

# 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)

May 17, 2005

Kenneth C. Baldwin, Esq.  
Robinson & Cole  
280 Trumbull Street  
Hartford, CT 06103-3597

RE: **EM-VER-152-050413** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at Rock Ridge Road (a/k/a 41 Manitek Hill Road), Waterford, Connecticut.

Dear Attorney Baldwin:

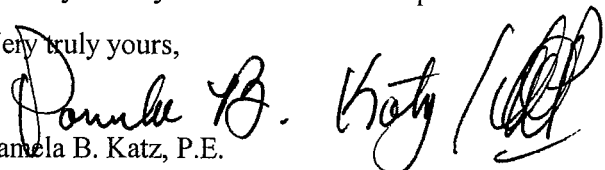
At a public meeting held on May 11, 2005, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated April 13, 2005 and additional information received May 6, 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. 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 Paul B. Eccard, First Selectman, Town of Waterford  
Thomas V. Wagner, Planning Director, Town of Waterford  
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels, LLP  
Thomas F. Flynn III, Nextel Communications Inc.  
Stephen J. Humes, Esq., McCarter & English LLP  
Christopher B. Fisher, Esq., Cuddy & Feder LLP

ROBINSON & COLE  
**RECEIVED**  
MAY - 2 2005  
CONNECTICUT  
SITING COUNCIL

KENNETH C. BALDWIN

280 Trumbull Street  
Hartford, CT 06103-3597  
Main (860) 275-8200  
Fax (860) 275-8299  
kbaldwin@rc.com  
Direct (860) 275-8345

April 29, 2005

S. Derek Phelps  
Executive Director  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

Re: **EM-VER-152-050413 – Verizon Wireless  
Waterford, Connecticut**

Dear Mr. Phelps:

I write with respect to the above-referenced Verizon Wireless filing - a proposal to co-locate antennas on the existing tower and install an equipment shelter near the base of the tower.

Yesterday, I received a call from Tom Wagner, Planning Director for the Town of Waterford. He received a copy of our proposal and requested that Verizon Wireless provide him with a more detailed grading plan for the area around our proposed equipment building. Verizon Wireless agreed to have its engineers prepare such a plan and are in the process of doing so. I am concerned that the work may not be completed prior to the Council's May 11, 2005 meeting and as such, the Council may be inclined to table our request until the plan is done.

For this reason, I am writing to request that, if the grading plan is not completed prior to the Council's meeting of May 11<sup>th</sup>, that the Council acknowledge the exempt modification filing and impose a condition on Verizon Wireless that the grading plan be completed and submitted to Mr. Wagner prior to Verizon Wireless applying for a building permit to construct its facility. If the grading plan is completed prior to May 11<sup>th</sup>, thereby negating any need for this condition, I will contact you.



*Law Offices*

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# ROBINSON & COLE<sup>LLP</sup>

S. Derek Phelps  
April 29, 2005  
Page 2

Thank you in advance for your cooperation and assistance.

Sincerely,



Kenneth C. Baldwin

KCB/kmd

cc: Thomas V. Wagner  
Sandy M. Carter





# 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)

April 15, 2005

The Honorable Paul B. Eccard  
First Selectman  
Town of Waterford  
15 Rope Ferry Road  
Waterford, CT 06385

RE: **EM-VER-152-050413** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at Rock Ridge Road (a/k/a 41 Manitok Hill Road), Waterford, Connecticut.

Dear Mr. Eccard:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for Wednesday, May 11, 2005 at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding this proposal, please call me or inform the council by Tuesday, May 10, 2005.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps  
Executive Director

SDP/laf

Enclosure: Notice of Intent

c: Thomas V. Wagner, Planning Director, Town of Waterford

280 Trumbull Street  
Hartford, CT 06103-3597  
Main (860) 275-8200  
Fax (860) 275-8299  
kbaldwin@rc.com  
Direct (860) 275-8345

EM-VER-152-050413

April 13, 2005

*Via Hand Delivery*

S. Derek Phelps  
Executive Director  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

RECEIVED  
APR 13 2005

CONNECTICUT  
SITING COUNCIL

Re: **Notice of Exempt Modification  
Rock Ridge Road (aka 41 Manito Hill Road)  
Waterford, Connecticut**

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") intends to install antennas on the existing 137-foot monopole tower owned by Sprint Sites USA at Rock Ridge Road in Waterford, Connecticut. Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Waterford First Selectman, Paul B. Eccard.

The facility consists of a 137-foot self-supporting lattice tower capable of supporting multiple carriers within a fenced compound. The tower is currently shared by Sprint at the 137-foot level; Nextel at the 127-foot level; T-Mobile at the 117-foot level and AT&T at the 97-foot level of the tower. Cellco proposes to install twelve (12) panel-type antennas at the 107-foot level on the tower and a 12' x 30' single-story equipment shelter near the base of the tower. To accommodate the proposed Cellco equipment shelter the existing fenced compound will need to be expanded slightly. All improvements, however, will remain within the limits of the existing lease area. (See Tab 1- Project Plans).

The planned modifications to the Waterford facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).



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# ROBINSON & COLE<sup>LLP</sup>

S. Derek Phelps  
April 13, 2005  
Page 2

1. The proposed modification will not increase the overall height of the existing tower. Cellco's antennas will be mounted with their centerline at the 107-foot level on the 137-foot tower.
2. The proposed modification will not require an extension of the site boundary. The installation of a 12' x 30' equipment shelter will require a minor extension of the fenced compound, but all improvements will remain within the limits of the existing lease area.
3. The proposed antenna modification will not increase the noise levels at the facility by six decibels or more.
4. The operation of the antennas will not increase radio frequency (RF) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. The cumulative worst-case RF power density calculations for all existing and the proposed Cellco antennas would be 24.78% of the FCC standard. A copy of the cumulative power density calculations table is attached behind Tab2.

Also attached, behind Tab 3, is a structural analysis confirming that the tower can support the existing and proposed antennas and associated equipment.

