smartlink

Via Overnight Delivery

March 5, 2012

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re:	**Request to Revise a Previously Approved Tower Sharing Installation**
Property Address:	**15 Orchard Park Road, Madison, CT 06443 (the "Property")**
Applicant:	**New Cingular Wireless PCS, LLC d/b/a AT&T ("AT&T")**

Dear Ms. Bachman:

On behalf of AT&T, please accept this correspondence as a request to revise a previously approved tower share installation. Enclosed please find an original and fifteen (15) copies of the correspondence package along with a check in the amount of six hundred and twenty five ($625.00) dollars.

On October 23, 2013, AT&T submitted an application to the Connecticut Siting Council (the "Council") for an order to approve the shared use of an existing tower and compound on the Property (the "Tower" and collectively, the "Facility"), pursuant to Connecticut General Status § 16-50aa, as amended (the "Statute"). During its hearing on November 14, 2013, the Council approved AT&T's shared use application. Subsequently, the Council issued the approval order on November 15, 2013 (see Tab 1 attached herewith).

AT&T requests to revise its previously approved installation as follows:

- Panel Antennas (no change):
  - Previous Design: Twelve 8' panel antennas
  - Revised Design: Twelve 8' panel antennas (no change)
    - Note that the number and size of the antennas has not changed but their models have (see attached structural analysis)

33 Boston Post Road West, Marlborough, Massachusetts 01752
p: 508.954.7702 • adam.braillard@smartlinkllc.com
www.smartlinkllc.com

- Remote Radio Head:
  - Previous Design: 15
  - Revised Design: 27

- Equipment Shelter
  - Previous Design: 11.5' x 20'
  - Revised Design: 11.5' x 16'

- Structural Analysis Conclusion:
  - Previous Design: "the pole and foundation have sufficient capacity..."
  - Revised Design: "the pole and foundation have sufficient capacity..."

- Power Density Calculations:
  - Previous Design:
    - AT&T's MPE: 16.77%
    - Total MPE: 26.16%
  - Revised Design
    - AT&T's MPE: 19.00%
    - Total MPE: 28.39%

AT&T's proposed revisions to its previously approved shared use installation continue to meet all of the requirements set forth in the Statute. AT&T's revised design is technically, legally, economically and environmentally feasible, will meet public safety concerns, will avoid the unnecessary proliferation of towers and is in the public interest. Consequently, AT&T respectfully requests that the Council issue an order approving the proposed sharing use of the Facility.

Sincerely,

Adam F. Braillard

Enclosures

Cc
Honorable Fillmore McPherson: First Selectman, Town of Madison, CT
David Milano, Milano Development Corp: Property Owner
w/enclosures:

A REQUEST TO THE CONNECTICUT SITING COUNCIL
TO REVISED A PREVIOUSLY APPROVED
APPLICATION FOR A SHARED USE OF AN EXISTING TOWER

APPLICANT

New Cingular Wireless PCS, LLC (AT&T)
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

TOWER/PROPERTY ADDRESS

15 Orchard Park Road
Madison, Connecticut 06614

PREPARED BY: Adam F. Braillard
Regional Land Use Manager
Smartlink, LLC
33 Boston Post Road West
Marlborough, Massachusetts 01752
508-954-7702
adam.braillard@smartlinkllc.com

Date Submitted: March 5, 2014

TABLE OF CONTENTS

APPLICANT

New Cingular Wireless PCS, LLC (AT&T)
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

TOWER/PROPERTY ADDRESS

15 Orchard Park Road
Madison, Connecticut 06614

TAB 1

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

November 15, 2013

Adam Braillard
Smartlink, LLC
33 Boston Post Road West
Marlborough, MA 01752

RE: **TS-AT&T-076-131023** – New Cingular Wireless PCS, LLC request for an order to approve the shared used of an existing telecommunications facility located at 15 Orchard Park Road, Madison, Connecticut.

Dear Mr. Braillard:

At a public meeting held November 14, 2013, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures with the following conditions:

- Any deviation from the proposed installation as specified in the original tower share request and supporting materials with the Council shall render this decision invalid;
- Any material changes to the proposed installation as specified in the original tower share request and supporting materials filed with the Council shall require an explicit request for modification to the Council pursuant to Connecticut General Statutes § 16-50aa, including all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65;
- Not less than 45 days after completion of the proposed installation, the Council shall be notified in writing that the installation has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

This decision is under the exclusive jurisdiction of the Council. This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction. Please be advised that the validity of this action shall expire one year from the date of this letter.

The proposed shared use is to be implemented as specified in your letter dated October 23, 2013, including the placement of all necessary equipment and shelters within the tower compound.

CONNECTICUT SITING COUNCIL

Thank you for your attention and cooperation.

Very truly yours,

Robert Stein

Robert Stein
Chairman

RS/CDM/cm

c: The Honorable Fillmore McPherson, First Selectman, Town of Madison
Christine Poutot, Chm., Planning & Zoning Administrator, Town of Madison
Florida Tower Partners

TAB 2

CERTIFICATE OF SERVICE

This is to certify that on the 5rd day of March 4, 2014, the foregoing application by AT&T for an Order to Approve the Shared Use of an Existing Tower was sent, via first class mail, to the following:

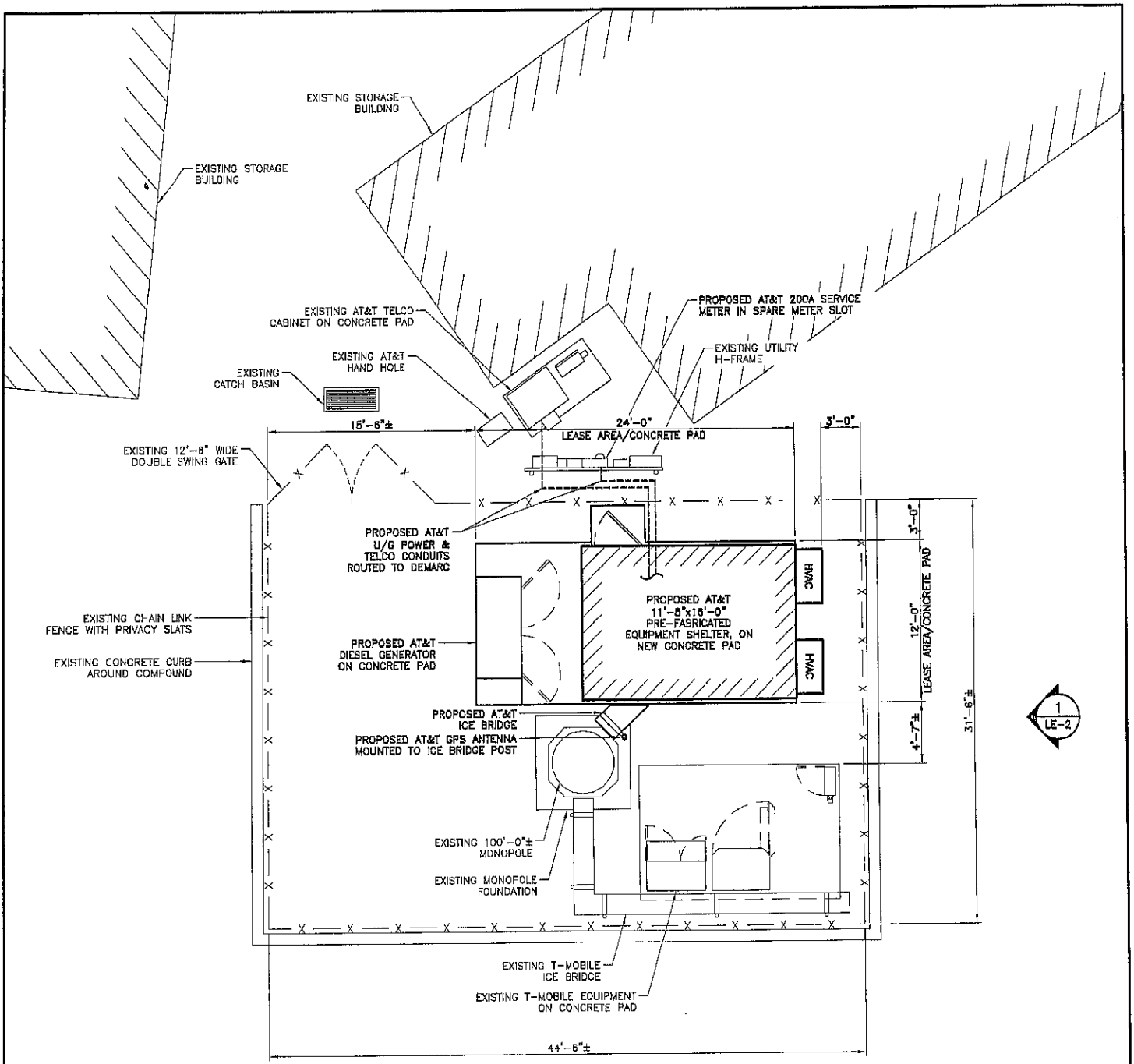
Honorable Fillmore McPherson
First Selectman, Town of Madison
8 Campus Drive,
Madison, CT 06443

and

David Milano
Milano Development Corp
7 Orchard Park Road
Madison, CT 06443

By: _____
Adam F. Braillard

TAB 3



NOTE:
ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE STRUCTURAL AND RF ENGINEERS.

SITE PLAN

GRAPHIC SCALE
0 5'-4" 10'-8" 21'-4"
3/32" = 1'-0"

APPROX. NORTH

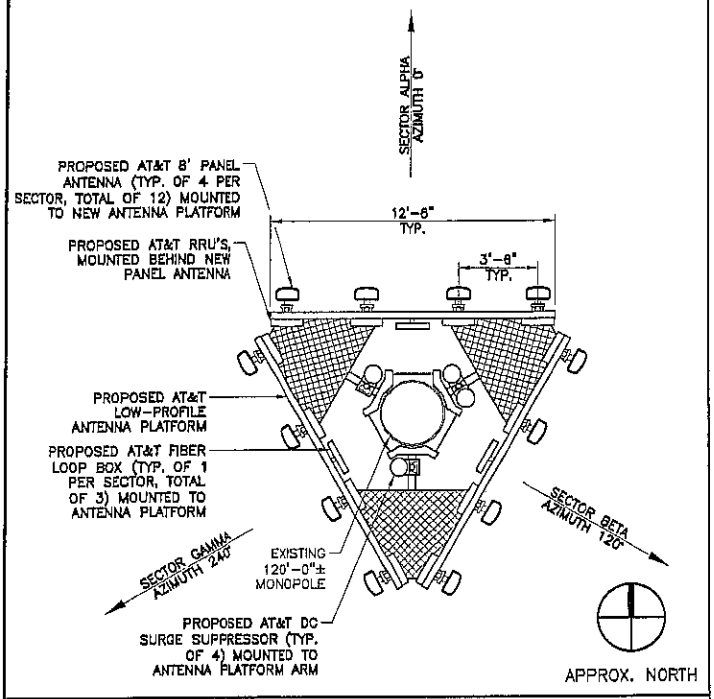
EBI Consulting
21 B Street
Burlington, MA 01803
Tel: 781.273.2500
Fax: 781.273.3311
www.ebiconsulting.com
EBI JOB NO.: 81130723

