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

May 3, 2013

Jennifer Young Gaudet
HPC Development LLC
46 Mill Plain Road, 2nd floor
Danbury, CT 06811

RE: **TS-ATC-008-130416** – American Tower Corporation ("ATC") request for an order to approved the shared used of an existing telecommunications facility located at 9 Meyers Road/aka 93 Old Amity Road, Bethany, Connecticut.

Dear Ms. Gaudet:

At a public meeting held May 2, 2013, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures with the following conditions:

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

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

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

The proposed shared use is to be implemented as specified in your letter dated April 15, 2013, including the placement of all necessary equipment and shelters within the tower compound.

Thank you for your attention and cooperation.

Very truly yours,

Robert Stein UNB

Robert Stein
Chairman

RS/CDM/jb

c: The Honorable Derrylyn Gorski, First Selectman, Town of Bethany
Isabel Kearns, Zoning Enforcement Officer, Town of Bethany

CSC
CONNECTICUT SITING COUNCIL

TS-ATC-008-130416

HPC Wireless Services
46 Mill Plain Rd.
Floor 2
Danbury, CT 06811
P.: 203.797.1112

HPC
WIRELESS SERVICES

April 15, 2013

RECEIVED
APR 16 2013
CONNECTICUT
SITING COUNCIL

VIA UPS

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051
Attn: Ms. Linda Roberts, Executive Director

Re: Tower Share Request - American Tower Corporation and
Department of Homeland Security, Immigration and Customs Enforcement
9 Meyers Road a/k/a 93 Old Amity Road, Bethany, Connecticut

Dear Ms. Roberts:

Pursuant to Connecticut General Statutes §16-50aa, as amended, and on behalf of American Tower Corporation ("ATC") and the Department of Homeland Security, Immigrations and Customs Enforcement ("ICE"), this letter and associated documentation are submitted as a request for an order from the Connecticut Siting Council ("Council") to approve the proposed shared use by ICE of a tower at 9 Meyers Road, a/k/a 93 Old Amity Road in Bethany, Connecticut (coordinates 41°-27'-17", 73°-00'-00"). The tower is owned by ATC and currently supports antennas of multiple carriers. ICE is seeking authorization to utilize the existing tower in connection as part of a multi-site plan to improve its regional communications capability in the Northeast.

As shown on drawings attached hereto, ICE proposes to install one omnidirectional antenna on the tower with a mounting height of 194'. The antenna is approximately 20' long, and therefore will extend to approximately the 214' level on the 338' tower. ICE's related equipment will be placed in an existing shared equipment building.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such shared use." Based on the following, ICE requests that the Council find that the proposed shared use of the tower satisfies the criteria stated in Connecticut General Statutes § 16-50aa and issue an order approving the proposed use.

A. **Technical Feasibility.** Attached is documentation of the structural sufficiency of the existing tower to support the proposed ICE loading. The proposed shared use of this tower therefore is technically feasible.

B. **Legal Feasibility.** Under C.G.S. § 16-50aa, the Council has been authorized to issue orders approving the proposed shared use of a tower facility such as the Bethany facility. In addition, § 16-50aa directs the Council to "give such consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of tower facilities. There is no legal impediment to the shared use of the facility.

C. **Environmental Feasibility.** The overall environmental effect of the proposed shared use is positive. The effect on the facility itself is minimal, for the following reasons:

1. The proposed installation would have an insignificant incremental visual impact, and would not cause any significant change or alteration in the physical or environmental characteristics of the planned site. In particular, the proposed installation would not increase the height of the approved tower, and would not extend the boundaries of the tower site outside the limits of the approved site compound.

2. The proposed installation would not increase the noise levels at the planned facility by six decibels or more.

3. Addition of ICE's antenna at this site would not result in a total radio frequency (RF) electromagnetic radiation power density level in excess of that adopted by the Federal Communications Commission. The changes to the facility will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site. As indicated on the attached report prepared by C Squared Systems, LLC, ICE's operations at the site will result in a power density of approximately 1.89%; the combined site operations will result in a total power density of approximately 33.96%.

4. The proposed installation will not require any water or sanitary facilities, or generate air emissions or discharges to water bodies. After construction is complete, the proposed installation will not generate any traffic other than for occasional maintenance.

The proposed use of this facility would therefore have a minimal adverse environmental effect, and is environmentally feasible.

E. **Economic Feasibility.** The parties have entered into an agreement to share the use of the existing tower on terms mutually agreeable to the parties. The proposed tower sharing is therefore economically feasible.

F. **Public Safety Concerns.** ATC and ICE are not aware of any public safety concerns relative to the proposed sharing of the tower. As stated above, the tower is structurally capable of supporting the proposed and existing antennas. The proposed shared use will not interfere with municipal public safety activities. The purpose of the Department of Homeland Security is to maintain public safety, and the proposed installation is intended to advance that goal.

Conclusion

For the reasons set forth above, the proposed shared use of the Bethany tower satisfies the criteria stated in C.G.S. § 16-50aa and advances the General Assembly's and the Council's goal of preventing the proliferation of towers in Connecticut. ATC and ICE therefore request that the Council issue an order approving the proposed use.

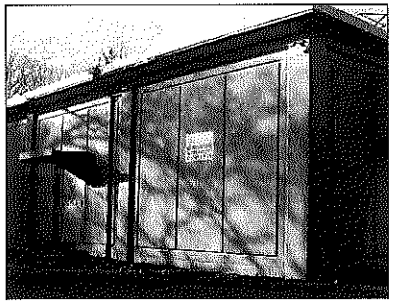
Please contact the undersigned at (860) 798-7454 if there are any questions with respect to this matter. Thank you for your consideration.

Respectfully yours,

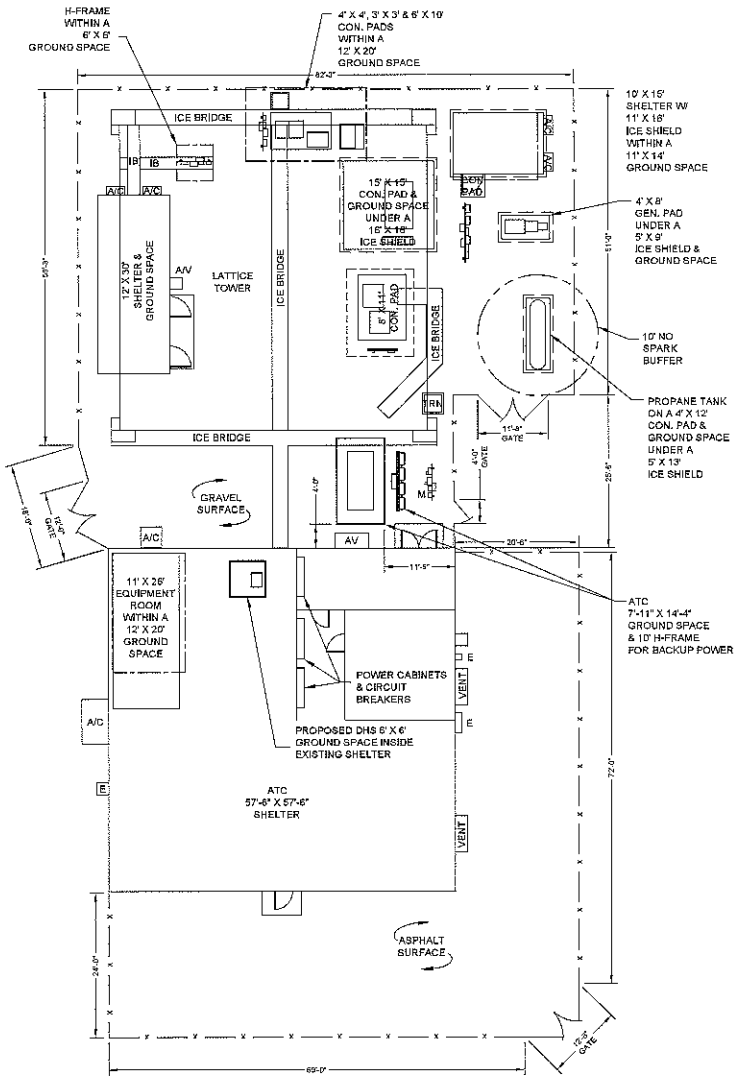
Jennifer Young Gaudet

Attachments

cc: Honorable Derrylyn Gorski, First Selectman, Town of Bethany
American Tower Corporation (underlying property owner)



EXISTING BUILDING PHOTO



1 SITE PLAN

LEGEND

- CHAIN LINK FENCE
- PROPERTY LINE
- LEASE AREA
- EASEMENT

20 10 0 20

SCALE : 1" = 20'-0" (11 X 17)
1" = 10'-0" (24 X 36)

GENERAL NOTES:

HEIGHT: EXCLUDING THE TOWER, NO EXISTING OR PROPOSED STRUCTURE (INCLUDING EQUIPMENT) WILL EXCEED THE HEIGHT LIMITATIONS OF THE DISTRICT.

LIGHTING: THE PROPOSED INSTALLATION AND EXISTING FACILITY WILL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.

GRADE: EXISTING GRADE WILL BE MAINTAINED FOR PROPOSED CONSTRUCTION.

PARKING: ONE PARKING SPACE IS REQUIRED, ONE EXISTING.

SIGNAGE: EXTERIOR SIGNS ARE NOT PROPOSED EXCEPT AS REQUIRED BY THE FCC.

STORM WATER CONTROL: THE PROPOSED FACILITY WILL RESULT IN AN INSIGNIFICANT INCREASE IN STORM WATER RUNOFF, CONSEQUENTLY, NO WATER QUALITY CONTROL DEVICES ARE PROPOSED.

UTILITIES: SANITARY SEWER SERVICE AND POTABLE WATER ARE NOT APPLICABLE PER THE USE. IF APPLICABLE, SUBCONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO EXCAVATING.

DRIVEWAY: A DRIVEWAY PERMIT IS NOT REQUIRED FOR THIS PROJECT. THE PROJECT WILL NOT REQUIRE RIGHT-OF-WAY OR PROPERTY TO BE DEDICATED FOR PUBLIC USE.

MISC: NO NOISE, SMOKE, DUST, VAPORS OR ODOR WILL RESULT FROM THIS PROJECT.

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OF SERVICE ARE THE EXCLUSIVE PROPERTY OF ATC TOWER SERVICES, INC. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO ATC TOWER SERVICES, INC OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF ATC TOWER SERVICES, INC WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE ATC TOWER SERVICES, INC OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH ATC TOWER SERVICES, INC.

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SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE AMT

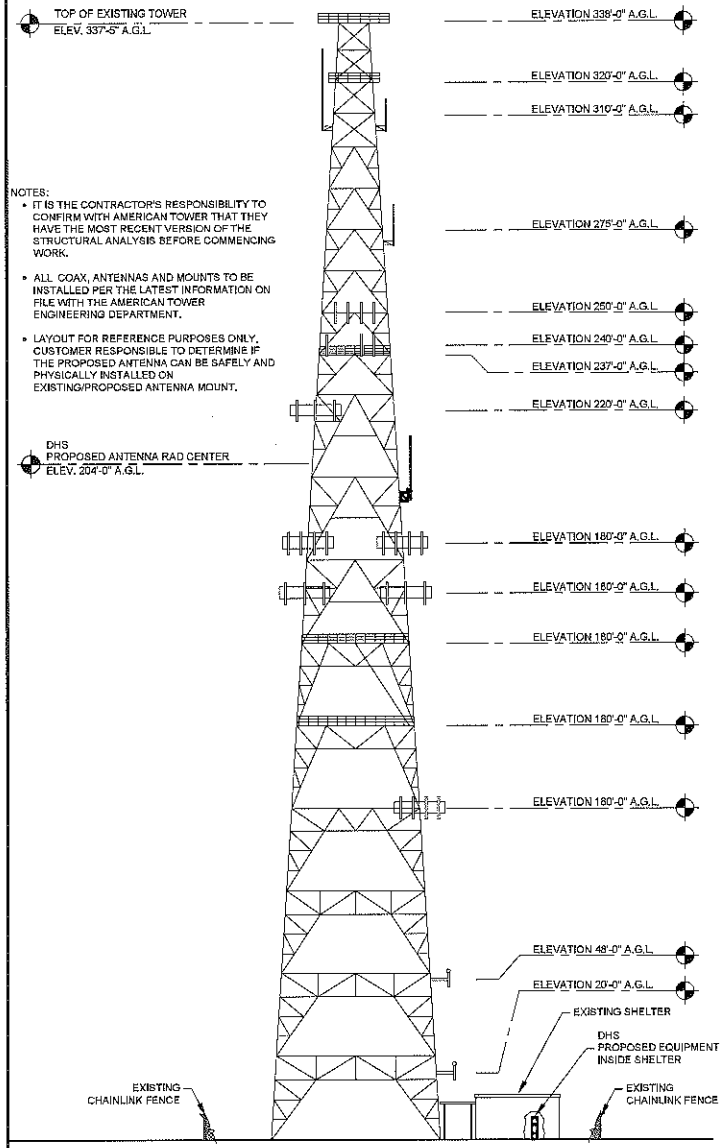
ATC SITE NUMBER:
88008

ATC SITE NAME:
BETHANY CT

STAMP HERE:	
DRAWN BY:	DH
CHECKED BY:	AE
DATE DRAWN:	03-22-13
JOB NO:	480724K3

SHEET TITLE:
SITE PLAN

SHEET NUMBER:	REV. #
A-1	0



NOTES:

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH AMERICAN TOWER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK.
- ALL COAX, ANTENNAS AND MOUNTS TO BE INSTALLED PER THE LATEST INFORMATION ON FILE WITH THE AMERICAN TOWER ENGINEERING DEPARTMENT.
- LAYOUT FOR REFERENCE PURPOSES ONLY. CUSTOMER RESPONSIBLE TO DETERMINE IF THE PROPOSED ANTENNA CAN BE SAFELY AND PHYSICALLY INSTALLED ON EXISTING/PROPOSED ANTENNA MOUNT.

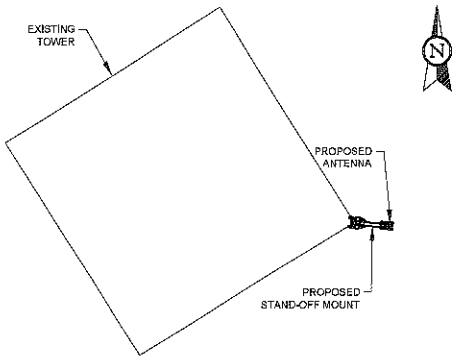
1 TOWER ELEVATION
SCALE: NOT TO SCALE

	OMNI
	Proposed
AZIMUTH	Omni
RAD CENTER	204.0
# OF ANTENNAS	1
ANTENNA MANUFACTURER	Andrew
ANTENNA MODEL	DB616E-BC
MECHANICAL DT.	N/A
CABLE QUANTITY	1
CABLE SIZE	1 1/4" Coax

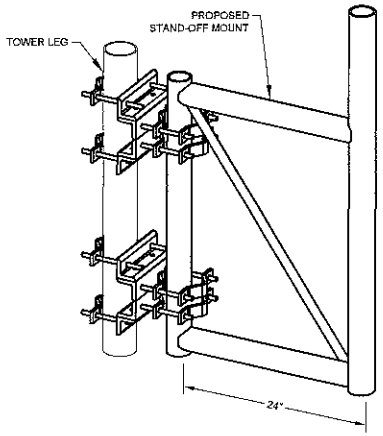
NOTE:

CONTRACTOR TO DETERMINE COAX CABLE LENGTH.

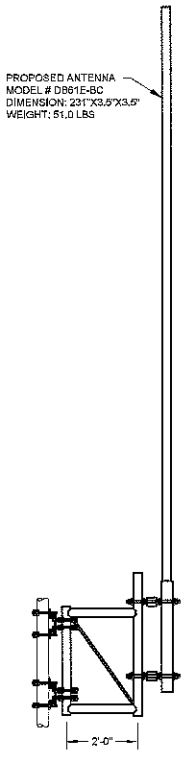
2 RF CONFIGURATION CHART
SCALE: NOT TO SCALE



3 PLAN VIEW
SCALE: NOT TO SCALE



NOTE:
ANGLE IRON KITS MAY BE REQUIRED FOR MOUNT INSTALLATION.



4 MOUNT DETAILS
SCALE: NOT TO SCALE

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DRAWN BY:	DH
CHECKED BY:	AE
DATE DRAWN:	03-22-13
JOB NO:	480724K3

SHEET TITLE:
TOWER ELEVATION

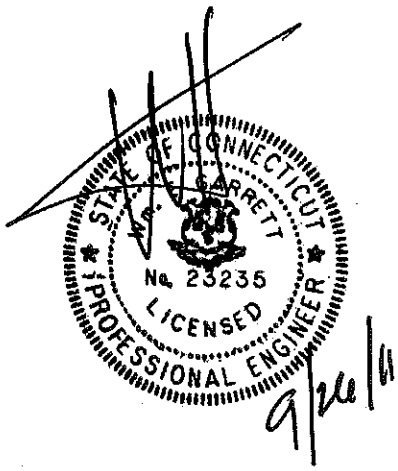
SHEET NUMBER:	REV. #
A-2	0

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**337.5 ft AT&T Tag Type 'H' Self Supported Tower**
ATC Site Name	:	**Bethany CT, CT**
ATC Site Number	:	**88008**
Proposed Carrier	:	**US Treasury**
Carrier Site Name	:	**Bethany**
Carrier Site Number	:	**B_05_095_037**
County	:	**New Haven**
Eng. Number	:	**48072421**
Date	:	**September 23, 2011***
Usage	:	**100%**
Result	:	**Pass**

Submitted by:
Avery B. Long, E.I.
Design Engineer



American Tower Engineering Services
400 Regency Forest Drive
Cary, NC 27518
Phone: 919-468-0112

Introduction

The purpose of this report is to summarize results of the structural analysis performed on the 337.5 ft AT&T Tag Type 'H' Self Supported Tower located at 93 Old Amity Rd., Bethany, CT 06524, New Haven County (ATC site #88008). The tower was originally designed and manufactured to AT&T Tag Type 'H' standards in 1966 by the Flint Steel Corporation. Tower geometry and member information was taken from a structural analysis by CSEI (Eng. #73115244, dated November 18, 2002). The tower has been modified per design by ATC (Project #44269933, dated January 6, 2010).

Analysis

The tower was analyzed using Semaan Engineering Solutions, Inc., Software.

Basic Wind Speed: 85 mph (Fastest Mile)
Radial Ice: 74 mph (Fastest Mile) w/ ½" ice
Code: ANSI/TIA/EIA-222-F / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendments

Antenna Loads

The following antenna loads were used in the tower analysis.

Existing Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (in)	Carrier
338.0	1	Rohde & Schwarz ADD090	Platform w/ Handrails	(2) 7/8	US Coast Guard
	–	--		(1) 7/8	Unknown
320.0	–	--	Catwalk	--	--
310.0	1	Sinclair SC381-HL	Sector Frame	(2) 7/8	US Coast Guard
	1	Sinclair SC281-L			
275.0	1	Sinclair SC281-L	Sector Frame	(1) 7/8	
250.0	12	Decibel DB844H90E-XY	Sector Frames	(12) 1 5/8	Sprint Nextel
240.0	9	DAPA 58000X	Sector Frames	(9) 1 5/8	
237.0	–	--	Working Platform	--	--
220.0	6	Remec S20057A1	Sector Frames	(12) 1 5/8 (1) 0.315	T-Mobile
	3	RFS APX16PV-16PVL-E-00			
	6	RCU			
180.0	6	RFS FD9R6004/1C-3L	Sector Frames	(12) 1 5/8 (1) 1/2	Verizon
	3	Powerwave P65-16-XL-2			
	3	Rymsa MGD3-800TX			
	6	Andrew DB844H90E-A			
	1	GPS			
165.0	6	Allgon 7770.00	Sector Frames	(12) 1 5/8	AT&T Mobility
	6	Powerwave LGP21401			
150.0	–	--	Working Platform	--	--
125.0	–	--	Working Platform	--	--
100.0	3	RFS APXV18-206517S-C	Leg	(6) 1 5/8	Youghiogheny
48.0	1	GPS	Leg	(1) 1/2	Sprint Nextel
20.0	1	GPS	Leg	(1) 1/2	

Proposed Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (in)	Carrier
194.0	1	Andrew DB616E-BC	Side Arm	(1) 1 1/4	US Treasury

Install proposed coax on same face as existing US Coast Guard coax.

Results

The maximum structure usage is: 100%

Leg Forces	Current Analysis Reactions
Uplift (Kips)	334.0
Axial (Kips)	449.9

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required. These calculations are located after the software output within this analysis.

Conclusion

Based on the analysis results, the structure meets the requirements per the ANSI/TIA/EIA-222-F standard and the 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendments.

The tower and foundation can support the existing and proposed antennas with the transmission line distribution as described in this report.

If you have any questions or require additional information, please call 919-466-5069.

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

-- Information supplied by the client regarding the structure itself, the antenna and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to ATC Engineering Services and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/EIA-222.

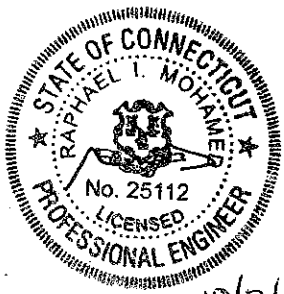
All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Engineering Services is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**200 ft AT&T Tag Type 'A' Self Supported Tower**
ATC Site Name	:	**Shelton-Trumbull, CT**
ATC Site Number	:	**88017**
Proposed Carrier	:	**US Immigration & Customs Enforcement**
Carrier Site Name	:	**Shelton Turnbull**
Carrier Site Number	:	**B_05_095_038**
County	:	**Fairfield**
Eng. Number	:	**48084023**
Date	:	**October 6, 2011***
Usage	:	**99%**
Result	:	**Pass**

Submitted by:
Avery B. Long, E.I.
Design Engineer



10/7/11

American Tower Engineering Services
400 Regency Forest Drive
Cary, NC 27518
Phone: 919-468-0112

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**200 ft AT&T Tag Type 'A' Self Supported Tower**
ATC Site Name	:	**Shelton-Trumbull, CT**
ATC Site Number	:	**88017**
Proposed Carrier	:	**US Immigration & Customs Enforcement**
Carrier Site Name	:	**Shelton Turnbull**
Carrier Site Number	:	**B_05_095_038**
County	:	**Fairfield**
Eng. Number	:	**48084023**
Date	:	**October 6, 2011***
Usage	:	**99%**
Result	:	**Pass**

Submitted by:
Avery B. Long, E.I.
Design Engineer

American Tower Engineering Services
400 Regency Forest Drive
Cary, NC 27518
Phone: 919-468-0112

Introduction

The purpose of this report is to summarize results of the structural analysis performed on the 200 ft AT&T Tag Type 'A' Self Supported Tower located at 14 Oxford Dr., Shelton, CT 06611, Fairfield County (ATC site #88017). The tower was originally designed and manufactured to AT&T Tag Type 'A' standards. Tower geometry and member information was taken from a mapping by TEP (TEP #070851, dated May 30, 2007).