For the foregoing reasons, Cellco respectfully submits that the proposed antenna installation at the Waterford facility tower constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,



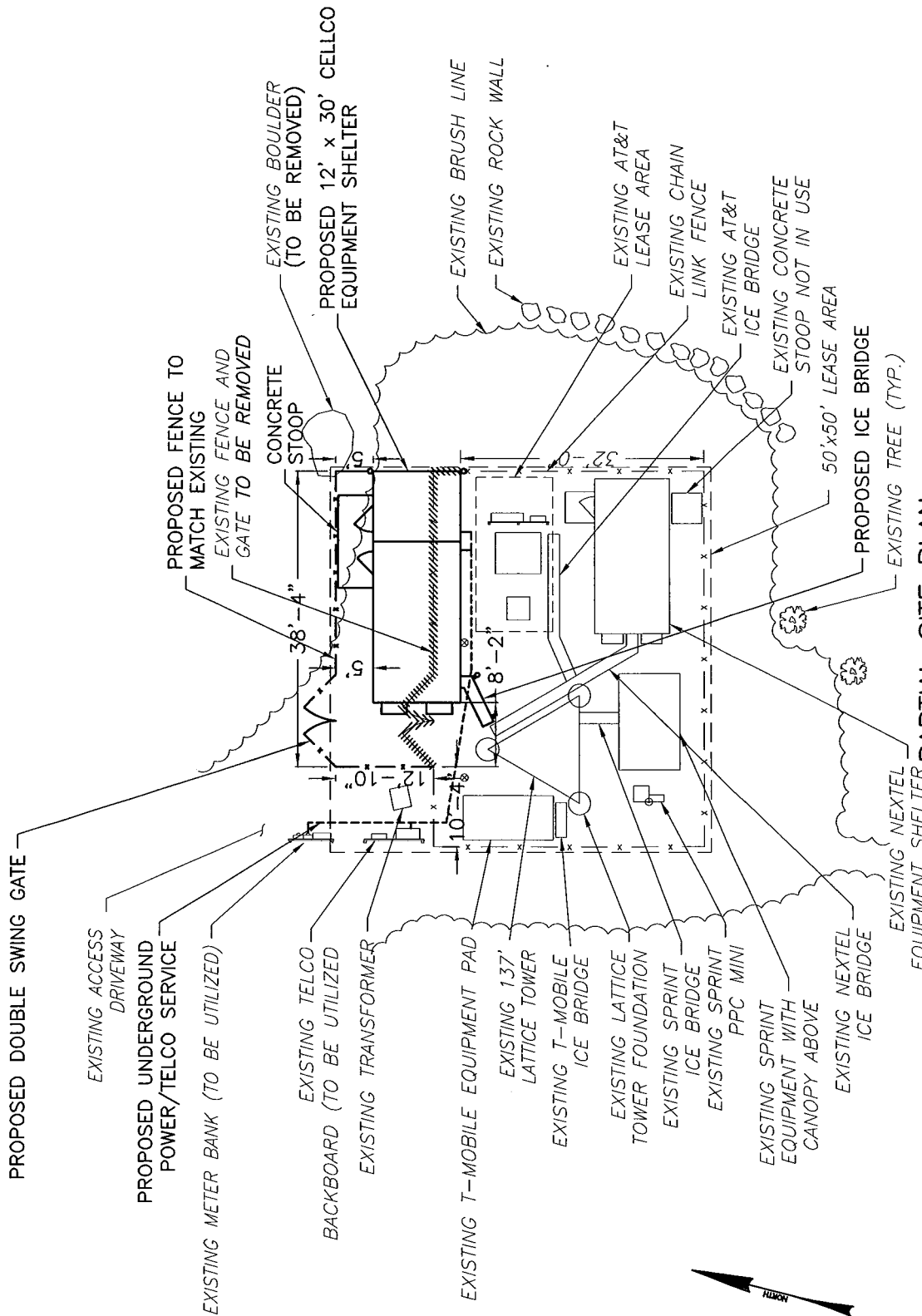
Kenneth C. Baldwin

#### Attachments

cc: Paul B. Eccard, First Selectman  
Sandy M. Carter

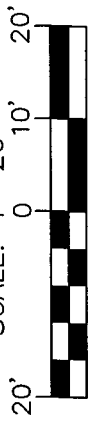






**PARTIAL SITE PLAN**

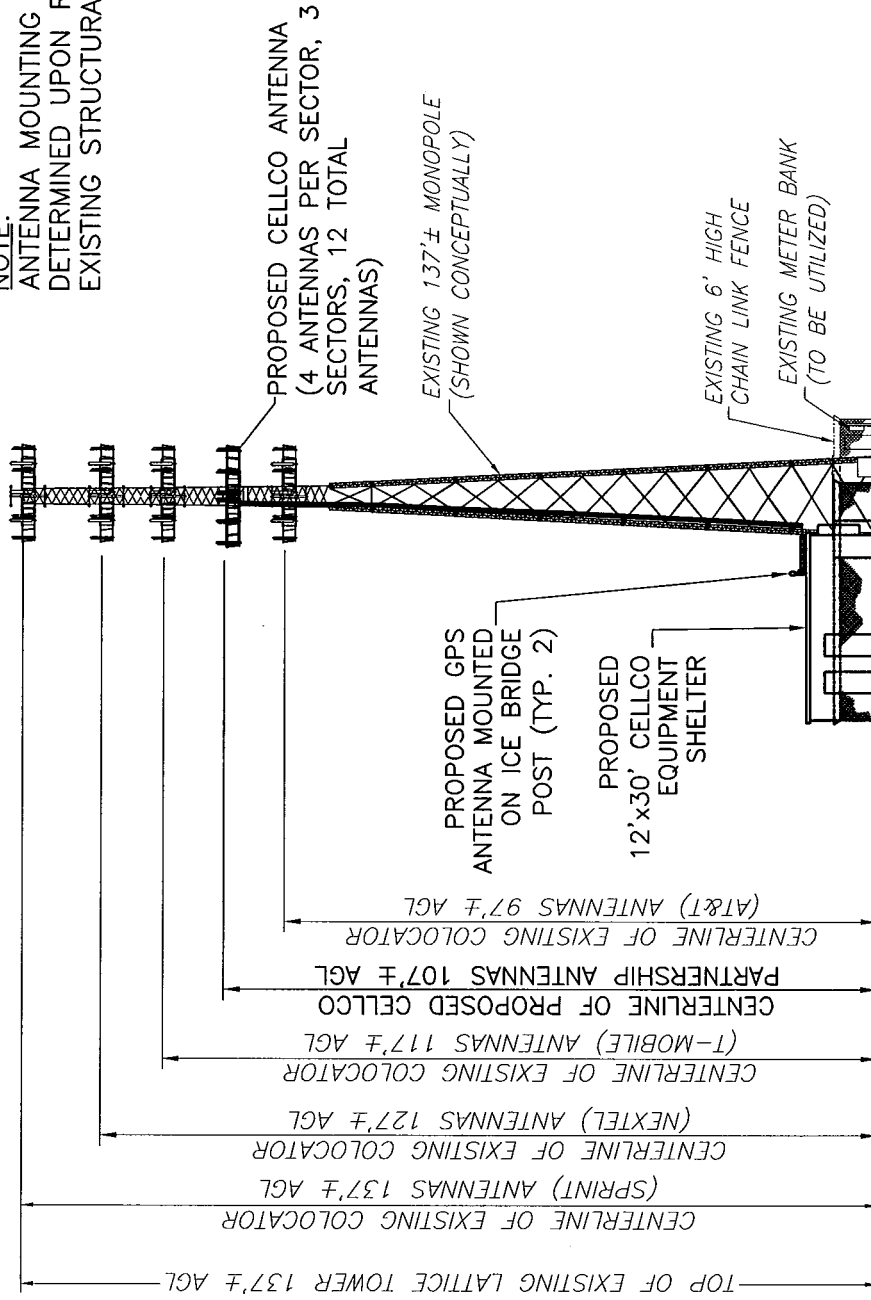
SCALE: 1" = 20'



