



# 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@po.state.ct.us](mailto:siting.council@po.state.ct.us)

[www.ct.gov/csc](http://www.ct.gov/csc)

September 29, 2005

Steven Levine  
Real Estate Consultant  
New Cingular Wireless PCS, LLC  
500 Enterprise Drive  
Rocky Hill, CT 06067-3900

RE: **EM-CING-111-050817** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 170 Town Hill Road, Plymouth, Connecticut.

Dear Mr. Levine:

At a public meeting held on September 28, 2005, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated August 17, 2005, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also 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.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include 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. 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.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.  
Chairman

PBK/laf

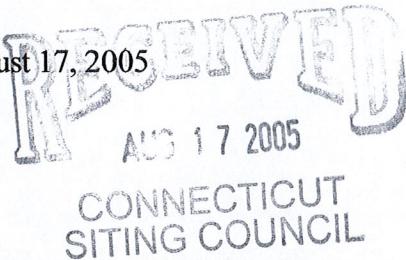
c: The Honorable Richard G. Covello, Mayor, Town of Plymouth  
William Kuehn, Town Planner, Town of Plymouth  
Christine Farrell, T-Mobile  
Christopher B. Fisher, Esq., Cuddy & Feder LLP  
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP  
Kenneth C. Baldwin, Esq., Robinson & Cole LLP  
Thomas F. Flynn III, Esq., Nextel Communications



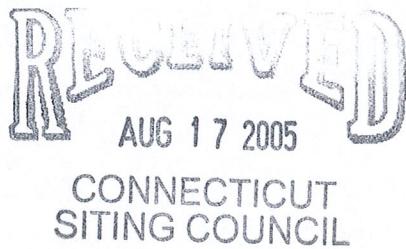


New Cingular Wireless PCS, LLC  
500 Enterprise Drive Rocky Hill,  
Connecticut 06067-3900  
Phone: (860) 513-7636  
Fax: (860) 513-7190

August 17, 2005



Ms. Pam Katz, Chairman, and  
Members of the Council  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051



**Re: Notice of Exempt Modification – Existing T-Mobile Telecommunications Tower Facility at 170 Town Hill Road, Plymouth, Connecticut**

Dear Chairman Katz and Members of the Council:

New Cingular Wireless PCS, LLC ("Cingular") intends to install telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower off Town Hill Road in the Terryville section of Plymouth, Connecticut. Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to the Mayor of Plymouth.

**Existing Facility**

The facility is located at 170 Town Hill Road, which lies on the grounds of the Terryville Country Fair, approximately 3/4 mile south of US Highway 6 in Terryville. Tower coordinates (NAD 83) are N 41° 40' 05" and W 73° 01' 14".

The tower is owned and operated by T-Mobile USA, Inc. ("T-Mobile"), with offices at 4 Sylvan Way, Parsippany, NJ 07054, under an agreement with the Terryville Country Fair, Inc.

The Plymouth facility was initially approved by local P&Z authorities. AT&T Wireless co-

located on the tower in 2003 under an exempt modification approved by the Council. As a condition of federal approvals for the merger between AT&T Wireless and Cingular, however, the AT&T installation has been divested, and the AT&T antennas and equipment at the site are now owned and operated by Alltel. Cingular, therefore, must now co-locate separately on this tower to maintain wireless coverage in the Terryville area.

### **Proposed Modifications.**

Cingular operates under licenses issued by the Federal Communications Commission ("FCC") to provide cellular and PCS mobile telephone service in Litchfield County, which includes the area to be served by Cingular's proposed installation.

The Town Hill Road facility consists of a 169-foot monopole within a fenced compound. Until recently, the compound was a 50 ft by 50 ft square. On June 28, 2005, however, the Council approved Petition 721 allowing Nextel to construct a 30 ft by 35 ft addition on the north side of the original compound. At that time, Council staff took notice of the fact that space was also being provided in the addition for a future Cingular co-location.

As shown on the attached drawings and as further described below, Cingular proposes to install up to six Kathrein AP14/17-880/1940 dualband panel antennas or their equivalent, approximately 75 inches in height, with antenna centerlines 115 feet above ground level. Like Nextel, Cingular will run the coax cables on the outside of the tower. Cingular also proposes to place a 12 ft x 20 ft prefabricated concrete equipment shelter in the existing fenced compound at the base of the tower.

Attached to this Notice are a site location map, a site plan, tower profile, and a structural analysis report that shows the tower is structurally capable of supporting the proposed Cingular telecommunications equipment

### **Statutory Considerations**

The changes to the Terryville tower facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2) because they will not result in any substantial adverse environmental effect.

1. The height of the overall structure will be unaffected.
2. The proposed changes will not affect the property boundaries. All new

construction will take place within the existing fence.

3. The proposed additions will not increase the noise level at the existing facility by six decibels or more.

4. Operation of the additional antennas will not increase the total radio frequency electromagnetic radiation power density, measured at the tower base, to or above the standard adopted by the State of Connecticut and the FCC. The "worst-case" exposure calculation in accordance with FCC OET Bulletin No. 65 (1997) for a point of interest at the base of the tower in relation to the operation of the proposed antenna array is as follows:

Company	Centerline Height (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density <sup>†</sup> (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
Town *	178	147.32	1	500	0.0057	0.2000	2.84
Town *	178	224.78	1	500	0.0057	0.2000	2.84
Town *	178	50.39	1	500	0.0057	0.2000	2.84
Town *	178	442.3	1	500	0.0057	0.2949	1.92
T-Mobile *	165	1935	8	95	0.0131	1.0000	1.31
Sprint *	155	1962.5	11	492.18	0.0810	1.0000	8.10
AT&T *	145	1945	4	250	0.0171	1.0000	1.71
Verizon *	135	1900	3	494	0.0292	1.0000	2.92
NexTEL *	119	851	12	100	0.0305	0.5673	5.37
Cingular	115	880-894	6	296	0.0483	0.5867	8.23
Cingular	115	1930-1935 1965-1970	3	427	0.0348	1.0000	3.48
Town *	80	425	1	500	0.0281	0.2833	9.91
<b>TOTAL</b>							<b>51.5%</b>

\* Power density parameters from Siting Council power density records.

<sup>†</sup> Please note that the standard power density equation provided by the Council in its memo of January 22, 2001 incorporates a ground reflection factor of 2.56 (i.e., the square of 1.6) as described in FCC OET Bulletin No. 65.

As the table demonstrates, the cumulative "worst-case" exposure would be approximately 52 % of the ANSI/IEEE standard, as calculated for mixed frequency sites. Total power density levels resulting from Cingular's use of the tower facility would thus be within applicable standards.

For the foregoing reasons, Cingular respectfully submits that proposed changes at the Plymouth site constitute an exempt modification under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 513-7636 or Christopher Fisher, Esq. at (914) 761-1300 with questions concerning this notice. Thank you for your consideration in this matter.

Respectfully yours,

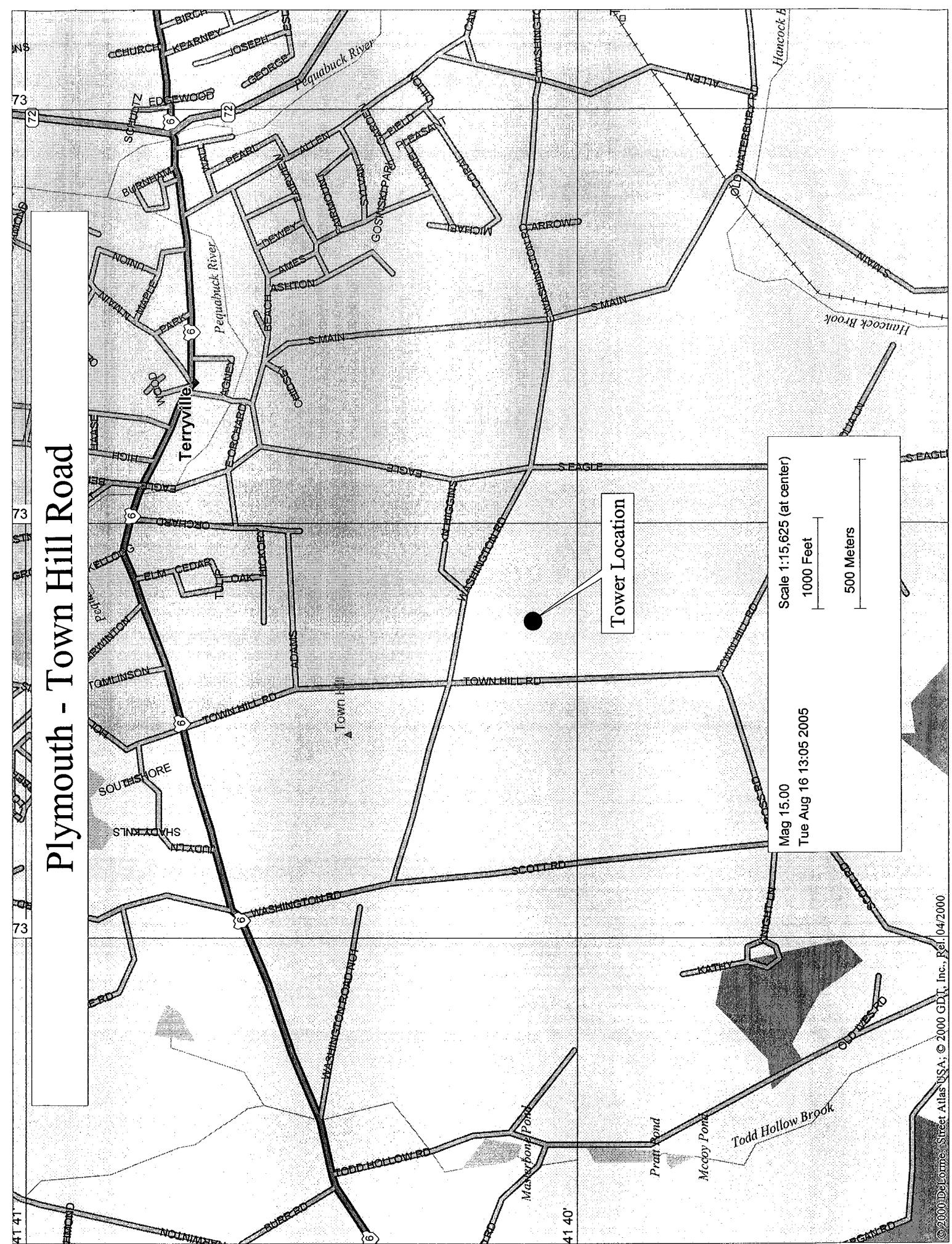


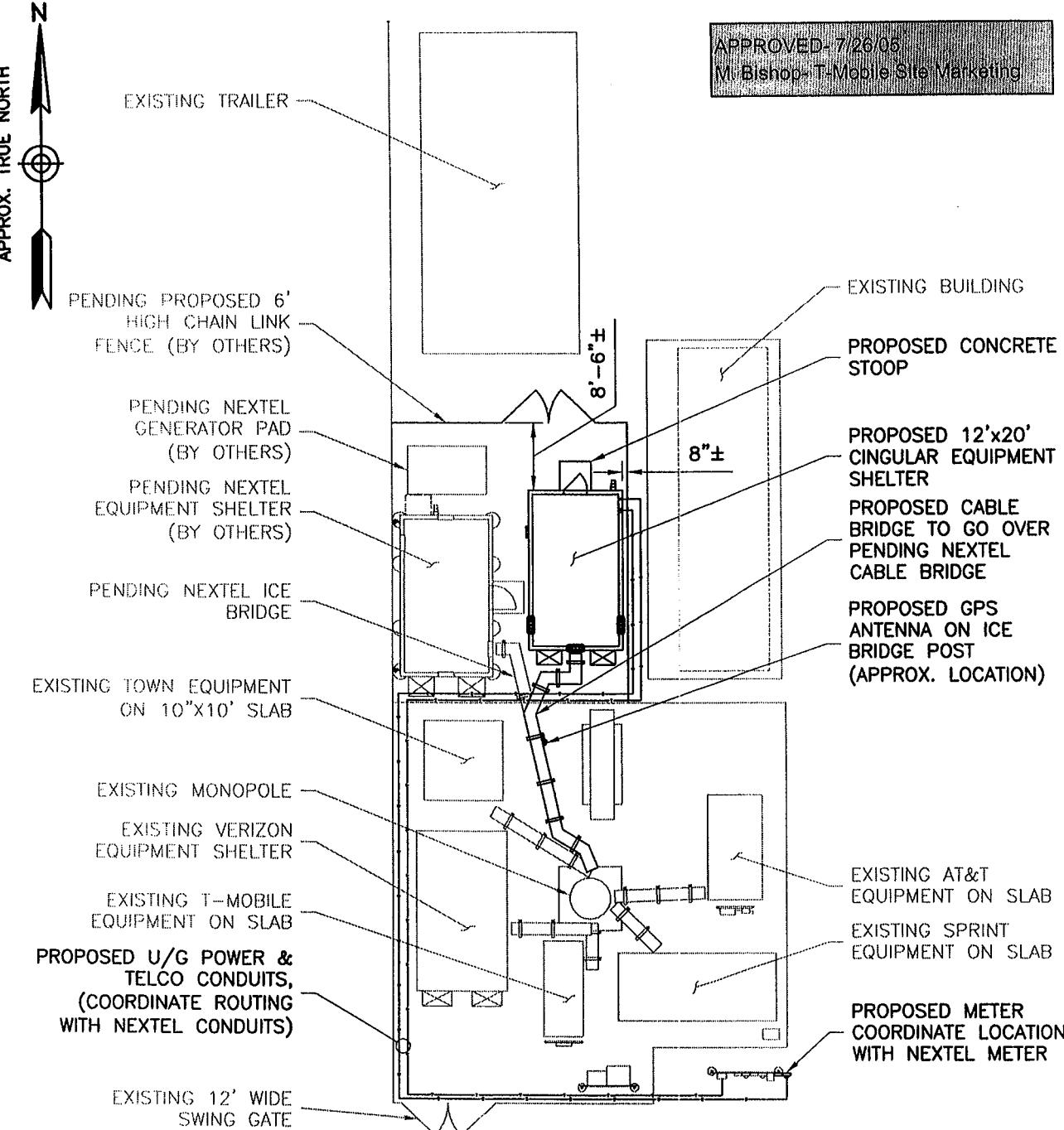
Steven Levine  
Real Estate Consultant

Enclosures

cc: Honorable Richard G. Covello, Mayor, Town of Plymouth  
Michele G. Briggs, Manager of Real Estate  
Christopher B. Fisher, Esq.

Plymouth - Town Hill Road





Xref: State:

By: MJS  
Plot: msmith

Q:\3752\22-Terryville\CAD\Cell\LE\LE1.dwg  
Thu, Jul 21 2005 - 12:15:07pm

NOTES:

1. DRAWING IS SCHEMATIC.  
FINAL EQUIPMENT LOCATIONS, ANTENNA TYPES, AND ANTENNA AZIMUTHS WILL BE FINALIZED UPON COMPLETION OF DESIGN.
2. THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.
3. THIS DOCUMENT IS FOR LANDLORD REVIEW AND LEASING PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION.

APPROVED: 7/26/05

MV Bishop-T-Mobile Site Marketing

LEASE PLAN

SCALE: 1"=20'

0 20' 40'

T-Mobile CT 114170

Dewberry-Goodkind, Inc.  
A Dewberry Company  
59 Elm Street, Suite 101  
New Haven, CT 06510  
p. (203) 776-2277  
f. (203) 776-2288

Engineers  
Planners  
Surveyors

SCALE:  
AS SHOWN

REVISION:  
3

LEASING  
PLAN

 cingular  
WIRELESS

DESIGNED BY:  
RRC

CHECKED BY:  
CKD

DATE:  
07/21/05

SITE: TERRYVILLE  
171 TOWN HILL ROAD  
PLYMOUTH, CT 06782

SHEET NO.