Analysis

The tower was analyzed using Semaan Engineering Solutions, Inc., Software.

Basic Wind Speed: 105 mph (3-Second Gust)
Radial Ice: 40 mph (3-Second Gust) w/ ¾" ice
Code: TIA-222-G / 2003 IBC w/ 2005 Connecticut Supplement and 2009 Connecticut Amendments

Antenna Loads

The following antenna loads were used in the tower analysis.

Existing Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax	Carrier
200.0	1	10' Dipole	Platform w/ Handrails	(2) 1 5/8" (2) EW65	State of CT
	1	14' Omni			
	2	8' Dish w/ Radome			
187.5	-	-	Platform w/ Handrails	-	-
183.0	1	BTS	Side Arm	(4) 3/8"	State of CT
180.0	2	Scala AP14-850/150N		(5) 1 5/8"	
	1	10' Omni			
	2	Scala OGT9-840D			
168.0	12	Decibel DB844H90E-XY	Sector Frame	(12) 1 5/8"	Sprint/Nextel
162.0	1	DragonWave A-ANT-11G-3-C	Side Arms	(1) 2" Conduit (6) 5/16" (4) 1/2"	Clearwire
	3	NextNet BTS-2500			
	3	Argus LLPX310R			
	1	DragonWave A-ANT-11G-2-C			
	4	DragonWave Horizon Compact			
	1	DragonWave A-ANT-11G-3-C			
	1	Andrew PX2F-52			
155.0	9	Dapa 58010	Platform w/ Handrails	(9) 1 5/8"	Sprint/Nextel
144.0	6	Powerwave 7770	Sector Frame	(12) 1 5/8" (1) RG6 (2) 8 AWG 7 (1) 3" Conduit	AT&T Mobility
	6	Powerwave LGP21401			
	6	Ericsson RRUS 11 (Band 12)			
	6	Powerwave LGP21401			
	1	Raycap DC6-48-60-18-8F			
	3	Powerwave P65-16-XLH-RR			

Existing Antennas (Continued)

Elev. (ft)	Qty	Antennas	Mount	Coax	Carrier
126.0	1	8' Dish w/ Radome	Dish	(1) EW65	State of CT
112.5	-	-	Platform w/ Handrails	-	-
75.0	-	-	Platform w/ Handrails	-	-
55.0	1	GPS	Pipe	(1) 1/2"	Sprint/Nextel
50.0	-	-	Rest Platform	-	-

Proposed Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax	Carrier
100.0	1	Andrew DB616E-BC	Side Arm	(1) 1 1/4"	US ICE

Install proposed coax on any tower face.

Results

The maximum structure usage is: 99%

Leg Forces	Current Analysis Reactions
Uplift (Kips)	171.4
Axial (Kips)	252.5

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required. The factor of safety of the foundation with respect to bearing and overturning exceed two. These calculations are located after the software output within this analysis.

Conclusion

Based on the analysis results, the structure meets the requirements per the TIA/EIA-222 Rev F standard and the 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendments.

The tower and foundation can support the existing and proposed antennas with the transmission line distribution as described in this report.

If you have any questions or require additional information, please call 919-466-5069.

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

-- Information supplied by the client regarding the structure itself, the antenna and feed line loading on the structure and its components, or other relevant information.

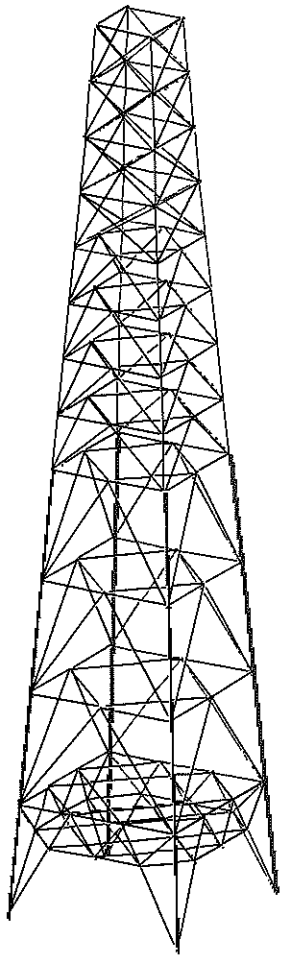
-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

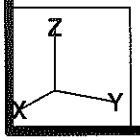
It is the responsibility of the client to ensure that the information provided to ATC Engineering Services and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/EIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Engineering Services is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

American Tower Corp., Project: "88017_ustreasury_10062011"
Tower Version 11.00, 3:49:51 PM Thursday, October 06, 2011
Undeformed geometry displayed





Project Name : 88017 - Shelton/Trumbull, CT
Project Notes: 200' AT&T Tag Type 'A' Self Supported Tower
Project File : s:\12 - atc\88017\us treasury_48084023_10062011\88017_ustreasury_10062011.tow
Date run : 3:28:52 PM Thursday, October 06, 2011
by : Tower Version 11.00
Licensed to : American Tower Corp.

Successfully performed nonlinear analysis

Member check option: ANSI/TIA 222-G-1
Connection rupture check: Not Checked
Crossing diagonal check: Fixed
Loads from file: s:\12 - atc\88017\us treasury_48084023_10062011\88017_ustreasury_10062011.eia

*** Analysis Results:

Maximum element usage is 99.24% for Angle "LH 1XY" in load case "W -90"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Vert. Moment (ft-k)	Bending Moment (ft-k)	Found. Usage %
W 0	0P	-25.30	-16.64	182.32	30.28	-0.25	-5.31	-1.68	5.32	0.00
W 0	0X	-24.71	16.68	178.40	29.81	0.11	-5.15	1.68	5.15	0.00
W 0	0XY	-27.47	-7.90	-100.57	28.58	0.39	-6.58	1.75	6.59	0.00
W 0	0Y	-28.27	7.86	-102.72	29.34	-0.31	-6.77	-1.74	6.78	0.00
W 180	0P	28.32	7.60	-99.86	29.33	-0.32	6.88	1.75	6.89	0.00
W 180	0X	27.53	-7.65	-98.06	28.57	0.38	6.68	-1.76	6.69	0.00
W 180	0XY	24.65	16.43	175.90	29.63	0.11	5.24	-1.69	5.24	0.00
W 180	0Y	25.23	-16.38	179.46	30.08	-0.24	5.41	1.69	5.42	0.00
W 45	0P	-26.96	-27.34	252.45	38.40	4.10	-3.87	0.00	5.64	0.00
W 45	0X	-15.11	-12.31	38.43	19.49	5.59	-3.31	2.55	6.50	0.00
W 45	0XY	-25.04	-24.62	-170.07	35.11	3.79	-3.92	-0.01	5.45	0.00
W 45	0Y	-11.68	-14.52	36.62	18.64	3.18	-5.32	-2.56	6.20	0.00
W -45	0P	-15.69	12.41	41.55	20.01	-5.72	-3.41	-2.55	6.66	0.00
W -45	0X	-26.52	27.29	249.34	38.05	-4.22	-3.76	-0.00	5.65	0.00
W -45	0XY	-11.12	14.50	37.97	18.27	-3.13	-5.18	2.56	6.05	0.00
W -45	0Y	-25.46	24.60	-171.43	35.40	-3.74	-4.02	0.02	5.49	0.00
W 90	0P	-16.20	-25.60	183.90	30.37	5.45	0.47	1.63	5.47	0.00
W 90	0X	7.63	-28.82	-102.49	29.82	6.96	0.25	1.69	6.97	0.00
W 90	0XY	-8.16	-21.75	-99.04	23.23	4.86	-0.45	-1.66	4.88	0.00
W 90	0Y	16.74	-29.48	175.06	33.90	4.41	0.06	-1.70	4.41	0.00
W -90	0P	7.54	28.84	-101.43	29.81	-7.00	0.25	-1.70	7.00	0.00
W -90	0X	-16.12	25.65	182.84	30.30	-5.49	0.47	-1.63	5.50	0.00
W -90	0XY	16.66	29.48	174.37	33.87	-4.44	0.06	1.70	4.44	0.00
W -90	0Y	-8.08	21.75	-98.35	23.21	-4.88	-0.45	1.67	4.90	0.00
W 0 Ice	0P	-9.26	-7.55	84.87	11.95	-1.19	0.62	-0.20	1.35	0.00
W 0 Ice	0X	-9.09	7.55	83.33	11.82	1.14	0.63	0.20	1.31	0.00
W 0 Ice	0XY	2.63	4.28	46.49	5.02	1.17	-1.72	0.20	2.08	0.00
W 0 Ice	0Y	2.66	-4.27	47.04	5.03	-1.19	-1.73	-0.20	2.10	0.00
W 180 Ice	0P	-2.66	-4.64	51.08	5.35	-1.20	1.86	0.21	2.21	0.00
W 180 Ice	0X	-2.62	4.63	50.05	5.32	1.17	1.84	-0.22	2.18	0.00
W 180 Ice	0XY	9.10	7.20	79.76	11.60	1.15	-0.51	-0.21	1.26	0.00
W 180 Ice	0Y	9.26	-7.19	80.83	11.72	-1.19	-0.49	0.22	1.29	0.00
W 45 Ice	0P	-9.60	-9.78	94.18	13.71	-0.71	0.77	0.00	1.05	0.00
W 45 Ice	0X	-7.21	4.65	66.34	8.58	1.63	0.77	0.31	1.80	0.00
W 45 Ice	0XY	2.26	2.17	37.62	3.14	1.62	-1.59	-0.00	2.27	0.00
W 45 Ice	0Y	4.57	-7.04	63.59	8.39	-0.74	-1.57	-0.31	1.73	0.00
W -45 Ice	0P	-7.36	-4.65	67.81	8.71	-1.67	0.77	-0.31	1.84	0.00
W -45 Ice	0X	-9.46	9.78	92.72	13.60	0.67	0.78	-0.01	1.03	0.00
W -45 Ice	0XY	4.52	7.04	62.96	8.36	0.72	-1.56	0.31	1.72	0.00
W -45 Ice	0Y	2.31	-2.17	38.25	3.17	-1.64	-1.59	0.01	2.29	0.00
W 90 Ice	0P	-7.42	-9.45	85.11	12.02	-0.56	1.24	0.21	1.37	0.00
W 90 Ice	0X	-4.41	2.73	49.56	5.18	1.79	1.23	0.20	2.17	0.00
W 90 Ice	0XY	4.40	2.56	46.72	5.09	1.75	-1.14	-0.21	2.09	0.00
W 90 Ice	0Y	7.42	-8.90	80.34	11.59	-0.60	-1.09	-0.20	1.25	0.00
W -90 Ice	0P	-4.51	-2.73	50.84	5.27	-1.83	1.24	-0.20	2.21	0.00
W -90 Ice	0X	-7.32	9.45	83.82	11.95	0.52	1.24	-0.22	1.35	0.00
W -90 Ice	0XY	7.33	8.90	79.53	11.53	0.57	-1.10	0.21	1.24	0.00
W -90 Ice	0Y	4.50	-2.56	47.54	5.17	-1.78	-1.13	0.22	2.11	0.00

Summary of Joint Support Reactions For All Load Cases in Direction of Leg:

Load Case	Support Joint	Origin Joint	Leg Member	Force In Leg Dir. (kips)	Residual Shear Perpendicular To Leg (kips)	Residual Shear Horizontal To Leg - Res. (kips)	Residual Shear Horizontal To Leg - Long. (kips)	Residual Shear Horizontal To Leg - Tran. (kips)	Total Long. Force (kips)	Total Tran. Force (kips)	Total Vert. Force (kips)
W 0	0P	1P	L 1P	184.362	12.971	13.021	12.455	3.796	-25.30	-16.64	182.32
W 0	0X	1X	L 1X	180.426	12.769	12.820	12.142	-4.114	-24.71	16.68	178.40
W 0	0XY	1XY	L 1XY	-102.554	20.346	20.400	20.383	0.819	-27.47	-7.90	-100.57
W 0	0Y	1Y	L 1Y	-104.750	20.985	21.040	21.031	-0.625	-28.27	7.86	-102.72
W 180	0P	1P	L 1P	-101.885	21.243	21.298	-21.291	-0.567	28.32	7.60	-99.86
W 180	0X	1X	L 1X	-100.046	20.581	20.635	-20.622	0.744	27.53	-7.65	-98.06
W 180	0XY	1XY	L 1XY	177.910	12.864	12.915	-12.266	-4.044	24.65	16.43	175.90
W 180	0Y	1Y	L 1Y	181.488	13.086	13.136	-12.591	3.743	25.23	-16.38	179.46
W 45	0P	1P	L 1P	255.015	13.195	13.261	9.186	9.564	-26.96	-27.34	252.45
W 45	0X	1X	L 1X	38.435	19.480	19.480	12.407	15.019	-15.11	-12.31	38.43
W 45	0XY	1XY	L 1XY	-172.713	18.087	18.176	13.061	12.640	-25.04	-24.62	-170.07
W 45	0Y	1Y	L 1Y	36.639	18.599	18.600	14.259	11.944	-11.68	-14.52	36.62
W -45	0P	1P	L 1P	41.571	19.953	19.954	12.766	-15.335	-15.69	12.41	41.55
W -45	0X	1X	L 1X	251.880	13.161	13.226	8.962	-9.728	-26.52	27.29	249.34
W -45	0XY	1XY	L 1XY	38.023	18.171	18.171	13.798	-11.824	-11.12	14.50	37.97
W -45	0Y	1Y	L 1Y	-174.090	18.244	18.334	13.387	-12.528	-25.46	24.60	-171.43
W 90	0P	1P	L 1P	185.931	13.090	13.138	3.253	12.729	-16.20	-25.68	183.90
W 90	0X	1X	L 1X	-104.541	21.554	21.609	-0.413	21.605	7.63	-28.82	-102.49
W 90	0XY	1XY	L 1XY	-100.652	14.779	14.822	1.188	14.774	-8.16	-21.75	-99.04
W 90	0Y	1Y	L 1Y	177.440	17.644	17.708	-4.408	17.151	16.74	-29.48	175.06
W -90	0P	1P	L 1P	-103.478	21.645	21.701	-0.400	-21.697	7.54	28.84	-101.43
W -90	0X	1X	L 1X	184.865	13.134	13.182	3.241	-12.778	-16.12	25.65	182.84
W -90	0XY	1XY	L 1XY	176.740	17.689	17.754	-4.379	-17.205	16.66	29.48	174.37
W -90	0Y	1Y	L 1Y	-99.953	14.831	14.873	1.158	-14.828	-8.08	21.75	-98.35
W 0 Ice	0P	1P	L 1P	85.630	3.624	3.640	3.282	1.574	-9.26	-7.55	84.87
W 0 Ice	0X	1X	L 1X	84.084	3.622	3.638	3.226	-1.682	-9.09	7.55	83.33
W 0 Ice	0XY	1XY	L 1XY	46.741	1.192	1.192	0.647	-1.001	2.63	4.28	46.49
W 0 Ice	0Y	1Y	L 1Y	47.296	1.162	1.162	0.653	0.961	2.66	-4.27	47.04
W 180 Ice	0P	1P	L 1P	51.341	1.397	1.397	-0.934	1.039	-2.66	-4.64	51.08
W 180 Ice	0X	1X	L 1X	50.313	1.427	1.427	-0.902	-1.105	-2.62	4.63	50.05
W 180 Ice	0XY	1XY	L 1XY	80.512	3.805	3.822	-3.481	-1.578	9.10	7.20	79.76
W 180 Ice	0Y	1Y	L 1Y	81.585	3.848	3.864	-3.563	1.496	9.26	-7.19	80.83
W 45 Ice	0P	1P	L 1P	95.077	4.307	4.328	2.971	3.147	-9.60	-9.78	94.18
W 45 Ice	0X	1X	L 1X	66.844	2.535	2.542	2.541	0.020	-7.21	4.65	66.34
W 45 Ice	0XY	1XY	L 1XY	37.744	0.612	0.615	0.391	0.475	2.26	2.17	37.62
W 45 Ice	0Y	1Y	L 1Y	64.086	2.554	2.561	-0.090	2.560	4.57	-7.04	63.59

W -45 Ice	0P	1P	L 1P	68.314	2.582	2.588	2.585	-0.121	-7.36	-4.65	67.81
W -45 Ice	0X	1X	L 1X	93.607	4.352	4.373	2.928	-3.248	-9.46	9.78	92.72
W -45 Ice	0XY	1XY	L 1XY	63.455	2.600	2.607	-0.083	-2.606	4.52	7.04	62.96
W -45 Ice	0Y	1Y	L 1Y	38.375	0.644	0.647	0.384	-0.521	2.31	-2.17	38.25
W 90 Ice	0P	1P	L 1P	85.870	3.726	3.741	1.427	3.459	-7.42	-9.45	85.11
W 90 Ice	0X	1X	L 1X	49.813	1.192	1.192	0.915	0.765	-4.41	2.73	49.56
W 90 Ice	0XY	1XY	L 1XY	46.982	1.331	1.331	-1.113	0.730	4.40	2.56	46.72
W 90 Ice	0Y	1Y	L 1Y	81.086	3.675	3.692	-1.764	3.243	7.42	-8.90	80.34
W -90 Ice	0P	1P	L 1P	51.100	1.259	1.259	0.927	-0.851	-4.51	-2.73	50.84
W -90 Ice	0X	1X	L 1X	84.583	3.801	3.817	1.414	-3.546	-7.32	9.45	83.82
W -90 Ice	0XY	1XY	L 1XY	80.271	3.711	3.728	-1.726	-3.304	7.33	8.90	79.53
W -90 Ice	0Y	1Y	L 1Y	47.796	1.397	1.397	-1.151	-0.791	4.50	-2.56	47.54

Overturning Moment Summary For All Load Cases:

Load Case	Transverse Moment (ft-k)	Longitudinal Moment (ft-k)	Resultant Moment (ft-k)
W 0	36.585	11703.408	11703.465
W 180	36.581	-11480.432	11480.490
W 45	8729.829	8804.865	12399.015
W -45	-8656.699	8804.955	12347.699
W 90	11630.354	111.858	11630.891
W -90	-11557.273	111.858	11557.814
W 0 Ice	43.525	1549.371	1549.982
W 180 Ice	43.525	-1233.834	1234.602
W 45 Ice	1116.580	1230.820	1661.827
W -45 Ice	-1029.529	1230.820	1604.633
W 90 Ice	1435.133	157.770	1443.779
W -90 Ice	-1348.084	157.769	1357.284

EIA Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Count	Member Count	Top Width (ft)	Bottom Width (ft)	Gross Area (ft^2)	Face Af Adjust Factor	Face Ar Adjust Factor	Dead Load Factor
187.5-200.0	200.000	187.500	8	20	13.33	15.09	177.63	1.1090	1.1090	1.331
175.0-187.5	187.500	175.000	8	16	15.09	16.85	199.64	1.1800	1.1800	1.416
162.5-175.0	175.000	162.500	8	16	16.85	18.61	221.64	1.2080	1.2080	1.449
150.0-162.5	162.500	150.000	12	24	18.61	20.37	243.65	1.2150	1.2150	1.458
137.5-150.0	150.000	137.500	16	24	20.37	22.13	265.66	1.2710	1.2710	1.526
125.0-137.5	137.500	125.000	16	24	22.13	23.89	287.67	1.2860	1.2860	1.543
112.5-125.0	125.000	112.500	16	24	23.89	25.65	309.68	1.2910	1.2910	1.549
100.0-112.5	112.500	100.000	16	24	25.65	27.42	331.68	1.2960	1.2960	1.555
75.00-100.0	100.000	75.000	16	24	27.42	30.94	729.39	1.3260	1.3260	1.592
50.00-75.00	75.000	50.000	16	24	30.94	34.46	817.42	1.3410	1.3410	1.609
25.00-50.00	50.000	25.000	20	32	34.46	37.98	905.45	1.3810	1.3810	1.657
0.000-25.00	25.000	0.000	28	56	37.98	41.50	993.48	1.2440	1.2440	1.493

Printed capacities do not include the strength factor entered for each load case.
The Group Summary reports on the member and load case that resulted in maximum usage which may not necessarily be the same as that which produces maximum force.