Cellco Partnership d.b.a. <b>verizon wireless</b>		SHEET NO. <b>S-1</b>	
<b>PARTIAL SITE PLAN</b>		PROJECT: 1997001223 LOCATION CODE: 117854	
SITE NAME: <b>WATERFORD, 2          41 ROCK RIDGE ROAD          WATERFORD, CONNECTICUT 06385</b>		PROJECT: 1997001223 LOCATION CODE: 117854	
SCALE: <b>AS SHOWN</b>	DESIGNED BY: <b>CKD</b>	DATE: <b>03/14/05</b>	
<b>Dewberry-Goodkind, Inc.</b> A Dewberry Company Engineers Planners Surveyors			
59 Elm Street, Suite 101 New Haven, CT 06510 P: (203) 776-2277 F: (203) 776-2288			
NO. <b>A</b>	DATE <b>03/14/05</b>	BY <b>JRF</b>	DESCRIPTION <b>PRELIMINARY SITING COUNCIL</b>



NOTE:  
 ANTENNA MOUNTING DETAILS TO BE  
 DETERMINED UPON REVIEW OF  
 EXISTING STRUCTURAL ELEMENTS



Cellco Partnership d.b.a. <b>verizon wireless</b>		MONOPOLE ELEVATION		PROJECT: 1997001223 LOCATION CODE: 117854		SHEET NO. S-2	
Dewberry-Goodkind, Inc. A Dewberry Company 59 Elm Street, Suite 101 New Haven, CT 06510 P. (203) 776-2577 F. (203) 776-2288		SCALE: AS SHOWN DESIGNED BY: CKD DATE: 03/14/05		SITE NAME: WATERFORD 2 41 ROCK RIDGE ROAD WATERFORD, CONNECTICUT 06385		PROJECT: 1997001223 LOCATION CODE: 117854	
PRELIMINARY SITING COUNCIL		JRF		03/14/05		BY DESCRIPTION	
NO.		DATE		BY		DESCRIPTION	

General Power Density

Site Name: Waterford 2, CT  
 Cumulative Power Density

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm <sup>2</sup> )	Maximum Permissible Exposure (mW/cm <sup>2</sup> )	Fraction of MPE (%)
VZW	875	9	200	1800	107	0.0565	0.583	9.70%
VZW PCS	1970	3	285	855	107	0.0269	1.0	2.69%
AT&T	2000	4	200	800	97	0.0306	1.0	3.06%
Voicestream	1890	6	205	1230	117	0.0323	1.0	3.23%
Sprint PCS	1950	11	122	1342	137	0.0257	1.0	2.57%
Nextel	851	9	100	900	127	0.0201	0.567	3.54%

**Total Percentage of Maximum Permissible Exposure**

24.78%

\*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz

mW/cm<sup>2</sup> = milliwatts per square centimeter

ERP = Effective Radiated Power

1047 N. 204<sup>th</sup> Avenue  
Elkhorn, NE 68022  
Ph: 402-289-1888  
Fax: 402-289-1861

**SEMAAN ENGINEERING SOLUTIONS**

**136 ft PIROD U-14 Tower  
Structural Analysis**

**Prepared for:  
Sprint Sites USA  
6120 Power Ferry Rd., 2nd Floor  
MAILSTOP: GAATLV0204-2078  
Atlanta, GA 30339-2923**

**Site: CT03XC105  
Waterford, CT**

**June 21, 2004**

Mr. Gil McLemore  
Sprint Sites USA  
6120 Power Ferry Rd., 2nd Floor  
MAILSTOP: GAATLV0204-2078  
Atlanta, GA 30339-2923

**Re: Site Number CT03XC105 – Waterford, CT.**

Dear Mr. McLemore:

We have completed the structural analysis for the existing tower, located at the above referenced site. The purpose of this analysis is to determine that the existing tower 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 136 ft PIROD U-14 tower.

Refer to PIROD drawing 204676-B dated February 25, 1999 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 85 mph with 1/2" radial ice**. 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
136.0	12	Algon 7184.05 Mounted On (3) Sector Mounts	(12) 1 5/8	Sprint
127.0	12	ALP 9212 Mounted On (3) Sector Mounts	(12) 1 5/8	Nextel
<b>117.0</b>	<b>9</b>	<b>RR90-17-02DP Mounted On (3) Sector Mounts</b>	<b>(18) 1 5/8</b>	<b>T-Mobile</b>
107.0	12	DB844H90 Mounted On (3) Sector Mounts	(12) 1 5/8	Verizon
97.0	6	Algon 7250 Mounted On (3) Sector Mounts	(12) 1 1/4	AT&T

All transmission lines shall be distributed over 3 leg-mounted tower brackets, with no more than (9) lines exposed to the wind on any one bracket.

**Results of Analysis:**

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

**Structure:**

The existing tower is structurally capable of supporting the existing and proposed antennas.

The maximum structure usage is: 89.0%.

**Foundation:**

Leg Forces	Original Design Reactions	Current Analysis Reactions	% Of Design
Uplift (Kips)	254.50	228.10	89.6
Axial (Kips)	281.90	260.53	92.4

The structure base reactions resulting from this analysis do not exceed the ones shown on the original structure drawings.

**Review and Recommendations:**

Based on the analysis results, the existing structure meets the requirements per the EIA/TIA-222-F standards for 85 mph with 1/2" radial ice.