LE1

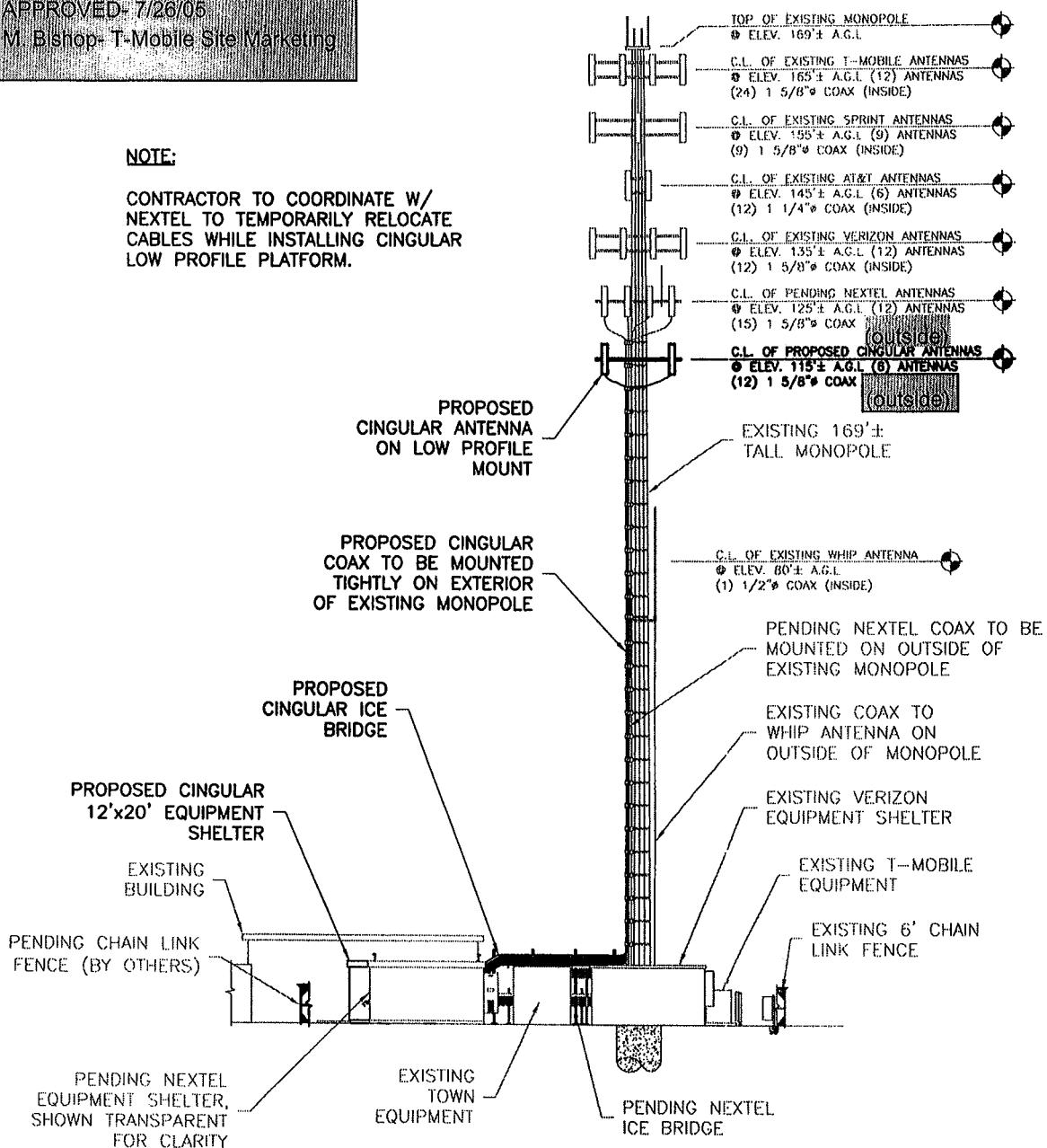
**STRUCTURAL NOTE:**

NEW CONSTRUCTION REPRESENTED ON THESE PLANS IS PROPOSED PREDICATED ON THE REQUIREMENT THAT A STRUCTURAL ANALYSIS BE PERFORMED BY A LICENSED CONNECTICUT PROFESSIONAL STRUCTURAL ENGINEER AND CERTIFICATION IS GIVEN BY THE ENGINEER THAT THE EXISTING TOWER AND ALL EXISTING AND PROPOSED ANTENNAS AND APPURTENANCES SUPPORTED BY THE TOWER AND ANY REQUIRED IMPROVEMENTS AND REINFORCEMENTS HAVE SUFFICIENT STRUCTURAL CAPACITY AND COMPLY WITH THE CONNECTICUT BUILDING CODE AND ALL APPLICABLE EIA/TIA CRITERIA. NO WORK PROPOSED HEREON SHALL BE PROGRESSED WITHOUT CONFIRMATION OF THIS CERTIFICATION.

APPROVED: 7/26/05  
M. Bishop - T-Mobile Site Marketing

**NOTE:**

CONTRACTOR TO COORDINATE W/  
NEXTEL TO TEMPORARILY RELOCATE  
CABLES WHILE INSTALLING CINGULAR  
LOW PROFILE PLATFORM.

**ELEVATION**

SCALE: 1"=30'

0 30' 60'

Dewberry-Goodkind, Inc. A Dewberry Company 59 Elm Street, Suite 101 New Haven, CT 06510 p. (203) 776-2277 f. (203) 776-2288		SCALE: AS SHOWN  REVISION: 3	LEASING ELEVATION	 SITE: TERRYVILLE 171 TOWN HILL ROAD PLYMOUTH, CT 06782	SHEET NO. LE2
DESIGNED BY: RRC	CHECKED BY: CKD	DATE: 07/21/05			

1079 N. 204<sup>th</sup> Avenue  
Elkhorn, NE 68022  
Ph: 402-289-1888  
Fax: 402-289-1861

## SEMAAN ENGINEERING SOLUTIONS

### 169 ft PIROD Monopole Structural Analysis

**APPROVED**

Prepared for:  
T-Mobile USA  
12920 SE 38th Street  
Bellevue, WA 98006

*Mark P. J. 3/28/05*  
*T-Mobile Site Marketing*

**Site: CT11417C / Plymouth - Rt. 6 / Cingular  
Plymouth, CT**



**March 21, 2005**

**RECEIVED**

MAR 24 2005

Ms. Jennifer Shearer  
T-Mobile USA  
12920 SE 38th Street  
Bellevue, WA 98006

**Re: Site Number CT11417C – Plymouth - Rt. 6, Plymouth, CT.**

Dear Ms. Shearer:

We have completed the structural analysis for the existing monopole, located at the above referenced site. The purpose of this analysis is to determine that the existing monopole design is in conformance with the EIA/TIA-222-F standard and local building codes for the proposed antennae loads installation. Refer to the Review and Recommendations section at the end of this report for the analysis results.

**Description of Structure:**

The structure is a 169 ft PIROD Monopole.

Refer to PIROD drawing 150737-B dated September 1, 2000 for a detailed description of the structure.

**Method of analysis:**

The tower was analyzed using Semaan Engineering Solutions' software suite for communication structures. The structural analysis is performed using the SAPS finite element engine. The method is 3D, non-linear, which accounts for the second order geometric effects due to the displacements. It also treats guys as exact cable elements and therefore is ideal for guyed towers. The analysis was performed in conformance with **EIA/TIA-222-F and local building codes for a basic wind speed of 80 mph and 1/2" radial ice with reduced wind speed (fastest mile)**. This is in conformance with the IBC 2003: Section 1609.1.1, Exception (5) and Section 3108.4. Wind is applied to the structure, accessories and antennas.

**Structure loading:**

Per the loading sheet supplied, the analysis was performed using the following loading: (Proposed loading in bold)

Elev. (ft)	Qty	Antennas and Mounts	Coax	Owner
169.0	1	ACP-305 On a 4 Omni Mount	(4) 7/8	Landlord
	1	PD220 On Same Mount		
	1	PD455 On Same Mount		
	1	SRL-229 On Same Mount		
165.0	12	RR65-19-00XP On a Low Profile Platform	(25) 1-5/8	T-Mobile
	12	S20045A1 LNA		
	1	4 ft HP Dish		
155.0	9	DB980H90 On a 13 ft Low Profile Platform	(9) 1-5/8	Sprint
145.0	3	Allgon 7250.03 On a 13 ft Low Profile Platform	(12) 1-1/4	AT&T
	3	731DG65V1EXM On Same Platform		
135.0	12	DB950F85T2E-M On a Low Profile Platform	(12) 1-5/8	Verizon
125.0	12	DB846G90A-XY On a Low Profile Platform	(15) 1 5/8 (Outside)	Nextel
125.0	1	Celwave 201 On Existing Platform	(1) 1/2	Terryville FD
115.0	6	AP14/17-880/1940/088D/ADT/XP On a Low Profile Platform	(12) 1 5/8 (Outside)	Cingular
	12	LGP2140X TMAs		
80.0	1	PD455 On a 4 FT Standoff	(1) 7/8	Landlord

**All transmission lines are assumed running inside of pole shaft except as noted**

### **Results of Analysis:**

Refer to the attached Computer Summary sheets for detailed analysis results.

#### **Structure:**

The existing monopole is structurally capable of supporting the existing and proposed antennas. The maximum structure usage is: 92.7%.

#### **Foundation:**

Pole Reactions	Original Design Reactions	Current Analysis Reactions
Moment (ft-kips)	4,181.30	4,307.41
Shear (kips)	34.20	35.67

The reactions calculated from the analysis slightly exceed the ones indicated on the original structural design. However, the excess amount is within acceptable engineering tolerances and therefore the foundation will not require modification.

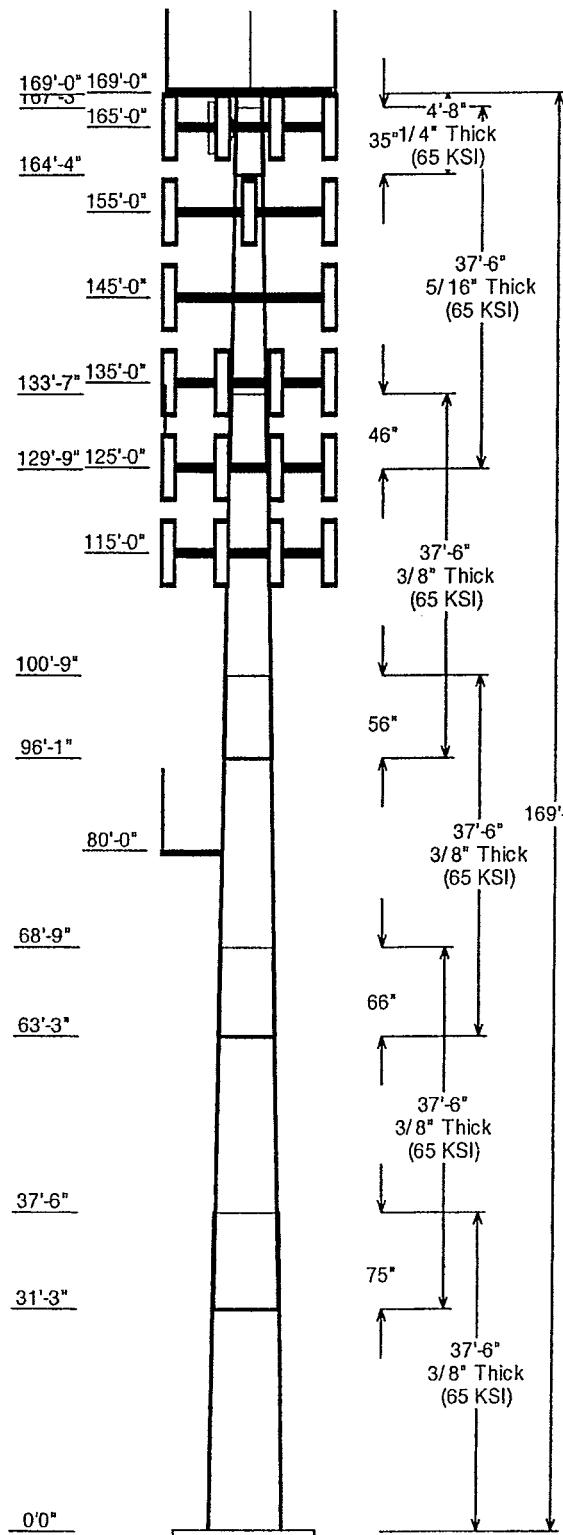
#### **Review and Recommendations:**

Based on the analysis results, the existing structure meets the requirements per the EIA/TIA-222-F standards for a basic wind speed of 80 mph and 1/2" radial ice with reduced wind speed.

**SEMAAN ENGINEERING SOLUTIONS**

1079 N.204<sup>th</sup> Avenue  
Elkhorn, NE 68022  
Phone: 402-289-1888  
Fax: 402-289-1861

Copyright Semaan Engineering Solutions, Inc


**Job Information**

Pole: CT11417C  
Description:  
Client: T-Mobile USA-WA  
Location: Plymouth - Rt. 6, Plymouth, CT  
Type: 18 Sides Base Elev (ft): 0.00  
Height :(ft) 169.00 Taper: 0.245310 (in/ft)

**Sections Properties**

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top Bottom	Overlap Length (in)	Taper (in/ft)	Steel Grade
		Thick Joint (in)	Type		
1	37.500	53.73 62.93	0.375	0.000	0.245310 65
2	37.500	46.82 56.02	0.375 Slip Joint	75.000	0.245310 65
3	37.500	39.72 48.92	0.375 Slip Joint	66.000	0.245310 65
4	37.500	32.41 41.61	0.375 Slip Joint	56.000	0.245310 65
5	37.500	24.78 33.98	0.313 Slip Joint	46.000	0.245310 65
6	4.667	24.85 26.00	0.250 Slip Joint	35.000	0.245310 65

**Discrete Appurtenance**

Attach Elev (ft)	Force Elev (ft)	Qty	Description
169.000	170.000	1	4 Omni Mount
169.000	180.750	1	SRL-229
169.000	181.000	1	PD455
169.000	181.000	1	PD220
169.000	180.750	1	ACP-305
165.000	165.000	1	4 ft HP Dish
165.000	165.000	12	S20045A1 LNA
165.000	165.000	1	13 ft Low Profile Platform
165.000	165.000	12	RR65-19-00XP
155.000	155.000	1	13 ft Low Profile Platform
155.000	155.000	9	DB980H90
145.000	145.000	3	731DG65V1EXM
145.000	145.000	3	Allgon 7250.03
145.000	145.000	1	13 ft Low Profile Platform
135.000	135.000	1	Low Profile Platform
135.000	135.000	12	DB950F85T2E-M
125.000	128.875	1	Celwave 201
125.000	125.000	1	Low Profile Platform
125.000	125.000	12	DB846G90A-XY
115.000	115.000	1	Low Profile Platform
115.000	115.000	12	LGP2140X TMAs
115.000	115.000	6	AP14/17-880/1940/088D/ADT/XP
80.000	80.000	1	4 FT Standoff
80.000	91.000	1	PD455

**Linear Appurtenance**

Elev (ft) From	To	Description	Exposed To Wind
0.000	115.0	1 5/8" Coax	Yes
0.000	125.0	1 5/8" Coax	Yes

**Reactions**

Load Case	Moment (Kip-ft)	Shear (Kips)	Axial (Kips)
80.00 mph Wind w/ No Ice	4,307.413	35.669	-47.921
69.28 mph Wind w/ 0.50 in Ice	3,661.968	29.540	-62.374



**New Cingular Wireless PCS, LLC**  
500 Enterprise Drive  
Rocky Hill, Connecticut 06067-3900  
Phone: (860) 513-7636  
Fax: (860) 513-7190

August 17, 2005

Honorable Richard G. Covello  
Mayor, Town of Plymouth  
Town Hall, 80 Main Street  
Terryville, Connecticut 06786

**Re: Notice of Exempt Modification – Existing T-Mobile Telecommunications Tower Facility at 170 Town Hill Road, Plymouth, Connecticut**

Dear Mayor Covello:

New Cingular Wireless PCS, LLC ("Cingular") intends to install telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower at 170 Town Hill Road in the Terryville section of Plymouth, Connecticut.

The facility is owned and operated by T-Mobile USA, Inc. ("T-Mobile"), with offices at 4 Sylvan Way, Parsippany, NJ 07054 under an agreement with the Terryville Country Fair, Inc.