smartlink
1197 ANNAPOLIS EXCHANGE PARKWAY, SUITE 299
ANNAPOLIS, MD 21401

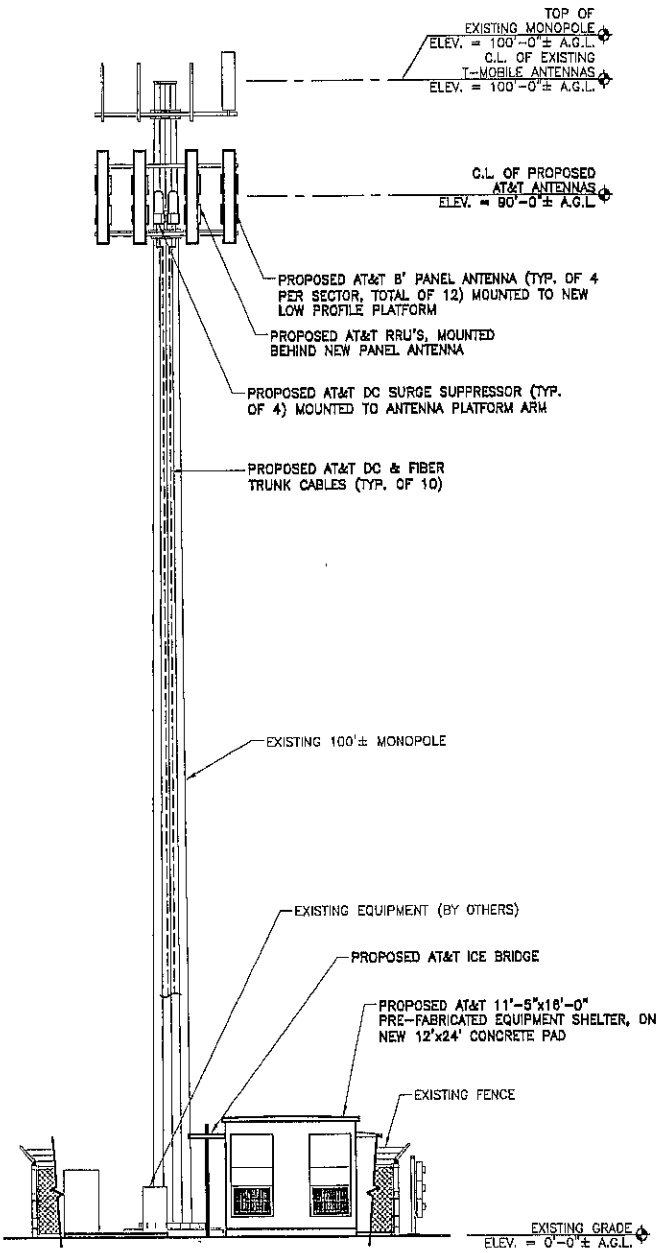
at&t Mobility
550 COCHITUATE ROAD
SUITE 13 & 14
FRAMINGHAM, MA 01701

SITE INFO:
MADISON LONG SHORE LANE
CT2440S-A
15 ORCHARD PARK ROAD
MADISON, CT 06443

SUBMITTALS				DRAWN BY:	SHEET NO:
NO.	DATE	DESCRIPTION	BY	JM	LE-1
1	09/05/13	FOR REVIEW	JM	CHECKED BY: DD	
2	10/07/13	PER COMMENTS	JT		
3	10/15/13	SHELTER/PAD REVISION	JM	DATE: 09/05/13	
4	03/03/14	SHELTER DOOR	JT		



PROPOSED ANTENNA PLAN



NOTE:
ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE STRUCTURAL AND RF ENGINEERS.

TOWER ELEVATION

GRAPHIC SCALE
0 8 16 32
1/16" = 1'-0"

EBI Consulting
21 B Street
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EBI JOB NO.: 81130723

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SUBMITTALS				DRAWN BY:
NO.	DATE	DESCRIPTION	BY	JM
1	09/05/13	FOR REVIEW	JM	CHECKED BY:
2	10/07/13	PER COMMENTS	JT	DD
3	10/15/13	SHELTER/PAD REVISION	JM	DATE:
4	03/03/14	SHELTER DOOR	JT	09/05/13

SHEET NO:
LE-2

TAB 4

Structural Analysis
99-ft Monopole

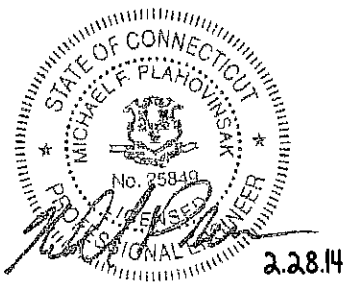
Prepared For:
Florida Tower Partners, LLC
1001 3rd Ave. West, Suite 420
Bradenton, FL 34205

MFP Project #40913-039 r2

Site Location:
CT-1014 / Madison
New Haven Co., Connecticut
Lat/Long: 41°16'59", -72°37'23"

Analysis Type:
ANSI/TIA-222-G

February 28, 2014



Michael F. Plahovinsak, P.E.
18301 State Route 161 W, Plain City, OH 43064
614-398-6250 - mike@mfpeng.com

Project Summary:

I have completed a structural analysis of the existing monopole for the following new configuration:

- 90' – AT&T:
  - (12) CCI HPA-65R-BUUH8 Panel Antennas
  - (9) RRUS-11 + (6) RRUS-12 + (3) RRUS-32 + (6) RRUS-A2 + (3) RRUS-E2
  - (4) Raycap DC6-48-60-18-8F Suppressors
  - (8) ¾" + (2) ½" + (3) 3/8" Cables

The pole has been analyzed in accordance with the requirements of the International Building Code per IBC section 3108.4, and the recommendations of the Telecommunications Industry Association *"Structural Standard for Steel Antenna Supporting Structures"* **ANSI/TIA-222-G.**

This analysis may be considered a "Rigorous Structural Analysis" as defined in ANSI/TIA-222-G 15.5.2.