**SEMAAN ENGINEERING SOLUTIONS**

1047 N.204th Avenue  
Elkhorn, NE 68022

Copyright Semaan Engineering Solutions, Inc

Wind: 85 mph no ice  
74 mph w/ 1/2" radial ice

135.00  
Sect 8  
130.00

Sect 7

110.00

Sect 6

90.00

Sect 5

80.00

Sect 4

60.00

Sect 3

40.00

Sect 2

20.00

Sect 1

Uplift 228.10 k  
Vert 260.53 k  
Horiz 24.87 k

Tower : CT03XC105 Location : Waterford, CT  
Manufact: PIROD Shape : Triangle  
Client : Sprint Sites USA - GA Base Width : 14.00 ft  
Top Width : 4.00 ft

**Job Information**

**Sections Properties**

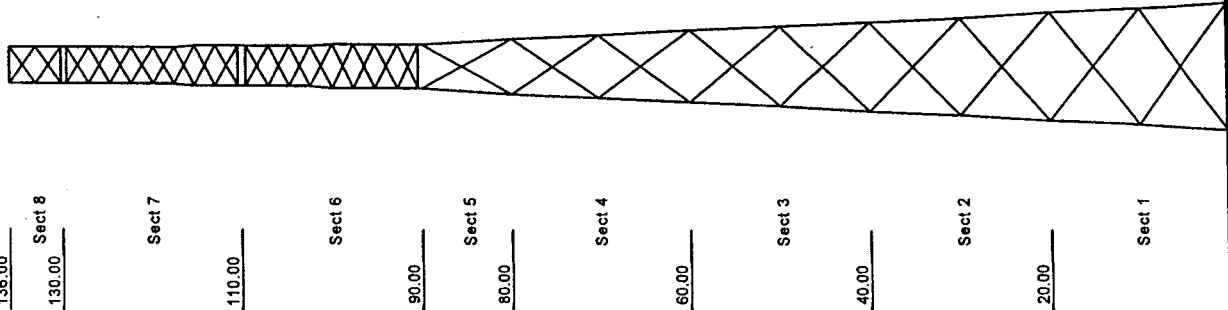
Section	Leg Members	Diagonal Members	Horizontal Members
1	12B 60ksi 12"BD 2"	SAE 38ksi 3X30.3126	
2-3	12B 60ksi 12"BD 1.75"	SAE 38ksi 3X30.1875	
4	12B 60ksi 12"BD 1.5"	SAE 38ksi 2.5X2.5X0.1875	
5	12B 60ksi 12"BD 1.25"	SAE 38ksi 1" SOLID	SOL 60ksi 7/8" SOLID
6	SOL 60ksi 2 1/4" SOLID	SOL 60ksi 7/8" SOLID	SOL 60ksi 7/8" SOLID
7	SOL 60ksi 2" SOLID	SOL 60ksi 3/4" SOLID	SOL 60ksi 7/8" SOLID
8	SOL 60ksi 1 1/2" SOLID		

**Discrete Appurtenance**

Elev (ft)	Type	Qty	Description	Disp (ft)	Rot (deg)
136.00	Mounting Frame	3	Sector Mounts		
136.00	Panel	12	Alligon 7164.06		
127.00	Mounting Frame	3	Sector Mounts		
127.00	Panel	12	ALP 3212		
117.00	Mounting Frame	3	Sector Mounts		
117.00	Panel	9	RR90-17-02DP		
107.00	Mounting Frame	3	Sector Mounts		
107.00	Panel	12	DB544H90		
97.00	Mounting Frame	3	Sector Mounts		
97.00	Panel	6	Alligon 7250		

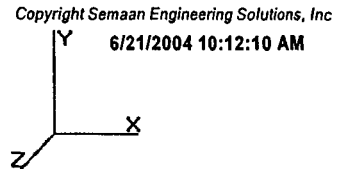
**Linear Appurtenance**

Elev (ft)	From	To	Qty	Description
0.000	136.00	12	1 5/8" Coax	
0.000	127.00	12	1 5/8" Coax	
0.000	117.00	18	1 5/8" Coax	
0.000	107.00	12	1 5/8" Coax	
0.000	97.000	12	1 1/4" Coax	



**SEMAAN ENGINEERING SOLUTIONS**  
 1047 N.204th Avenue  
 Elkhorn, NE 68022  
 Phone: 402-289-1888  
 Fax: 402-289-1861

Site Number: CT03XC105  
 Location: Waterford, CT



Gh : 1.14

**Section Forces**

**LoadCase Normal No Ice**

85.00 mph Wind Normal To Face with No Ice

Allow Stress Inc: 1.333  
 Dead LF: 1.000  
 Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz	Total	Total	Ice	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Ice Weight (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face			
			Flat Area (sqft)	Round Area (sqft)	Round Area (sqft)																	
8	133.0	27.54	0.00	3.32	0.00	0.14	2.82	1.00	1.00	0.58	1.92	8.91	0.00	321.3	0.0	170.06	335.77	505.82	1			
7	120.0	26.75	0.00	12.97	0.00	0.15	2.76	1.00	1.00	0.58	7.55	65.34	0.00	1,764.6	0.0	635.54	2,390.9	3,026.51	1			
6	100.0	25.39	0.00	15.28	0.00	0.16	2.73	1.00	1.00	0.58	8.91	89.10	0.00	2,692.9	0.0	704.52	3,094.9	3,799.45	1			
5	85.00	24.24	4.76	7.81	0.00	0.23	2.50	1.00	1.00	0.60	9.42	44.55	0.00	1,542.2	0.0	651.53	1,477.2	2,128.78	1			
4	70.00	22.93	10.18	17.23	0.00	0.20	2.61	1.00	1.00	0.59	20.34	89.10	0.00	3,474.6	0.0	1,387.72	2,795.0	4,182.79	1			
3	50.00	20.83	13.46	18.83	0.00	0.18	2.67	1.00	1.00	0.59	24.50	89.10	0.00	4,002.4	0.0	1,551.42	2,538.8	4,090.30	1			
2	30.00	18.50	14.87	18.83	0.00	0.15	2.76	1.00	1.00	0.58	25.83	89.10	0.00	4,065.3	0.0	1,503.32	2,254.6	3,757.99	1			
1	10.00	18.50	16.41	22.04	0.00	0.15	2.78	1.00	1.00	0.58	29.21	89.10	0.00	5,247.2	0.0	1,712.19	2,254.6	3,966.86	1			
														23,110.4	0.0			25,458.49				