A Notice of Exempt Modification has been filed with the Connecticut Siting Council as required by Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73. Please accept this letter as notification to the Town of Plymouth under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The attached letter fully sets forth the Cingular proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council's procedures, please contact the undersigned or Mr. Derek Phelps, Executive Director of the Connecticut Siting Council, at (860) 827-2935.

Sincerely,

A handwritten signature in black ink, appearing to read "Steven Levine".

Steven Levine  
Real Estate Consultant

Enclosure

1079 N. 204<sup>th</sup> Avenue  
Elkhorn, NE 68022  
Ph: 402-289-1888  
Fax: 402-289-1861

EM-CING-111-050817

**SEMAAN ENGINEERING SOLUTIONS**

**RECEIVED**  
AUG 17 2005  
CONNECTICUT  
SITING COUNCIL

**169 ft PIROD Monopole  
Structural Analysis**

**APPROVED**

Prepared for:  
**T-Mobile USA**  
**12920 SE 38th Street**  
**Bellevue, WA 98006**

*Mark PZ* 3/28/05  
T-Mobile Site Marketing

**Site: CT11417C / Plymouth - Rt. 6 / Cingular  
Plymouth, CT**



**March 21, 2005**

**RECEIVED**

MAR 24 2005

Ms. Jennifer Shearer  
T-Mobile USA  
12920 SE 38th Street  
Bellevue, WA 98006

**Re: Site Number CT11417C – Plymouth - Rt. 6, Plymouth, CT.**

Dear Ms. Shearer:

We have completed the structural analysis for the existing monopole, located at the above referenced site. The purpose of this analysis is to determine that the existing monopole design is in conformance with the EIA/TIA-222-F standard and local building codes for the proposed antennae loads installation. Refer to the Review and Recommendations section at the end of this report for the analysis results.

**Description of Structure:**

The structure is a 169 ft PIROD Monopole.

Refer to PIROD drawing 150737-B dated September 1, 2000 for a detailed description of the structure.

**Method of analysis:**

The tower was analyzed using Semaan Engineering Solutions' software suite for communication structures. The structural analysis is performed using the SAPS finite element engine. The method is 3D, non-linear, which accounts for the second order geometric effects due to the displacements. It also treats guys as exact cable elements and therefore is ideal for guyed towers. The analysis was performed in conformance with **EIA/TIA-222-F and local building codes for a basic wind speed of 80 mph and 1/2" radial ice with reduced wind speed (fastest mile)**. This is in conformance with the IBC 2003: Section 1609.1.1, Exception (5) and Section 3108.4. Wind is applied to the structure, accessories and antennas.

**Structure loading:**

Per the loading sheet supplied, the analysis was performed using the following loading: (Proposed loading in bold)

Elev. (ft)	Qty	Antennas and Mounts	Coax	Owner
169.0	1	ACP-305 On a 4 Omni Mount	(4) 7/8	Landlord
	1	PD220 On Same Mount		
	1	PD455 On Same Mount		
	1	SRL-229 On Same Mount		
165.0	12	RR65-19-00XP On a Low Profile Platform	(25) 1-5/8	T-Mobile
	12	S20045A1 LNA		
	1	4 ft HP Dish		
155.0	9	DB980H90 On a 13 ft Low Profile Platform	(9) 1-5/8	Sprint
145.0	3	Allgon 7250.03 On a 13 ft Low Profile Platform	(12) 1-1/4	AT&T
	3	731DG65V1EXM On Same Platform		
135.0	12	DB950F85T2E-M On a Low Profile Platform	(12) 1-5/8	Verizon
125.0	12	DB846G90A-XY On a Low Profile Platform	(15) 1 5/8 (Outside)	Nextel
125.0	1	Celwave 201 On Existing Platform	(1) 1/2	Terryville FD
115.0	6	AP14/17-880/1940/088D/ADT/XP On a Low Profile Platform	(12) 1 5/8 (Outside)	Cingular
	12	LGP2140X TMAs		
80.0	1	PD455 On a 4 FT Standoff	(1) 7/8	Landlord

**All transmission lines are assumed running inside of pole shaft except as noted**

**Results of Analysis:**

Refer to the attached Computer Summary sheets for detailed analysis results.

**Structure:**

The existing monopole is structurally capable of supporting the existing and proposed antennas. The maximum structure usage is: 92.7%.

**Foundation:**

Pole Reactions	Original Design Reactions	Current Analysis Reactions
Moment (ft-kips)	4,181.30	4,307.41
Shear (kips)	34.20	35.67

The reactions calculated from the analysis slightly exceed the ones indicated on the original structural design. However, the excess amount is within acceptable engineering tolerances and therefore the foundation will not require modification.

**Review and Recommendations:**

Based on the analysis results, the existing structure meets the requirements per the EIA/TIA-222-F standards for a basic wind speed of 80 mph and 1/2" radial ice with reduced wind speed.

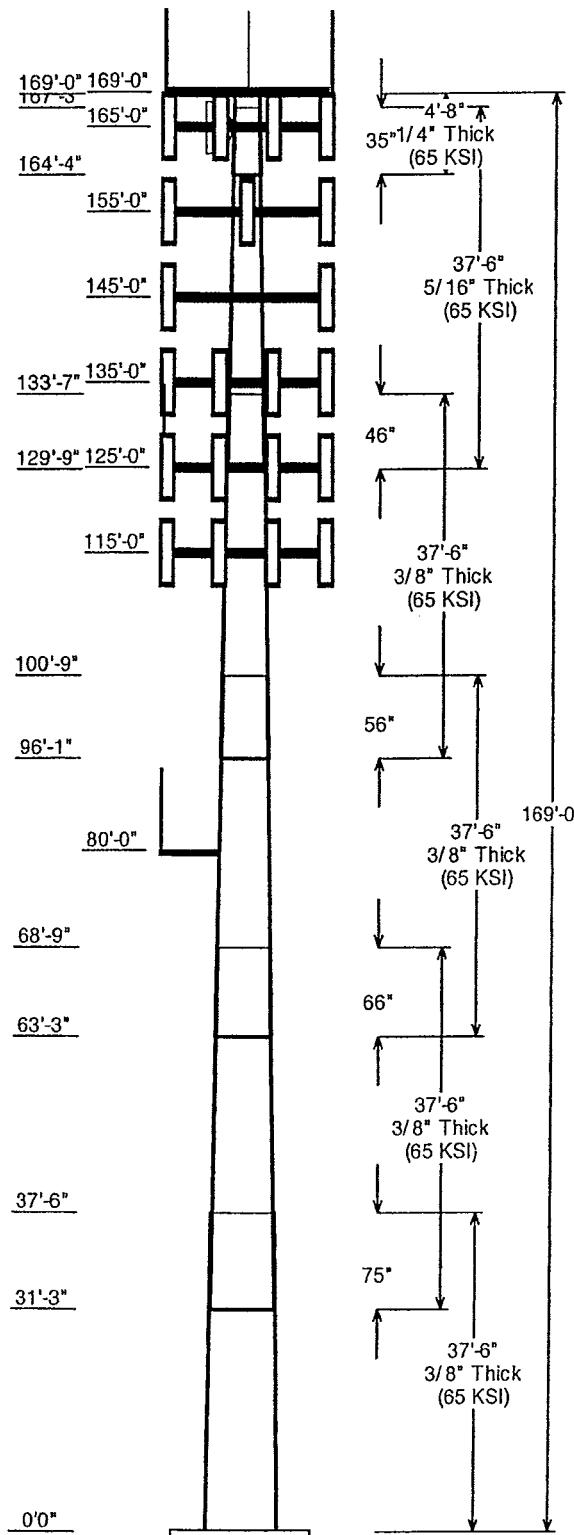
**SEMAAN ENGINEERING SOLUTIONS**

1079 N.204<sup>th</sup> Avenue  
Elkhorn, NE 68022  
Phone: 402-289-1888  
Fax: 402-289-1861

Copyright Semaan Engineering Solutions, Inc

**Job Information**

Pole :	CT11417C
Description :	
Client :	T-Mobile USA-WA
Location :	Plymouth - Rt. 6, Plymouth, CT
Type :	18 Sides      Base Elev (ft): 0.00
Height :(ft)	169.00
Taper:	0.245310 (in/ft)



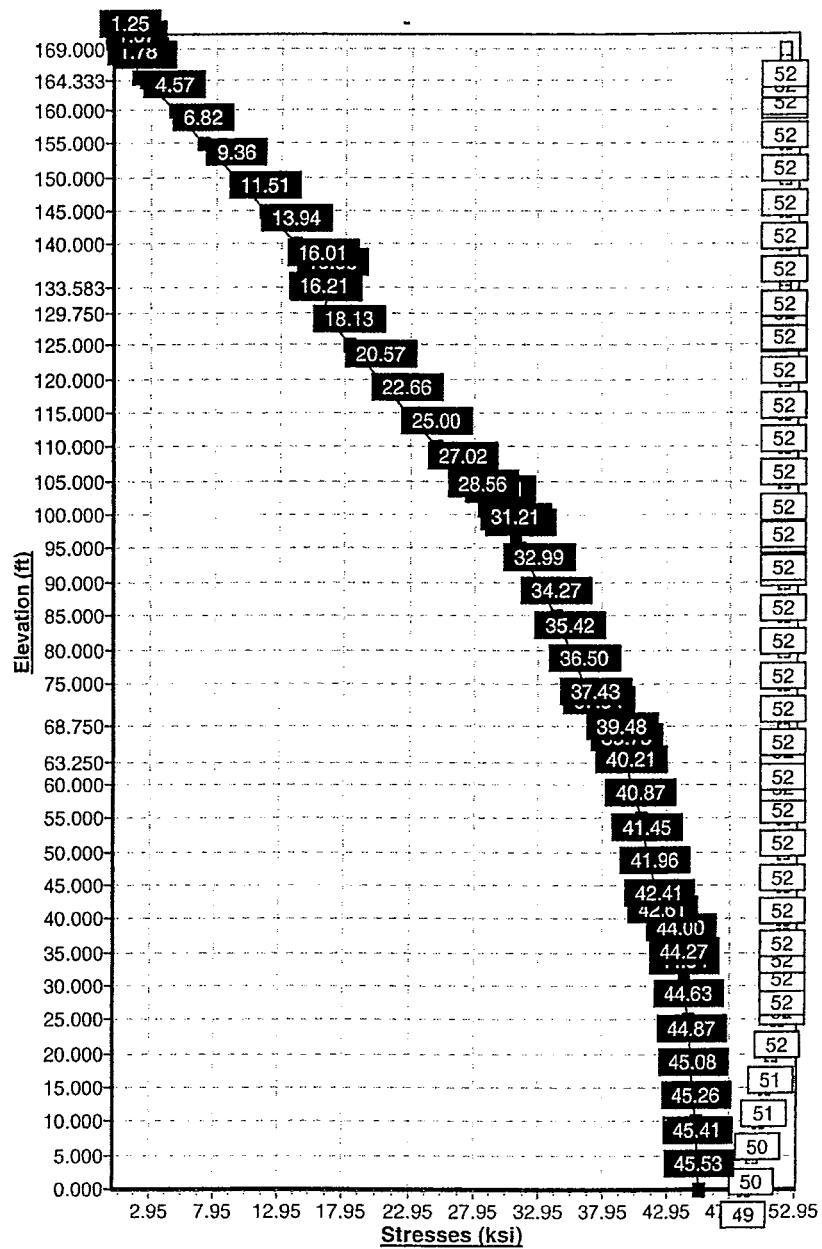
Sections Properties						
Shaft Section	Length (ft)	Diameter (in) Across Flats	Overlap Length (in)	Steel Grade	Taper (in/ft)	Thickness (in)
		Top	Bottom	Joint Type		
1	37.500	53.73	62.93	0.375	0.000	0.245310
2	37.500	46.82	56.02	0.375	75.000	0.245310
3	37.500	39.72	48.92	0.375	66.000	0.245310
4	37.500	32.41	41.61	0.375	56.000	0.245310
5	37.500	24.78	33.98	0.313	46.000	0.245310
6	4.667	24.85	26.00	0.250	35.000	0.245310

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
169.000	170.000	1	4 Omni Mount
169.000	180.750	1	SRL-229
169.000	181.000	1	PD455
169.000	181.000	1	PD220
169.000	180.750	1	ACP-305
165.000	165.000	1	4 ft HP Dish
165.000	165.000	12	S20045A1 LNA
165.000	165.000	1	13 ft Low Profile Platform
165.000	165.000	12	RR65-19-00XP
155.000	155.000	1	13 ft Low Profile Platform
155.000	155.000	9	DB980H90
145.000	145.000	3	731DG65V1EXM
145.000	145.000	3	Allgon 7250.03
145.000	145.000	1	13 ft Low Profile Platform
135.000	135.000	1	Low Profile Platform
135.000	135.000	12	DB950F85T2E-M
125.000	128.875	1	Celwave 201
125.000	125.000	1	Low Profile Platform
125.000	125.000	12	DB846G90A-XY
115.000	115.000	1	Low Profile Platform
115.000	115.000	12	LGP2140X TMAs
115.000	115.000	6	AP14/17-880/1940/088D/ADT/XP
80.000	80.000	1	4 FT Standoff
80.000	91.000	1	PD455

Linear Appurtenance			
Elev (ft) From	To	Description	Exposed To Wind
0.000	115.0	1 5/8" Coax	Yes
0.000	125.0	1 5/8" Coax	Yes

Reactions			
Load Case	Moment (Kip-ft)	Shear (Kips)	Axial (Kips)
80.00 mph Wind w/ No Ice	4,307.413	35.669	-47.921
69.28 mph Wind w/ 0.50 in Ice	3,661.968	29.540	-62.374

### Load Case : No Ice



Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height : 169.0 (ft)  
 Shape : 18 Sides  
 Base Dia : 62.93 (in)  
 Taper : 0.245310 (in/ft)

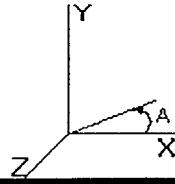
T-Mobile USA-WA

Base Elev : 0.000 (ft)  
 Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc

3/21/2005 2:48:12 PM

Page: 1



### Shaft Section Properties

Sect Num	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom				Top				Taper (in/ft)		
							Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)			
1	37.500	0.3750	65		0.00	8,803	62.93	0.000	74.46	36822.9	28.18	167.8	53.73	37.50	63.51	22851.0	23.86 143.30 0.24531
2	37.500	0.3750	65	Slip Joint	75.00	7,753	56.02	31.25	66.23	25911.4	24.93	149.3	46.82	68.75	55.28	15068.2	20.61 124.86 0.24531
3	37.500	0.3750	65	Slip Joint	66.00	6,674	48.92	63.25	57.78	17204.9	21.59	130.4	39.72	100.7	46.83	9160.7	17.27 105.93 0.24531
4	37.500	0.3750	65	Slip Joint	56.00	5,565	41.61	96.08	49.09	10548.8	18.16	110.9	32.41	133.5	38.14	4947.5	13.83 86.45 0.24531
5	37.500	0.3125	65	Slip Joint	46.00	3,679	33.98	129.7	33.40	4783.7	17.76	108.7	24.78	167.2	24.27	1836.5	12.57 79.31 0.24531
6	4.667	0.2500	65	Slip Joint	35.00	317	26.00	164.3	20.43	1711.6	16.93	104.0	24.85	169.0	19.52	1493.3	16.12 99.42 0.24531
Shaft Weight						32,792											

### Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice		Ice		Distance From Face (ft)	X Angle (deg)	Vert Ecc (ft)			
			Weight (lb)	CaAa Factor	Weight (lb)	CaAa Factor						
169.0	4 Omni Mount	1	1642.00	24.830	1.00	2100.00	26.000	1.00	0.000	0.00	1.000	
169.0	SRL-229	1	25.00	6.450	1.00	71.00	8.630	1.00	0.000	0.00	11.750	
169.0	PD455	1	23.00	3.560	1.00	83.00	6.860	1.00	0.000	0.00	12.000	
169.0	PD220	1	23.00	3.560	1.00	83.00	6.860	1.00	0.000	0.00	12.000	
169.0	ACP-305	1	25.00	6.450	1.00	71.00	8.630	1.00	0.000	0.00	11.750	
165.0	4 ft HP Dish	1	170.00	15.860	1.00	280.00	16.520	1.00	0.000	0.00	0.000	
165.0	S20045A1 LNA	12	9.92	0.762	1.00	15.03	0.953	1.00	0.000	0.00	0.000	
165.0	13 ft Low Profile Platform	1	1346.00	15.300	1.00	2075.00	17.020	1.00	0.000	0.00	0.000	
165.0	RR65-19-00XP	12	23.00	6.000	1.00	52.00	6.850	1.00	0.000	0.00	0.000	
155.0	13 ft Low Profile Platform	1	1346.00	15.300	1.00	2075.00	17.020	1.00	0.000	0.00	0.000	
155.0	DB980H90	9	9.00	3.280	0.67	28.00	3.850	0.67	0.000	0.00	0.000	
145.0	731DG65V1EXM	3	20.00	6.070	1.00	58.30	6.670	1.00	0.000	0.00	0.000	
145.0	Allgon 7250.03	3	16.00	4.300	0.67	36.00	5.000	0.67	0.000	0.00	0.000	
145.0	13 ft Low Profile Platform	1	1346.00	15.300	1.00	2075.00	17.020	1.00	0.000	0.00	0.000	
135.0	Low Profile Platform	1	1300.00	25.550	1.00	2100.00	27.320	1.00	0.000	0.00	0.000	
135.0	DB950F85T2E-M	12	10.50	4.400	1.00	30.00	5.000	1.00	0.000	0.00	0.000	
125.0	Celwave 201	1	4.00	1.020	1.00	12.70	1.810	1.00	0.000	0.00	3.875	
125.0	Low Profile Platform	1	1600.00	25.550	1.00	2100.00	27.320	1.00	0.000	0.00	0.000	
125.0	DB846G90A-XY	12	21.00	5.867	1.00	59.35	6.556	1.00	0.000	0.00	0.000	
115.0	Low Profile Platform	1	1600.00	25.550	1.00	2100.00	27.320	1.00	0.000	0.00	0.000	
115.0	LGP2140X TMAs	12	5.60	0.387	0.67	8.86	0.531	0.67	0.000	0.00	0.000	
115.0	AP14/17-	6	61.70	7.608	1.00	106.26	8.393	1.00	0.000	0.00	0.000	
80.00	4 FT Standoff	1	53.32	3.500	1.00	84.00	5.790	1.00	0.000	0.00	0.000	
80.00	PD455	1	23.00	3.560	1.00	83.00	6.860	1.00	0.000	0.00	11.000	
Totals		96	11925.76			18548.04				Number of Loadings : 24		

### Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	No Ice		Ice		Exposed To Wind
			Weight (lb/ft)	CaAa (sf/ft)	Weight (lb/ft)	CaAa (sf/ft)	
0.00	115.00	(12) 1 5/8" Coax	12.00	0.00	24.00	0.00	Y
0.00	125.00	(15) 1 5/8" Coax	15.00	0.30	30.00	0.40	Y
Total Weight			3,255.00 (lb)		6,510.00 (lb)		

Pole : CT11417C  
Location: Plymouth - Rt. 6, Plymouth, CT  
Height : 169.0 (ft)  
Shape : 18 Sides  
Base Dia : 62.93 (in)  
Taper : 0.245310 (in/ft)

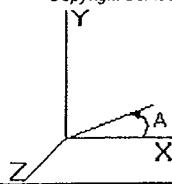
T-Mobile USA-WA

Base Elev: 0.000 (ft)

Copyright Semaan Engineering Solutions, Inc

3/21/2005 2:48:12 PM

Page: 2



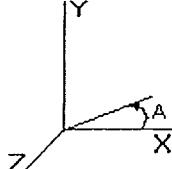
### Segment Properties (Max Len : 5 ft)

Seg Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
0.00		0.3750	62.938	74.462	36,822.9	28.18	167.83	65	49	0.0
5.00		0.3750	61.711	73.002	34,699.3	27.61	164.56	65	50	1,254.5
10.00		0.3750	60.484	71.543	32,659.0	27.03	161.29	65	50	1,229.6
15.00		0.3750	59.258	70.083	30,700.3	26.45	158.02	65	51	1,204.8
20.00		0.3750	58.031	68.623	28,821.5	25.88	154.75	65	51	1,180.0
25.00		0.3750	56.805	67.163	27,020.9	25.30	151.48	65	52	1,155.1
30.00		0.3750	55.578	65.703	25,297.0	24.72	148.21	65	52	1,130.3
31.25	Bot - Section 2	0.3750	55.272	65.338	24,877.8	24.58	147.39	65	52	278.7
35.00		0.3750	54.352	64.243	23,647.9	24.15	144.94	65	52	1,664.9
37.50	Top - Section 1	0.3750	54.488	64.406	23,828.1	24.21	145.30	65	52	1,094.4
40.00		0.3750	53.875	63.676	23,027.1	23.92	143.67	65	52	544.8
45.00		0.3750	52.649	62.216	21,479.4	23.35	140.40	65	52	1,071.0
50.00		0.3750	51.422	60.757	20,002.6	22.77	137.13	65	52	1,046.1
55.00		0.3750	50.195	59.297	18,595.1	22.19	133.85	65	52	1,021.3
60.00		0.3750	48.969	57.837	17,255.2	21.61	130.58	65	52	996.4
63.25	Bot - Section 3	0.3750	48.172	56.888	16,419.8	21.24	128.46	65	52	634.4
65.00		0.3750	47.742	56.377	15,981.3	21.04	127.31	65	52	679.8
68.75	Top - Section 2	0.3750	47.572	56.175	15,810.0	20.96	126.86	65	52	1,436.2
70.00		0.3750	47.266	55.810	15,503.8	20.81	126.04	65	52	238.2
75.00		0.3750	46.039	54.350	14,318.7	20.24	122.77	65	52	937.1
80.00		0.3750	44.813	52.890	13,195.6	19.66	119.50	65	52	912.3
85.00		0.3750	43.586	51.430	12,132.9	19.08	116.23	65	52	887.4
90.00		0.3750	42.360	49.970	11,128.7	18.51	112.96	65	52	862.6
95.00		0.3750	41.133	48.511	10,181.6	17.93	109.69	65	52	837.8
96.08	Bot - Section 4	0.3750	40.867	48.194	9,983.7	17.81	108.98	65	52	178.2
100.00		0.3750	39.907	47.051	9,289.8	17.35	106.42	65	52	1,281.3
100.75	Top - Section 3	0.3750	40.473	47.724	9,694.6	17.62	107.93	65	52	241.9
105.00		0.3750	39.430	46.483	8,957.9	17.13	105.15	65	52	681.2
110.00		0.3750	38.203	45.024	8,140.1	16.55	101.88	65	52	778.4
115.00		0.3750	36.977	43.564	7,373.7	15.98	98.60	65	52	753.6
120.00		0.3750	35.750	42.104	6,657.0	15.40	95.33	65	52	728.8
125.00		0.3750	34.524	40.644	5,988.3	14.82	92.06	65	52	703.9
129.75	Bot - Section 5	0.3750	33.359	39.257	5,395.9	14.27	88.96	65	52	645.7
130.00		0.3750	33.297	39.184	5,365.9	14.25	88.79	65	52	61.7
133.58	Top - Section 4	0.3125	33.043	32.464	4,394.0	17.23	105.74	65	52	872.6
135.00		0.3125	32.696	32.119	4,255.5	17.04	104.63	65	52	155.7
140.00		0.3125	31.469	30.902	3,790.0	16.35	100.70	65	52	536.1
145.00		0.3125	30.243	29.686	3,359.8	15.65	96.78	65	52	515.4
150.00		0.3125	29.016	28.469	2,963.5	14.96	92.85	65	52	494.7
155.00		0.3125	27.789	27.253	2,599.6	14.27	88.93	65	52	474.0
160.00		0.3125	26.563	26.036	2,266.7	13.58	85.00	65	52	453.3
164.33	Bot - Section 6	0.3125	25.500	24.982	2,002.4	12.98	81.60	65	52	376.1
165.00		0.3125	25.336	24.820	1,963.6	12.89	81.08	65	52	102.7
167.25	Top - Section 5	0.2500	25.284	19.864	1,572.9	16.42	101.14	65	52	341.7
169.00		0.2500	24.855	19.523	1,493.3	16.12	99.42	65	52	117.3

Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height : 169.0 (ft)  
 Shape : 18 Sides  
 Base Dia : 62.93 (in)  
 Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
 Base Elev : 0.000 (ft)  
 Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc  
 3/21/2005 2:48:13 PM  
 Page: 3



Load Case: No Ice 80 mph - No Ice

24 Iterations

Gust Response Factor : 1.69 Effective Wind Speed : 80.00 (mph)  
 Dead Load Factor : 1.00  
 Wind Load Factor : 1.00

### Shaft Forces

Seg Top

Elev (ft)	Description	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Wind Force Z (lb)	Weight (lb)
0.00		1.00	16.38	27.68	419.58	0.650	0.00	0.000	0.000	0.00	0.00	0.0
5.00		1.00	16.38	27.68	411.41	0.650	5.00	25.968	16.879	467.38	0.00	1,254.5
10.00		1.00	16.38	27.68	403.23	0.650	5.00	25.457	16.547	458.18	0.00	1,229.6
15.00		1.00	16.38	27.68	395.05	0.650	5.00	24.946	16.215	448.98	0.00	1,204.8
20.00		1.00	16.38	27.68	386.88	0.650	5.00	24.435	15.883	439.78	0.00	1,180.0
25.00		1.00	16.38	27.68	378.70	0.650	5.00	23.924	15.551	430.58	0.00	1,155.1
30.00		1.00	16.38	27.68	370.52	0.650	5.00	23.413	15.219	421.39	0.00	1,130.3
31.25	Bot - Section 2	1.00	16.38	27.68	368.48	0.650	1.25	5.773	3.753	103.91	0.00	278.7
35.00		1.01	16.66	28.15	365.40	0.650	3.75	17.363	11.286	317.79	0.00	1,664.9
37.50	Top - Section 1	1.03	16.99	28.71	364.86	0.650	2.50	11.416	7.420	213.10	0.00	1,094.4
40.00		1.05	17.31	29.25	369.17	0.650	2.50	11.288	7.337	214.64	0.00	544.8
45.00		1.09	17.90	30.25	366.89	0.650	5.00	22.192	14.425	436.43	0.00	1,071.0
50.00		1.12	18.44	31.17	363.78	0.650	5.00	21.681	14.093	439.41	0.00	1,046.1
55.00		1.15	18.95	32.04	359.97	0.650	5.00	21.170	13.761	440.89	0.00	1,021.3
60.00		1.18	19.43	32.84	355.57	0.650	5.00	20.659	13.429	441.08	0.00	996.4
63.25	Bot - Section 3	1.20	19.73	33.34	352.42	0.650	3.25	13.154	8.550	285.12	0.00	634.4
65.00		1.21	19.88	33.60	350.65	0.650	1.75	7.103	4.617	155.16	0.00	679.8
68.75	Top - Section 2	1.23	20.20	34.14	346.66	0.650	3.75	15.010	9.757	333.18	0.00	1,436.2
70.00		1.24	20.31	34.32	350.84	0.650	1.25	4.939	3.211	110.21	0.00	238.2
75.00		1.26	20.71	35.00	345.12	0.650	5.00	19.439	12.635	442.34	0.00	937.1
80.00	Appertunance(s)	1.28	21.10	35.66	339.04	0.650	5.00	18.927	12.303	438.72	0.00	912.3
85.00		1.31	21.46	36.28	332.63	0.650	5.00	18.416	11.971	434.34	0.00	887.4
90.00		1.33	21.82	36.88	325.92	0.650	5.00	17.905	11.638	429.24	0.00	862.6
95.00		1.35	22.16	37.45	318.93	0.650	5.00	17.394	11.306	423.48	0.00	837.8
96.08	Bot - Section 4	1.35	22.23	37.57	317.39	0.650	1.08	3.701	2.406	90.41	0.00	178.2
100.00		1.37	22.49	38.00	311.70	0.650	3.92	13.427	8.727	331.71	0.00	1,281.3
100.75	Top - Section 3	1.37	22.53	38.08	310.59	0.650	0.75	2.535	1.648	62.77	0.00	241.9
105.00		1.39	22.80	38.54	310.13	0.650	4.25	14.149	9.197	354.47	0.00	681.2
110.00		1.41	23.11	39.05	302.49	0.650	5.00	16.174	10.513	410.60	0.00	778.4
115.00	Appertunance(s)	1.42	23.40	39.55	294.64	0.650	5.00	15.663	10.181	402.71	0.00	753.6
120.00		1.44	23.69	40.04	286.61	0.650	5.00	15.151	9.848	394.34	0.00	728.8
125.00	Appertunance(s)	1.46	23.97	40.51	278.39	0.650	5.00	14.640	9.516	385.50	0.00	703.9
129.75	Bot - Section 5	1.47	24.22	40.94	270.43	0.650	4.75	13.435	8.733	357.55	0.00	645.7
130.00		1.48	24.24	40.96	270.01	0.650	0.25	0.707	0.460	18.84	0.00	61.7
133.58	Top - Section 4	1.49	24.43	41.28	263.90	0.650	3.58	9.998	6.499	268.31	0.00	872.6
135.00	Appertunance(s)	1.49	24.50	41.41	266.56	0.650	1.42	3.880	2.522	104.45	0.00	155.7
140.00		1.51	24.75	41.84	257.90	0.650	5.00	13.368	8.689	363.57	0.00	536.1
145.00	Appertunance(s)	1.52	25.00	42.26	249.09	0.650	5.00	12.857	8.357	353.20	0.00	515.4
150.00		1.54	25.25	42.67	240.15	0.650	5.00	12.346	8.025	342.46	0.00	494.7
155.00	Appertunance(s)	1.55	25.49	43.07	231.08	0.650	5.00	11.834	7.692	331.37	0.00	474.0
160.00		1.57	25.72	43.47	221.89	0.650	5.00	11.323	7.360	319.95	0.00	453.3
164.33	Bot - Section 6	1.58	25.91	43.80	213.82	0.650	4.33	9.400	6.110	267.65	0.00	376.1
165.00	Appertunance(s)	1.58	25.94	43.85	212.57	0.650	0.67	1.440	0.936	41.04	0.00	102.7
167.25	Top - Section 5	1.59	26.05	44.02	208.34	0.650	2.25	4.793	3.115	137.14	0.00	341.7
169.00	Appertunance(s)	1.59	26.12	44.15	209.25	0.650	1.75	3.656	2.376	104.93	0.00	117.3

Totals: 169.00 13,768.28 0.00 32,792.1

Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height : 169.0 (ft)  
 Shape : 18 Sides  
 Base Dia : 62.93 (in)  
 Taper : 0.245310 (in/ft)

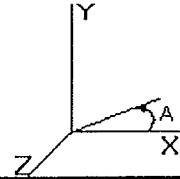
T-Mobile USA-WA

Base Elev: 0.000 (ft)  
 Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc

3/21/2005 2:48:13 PM

Page: 4



**Load Case:** No Ice 80 mph - No Ice

24 Iterations

Gust Response Factor : 1.69 Effective Wind Speed : 80.00 (mph)  
 Dead Load Factor : 1.00  
 Wind Load Factor : 1.00

