.40454894	3394.72379
60000.00000					
90427520.	7.737114E+11	.00011688	.00190559	16.30454081	3397.93457
60000.00000					
90560641.	7.586232E+11	.00011938	.00193500	16.20945185	3399.66988
60000.00000					
90689245.	7.441169E+11	.00012188	.00196450	16.11899418	3397.53721
60000.00000					
90812096.	7.301475E+11	.00012438	.00199409	16.03289491	3390.18132
60000.00000					
90933789.	7.167195E+11	.00012688	.00202377	15.95090872	3387.68527
60000.00000					
91054261.	7.038010E+11	.00012938	.00205354	15.87280029	3392.46748
60000.00000					
91173534.	6.913633E+11	.00013188	.00208341	15.79836434	3396.09177
60000.00000					
91291588.	6.793793E+11	.00013438	.00211337	15.72740561	3398.54476
60000.00000					
91408371.	6.678237E+11	.00013688	.00214343	15.65973884	3399.81277
60000.00000					
91522831.	6.566660E+11	.00013938	.00217364	15.59560186	3397.07228
60000.00000					
91635000.	6.458855E+11	.00014188	.00220400	15.53480691	3390.43646
60000.00000					
91746291.	6.354721E+11	.00014438	.00223444	15.47665054	3383.78030
60000.00000					
91856674.	6.254071E+11	.00014688	.00226496	15.42100257	3386.23620
60000.00000					
91856674.	6.149401E+11	.00014938	.00230037	15.39999908	3391.71460
60000.00000					
91856674.	6.048176E+11	.00015188	.00233887	15.39999908	3396.19472
60000.00000					

92257549.	5.976198E+11	.00015438	.00237606	15.39148754	3398.86801
60000.00000					
92358345.	5.887385E+11	.00015688	.00240575	15.33543903	3399.83107
60000.00000					
92445974.	5.800532E+11	.00015938	.00243508	15.27894241	3398.04479
60000.00000					
92492062.	5.713795E+11	.00016188	.00246286	15.21458012	3393.01682
60000.00000					
92537859.	5.629680E+11	.00016438	.00249069	15.15245837	3387.97657
60000.00000					
92583367.	5.548067E+11	.00016688	.00251856	15.09247953	3382.92391
60000.00000					
92628597.	5.468847E+11	.00016938	.00254648	15.03455347	3377.85861
60000.00000					
92673505.	5.391913E+11	.00017188	.00257444	14.97858757	3381.58537
60000.00000					
92718136.	5.317169E+11	.00017438	.00260246	14.92450672	3385.56320
60000.00000					
92806453.	5.173879E+11	.00017938	.00265864	14.82168227	3392.09421
60000.00000					
92893525.	5.038293E+11	.00018438	.00271502	14.72551435	3396.69613
60000.00000					
92979322.	4.909799E+11	.00018938	.00277160	14.63549727	3399.33214
60000.00000					
93063216.	4.787818E+11	.00019438	.00282845	14.55152589	3398.37603
60000.00000					
93143655.	4.671782E+11	.00019938	.00288576	14.47405082	3389.70635
60000.00000					
93223445.	4.561392E+11	.00020438	.00294321	14.40100676	3381.00209
60000.00000					
93283864.	4.455349E+11	.00020938	.00300279	14.34168130	3371.73188
60000.00000					
93341124.	4.354105E+11	.00021438	.00306278	14.28704220	3375.83297
60000.00000					
93397393.	4.257431E+11	.00021938	.00312295	14.23569006	3383.82382
60000.00000					
93452702.	4.165023E+11	.00022438	.00318330	14.18742961	3390.25120
60000.00000					
93507001.	4.076599E+11	.00022938	.00324384	14.14207309	3395.08523
60000.00000					
93560260.	3.991904E+11	.00023438	.00330456	14.09945279	3398.29519
60000.00000					
93612454.	3.910703E+11	.00023938	.00336547	14.05941600	3399.84916
60000.00000					
93661936.	3.832713E+11	.00024438	.00342682	14.02280134	3395.40496
60000.00000					
93716918.	3.758072E+11	.00024938	.00349125	14.00000042	3386.70437
60000.00000					
93913467.	3.691930E+11	.00025438	.00356125	14.00000042	3376.53148
60000.00000					
94134911.	3.629298E+11	.00025938	.00363125	14.00000042	3366.35860
60000.00000					
94371987.	3.569626E+11	.00026438	.00370125	14.00000042	3359.41011
60000.00000					
94599715.	3.511822E+11	.00026938	.00377125	14.00000042	3370.96159
60000.00000					
94818096.	3.455785E+11	.00027438	.00384125	14.00000042	3380.58329
60000.00000					

Unfactored (Nominal) Moment Capacity at Concrete Strain of 0.003 = 93281.03539 in-kip

1004137P.lpo
Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 1

Pile-head boundary conditions are Shear and Moment (BC Type 1)
Specified shear force at pile head = 84277.333 lbs
Specified moment at pile head = 89133280.000 in-lbs
Specified axial load at pile head = 57933.333 lbs

Non-zero moment for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment)condition.

Output Verification:

Computed forces and moments are within specified convergence limits.

Summary of Pile Response(s)

Definition of Symbols for Pile-Head Loading Conditions:

Type 1 = Shear and Moment, y = pile-head displacment in
Type 2 = Shear and Slope, M = Pile-head Moment lbs-in
Type 3 = Shear and Rot. Stiffness, V = Pile-head Shear Force lbs
Type 4 = Deflection and Moment, S = Pile-head Slope, radians
Type 5 = Deflection and Slope, R = Rot. Stiffness of Pile-head in-lbs/rad

Load Type	Pile-Head Condition 1	Pile-Head Condition 2	Axial Load lbs	Pile-Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
1	V= 84277.	M= 8.91E+07	57933.3330	3.8758	9.3839E+07	-460491.

The analysis ended normally.

UBC 1806.8.2.1 & IBC 1805.7.2.1

d = A/2*(1+(1+(4.36*h/A))^0.5)

Monopole

Moment (ft-k)	5570.83
Shear (k)	63.2
Caisson Diameter, b (ft)	**7**
Caisson Height Above Ground (ft)	1
Caisson Height Below Ground (ft)	32
Lateral soil pressure per foot (lb/ft^3)	**266**
Applied lateral force, P (lbs)	63208
Dist. from ground to application of P, h (ft)	89.13
A = 2.34*P/(S1*b)	7.45
Min. Depth of Embedment Required, d (ft)	30.88