**LoadCase 60 deg No Ice**

85.00 mph Wind at 60 deg From Face with No Ice

Allow Stress Inc: 1.333  
 Dead LF: 1.000  
 Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz	Total	Total	Ice	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Ice Weight (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face			
			Flat Area (sqft)	Round Area (sqft)	Round Area (sqft)																	
8	133.0	27.54	0.00	3.32	0.00	0.14	2.82	0.80	1.00	0.58	1.92	8.91	0.00	321.3	0.0	170.06	335.77	505.82	1			
7	120.0	26.75	0.00	12.97	0.00	0.15	2.76	0.80	1.00	0.58	7.55	65.34	0.00	1,764.6	0.0	635.54	2,390.9	3,026.51	1			
6	100.0	25.39	0.00	15.28	0.00	0.16	2.73	0.80	1.00	0.58	8.91	89.10	0.00	2,692.9	0.0	704.52	3,094.9	3,799.45	1			
5	85.00	24.24	4.76	7.81	0.00	0.23	2.50	0.80	1.00	0.60	8.47	44.55	0.00	1,542.2	0.0	585.72	1,477.2	2,062.97	1			
4	70.00	22.93	10.18	17.23	0.00	0.20	2.61	0.80	1.00	0.59	18.30	89.10	0.00	3,474.6	0.0	1,248.79	2,795.0	4,043.86	1			
3	50.00	20.83	13.46	18.83	0.00	0.18	2.67	0.80	1.00	0.59	21.81	89.10	0.00	4,002.4	0.0	1,380.97	2,538.8	3,919.84	1			
2	30.00	18.50	14.87	18.83	0.00	0.15	2.76	0.80	1.00	0.58	22.86	89.10	0.00	4,065.3	0.0	1,330.21	2,254.6	3,584.88	1			
1	10.00	18.50	16.41	22.04	0.00	0.15	2.78	0.80	1.00	0.58	25.93	89.10	0.00	5,247.2	0.0	1,519.87	2,254.6	3,774.54	1			
														23,110.4	0.0			24,717.87				

**LoadCase 90 deg No Ice**

85.00 mph Wind at 90 deg From Face with No Ice

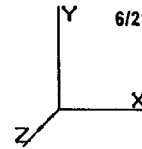
Allow Stress Inc: 1.333  
 Dead LF: 1.000  
 Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz	Total	Total	Ice	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Ice Weight (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
			Flat Area (sqft)	Round Area (sqft)	Round Area (sqft)														
8	133.0	27.54	0.00	3.32	0.00	0.14	2.82	0.85	1.00	0.58	1.92	8.91	0.00	321.3	0.0	170.06	335.77	505.82	1
7	120.0	26.75	0.00	12.97	0.00	0.15	2.76	0.85	1.00	0.58	7.55	65.34	0.00	1,764.6	0.0	635.54	2,390.9	3,026.51	1
6	100.0	25.39	0.00	15.28	0.00	0.16	2.73	0.85	1.00	0.58	8.91	89.10	0.00	2,692.9	0.0	704.52	3,094.9	3,799.45	1
5	85.00	24.24	4.76	7.81	0.00	0.23	2.50	0.85	1.00	0.60	8.70	44.55	0.00	1,542.2	0.0	602.17	1,477.2	2,079.42	1
4	70.00	22.93	10.18	17.23	0.00	0.20	2.61	0.85	1.00	0.59	18.81	89.10	0.00	3,474.6	0.0	1,283.52	2,795.0	4,078.59	1

**SEMAAN ENGINEERING SOLUTIONS**  
 1047 N.204<sup>th</sup> Avenue  
 Elkhorn, NE 68022  
 Phone: 402-289-1888  
 Fax: 402-289-1861

Site Number: CT03XC105  
 Location: Waterford, CT

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Gh : 1.14

**Section Forces**

3	50.00	20.83	13.46	18.83	0.00	0.18	2.67	0.85	1.00	0.59	22.49	89.10	0.00	4,002.4	0.0	1,423.58	2,538.8	3,962.45	1
2	30.00	18.50	14.87	18.83	0.00	0.15	2.76	0.85	1.00	0.58	23.60	89.10	0.00	4,065.3	0.0	1,373.49	2,254.6	3,628.16	1
1	10.00	18.50	16.41	22.04	0.00	0.15	2.78	0.85	1.00	0.58	26.75	89.10	0.00	5,247.2	0.0	1,567.95	2,254.6	3,822.62	1
														23,110.4	0.0			24,903.02	

**LoadCase Normal Ice**

73.61 mph Wind Normal To Face with Ice

Allow Stress Inc: 1.333  
 Dead LF: 1.000  
 Wind LF: 1.000

Seq	Wind Sect Height (ft)	qz	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Ice Weight (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
8	133.0	20.66	0.00	6.63	3.31	0.28	2.36	1.00	1.00	0.61	4.04	8.91	4.50	517.8	196.5	224.51	378.99	603.49	1
7	120.0	20.06	0.00	23.50	10.53	0.28	2.36	1.00	1.00	0.61	14.31	65.34	33.00	2,937.5	1,172.9	772.59	2,698.7	3,471.33	1
6	100.0	19.04	0.00	26.48	11.21	0.28	2.35	1.00	1.00	0.61	16.14	89.10	45.00	4,738.0	2,045.1	825.02	3,493.3	4,124.58	1
5	85.00	18.18	4.76	11.39	3.57	0.29	2.31	1.00	1.00	0.61	11.75	44.55	22.50	2,752.2	1,209.9	563.16	1,667.4	2,230.56	1
4	70.00	17.20	10.18	24.64	7.41	0.25	2.44	1.00	1.00	0.60	25.00	89.10	45.00	5,932.6	2,458.0	1,196.70	3,154.8	4,351.56	1
3	50.00	15.62	13.46	26.66	7.83	0.22	2.52	1.00	1.00	0.60	29.33	89.10	45.00	6,572.9	2,570.4	1,317.02	2,865.6	4,182.70	1
2	30.00	13.87	14.87	27.13	8.30	0.19	2.63	1.00	1.00	0.59	30.84	89.10	45.00	6,678.5	2,613.2	1,281.06	2,544.8	3,825.95	1
1	10.00	13.87	16.41	30.84	8.81	0.18	2.66	1.00	1.00	0.59	34.51	89.10	45.00	7,942.2	2,695.0	1,450.61	2,544.8	3,995.50	1
														38,071.6	14,961.1			26,785.68	