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max Use In Comp. %	Comp. Control Member	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R	KL/R Comp. Member (ft)	Length	Curve No.	No. Of Bolts Comp.
Leg S1	L 8" x 8" x 1.125"	SAE	8X8X1.13	33.0	53.19	53.19	L 1P	-216.320	W 45	406.720	0.000	0.000	0.333	0.333	0.333	64.41	64.41	25.124	1	0
Leg S2	L 8" x 8" x 1"	SAE	8X8X1	33.0	49.73	49.73	L 2P	-181.334	W 45	364.663	0.000	0.000	0.333	0.333	0.333	64.41	64.41	25.124	1	0
Leg S3	L 8" x 8" x 0.875"	SAE	8X8X0.88	33.0	44.94	44.94	L 3P	-144.901	W 45	322.451	0.000	0.000	0.333	0.333	0.333	64.00	64.00	25.124	1	0
Leg S4	L 8" x 8" x 0.75"	SAE	8X8X0.75	33.0	39.21	39.21	L 4P	-109.610	W 45	279.520	0.000	0.000	0.333	0.333	0.333	63.60	63.60	25.124	1	0
Leg S5	L 6" x 6" x 0.875"	SAE	6X6X0.88	33.0	38.72	38.72	L 5P	-91.597	W 45	236.535	0.000	0.000	0.500	0.500	0.500	64.42	64.42	12.562	1	0
Leg S6	L 6" x 6" x 0.875"	SAE	6X6X0.88	33.0	31.50	31.50	L 6P	-74.517	W 45	236.535	0.000	0.000	0.500	0.500	0.500	64.42	64.42	12.562	1	0
Leg S7	L 6" x 6" x 0.75"	SAE	6X6X0.75	33.0	28.71	28.71	L 7P	-58.914	W 45	205.175	0.000	0.000	0.500	0.500	0.500	64.42	64.42	12.562	1	0
Leg S8	L 6" x 6" x 0.75"	SAE	6X6X0.75	33.0	21.15	21.15	L 8P	-43.395	W 45	205.175	0.000	0.000	0.500	0.500	0.500	64.42	64.42	12.562	1	0
Leg S9	L 6" x 6" x 0.75"	SAE	6X6X0.75	33.0	16.85	16.85	L 9P	-34.581	W 45	205.175	0.000	0.000	0.500	0.500	0.500	64.42	64.42	12.562	1	0
Leg S10	L 6" x 6" x 0.75"	SAE	6X6X0.75	33.0	10.50	10.50	L 10P	-21.549	W 45	205.175	0.000	0.000	0.500	0.500	0.500	64.42	64.42	12.562	1	0
Leg S11	L 6" x 6" x 0.5"	SAE	6X6X0.5	33.0	8.13	8.13	L 11P	-11.397	W 45	140.255	0.000	0.000	0.500	0.500	0.500	63.87	63.87	12.562	1	0
Leg S12	L 6" x 6" x 0.5"	SAE	6X6X0.5	33.0	2.72	2.72	L 12X	-3.809	W -45	140.255	0.000	0.000	0.500	0.500	0.500	63.87	63.87	12.562	1	0
Diag S1	B/B L3"x3"x0.25"	DAE	3X3X0.25	33.0	77.79	77.79	D 2XY	-38.487	W -90	49.478	0.000	0.000	0.320	0.640	0.320	106.51	106.51	19.276	1	0
Diag S2	B/B L2.5"x3"x0.3125"	DAS	3X2.5X0.31	33.0	86.85	86.85	D 3X	-29.054	W -90	33.452	0.000	0.000	0.320	0.640	0.320	165.40	147.92	31.444	6	0
Diag S3	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	33.0	89.56	89.56	D 5X	-28.420	W -90	31.734	0.000	0.000	0.320	0.640	0.320	161.08	145.27	30.413	6	0
Diag S4	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	33.0	78.54	78.54	D 7X	-25.908	W -90	32.989	0.000	0.000	0.320	0.640	0.320	155.99	142.13	29.451	6	0
Diag S5	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	78.66	78.66	D 9X	-16.240	W -90	20.646	0.000	0.000	0.500	1.000	0.500	187.28	161.38	18.572	6	0
Diag S6	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	65.87	65.87	D 12Y	-14.293	W 180	21.700	0.000	0.000	0.500	1.000	0.500	180.83	157.41	17.932	6	0
Diag S7	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	59.48	59.48	D 13X	-13.560	W -90	22.798	0.000	0.000	0.500	1.000	0.500	174.59	153.57	17.313	6	0
Diag S8	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	54.36	54.36	D 15X	-13.010	W -90	23.935	0.000	0.000	0.500	1.000	0.500	168.59	149.88	16.718	6	0
Diag S9	L 3" x 4" x 0.25"	SAU	4X3X0.25	33.0	66.77	66.77	D 18X	-7.629	W -90	11.425	0.000	0.000	0.520	0.520	0.520	222.12	182.80	23.173	6	0
Diag S10	L 3" x 4" x 0.25"	SAU	4X3X0.25	33.0	46.80	46.80	D 20X	-5.888	W -90	12.582	0.000	0.000	0.520	0.520	0.520	208.12	174.19	21.713	6	0
Diag S11	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	33.0	29.96	29.96	D 22X	-4.556	W -90	15.206	0.000	0.000	0.520	0.520	0.520	182.53	158.45	20.300	6	0
Diag S12	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	33.0	12.17	12.17	D 23XY	-2.039	W 180	16.752	0.000	0.000	0.520	0.520	0.520	170.35	150.97	18.946	6	0
Horiz 1	B/B L3"x3"x0.3125"	DAE	3X3X0.31	33.0	86.92	86.92	H 1P	-37.456	W -90	43.092	0.000	0.000	0.950	0.950	0.950	156.53	142.47	12.660	6	0
Horiz 2	B/B L3.5"x2.5"x0.3125"	DAL	3.5X2.5X0.31	33.0	50.21	50.21	H 3P	-15.383	W -90	30.639	0.000	0.000	1.000	1.000	1.000	187.95	161.79	17.229	6	0
Horiz 3	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	65.05	65.05	H 5P	-13.859	W -90	21.304	0.000	0.000	1.000	1.000	1.000	196.42	167.00	15.468	6	0
Horiz 4	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	47.16	47.16	H 7P	-11.931	W -90	25.299	0.000	0.000	1.000	1.000	1.000	174.06	153.25	13.708	6	0
Horiz 5	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	56.05	56.05	H 10P	-10.514	W 180	18.758	0.000	0.000	1.000	1.000	1.000	200.16	169.30	12.827	6	0
Horiz 6	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	42.23	42.23	H 11P	-8.777	W -90	20.781	0.000	0.000	1.000	1.000	1.000	186.43	160.85	11.947	6	0
Horiz 7	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	34.71	34.71	H 13P	-8.034	W -90	23.148	0.000	0.000	1.000	1.000	1.000	172.69	152.40	11.067	6	0
Horiz 8	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	20.30	20.30	H 15P	-7.391	W -90	36.417	0.000	0.000	1.000	1.000	1.000	129.35	125.75	10.186	6	0
Horiz 9	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	2.45	2.45	H 17Y	-0.518	W 0	21.113	0.000	0.000	0.500	1.000	0.500	197.65	167.75	18.612	6	0
Horiz 10	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	1.23	0.55	H 19Y	-0.248	W -45	44.957	0.000	0.000	0.500	0.500	0.500	106.99	106.99	16.851	1	0
Horiz 11	B/B L4"x3"x0.3125"	DAL	4X3X0.31	33.0	0.67	0.06	H 21P	-0.050	W 180	88.620	0.000	0.000	0.500	0.600	0.500	83.58	83.58	15.091	1	0
Horiz 12	C8x11.5	CHN	C8x11.5	33.0	0.31	0.31	H 23P	-0.058	W 180	18.420	0.000	0.000	1.000	1.000	1.000	255.94	203.60	13.330	6	0
LD 1	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	71.59	71.59	LD 1XY	-14.501	W -90	20.256	0.000	0.000	1.000	1.000	1.000	175.49	154.13	11.465	6	0
LD 2	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	97.87	97.87	LD 3X	-27.342	W -90	27.937	0.000	0.000	1.000	1.000	1.000	150.40	138.70	9.638	6	0
LD 3	B/B L3"x3"x0.25"	DAE	3X3X0.25	33.0	68.98	68.98	LD 5P	-26.307	W -90	38.139	0.000	0.000	1.000	1.000	1.000	135.24	129.37	10.481	6	0
LH 1	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	99.24	99.24	LH 1XY	-15.703	W -90	15.824	0.000	0.000	1.000	2.000	1.000	224.60	184.33	11.137	6	0
DUM 1	Dummy Bracing Member	DUM	0.1X0.1X1	36.0	0.00	0.00	BR 5XY	-1.189	W 45	0.324	0.000	0.000	1.000	1.000	1.000	2.63	2.63	21.875	1	0

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max Use In Tens. %	Tension Control Member	Tension Force (kips)	Tension Control Load Case	Net Section Capacity (kips)	Tension Connect. Shear Capacity (kips)	Tension Connect. Bearing Capacity (kips)	Tension Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts Tens.	No. Of Holes	Hole Diameter (in)

Leg S1	L 8" x 8" x 1.125"	SAE	8X8X1.13	33.0	53.19	25.10	L 1Y	124.730	W -45	496.880	0.000	0.000	0.000	25.124	0	0.000	0
Leg S2	L 8" x 8" x 1"	SAE	8X8X1	33.0	49.73	27.13	L 2Y	120.875	W -45	445.499	0.000	0.000	0.000	25.124	0	0.000	0
Leg S3	L 8" x 8" x 0.875"	SAE	8X8X0.88	33.0	44.94	23.98	L 3Y	94.237	W -45	392.930	0.000	0.000	0.000	25.124	0	0.000	0
Leg S4	L 8" x 8" x 0.75"	SAE	8X8X0.75	33.0	39.21	19.86	L 4Y	67.485	W -45	339.767	0.000	0.000	0.000	25.124	0	0.000	0
Leg S5	L 6" x 6" x 0.875"	SAE	6X6X0.88	33.0	38.72	19.13	L 5XY	55.292	W 45	288.981	0.000	0.000	0.000	12.562	0	0.000	0
Leg S6	L 6" x 6" x 0.875"	SAE	6X6X0.88	33.0	31.50	14.99	L 6XY	43.327	W 45	288.981	0.000	0.000	0.000	12.562	0	0.000	0
Leg S7	L 6" x 6" x 0.75"	SAE	6X6X0.75	33.0	28.71	12.68	L 7XY	31.795	W 45	250.668	0.000	0.000	0.000	12.562	0	0.000	0
Leg S8	L 6" x 6" x 0.75"	SAE	6X6X0.75	33.0	21.15	8.37	L 8XY	20.987	W 45	250.668	0.000	0.000	0.000	12.562	0	0.000	0
Leg S9	L 6" x 6" x 0.75"	SAE	6X6X0.75	33.0	16.85	6.59	L 9XY	16.522	W 45	250.668	0.000	0.000	0.000	12.562	0	0.000	0
Leg S10	L 6" x 6" x 0.75"	SAE	6X6X0.75	33.0	10.50	3.71	L 10XY	9.290	W 45	250.668	0.000	0.000	0.000	12.562	0	0.000	0
Leg S11	L 6" x 6" x 0.5"	SAE	6X6X0.5	33.0	8.13	1.68	L 11XY	2.870	W 45	170.775	0.000	0.000	0.000	12.562	0	0.000	0
Leg S12	L 6" x 6" x 0.5"	SAE	6X6X0.5	33.0	2.72	0.00	L 12Y	0.000		170.775	0.000	0.000	0.000	12.562	0	0.000	0
Diag S1	B/B L3"x3"x0.25"	DAE	3X3X0.25	33.0	77.79	55.05	D 2P	47.091	W -90	85.536	0.000	0.000	0.000	19.276	0	0.000	0
Diag S2	B/B L2.5"x3"x0.3125"	DAS	3X2.5X0.31	33.0	86.85	27.19	D 3P	26.169	W -90	96.228	0.000	0.000	0.000	31.444	0	0.000	0
Diag S3	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	33.0	89.56	32.97	D 5P	25.752	W -90	78.111	0.000	0.000	0.000	30.413	0	0.000	0
Diag S4	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	33.0	78.54	30.83	D 7P	24.084	W -90	78.111	0.000	0.000	0.000	29.451	0	0.000	0
Diag S5	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	78.66	20.78	D 9P	14.690	W -90	70.686	0.000	0.000	0.000	18.572	0	0.000	0
Diag S6	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	65.87	18.23	D 12P	12.886	W 180	70.686	0.000	0.000	0.000	17.932	0	0.000	0
Diag S7	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	59.48	17.39	D 13P	12.295	W -90	70.686	0.000	0.000	0.000	17.313	0	0.000	0
Diag S8	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	54.36	16.55	D 15P	11.698	W -90	70.686	0.000	0.000	0.000	16.718	0	0.000	0
Diag S9	L 3" x 4" x 0.25"	SAU	4X3X0.25	33.0	66.77	13.60	D 18P	6.824	W -90	50.193	0.000	0.000	0.000	23.173	0	0.000	0
Diag S10	L 3" x 4" x 0.25"	SAU	4X3X0.25	33.0	46.80	10.73	D 20P	5.386	W -90	50.193	0.000	0.000	0.000	21.713	0	0.000	0
Diag S11	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	33.0	29.96	7.54	D 22P	3.785	W -90	50.193	0.000	0.000	0.000	20.300	0	0.000	0
Diag S12	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	33.0	12.17	3.12	D 23XY	1.564	W 0	50.193	0.000	0.000	0.000	18.946	0	0.000	0
Horiz 1	B/B L3"x3"x0.3125"	DAE	3X3X0.31	33.0	86.92	24.32	H 1XY	25.637	W -90	105.435	0.000	0.000	0.000	12.660	0	0.000	0
Horiz 2	B/B L3.5"x2.5"x0.3125"	DAL	3.5X2.5X0.31	33.0	50.21	15.31	H 3P	16.143	W 90	105.435	0.000	0.000	0.000	17.229	0	0.000	0
Horiz 3	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	65.05	18.19	H 5X	14.208	W -90	78.111	0.000	0.000	0.000	15.468	0	0.000	0
Horiz 4	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	47.16	16.19	H 7P	12.650	W 90	78.111	0.000	0.000	0.000	13.708	0	0.000	0
Horiz 5	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	56.05	15.69	H 9X	11.094	W -90	70.686	0.000	0.000	0.000	12.827	0	0.000	0
Horiz 6	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	42.23	13.34	H 11X	9.428	W -90	70.686	0.000	0.000	0.000	11.947	0	0.000	0
Horiz 7	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	34.71	12.28	H 13X	8.683	W -90	70.686	0.000	0.000	0.000	11.067	0	0.000	0
Horiz 8	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	20.30	9.89	H 15X	7.728	W -90	78.111	0.000	0.000	0.000	10.186	0	0.000	0
Horiz 9	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	2.45	1.55	H 17P	1.213	W 0	78.111	0.000	0.000	0.000	18.612	0	0.000	0
Horiz 10	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	1.23	1.23	H 19P	0.959	W 0	78.111	0.000	0.000	0.000	16.651	0	0.000	0
Horiz 11	B/B L4"x3"x0.3125"	DAL	4X3X0.31	33.0	0.67	0.67	H 22P	0.833	W 45	124.146	0.000	0.000	0.000	15.091	0	0.000	0
Horiz 12	C8x11.5	CHN	C8x11.5	33.0	0.31	0.09	H 23P	0.093	W 0	100.386	0.000	0.000	0.000	13.330	0	0.000	0
LD 1	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	71.59	48.33	LD 1P	30.571	W -90	63.261	0.000	0.000	0.000	11.465	0	0.000	0
LD 2	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	97.87	31.24	LD 3P	22.085	W -90	70.686	0.000	0.000	0.000	9.638	0	0.000	0
LD 3	B/B L3"x3"x0.25"	DAE	3X3X0.25	33.0	68.98	31.83	LD 5X	27.229	W -90	85.536	0.000	0.000	0.000	10.481	0	0.000	0
LH 1	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	99.24	46.57	LH 1P	32.922	W -90	70.686	0.000	0.000	0.000	11.137	0	0.000	0
DUM 1	Dummy Bracing Member	DUM	0.1X0.1X1	36.0	0.00	0.00	BR 5X	0.871	W -45	0.324	0.000	0.000	0.000	21.875	0	0.000	0

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
W 0	95.13	LD 4P	Angle
W 180	96.18	LD 4Y	Angle
W 45	73.58	LD 4X	Angle
W -45	75.42	LD 4P	Angle
W 90	98.91	LH 1Y	Angle
W -90	99.24	LH 1XY	Angle
W 0 Ice	23.92	LD 4P	Angle
W 180 Ice	25.43	LD 4Y	Angle
W 45 Ice	22.02	LD 3P	Angle
W -45 Ice	22.57	LD 3X	Angle
W 90 Ice	24.70	LD 3P	Angle
W -90 Ice	25.16	LD 3X	Angle

*** Weight of structure (lbs):

Weight of Angles*Section DLF:	95337.8
Total:	95337.8

*** End of Report

Site #:	88017	Engineer:	ABL	Windspeed: No Ice:	105 mph	Ice:	40 mph	
Name:	Shelton/Trumbull, CT	Date:	10/06/11	Carrier	US ICE			

Taper:	-0.14085		Taper Change:	200	ft
FW @ Base:	41.5	ft	FW @ Top:	13.33	ft

Joint Label	Symmetry Code	X Coord. *(ft)*	Y Coord. *(ft)*	Z Coord. *(ft)*	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.	Drop Sub-Brace *(Y or Blank)*
0	XY-Symmetry	20.75	20.75	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	
1	XY-Symmetry	18.989375	18.989375	25	Free	Free	Free	Free	Free	Free	
2	XY-Symmetry	17.22875	17.22875	50	Free	Free	Free	Free	Free	Free	
3	XY-Symmetry	15.468125	15.468125	75	Free	Free	Free	Free	Free	Free	
4	XY-Symmetry	13.7075	13.7075	100	Free	Free	Free	Free	Free	Free	
5	XY-Symmetry	12.8271875	12.8271875	112.5	Free	Free	Free	Free	Free	Free	
6	XY-Symmetry	11.946875	11.946875	125	Free	Free	Free	Free	Free	Free	
7	XY-Symmetry	11.0665625	11.0665625	137.5	Free	Free	Free	Free	Free	Free	
8	XY-Symmetry	10.18625	10.18625	150	Free	Free	Free	Free	Free	Free	
9	XY-Symmetry	9.3059375	9.3059375	162.5	Free	Free	Free	Free	Free	Free	
10	XY-Symmetry	8.425625	8.425625	175	Free	Free	Free	Free	Free	Free	
11	XY-Symmetry	7.5453125	7.5453125	187.5	Free	Free	Free	Free	Free	Free	
12	XY-Symmetry	6.665	6.665	200	Free	Free	Free	Free	Free	Free	
A1	XY-Symmetry	18.989375	6.329791667	25	Free	Free	Free	Free	Free	Free	
A2	XY-Symmetry	6.329791667	18.989375	25	Free	Free	Free	Free	Free	Free	
A3	Y-Symmetry	17.22875	0	50	Free	Free	Free	Free	Free	Free	
A4	X-Symmetry	0	17.22875	50	Free	Free	Free	Free	Free	Free	
A5	Y-Symmetry	15.468125	0	75	Free	Free	Free	Free	Free	Free	
A6	X-Symmetry	0	15.468125	75	Free	Free	Free	Free	Free	Free	
A7	Y-Symmetry	13.7075	0	100	Free	Free	Free	Free	Free	Free	
A8	X-Symmetry	0	13.7075	100	Free	Free	Free	Free	Free	Free	
A9	Y-Symmetry	12.8271875	0	112.5	Free	Free	Free	Free	Free	Free	
A10	X-Symmetry	0	12.8271875	112.5	Free	Free	Free	Free	Free	Free	
A11	Y-Symmetry	11.946875	0	125	Free	Free	Free	Free	Free	Free	
A12	X-Symmetry	0	11.946875	125	Free	Free	Free	Free	Free	Free	
A13	Y-Symmetry	11.0665625	0	137.5	Free	Free	Free	Free	Free	Free	
A14	X-Symmetry	0	11.0665625	137.5	Free	Free	Free	Free	Free	Free	
A15	Y-Symmetry	10.18625	0	150	Free	Free	Free	Free	Free	Free	
A16	X-Symmetry	0	10.18625	150	Free	Free	Free	Free	Free	Free	
H1	XY-Symmetry	19.57624765	11.13650855	16.6667	Free	Free	Free	Free	Free	Free	
H2	XY-Symmetry	11.13650855	19.57624765	16.6667	Free	Free	Free	Free	Free	Free	
H3	Y-Symmetry	19.57624765	0	16.6667	Free	Free	Free	Free	Free	Free	
H4	X-Symmetry	0	19.57624765	16.6667	Free	Free	Free	Free	Free	Free	

# Vert	Drop (ft)	Height (ft)	Type	Count	Z-Elev. (ft)	FW (ft)	# Sub-Brace
1	8.3333	25	2	1	0	41.5	3
1		25	A	2	25	37.97875	2
1		25	A	3	50	34.4575	2
1		25	A	4	75	30.93625	2
1		12.5	A	5	100	27.415	1
1		12.5	A	6	112.5	25.654375	1
1		12.5	A	7	125	23.89375	1
1		12.5	A	8	137.5	22.133125	1
1		12.5	X	9	150	20.3725	1
1		12.5	X	10	162.5	18.611875	1
1		12.5	X	11	175	16.85125	1
		12.5	X	12	187.5	15.090625	1
				13	200	13.33	

NOTES	
Types:	
1:	Built up Horizs. w/ A
2:	Built up Horizs. w/ M
A:	Typical A brace
X:	Typical X brace
Drop:	Use only for types 1 & 2

# Sections:	12

Legs

Site No.:	88017
Engineer:	ABL
Date:	10/06/2011
Carrier:	US ICE

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations *(ft)*	Type of Shape [1]	Diameter or Length *(in)*	Thickness [2] *(in)*	F_Y *(ksi)*
1	0.000-25.00	L	8	1.125	33
2	25.00-50.00	L	8	1	33
3	50.00-75.00	L	8	0.875	33
4	75.00-100.0	L	8	0.75	33
5	100.0-112.5	L	6	0.875	33
6	112.5-125.0	L	6	0.875	33
7	125.0-137.5	L	6	0.75	33
8	137.5-150.0	L	6	0.75	33
9	150.0-162.5	L	6	0.75	33
10	162.5-175.0	L	6	0.75	33
11	175.0-187.5	L	6	0.5	33
12	187.5-200.0	L	6	0.5	33

Notes:

[1] Type of Leg Shape: **R** = Round or **P** = Bent Plate or **S** = Schifflerized Angle. **L** = Even Leg

[2] For Solid Round Leg Shapes Thickness Equals Zero.

[3] Adjust for Bent Plate Leg Shapes.