As indicated in the conclusions of this analysis, I have determined that the existing pole and foundation ***have sufficient capacity*** to support the existing, reserved and proposed antenna loads as detailed herein. Based on the results of my analysis, no structural modifications are required at this time.

Source of Data:

Resource	Source	Job Number	Date
Pole and Foundation Drawings	Sabre Towers	11-30257	03/23/11
Geotechnical Report	Terracon	J2095225	12/21/09

Analysis Criteria:

International Building Code (All Versions) Section 3108.4
Structural Standards for Steel Antenna Supporting Structures **ANSI/TIA-222-G 2**

- Basic Wind Speed 115 mph (3-Sec Gust)
- Basic Wind Speed w/ ¾" Ice 50 mph (3-Sec Gust)
- Operational Wind Speed 60 mph (3-Sec Gust)

Structure Class	Exposure Category	Topographic Category
II (I = 1.0)	B	I

Michael F. Plahovinsak, P.E. - 2014

mike@mfpeng.com

Appurtenance Listing:

Status	Elev.	Antenna / Mounting	Coax	Owner
Existing	100'	(9) Ericsson AIR-21 Panel + (3) KRY-112-144/1 TMA's T-Arm Mounts	(13) 1 5/8"	T-Mobile
Proposed	*90'*	*(12) CCI HPA-65R-BUUH8 Panel* *(9) RRUS-11 + (6) RRUS-12 + (3) RRUS-32 + (6) RRUS-A2* *(3) RRUS-E2 + (4) Raycap DC6-48-60-18-8-F Suppressors* *T-Arm Mounts*	*(8) 3/4" + (2) 1/2" + (3) 3/8"*	*AT&T*

All antenna lines assumed internally mounted, not exposed to the wind.

Foundation Analysis:

Two foundation alternatives were designed for this site. Both foundation alternatives have sufficient capacity to support the loads from this analysis.

Conclusion:

I have completed a structural analysis of the existing monopole and foundation in accordance with the project specifics outlined above. My analysis indicates that the existing monopole and foundation is stressed to a maximum of 54.5% of its usable capacity when considering the existing plus proposed loading. Please refer to the attached calculations for an itemized listing of all member stress ratios. The existing pole and foundation have sufficient capacity to support the proposed configuration, and structural modifications are not required.

If you have any questions about the contents of this structural report or require any additional information, please feel free to contact my office.

Sincerely,

Michael F. Plahovinsak, P.E.

mike@mfpeng.com - 614.398-6250

Standard Conditions for Providing Structural Consulting Services on Existing Structures

1. The following standard conditions are a general overview of key issues regarding the work product supplied.

2. If the existing conditions are not as represented in this structural report or attached sketches, I should be contacted to evaluate the significance of the deviation and revise the structural assessment accordingly.

3. The structural analysis has been performed assuming that the structure is in "like new" condition. No allowance was made for excessive corrosion, damaged or missing structural members, loose bolts, etc. If there are any known deficiencies in the structure that potentially compromise structural integrity, I should be made aware of the deficiencies. If I am aware of a deficiency that exists in a structure at the time of my analysis, a general explanation of the structural concern due to the deficiency will be included in the structural report, but the deficiency will not be reflected in capacity calculations.

4. The structural analysis provided is an assessment of the primary load carrying capacity of the structure. I provide a limited scope of service in that I have not verified the capacity of every weld, plate, connection detail, etc. In most cases, structural fabrication details are unknown at the time of my analysis, and the detailed field measurement of this information is beyond the scope of my services. In instances where I have not performed connection capacity calculations, it is assumed that existing manufactured connections develop the full capacity of the primary members being connected.

5. The structural integrity of the existing foundation system can only be verified if exact foundation sizes and soils conditions are known. I will not accept any responsibility for the adequacy of the existing foundations unless this site-specific data is supplied.

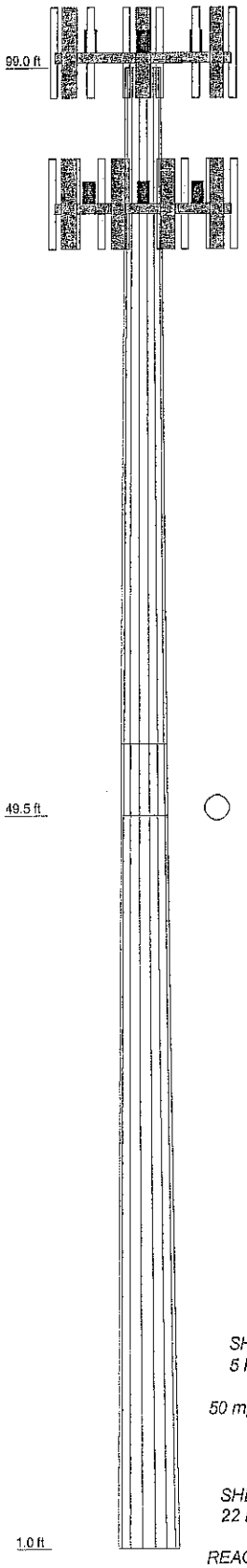
6. Miscellaneous items such as antenna mounts, coax supports, etc. have not been designed, detailed, or specified as part of my work. It is assumed that material of adequate size and strength will be purchased from a reputable component manufacturer. The attached report and sketches are schematic in nature and should not be used to fabricate or purchase hardware and accessories to be attached to the structure. I recommend field measurement of the structure before fabricating or purchasing new hardware and accessories. I am not responsible for proper fit and clearance of hardware and accessory items in the field.