\*\* = 2QzGhAg Controls

**LoadCase 60 deg Ice**

73.61 mph Wind at 60 deg From Face with Ice

Allow Stress Inc: 1.333  
 Dead LF: 1.000  
 Wind LF: 1.000

Seq	Wind Sect Height (ft)	qz	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Ice Weight (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
8	133.0	20.66	0.00	6.63	3.31	0.28	2.36	0.80	1.00	0.61	4.04	8.91	4.50	517.8	196.5	224.51	378.99	603.49	1
7	120.0	20.06	0.00	23.50	10.53	0.28	2.36	0.80	1.00	0.61	14.31	65.34	33.00	2,937.5	1,172.9	772.59	2,698.7	3,471.33	1
6	100.0	19.04	0.00	26.48	11.21	0.28	2.35	0.80	1.00	0.61	16.14	89.10	45.00	4,738.0	2,045.1	825.02	3,493.3	4,124.58	1
5	85.00	18.18	4.76	11.39	3.57	0.29	2.31	0.80	1.00	0.61	10.80	44.55	22.50	2,752.2	1,209.9	517.55	1,667.4	2,184.95	1
4	70.00	17.20	10.18	24.64	7.41	0.25	2.44	0.80	1.00	0.60	22.97	89.10	45.00	5,932.6	2,458.0	1,099.25	3,154.8	4,254.10	1
3	50.00	15.62	13.46	26.66	7.83	0.22	2.52	0.80	1.00	0.60	26.64	89.10	45.00	6,572.9	2,570.4	1,196.13	2,865.6	4,061.81	1
2	30.00	13.87	14.87	27.13	8.30	0.19	2.63	0.80	1.00	0.59	27.87	89.10	45.00	6,678.5	2,613.2	1,157.50	2,544.8	3,702.39	1
1	10.00	13.87	16.41	30.84	8.81	0.18	2.66	0.80	1.00	0.59	31.23	89.10	45.00	7,942.2	2,695.0	1,312.67	2,544.8	3,857.56	1
														38,071.6	14,961.1			26,260.23	

\*\* = 2QzGhAg Controls

**LoadCase 90 deg Ice**

73.61 mph Wind at 90 deg From Face with Ice

Allow Stress Inc: 1.333  
 Dead LF: 1.000  
 Wind LF: 1.000

Seq	Wind Sect Height (ft)	qz	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Ice Weight (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
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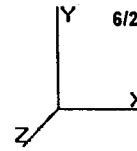


**SEMAAN ENGINEERING SOLUTIONS**

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Site Number: CT03XC105  
 Location: Waterford, CT

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Gh : 1.14

**Section Forces**

8	133.0	20.66	0.00	6.63	3.31	0.28	2.36	0.85	1.00	0.61	4.04	8.91	4.50	517.8	196.5	224.51	378.99	603.49	1
7	120.0	20.06	0.00	23.50	10.53	0.28	2.36	0.85	1.00	0.61	14.31	65.34	33.00	2,937.5	1,172.9	772.59	2,698.7	3,471.33	1
6	100.0	19.04	0.00	26.48	11.21	0.28	2.35	0.85	1.00	0.61	16.14	89.10	45.00	4,738.0	2,045.1	825.02	3,493.3	4,124.58	1 **
5	85.00	18.18	4.76	11.39	3.57	0.29	2.31	0.85	1.00	0.61	11.03	44.55	22.50	2,752.2	1,209.9	528.95	1,667.4	2,196.35	1
4	70.00	17.20	10.18	24.64	7.41	0.25	2.44	0.85	1.00	0.60	23.48	89.10	45.00	5,932.6	2,458.0	1,123.61	3,154.8	4,278.46	1
3	50.00	15.62	13.46	26.66	7.83	0.22	2.52	0.85	1.00	0.60	27.31	89.10	45.00	6,572.9	2,570.4	1,226.35	2,865.6	4,092.03	1
2	30.00	13.87	14.87	27.13	8.30	0.19	2.63	0.85	1.00	0.59	28.61	89.10	45.00	6,678.5	2,613.2	1,188.39	2,544.8	3,733.28	1
1	10.00	13.87	16.41	30.84	8.81	0.18	2.66	0.85	1.00	0.59	32.05	89.10	45.00	7,942.2	2,695.0	1,347.15	2,544.8	3,892.04	1
														38,071.6	14,961.1			26,391.59	

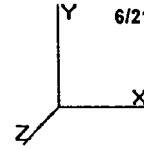
\*\* = 2QzGhAg Controls

**SEMAAN ENGINEERING SOLUTIONS**  
 1047 N.204th Avenue  
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Site Number: CT03XC105  
 Location: Waterford, CT

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**Tower Loading**

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	Weight (lb)	No Ice CaAa (sf)	CaAa Factor	Weight (lb)	Ice CaAa (sf)	CaAa Factor	Distance From Face (ft)	X Angle (deg)	Vert Ecc (ft)
136.0	Sector Mounts	3	500.00	15.000	0.67	650.00	20.600	0.67	0.000	0.00	0.000
136.0	Allgon 7184.05	12	10.00	2.890	0.67	24.00	3.360	0.67	0.000	0.00	1.000
127.0	Sector Mounts	3	500.00	15.000	0.67	650.00	20.600	0.67	0.000	0.00	0.000
127.0	ALP 9212	12	27.00	5.460	1.00	48.00	5.990	1.00	0.000	0.00	0.000
117.0	Sector Mounts	3	500.00	15.000	0.67	650.00	20.600	0.67	0.000	0.00	0.000
117.0	RR90-17-02DP	9	12.00	5.230	0.67	35.00	5.800	0.67	0.000	0.00	0.000
107.0	Sector Mounts	3	500.00	15.000	0.67	650.00	20.600	0.67	0.000	0.00	0.000
107.0	DB844H90	12	10.00	3.960	1.00	35.00	4.520	1.00	0.000	0.00	0.000
97.00	Sector Mounts	3	500.00	15.000	0.67	650.00	20.600	0.67	0.000	0.00	0.000
97.00	Allgon 7250	6	16.00	4.300	0.67	36.00	5.000	0.67	0.000	0.00	0.000
<b>Totals</b>		<b>66</b>	<b>8268.00</b>			<b>11565.00</b>			<b>Number of Appurtenances : 10</b>		

**Linear Appurtenance Properties**

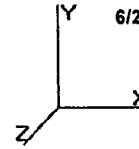
Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Wind	Spread On Faces	Bundling Arrangement
0.00	136.0	1 5/8" Coax	12	1.98	1.04	75.00	Lin App	Separate
0.00	127.0	1 5/8" Coax	12	1.98	1.04	75.00	Lin App	Separate
0.00	117.0	1 5/8" Coax	18	1.98	1.04	50.00	Lin App	Separate
0.00	107.0	1 5/8" Coax	12	1.98	1.04	0.00	Lin App	Separate
0.00	97.00	1 1/4" Coax	12	1.55	0.66	0.00	Lin App	Separate