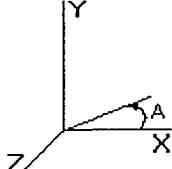
### Discrete Appurtenance Forces

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Total CaAa (sf)	CaAa Factor	Horiz Ecc (ft)	Vert Ecc (ft)	X Angle (deg)	Wind Force X (lb)	Wind Force Z (lb)	Mom X (lb-ft)	Mom Y (lb-ft)	Mom Z (lb-ft)	Weight (lb)
80.00	4 FT Standoff	1	21.10	35.66	3.500	1.000	0.000	0.0	0.0	124.81	0.00	0.00	0.00	0.00	53.3
80.00	PD455	1	21.89	36.99	3.560	1.000	0.000	11.0	0.0	131.71	0.00	0.00	0.00	1448.82	23.0
115.00	Low Profile Platform	1	23.40	39.55	25.550	1.000	0.000	0.0	0.0	1010.67	0.00	0.00	0.00	0.00	1600.0
115.00	LGP2140X TMAs	12	23.40	39.55	3.098	0.667	0.000	0.0	0.0	122.53	0.00	0.00	0.00	0.00	67.2
115.00	AP14/17-	6	23.40	39.55	45.648	1.000	0.000	0.0	0.0	1805.67	0.00	0.00	0.00	0.00	370.2
125.00	Celwave 201	1	24.18	40.86	1.020	1.000	0.000	3.9	0.0	41.68	0.00	0.00	0.00	161.52	4.0
125.00	Low Profile Platform	1	23.97	40.51	25.550	1.000	0.000	0.0	0.0	1035.03	0.00	0.00	0.00	0.00	1600.0
125.00	DB846G90A-XY	12	23.97	40.51	70.404	1.000	0.000	0.0	0.0	2852.07	0.00	0.00	0.00	0.00	252.0
135.00	Low Profile Platform	1	24.50	41.41	25.550	1.000	0.000	0.0	0.0	1058.04	0.00	0.00	0.00	0.00	1300.0
135.00	DB950F85T2E-M	12	24.50	41.41	52.800	1.000	0.000	0.0	0.0	2186.48	0.00	0.00	0.00	0.00	126.0
145.00	731DG65V1EXM	3	25.00	42.26	18.210	1.000	0.000	0.0	0.0	769.64	0.00	0.00	0.00	0.00	60.0
145.00	Allgon 7250.03	3	25.00	42.26	8.604	0.667	0.000	0.0	0.0	363.66	0.00	0.00	0.00	0.00	48.0
145.00	13 ft Low Profile	1	25.00	42.26	15.300	1.000	0.000	0.0	0.0	646.65	0.00	0.00	0.00	0.00	1346.0
155.00	13 ft Low Profile	1	25.49	43.07	15.300	1.000	0.000	0.0	0.0	659.09	0.00	0.00	0.00	0.00	1346.0
155.00	DB980H90	9	25.49	43.07	19.690	0.667	0.000	0.0	0.0	848.20	0.00	0.00	0.00	0.00	81.0
165.00	4 ft HP Dish	1	25.94	43.85	15.860	1.000	0.000	0.0	0.0	695.53	0.00	0.00	0.00	0.00	170.0
165.00	S20045A1 LNA	12	25.94	43.85	9.144	1.000	0.000	0.0	0.0	401.00	0.00	0.00	0.00	0.00	119.0
165.00	13 ft Low Profile	1	25.94	43.85	15.300	1.000	0.000	0.0	0.0	670.97	0.00	0.00	0.00	0.00	1346.0
165.00	RR65-19-00XP	12	25.94	43.85	72.000	1.000	0.000	0.0	0.0	3157.51	0.00	0.00	0.00	0.00	276.0
169.00	4 Omni Mount	1	26.17	44.23	24.830	1.000	0.000	1.0	0.0	1098.22	0.00	0.00	0.00	1098.22	1642.0
169.00	SRL-229	1	26.63	45.01	6.450	1.000	0.000	11.8	0.0	290.33	0.00	0.00	0.00	3411.32	25.0
169.00	PD455	1	26.64	45.02	3.560	1.000	0.000	12.0	0.0	160.30	0.00	0.00	0.00	1923.66	23.0
169.00	PD220	1	26.64	45.02	3.560	1.000	0.000	12.0	0.0	160.30	0.00	0.00	0.00	1923.66	23.0
169.00	ACP-305	1	26.63	45.01	6.450	1.000	0.000	11.8	0.0	290.32	0.00	0.00	0.00	3411.27	25.0
										20,580.4	0.00				11,925.8

Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height: 169.0 (ft)  
 Shape : 18 Sides  
 Base Dia : 62.93 (in)  
 Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
 Base Elev: 0.000 (ft)  
 Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc  
 3/21/2005 2:48:13 PM  
 Page: 5



**Load Case:** No Ice      80 mph - No Ice

24 Iterations

Gust Response Factor : 1.69      Effective Wind Speed : 80.00 (mph)  
 Dead Load Factor : 1.00  
 Wind Load Factor : 1.00

### Linear Appurtenance Forces

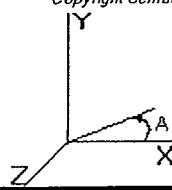
Seg Elev (ft)	Description	Exposed To Wind	Applied Length (ft)	Weight (lb/ft)	CaAa (sf/ft)	qz (psf)	Wind Force X (lb)	Wind Force Z (lb)	Weight (lb)
5.00	1 5/8" Coax	Yes	5.00	12.00	0.00	16.384	0.00	0.00	60.00
5.00	1 5/8" Coax	Yes	5.00	15.00	0.30	16.384	41.53	0.00	75.00
10.00	1 5/8" Coax	Yes	5.00	12.00	0.00	16.384	0.00	0.00	60.00
10.00	1 5/8" Coax	Yes	5.00	15.00	0.30	16.384	41.53	0.00	75.00
15.00	1 5/8" Coax	Yes	5.00	12.00	0.00	16.384	0.00	0.00	60.00
15.00	1 5/8" Coax	Yes	5.00	15.00	0.30	16.384	41.53	0.00	75.00
20.00	1 5/8" Coax	Yes	5.00	12.00	0.00	16.384	0.00	0.00	60.00
20.00	1 5/8" Coax	Yes	5.00	15.00	0.30	16.384	41.53	0.00	75.00
25.00	1 5/8" Coax	Yes	5.00	12.00	0.00	16.384	0.00	0.00	60.00
25.00	1 5/8" Coax	Yes	5.00	15.00	0.30	16.384	41.53	0.00	75.00
30.00	1 5/8" Coax	Yes	5.00	12.00	0.00	16.384	0.00	0.00	60.00
30.00	1 5/8" Coax	Yes	5.00	15.00	0.30	16.384	41.53	0.00	75.00
31.25	1 5/8" Coax	Yes	1.25	12.00	0.00	16.384	0.00	0.00	15.00
31.25	1 5/8" Coax	Yes	1.25	15.00	0.30	16.384	10.38	0.00	18.75
35.00	1 5/8" Coax	Yes	3.75	12.00	0.00	16.662	0.00	0.00	45.00
35.00	1 5/8" Coax	Yes	3.75	15.00	0.30	16.662	31.68	0.00	56.25
37.50	1 5/8" Coax	Yes	2.50	12.00	0.00	16.993	0.00	0.00	30.00
37.50	1 5/8" Coax	Yes	2.50	15.00	0.30	16.993	21.54	0.00	37.50
40.00	1 5/8" Coax	Yes	2.50	12.00	0.00	17.310	0.00	0.00	30.00
40.00	1 5/8" Coax	Yes	2.50	15.00	0.30	17.310	21.94	0.00	37.50
45.00	1 5/8" Coax	Yes	5.00	12.00	0.00	17.902	0.00	0.00	60.00
45.00	1 5/8" Coax	Yes	5.00	15.00	0.30	17.902	45.38	0.00	75.00
50.00	1 5/8" Coax	Yes	5.00	12.00	0.00	18.449	0.00	0.00	60.00
50.00	1 5/8" Coax	Yes	5.00	15.00	0.30	18.449	46.77	0.00	75.00
55.00	1 5/8" Coax	Yes	5.00	12.00	0.00	18.959	0.00	0.00	60.00
55.00	1 5/8" Coax	Yes	5.00	15.00	0.30	18.959	48.06	0.00	75.00
60.00	1 5/8" Coax	Yes	5.00	12.00	0.00	19.436	0.00	0.00	60.00
60.00	1 5/8" Coax	Yes	5.00	15.00	0.30	19.436	49.27	0.00	75.00
63.25	1 5/8" Coax	Yes	3.25	12.00	0.00	19.731	0.00	0.00	39.00
63.25	1 5/8" Coax	Yes	3.25	15.00	0.30	19.731	32.51	0.00	48.75
65.00	1 5/8" Coax	Yes	1.75	12.00	0.00	19.885	0.00	0.00	21.00
65.00	1 5/8" Coax	Yes	1.75	15.00	0.30	19.885	17.64	0.00	26.25
68.75	1 5/8" Coax	Yes	3.75	12.00	0.00	20.207	0.00	0.00	45.00
68.75	1 5/8" Coax	Yes	3.75	15.00	0.30	20.207	38.42	0.00	56.25
70.00	1 5/8" Coax	Yes	1.25	12.00	0.00	20.311	0.00	0.00	15.00
70.00	1 5/8" Coax	Yes	1.25	15.00	0.30	20.311	12.87	0.00	18.75
75.00	1 5/8" Coax	Yes	5.00	12.00	0.00	20.715	0.00	0.00	60.00
75.00	1 5/8" Coax	Yes	5.00	15.00	0.30	20.715	52.51	0.00	75.00
80.00	1 5/8" Coax	Yes	5.00	12.00	0.00	21.101	0.00	0.00	60.00
80.00	1 5/8" Coax	Yes	5.00	15.00	0.30	21.101	53.49	0.00	75.00
85.00	1 5/8" Coax	Yes	5.00	12.00	0.00	21.469	0.00	0.00	60.00
85.00	1 5/8" Coax	Yes	5.00	15.00	0.30	21.469	54.43	0.00	75.00
90.00	1 5/8" Coax	Yes	5.00	12.00	0.00	21.823	0.00	0.00	60.00
90.00	1 5/8" Coax	Yes	5.00	15.00	0.30	21.823	55.32	0.00	75.00
95.00	1 5/8" Coax	Yes	5.00	12.00	0.00	22.163	0.00	0.00	60.00
95.00	1 5/8" Coax	Yes	5.00	15.00	0.30	22.163	56.18	0.00	75.00
96.08	1 5/8" Coax	Yes	1.08	12.00	0.00	22.235	0.00	0.00	13.00
96.08	1 5/8" Coax	Yes	1.08	15.00	0.30	22.235	12.21	0.00	16.25
100.0	1 5/8" Coax	Yes	3.92	12.00	0.00	22.490	0.00	0.00	47.00
100.0	1 5/8" Coax	Yes	3.92	15.00	0.30	22.490	44.66	0.00	58.75
100.7	1 5/8" Coax	Yes	0.75	12.00	0.00	22.538	0.00	0.00	9.00

Pole : CT11417C  
Location: Plymouth - Rt. 6, Plymouth, CT  
Height: 169.0 (ft)  
Shape : 18 Sides  
Base Dia : 62.93 (in)  
Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
Base Elev: 0.000 (ft)  
Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc  
3/21/2005 2:48:13 PM

Page: 6



Load Case: No Ice      80 mph - No Ice

24 Iterations

Gust Response Factor : 1.69      Effective Wind Speed: 80.00 (mph)

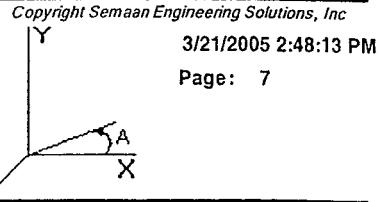
Dead Load Factor : 1.00

Wind Load Factor : 1.00

100.7	1 5/8" Coax	Yes	0.75	15.00	0.30	22.538	8.57	0.00	11.25
105.0	1 5/8" Coax	Yes	4.25	12.00	0.00	22.806	0.00	0.00	51.00
105.0	1 5/8" Coax	Yes	4.25	15.00	0.30	22.806	49.14	0.00	63.75
110.0	1 5/8" Coax	Yes	5.00	12.00	0.00	23.111	0.00	0.00	60.00
110.0	1 5/8" Coax	Yes	5.00	15.00	0.30	23.111	58.59	0.00	75.00
115.0	1 5/8" Coax	Yes	5.00	12.00	0.00	23.406	0.00	0.00	60.00
115.0	1 5/8" Coax	Yes	5.00	15.00	0.30	23.406	59.33	0.00	75.00
120.0	1 5/8" Coax	Yes	5.00	15.00	0.30	23.692	60.06	0.00	75.00
125.0	1 5/8" Coax	Yes	5.00	15.00	0.30	23.970	60.77	0.00	75.00
Totals:								0.00	3,255.0

Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height : 169.0 (ft)  
 Shape : 18 Sides  
 Base Dia : 62.93 (in)  
 Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
 Base Elev: 0.000 (ft)  
 Top Dia : 24.85 (in)



Load Case: No Ice      80 mph - No Ice

24 Iterations

Gust Response Factor : 1.69      Effective Wind Speed : 80.00 (mph)  
 Dead Load Factor : 1.00  
 Wind Load Factor : 1.00

### Applied Forces Summary

Seg Elev (ft)	X Coord (ft)	Z Coord (ft)	Lateral FX (-) (lb)	Axial FY (-) (lb)	Lateral FZ (lb)	Moment MX (lb-ft)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.00	0.00	0.00	508.91	1,389.47	0.00	0.00	0.00	0.00
10.00	0.00	0.00	499.71	1,364.64	0.00	0.00	0.00	0.00
15.00	0.00	0.00	490.51	1,339.80	0.00	0.00	0.00	0.00
20.00	0.00	0.00	481.31	1,314.96	0.00	0.00	0.00	0.00
25.00	0.00	0.00	472.12	1,290.12	0.00	0.00	0.00	0.00
30.00	0.00	0.00	462.92	1,265.29	0.00	0.00	0.00	0.00
31.25	0.00	0.00	114.29	312.44	0.00	0.00	0.00	0.00
35.00	0.00	0.00	349.47	1,766.16	0.00	0.00	0.00	0.00
37.50	0.00	0.00	234.64	1,161.91	0.00	0.00	0.00	0.00
40.00	0.00	0.00	236.58	612.29	0.00	0.00	0.00	0.00
45.00	0.00	0.00	481.81	1,205.96	0.00	0.00	0.00	0.00
50.00	0.00	0.00	486.17	1,181.12	0.00	0.00	0.00	0.00
55.00	0.00	0.00	488.95	1,156.29	0.00	0.00	0.00	0.00
60.00	0.00	0.00	490.35	1,131.45	0.00	0.00	0.00	0.00
63.25	0.00	0.00	317.63	722.12	0.00	0.00	0.00	0.00
65.00	0.00	0.00	172.80	727.04	0.00	0.00	0.00	0.00
68.75	0.00	0.00	371.60	1,537.46	0.00	0.00	0.00	0.00
70.00	0.00	0.00	123.08	271.91	0.00	0.00	0.00	0.00
75.00	0.00	0.00	494.85	1,072.12	0.00	0.00	0.00	0.00
80.00	0.00	0.00	748.74	1,123.60	0.00	0.00	0.00	1,448.82
85.00	0.00	0.00	488.76	1,022.45	0.00	0.00	0.00	0.00
90.00	0.00	0.00	484.56	997.61	0.00	0.00	0.00	0.00
95.00	0.00	0.00	479.66	972.77	0.00	0.00	0.00	0.00
96.08	0.00	0.00	102.62	207.49	0.00	0.00	0.00	0.00
100.00	0.00	0.00	376.37	1,387.03	0.00	0.00	0.00	0.00
100.75	0.00	0.00	71.34	262.12	0.00	0.00	0.00	0.00
105.00	0.00	0.00	403.61	795.96	0.00	0.00	0.00	0.00
110.00	0.00	0.00	469.19	913.45	0.00	0.00	0.00	0.00
115.00	0.00	0.00	3,400.91	2,926.01	0.00	0.00	0.00	0.00
120.00	0.00	0.00	454.40	803.77	0.00	0.00	0.00	0.00
125.00	0.00	0.00	4,375.05	2,634.93	0.00	0.00	0.00	161.52
129.75	0.00	0.00	357.55	645.73	0.00	0.00	0.00	0.00
130.00	0.00	0.00	18.84	61.75	0.00	0.00	0.00	0.00
133.58	0.00	0.00	268.31	872.56	0.00	0.00	0.00	0.00
135.00	0.00	0.00	3,348.98	1,581.66	0.00	0.00	0.00	0.00
140.00	0.00	0.00	363.57	536.12	0.00	0.00	0.00	0.00
145.00	0.00	0.00	2,133.15	1,969.42	0.00	0.00	0.00	0.00
150.00	0.00	0.00	342.46	494.72	0.00	0.00	0.00	0.00
155.00	0.00	0.00	1,838.66	1,901.02	0.00	0.00	0.00	0.00
160.00	0.00	0.00	319.95	453.33	0.00	0.00	0.00	0.00
164.33	0.00	0.00	267.65	376.14	0.00	0.00	0.00	0.00
165.00	0.00	0.00	4,966.06	2,013.73	0.00	0.00	0.00	0.00
167.25	0.00	0.00	137.14	341.69	0.00	0.00	0.00	0.00
169.00	0.00	0.00	2,104.41	1,855.27	0.00	0.00	0.00	11,768.13
Totals:		35,599.63	47,972.90	0.00	0.00	0.00	0.00	13,378.46