7. The structural analysis has been performed considering minimum code requirements or recommendations. If alternate wind, ice, or deflection criteria are to be considered, then I shall be made aware of the alternate criteria.

Michael F. Plahovinsak, P.E. - 2014

mike@mfpeng.com

Section	1	2
Length (ft)	49.50	63.25
Number of Sides	18	18
Thickness (in)	0.3125	0.4375
Socket Length (ft)	4.75	
Top Dia (in)	27.2500	36.6960
Bot Dia (in)	38.3900	48.6800
Grade	A572-65	
Weight (K)	5.4	10.6



ALL REACTIONS ARE FACTORED

AXIAL 43 K
SHEAR 5 K
MOMENT 335 kip-ft

50 mph WIND - 0.7500 in ICE

AXIAL 28 K
SHEAR 22 K
MOMENT 1627 kip-ft

REACTIONS - 115 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(3) Ericsson AIR 21 w/ mount pipe (T-Mobile)	100	Ericsson RRUS-E2 (ATT)	90
Ericsson KRY 112 144-1 TMA (T-Mobile)	100	(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	90
(3) Ericsson AIR 21 w/ mount pipe (T-Mobile)	100	(3) Ericsson RRUS-11 (ATT)	90
Ericsson KRY 112 144-1 TMA (T-Mobile)	100	(2) Ericsson RRUS 12 (ATT)	90
(3) Ericsson AIR 21 w/ mount pipe (T-Mobile)	100	Ericsson RRUS-32 (ATT)	90
Ericsson KRY 112 144-1 TMA (T-Mobile)	100	(2) Ericsson RRUS A2 (ATT)	90
T-Arm Mounts (T-Mobile)	100	Ericsson RRUS-E2 (ATT)	90
(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	90	(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	90
(3) Ericsson RRUS-11 (ATT)	90	(3) Ericsson RRUS-11 (ATT)	90
(2) Ericsson RRUS 12 (ATT)	90	(2) Ericsson RRUS 12 (ATT)	90
Ericsson RRUS-32 (ATT)	90	Ericsson RRUS-32 (ATT)	90
(2) Ericsson RRUS A2 (ATT)	90	(2) Ericsson RRUS A2 (ATT)	90
		Ericsson RRUS-E2 (ATT)	90
		(4) Raycap DC6-48-60-18-8F Supressor (ATT)	90
		T-Arm Mounts (ATT)	90

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 115 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in Ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 34.5%

Michael F. Plahovinsak, P.E.
18301 State Route 161 W
Plain City, OH 43064
Phone: 614-398-6250
FAX: mike@mfpeng.com

Job:	***99-ft Monopole / MFP #40913-039 r2***		
Project:	*CT1014, Madison*		
Client:	Florida Tower Partners	Drawn by: Mike	App'd:
Code:	TIA-222-G	Date: 02/28/14	Scale: NTS
Path:	J:\Projects\400-Misc\40913-039\40913-039 r2.eri		Dwg No. E-1

tnxTower

Michael F. Plahovinsak, P.E.
18301 State Route 161 W
Plain City, OH 43064
Phone: 614-398-6250
FAX: mike@mfpeng.com

Job	Page
99-ft Monopole / MFP #40913-039 r2	1 of 6
Project	**Date**
CT1014, Madison	18:00:10 02/28/14
Client	**Designed by**
Florida Tower Partners	Mike

Tower Input Data

This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 115 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	
L1	99.00-49.50	49.50	4.75	18	27.2500	38.3900	0.3125	1.2500	A572-65 (65 ksi)
L2	49.50-1.00	53.25		18	36.6960	48.6800	0.4375	1.7500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia.	Area	I	r	C	I/C	J	It/Q	w	w/t
	in	in^2	in^4	in	in	in^3	in^4	in^2	in	
L1	27.6704	26.7186	2449.4369	9.5628	13.8430	176.9441	4902.0968	13.3619	4.2460	13.587
	38.9822	37.7681	6918.3045	13.5175	19.5021	354.7463	13845.7123	18.8876	6.2066	19.861
L2	38.3476	50.3495	8362.8112	12.8718	18.6416	448.6108	16736.6263	25.1795	5.6885	13.002
	49.4310	66.9907	19697.5334	17.1261	24.7294	796.5216	39420.9854	33.5017	7.7977	17.823