**SEMAAN ENGINEERING SOLUTIONS**  
 1047 N.204th Avenue  
 Elkhorn, NE 68022  
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Site Number: CT03XC105  
 Location: Waterford, CT

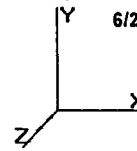
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**Force/Stress Summary**

Section: 1		U14-2"		Bot Elev (ft): 0.00				Height (ft): 20.000							
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member Cap Num		Shear Bear Cap Cap		Use %	Controls	
					X	Y	Z	KL/R	(kip)	Bolts	Holes	(kip)	(kip)	%	
LEG	12B - 12"BD 2"	-254.56	Normal Ice	10.02	100	100	100	0.0	0.0	351.46	0	0	0.00	0.00	72 UserInput
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 3X3X0.3125	-6.68	Normal No Ice	16.80	50	75	50	171.2	6.8	12.10	1	1	34.40	36.25	55 Member
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap Num		Num	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls				
				(ksi)	(kip)	Bolts	Holes								
LEG	12B - 12"BD 2"	221.36	60 deg No Ice	50	351.46	0	0	0.00	0.00	62	User Input				
HORIZ		0.00		0	0.00	0	0	0.00	0.00	0					
DIAG	SAE - 3X3X0.3125	7.56	60 deg Ice	36	39.72	1	1	34.40	36.25	21	Bolt Shear				
Section: 2		U12-1.75"		Bot Elev (ft): 20.00				Height (ft): 20.000							
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member Cap Num		Shear Bear Cap Cap		Use %	Controls	
					X	Y	Z	KL/R	(kip)	Bolts	Holes	(kip)	(kip)	%	
LEG	12B - 12"BD 1.75"	-226.89	Normal Ice	10.02	100	100	100	0.0	0.0	265.73	0	0	0.00	0.00	85 UserInput
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 3X3X0.1875	-6.01	90 deg No Ice	15.24	50	75	50	153.4	8.5	9.22	1	1	22.00	17.40	65 Member
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap Num		Num	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls				
				(ksi)	(kip)	Bolts	Holes								
LEG	12B - 12"BD 1.75"	199.25	60 deg No Ice	50	265.73	0	0	0.00	0.00	74	User Input				
HORIZ		0.00		0	0.00	0	0	0.00	0.00	0					
DIAG	SAE - 3X3X0.1875	5.93	90 deg Ice	36	25.83	1	1	22.00	17.40	34	Bolt Bear				
Section: 3		U10-1.75"		Bot Elev (ft): 40.00				Height (ft): 20.000							
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member Cap Num		Shear Bear Cap Cap		Use %	Controls	
					X	Y	Z	KL/R	(kip)	Bolts	Holes	(kip)	(kip)	%	
LEG	12B - 12"BD 1.75"	-195.21	Normal Ice	10.02	100	100	100	0.0	0.0	265.73	0	0	0.00	0.00	73 UserInput
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 3X3X0.1875	-6.29	90 deg Ice	13.79	50	75	50	138.9	10.3	11.25	1	1	22.00	17.40	55 Member
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap Num		Num	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls				
				(ksi)	(kip)	Bolts	Holes								
LEG	12B - 12"BD 1.75"	172.91	60 deg No Ice	50	265.73	0	0	0.00	0.00	65	User Input				
HORIZ		0.00		0	0.00	0	0	0.00	0.00	0					
DIAG	SAE - 3X3X0.1875	5.84	90 deg Ice	36	25.83	1	1	22.00	17.40	33	Bolt Bear				



**Force/Stress Summary**

Section: 4		U08-01		Bot Elev (ft): 60.00				Height (ft): 20.000								
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member		Shear Bear		Use %	Controls		
					X	Y	Z	KL/R	Cap (kip)	Num Bolts	Num Holes	Cap (kip)	Cap (kip)			
LEG	12B - 12"BD 1.5"	-159.75	Normal Ice	10.02	100	100	100	0.0	0.0	190.66	0	0	0.00	0.00	83	User Input
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 2.5X2.5X0.1875	-6.46	90 deg Ice	12.50	50	75	50	151.6	8.7	7.82	1	1	22.00	17.40	82	Member
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls					
LEG	12B - 12"BD 1.5"	142.97	60 deg No Ice	50	190.66	0	0	0.00	0.00	74	User Input					
HORIZ		0.00		0	0.00	0	0	0.00	0.00	0						
DIAG	SAE - 2.5X2.5X0.1875	6.65	Normal Ice	36	20.38	1	1	22.00	17.40	38	Bolt Bear					
Section: 5		U06-1.25"		Bot Elev (ft): 80.00				Height (ft): 10.000								
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member		Shear Bear		Use %	Controls		
					X	Y	Z	KL/R	Cap (kip)	Num Bolts	Num Holes	Cap (kip)	Cap (kip)			
LEG	12B - 12"BD 1.25"	-115.79	Normal Ice	10.02	100	100	100	0.0	0.0	128.80	0	0	0.00	0.00	89	User Input
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 2.5X2.5X0.1875	-8.82	Normal Ice	11.41	50	75	50	138.4	10.4	9.38	1	1	22.00	17.40	93	Member
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls					
LEG	12B - 12"BD 1.25"	104.55	60 deg No Ice	50	128.80	0	0	0.00	0.00	81	User Input					
HORIZ		0.00		0	0.00	0	0	0.00	0.00	0						
DIAG	SAE - 2.5X2.5X0.1875	7.66	60 deg No Ice	36	20.38	1	1	22.00	17.40	44	Bolt Bear					
Section: 6		H-5.0-2.25"		Bot Elev (ft): 90.00				Height (ft): 20.000								
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member		Shear Bear		Use %	Controls		
					X	Y	Z	KL/R	Cap (kip)	Num Bolts	Num Holes	Cap (kip)	Cap (kip)			
LEG	SOL - 2 1/4" SOLID	-105.19	Normal Ice	2.37	100	100	100	50.6	32.3	128.63	0	0	0.00	0.00	81	Member
HORIZ SOL - 7/8" SOLID		-1.45	Normal No Ice	4.990	100	100	100	273.7	2.7	1.60	0	0	0.00	0.00	90	Member
DIAG	SOL - 1" SOLID	-5.97	90 deg Ice	5.497	50	50	50	131.9	11.4	8.98	0	0	0.00	0.00	66	Member
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls					
LEG	SOL - 2 1/4" SOLID	98.51	60 deg No Ice	50	159.04	0	0	0.00	0.00	61	Member					
HORIZ SOL - 7/8" SOLID		1.59	Normal No Ice	50	24.05	0	0	0.00	0.00	6	Member					
DIAG	SOL - 1" SOLID	5.80	90 deg No Ice	50	31.42	0	0	0.00	0.00	18	Member					