Diagonals

Site No.:	88017
Engineer:	ABL
Date:	10/06/2011
Carrier:	US ICE

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape [1]	Diameter [2] (in)	Web Length [3] (in)	Flange Length [3] (in)	Thickness (in)	F_y (ksi)	Is Diag. Tension Only? (Y/N)
1	0.000-25.00	2L		3	3	0.25	33	
2	25.00-50.00	2L		2.5	3	0.3125	33	
3	50.00-75.00	2L		2.5	3	0.25	33	
4	75.00-100.0	2L		2.5	3	0.25	33	
5	100.0-112.5	2L		2.5	2.5	0.25	33	
6	112.5-125.0	2L		2.5	2.5	0.25	33	
7	125.0-137.5	2L		2.5	2.5	0.25	33	
8	137.5-150.0	2L		2.5	2.5	0.25	33	
9	150.0-162.5	L		3	4	0.25	33	Y
10	162.5-175.0	L		3	4	0.25	33	Y
11	175.0-187.5	L		3.5	3.5	0.25	33	Y
12	187.5-200.0	L		3.5	3.5	0.25	33	Y

Notes:

[1] Type of Diagonal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.

[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

[3] Applies to Single-Angle and Double-Angle Shapes only.

[4] Applies to Double-Angle Shapes only.

[5] Applies to Single-Angle Shapes only.

Horizontals

Site No.:	88017
Engineer:	ABL
Date:	10/06/2011
Carrier:	US ICE

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations *(ft)*	Type of Shape [1]	Diameter [2] *(in)*	Web Length [3] *(in)*	Flange Length [3] *(in)*	Thickness *(in)*	F_y *(ksi)*	
1	0.000-25.00	2L		3	3	0.3125	33	
2	25.00-50.00	2L		3.5	2.5	0.3125	33	
3	50.00-75.00	2L		3	2.5	0.25	33	
4	75.00-100.0	2L		3	2.5	0.25	33	
5	100.0-112.5	2L		2.5	2.5	0.25	33	
6	112.5-125.0	2L		2.5	2.5	0.25	33	
7	125.0-137.5	2L		2.5	2.5	0.25	33	
8	137.5-150.0	2L		3	2.5	0.25	33	
9	150.0-162.5	2L		3	2.5	0.25	33	
10	162.5-175.0	2L		3	2.5	0.25	33	
11	175.0-187.5	2L		4	3	0.3125	33	
12	187.5-200.0	C		8	11.5	0.3125	33	

Notes:

[1] Type of Horizontal Shape: **R** = Round, **L** = Single-Angle, **2L** = Double-Angle, **C** = Channel, **W** = W Shape

[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

[3] Applies to Single-Angle and Double-Angle Shapes only.

[4] Applies to Double-Angle Shapes only.

[5] Applies to Single-Angle Shapes only.

Built-up Diagonals

Site No.:	88017
Engineer:	ABL
Date:	10/06/2011
Carrier:	US ICE

When inputting thickness values, include all decimal places.
Input diags. from left to center & from base section upward.

Tower Built-up Diag. #	Section Elevations *(ft)*	Type of Shape [1]	Diameter [2] *(in)*	Web Length [3] *(in)*	Flange Length [3] *(in)*	Thickness *(in)*	F_y *(ksi)*
1	0.000-25.00	2L		2.5	2	0.25	33
2	0.000-25.00	2L		2.5	2.5	0.25	33
3	0.000-25.00	2L		3	3	0.25	33

Notes:

[1] Type of Diagonal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.

[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

[3] Applies to Single-Angle and Double-Angle Shapes only.

[4] Applies to Double-Angle Shapes only.

[5] Applies to Single-Angle Shapes only.

Built-up Horizontals

Site No.:	88017
Engineer:	ABL
Date:	10/06/2011
Carrier:	US ICE

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations *(ft)*	Type of Shape [1]	Diameter [2] *(in)*	Web Length [3] *(in)*	Flange Length [3] *(in)*	Thickness *(in)*	F_y *(ksi)*	Is Horiz. Tension Only? *(Y/N)*
1	0.000-25.00	2L		2.5	2.5	0.25	33	Y

Notes:

[1] Type of Horizontal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.

[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

[3] Applies to Single-Angle and Double-Angle Shapes only.

[4] Applies to Double-Angle Shapes only.

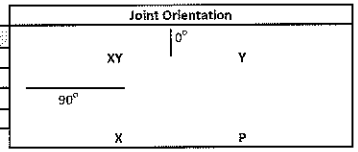
[5] Applies to Single-Angle Shapes only.

Dishes

Site No.:	88017
Engineer:	ABL
Date:	10/06/11
Carrier:	US ICE

Dish Types	
S	Standard
R	Standard w/ Radome
H	High Performance
G	Grid

Joint Orientation



Dish Elevation (ft)	Dish Dia. (ft)	Dish Angle (deg)	Dish Type	Joint Orientation
200	8	180	R	P
200	8	90	R	XY
126	8	270	R	Y
162	2	161.6	R	XY
162	3	247.6	H	Y
162	2	18.6	H	XY
162	3	226.1	H	P

Equipment Label	Attach Label	Equipment Property Set	EIA Antenna Orientation Angle *(deg)*
8' RAD 1 @ 200'	12P	8 ft RAD Dish	180
8' RAD 2 @ 200'	12XY	8 ft RAD Dish	90
8' RAD 3 @ 126'	6Y	8 ft RAD Dish	270
2' RAD 5 @ 162'	9XY	2 ft RAD Dish	161.6
3' HP 6 @ 162'	9Y	3 ft HP Dish	247.6
2' HP 7 @ 162'	9XY	2 ft HP Dish	18.6
3' HP 8 @ 162'	9P	3 ft HP Dish	226.1

Site #:	88017
Name:	US ICE

Engineer:	ABL
Date:	10/06/11

Section Label	Section Color	Joint Defining Bottom Section	Dead Load Adj. Factor				Adj. Factor Flat	Adj. Factor Round	Area Multiplier	Weight Multiplier
0.000-25.00		0P	1.492825983				1.244021652	1.244021652	1	1.2
25.00-50.00		1P	1.657158415				1.380965346	1.380965346	1	1.2
50.00-75.00		2P	1.609187395				1.340989496	1.340989496	1	1.2
75.00-100.0		3P	1.591609227				1.326341022	1.326341022	1	1.2
100.0-112.5		4P	1.555084723				1.295903935	1.295903935	1	1.2
112.5-125.0		5P	1.549315132				1.291095943	1.291095943	1	1.2
125.0-137.5		6P	1.543388583				1.286157153	1.286157153	1	1.2
137.5-150.0		7P	1.52566663				1.271388858	1.271388858	1	1.2
150.0-162.5		8P	1.457638151				1.214698459	1.214698459	1	1.2
162.5-175.0		9P	1.449427102				1.207855918	1.207855918	1	1.2
175.0-187.5		10P	1.416175461				1.180146218	1.180146218	1	1.2
187.5-200.0		11P	1.331343342				1.109452785	1.109452785	1	1.2

Site #:	88017
Name:	US ICE

Engineer:	ABL
Date:	10/06/11

Group Label	Group Description	Angle Type	Angle Size	Material Type	Element Type	Group Type	Optimize Group
Leg S1	L 8" x 8" x 1.125"	SAE	8X8X1.13	A7	Beam	Leg	None
Leg S2	L 8" x 8" x 1"	SAE	8X8X1	A7	Beam	Leg	None
Leg S3	L 8" x 8" x 0.875"	SAE	8X8X0.88	A7	Beam	Leg	None
Leg S4	L 8" x 8" x 0.75"	SAE	8X8X0.75	A7	Beam	Leg	None
Leg S5	L 6" x 6" x 0.875"	SAE	6X6X0.88	A7	Beam	Leg	None
Leg S6	L 6" x 6" x 0.875"	SAE	6X6X0.88	A7	Beam	Leg	None
Leg S7	L 6" x 6" x 0.75"	SAE	6X6X0.75	A7	Beam	Leg	None
Leg S8	L 6" x 6" x 0.75"	SAE	6X6X0.75	A7	Beam	Leg	None
Leg S9	L 6" x 6" x 0.75"	SAE	6X6X0.75	A7	Beam	Leg	None
Leg S10	L 6" x 6" x 0.75"	SAE	6X6X0.75	A7	Beam	Leg	None
Leg S11	L 6" x 6" x 0.5"	SAE	6X6X0.5	A7	Beam	Leg	None
Leg S12	L 6" x 6" x 0.5"	SAE	6X6X0.5	A7	Beam	Leg	None
Diag S1	B/B L3"x3"x0.25"	DAE	3X3X0.25	A7	Beam	Other	None
Diag S2	B/B L2.5"x3"x0.3125"	DAS	3X2.5X0.31	A7	Beam	Other	None
Diag S3	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	A7	Beam	Other	None
Diag S4	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	A7	Beam	Other	None
Diag S5	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	Beam	Other	None
Diag S6	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	Beam	Other	None
Diag S7	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	Beam	Other	None
Diag S8	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	Beam	Other	None
Diag S9	L 3" x 4" x 0.25"	SAU	4X3X0.25	A7	T-Only	Other	None
Diag S10	L 3" x 4" x 0.25"	SAU	4X3X0.25	A7	T-Only	Other	None
Diag S11	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	A7	T-Only	Other	None
Diag S12	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	A7	T-Only	Other	None
Horiz 1	B/B L3"x3"x0.3125"	DAE	3X3X0.31	A7	Beam	Other	None
Horiz 2	B/B L3.5"x2.5"x0.3125"	DAL	3.5X2.5X0.31	A7	Beam	Other	None
Horiz 3	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A7	Beam	Other	None
Horiz 4	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A7	Beam	Other	None
Horiz 5	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	Beam	Other	None
Horiz 6	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	Beam	Other	None
Horiz 7	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	Beam	Other	None
Horiz 8	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A7	Beam	Other	None
Horiz 9	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A7	Beam	Other	None
Horiz 10	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A7	Beam	Other	None
Horiz 11	B/B L4"x3"x0.3125"	DAL	4X3X0.31	A7	Beam	Other	None
Horiz 12	C8x11.5	CHN	C8x11.5	A7	Beam	Other	None
LD 1	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A7	Beam	Other	None
LD 2	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	Beam	Other	None
LD 3	B/B L3"x3"x0.25"	DAE	3X3X0.25	A7	Beam	Other	None
LH 1	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	T-Only	Other	None
DUM 1	Dummy Bracing Member	DUM	0.1X0.1X1	A 36	Beam	Fictitious	None

Site #:	88017
Name:	US ICE

Engineer:	ABL
Date:	10/06/11

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
L 1	Leg S1		XY-Symmetry	0P	1P	1	4	0.333332	0.333332	0.333332
L 2	Leg S2		XY-Symmetry	1P	2P	1	4	0.333333333	0.333333333	0.333333333
L 3	Leg S3		XY-Symmetry	2P	3P	1	4	0.333333333	0.333333333	0.333333333
L 4	Leg S4		XY-Symmetry	3P	4P	1	4	0.333333333	0.333333333	0.333333333
L 5	Leg S5		XY-Symmetry	4P	5P	1	4	0.5	0.5	0.5
L 6	Leg S6		XY-Symmetry	5P	6P	1	4	0.5	0.5	0.5
L 7	Leg S7		XY-Symmetry	6P	7P	1	4	0.5	0.5	0.5
L 8	Leg S8		XY-Symmetry	7P	8P	1	4	0.5	0.5	0.5
L 9	Leg S9		XY-Symmetry	8P	9P	1	4	0.5	0.5	0.5
L 10	Leg S10		XY-Symmetry	9P	10P	1	4	0.5	0.5	0.5
L 11	Leg S11		XY-Symmetry	10P	11P	1	4	0.5	0.5	0.5
L 12	Leg S12		XY-Symmetry	11P	12P	1	4	0.5	0.5	0.5
D 1	Diag S1		XY-Symmetry	0P	H2P	1	6	0.32	0.64	0.32
D 2	Diag S1		XY-Symmetry	0P	H1P	1	6	0.32	0.64	0.32
D 3	Diag S2		XY-Symmetry	1P	A3P	1	6	0.32	0.64	0.32
D 4	Diag S2		XY-Symmetry	1P	A4P	1	6	0.32	0.64	0.32
D 5	Diag S3		XY-Symmetry	2P	A5P	1	6	0.32	0.64	0.32
D 6	Diag S3		XY-Symmetry	2P	A6P	1	6	0.32	0.64	0.32
D 7	Diag S4		XY-Symmetry	3P	A7P	1	6	0.32	0.64	0.32
D 8	Diag S4		XY-Symmetry	3P	A8P	1	6	0.32	0.64	0.32
D 9	Diag S5		XY-Symmetry	4P	A9P	1	6	0.5	1	0.5
D 10	Diag S5		XY-Symmetry	4P	A10P	1	6	0.5	1	0.5
D 11	Diag S6		XY-Symmetry	5P	A11P	1	6	0.5	1	0.5
D 12	Diag S6		XY-Symmetry	5P	A12P	1	6	0.5	1	0.5
D 13	Diag S7		XY-Symmetry	6P	A13P	1	6	0.5	1	0.5
D 14	Diag S7		XY-Symmetry	6P	A14P	1	6	0.5	1	0.5
D 15	Diag S8		XY-Symmetry	7P	A15P	1	6	0.5	1	0.5
D 16	Diag S8		XY-Symmetry	7P	A16P	1	6	0.5	1	0.5
D 17	Diag S9		XY-Symmetry	8P	9Y	1	6	0.52	0.52	0.52
D 18	Diag S9		XY-Symmetry	8P	9X	1	6	0.52	0.52	0.52
D 19	Diag S10		XY-Symmetry	9P	10Y	1	6	0.52	0.52	0.52
D 20	Diag S10		XY-Symmetry	9P	10X	1	6	0.52	0.52	0.52
D 21	Diag S11		XY-Symmetry	10P	11Y	1	6	0.52	0.52	0.52
D 22	Diag S11		XY-Symmetry	10P	11X	1	6	0.52	0.52	0.52
D 23	Diag S12		XY-Symmetry	11P	12Y	1	6	0.52	0.52	0.52
D 24	Diag S12		XY-Symmetry	11P	12X	1	6	0.52	0.52	0.52
H 1	Horiz 1		XY-Symmetry	1P	A1P	1	6	0.95	0.95	0.95
H 2	Horiz 1		XY-Symmetry	1P	A2P	1	6	0.95	0.95	0.95
H 3	Horiz 2		XY-Symmetry	2P	A3P	1	6	1	1	1
H 4	Horiz 2		XY-Symmetry	2P	A4P	1	6	1	1	1
H 5	Horiz 3		XY-Symmetry	3P	A5P	1	6	1	1	1
H 6	Horiz 3		XY-Symmetry	3P	A6P	1	6	1	1	1
H 7	Horiz 4		XY-Symmetry	4P	A7P	1	6	1	1	1
H 8	Horiz 4		XY-Symmetry	4P	A8P	1	6	1	1	1
H 9	Horiz 5		XY-Symmetry	5P	A9P	1	6	1	1	1
H 10	Horiz 5		XY-Symmetry	5P	A10P	1	6	1	1	1
H 11	Horiz 6		XY-Symmetry	6P	A11P	1	6	1	1	1
H 12	Horiz 6		XY-Symmetry	6P	A12P	1	6	1	1	1
H 13	Horiz 7		XY-Symmetry	7P	A13P	1	6	1	1	1
H 14	Horiz 7		XY-Symmetry	7P	A14P	1	6	1	1	1
H 15	Horiz 8		XY-Symmetry	8P	A15P	1	6	1	1	1
H 16	Horiz 8		XY-Symmetry	8P	A16P	1	6	1	1	1
H 17	Horiz 9		Y-Symmetry	9P	9X	1	6	0.5	1	0.5
H 18	Horiz 9		X-Symmetry	9P	9Y	1	6	0.5	1	0.5
H 19	Horiz 10		Y-Symmetry	10P	10X	1	6	0.5	0.5	0.5
H 20	Horiz 10		X-Symmetry	10P	10Y	1	6	0.5	0.5	0.5
H 21	Horiz 11		Y-Symmetry	11P	11X	1	6	0.5	0.6	0.5
H 22	Horiz 11		X-Symmetry	11P	11Y	1	6	0.5	0.6	0.5
H 23	Horiz 12		Y-Symmetry	12P	12X	1	6	1	0.5	1
H 24	Horiz 12		X-Symmetry	12P	12Y	1	6	1	0.5	1
H 25	Horiz 1		Y-Symmetry	A1P	A1X	1	6	1	1	1

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
H 26	Horiz 1		X-Symmetry	A2P	A2Y	1	6	1	1	1
LH 1	LH 1		XY-Symmetry	H1P	H3P	1	6	1	2	1
LH 2	LH 1		XY-Symmetry	H2P	H4P	1	6	1	2	1
LD 1	LD 1		XY-Symmetry	H1P	1P	1	6	1	1	1
LD 2	LD 1		XY-Symmetry	H2P	1P	1	6	1	1	1
LD 3	LD 2		XY-Symmetry	H1P	A1P	1	6	1	1	1
LD 4	LD 2		XY-Symmetry	H2P	A2P	1	6	1	1	1
LD 5	LD 3		XY-Symmetry	A1P	H3P	1	6	1	1	1
LD 6	LD 3		XY-Symmetry	A2P	H4P	1	6	1	1	1
BR 1	DUM 1		XY-Symmetry	A1P	A2P	1	4	1	1	1
BR 2	DUM 1		XY-Symmetry	A1P	A2XY	1	4	1	1	1
BR 3	DUM 1		XY-Symmetry	A3P	A4P	1	4	1	1	1
BR 5	DUM 1		XY-Symmetry	A5P	A6P	1	4	1	1	1
BR 7	DUM 1		XY-Symmetry	A7P	A8P	1	4	1	1	1
BR 9	DUM 1		XY-Symmetry	A9P	A10P	1	4	1	1	1
BR 11	DUM 1		XY-Symmetry	A11P	A12P	1	4	1	1	1
BR 13	DUM 1		XY-Symmetry	A13P	A14P	1	4	1	1	1
BR 15	DUM 1		XY-Symmetry	A15P	A16P	1	4	1	1	1
BR 61	DUM 1		XY-Symmetry	H1P	H2P	1	4	1	1	1
BR 62	DUM 1		XY-Symmetry	H1P	H2XY	1	4	1	1	1
BR 63	DUM 1		XY-Symmetry	H3P	H4P	1	4	1	1	1

Coax (p. 1 of 2)

Orig by MED, Last Updated by ABL on 21 July 2011

Site No.:	88017
Engineer:	ABL
Date:	10/06/11
Carrier:	US ICE

Description	From (ft)	To (ft)	Quantity	Shape	Width or Diameter (in)	Perimeter (in)	Unit Weight (lb/ft)	Part of Face Solidity Ratio (Yes/No)	Include in Wind Load (Yes/No)
State of CT 1	0	200	1	Round	3.015	10.3	1.02	No	No
State of CT 2	0	200	1	Round	2.97	10.2	2.16	No	No
State of CT 3	0	183	1	Round	0.88	3.1	0.336	No	Yes
State of CT 4	0	180	1	Round	5.94	22.1	5.4	No	Yes
Sprint Nextel 1	0	168	1	Round	23.76	49.8	12.96	Yes	Yes
Clearwire 1	0	162	1	Round	0.63	5.8	0.576	Yes	Yes
Clearwire 2	0	162	1	Round	0.32	4.2	0.05	Yes	Yes
Clearwire 3	0	162	1	Round	2.375	9.5	3.65	Yes	Yes
Sprint Nextel 2	0	155	1	Flat	8.91	31.7	9.72	Yes	Yes
AT&T 1	0	144	1	Round	0.28	0.9	0.03	No	No
AT&T 2	0	144	1	Round	1.11	3.8	0.49	No	No
AT&T 3	0	144	1	Round	3.5	11.0	7.58	No	Yes
AT&T 4	0	144	1	Flat	5.94	31.7	12.96	No	Yes
State of CT 5	0	126	1	Round	2.01	6.3	0.57	No	No
US ICE	0	100	1	Round	1.55	4.9	0.63	No	Yes
Sprint Nextel 3	0	55	1	Round	0.68	2.0	0.144	Yes	Yes
WG 1	1	155.5	1	Flat	1.5	6.0	6	Yes	Yes
WG 2	8	165.5	1	Flat	1.5	6.0	6	Yes	Yes
WG 3	8	143	1	Flat	1.5	6.0	6	No	Yes
WG 4	25	176	1	Flat	1.5	6.0	6	No	No
Ladder	0	200	1	Round	2	6.3	6.9	No	Yes

Coax (p. 2 of 2)

Tia Code: TIA-222-G | Exposure: B | a: 7 | $k_{z\,max}$: 2.01 | Site No.: 88017 | Date: 10/06/11

f | Topo Cat: 1 | z_g: 1200 | $k_{z\,min}$: 0.7 | Engineer: ABL | Carrier: US ICE

Crest Ht: 0 | K_e: 0.9 | K_t

Description	From (ft)	To (ft)	Quantity	Face # (1-4, A-D)	Coax Width (in)	Considered Coax Shape (Block / Flat / Ind)	% Exposed	Spacing (in)	Shape (Round/Flat)	Block Width (# coax)	Block Depth (# coax)	Perimeter (in)	Unit Weight (lb/ft)	In Face Zone (Yes/No)	Include in Wind Load (Yes/No)
State of CT 1	0	200	2	A	2.01	Ind	0		Round	1	2	10.3	1.02	No	No
State of CT 2	0	200	2	A	1.98	Ind	0		Round	1	2	10.2	2.16	No	No
State of CT 3	0	183	4	A	0.44	Ind	50		Round	2	2	3.1	0.336	No	Yes
State of CT 4	0	180	5	A	1.98	Ind	100		Round	5	1	22.1	5.4	No	Yes
Sprint Nextel 1	0	168	12	2	1.98	Ind	100		Round	12	1	49.8	12.96	Yes	Yes
Clearwire 1	0	162	4	1	0.63	Ind	100		Round	4	1	5.8	0.576	Yes	Yes
Clearwire 2	0	162	6	1	0.32	Ind	100		Round	6	1	4.2	0.05	Yes	Yes
Clearwire 3	0	162	1	1	2.38	Ind	100		Round	1	1	7.5	3.65	Yes	Yes
Sprint Nextel 2	0	155	9	2	1.98	Block	66	0	Flat	6	2	31.7	9.72	Yes	Yes
AT&T 1	0	144	1	D	0.28	Ind	0		Round	1	1	0.9	0.03	No	No
AT&T 2	0	144	2	D	0.74	Ind	0		Round	1	2	3.8	0.49	No	No
AT&T 3	0	144	1	D	3.50	Ind	100		Round	1	1	11.0	7.58	No	Yes
AT&T 4	0	144	12	D	1.98	Block	50	0	Flat	6	2	31.7	12.96	No	Yes
State of CT 5	0	126	1	A	2.01	Ind	0		Round	1	1	6.3	0.57	No	No
US ICE	0	100	1		1.55	Ind	100		Round	1	1	4.9	0.63	No	Yes
Sprint Nextel 3	0	55	1	2	0.63	Ind	100		Round	1	1	2.0	0.144	Yes	Yes
WG 1	1	155.5	1	2	1.50	Flat	100		Flat	1	1	6.0	6	Yes	Yes
WG 2	8	165.5	1	2	1.50	Flat	100		Flat	1	1	6.0	6	Yes	Yes
WG 3	8	143	1	D	1.50	Flat	100		Flat	1	1	6.0	6	No	Yes
WG 4	25	176	1	A	1.50	Flat	0		Flat	1	1	6.0	6	No	No
Ladder	0	200	1	A	2.00	Ind	100		Round	1	1	6.3	6.9	No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes
							100							No	Yes