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number		C_AA_A	Weight
				ft			ft^2/ft	plf
1 5/8" (T-Mobile)	C	No	Inside Pole	99.00 - 1.00	13	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
						1" Ice	0.00	0.92
***								
3/4" (ATT)	C	No	Inside Pole	90.00 - 1.00	8	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
1/2" (ATT)	C	No	Inside Pole	90.00 - 1.00	2	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft²/ft	Weight plf
3/8" (ATT)	C	No	Inside Pole	90.00 - 1.00	3	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight K
(3) Ericsson AIR 21 w/ mount pipe	A	From Face	3.00 0.00	0.0000	100.00	No Ice 1/2" Ice	6.61 7.08	5.50 6.22	0.11 0.16
(T-Mobile)			0.00			1" Ice	7.55	6.95	0.22
Ericsson KRY 112 144-1 TMA	A	From Face	3.00 0.00	0.0000	100.00	No Ice 1/2" Ice	0.56 0.66	0.25 0.32	0.00 0.01
(T-Mobile)			0.00			1" Ice	0.78	0.41	0.01
(3) Ericsson AIR 21 w/ mount pipe	B	From Face	3.00 0.00	0.0000	100.00	No Ice 1/2" Ice	6.61 7.08	5.50 6.22	0.11 0.16
(T-Mobile)			0.00			1" Ice	7.55	6.95	0.22
Ericsson KRY 112 144-1 TMA	B	From Face	3.00 0.00	0.0000	100.00	No Ice 1/2" Ice	0.56 0.66	0.25 0.32	0.00 0.01
(T-Mobile)			0.00			1" Ice	0.78	0.41	0.01
(3) Ericsson AIR 21 w/ mount pipe	C	From Face	3.00 0.00	0.0000	100.00	No Ice 1/2" Ice	6.61 7.08	5.50 6.22	0.11 0.16
(T-Mobile)			0.00			1" Ice	7.55	6.95	0.22
Ericsson KRY 112 144-1 TMA	C	From Face	3.00 0.00	0.0000	100.00	No Ice 1/2" Ice	0.56 0.66	0.25 0.32	0.00 0.01
(T-Mobile)			0.00			1" Ice	0.78	0.41	0.01
T-Arm Mounts (T-Mobile)	C	None		0.0000	100.00	No Ice 1/2" Ice 1" Ice	14.00 16.00 18.00	14.00 16.00 18.00	1.14 1.27 0.47
***									
(4) CCI HPA-65R-BUU-H8 w/ mount pipe	A	From Face	3.00 0.00	0.0000	90.00	No Ice 1/2" Ice	13.62 14.35	9.18 10.58	0.10 0.19
(ATT)			0.00			1" Ice	15.09	11.83	0.29
(3) Ericsson RRUS-11 (ATT)	A	From Face	3.00 0.00	0.0000	90.00	No Ice 1/2" Ice	2.55 2.77	0.92 1.07	0.05 0.06
			0.00			1" Ice	2.99	1.23	0.08
(2) Ericsson RRUS 12 (ATT)	A	From Face	3.00 0.00	0.0000	90.00	No Ice 1/2" Ice	3.67 3.92	1.46 1.64	0.06 0.08
			0.00			1" Ice	4.19	1.84	0.11
Ericsson RRUS-32 (ATT)	A	From Face	3.00 0.00	0.0000	90.00	No Ice 1/2" Ice	3.87 4.15	2.76 3.02	0.08 0.10
			0.00			1" Ice	4.44	3.29	0.14
(2) Ericsson RRUS A2 (ATT)	A	From Face	3.00 0.00	0.0000	90.00	No Ice 1/2" Ice	1.87 2.05	0.50 0.62	0.03 0.04
			0.00			1" Ice	2.24	0.75	0.05
Ericsson RRUS-E2 (ATT)	A	From Face	3.00 0.00	0.0000	90.00	No Ice 1/2" Ice	3.67 3.93	1.49 1.67	0.06 0.08
			0.00			1" Ice	4.19	1.87	0.11
(4) CCI HPA-65R-BUU-H8 w/ mount pipe	B	From Face	3.00 0.00	0.0000	90.00	No Ice 1/2" Ice	13.62 14.35	9.18 10.58	0.10 0.19
(ATT)			0.00			1" Ice	15.09	11.83	0.29
(3) Ericsson RRUS-11 (ATT)	B	From Face	3.00 0.00	0.0000	90.00	No Ice 1/2" Ice	2.55 2.77	0.92 1.07	0.05 0.06
			0.00			1" Ice	2.99	1.23	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) Ericsson RRUS 12 (ATT)	B	From Face	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	3.67 3.92 4.19	1.46 1.64 1.84	0.06 0.08 0.11
Ericsson RRUS-32 (ATT)	B	From Face	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	3.87 4.15 4.44	2.76 3.02 3.29	0.08 0.10 0.14
(2) Ericsson RRUS A2 (ATT)	B	From Face	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	1.87 2.05 2.24	0.50 0.62 0.75	0.03 0.04 0.05
Ericsson RRUS-E2 (ATT)	B	From Face	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	3.67 3.93 4.19	1.49 1.67 1.87	0.06 0.08 0.11
(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	C	From Face	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	13.62 14.35 15.09	9.18 10.58 11.83	0.10 0.19 0.29
(3) Ericsson RRUS-11 (ATT)	C	From Face	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.55 2.77 2.99	0.92 1.07 1.23	0.05 0.06 0.08
(2) Ericsson RRUS 12 (ATT)	C	From Face	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	3.67 3.92 4.19	1.46 1.64 1.84	0.06 0.08 0.11
Ericsson RRUS-32 (ATT)	C	From Face	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	3.87 4.15 4.44	2.76 3.02 3.29	0.08 0.10 0.14
(2) Ericsson RRUS A2 (ATT)	C	From Face	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	1.87 2.05 2.24	0.50 0.62 0.75	0.03 0.04 0.05
Ericsson RRUS-E2 (ATT)	C	From Face	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	3.67 3.93 4.19	1.49 1.67 1.87	0.06 0.08 0.11
(4) Raycap DC6-48-60-18-8F Supressor (ATT)	C	None		0.0000	90.00	No Ice 1/2" Ice 1" Ice	1.47 1.67 1.88	1.47 1.67 1.88	0.03 0.05 0.07
T-Arm Mounts (ATT)	C	None		0.0000	90.00	No Ice 1/2" Ice 1" Ice	14.00 16.00 18.00	14.00 16.00 18.00	1.14 1.27 0.47