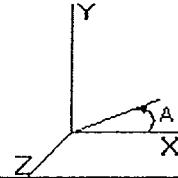
Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height : 169.0 (ft)  
 Shape : 18 Sides  
 Base Dia : 62.93 (in)  
 Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
 Base Elev: 0.000 (ft)  
 Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc

3/21/2005 2:48:13 PM

Page: 8



**Load Case:** No Ice      80 mph - No Ice

24 Iterations

Gust Response Factor : 1.69      Effective Wind Speed : 80.00 (mph)  
 Dead Load Factor : 1.00  
 Wind Load Factor : 1.00

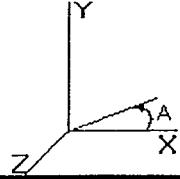
### Calculated Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	35.669	47.921	0.000	0.000	0.000	4,307.413	0.000	0.000	0.000	0.000
5.00	35.291	46.431	0.000	0.000	0.000	4,129.073	-0.088	0.000	0.088	-0.163
10.00	34.917	44.967	0.000	0.000	0.000	3,952.620	-0.348	0.000	0.348	-0.329
15.00	34.546	43.528	0.000	0.000	0.000	3,778.039	-0.783	0.000	0.783	-0.497
20.00	34.178	42.116	0.000	0.000	0.000	3,605.313	-1.396	0.000	1.396	-0.668
25.00	33.814	40.729	0.000	0.000	0.000	3,434.427	-2.189	0.000	2.189	-0.842
30.00	33.406	39.407	0.000	0.000	0.000	3,265.362	-3.165	0.000	3.165	-1.018
31.25	33.348	39.044	0.000	0.000	0.000	3,223.606	-3.439	0.000	3.439	-1.064
35.00	33.038	37.220	0.000	0.000	0.000	3,098.553	-4.329	0.000	4.329	-1.199
37.50	32.836	36.010	0.000	0.000	0.000	3,015.961	-4.982	0.000	4.982	-1.291
40.00	32.668	35.327	0.000	0.000	0.000	2,933.873	-5.684	0.000	5.684	-1.384
45.00	32.261	34.034	0.000	0.000	0.000	2,770.535	-7.228	0.000	7.228	-1.560
50.00	31.844	32.768	0.000	0.000	0.000	2,609.233	-8.958	0.000	8.958	-1.738
55.00	31.418	31.529	0.000	0.000	0.000	2,450.018	-10.875	0.000	10.875	-1.918
60.00	30.967	30.334	0.000	0.000	0.000	2,292.933	-12.981	0.000	12.981	-2.099
63.25	30.671	29.575	0.000	0.000	0.000	2,192.290	-14.452	0.000	14.452	-2.220
65.00	30.521	28.801	0.000	0.000	0.000	2,138.618	-15.279	0.000	15.279	-2.285
68.75	30.131	27.231	0.000	0.000	0.000	2,024.165	-17.130	0.000	17.130	-2.424
70.00	30.049	26.906	0.000	0.000	0.000	1,986.503	-17.771	0.000	17.771	-2.472
75.00	29.586	25.767	0.000	0.000	0.000	1,836.261	-20.454	0.000	20.454	-2.647
80.00	28.859	24.592	0.000	0.000	0.000	1,686.886	-23.320	0.000	23.320	-2.822
85.00	28.390	23.510	0.000	0.000	0.000	1,542.593	-26.368	0.000	26.368	-2.996
90.00	27.920	22.457	0.000	0.000	0.000	1,400.643	-29.598	0.000	29.598	-3.169
95.00	27.425	21.464	0.000	0.000	0.000	1,261.044	-33.007	0.000	33.007	-3.339
96.08	27.342	21.222	0.000	0.000	0.000	1,231.335	-33.769	0.000	33.769	-3.377
100.00	26.910	19.823	0.000	0.000	0.000	1,124.248	-36.594	0.000	36.594	-3.508
100.75	26.851	19.527	0.000	0.000	0.000	1,104.067	-37.147	0.000	37.147	-3.534
105.00	26.444	18.692	0.000	0.000	0.000	989.953	-40.355	0.000	40.355	-3.672
110.00	25.961	17.747	0.000	0.000	0.000	857.734	-44.278	0.000	44.278	-3.818
115.00	22.404	15.006	0.000	0.000	0.000	727.931	-48.350	0.000	48.350	-3.957
120.00	21.926	14.188	0.000	0.000	0.000	615.911	-52.562	0.000	52.562	-4.087
125.00	17.394	11.843	0.000	0.000	0.000	506.123	-56.905	0.000	56.905	-4.207
129.75	17.000	11.210	0.000	0.000	0.000	423.501	-61.141	0.000	61.141	-4.311
130.00	16.985	11.138	0.000	0.000	0.000	419.251	-61.367	0.000	61.367	-4.317
133.58	16.660	10.273	0.000	0.000	0.000	358.389	-64.634	0.000	64.634	-4.391
135.00	13.210	8.938	0.000	0.000	0.000	334.787	-65.940	0.000	65.940	-4.419
140.00	12.820	8.411	0.000	0.000	0.000	268.738	-70.619	0.000	70.619	-4.520
145.00	10.546	6.603	0.000	0.000	0.000	204.640	-75.398	0.000	75.398	-4.609
150.00	10.172	6.125	0.000	0.000	0.000	151.911	-80.261	0.000	80.261	-4.684
155.00	8.187	4.375	0.000	0.000	0.000	101.052	-85.197	0.000	85.197	-4.745
160.00	7.833	3.945	0.000	0.000	0.000	60.117	-90.186	0.000	90.186	-4.789
164.33	7.535	3.591	0.000	0.000	0.000	26.175	-94.541	0.000	94.541	-4.813
165.00	2.418	2.001	0.000	0.000	0.000	21.151	-95.212	0.000	95.212	-4.815
167.25	2.253	1.672	0.000	0.000	0.000	15.711	-97.480	0.000	97.480	-4.821
169.00	2.104	0.000	0.000	0.000	0.000	11.768	-99.246	0.000	99.246	-4.825

Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height : 169.0 (ft)  
 Shape : 18 Sides  
 Base Dia : 62.93 (in)  
 Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
 Base Elev : 0.000 (ft)  
 Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc  
 3/21/2005 2:48:13 PM  
 Page: 9



Load Case: No Ice      80 mph - No Ice

24 Iterations

Gust Response Factor : 1.69      Effective Wind Speed : 80.00 (mph)  
 Dead Load Factor : 1.00  
 Wind Load Factor : 1.00

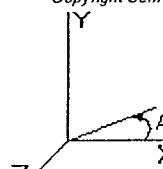
### Calculated Stresses

Seg Elev (ft)	Applied Stresses						Allowable Stress (Fb) (ksi)	Stress Ratio
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)		
0.00	0.644	0.965	0.000	0.000	0.000	44.855	45.529	49.1
5.00	0.636	0.974	0.000	0.000	0.000	44.740	45.407	49.6
10.00	0.629	0.984	0.000	0.000	0.000	44.599	45.260	50.1
15.00	0.621	0.993	0.000	0.000	0.000	44.429	45.083	50.6
20.00	0.614	1.004	0.000	0.000	0.000	44.227	44.875	51.1
25.00	0.606	1.015	0.000	0.000	0.000	43.988	44.629	51.6
30.00	0.600	1.025	0.000	0.000	0.000	43.709	44.344	52.0
31.25	0.598	1.029	0.000	0.000	0.000	43.635	44.268	52.0
35.00	0.579	1.036	0.000	0.000	0.000	43.389	44.005	52.0
37.50	0.559	1.028	0.000	0.000	0.000	42.018	42.615	52.0
40.00	0.555	1.034	0.000	0.000	0.000	41.821	42.413	52.0
45.00	0.547	1.045	0.000	0.000	0.000	41.374	41.960	52.0
50.00	0.539	1.056	0.000	0.000	0.000	40.867	41.447	52.0
55.00	0.532	1.068	0.000	0.000	0.000	40.293	40.867	52.0
60.00	0.524	1.079	0.000	0.000	0.000	39.645	40.213	52.0
63.25	0.520	1.087	0.000	0.000	0.000	39.185	39.750	52.0
65.00	0.511	1.091	0.000	0.000	0.000	38.925	39.481	52.0
68.75	0.485	1.081	0.000	0.000	0.000	37.108	37.640	52.0
70.00	0.482	1.085	0.000	0.000	0.000	36.898	37.427	52.0
75.00	0.474	1.097	0.000	0.000	0.000	35.971	36.495	52.0
80.00	0.465	1.100	0.000	0.000	0.000	34.902	35.419	52.0
85.00	0.457	1.113	0.000	0.000	0.000	33.763	34.274	52.0
90.00	0.449	1.126	0.000	0.000	0.000	32.481	32.988	52.0
95.00	0.442	1.139	0.000	0.000	0.000	31.039	31.543	52.0
96.08	0.440	1.143	0.000	0.000	0.000	30.709	31.212	52.0
100.00	0.421	1.153	0.000	0.000	0.000	29.424	29.912	52.0
100.75	0.409	1.134	0.000	0.000	0.000	28.082	28.559	52.0
105.00	0.402	1.147	0.000	0.000	0.000	26.548	27.023	52.0
110.00	0.394	1.162	0.000	0.000	0.000	24.526	25.001	52.0
115.00	0.344	1.037	0.000	0.000	0.000	22.240	22.656	52.0
120.00	0.337	1.050	0.000	0.000	0.000	20.152	20.570	52.0
125.00	0.291	0.863	0.000	0.000	0.000	17.778	18.131	52.0
129.75	0.286	0.873	0.000	0.000	0.000	15.951	16.307	52.0
130.00	0.284	0.874	0.000	0.000	0.000	15.850	16.205	52.0
133.58	0.316	1.034	0.000	0.000	0.000	16.420	16.832	52.0
135.00	0.278	0.829	0.000	0.000	0.000	15.671	16.014	52.0
140.00	0.272	0.836	0.000	0.000	0.000	13.595	13.942	52.0
145.00	0.222	0.716	0.000	0.000	0.000	11.223	11.512	52.0
150.00	0.215	0.720	0.000	0.000	0.000	9.062	9.361	52.0
155.00	0.161	0.605	0.000	0.000	0.000	6.582	6.823	52.0
160.00	0.152	0.606	0.000	0.000	0.000	4.292	4.566	52.0
164.33	0.144	0.608	0.000	0.000	0.000	2.031	2.416	52.0
165.00	0.081	0.196	0.000	0.000	0.000	1.663	1.776	52.0
167.25	0.084	0.229	0.000	0.000	0.000	1.539	1.670	52.0
169.00	0.000	0.217	0.000	0.000	0.000	1.193	1.251	52.0

Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height : 169.0 (ft)  
 Shape : 18 Sides  
 Base Dia : 62.93 (in)  
 Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
 Base Elev: 0.000 (ft)  
 Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc  
 3/21/2005 2:48:13 PM  
 Page: 10



Load Case: Ice		80 mph - With Ice - Ice Thickness = 0.5 in	24 Iterations
Gust Response Factor : 1.69		Effective Wind Speed : 69.28 (mph)	
Dead Load Factor : 1.00			
Wind Load Factor : 1.00			

### Shaft Forces

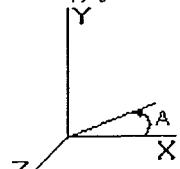
Seg Top	Elev (ft)	Description	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Tributary (ft)	Aa (sf)	Cfaa (sf)	Wind Force X (lb)	Wind Force Z (lb)	Weight (lb)
	0.00		1.00	12.28	20.76	363.36	0.650	0.00	0.000	0.000	0.00	0.00	0.0
	5.00		1.00	12.28	20.76	356.28	0.650	5.00	26.385	17.150	356.13	0.00	1,446.4
	10.00		1.00	12.28	20.76	349.20	0.650	5.00	25.874	16.818	349.24	0.00	1,417.8
	15.00		1.00	12.28	20.76	342.12	0.650	5.00	25.363	16.486	342.34	0.00	1,389.2
	20.00		1.00	12.28	20.76	335.03	0.650	5.00	24.852	16.154	335.44	0.00	1,360.6
	25.00		1.00	12.28	20.76	327.95	0.650	5.00	24.341	15.822	328.54	0.00	1,332.0
	30.00		1.00	12.28	20.76	320.87	0.650	5.00	23.830	15.489	321.64	0.00	1,303.3
	31.25	Bot - Section 2	1.00	12.28	20.76	319.10	0.650	1.25	5.878	3.820	79.33	0.00	321.7
	35.00		1.01	12.49	21.11	316.44	0.650	3.75	17.676	11.489	242.62	0.00	1,793.6
	37.50	Top - Section 1	1.03	12.74	21.53	315.97	0.650	2.50	11.624	7.556	162.73	0.00	1,179.3
	40.00		1.05	12.98	21.93	319.71	0.650	2.50	11.496	7.473	163.94	0.00	628.7
	45.00		1.09	13.42	22.69	317.73	0.650	5.00	22.609	14.696	333.45	0.00	1,235.0
	50.00		1.12	13.83	23.38	315.03	0.650	5.00	22.098	14.364	335.87	0.00	1,206.3
	55.00		1.15	14.21	24.02	311.73	0.650	5.00	21.587	14.032	337.16	0.00	1,177.7
	60.00		1.18	14.57	24.63	307.92	0.650	5.00	21.076	13.699	337.46	0.00	1,149.1
	63.25	Bot - Section 3	1.20	14.79	25.00	305.20	0.650	3.25	13.425	8.726	218.23	0.00	732.0
	65.00		1.21	14.91	25.20	303.66	0.650	1.75	7.249	4.712	118.75	0.00	732.7
	68.75	Top - Section 2	1.23	15.15	25.61	300.20	0.650	3.75	15.323	9.960	255.07	0.00	1,547.5
	70.00		1.24	15.23	25.74	303.83	0.650	1.25	5.044	3.278	84.39	0.00	275.0
	75.00		1.26	15.53	26.25	298.88	0.650	5.00	19.855	12.906	338.85	0.00	1,080.7
	80.00	Appertunance(s)	1.28	15.82	26.74	293.61	0.650	5.00	19.344	12.574	336.27	0.00	1,052.1
	85.00		1.31	16.10	27.21	288.06	0.650	5.00	18.833	12.242	333.10	0.00	1,023.5
	90.00		1.33	16.36	27.65	282.24	0.650	5.00	18.322	11.909	329.40	0.00	994.9
	95.00		1.35	16.62	28.09	276.20	0.650	5.00	17.811	11.577	325.20	0.00	966.2
	96.08	Bot - Section 4	1.35	16.67	28.18	274.86	0.650	1.08	3.792	2.465	69.45	0.00	205.9
	100.00		1.37	16.86	28.50	269.93	0.650	3.92	13.753	8.939	254.81	0.00	1,380.8
	100.75	Top - Section 3	1.37	16.90	28.56	268.97	0.650	0.75	2.598	1.689	48.23	0.00	260.8
	105.00		1.39	17.10	28.90	268.57	0.650	4.25	14.504	9.427	272.49	0.00	785.9
	110.00		1.41	17.33	29.29	261.95	0.650	5.00	16.590	10.784	315.87	0.00	897.9
	115.00	Appertunance(s)	1.42	17.55	29.66	255.16	0.650	5.00	16.079	10.451	310.05	0.00	869.3
	120.00		1.44	17.76	30.02	248.20	0.650	5.00	15.568	10.119	303.87	0.00	840.6
	125.00	Appertunance(s)	1.46	17.97	30.38	241.09	0.650	5.00	15.057	9.787	297.34	0.00	812.0
	129.75	Bot - Section 5	1.47	18.16	30.70	234.19	0.650	4.75	13.831	8.990	276.05	0.00	745.0
	130.00		1.48	18.17	30.72	233.83	0.650	0.25	0.728	0.473	14.54	0.00	67.1
	133.58	Top - Section 4	1.49	18.32	30.96	228.54	0.650	3.58	10.297	6.693	207.23	0.00	946.7
	135.00	Appertunance(s)	1.49	18.37	31.05	230.84	0.650	1.42	3.998	2.599	80.72	0.00	184.7
	140.00		1.51	18.56	31.38	223.34	0.650	5.00	13.784	8.960	281.16	0.00	634.8
	145.00	Appertunance(s)	1.52	18.75	31.69	215.72	0.650	5.00	13.273	8.628	273.47	0.00	610.3
	150.00		1.54	18.93	32.00	207.97	0.650	5.00	12.762	8.295	265.50	0.00	585.8
	155.00	Appertunance(s)	1.55	19.11	32.30	200.12	0.650	5.00	12.251	7.963	257.26	0.00	561.3
	160.00		1.57	19.29	32.60	192.15	0.650	5.00	11.740	7.631	248.78	0.00	536.8
	164.33	Bot - Section 6	1.58	19.43	32.85	185.17	0.650	4.33	9.761	6.345	208.43	0.00	445.7
	165.00	Appertunance(s)	1.58	19.46	32.88	184.09	0.650	0.67	1.495	0.972	31.97	0.00	113.5
	167.25	Top - Section 5	1.59	19.53	33.01	180.43	0.650	2.25	4.980	3.237	106.88	0.00	377.5
	169.00	Appertunance(s)	1.59	19.59	33.11	181.21	0.650	1.75	3.802	2.471	81.83	0.00	144.7