Site #:	S8017
Name:	USICE

Engineer:	ABL
Date:	10/06/11

Ar: 1 (No round members)

Taper: -0.14085
Base FW: 41.5

Taper change: 200
Top FW: 13.33

Leg	Lower H
25.06191933	22.1720371
25.06191933	0
25.06191933	0
25.06191933	0
12.53095966	0
12.53095966	0
12.53095966	0
12.53095966	0
12.53095966	0
12.53095966	0
12.53095966	0
12.53095966	0
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Top H	Diag	Diag 1	Diag 2	Diag 3	Face Width Base	Face Width Top
37.97875	19.14053291	12.45038666	9.020208734	10.46470091	41.5	37.97875
34.4575	31.39420907	0	0	0	37.97875	34.4575
30.93625	30.36365059	0	0	0	34.4575	30.93625
27.415	29.39534844	0	0	0	30.93625	27.415
25.654375	18.55116051	0	0	0	27.415	25.654375
23.89375	17.91052035	0	0	0	25.654375	23.89375
22.133125	17.29097517	0	0	0	23.89375	22.133125
20.3725	16.69487363	0	0	0	22.133125	20.3725
18.611875	23.10589285	0	0	0	20.3725	18.611875
16.85125	21.69466083	0	0	0	18.611875	16.85125
15.090625	20.28104644	0	0	0	16.85125	15.090625
13.33	18.92572274	0	0	0	15.090625	13.33
		0	0	0		
		0	0	0		
		0	0	0		
		0	0	0		
		0	0	0		
		0	0	0		
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		0	0	0		
		0	0	0		
		0	0	0		
		0	0	0		
		0	0	0		

Area Total	Area Modeled	Area Ratio	Drop Sub-Brace
88.55296026	71.18282877	1.244021052	0
78.08933288	56.54691705	1.380965346	0
72.14609671	53.80064268	1.340989496	0
69.65804352	52.51895429	1.326341022	0
33.18197189	25.60527133	1.295903035	0
32.24065536	24.97154106	1.291095943	0
31.3135542	24.34660036	1.286157153	0
31.25109659	24.58028201	1.271368858	0
34.93703505	28.76187484	1.214698459	0
33.32607654	27.59110258	1.207855918	0
34.68659613	29.39177842	1.180145218	0
36.01020939	32.45763126	1.109452789	0

	H_{above}	$H_{section}$	Type	Leg	Lower H	Top H	Diag	Diag 1	Diag 2	Diag 3	$FW_{@Base}$	Area Modeled
1	0	25	Z	8	2.5	3	3	2.5	2.5	3		71.18282877
2	25	25	A	8	0	3.5	2.5	0	0	0		56.54691705
3	50	25	A	8	0	3	2.5	0	0	0		53.80054268
4	75	25	A	8	0	3	2.5	0	0	0		52.51895429
5	100	12.5	A	6	0	2.5	2.5	0	0	0		25.60527133
6	112.5	12.5	A	6	0	2.5	2.5	0	0	0		24.97154106
7	125	12.5	A	6	0	2.5	2.5	0	0	0		24.34660036
8	137.5	12.5	A	6	0	3	2.5	0	0	0		24.58028201
9	150	12.5	X	6	0	3	3	0	0	0		28.76187484
10	162.5	12.5	X	6	0	3	3	0	0	0		27.59110258
11	175	12.5	X	6	0	4	3.5	0	0	0		29.39177842
12	187.5	12.5	X	6	0	8	3.5	0	0	0		32.45763126
13				0	0	0	0	0	0	0		
14				0	0	0	0	0	0	0		
15				0	0	0	0	0	0	0		
16				0	0	0	0	0	0	0		
17				0	0	0	0	0	0	0		
18				0	0	0	0	0	0	0		
19				0	0	0	0	0	0	0		
20				0	0	0	0	0	0	0		
21				0	0	0	0	0	0	0		
22				0	0	0	0	0	0	0		
23				0	0	0	0	0	0	0		
24				0	0	0	0	0	0	0		
25				0	0	0	0	0	0	0		
26				0	0	0	0	0	0	0		
27				0	0	0	0	0	0	0		
28				0	0	0	0	0	0	0		
29				0	0	0	0	0	0	0		
30				0	0	0	0	0	0	0		
31				0	0	0	0	0	0	0		
32				0	0	0	0	0	0	0		
33				0	0	0	0	0	0	0		
34				0	0	0	0	0	0	0		
35				0	0	0	0	0	0	0		
36				0	0	0	0	0	0	0		
37				0	0	0	0	0	0	0		
38				0	0	0	0	0	0	0		
39				0	0	0	0	0	0	0		
40				0	0	0	0	0	0	0		

H1	H2	H3	H4	H5	H6	D1	D2	D3	D4	D5	V1	Drop	Face Width @H1	@H2	@H3	@H4	@H5	@H6
8.439739102	5.626492734	2.813246367	0	0	0	7.693615086	6.080559677	0	0	0	8.3333	8.3333	39.15249531	39.93499687	40.71749844			
11.48583333	5.742916667	0	0	0	0	13.71975718	9.79944948	0	0	0	12.5		35.63125	36.005				
10.31208333	5.156041667	0	0	0	0	12.80719023	9.503774433	0	0	0	12.5		32.11	33.28375				
9.138333333	4.569166667	0	0	0	0	11.9405468	9.235567287	0	0	0	12.5		28.58875	29.7625				
6.41359375	0	0	0	0	0	8.645487584	0	0	0	0	6.25		26.5346875					
5.9734375	0	0	0	0	0	8.547436816	0	0	0	0	6.25		24.7740625					
5.53378125	0	0	0	0	0	8.062407968	0	0	0	0	6.25		23.0134375					
5.093125	0	0	0	0	0	7.793830321	0	0	0	0	6.25		21.2528125					
8.74609375	0	0	0	0	0	0	0	0	0	0	6.25		19.4921875					
8.36578125	0	0	0	0	0	0	0	0	0	0	6.25		17.7315625					
7.98546875	0	0	0	0	0	0	0	0	0	0	6.25		15.9709375					
7.10515625	0	0	0	0	0	0	0	0	0	0	0		14.2103125					
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
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0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							
0	0	0	0	0	0	0	0	0	0	0	0							

: Yellow Shade Denotes Value Assumed

	H_{above}	$H_{section}$	Section	$FW_{at Base}$	$FW_{at Top}$	H1	H2	H3	H4	H5	H6	D1	D2	D3	D4	D5	V1	Area Missing	Sub FW
1	0	25	1	41.5	37.97875	3	3	3	3	3	3	3	3	3	3	3	3	17.37015148	
2	25	25	2	37.97875	34.4575	2.5	2.5	2.5	2.5	2.5	2.5	3	3	2.5	2.5	2.5	2.5	21.54241583	
3	50	25	3	34.4575	30.93625	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	18.34345403	
4	75	25	4	30.93625	27.415	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	17.13906924	
5	100	12.5	5	27.415	25.654375	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	7.576700556	
6	112.5	12.5	6	25.654375	23.89375	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	7.269114290	
7	125	12.5	7	23.89375	22.133125	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	6.966951841	
8	137.5	12.5	8	22.133125	20.3725	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	6.670914675	
9	150	12.5	9	20.3725	18.611875	3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	6.175130208	
10	162.5	12.5	10	18.611875	16.85125	3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5.754973958	
11	175	12.5	11	16.85125	15.090625	3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5.294817708	
12	187.5	12.5	12	15.090625	13.33	3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.552578125	
13			13	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
14			14	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
15			15	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
16			16	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
17			17	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
18			18	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
19			19	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
20			20	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
21			21	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
22			22	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
23			23	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
24			24	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
25			25	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
26			26	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
27			27	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
28			28	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
29			29	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
30			30	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
31			31	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
32			32	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
33			33	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
34			34	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
35			35	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
36			36	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
37			37	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
38			38	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
39			39	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	
40			40	13.33	13.33	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	

Task:	Determine Point Loads	
Tower Height:	200	ft
Gh:	0.85	
Wind Speed:	105	mph
Ice Wind Speed:	40	
Ice Density:	56	
Tower Type:	5	

Ice Thick:	0.75	in
Topographic Category (1-4):	1	
Exposure Category (B-D):	B	
Structure Class (1-3):	2	
Height of Crest (H) if Topo Cat. >1:	0	ft
Load Factor; Wind:	1.6	
Load Factor; Dead:	1.2	

Site No.:	88017
Engineer:	ABL
Date:	10/06/2011
Carrier:	US ICE

No.	Carrier	Elevation (ft)	Quantity	# of Azimuths	Manufacturer	Model	Height (in)	Width (in)	Depth (in)	Weight (lbs/ea)	Flat/Round (F/R)	Reduction	C_AA_A (ft^2)		Weight (k)	Ka
1	State of CT	200	1	4		10' Dipole	120	3.9	3.9	35	R	1.000				1
	State of CT	200	1	1		Pipe						1.000	0.00	0.00		1
2	State of CT	200	1	4		14' Omni	168	3	3	40	R	1.000				1
	-	200	1	4		Platform w/ Handrails						1.000	75.00	5.00		1
3	-	187.5	1	1		-	1	1	1	1	F	1.000				1
	-	187.5	1	4		Platform w/ Handrails						1.000	45.00	2.00		1
4	State of CT	180	2	2		Scala OGT9-840D	120	2	2	18.5	R	1.000				0.9
	State of CT	180	2	2		Side Arms						0.667	5.00	0.10		1
5	State of CT	180	2	2		Scala AP14-850/105N	101.5	10	4	26.8	F	1.000				0.9
	State of CT	180	2	2		Side Arms						0.667	5.00	0.10		1
6	State of CT	180	1	1		10' Omni	120	3	3	25	R	1.000				0.9
	State of CT	183	1	1		BTS						0.333	2.10	0.02		0.9
7	Sprint Nextel	168	12	3		Decibel DB844H90E-XY	48	8	6.5	14	F	0.730				0.8
	Sprint Nextel	168	3	3		Sector Frame						0.667	15.00	0.30		0.75
8	Clearwire	162	3	3		Argus LLPX310R	42	11.8	4.5	28.6	F	0.700				0.8
	Clearwire	162	1	3		Side Arms						1.000	8.50	0.56		1
9	Clearwire	162	3	3		NextNet BTS-2500	19.3	11.3	5.1	35	F	0.333				0.8
	Clearwire	162	4	2		DragonWave Horizon Compact						0.333	0.43	0.01		0.8
10																
11	Sprint Nextel	155	9	3		Dapa 58010	44.7	6.3	2.7	10.8	F	0.660				0.75
	Sprint Nextel	155	1	4		Platform w/ Handrails						1.000	55.00	3.50		1
12	US ICE	109	1	1		Andrew DB616E-BC	231	3.5	3.5	51	R	1.000				0.9
	US ICE	100	1	1		Side Arm						1.000	5.00	0.10		1
13																1
																1
14	-	112.5	1	1		-	1	1	1	1	F	0.000				1
	-	112.5	1	2		Platform w/ Handrails						1.000	55.00	2.00		1
15	-	75	1	1		-	1	1	1	1	F	1.000				1
	-	75	1	2		Platform w/ Handrails						1.000	55.00	2.00		1
16	Sprint Nextel	55	1	1		GPS	12	12	12	15	F	1.000				1
	-	55	1	1		-						1.000	1.00	0.00		1
17	-	50	1	1		-	1	1	1	1	F	0.000				1
	-	50	1	1		Platform w/ Handrails						1.000	15.00	0.30		1
18	AT&T Mobility	144	12	3		Powerwave LGP21401	14.4	9.2	2.6	14.1	F	0.333				0.8
	AT&T Mobility	144	3	3		Sector Frame						0.667	15.00	0.30		0.75
19	AT&T Mobility	144	6	3		Ericsson RRUS 11 (Band 12)	17.8	17	7.2	55	F	0.333				0.8
	AT&T Mobility	144	1	3		-						1.000	0.00	0.00		1
20	AT&T Mobility	144	1	1		Raycap DC6-48-60-18-8F	24	11	11	31.8	R	0.333				0.8
	AT&T Mobility	144	1	1		-						1.000	0.00	0.00		1
21	AT&T Mobility	144	6	3		Powerwave 7770.00	55	11	5	35	F	0.640				0.8
	AT&T Mobility	144	1	3		-						1.000	0.00	0.00		1
22	AT&T Mobility	144	3	3		Powerwave P65-16-XLH-RR	72	12	6	53	F	0.660				0.8
	AT&T Mobility	144	1	3		-						1.000	0.00	0.00		1
23																1
24																1
25																1
26																1
27																1
28																1
29																1
30																1
31																1
32																1
33																1
34																1
35																1

No.	Elevation	C_AA_C	C_AA_C (Ice)	Force	Force (Ice)	Weight	Weight (Ice)	60 Azi	Force	F (Ice)	Height	Sum of Forces [No I	
	(ft)	(ft^2)	(ft^2)	(lb)	(lb)	(lb)	(lb)	Mult.	mean	mean	Flag	60 Azi.	180 Azi.
1	200	3.90	5.21	153.288	13.904	210	445	1.00	84.31	7.65			
	200							1.00	0.00	0.00	0.0000010	153.2879913	
2	200	4.20	6.36	165.079	14.973	240	511	1.00	90.79	8.24	0.0000020		
	200	75.00	101.25	2947.846	267.378	6000	9360	1.00	1621.32	147.06	1.5050000	3266.213354	
3	187.5	0.01	0.06	0.375	0.034	2	4	1.00	0.21	0.02	1.5050010		
	187.5	45.00	60.75	1736.392	157.496	2400	3744	1.00	955.02	86.62	1.5053333	1736.767375	
4	180	3.60	6.38	137.301	12.454	89	227	1.00	75.52	6.85	1.5053343		
	180	6.67	9.00	254.388	23.074	120	187	1.00	139.91	12.69	1.5053343	391.6881215	
5	180	19.09	21.69	728.253	66.055	129	431	1.00	400.54	36.33	1.5053353		
	180	6.67	9.00	254.388	23.074	120	187	1.00	139.91	12.69	1.5055556	1374.329022	
6	180	2.70	4.10	102.975	9.340	60	229	1.00	56.64	5.14	1.5055566		
	183	0.70	0.94	24.117	2.188	24	37	1.00	13.26	1.20	1.5054645	127.092663	
7	168	25.33	32.04	947.304	85.923	252	427	1.00	521.02	47.26	1.5054655		
	168	30.02	40.52	841.799	76.354	360	562	1.00	462.99	41.99	1.5058524	1789.10306	
8	162	7.21	9.45	266.851	24.204	206	377	1.00	146.77	13.31	1.5059534		
	162	8.50	11.48	314.569	28.532	672	1048	1.00	173.01	15.69	1.5059534	581.4197426	
9	162	1.45	2.07	53.753	4.876	252	361	1.00	29.56	2.68	1.5059544		
	162	0.57	0.77	16.957	1.538	12	19	1.00	9.33	0.85	1.5061728	652.1305878	
10					#DIV/0!			1.00	#DIV/0!	#DIV/0!	1.5061738		
								1.00	0.00	0.00	#DIV/0!	#DIV/0!	
11	155	12.22	15.61	446.746	40.521	156	269	1.00	245.71	22.29	#DIV/0!		
	155	55.00	74.25	2009.917	182.305	4200	6552	1.00	1105.45	100.27	1.5064516	2456.6628	
12	100	6.06	8.72	195.513	17.734	122	460	1.00	107.53	9.75	1.5064526		
	100	5.00	6.75	161.215	14.623	120	187	1.00	88.67	8.04	1.5100000	356.7280911	
13					#DIV/0!			1.00	#DIV/0!	#DIV/0!	1.5100010		
								1.00	0.00	0.00	#DIV/0!	#DIV/0!	
14	112.5					2	4	1.00	0.00	0.00	#DIV/0!		
	112.5	55.00	74.25	1834.056	166.354	2400	3744	1.00	1008.73	91.49	1.5088889	1834.056253	
15	75	0.01	0.06	0.289	0.026	2	3	1.00	0.16	0.01	1.5088899		
	75	55.00	74.25	1633.431	148.157	2400	3744	1.00	898.39	81.49	1.5133333	1633.720002	
16	55	1.40	1.77	38.052	3.451	36	86	1.00	20.93	1.90	1.5133343		
	55	1.00	1.35	27.180	2.465			1.00	14.95	1.36	1.5181818	65.73251294	
17	50	0.00	0.00	0.000	0.000	2	3	1.00	0.00	0.00	1.5181828		
	50	15.00	20.25	396.751	35.986	360	562	1.00	218.21	19.79	1.5200000	396.7506482	
18	144	3.53	5.29	126.289	11.455	254	339	1.00	69.46	6.30	1.5200010		
	144	30.02	40.52	1074.038	73.064	360	562	1.00	590.72	40.19	1.5069444	1200.327321	
19	144	4.03	5.55	144.230	13.082	594	789	1.00	79.33	7.20	1.5069454		
	144							1.00	0.00	0.00	1.5069444	1344.556965	
20	144	0.39	0.47	13.981	1.268	76	180	1.00	7.69	0.70	1.5069454		
	144							1.00	0.00	0.00	1.5069444	1358.538247	
21	144	16.92	21.09	605.529	54.923	378	615	1.00	333.04	30.21	1.5069454		
	144							1.00	0.00	0.00	1.5069444	1964.067285	
22	144	12.88	15.28	461.004	41.814	382	690	1.00	253.55	23.00	1.5069454		
	144							1.00	0.00	0.00	1.5069444	2425.07175	
23					#VALUE!			1.00	#VALUE!	#VALUE!	1.5069454		
								1.00	0.00	0.00	1.5069454	#VALUE!	
24					#VALUE!			1.00	#VALUE!	#VALUE!	1.5069464		
								1.00	0.00	0.00	#DIV/0!	#VALUE!	
25					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!		
								1.00	0.00	0.00	#DIV/0!	#VALUE!	
26					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!		
								1.00	0.00	0.00	#DIV/0!	#VALUE!	
27					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!		
								1.00	0.00	0.00	#DIV/0!	#VALUE!	
28					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!		
								1.00	0.00	0.00	#DIV/0!	#VALUE!	
29					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!		
								1.00	0.00	0.00	#DIV/0!	#VALUE!	
30					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!		
								1.00	0.00	0.00	#DIV/0!	#VALUE!	
31					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!		
								1.00	0.00	0.00	#DIV/0!	#VALUE!	
32					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!		
								1.00	0.00	0.00	#DIV/0!	#VALUE!	
33					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!		
								1.00	0.00	0.00	#DIV/0!	#VALUE!	
34					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!		
								1.00	0.00	0.00	#DIV/0!	#VALUE!	
35					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!		
								1.00	0.00	0.00	#DIV/0!	#VALUE!	