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 90 deg - No Ice
5	0.9 Dead+1.6 Wind 90 deg - No Ice
6	1.2 Dead+1.6 Wind 180 deg - No Ice
7	0.9 Dead+1.6 Wind 180 deg - No Ice
8	1.2 Dead+1.0 Ice+1.0 Temp
9	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
10	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
11	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
12	Dead+Wind 0 deg - Service
13	Dead+Wind 90 deg - Service
14	Dead+Wind 180 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	99 - 49.5	Pole	Max Tension	13	0.00	0.00	0.00
			Max. Compression	8	-24.11	0.00	0.00
			Max. Mx	4	-13.43	-586.99	0.00
			Max. My	2	-13.43	0.00	586.99
			Max. Vy	4	17.08	-586.99	0.00
			Max. Vx	2	-17.08	0.00	586.99
L2	49.5 - 1	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-43.16	0.00	0.00
			Max. Mx	4	-28.22	-1627.16	0.00
			Max. My	2	-28.22	0.00	1627.16
			Max. Vy	4	21.99	-1627.16	0.00
			Max. Vx	2	-21.99	0.00	1627.16

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	99 - 49.5	3.314	13	0.2746	0.0000
L2	54.25 - 1	1.043	13	0.1769	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.00	(3) Ericsson AIR 21 w/ mount pipe	13	3.314	0.2746	0.0000	112604
90.00	(4) CCI HPA-65R-BUU-H8 w/ mount pipe	13	2.796	0.2572	0.0000	62558

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	99 - 49.5	21.826	2	1.8091	0.0000
L2	54.25 - 1	6.869	2	1.1650	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.00	(3) Ericsson AIR 21 w/ mount pipe	2	21.826	1.8091	0.0000	17120
90.00	(4) CCI HPA-65R-BUU-H8 w/ mount pipe	2	18.413	1.6943	0.0000	9511

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	99 - 49.5 (1)	TP38.39x27.25x0.3125	49.50	0.00	0.0	36.7078	-13.43	2601.61	0.005
L2	49.5 - 1 (2)	TP48.68x36.696x0.4375	53.25	0.00	0.0	66.9907	-28.22	4849.69	0.006

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	99 - 49.5 (1)	TP38.39x27.25x0.3125	586.99	1978.72	0.297	0.00	1978.72	0.000
L2	49.5 - 1 (2)	TP48.68x36.696x0.4375	1627.17	4805.25	0.339	0.00	4805.25	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	99 - 49.5 (1)	TP38.39x27.25x0.3125	17.08	1287.89	0.013	0.00	3962.28	0.000
L2	49.5 - 1 (2)	TP48.68x36.696x0.4375	21.99	2404.07	0.009	0.00	9622.25	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	99 - 49.5 (1)	0.005	0.297	0.000	0.013	0.000	0.302 ✓	1.000	4.8.2 ✓
L2	49.5 - 1 (2)	0.006	0.339	0.000	0.009	0.000	0.345 ✓	1.000	4.8.2 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	99 - 49.5	Pole	TP38.39x27.25x0.3125	1	-13.43	2601.61	30.2	Pass
L2	49.5 - 1	Pole	TP48.68x36.696x0.4375	2	-28.22	4849.69	34.5	Pass
							Summary	
						Pole (L2)	34.5	Pass
						RATING =	**34.5**	**Pass**

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Job	Page
99-ft monopole - MFP #40913-039	BP-G
Project	**Date**
CT1014, Madison	2/28/2014
Client	**Designed by**
FLORIDA TOWER PARTNERS	Mike

Anchor Rod and Base Plate Calculation

ANSI/TIA-222-G-2

Factored Base Reactions:		*Pole Shape:*	*Anchor Rods:*	*Base Plate:*
Moment:	1627 ft-kips	18-Sided	(16) 2.25 in. A615 GR. 75	3 in. x 55.5 in. Square
Shear:	22 kips	*Pole Dia. (D_f):*	Anchor Rods in Quadrants	fy = 50 ksi
Axial:	28 kips	48.68 in	On a 55 in Bolt Circle	

Anchor Rod Calculation According to TIA-222-G section 4.9.9

ϕ =	0.80	TIA 4.9.9
I_{bolts} =	6050.00 in^2	Momet of Inertia
P_u =	89 kips	Tension Force
V_u =	1 kips	Shear Force
R_{nt} =	325.00 kips	Nominal Tensile Strength
η =	0.50	for detail type (d)

The following Interation Equation Shall Be Satisfied:

$$\left(\frac{P_u + \frac{V_u}{\eta}}{\phi R_{nt}} \right) \leq 1.0$$

$$0.352 \leq 1$$

Base Plate Calculation According to TIA-222-G

ϕ =	0.90	TIA 4.7
M_{PL} =	736.6 in-kip	Plate Moment
L =	29.8 in	Section Length
Z =	67.1	Plastic Section Modulus
M_P =	3353.5 in-kip	Plastic Moment
ϕM_n=	3018.1 in-kip	Factored Resistance

Calculated Moment vs Factored Resistance

736.63 in-kip $\leq$ 3018 in-kip

Anchor Rods Are Adequate	**35.2%** ☑
Base Plate is Adequate	**24.4%** ☑

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Job	Page
99-ft monopole - MFP #40913-039	FND
Project	**Date**
CT1014, Madison	2/28/2014
Client	**Designed by**
FLORIDA TOWER PARTNERS	Mike

Caisson Calculation

According to ANSI/TIA-222-G-2

1. Foundation overturning resistance calculated with PLS Caisson, for Brom's method for rigid piles. Soil layers modeled after recommendations from the geotechnical report.
2. Cohesion strength for the upper 15.5 ft has been reduced by 50%
3. In lieu of a soil resistance factor fs = 0.75 (TIA-9.4.1) an additional safey fator against soil failure of 1.33 has been applied.
4. Foundation is designed with a minimum safety factor resisting overturning of 2.0
5. Foundation has been designed with factored loads per TIA-222-G.
6. Design water table = 8 ft below grade