Totals: 169.00 10,571.09 0.00 37,352.3

Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height: 169.0 (ft)  
 Shape : 18 Sides  
 Base Dia : 62.93 (in)  
 Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
 Base Elev: 0.000 (ft)  
 Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc  
 3/21/2005 2:48:14 PM  
 Page: 11



<b>Load Case:</b> Ice	80 mph - With Ice - Ice Thickness = 0.5 in	24 Iterations
Gust Response Factor : 1.69	Effective Wind Speed : 69.28 (mph)	
Dead Load Factor : 1.00		
Wind Load Factor : 1.00		

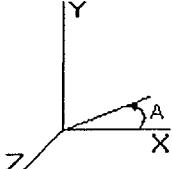
### Discrete Appurtenance Forces

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Total CaAa (sf)	CaAa Factor	Horiz Ecc (ft)	Vert Ecc (ft)	X Angle (deg)	Wind Force X (lb)	Wind Force Z (lb)	Mom X (lb-ft)	Mom Y (lb-ft)	Mom Z (lb-ft)	Weight (lb)
80.00	4 FT Standoff	1	15.82	26.74	5.790	1.000	0.000	0.0	0.0	154.85	0.00	0.00	0.00	0.00	84.0
80.00	PD455	1	16.41	27.74	6.860	1.000	0.000	11.0	0.0	190.34	0.00	0.00	0.00	2093.75	83.0
115.00	Low Profile Platform	1	17.55	29.66	27.320	1.000	0.000	0.0	0.0	810.46	0.00	0.00	0.00	0.00	2100.0
115.00	LGP2140X TMAs	12	17.55	29.66	4.250	0.667	0.000	0.0	0.0	126.08	0.00	0.00	0.00	0.00	106.3
115.00	AP14/17-	6	17.55	29.66	50.358	1.000	0.000	0.0	0.0	1493.90	0.00	0.00	0.00	0.00	637.6
125.00	Celwave 201	1	18.13	30.64	1.810	1.000	0.000	3.9	0.0	55.47	0.00	0.00	0.00	214.95	12.7
125.00	Low Profile Platform	1	17.97	30.38	27.320	1.000	0.000	0.0	0.0	830.00	0.00	0.00	0.00	0.00	2100.0
125.00	DB846G90A-XY	12	17.97	30.38	78.672	1.000	0.000	0.0	0.0	2390.11	0.00	0.00	0.00	0.00	712.2
135.00	Low Profile Platform	1	18.37	31.05	27.320	1.000	0.000	0.0	0.0	848.45	0.00	0.00	0.00	0.00	2100.0
135.00	DB950F85T2E-M	12	18.37	31.05	60.000	1.000	0.000	0.0	0.0	1863.37	0.00	0.00	0.00	0.00	360.0
145.00	731DG65V1EXM	3	18.75	31.69	20.010	1.000	0.000	0.0	0.0	634.25	0.00	0.00	0.00	0.00	174.9
145.00	Allgon 7250.03	3	18.75	31.69	10.005	0.667	0.000	0.0	0.0	317.13	0.00	0.00	0.00	0.00	108.0
145.00	13 ft Low Profile	1	18.75	31.69	17.020	1.000	0.000	0.0	0.0	539.48	0.00	0.00	0.00	0.00	2075.0
155.00	13 ft Low Profile	1	19.11	32.30	17.020	1.000	0.000	0.0	0.0	549.86	0.00	0.00	0.00	0.00	2075.0
155.00	DB980H90	9	19.11	32.30	23.112	0.667	0.000	0.0	0.0	746.65	0.00	0.00	0.00	0.00	252.0
165.00	4 ft HP Dish	1	19.46	32.88	16.520	1.000	0.000	0.0	0.0	543.32	0.00	0.00	0.00	0.00	280.0
165.00	S20045A1 LNA	12	19.46	32.88	11.436	1.000	0.000	0.0	0.0	376.12	0.00	0.00	0.00	0.00	180.4
165.00	13 ft Low Profile	1	19.46	32.88	17.020	1.000	0.000	0.0	0.0	559.77	0.00	0.00	0.00	0.00	2075.0
165.00	RR65-19-00XP	12	19.46	32.88	82.200	1.000	0.000	0.0	0.0	2703.46	0.00	0.00	0.00	0.00	624.0
169.00	4 Omni Mount	1	19.62	33.17	26.000	1.000	0.000	1.0	0.0	862.43	0.00	0.00	0.00	862.43	2100.0
169.00	SRL-229	1	19.97	33.75	8.630	1.000	0.000	11.8	0.0	291.32	0.00	0.00	0.00	3423.02	71.0
169.00	PD455	1	19.98	33.77	6.860	1.000	0.000	12.0	0.0	231.66	0.00	0.00	0.00	2779.95	83.0
169.00	PD220	1	19.98	33.77	6.860	1.000	0.000	12.0	0.0	231.66	0.00	0.00	0.00	2779.95	83.0
169.00	ACP-305	1	19.97	33.75	8.630	1.000	0.000	11.8	0.0	291.32	0.00	0.00	0.00	3423.02	71.0
									17,641.4	0.00					18,548.0

Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height: 169.0 (ft)  
 Shape : 18 Sides  
 Base Dia : 62.93 (in)  
 Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
 Base Elev : 0.000 (ft)  
 Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc  
 3/21/2005 2:48:14 PM  
 Page: 12



**Load Case:** Ice      80 mph - With Ice - Ice Thickness = 0.5 in

24 Iterations

Gust Response Factor : 1.69      Effective Wind Speed : 69.28 (mph)  
 Dead Load Factor : 1.00  
 Wind Load Factor : 1.00

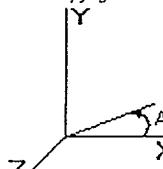
### Linear Appurtenance Forces

Seg Elev (ft)	Description	Exposed To Wind	Applied Length (ft)	Weight (lb/ft)	CaAa (sf/ft)	qz (psf)	Wind Force X (lb)	Wind Force Z (lb)	Weight (lb)
5.00	1 5/8" Coax	Yes	5.00	24.00	0.00	12.287	0.00	0.00	120.00
5.00	1 5/8" Coax	Yes	5.00	30.00	0.40	12.287	41.53	0.00	150.00
10.00	1 5/8" Coax	Yes	5.00	24.00	0.00	12.287	0.00	0.00	120.00
10.00	1 5/8" Coax	Yes	5.00	30.00	0.40	12.287	41.53	0.00	150.00
15.00	1 5/8" Coax	Yes	5.00	24.00	0.00	12.287	0.00	0.00	120.00
15.00	1 5/8" Coax	Yes	5.00	30.00	0.40	12.287	41.53	0.00	150.00
20.00	1 5/8" Coax	Yes	5.00	24.00	0.00	12.287	0.00	0.00	120.00
20.00	1 5/8" Coax	Yes	5.00	30.00	0.40	12.287	41.53	0.00	150.00
25.00	1 5/8" Coax	Yes	5.00	24.00	0.00	12.287	0.00	0.00	120.00
25.00	1 5/8" Coax	Yes	5.00	30.00	0.40	12.287	41.53	0.00	150.00
30.00	1 5/8" Coax	Yes	5.00	24.00	0.00	12.287	0.00	0.00	120.00
30.00	1 5/8" Coax	Yes	5.00	30.00	0.40	12.287	41.53	0.00	150.00
31.25	1 5/8" Coax	Yes	1.25	24.00	0.00	12.287	0.00	0.00	30.00
31.25	1 5/8" Coax	Yes	1.25	30.00	0.40	12.287	10.38	0.00	37.50
35.00	1 5/8" Coax	Yes	3.75	24.00	0.00	12.496	0.00	0.00	90.00
35.00	1 5/8" Coax	Yes	3.75	30.00	0.40	12.496	31.68	0.00	112.50
37.50	1 5/8" Coax	Yes	2.50	24.00	0.00	12.744	0.00	0.00	60.00
37.50	1 5/8" Coax	Yes	2.50	30.00	0.40	12.744	21.54	0.00	75.00
40.00	1 5/8" Coax	Yes	2.50	24.00	0.00	12.982	0.00	0.00	60.00
40.00	1 5/8" Coax	Yes	2.50	30.00	0.40	12.982	21.94	0.00	75.00
45.00	1 5/8" Coax	Yes	5.00	24.00	0.00	13.426	0.00	0.00	120.00
45.00	1 5/8" Coax	Yes	5.00	30.00	0.40	13.426	45.38	0.00	150.00
50.00	1 5/8" Coax	Yes	5.00	24.00	0.00	13.836	0.00	0.00	120.00
50.00	1 5/8" Coax	Yes	5.00	30.00	0.40	13.836	46.77	0.00	150.00
55.00	1 5/8" Coax	Yes	5.00	24.00	0.00	14.218	0.00	0.00	120.00
55.00	1 5/8" Coax	Yes	5.00	30.00	0.40	14.218	48.06	0.00	150.00
60.00	1 5/8" Coax	Yes	5.00	24.00	0.00	14.576	0.00	0.00	120.00
60.00	1 5/8" Coax	Yes	5.00	30.00	0.40	14.576	49.27	0.00	150.00
63.25	1 5/8" Coax	Yes	3.25	24.00	0.00	14.797	0.00	0.00	78.00
63.25	1 5/8" Coax	Yes	3.25	30.00	0.40	14.797	32.51	0.00	97.50
65.00	1 5/8" Coax	Yes	1.75	24.00	0.00	14.913	0.00	0.00	42.00
65.00	1 5/8" Coax	Yes	1.75	30.00	0.40	14.913	17.64	0.00	52.50
68.75	1 5/8" Coax	Yes	3.75	24.00	0.00	15.154	0.00	0.00	90.00
68.75	1 5/8" Coax	Yes	3.75	30.00	0.40	15.154	38.42	0.00	112.50
70.00	1 5/8" Coax	Yes	1.25	24.00	0.00	15.232	0.00	0.00	30.00
70.00	1 5/8" Coax	Yes	1.25	30.00	0.40	15.232	12.87	0.00	37.50
75.00	1 5/8" Coax	Yes	5.00	24.00	0.00	15.536	0.00	0.00	120.00
75.00	1 5/8" Coax	Yes	5.00	30.00	0.40	15.536	52.51	0.00	150.00
80.00	1 5/8" Coax	Yes	5.00	24.00	0.00	15.825	0.00	0.00	120.00
80.00	1 5/8" Coax	Yes	5.00	30.00	0.40	15.825	53.49	0.00	150.00
85.00	1 5/8" Coax	Yes	5.00	24.00	0.00	16.101	0.00	0.00	120.00
85.00	1 5/8" Coax	Yes	5.00	30.00	0.40	16.101	54.42	0.00	150.00
90.00	1 5/8" Coax	Yes	5.00	24.00	0.00	16.366	0.00	0.00	120.00
90.00	1 5/8" Coax	Yes	5.00	30.00	0.40	16.366	55.32	0.00	150.00
95.00	1 5/8" Coax	Yes	5.00	24.00	0.00	16.621	0.00	0.00	120.00
95.00	1 5/8" Coax	Yes	5.00	30.00	0.40	16.621	56.18	0.00	150.00
96.08	1 5/8" Coax	Yes	1.08	24.00	0.00	16.675	0.00	0.00	26.00
96.08	1 5/8" Coax	Yes	1.08	30.00	0.40	16.675	12.21	0.00	32.50
100.0	1 5/8" Coax	Yes	3.92	24.00	0.00	16.866	0.00	0.00	94.00
100.0	1 5/8" Coax	Yes	3.92	30.00	0.40	16.866	44.66	0.00	117.50
100.7	1 5/8" Coax	Yes	0.75	24.00	0.00	16.902	0.00	0.00	18.00

Pole : CT11417C  
Location: Plymouth - Rt. 6, Plymouth, CT  
Height : 169.0 (ft)  
Shape : 18 Sides  
Base Dia : 62.93 (in)  
Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
Base Elev: 0.000 (ft)  
Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc  
3/21/2005 2:48:14 PM  
Page: 13



Load Case: Ice

80 mph - With Ice - Ice Thickness = 0.5 in

24 Iterations

Gust Response Factor : 1.69

Effective Wind Speed : 69.28 (mph)

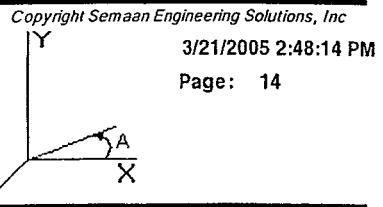
Dead Load Factor : 1.00

Wind Load Factor : 1.00

100.7	1 5/8" Coax	Yes	0.75	30.00	0.40	16.902	8.57	0.00	22.50
105.0	1 5/8" Coax	Yes	4.25	24.00	0.00	17.103	0.00	0.00	102.00
105.0	1 5/8" Coax	Yes	4.25	30.00	0.40	17.103	49.14	0.00	127.50
110.0	1 5/8" Coax	Yes	5.00	24.00	0.00	17.332	0.00	0.00	120.00
110.0	1 5/8" Coax	Yes	5.00	30.00	0.40	17.332	58.58	0.00	150.00
115.0	1 5/8" Coax	Yes	5.00	24.00	0.00	17.554	0.00	0.00	120.00
115.0	1 5/8" Coax	Yes	5.00	30.00	0.40	17.554	59.33	0.00	150.00
120.0	1 5/8" Coax	Yes	5.00	30.00	0.40	17.768	60.06	0.00	150.00
125.0	1 5/8" Coax	Yes	5.00	30.00	0.40	17.977	60.76	0.00	150.00
Totals:							1,250.85	0.00	6,510.0

Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height : 169.0 (ft)  
 Shape : 18 Sides  
 Base Dia : 62.93 (in)  
 Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
 Base Elev : 0.000 (ft)  
 Top Dia : 24.85 (in)



### Load Case: Ice

80 mph - With Ice - Ice Thickness = 0.5 in

24 Iterations

Gust Response Factor : 1.69

Effective Wind Speed : 69.28 (mph)