Wind Speed:	105	mph
Ice Wind Sp.	40	mph
Ice Thick.	0.75	in

$FW_{@Base}$	41.5
Height	200
Slope	-0.14085
Apex	294.639688

ϕ:	0.85

Site No.:	88017
Engineer:	ABL
Date:	40822
Carrier:	US ICE

Load Case Description	Dead Load Factor	Wind Load Factor	Strength Factor	Load Case Type	Basic Wind Speed	Wind Dir. (deg)	Mean Wind Start El.	Mean Wind Stop El.	Ice Thick.	Ice Density	Temp.	Point Loads
W 0	1.2	1.6	1	Regular	105	0			0	56	50	
W 180	1.2	1.6	1	Regular	105	180			0	56	50	
W 45	1.2	1.6	1	Regular	105	45			0	56	50	
W -45	1.2	1.6	1	Regular	105	-45			0	56	50	
W 90	1.2	1.6	1	Regular	105	90			0	56	50	
W -90	1.2	1.6	1	Regular	105	-90			0	56	50	
W 0 Ice	1.2	1	1	Regular	40	0			0.75	56	10	
W 180 Ice	1.2	1	1	Regular	40	180			0.75	56	10	
W 45 Ice	1.2	1	1	Regular	40	45			0.75	56	10	
W -45 Ice	1.2	1	1	Regular	40	-45			0.75	56	10	
W 90 Ice	1.2	1	1	Regular	40	90			0.75	56	10	
W -90 Ice	1.2	1	1	Regular	40	-90			0.75	56	10	

Site:	88017
Carrier:	US ICE

Engineer:	ABL
Date:	10/06/11

Full Wind Loading

Angle: 0

No Ice

Joint Label	Force X-Dir (lbs)	Force Y-Dir (lbs)	Force Vertical (lbs)	Moment X-Axis (ft-lbs)	Moment Y-Axis (ft-lbs)	Moment Z-Axis (ft-lbs)
12P	38.32	0.00	111.1338942			
12X	38.32	0.00	111.1338942			
12Y	38.32	0.00	111.1338942			
12XY	38.32	0.00	111.1338942			
12P	778.23	0.00	1627.656721			
12X	778.23	0.00	1627.656721			
12Y	778.23	0.00	1627.656721			
12XY	778.23	0.00	1627.656721			
11P	434.47	0.00	603.5774351			
11X	434.10	0.00	600			
11Y	434.10	0.00	600			
11XY	434.10	0.00	600			
11P	195.84	0.00	173.2859668			
11X	195.84	0.00	173.2859668			
11Y	0.00	0.00	0			
11XY	0.00	0.00	0			
11P	491.32	0.00	275.4582028			
11X	491.32	0.00	275.4582028			
11Y	0.00	0.00	0			
11XY	0.00	0.00	0			
11P	127.09	0.00	252.8620417			
11X	0.00	0.00	0			
11Y	0.00	0.00	0			
11XY	0.00	0.00	0			
10P	596.37	0.00	262.4559181			
10X	596.37	0.00	262.4559181			
10Y	596.37	0.00	262.4559181			
10XY	0.00	0.00	0			
9P	193.81	0.00	349.6476932			
9X	193.81	0.00	349.6476932			
9Y	193.81	0.00	349.6476932			
9XY	0.00	0.00	0			
9P	26.40	0.00	126.3682476			
9X	26.40	0.00	126.3682476			
9Y	17.92	0.00	120.3682476			
9XY	0.00	0.00	0			
9P	651.39	0.00	1139.635915			
9X	651.39	0.00	1139.635915			
9Y	651.39	0.00	1139.635915			
9XY	502.48	0.00	1050			
4P	356.73	0.00	580.2471689			
4X	0.00	0.00	0			
4Y	0.00	0.00	0			
4XY	0.00	0.00	0			
5P	917.03	0.00	1203.524291			
5X	917.03	0.00	1200			
5Y	0.00	0.00	0			
5XY	0.00	0.00	0			
3P	817.00	0.00	1203.485285			
3X	816.72	0.00	1200			
3Y	0.00	0.00	0			
3XY	0.00	0.00	0			
2P	65.23	0.00	86.1296594			
2X	0.00	0.00	0			
2Y	0.00	0.00	0			
2XY	0.00	0.00	0			
2P	396.75	0.00	363.4488734			
2X	0.00	0.00	0			
2Y	0.00	0.00	0			
2XY	0.00	0.00	0			
8P	400.11	0.00	233.0362544			
8X	400.11	0.00	233.0362544			
8Y	400.11	0.00	233.0362544			
8XY	0.00	0.00	0			
8P	48.08	0.00	263.0507588			
8X	48.08	0.00	263.0507588			
8Y	48.08	0.00	263.0507588			
8XY	0.00	0.00	0			
8P	13.98	0.00	179.7233076			

With Ice

Joint Label	Force X-Dir (lbs)	Force Y-Dir (lbs)	Force Vertical (lbs)
12P	3.48	0.00	111.1338942
12X	3.48	0.00	111.1338942
12Y	3.48	0.00	111.1338942
12XY	3.48	0.00	111.1338942
12P	70.59	0.00	2467.656721
12X	70.59	0.00	2467.656721
12Y	70.59	0.00	2467.656721
12XY	70.59	0.00	2467.656721
11P	39.41	0.00	939.5774351
11X	39.37	0.00	936
11Y	39.37	0.00	936
11XY	39.37	0.00	936
11P	17.76	0.00	206.8859668
11X	17.76	0.00	206.8859668
11Y	0.00	0.00	0
11XY	0.00	0.00	0
11P	44.56	0.00	309.0582028
11X	44.56	0.00	309.0582028
11Y	0.00	0.00	0
11XY	0.00	0.00	0
11P	11.53	0.00	266.3020417
11X	0.00	0.00	0
11Y	0.00	0.00	0
11XY	0.00	0.00	0
10P	54.09	0.00	329.6559181
10X	54.09	0.00	329.6559181
10Y	54.09	0.00	329.6559181
10XY	0.00	0.00	0
9P	17.58	0.00	475.0876932
9X	17.58	0.00	475.0876932
9Y	17.58	0.00	475.0876932
9XY	0.00	0.00	0
9P	2.39	0.00	129.7282476
9X	2.39	0.00	129.7282476
9Y	1.63	0.00	120.3682476
9XY	0.00	0.00	0
9P	59.08	0.00	1727.635915
9X	59.08	0.00	1727.635915
9Y	59.08	0.00	1727.635915
9XY	45.58	0.00	1638
4P	32.36	0.00	647.4471689
4X	0.00	0.00	0
4Y	0.00	0.00	0
4XY	0.00	0.00	0
5P	83.18	0.00	1875.524291
5X	83.18	0.00	1872
5Y	0.00	0.00	0
5XY	0.00	0.00	0
3P	74.10	0.00	1875.485285
3X	74.08	0.00	1872
3Y	0.00	0.00	0
3XY	0.00	0.00	0
2P	5.92	0.00	86.1296594
2X	0.00	0.00	0
2Y	0.00	0.00	0
2XY	0.00	0.00	0
2P	35.99	0.00	565.0488734
2X	0.00	0.00	0
2Y	0.00	0.00	0
2XY	0.00	0.00	0
8P	28.17	0.00	300.2362544
8X	28.17	0.00	300.2362544
8Y	28.17	0.00	300.2362544
8XY	0.00	0.00	0
8P	4.36	0.00	263.0507588
8X	4.36	0.00	263.0507588
8Y	4.36	0.00	263.0507588
8XY	0.00	0.00	0
8P	1.27	0.00	179.7233076

SX	0.00	0.00	0
SY	0.00	0.00	0
SXY	0.00	0.00	0
SP	201.84	0.00	205.006802
SX	201.84	0.00	205.006802
SY	201.84	0.00	205.006802
SXY	0.00	0.00	0
SP	153.67	0.00	229.8733293
SX	153.67	0.00	229.8733293
SY	153.67	0.00	229.8733293
SXY	0.00	0.00	0

SX	0.00	0.00	0
SY	0.00	0.00	0
SXY	0.00	0.00	0
SP	18.31	0.00	205.006802
SX	18.31	0.00	205.006802
SY	18.31	0.00	205.006802
SXY	0.00	0.00	0
SP	13.94	0.00	229.8733293
SX	13.94	0.00	229.8733293
SY	13.94	0.00	229.8733293
SXY	0.00	0.00	0

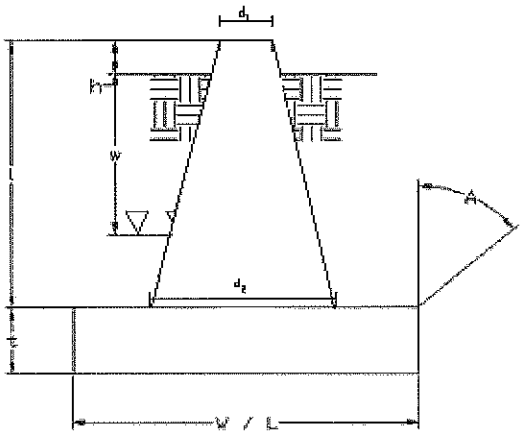
Foundation

Site No.:	88017
Engineer:	ABL
Date:	10/06/11
Carrier:	US ICE

Design Loads (Factored)

Compression/Leg:	252.45	k
Uplift/Leg:	171.43	k

Face Width @ Top of Pier (d_1):	3.50	ft
Face Width @ Bottom of Pier (d_2):	7.00	ft
Total Length of Pier (l):	7.00	ft
Height of Pedestal Above Ground (h):	0.50	ft
Width of Pad (W):	16.00	ft
Length of Pad (L):	16.00	ft
Thickness of Pad (t):	2.50	ft
Water Table Depth (w):	30.00	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil (Above Water Table):	123.0	pcf
Unit Weight of Soil (Below Water Table):	65.0	pcf
Friction Angle of Uplift (A):	41	°
Ultimate Compressive Bearing Pressure:	16000	psf



Volume Pier (Total):	200.08	ft³
Volume Pad (Total):	640.00	ft³
Volume Soil (Total):	2863.08	ft³
Volume Pier (Buoyant):	0.00	ft³
Volume Pad (Buoyant):	0.00	ft³
Volume Soil (Buoyant):	0.00	ft³
Weight Pier:	30.01	k
Weight Pad:	96.00	k
Weight Soil:	352.16	k

Uplift Check

ϕs Uplift Resistance (k)	Ratio	Result
358.63	0.48	OK

Axial Check

ϕs Axial Resistance (k)	Ratio	Result
3072.00	0.08	OK

Anchor Bolt Check

Bolt Description: (4) 2 1/4" A36

ϕRnt	Ratio	Result
602.76	0.28	OK

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**225 ft Type 'A' AT&T Tag Tower**
ATC Site Name	:	**Winstead, CT**
ATC Site Number	:	**88019**
Proposed Carrier	:	**US Immigration and Customs Enforcement**
Carrier Site Name	:	**Shelton Turnbull**
Carrier Site Number	:	**B_05_091_040**
County	:	**Litchfield**
Eng. Number	:	**48082021**
Date	:	**October 4, 2011***
Usage	:	**93 %**
Result	:	**Pass**

Submitted by:
Michael Deese
Project Engineer

STATE OF CONNECTICUT
RAPHAEL I. MOHAMED
No. 25112
LICENSED
PROFESSIONAL ENGINEER
10/5/11

American Tower Engineering Services
400 Regency Forest Drive
Cary, NC 27518
Phone: 919-468-0112

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**225 ft Type 'A' AT&T Tag Tower**
ATC Site Name	:	**Winstead, CT**
ATC Site Number	:	**88019**
Proposed Carrier	:	**US Immigration and Customs Enforcement**
Carrier Site Name	:	**Shelton Turnbull**
Carrier Site Number	:	**B_05_091_040**
County	:	**Litchfield**
Eng. Number	:	**48082021**
Date	:	**October 4, 2011***
Usage	:	**93 %**
Result	:	**Pass**

Submitted by:
Michael Deese
Project Engineer

American Tower Engineering Services
400 Regency Forest Drive
Cary, NC 27518
Phone: 919-468-0112

Introduction

The purpose of this report is to summarize results of the structural analysis performed on the 225 ft. AT&T TAG Tower located at 428 Platt Hill Rd., Winsted, CT 06098, Litchfield County (ATC site #88019). Tower geometry, member sizes, and foundation information was based on a mapping by Tower Engineering Professionals (Job #070513, dated April 5, 2007).

Analysis

The tower was analyzed using Semaan Engineering Solutions, Inc., Software.

Basic Wind Speed:	80 mph (Fastest Mile)
Radial Ice:	69 mph (Fastest Mile) w/ ½" ice
Code:	TIA/EIA-222-F / 2003 IBC, Sec. 1609.1.1, Exception (5) & Sec. 3108.4 w/ 2005 Connecticut Supplements and 2009 Connecticut Amendments

Antenna Loads

The following antenna loads were used in the tower analysis.

Existing Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax	Carrier
225.0	4	Rohr KS15676 Horns	Platform w/ Handrails	-	AT&T
206.3	-	-	Catwalk Platform	-	-
195.0	12	72" x 12" Panels	Sector Frame	(15) 1 5/8"	Sprint Nextel
	6	14" x 9" TTA			
175.0	-	-	Rest Platform	-	-
125.0	-	-	Platform w/ Handrails	-	-
75.0	-	-	Rest Platform	-	-
25.0	-	-	Rest Platform	-	-

Proposed Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax	Carrier
205.0	1	Andrew DB616E-BC	Side Arm	(1) 1 1/4"	US Immigration and Customs Enforcement

Install proposed coax anywhere on the tower.

Results

The maximum structure usage is: 93 %

Leg Forces	Current Analysis Reactions
Uplift (Kips)	175.4
Axial (Kips)	252.9

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required. These calculations are located after the software output within this analysis.

Conclusion

Based on the analysis results, the structure meets the requirements per the TIA/EIA-222-F standard and the 2003 International Building Code with 2005 Connecticut Supplements and 2009 Connecticut Amendments.

The tower and foundation can support the existing and proposed antennas with the transmission line distribution as described in this report.

If you have any questions or require additional information, please call 919-466-5146.

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

-- Information supplied by the client regarding the structure itself, the antenna and feed line loading on the structure and its components, or other relevant information.

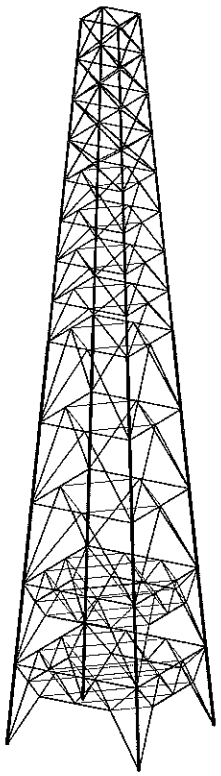
-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

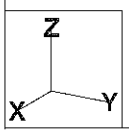
It is the responsibility of the client to ensure that the information provided to ATC Engineering Services and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/EIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Engineering Services is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

American Tower Corp., Project: "48082021 - us treasury - 10.03.2011"
Tower Version 11.00, 4:42:30 PM Tuesday, October 04, 2011
Undeformed geometry displayed





Project Name : 88019 - Winstead, CT
Project Notes: 225' Type 'A' AT&T Tag Tower
Project File : s:\12 - atc\88019\48082021 - us treasury - 10.03.2011\48082021 - us treasury - 10.03.2011.tow
Date run : 4:41:13 PM Tuesday, October 04, 2011
by : Tower Version 11.00
Licensed to : American Tower Corp.

Successfully performed nonlinear analysis

The model has 0 warnings.

Member check option: TIA/EIA 222-F
Connection rupture check: Not Checked
Crossing diagonal check: Fixed
Loads from file: s:\12 - atc\88019\48082021 - us treasury - 10.03.2011\48082021 - us treasury - 10.03.2011.eia

*** Analysis Results:

Maximum element usage is 92.69% for Angle "D 1Y" in load case "W 180"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Vert. Moment (ft-k)	Bending Moment (ft-k)	Found. Usage %
W 0	0P	-26.62	-16.37	179.11	31.25	-0.19	-2.53	-0.94	2.54	0.00
W 0	0X	-25.88	16.44	175.59	30.66	0.08	-2.40	0.94	2.41	0.00
W 0	0XY	-18.61	-8.85	-101.49	20.60	0.41	-2.90	0.94	2.93	0.00
W 0	0Y	-19.20	8.78	-103.08	21.11	-0.36	-3.02	-0.93	3.04	0.00
W 180	0P	19.16	8.67	-101.88	21.03	-0.36	3.05	0.93	3.08	0.00
W 180	0X	18.62	-8.77	-100.76	20.59	0.41	2.92	-0.94	2.95	0.00
W 180	0XY	25.89	16.37	174.86	30.63	0.08	2.43	-0.94	2.43	0.00
W 180	0Y	26.63	-16.26	177.91	31.20	-0.18	2.55	0.94	2.56	0.00
W 45	0P	-30.78	-30.78	252.87	43.53	1.96	-1.96	-0.00	2.77	0.00
W 45	0X	-11.33	-4.08	35.89	12.04	2.26	-1.73	1.44	2.85	0.00
W 45	0XY	-23.15	-23.15	-174.51	32.74	2.43	-2.43	0.00	3.44	0.00
W 45	0Y	-4.08	-11.33	35.89	12.04	1.73	-2.26	-1.44	2.85	0.00
W -45	0P	-11.89	4.11	38.73	12.58	-2.35	-1.82	-1.44	2.97	0.00
W -45	0X	-30.22	30.84	250.03	43.18	-2.04	-1.87	-0.00	2.76	0.00
W -45	0XY	-3.68	11.29	36.79	11.67	-1.70	-2.18	1.45	2.76	0.00
W -45	0Y	-23.55	23.10	-175.42	32.99	-2.40	-2.51	0.01	3.47	0.00
W 90	0P	-16.37	-26.62	179.11	31.25	2.53	0.19	0.94	2.54	0.00
W 90	0X	8.78	-19.20	-103.08	21.11	3.02	0.36	0.93	3.04	0.00
W 90	0XY	-8.85	-18.61	-101.49	20.60	2.90	-0.41	-0.94	2.93	0.00
W 90	0Y	16.44	-25.88	175.59	30.66	2.40	-0.08	-0.94	2.41	0.00
W -90	0P	8.67	19.16	-101.88	21.03	-3.05	0.36	-0.93	3.08	0.00
W -90	0X	-16.26	26.63	177.91	31.20	-2.55	0.18	-0.94	2.56	0.00
W -90	0XY	16.37	25.89	174.86	30.63	-2.43	-0.08	0.94	2.43	0.00
W -90	0Y	-8.77	18.62	-100.76	20.59	-2.92	-0.41	0.94	2.95	0.00
W 0 Ice	0P	-23.60	-14.67	173.92	27.79	-1.22	-1.14	-0.81	1.67	0.00
W 0 Ice	0X	-22.83	14.73	170.09	27.17	1.10	-1.01	0.81	1.50	0.00
W 0 Ice	0XY	-16.71	-8.30	-80.88	18.66	1.41	-3.54	0.81	3.81	0.00
W 0 Ice	0Y	-17.26	8.24	-82.14	19.13	-1.36	-3.66	-0.80	3.91	0.00
W 180 Ice	0P	17.22	8.09	-80.54	19.02	-1.37	3.71	0.81	3.95	0.00
W 180 Ice	0X	16.73	-8.20	-79.91	18.63	1.41	3.58	-0.81	3.84	0.00
W 180 Ice	0XY	22.85	14.63	169.11	27.13	1.11	1.04	-0.81	1.52	0.00
W 180 Ice	0Y	23.60	-14.52	172.32	27.71	-1.22	1.17	0.81	1.69	0.00
W 45 Ice	0P	-27.83	-27.83	243.03	39.36	0.68	-0.68	-0.00	0.96	0.00
W 45 Ice	0X	-9.85	-3.78	43.62	10.55	3.04	-0.47	1.27	3.08	0.00
W 45 Ice	0XY	-21.31	-21.31	-149.28	30.13	3.19	-3.19	-0.00	4.51	0.00
W 45 Ice	0Y	-3.78	-9.85	43.62	10.55	0.47	-3.04	-1.27	3.08	0.00
W -45 Ice	0P	-10.44	3.80	46.80	11.11	-3.14	-0.56	-1.27	3.19	0.00
W -45 Ice	0X	-27.24	27.88	239.85	38.98	-0.77	-0.59	-0.00	0.97	0.00
W -45 Ice	0XY	-3.42	9.82	44.22	10.39	-0.45	-2.96	1.28	2.99	0.00
W -45 Ice	0Y	-21.67	21.27	-149.88	30.36	-3.17	-3.27	0.01	4.55	0.00
W 90 Ice	0P	-14.67	-23.60	173.92	27.79	1.14	1.22	0.81	1.67	0.00
W 90 Ice	0X	8.24	-17.26	-82.14	19.13	3.66	1.36	0.80	3.91	0.00
W 90 Ice	0XY	-8.30	-16.71	-80.88	18.66	3.54	-1.41	-0.81	3.81	0.00
W 90 Ice	0Y	14.73	-22.83	170.09	27.17	1.01	-1.10	-0.81	1.50	0.00
W -90 Ice	0P	8.09	17.22	-80.54	19.02	-3.71	1.37	-0.81	3.95	0.00
W -90 Ice	0X	-14.52	23.60	172.32	27.71	-1.17	1.22	-0.81	1.69	0.00
W -90 Ice	0XY	14.63	22.85	169.11	27.13	-1.04	-1.11	0.81	1.52	0.00
W -90 Ice	0Y	-8.20	16.73	-79.91	18.63	-3.58	-1.41	0.81	3.84	0.00

Summary of Joint Support Reactions For All Load Cases in Direction of Leg:

Load Case	Support Joint	Origin Joint	Leg Member	Force In Leg Dir. (kips)	Residual Shear Perpendicular To Leg (kips)	Residual Shear Horizontal To Leg - Res. (kips)	Residual Shear Horizontal To Leg - Long. (kips)	Residual Shear Horizontal To Leg - Tran. (kips)	Total Long. Force (kips)	Total Tran. Force (kips)	Total Vert. Force (kips)
W 0	0P	1P	L 1P	181.274	14.057	14.111	13.686	3.437	-26.62	-16.37	179.11
W 0	0X	1X	L 1X	177.724	13.667	13.721	13.195	-3.763	-25.88	16.44	175.59
W 0	0XY	1XY	L 1XY	-102.939	11.340	11.377	11.275	1.520	-18.61	-8.85	-101.49
W 0	0Y	1Y	L 1Y	-104.552	11.793	11.830	11.755	-1.333	-19.20	8.78	-103.08
W 180	0P	1P	L 1P	-103.347	11.837	11.874	-11.802	-1.308	19.16	8.67	-101.88
W 180	0X	1X	L 1X	-102.205	11.408	11.445	-11.347	1.497	18.62	-8.77	-100.76
W 180	0XY	1XY	L 1XY	176.990	13.728	13.782	-13.265	-3.739	25.89	16.37	174.86
W 180	0Y	1Y	L 1Y	180.072	14.139	14.193	-13.777	3.411	26.63	-16.26	177.91
W 45	0P	1P	L 1P	255.985	17.609	17.701	12.516	12.516	-30.78	-30.78	252.87
W 45	0X	1X	L 1X	36.225	10.994	10.995	8.741	6.669	-11.33	-4.08	35.89
W 45	0XY	1XY	L 1XY	-176.936	14.835	14.912	10.544	10.544	-23.15	-23.15	-174.51
W 45	0Y	1Y	L 1Y	36.225	10.994	10.995	6.669	8.741	-4.08	-11.33	35.89
W -45	0P	1P	L 1P	39.089	11.420	11.421	9.097	-6.905	-11.89	4.11	38.73
W -45	0X	1X	L 1X	253.124	17.551	17.643	12.160	-12.783	-30.22	30.84	250.03
W -45	0XY	1XY	L 1XY	37.150	10.706	10.708	6.338	-8.630	-3.68	11.29	36.79
W -45	0Y	1Y	L 1Y	-177.862	14.993	15.071	10.876	-10.433	-23.55	23.10	-175.42
W 90	0P	1P	L 1P	181.274	14.057	14.111	3.437	13.686	-16.37	-26.62	179.11
W 90	0X	1X	L 1X	-104.552	11.793	11.830	-1.333	11.755	8.78	-19.20	-103.08
W 90	0XY	1XY	L 1XY	-102.939	11.340	11.377	1.520	11.275	-8.85	-18.61	-101.49
W 90	0Y	1Y	L 1Y	177.724	13.667	13.721	-3.763	13.195	16.44	-25.88	175.59
W -90	0P	1P	L 1P	-103.347	11.837	11.874	-1.308	-11.802	8.67	19.16	-101.88
W -90	0X	1X	L 1X	180.072	14.139	14.193	3.411	-13.777	-16.26	26.63	177.91
W -90	0XY	1XY	L 1XY	176.990	13.728	13.782	-3.739	-13.265	16.37	25.89	174.86
W -90	0Y	1Y	L 1Y	-102.205	11.408	11.445	1.497	-11.347	-8.77	18.62	-100.76
W 0 Ice	0P	1P	L 1P	175.769	11.198	11.238	11.039	2.106	-23.60	-14.67	173.92
W 0 Ice	0X	1X	L 1X	171.904	10.783	10.823	10.543	-2.444	-22.83	14.73	170.09
W 0 Ice	0XY	1XY	L 1XY	-82.263	11.100	11.142	10.866	2.461	-16.71	-8.30	-80.88
W 0 Ice	0Y	1Y	L 1Y	-83.546	11.524	11.565	11.332	-2.309	-17.26	8.24	-82.14
W 180 Ice	0P	1P	L 1P	-81.942	11.585	11.626	-11.401	-2.275	17.22	8.09	-80.54
W 180 Ice	0X	1X	L 1X	-81.284	11.187	11.228	-10.962	2.431	16.73	-8.20	-79.91
W 180 Ice	0XY	1XY	L 1XY	170.925	10.867	10.908	-10.638	-2.413	22.85	14.63	169.11
W 180 Ice	0Y	1Y	L 1Y	174.168	11.303	11.343	-11.152	2.071	23.60	-14.52	172.32
W 45 Ice	0P	1P	L 1P	245.770	14.462	14.537	10.279	10.279	-27.83	-27.83	243.03
W 45 Ice	0X	1X	L 1X	43.828	9.640	9.640	6.703	6.929	-9.85	-3.78	43.62
W 45 Ice	0XY	1XY	L 1XY	-151.570	14.807	14.884	10.525	10.525	-21.31	-21.31	-149.28
W 45 Ice	0Y	1Y	L 1Y	43.828	9.640	9.640	6.929	6.703	-3.78	-9.85	43.62
W -45 Ice	0P	1P	L 1P	47.031	10.072	10.072	7.064	-7.179	-10.44	3.80	46.80
W -45 Ice	0X	1X	L 1X	242.570	14.413	14.487	9.917	-10.561	-27.24	27.88	239.85
W -45 Ice	0XY	1XY	L 1XY	44.448	9.357	9.357	6.609	-6.623	-3.42	9.82	44.22
W -45 Ice	0Y	1Y	L 1Y	-152.190	14.979	15.057	10.844	-10.445	-21.67	21.27	-149.88
W 90 Ice	0P	1P	L 1P	175.769	11.198	11.238	2.106	11.039	-14.67	-23.60	173.92
W 90 Ice	0X	1X	L 1X	-83.546	11.524	11.565	-2.309	11.332	8.24	-17.26	-82.14
W 90 Ice	0XY	1XY	L 1XY	-82.263	11.100	11.142	2.461	10.866	-8.30	-16.71	-80.88
W 90 Ice	0Y	1Y	L 1Y	171.904	10.783	10.823	-2.444	10.543	14.73	-22.83	170.09
W -90 Ice	0P	1P	L 1P	-81.942	11.585	11.626	-2.275	-11.401	8.09	17.22	-80.54
W -90 Ice	0X	1X	L 1X	174.168	11.303	11.343	2.071	-11.152	-14.52	23.60	172.32
W -90 Ice	0XY	1XY	L 1XY	170.925	10.867	10.908	-2.413	-10.638	14.63	22.85	169.11
W -90 Ice	0Y	1Y	L 1Y	-81.284	11.187	11.228	2.431	-10.962	-8.20	16.73	-79.91

Overturning Moment Summary For All Load Cases:

Load Case	Transverse Moment (ft-k)	Longitudinal Moment (ft-k)	Resultant Moment (ft-k)
W 0	43.561	12583.594	12583.670
W 180	43.559	-12496.565	12496.641
W 45	9616.125	9616.125	13599.254
W -45	-9529.050	9616.173	13537.857
W 90	12583.594	43.561	12583.670
W -90	-12496.565	43.559	12496.641
W 0 Ice	58.035	11408.155	11408.303
W 180 Ice	58.032	-11292.169	11292.318
W 45 Ice	8826.955	8826.955	12483.200
W -45 Ice	-8710.928	8826.998	12401.458
W 90 Ice	11408.155	58.035	11408.303
W -90 Ice	-11292.169	58.032	11292.318

EIA Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Count	Member Count	Top Width (ft)	Bottom Width (ft)	Gross Area (ft^2)	Face Af Adjust Factor	Face Ar Adjust Factor	Dead Load Factor
212.5-225.0	225.000	212.500	8	20	12.50	14.31	167.53	1.1060	1.1060	1.327
200.0-212.5	212.500	200.000	8	16	14.31	16.11	190.10	1.1810	1.1810	1.417
187.5-200.0	200.000	187.500	8	16	16.11	17.92	212.67	1.1810	1.1810	1.418
175.0-187.5	187.500	175.000	12	24	17.92	19.72	235.24	1.1870	1.1870	1.425
162.5-175.0	175.000	162.500	16	24	19.72	21.53	257.81	1.2240	1.2240	1.468
150.0-162.5	162.500	150.000	16	24	21.53	23.33	280.38	1.2300	1.2300	1.476
137.5-150.0	150.000	137.500	16	24	23.33	25.14	302.95	1.2370	1.2370	1.484
125.0-137.5	137.500	125.000	16	24	25.14	26.94	325.52	1.2430	1.2430	1.492
100.0-125.0	125.000	100.000	16	24	26.94	30.56	718.78	1.2740	1.2740	1.529
75.00-100.0	100.000	75.000	16	24	30.56	34.17	809.03	1.2910	1.2910	1.549
50.00-75.00	75.000	50.000	20	32	34.17	37.78	899.31	1.3330	1.3330	1.600
25.00-50.00	50.000	25.000	36	76	37.78	41.39	989.58	1.2110	1.2110	1.453
0.000-25.00	25.000	0.000	28	56	41.39	45.00	1079.86	1.2140	1.2140	1.457

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress
Printed capacities do not include EIA allowable stress increase for wind load cases.
Printed capacities do not include the strength factor entered for each load case.
The Group Summary reports on the member and load case that resulted in maximum usage which may not necessarily be the same as that which produces maximum force.

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max Use In Comp. %	Comp. Control Member	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R	KL/R Comp.	Length Member (ft)	Curve No.	No. of Bolts Comp.
Leg S1	L 8" x 8" x 1.125"	SAE	8X8X1.13	33.0	58.94	58.94	L 1P	-208.106	W 45	264.797	0.000	0.000	0.333	0.333	0.333	64.43	64.43	25.130	1	0
Leg S2	L 8" x 8" x 1.125"	SAE	8X8X1.13	33.0	50.35	50.35	L 2P	-177.757	W 45	264.797	0.000	0.000	0.333	0.333	0.333	64.43	64.43	25.130	1	0
Leg S3	L 8" x 8" x 1"	SAE	8X8X1	33.0	53.98	53.98	L 3P	-170.872	W 45	237.415	0.000	0.000	0.333	0.333	0.333	64.43	64.43	25.130	1	0
Leg S4	L 8" x 8" x 0.875"	SAE	8X6X0.88	33.0	51.16	51.16	L 4P	-143.156	W 45	209.863	0.000	0.000	0.333	0.333	0.333	64.02	64.02	25.130	1	0
Leg S5	L 8" x 8" x 0.75"	SAE	8X6X0.75	33.0	47.76	47.76	L 5P	-115.813	W 45	181.863	0.000	0.000	0.333	0.333	0.333	63.61	63.61	25.130	1	0
Leg S6	L 6" x 6" x 0.875"	SAE	6X6X0.88	33.0	49.01	49.01	L 6P	-100.639	W 45	153.998	0.000	0.000	0.500	0.500	0.500	64.44	64.44	12.565	1	0
Leg S7	L 6" x 6" x 0.875"	SAE	6X6X0.88	33.0	42.36	42.36	L 7P	-86.973	W 45	153.998	0.000	0.000	0.500	0.500	0.500	64.44	64.44	12.565	1	0
Leg S8	L 6" x 6" x 0.875"	SAE	6X6X0.88	33.0	35.55	35.55	L 8P	-72.991	W 45	153.998	0.000	0.000	0.500	0.500	0.500	64.44	64.44	12.565	1	0
Leg S9	L 6" x 6" x 0.875"	SAE	6X6X0.88	33.0	28.72	28.72	L 9P	-58.966W	45 Ice	153.998	0.000	0.000	0.500	0.500	0.500	64.44	64.44	12.565	1	0
Leg S10	L 6" x 6" x 0.625"	SAE	6X6X0.63	33.0	33.25	33.25	L 10P	-50.034W	45 Ice	112.862	0.000	0.000	0.500	0.500	0.500	63.89	63.89	12.565	1	0
Leg S11	L 6" x 6" x 0.625"	SAE	6X6X0.63	33.0	24.54	24.54	L 11P	-36.926W	45 Ice	112.862	0.000	0.000	0.500	0.500	0.500	63.89	63.89	12.565	1	0
Leg S12	L 6" x 6" x 0.5"	SAE	6X6X0.5	33.0	18.43	18.43	L 12P	-22.424W	45 Ice	91.274	0.000	0.000	0.500	0.500	0.500	63.89	63.89	12.565	1	0
Leg S13	L 6" x 6" x 0.5"	SAE	6X6X0.5	33.0	7.38	7.38	L 13P	-8.987W	45 Ice	91.274	0.000	0.000	0.500	0.500	0.500	63.89	63.89	12.565	1	0
Diag S1	B/B L3"x3"x0.25"	DAE	3X3X0.25	33.0	92.69	92.69	D 1Y	-29.152	W 180	23.588	0.000	0.000	0.333	0.850	0.333	144.44	135.03	19.683	6	0
Diag S2	B/B L3"x3"x0.25"	DAE	3X3X0.25	33.0	92.24	92.24	D 3Y	-29.824	W 180	24.251	0.000	0.000	0.333	0.850	0.333	141.41	133.17	19.271	6	0
Diag S3	B/B L2.5"x3"x0.3125"	DAS	3X2.5X0.31	33.0	72.45	72.45	D 5X	-20.236	W -90	20.950	0.000	0.000	0.333	0.667	0.333	171.90	151.97	31.386	6	0
Diag S4	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	33.0	84.61	84.61	D 8Y	-19.923	W 180	17.660	0.000	0.000	0.333	0.667	0.333	167.36	149.13	30.333	6	0
Diag S5	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	33.0	79.43	79.43	D 9X	-19.563	W -90	18.474	0.000	0.000	0.333	0.667	0.333	161.96	145.81	29.354	6	0
Diag S6	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	65.55	65.55	D 11X	-12.087	W -90	13.829	0.000	0.000	0.500	1.000	0.500	185.55	160.31	18.400	6	0
Diag S7	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	61.29	61.29	D 13X	-11.891	W -90	14.552	0.000	0.000	0.500	1.000	0.500	178.99	156.28	17.750	6	0
Diag S8	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	57.96	57.96	D 15X	-11.828	W -90	15.305	0.000	0.000	0.500	1.000	0.500	172.66	152.39	17.122	6	0
Diag S9	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	55.50	55.50	D 17X	-11.901	W -90	16.083	0.000	0.000	0.500	1.000	0.500	166.59	148.65	16.520	6	0
Diag S10	L 4" x 3" x 0.25"	SAU	4X3X0.25	33.0	83.59	83.59	D 19Y	-8.141	W 180	7.305	0.000	0.000	0.520	0.750	0.520	227.11	185.88	22.611	6	0
Diag S11	L 4" x 3" x 0.25"	SAU	4X3X0.25	33.0	74.97	74.97	D 22P	-8.076	W 90	8.079	0.000	0.000	0.520	0.750	0.520	212.26	176.74	21.131	6	0
Diag S12	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	33.0	48.98	48.98	D 23Y	-6.845	W 180	10.481	0.000	0.000	0.520	0.750	0.520	177.19	155.17	19.707	6	0
Diag S13	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	33.0	38.03	38.03	D 25X	-5.869	W 0 Ice	11.574	0.000	0.000	0.520	0.750	0.520	164.99	147.67	18.349	6	0
Horiz 1	B/B L3.5"x3"x0.3125"	DAL	3.5X3X0.31	33.0	50.20	50.20	H 2Y	-20.089	W -45	30.014	0.000	0.000	1.000	1.000	1.000	150.51	138.76	13.796	6	0
Horiz 2	B/B L3"x3"x0.3125"	DAE	3X3X0.31	33.0	55.07	55.07	H 3P	-18.014	W -90	24.534	0.000	0.000	1.000	1.000	1.000	163.89	147.00	12.593	6	0
Horiz 3	B/B L3.5"x2.5"x0.3125"	DAL	3.5X2.5X0.31	33.0	38.59	38.59	H 5P	-10.547	W -90	20.499	0.000	0.000	1.000	1.000	1.000	186.36	160.81	17.083	6	0
Horiz 4	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	50.09	50.09	H 7P	-9.575	W -90	14.337	0.000	0.000	1.000	1.000	1.000	194.00	165.51	15.278	6	0
Horiz 5	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	39.20	39.20	H 9P	-8.954	W -90	17.131	0.000	0.000	1.000	1.000	1.000	171.08	151.41	13.472	6	0
Horiz 6	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	45.32	45.32	H 11P	-7.717	W -90	12.770	0.000	0.000	1.000	1.000	1.000	196.14	166.83	12.569	6	0
Horiz 7	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	39.02	39.02	H 14P	-7.391	W 180	14.207	0.000	0.000	1.000	1.000	1.000	182.05	158.16	11.667	6	0
Horiz 8	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	33.51	33.51	H 16P	-7.104	W 180	15.902	0.000	0.000	1.000	1.000	1.000	167.97	149.50	10.764	6	0
Horiz 9	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	28.95	28.95	H 17P	-6.916	W -90	17.918	0.000	0.000	1.000	1.000	1.000	153.88	140.84	9.861	6	0
Horiz 10	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	3.99	3.99	H 20X	-1.333	W 90	25.033	0.000	0.000	0.500	0.670	0.500	127.48	124.60	17.917	6	0
Horiz 11	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	3.03	2.14	H 21P	-0.911	W 180	31.912	0.000	0.000	0.500	0.500	0.500	102.29	102.29	16.111	1	0
Horiz 12	B/B L3.5"x3"x0.3125"	DAL	3.5X3X0.31	33.0	1.53	0.67	H 23P	-0.503	W 180	56.525	0.000	0.000	0.500	0.500	0.500	78.03	78.03	14.306	1	0
Horiz 13	C8x11.5	CHN	C8x11.5	33.0	1.30	1.30	H 25P	-0.233	W 180	13.439	0.000	0.000	1.000	1.000	1.000	240.00	193.80	12.560	6	0
LD 1	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	80.62	80.62	LD 1X	-13.517	W -45	12.576	0.000	0.000	1.000	1.000	1.000	183.48	159.04	11.987	6	0
LD 2	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	80.26	80.26	LD 3X	-19.227	W -90	17.968	0.000	0.000	1.000	1.000	1.000	153.57	140.64	9.841	6	0
LD 3	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	89.22	89.22	LD 5P	-18.747	W -90	15.759	0.000	0.000	1.000	1.000	1.000	169.07	150.18	10.834	6	0
LD 4	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	75.60	75.60	LD 7X	-13.564	W -45	13.456	0.000	0.000	1.000	1.000	1.000	174.88	153.75	11.425	6	0
LD 5	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	85.72	85.72	LD 9X	-19.397	W -90	16.972	0.000	0.000	1.000	1.000	1.000	147.47	136.90	9.635	6	0
LD 6	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	91.16	91.16	LD 11P	-18.469	W -90	15.196	0.000	0.000	1.000	1.000	1.000	160.13	144.68	10.462	6	0
LH 1	B/B L3.5"x3.5"x0.3125"	DAE	3.5X3.5X0.31	33.0	46.62	46.62	LH 1X	-15.580	W -45	25.065	0.000	0.000	1.000	2.000	1.000	181.48	157.81	12.093	6	0
LH 2	B/B L3.5"x3.5"x0.3125"	DAE	3.5X3.5X0.31	33.0	39.50	39.50	LH 3X	-14.896	W -45	28.284	0.000	0.000	1.000	2.000	1.000	166.43	148.56	11.095	6	0
DUM 1	Dummy Bracing Member	DUM	0.1X0.1X1	36.0	0.00	0.00	BR 7XY	-0.809	W 45	0.215	0.000	0.000	1.000	1.000	1.000	2.59	2.59	21.606	1	0

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max Use In Tens. %	Tension Control Member	Tension Force (kips)	Tension Control Load Case	Net Section Capacity (kips)	Tension Connect. Shear Capacity (kips)	Tension Connect. Bearing Capacity (kips)	Tension Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts Tens.	No. Of Holes	Hole Diameter (in)
Leg S1	L 8" x 8" x 1.125"	SAE	8X8X1.13	33.0	58.94	31.71	L 1Y	140.056	W -45	331.253	0.000	0.000	0.000	25.130	0	0	0.000
Leg S2	L 8" x 8" x 1.125"	SAE	8X8X1.13	33.0	50.35	28.05	L 2Y	123.894	W -45	331.253	0.000	0.000	0.000	25.130	0	0	0.000
Leg S3	L 8" x 8" x 1"	SAE	8X8X1	33.0	53.98	30.71	L 3Y	121.598	W -45	297.000	0.000	0.000	0.000	25.130	0	0	0.000
Leg S4	L 8" x 8" x 0.875"	SAE	8X8X0.88	33.0	51.16	29.08	L 4XY	101.549	W 45	261.954	0.000	0.000	0.000	25.130	0	0	0.000
Leg S5	L 8" x 8" x 0.75"	SAE	8X8X0.75	33.0	47.76	26.64	L 5XY	80.458	W 45	226.512	0.000	0.000	0.000	25.130	0	0	0.000
Leg S6	L 6" x 6" x 0.875"	SAE	6X6X0.88	33.0	49.01	27.73	L 6Y	71.230	W -45	192.654	0.000	0.000	0.000	12.565	0	0	0.000
Leg S7	L 6" x 6" x 0.875"	SAE	6X6X0.88	33.0	42.36	23.63	L 7Y	60.692	W -45	192.654	0.000	0.000	0.000	12.565	0	0	0.000
Leg S8	L 6" x 6" x 0.875"	SAE	6X6X0.88	33.0	35.55	19.40	L 8Y	49.819	W -45	192.654	0.000	0.000	0.000	12.565	0	0	0.000
Leg S9	L 6" x 6" x 0.875"	SAE	6X6X0.88	33.0	28.72	15.03	L 9Y	38.612	W -45	192.654	0.000	0.000	0.000	12.565	0	0	0.000
Leg S10	L 6" x 6" x 0.625"	SAE	6X6X0.63	33.0	33.25	17.36	L 10XY	32.576	W 45	140.778	0.000	0.000	0.000	12.565	0	0	0.000
Leg S11	L 6" x 6" x 0.625"	SAE	6X6X0.63	33.0	24.54	11.45	L 11XY	21.486	W 45	140.778	0.000	0.000	0.000	12.565	0	0	0.000
Leg S12	L 6" x 6" x 0.5"	SAE	6X6X0.5	33.0	18.43	6.95	L 12Y	10.544	W -45	113.850	0.000	0.000	0.000	12.565	0	0	0.000
Leg S13	L 6" x 6" x 0.5"	SAE	6X6X0.5	33.0	7.38	1.32	L 13XY	2.002	W 45	113.850	0.000	0.000	0.000	12.565	0	0	0.000
Diag S1	B/B L3"x3"x0.25"	DAE	3X3X0.25	33.0	92.69	31.68	D 1P	24.085	W 180	57.024	0.000	0.000	0.000	19.683	0	0	0.000
Diag S2	B/B L3"x3"x0.25"	DAE	3X3X0.25	33.0	92.24	30.69	D 3P	23.333	W 180	57.024	0.000	0.000	0.000	19.271	0	0	0.000
Diag S3	B/B L2.5"x3"x0.3125"	DAS	3X2.5X0.31	33.0	72.45	21.00	D 6P	17.960	W 180	64.152	0.000	0.000	0.000	31.386	0	0	0.000
Diag S4	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	33.0	84.61	25.72	D 7P	17.854	W -90	52.074	0.000	0.000	0.000	30.333	0	0	0.000
Diag S5	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	33.0	79.43	26.16	D 10P	18.164	W 180	52.074	0.000	0.000	0.000	29.354	0	0	0.000
Diag S6	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	65.55	17.36	D 12P	10.910	W 180	47.124	0.000	0.000	0.000	18.400	0	0	0.000