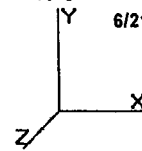
**SEMAAN ENGINEERING SOLUTIONS**

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Site Number: CT03XC105  
 Location: Waterford, CT

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**Force/Stress Summary**

Section: 7		H4.5		Bot Elev (ft): 110.0				Height (ft): 20.000							
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member		Shear Bear		Use	Controls	
					X	Y	Z	KL/R	Cap (kip)	Num Bolts	Num Holes	Cap (kip)	Cap (kip)	%	
LEG	SOL - 2" SOLID	-39.68	Normal Ice	2.37	100	100	100	56.9	31.0	97.36	0	0	0.00	0.00	40 Member
HORIZ	SOL - 7/8" SOLID	-1.90	Normal Ice	4.490	100	100	100	246.2	3.3	1.97	0	0	0.00	0.00	96 Member
DIAG	SOL - 7/8" SOLID	-4.21	90 deg No Ice	5.051	50	50	50	138.5	10.4	6.24	0	0	0.00	0.00	67 Member
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls				
LEG	SOL - 2" SOLID	37.51	60 deg No Ice	50	125.66	0	0	0.00	0.00	29	Member				
HORIZ	SOL - 7/8" SOLID	1.85	60 deg No Ice	50	24.05	0	0	0.00	0.00	7	Member				
DIAG	SOL - 7/8" SOLID	4.25	90 deg No Ice	50	24.05	0	0	0.00	0.00	17	Member				
Section: 8		V4.0-6FT-1.5"		Bot Elev (ft): 130.0				Height (ft): 6.000							
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member		Shear Bear		Use	Controls	
					X	Y	Z	KL/R	Cap (kip)	Num Bolts	Num Holes	Cap (kip)	Cap (kip)	%	
LEG	SOL - 1 1/2" SOLID	-3.55	Normal Ice	2.90	100	100	100	92.7	21.8	38.54	0	0	0.00	0.00	9 Member
HORIZ	SOL - 7/8" SOLID	-0.38	90 deg No Ice	4.000	100	100	100	219.4	4.1	2.49	0	0	0.00	0.00	15 Member
DIAG	SOL - 3/4" SOLID	-0.97	90 deg No Ice	4.938	50	50	50	158.0	8.0	3.52	0	0	0.00	0.00	27 Member
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls				
LEG	SOL - 1 1/2" SOLID	2.71	60 deg No Ice	50	70.68	0	0	0.00	0.00	3	Member				
HORIZ	SOL - 7/8" SOLID	0.38	Normal No Ice	50	24.05	0	0	0.00	0.00	1	Member				
DIAG	SOL - 3/4" SOLID	0.97	90 deg No Ice	50	17.67	0	0	0.00	0.00	5	Member				

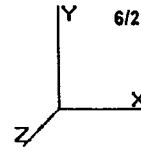
**SEMAAN ENGINEERING SOLUTIONS**

1047 N.204<sup>th</sup> Avenue  
 Elkhorn, NE 68022  
 Phone: 402-289-1888  
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Site Number: CT03XC105  
 Location: Waterford, CT

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**Support Forces Summary**

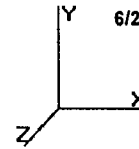
Load Case	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
90 deg Ice	1b	-18.78	-195.06	-11.05	
	1a	-16.13	226.37	9.58	
	1	0.41	15.68	1.46	
60 deg Ice	1b	-21.54	-227.20	-12.43	
	1a	-8.63	137.05	5.44	
	1	0.39	137.14	-10.19	
Normal Ice	1b	-11.67	-106.77	-6.38	
	1a	11.67	-106.77	-6.38	
	1	0.00	260.53	-22.09	
90 deg No Ice	1b	-16.40	-196.78	-9.67	
	1a	-17.77	216.52	10.52	
	1	0.40	9.89	-0.85	
60 deg No Ice	1b	-19.08	-228.10	-11.01	
	1a	-10.41	128.82	6.45	
	1	0.38	128.91	-12.24	
Normal No Ice	1b	-9.48	-110.52	-5.14	
	1a	9.48	-110.52	-5.14	
	1	0.00	250.68	-24.00	

Max Uplift: 228.10 (kip)  
 Max Down: 260.53 (kip)  
 Max Shear: 24.87 (kip)

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**Deflections and Rotations**

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
73.61 mph Wind Normal To Face with Ice	97.53	0.7601	0.0368	1.0744
	107.01	0.9465	0.0370	1.0987
	117.53	1.1786	0.0385	1.2463
	127.01	1.3876	0.0383	1.2405
	136.00	1.5902	0.0409	1.5048
73.61 mph Wind at 60 deg From Face with Ice	97.53	0.7591	0.0480	1.0747
	107.01	0.9459	0.0601	1.0977
	117.53	1.1770	0.0809	1.2455
	127.01	1.3859	0.1000	1.2410
	136.00	1.5879	0.1411	1.2108
73.61 mph Wind at 90 deg From Face with Ice	97.53	0.7585	0.0221	1.0739
	107.01	0.9448	0.0227	1.1007
	117.53	1.1759	0.0248	1.2449
	127.01	1.3844	0.0257	1.2403
	136.00	1.5859	0.0275	1.0897
85.00 mph Wind Normal To Face with No Ice	97.53	0.7486	0.0360	1.0619
	107.01	0.9330	0.0361	1.0872
	117.53	1.1628	0.0373	1.2341
	127.01	1.3698	0.0368	1.2295
	136.00	1.5704	0.0392	1.5222
85.00 mph Wind at 60 deg From Face with No Ice	97.53	0.7457	0.0486	1.0608
	107.01	0.9302	0.0621	1.0848
	117.53	1.1587	0.0852	1.2317
	127.01	1.3654	0.1065	1.2288
	136.00	1.5652	0.1527	1.1859
85.00 mph Wind at 90 deg From Face with No Ice	97.53	0.7455	0.0217	1.0602
	107.01	0.9296	0.0223	1.0880
	117.53	1.1581	0.0243	1.2313
	127.01	1.3645	0.0251	1.2283
	136.00	1.5637	0.0269	1.0448
		0.0000	0.0000	0.0000