Dead Load Factor : 1.00

Wind Load Factor : 1.00

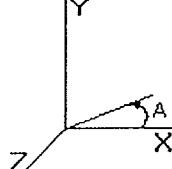
### Applied Forces Summary

Seg Elev (ft)	X Coord (ft)	Z Coord (ft)	Lateral FX (-) (lb)	Axial FY (-) (lb)	Lateral FZ (lb)	Moment MX (lb-ft)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.00	0.00	0.00	397.67	1,716.44	0.00	0.00	0.00	0.00
10.00	0.00	0.00	390.77	1,687.82	0.00	0.00	0.00	0.00
15.00	0.00	0.00	383.87	1,659.20	0.00	0.00	0.00	0.00
20.00	0.00	0.00	376.97	1,630.57	0.00	0.00	0.00	0.00
25.00	0.00	0.00	370.07	1,601.95	0.00	0.00	0.00	0.00
30.00	0.00	0.00	363.18	1,573.33	0.00	0.00	0.00	0.00
31.25	0.00	0.00	89.72	389.21	0.00	0.00	0.00	0.00
35.00	0.00	0.00	274.30	1,996.09	0.00	0.00	0.00	0.00
37.50	0.00	0.00	184.27	1,314.25	0.00	0.00	0.00	0.00
40.00	0.00	0.00	185.88	763.69	0.00	0.00	0.00	0.00
45.00	0.00	0.00	378.82	1,504.96	0.00	0.00	0.00	0.00
50.00	0.00	0.00	382.63	1,476.34	0.00	0.00	0.00	0.00
55.00	0.00	0.00	385.21	1,447.72	0.00	0.00	0.00	0.00
60.00	0.00	0.00	386.73	1,419.10	0.00	0.00	0.00	0.00
63.25	0.00	0.00	250.74	907.49	0.00	0.00	0.00	0.00
65.00	0.00	0.00	136.40	827.20	0.00	0.00	0.00	0.00
68.75	0.00	0.00	293.49	1,749.96	0.00	0.00	0.00	0.00
70.00	0.00	0.00	97.27	342.51	0.00	0.00	0.00	0.00
75.00	0.00	0.00	391.36	1,350.73	0.00	0.00	0.00	0.00
80.00	0.00	0.00	734.94	1,489.11	0.00	0.00	0.00	2,093.75
85.00	0.00	0.00	387.53	1,293.48	0.00	0.00	0.00	0.00
90.00	0.00	0.00	384.72	1,264.86	0.00	0.00	0.00	0.00
95.00	0.00	0.00	381.38	1,236.24	0.00	0.00	0.00	0.00
96.08	0.00	0.00	81.67	264.40	0.00	0.00	0.00	0.00
100.00	0.00	0.00	299.47	1,592.26	0.00	0.00	0.00	0.00
100.75	0.00	0.00	56.80	301.34	0.00	0.00	0.00	0.00
105.00	0.00	0.00	321.63	1,015.44	0.00	0.00	0.00	0.00
110.00	0.00	0.00	374.45	1,167.87	0.00	0.00	0.00	0.00
115.00	0.00	0.00	2,799.82	3,983.13	0.00	0.00	0.00	0.00
120.00	0.00	0.00	363.92	990.63	0.00	0.00	0.00	0.00
125.00	0.00	0.00	3,633.69	3,786.91	0.00	0.00	0.00	214.95
129.75	0.00	0.00	276.05	744.98	0.00	0.00	0.00	0.00
130.00	0.00	0.00	14.54	67.06	0.00	0.00	0.00	0.00
133.58	0.00	0.00	207.23	946.74	0.00	0.00	0.00	0.00
135.00	0.00	0.00	2,792.54	2,644.69	0.00	0.00	0.00	0.00
140.00	0.00	0.00	281.16	634.77	0.00	0.00	0.00	0.00
145.00	0.00	0.00	1,764.33	2,968.18	0.00	0.00	0.00	0.00
150.00	0.00	0.00	265.50	585.80	0.00	0.00	0.00	0.00
155.00	0.00	0.00	1,553.78	2,888.32	0.00	0.00	0.00	0.00
160.00	0.00	0.00	248.78	536.83	0.00	0.00	0.00	0.00
164.33	0.00	0.00	208.43	445.67	0.00	0.00	0.00	0.00
165.00	0.00	0.00	4,214.64	3,272.88	0.00	0.00	0.00	0.00
167.25	0.00	0.00	106.88	377.49	0.00	0.00	0.00	0.00
169.00	0.00	0.00	1,990.23	2,552.66	0.00	0.00	0.00	13,268.38
Totals:		29,463.42	62,410.31	0.00	0.00	0.00	0.00	15,577.08

Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height : 169.0 (ft)  
 Shape : 18 Sides  
 Base Dia : 62.93 (in)  
 Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
 Base Elev : 0.000 (ft)  
 Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc  
 3/21/2005 2:48:14 PM  
 Page: 15



### Load Case: Ice

80 mph - With Ice - Ice Thickness = 0.5 in

24 Iterations

Gust Response Factor : 1.69

Effective Wind Speed : 69.28 (mph)

Dead Load Factor : 1.00

Wind Load Factor : 1.00

### Calculated Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	29.540	62.374	0.000	0.000	0.000	3,661.968	0.000	0.000	0.000	0.000
5.00	29.288	60.586	0.000	0.000	0.000	3,514.271	-0.075	0.000	0.075	-0.139
10.00	29.038	58.828	0.000	0.000	0.000	3,367.833	-0.296	0.000	0.296	-0.280
15.00	28.788	57.099	0.000	0.000	0.000	3,222.649	-0.666	0.000	0.666	-0.423
20.00	28.539	55.398	0.000	0.000	0.000	3,078.713	-1.188	0.000	1.188	-0.569
25.00	28.292	53.727	0.000	0.000	0.000	2,936.020	-1.864	0.000	1.864	-0.718
30.00	27.993	52.113	0.000	0.000	0.000	2,794.565	-2.697	0.000	2.697	-0.868
31.25	27.967	51.687	0.000	0.000	0.000	2,759.576	-2.930	0.000	2.930	-0.908
35.00	27.744	49.649	0.000	0.000	0.000	2,654.702	-3.690	0.000	3.690	-1.024
37.50	27.602	48.300	0.000	0.000	0.000	2,585.345	-4.247	0.000	4.247	-1.102
40.00	27.497	47.485	0.000	0.000	0.000	2,516.343	-4.846	0.000	4.846	-1.182
45.00	27.207	45.916	0.000	0.000	0.000	2,378.863	-6.165	0.000	6.165	-1.333
50.00	26.907	44.378	0.000	0.000	0.000	2,242.833	-7.644	0.000	7.644	-1.486
55.00	26.599	42.869	0.000	0.000	0.000	2,108.300	-9.284	0.000	9.284	-1.641
60.00	26.264	41.403	0.000	0.000	0.000	1,975.309	-11.086	0.000	11.086	-1.797
63.25	26.040	40.468	0.000	0.000	0.000	1,889.954	-12.346	0.000	12.346	-1.901
65.00	25.937	39.606	0.000	0.000	0.000	1,844.386	-13.053	0.000	13.053	-1.957
68.75	25.635	37.831	0.000	0.000	0.000	1,747.124	-14.639	0.000	14.639	-2.077
70.00	25.589	37.449	0.000	0.000	0.000	1,715.081	-15.188	0.000	15.188	-2.118
75.00	25.241	36.048	0.000	0.000	0.000	1,587.140	-17.488	0.000	17.488	-2.269
80.00	24.537	34.526	0.000	0.000	0.000	1,458.843	-19.946	0.000	19.946	-2.421
85.00	24.181	33.187	0.000	0.000	0.000	1,336.160	-22.562	0.000	22.562	-2.571
90.00	23.821	31.880	0.000	0.000	0.000	1,215.260	-25.335	0.000	25.335	-2.721
95.00	23.427	30.627	0.000	0.000	0.000	1,096.159	-28.264	0.000	28.264	-2.869
96.08	23.372	30.337	0.000	0.000	0.000	1,070.780	-28.919	0.000	28.919	-2.902
100.00	23.024	28.735	0.000	0.000	0.000	979.243	-31.347	0.000	31.347	-3.016
100.75	22.988	28.408	0.000	0.000	0.000	961.975	-31.823	0.000	31.823	-3.038
105.00	22.671	27.362	0.000	0.000	0.000	864.280	-34.582	0.000	34.582	-3.159
110.00	22.289	26.169	0.000	0.000	0.000	750.926	-37.959	0.000	37.959	-3.287
115.00	19.307	22.316	0.000	0.000	0.000	639.485	-41.466	0.000	41.466	-3.408
120.00	18.925	21.313	0.000	0.000	0.000	542.953	-45.096	0.000	45.096	-3.523
125.00	15.092	17.735	0.000	0.000	0.000	448.117	-48.842	0.000	48.842	-3.628
129.75	14.783	16.996	0.000	0.000	0.000	376.430	-52.498	0.000	52.498	-3.722
130.00	14.775	16.921	0.000	0.000	0.000	372.735	-52.693	0.000	52.693	-3.726
133.58	14.519	15.979	0.000	0.000	0.000	319.792	-55.514	0.000	55.514	-3.792
135.00	11.571	13.513	0.000	0.000	0.000	299.224	-56.642	0.000	56.642	-3.817
140.00	11.267	12.882	0.000	0.000	0.000	241.372	-60.687	0.000	60.687	-3.908
145.00	9.315	10.031	0.000	0.000	0.000	185.040	-64.822	0.000	64.822	-3.988
150.00	9.019	9.455	0.000	0.000	0.000	138.466	-69.033	0.000	69.033	-4.056
155.00	7.269	6.679	0.000	0.000	0.000	93.370	-73.309	0.000	73.309	-4.112
160.00	6.986	6.157	0.000	0.000	0.000	57.024	-77.636	0.000	77.636	-4.153
164.33	6.747	5.727	0.000	0.000	0.000	26.752	-81.414	0.000	81.414	-4.176
165.00	2.305	2.769	0.000	0.000	0.000	22.254	-81.997	0.000	81.997	-4.178
167.25	2.171	2.401	0.000	0.000	0.000	17.068	-83.966	0.000	83.966	-4.185
169.00	1.990	0.000	0.000	0.000	0.000	13.268	-85.499	0.000	85.499	-4.189

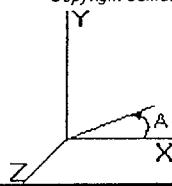
Pole : CT11417C  
Location: Plymouth - Rt. 6, Plymouth, CT  
Height : 169.0 (ft)  
Shape : 18 Sides  
Base Dia : 62.93 (in)  
Taper : 0.245310 (in/ft)

T-Mobile USA-WA

Copyright Semaan Engineering Solutions, Inc.

3/21/2005 2:48:14 PM

Page: 16



### Load Case: Ice

80 mph - With Ice - Ice Thickness = 0.5 in

24 Iterations

**Gust Response Factor : 1.69**

**Effective Wind Speed : 69.28 (mph)**

**Dead Load Factor : 1.00**

Wind Load Factor : 1.00

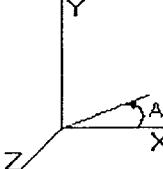
### **Calculated Stresses**

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Stress Ratio
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)		
0.00	0.838	0.800	0.000	0.000	0.000	38.133	38.996	49.1	0.794
5.00	0.830	0.809	0.000	0.000	0.000	38.078	38.933	49.6	0.785
10.00	0.822	0.818	0.000	0.000	0.000	38.001	38.849	50.1	0.776
15.00	0.815	0.828	0.000	0.000	0.000	37.898	38.739	50.6	0.766
20.00	0.807	0.838	0.000	0.000	0.000	37.767	38.602	51.1	0.756
25.00	0.800	0.849	0.000	0.000	0.000	37.605	38.433	51.6	0.745
30.00	0.793	0.859	0.000	0.000	0.000	37.407	38.229	52.0	0.736
31.25	0.791	0.863	0.000	0.000	0.000	37.354	38.174	52.0	0.734
35.00	0.773	0.870	0.000	0.000	0.000	37.174	37.976	52.0	0.731
37.50	0.750	0.864	0.000	0.000	0.000	36.019	36.799	52.0	0.708
40.00	0.746	0.870	0.000	0.000	0.000	35.869	36.646	52.0	0.705
45.00	0.738	0.881	0.000	0.000	0.000	35.525	36.295	52.0	0.698
50.00	0.730	0.893	0.000	0.000	0.000	35.128	35.892	52.0	0.691
55.00	0.723	0.904	0.000	0.000	0.000	34.674	35.431	52.0	0.682
60.00	0.716	0.915	0.000	0.000	0.000	34.153	34.905	52.0	0.672
63.25	0.711	0.923	0.000	0.000	0.000	33.781	34.530	52.0	0.664
65.00	0.703	0.927	0.000	0.000	0.000	33.569	34.309	52.0	0.660
68.75	0.673	0.920	0.000	0.000	0.000	32.029	32.742	52.0	0.630
70.00	0.671	0.924	0.000	0.000	0.000	31.856	32.566	52.0	0.627
75.00	0.663	0.936	0.000	0.000	0.000	31.091	31.796	52.0	0.612
80.00	0.653	0.935	0.000	0.000	0.000	30.184	30.879	52.0	0.594
85.00	0.645	0.948	0.000	0.000	0.000	29.244	29.935	52.0	0.576
90.00	0.638	0.961	0.000	0.000	0.000	28.182	28.868	52.0	0.555
95.00	0.631	0.973	0.000	0.000	0.000	26.980	27.663	52.0	0.532
96.08	0.629	0.977	0.000	0.000	0.000	26.704	27.386	52.0	0.527
100.00	0.611	0.986	0.000	0.000	0.000	25.629	26.295	52.0	0.506
100.75	0.595	0.971	0.000	0.000	0.000	24.468	25.119	52.0	0.483
105.00	0.589	0.983	0.000	0.000	0.000	23.178	23.828	52.0	0.458
110.00	0.581	0.998	0.000	0.000	0.000	21.472	22.121	52.0	0.426
115.00	0.512	0.893	0.000	0.000	0.000	19.538	20.110	52.0	0.387
120.00	0.506	0.906	0.000	0.000	0.000	17.765	18.338	52.0	0.353
125.00	0.436	0.748	0.000	0.000	0.000	15.740	16.228	52.0	0.312
129.75	0.433	0.759	0.000	0.000	0.000	14.178	14.670	52.0	0.282
130.00	0.432	0.760	0.000	0.000	0.000	14.092	14.583	52.0	0.281
133.58	0.492	0.901	0.000	0.000	0.000	14.652	15.224	52.0	0.293
135.00	0.421	0.726	0.000	0.000	0.000	14.007	14.482	52.0	0.279
140.00	0.417	0.735	0.000	0.000	0.000	12.210	12.691	52.0	0.244
145.00	0.338	0.632	0.000	0.000	0.000	10.148	10.543	52.0	0.203
150.00	0.332	0.638	0.000	0.000	0.000	8.260	8.663	52.0	0.167
155.00	0.245	0.538	0.000	0.000	0.000	6.081	6.394	52.0	0.123
160.00	0.236	0.541	0.000	0.000	0.000	4.071	4.408	52.0	0.085
164.33	0.229	0.544	0.000	0.000	0.000	2.076	2.490	52.0	0.048
165.00	0.112	0.187	0.000	0.000	0.000	1.749	1.889	52.0	0.036
167.25	0.121	0.220	0.000	0.000	0.000	1.672	1.833	52.0	0.035
169.00	0.000	0.205	0.000	0.000	0.000	1.345	1.392	52.0	0.027

Pole : CT11417C  
 Location: Plymouth - Rt. 6, Plymouth, CT  
 Height: 169.0 (ft)  
 Shape: 18 Sides  
 Base Dia: 62.93 (in)  
 Taper : 0.245310 (in/ft)

T-Mobile USA-WA  
 Base Elev: 0.000 (ft)  
 Top Dia : 24.85 (in)

Copyright Semaan Engineering Solutions, Inc  
 3/21/2005 2:48:15 PM  
 Page: 17



Load Case: No Ice 80 mph - No Ice

24 Iterations

Gust Response Factor : 1.69 Effective Wind Speed : 80.00 (mph)  
 Dead Load Factor : 1.00  
 Wind Load Factor : 1.00

### Analysis Summary

Load Case	Reactions						Max Stresses			
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
No Ice	35.669	0.000	47.921	0.000	0.000	4,307.413	45.529	49.1	0.000	0.927
Ice	29.540	0.000	62.374	0.000	0.000	3,661.968	38.996	49.1	0.000	0.794