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 4.00 STEEL STRENGTH (ksi) = 60.00

DIAMETER (ft) = 7.000 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 1.00

*** SOIL PROPERTIES

	LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP	PHI (degrees)
1	S		4.00	0.00	0.0		1.000	-0.00
2	S		2.00	4.00	100.0		1.698	14.99
3	S		2.00	6.00	110.0		3.000	30.00
4	S		7.50	8.00	47.6		3.000	30.00
5	C		30.00	15.50	67.6	6000.0		

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 1627.0 VERTICAL (k) = 28.0 SHEAR (k) = 22.0
ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 1.33

*** CALCULATED PIER LENGTH (ft) = 20.000

*** CHECK OF SOILS PROPERTIES AND ULTIMATE RESISTING FORCES ALONG PIER

TYPE	TOP OF LAYER BELOW TOP OF PIER (ft)	THICKNESS (ft)	DENSITY (pcf)	CU (psf)	KP	FORCE (k)	ARM (ft)
S	1.00	4.00	0.0		1.000	0.00	3.67
S	5.00	2.00	100.0		1.698	7.13	6.33
S	7.00	2.00	110.0		3.000	39.06	8.12
S	9.00	7.50	47.6		3.000	282.79	13.12
C	16.50	1.30	67.6	6000.0		438.37	17.15
C	17.80	2.20	67.6	6000.0		-737.62	18.90

*** SHEAR AND MOMENTS ALONG PIER

DISTANCE BELOW TOP OF PIER (ft)	WITH THE ADDITIONAL SAFETY FACTOR SHEAR (k)	MOMENT (ft-k)	WITHOUT ADDITIONAL SAFETY FACTOR SHEAR (k)	MOMENT (ft-k)
0.00	29.7	2350.4	22.3	1763.2
2.00	29.7	2409.9	22.3	1807.8
4.00	29.7	2469.3	22.3	1852.5
6.00	28.0	2528.2	21.0	1896.6
8.00	6.5	2568.9	4.9	1927.2
10.00	-44.4	2534.3	-33.3	1901.2
12.00	-109.3	2382.6	-82.0	1787.4
14.00	-186.2	2089.0	-139.7	1567.2
16.00	-275.1	1629.6	-206.4	1222.5
18.00	-672.0	672.0	-504.1	504.1
20.00	0.0	0.0	0.0	0.0

*** TOTAL REINFORCEMENT PCT = 0.42 REINFORCEMENT AREA (in^2) = 23.28
*** USABLE AXIAL CAP. (k) = 28.0 USABLE MOMENT CAP. (ft-k) = 3664.5

Est. Foundation Usage 54.5%

Minimum Steel Per ACI-318 17.85 in^2

7-ft Diameter caisson x 22-ft long (21-ft Embeded with 1-ft above grade) W/(36) #8 Vertical Rebar. Concrete strength =4000 PSI @ 28 days. Estimated Concrete Volume = 31 cubic yards.

TAB 5

Power Density Calculations

Applicant:	New Cingular Wireless PCS, LLC d/b/a AT&T
Site ID:	CT2440SA
Site Type:	Existing 100' Monopole Tower
Address:	15 Orchard Park Road, Madison, CT 06443
Date:	March 5, 2014

1. Existing Power Density [1]

Carrier	#Channels	ERP/Ch	Ant Ht	Power Density (mW/cm2)	Frequency MHz	Limit	%MPE
T-Mobile GSM	8	144	100'	0.0414	1945	1.0000	4.14%
T-Mobile UMTS	2	730	100'	0.0414	2100	1.0000	5.25%
						TOTAL	**9.39%**

2. Proposed AT&T Power Density [2]

Carrier	#Channels	ERP/Ch	Ant Ht	Power Density (mW/cm2)	Frequency MHz	Limit	%MPE
AT&T UMTS	2	500	90'	0.0444	800 Band	0.5867	7.57
AT&T UMTS	1	500	90'	0.0222	1900 Band	1.0000	2.22
AT&T LTE	1	500	90'	0.0222	700 Band	0.4667	4.76
AT&T LTE	1	500	90'	0.0222	1900 Band	1.0000	2.22
AT&T LTE	1	500	90'	0.0222	2300 Band	1.0000	2.22
						TOTAL	**19.00%**

3. Cumulative Power Density Calculation Results

Carrier	#Channels	ERP/Ch	Ant Ht	Power Density (mW/cm2)	Frequency MHz	Limit	%MPE
T-Mobile GSM	8	144	100'	0.0414	1945	1.0000	4.14%
T-Mobile UMTS	2	730	100'	0.0414	2100	1.0000	5.25%
AT&T UMTS	2	500	90'	0.0444	800 Band	0.5867	7.57
AT&T UMTS	1	500	90'	0.0222	1900 Band	1.0000	2.22
AT&T LTE	1	500	90'	0.0222	700 Band	0.4667	4.76
AT&T LTE	1	500	90'	0.0222	1900 Band	1.0000	2.22
AT&T LTE	1	500	90'	0.0222	2300 Band	1.0000	2.22
						TOTAL	**28.39%**

[1] This Power Density information was taken from the Connecticut Siting Council database dated October 1, 2013.
[2] This Power Density information is based on worse case assumptions from AT&T's radio frequency engineers.

4. **Conclusion:**

The addition of AT&T's antennas on the existing tower will result in the cumulative maximum permissible exposure (MPE) level of 28.39%. The proposal complies with the National Council on Radiation Protection and Measurements standard for MPE adopted by the Federal Communications Commission ("FCC"). Moreover, the maximum level of radio-frequency energy emitted from AT&T's installation will be well below the FCC's mandated radio frequency exposure limits.