Diag S7	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	61.29	17.20	D 13P	10.804	W -90	47.124	0.000	0.000	0.000	17.750	0	0.000	0
Diag S8	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	57.96	17.21	D 15P	10.812	W -90	47.124	0.000	0.000	0.000	17.122	0	0.000	0
Diag S9	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	55.50	17.33	D 17P	10.889	W -90	47.124	0.000	0.000	0.000	16.520	0	0.000	0
Diag S10	L 4" x 3" x 0.25"	SAU	4X3X0.25	33.0	83.59	16.39	D 19Y	7.311	W 0	33.462	0.000	0.000	0.000	22.611	0	0.000	0
Diag S11	L 4" x 3" x 0.25"	SAU	4X3X0.25	33.0	74.97	16.40	D 21P	7.318	W 180	33.462	0.000	0.000	0.000	21.131	0	0.000	0
Diag S12	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	33.0	48.98	13.20	D 23Y	5.890	W 0	33.462	0.000	0.000	0.000	19.707	0	0.000	0
Diag S13	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	33.0	38.03	11.40	D 25X	5.085	W 180	33.462	0.000	0.000	0.000	18.349	0	0.000	0
Horiz 1	B/B L3.5"x3"x0.3125"	DAL	3.5X3X0.31	33.0	50.20	22.20	H 1X	22.684	W -45	76.626	0.000	0.000	0.000	13.796	0	0.000	0
Horiz 2	B/B L3"x3"x0.3125"	DAE	3X3X0.31	33.0	55.07	21.39	H 4Y	20.051	W 180	70.290	0.000	0.000	0.000	12.593	0	0.000	0
Horiz 3	B/B L3.5"x2.5"x0.3125"	DAL	3.5X2.5X0.31	33.0	38.59	11.91	H 5P	11.160	W 90	70.290	0.000	0.000	0.000	17.083	0	0.000	0
Horiz 4	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	50.09	14.27	H 7X	9.909	W -90	52.074	0.000	0.000	0.000	15.278	0	0.000	0
Horiz 5	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	39.20	13.49	H 9X	9.366	W -90	52.074	0.000	0.000	0.000	13.472	0	0.000	0
Horiz 6	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	45.32	13.19	H 11X	8.288	W -90	47.124	0.000	0.000	0.000	12.569	0	0.000	0
Horiz 7	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	39.02	12.56	H 13X	7.894	W -90	47.124	0.000	0.000	0.000	11.667	0	0.000	0
Horiz 8	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	33.51	12.06	H 15Y	7.575	W 180	47.124	0.000	0.000	0.000	10.764	0	0.000	0
Horiz 9	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	28.95	11.76	H 17P	7.386	W 90	47.124	0.000	0.000	0.000	9.861	0	0.000	0
Horiz 10	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	3.99	3.70	H 19P	2.570	W 0 Ice	52.074	0.000	0.000	0.000	17.917	0	0.000	0
Horiz 11	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	3.03	3.03	H 21P	2.107	W 0 Ice	52.074	0.000	0.000	0.000	16.111	0	0.000	0
Horiz 12	B/B L3.5"x3"x0.3125"	DAL	3.5X3X0.31	33.0	1.53	1.53	H 23P	1.562	W 0 Ice	76.626	0.000	0.000	0.000	14.306	0	0.000	0
Horiz 13	C8x11.5	CHN	C8x11.5	33.0	1.30	0.33	H 25P	0.296	W 0 Ice	66.924	0.000	0.000	0.000	12.500	0	0.000	0
LD 1	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	80.62	27.64	LD 2Y	15.542	W -45 Ic	42.174	0.000	0.000	0.000	11.987	0	0.000	0
LD 2	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	80.26	24.87	LD 3P	15.625	W -90	47.124	0.000	0.000	0.000	9.841	0	0.000	0
LD 3	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	33.0	89.22	31.15	LD 6Y	19.569	W 180	47.124	0.000	0.000	0.000	10.834	0	0.000	0
LD 4	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	75.60	21.64	LD 8Y	12.166	W -45	42.174	0.000	0.000	0.000	11.425	0	0.000	0
LD 5	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	85.72	27.29	LD 9P	15.346	W -90	42.174	0.000	0.000	0.000	9.635	0	0.000	0
LD 6	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	91.16	34.13	LD 11X	19.189	W -90	42.174	0.000	0.000	0.000	10.462	0	0.000	0
LH 1	B/B L3.5"x3.5"x0.3125"	DAE	3.5X3.5X0.31	33.0	46.62	15.50	LH 2Y	17.102	W -45 Ic	82.764	0.000	0.000	0.000	12.099	0	0.000	0
LH 2	B/B L3.5"x3.5"x0.3125"	DAE	3.5X3.5X0.31	33.0	39.50	11.50	LH 4Y	12.690	W -45	82.764	0.000	0.000	0.000	11.095	0	0.000	0
DUM 1	Dummy Bracing Member	DUM	0.1X0.1X1	36.0	0.00	0.00	BR 7X	0.651	W -45	0.216	0.000	0.000	0.000	21.606	0	0.000	0

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
W 0	92.08	D 1P	Angle
W 180	92.69	D 1Y	Angle
W 45	84.86	D 1P	Angle
W -45	86.66	D 2X	Angle
W 90	92.08	D 2P	Angle
W -90	92.69	D 2X	Angle
W 0 Ice	84.77	D 3P	Angle
W 180 Ice	85.28	D 3Y	Angle
W 45 Ice	79.49	D 4P	Angle
W -45 Ice	81.30	D 4X	Angle
W 90 Ice	84.77	D 4P	Angle
W -90 Ice	85.28	D 4X	Angle

*** Weight of structure (lbs):

Weight of Angles*Section DLF:	110646.3
Total:	110646.3

*** End of Report

Site #:	88019	Engineer:	MED	Windspeed: No Ice:	80 mph	Ice:	69 mph
Name:	Winstead, CT	Date:	10/04/11	Carrier	US Immigration and Customs Enforcement		

Taper:	-0.144444	Taper Change:	225 ft
FW @ Base:	45 ft	FW @ Top:	12.5 ft

Joint Label	Symmetry Code	X Coord. (ft)	Y Coord. (ft)	Z Coord. (ft)	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.	Drop Sub-Brace (Y or Blank)
0	XY-Symmetry	22.5	22.5	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	
1	XY-Symmetry	20.69444444	20.69444444	25	Free	Free	Free	Free	Free	Free	
2	XY-Symmetry	18.88888889	18.88888889	50	Free	Free	Free	Free	Free	Free	
3	XY-Symmetry	17.08333333	17.08333333	75	Free	Free	Free	Free	Free	Free	
4	XY-Symmetry	15.27777778	15.27777778	100	Free	Free	Free	Free	Free	Free	
5	XY-Symmetry	13.47222222	13.47222222	125	Free	Free	Free	Free	Free	Free	
6	XY-Symmetry	12.56944444	12.56944444	137.5	Free	Free	Free	Free	Free	Free	
7	XY-Symmetry	11.66666667	11.66666667	150	Free	Free	Free	Free	Free	Free	
8	XY-Symmetry	10.76388889	10.76388889	162.5	Free	Free	Free	Free	Free	Free	
9	XY-Symmetry	9.861111111	9.861111111	175	Free	Free	Free	Free	Free	Free	
10	XY-Symmetry	8.958333333	8.958333333	187.5	Free	Free	Free	Free	Free	Free	
11	XY-Symmetry	8.055555556	8.055555556	200	Free	Free	Free	Free	Free	Free	
12	XY-Symmetry	7.152777778	7.152777778	212.5	Free	Free	Free	Free	Free	Free	
13	XY-Symmetry	6.25	6.25	225	Free	Free	Free	Free	Free	Free	
A1	XY-Symmetry	20.69444444	6.898148148	25	Free	Free	Free	Free	Free	Free	
A2	XY-Symmetry	6.898148148	20.69444444	25	Free	Free	Free	Free	Free	Free	
A3	XY-Symmetry	18.88888889	6.296296296	50	Free	Free	Free	Free	Free	Free	
A4	XY-Symmetry	6.296296296	18.88888889	50	Free	Free	Free	Free	Free	Free	
A5	Y-Symmetry	17.08333333	0	75	Free	Free	Free	Free	Free	Free	
A6	X-Symmetry	0	17.08333333	75	Free	Free	Free	Free	Free	Free	
A7	Y-Symmetry	15.27777778	0	100	Free	Free	Free	Free	Free	Free	
A8	X-Symmetry	0	15.27777778	100	Free	Free	Free	Free	Free	Free	
A9	Y-Symmetry	13.47222222	0	125	Free	Free	Free	Free	Free	Free	
A10	X-Symmetry	0	13.47222222	125	Free	Free	Free	Free	Free	Free	
A11	Y-Symmetry	12.56944444	0	137.5	Free	Free	Free	Free	Free	Free	
A12	X-Symmetry	0	12.56944444	137.5	Free	Free	Free	Free	Free	Free	
A13	Y-Symmetry	11.66666667	0	150	Free	Free	Free	Free	Free	Free	
A14	X-Symmetry	0	11.66666667	150	Free	Free	Free	Free	Free	Free	
A15	Y-Symmetry	10.76388889	0	162.5	Free	Free	Free	Free	Free	Free	
A16	X-Symmetry	0	10.76388889	162.5	Free	Free	Free	Free	Free	Free	
A17	Y-Symmetry	9.861111111	0	175	Free	Free	Free	Free	Free	Free	
A18	X-Symmetry	0	9.861111111	175	Free	Free	Free	Free	Free	Free	
H1	XY-Symmetry	21.29627222	12.09855741	16.667	Free	Free	Free	Free	Free	Free	
H2	XY-Symmetry	12.09855741	21.29627222	16.667	Free	Free	Free	Free	Free	Free	
H3	Y-Symmetry	21.29627222	0	16.667	Free	Free	Free	Free	Free	Free	
H4	X-Symmetry	0	21.29627222	16.667	Free	Free	Free	Free	Free	Free	
H5	XY-Symmetry	19.49071667	11.09548704	41.667	Free	Free	Free	Free	Free	Free	
H6	XY-Symmetry	11.09548704	19.49071667	41.667	Free	Free	Free	Free	Free	Free	
H7	Y-Symmetry	19.49071667	0	41.667	Free	Free	Free	Free	Free	Free	
H8	X-Symmetry	0	19.49071667	41.667	Free	Free	Free	Free	Free	Free	

# Vert	Drop (ft)	Height (ft)	Type	Count	Z-Elev. (ft)	FW (ft)	# Sub-Brace
	8.333	25	2	1	0	45	3
	8.333	25	2	2	25	41.38888889	3
		25	A	3	50	37.77777778	2
		25	A	4	75	34.16666667	2
		25	A	5	100	30.55555556	2
		12.5	A	6	125	26.94444444	1
		12.5	A	7	137.5	25.13888889	1
		12.5	A	8	150	23.33333333	1
		12.5	A	9	162.5	21.52777778	1
1		12.5	X	10	175	19.72222222	1
1		12.5	X	11	187.5	17.91666667	1
1		12.5	X	12	200	16.11111111	1
		12.5	X	13	212.5	14.30555556	1
				14	225	12.5	

NOTES	
Types:	
1:	Built up Horizs. w/ A
2:	Built up Horizs. w/ M
A:	Typical A brace
X:	Typical X brace
Drop:	Use only for types 1 & 2
# Sections:	13

Legs

Site No.:	88019
Engineer:	MED
Date:	10/04/2011
Carrier:	migration and Customs Enforc

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations *(ft)*	Type of Shape [1]	Diameter or Length *(in)*	Thickness [2] *(in)*	F_Y *(ksi)*
1	0.000-25.00	L	8	1.125	33
2	25.00-50.00	L	8	1.125	33
3	50.00-75.00	L	8	1	33
4	75.00-100.0	L	8	0.875	33
5	100.0-125.0	L	8	0.75	33
6	125.0-137.5	L	6	0.875	33
7	137.5-150.0	L	6	0.875	33
8	150.0-162.5	L	6	0.875	33
9	162.5-175.0	L	6	0.875	33
10	175.0-187.5	L	6	0.625	33
11	187.5-200.0	L	6	0.625	33
12	200.0-212.5	L	6	0.5	33
13	212.5-225.0	L	6	0.5	33

Notes:

[1] Type of Leg Shape: **R** = Round or **P** = Bent Plate or **S** = Schifflerized Angle. **L** = Even Leg

[2] For Solid Round Leg Shapes Thickness Equals Zero.

[3] Adjust for Bent Plate Leg Shapes.

Diagonals

Site No.:	88019
Engineer:	MED
Date:	10/04/2011
Carrier:	nigration and Customs Enforc

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations *(ft)*	Type of Shape [1]	Diameter [2] *(in)*	Web Length [3] *(in)*	Flange Length [3] *(in)*	Thickness *(in)*	F_y *(ksi)*	Is Diag. Tension Only? *(Y/N)*
1	0.000-25.00	2L		3	3	0.25	33	
2	25.00-50.00	2L		3	3	0.25	33	
3	50.00-75.00	2L		2.5	3	0.3125	33	
4	75.00-100.0	2L		2.5	3	0.25	33	
5	100.0-125.0	2L		2.5	3	0.25	33	
6	125.0-137.5	2L		2.5	2.5	0.25	33	
7	137.5-150.0	2L		2.5	2.5	0.25	33	
8	150.0-162.5	2L		2.5	2.5	0.25	33	
9	162.5-175.0	2L		2.5	2.5	0.25	33	
10	175.0-187.5	L		4	3	0.25	33	
11	187.5-200.0	L		4	3	0.25	33	
12	200.0-212.5	L		3.5	3.5	0.25	33	
13	212.5-225.0	L		3.5	3.5	0.25	33	

Notes:

[1] Type of Diagonal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.

[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

[3] Applies to Single-Angle and Double-Angle Shapes only.

[4] Applies to Double-Angle Shapes only.

[5] Applies to Single-Angle Shapes only.

Horizontals

Site No.:	88019
Engineer:	MED
Date:	10/04/2011
Carrier:	nigration and Customs Enforc

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations *(ft)*	Type of Shape [1]	Diameter [2] *(in)*	Web Length [3] *(in)*	Flange Length [3] *(in)*	Thickness *(in)*	F_y *(ksi)*	
1	0.000-25.00	2L		3.5	3	0.3125	33	
2	25.00-50.00	2L		3	3	0.3125	33	
3	50.00-75.00	2L		3.5	2.5	0.3125	33	
4	75.00-100.0	2L		3	2.5	0.25	33	
5	100.0-125.0	2L		3	2.5	0.25	33	
6	125.0-137.5	2L		2.5	2.5	0.25	33	
7	137.5-150.0	2L		2.5	2.5	0.25	33	
8	150.0-162.5	2L		2.5	2.5	0.25	33	
9	162.5-175.0	2L		2.5	2.5	0.25	33	
10	175.0-187.5	2L		3	2.5	0.25	33	
11	187.5-200.0	2L		3	2.5	0.25	33	
12	200.0-212.5	2L		3.5	3	0.3125	33	
13	212.5-225.0	C		8	11.5		33	

Notes:

[1] Type of Horizontal Shape: **R** = Round, **L** = Single-Angle, **2L** = Double-Angle, **C** = Channel, **W** = W Shape

[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

[3] Applies to Single-Angle and Double-Angle Shapes only.

[4] Applies to Double-Angle Shapes only.

[5] Applies to Single-Angle Shapes only.

Built-up Diagonals

Site No.:	88019
Engineer:	MED
Date:	10/04/2011
Carrier:	migration and Customs Enforc

When inputting thickness values, include all decimal places.
Input diags. from left to center & from base section upward.

Tower Built-up Diag. #	Section Elevations *(ft)*	Type of Shape [1]	Diameter [2] *(in)*	Web Length [3] *(in)*	Flange Length [3] *(in)*	Thickness *(in)*	F_y *(ksi)*
1	0.000-25.00	2L		2.5	2	0.25	33
2	0.000-25.00	2L		2.5	2.5	0.25	33
3	0.000-25.00	2L		2.5	2.5	0.25	33
4	25.00-50.00	2L		2.5	2	0.25	33
5	25.00-50.00	2L		2.5	2	0.25	33
6	25.00-50.00	2L		2.5	2	0.25	33

Notes:

[1] Type of Diagonal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.

[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

[3] Applies to Single-Angle and Double-Angle Shapes only.

[4] Applies to Double-Angle Shapes only.

[5] Applies to Single-Angle Shapes only.

Built-up Horizontals

Site No.:	88019
Engineer:	MED
Date:	10/04/2011
Carrier:	migration and Customs Enforc

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations *(ft)*	Type of Shape [1]	Diameter [2] *(in)*	Web Length [3] *(in)*	Flange Length [3] *(in)*	Thickness *(in)*	F_y *(ksi)*	Is Horiz. Tension Only? *(Y/N)*
1	0.000-25.00	2L		3.5	3.5	0.3125	33	
2	25.00-50.00	2L		3.5	3.5	0.3125	33	

Notes:

[1] Type of Horizontal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.

[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

[3] Applies to Single-Angle and Double-Angle Shapes only.

[4] Applies to Double-Angle Shapes only.

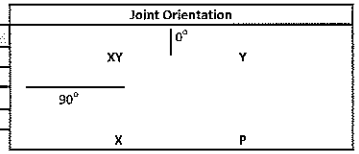
[5] Applies to Single-Angle Shapes only.

Coax & Dishes

Site No.:	88019
Engineer:	MED
Date:	10/04/11
Carrier:	US Immigration and Customs Enforcement

Dish Types	
S	Standard
R	Standard w/ Radome
H	High Performance
G	Grid

Joint Orientation



Dish Elevation (ft)	Dish Dia (ft)	Dish Angle (deg)	Dish Type	Joint Orientation

Equipment Label	Attach Label	Equipment Property Set	EIA Antenna Orientation Angle *(deg)*

Description	From *(ft)*	To *(ft)*	Quantity	Shape	Width or Diameter *(in)*	Perimeter *(in)*	Unit Weight *(lb/ft)*	Part of Face Solidity Ratio *(Yes/No)*	Include in Wind Load *(Yes/No)*
US Immigration	5	205	1	Round	1.55	4.87	0.66	No	Yes
Sprint Nextel	5	195	6	Round	1.98	6.22	2.70	Yes	Yes
Wave Guide 1	5	195	1	Flat	2	6.28	1.08	Yes	Yes
Ladder	5	225	1	Round	2	6.28	1.08	No	Yes

Coax	Dia. (in)	Weight(lb/ft)
1/4"	0.3	0.064
3/8"	0.44	0.084
1/2"	0.63	0.144
7/8"	1.11	0.544
EW90	1.32	0.32
1-1/4"	1.55	0.664
1-5/8"	1.98	1.08
EW63	2.01	0.51
EW52	2.25	0.59
Ladder	3	6
WC281	3.11	5.39

Point Loads

Tower Height:	225	ft
Gh:	1.11	
Wind Speed:	80.00	mph
Wind Speed (Ice):	69.28	mph
Radial Ice Diameter:	0.5	in

Site No.:	88019
Engineer:	MED
Date:	10/04/2011
Carrier:	S Immigration and Customs Enforceme

KS-15676 Horn Antennas: ~128 ft²

No.	Carrier	Elevation (ft)	Quantity	Number of Azimuths	Model	Height (in)	Width (in)	Depth (in)	Weight (lbs/ea)	Flat/Round (F/R)	Reduction Factor	C_AA_C (ft²/ea)	Weight (k/ea)	H/W	C_A	q_z (psf)	q_z (Ice) (psf)
1		225	1	1	-	1	1	1	1	F	0.000			1.00	1.40	28.35	21.26
			1	4	Platform w/ Handrails						1.000	75.00	6.00	-	-		
2		206.3	1	1	-	1	1	1	1	F	0.000			1.00	1.40	27.66	20.74
			1	4	Catwalk Platform						1.000	65.00	5.00	-	-		
3		175	1	1	-	1	1	1	1	F	0.000			1.00	1.40	26.39	19.79
			1	1	Rest Platform						1.000	15.00	0.40	-	-		
4		125	1	1	-	1	1	1	1	F	0.000			1.00	1.40	23.97	17.98
			1	3	Platform w/ Handrails						1.000	55.00	4.00	-	-		
5		75	1	1	-	1	1	1	1	F	0.000			1.00	1.40	20.72	15.54
			1	1	Rest Platform						1.000	15.00	0.40	-	-		
6		25	1	1	-	1	1	1	1	F	0.000			1.00	1.40	16.38	12.29
			1	1	Rest Platform						1.000	15.00	0.40	-	-		
7																	
8	ATT	225	1	1	-	1	1	1	1	F	0.000			1.00	1.40	28.35	21.26
	ATT		4	4	Rohr KS15676 Horn						0.800	128.00	1.50	-	-		
9	US Immigration	205	1	1	Andrew DB616E-BC	231	3.5	3.5	51	R	1.000			66.00	1.20	27.61	20.71
	US Immigration		1	1	Side Arm						1.000	5.20	0.05	-	-		
10	Sprint Nextel	195	12	3	72" x 12" Panel	72	12	5	45	F	0.670			6.00	1.40	27.22	20.41
	Sprint Nextel		3	3	Sector Frame						0.750	14.40	0.50	-	-		
11	Sprint Nextel	195	6	3	14" x 9" TTA	14	9	4	10	F	0.500			1.56	1.40	27.22	20.41
	Sprint Nextel		1	1	-						0.000	0.00	0.00	-	-		
12																	
13																	
14																	
15																	
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30																	

No.	Elevation (ft)	C_fA_c (ft^2)	C_fA_c (Ice) (ft^2)	Force (k)	Force (Ice) (k)	Weight (k)	Weight (Ice) (k)	Σ Force (k)	Σ Force (Ice) (k)	Σ Weight (k)	Σ Weight (Ice) (k)
1	225	0.00	0.00	0.000	0.000	0.001	0.001	2.35	2.38	6.00	7.80
		75.00	101.25	2.352	2.381	6.000	7.800				
2	206.3	0.00	0.00	0.000	0.000	0.001	0.001	1.99	2.01	5.00	6.50
		65.00	87.75	1.989	2.013	5.000	6.500				
3	175	0.00	0.00	0.000	0.000	0.001	0.001	0.44	0.44	0.40	0.52
		15.00	20.25	0.438	0.443	0.400	0.520				
4	125	0.00	0.00	0.000	0.000	0.001	0.001	1.46	1.48	4.00	5.20
		55.00	74.25	1.458	1.476	4.000	5.200				
5	75	0.00	0.00	0.000	0.000	0.001	0.001	0.34	0.35	0.40	0.52
		15.00	20.25	0.344	0.348	0.400	0.520				
6	25	0.00	0.00	0.000	0.000	0.001	0.001	0.27	0.28	0.40	0.52
		15.00	20.25	0.272	0.275	0.400	0.520				
7											
8	225	0.00	0.00	0.000	0.000	0.001	0.001	12.85	13.01	6.00	7.80
		409.60	552.96	12.846	13.006	6.000	7.800				
9	205	6.74	8.70	0.206	0.199	0.051	0.112	0.36	0.36	0.10	0.18
		5.20	7.02	0.159	0.161	0.050	0.065				
10	195	67.54	74.18	2.033	1.675	0.540	1.074	3.01	2.66	2.04	3.02
		32.40	43.74	0.975	0.988	1.500	1.950				
11	195	3.68	4.38	0.111	0.099	0.060	0.108	0.11	0.10	0.06	0.11
		0.00	0.00	0.000	0.000	0.000	0.000				
12											
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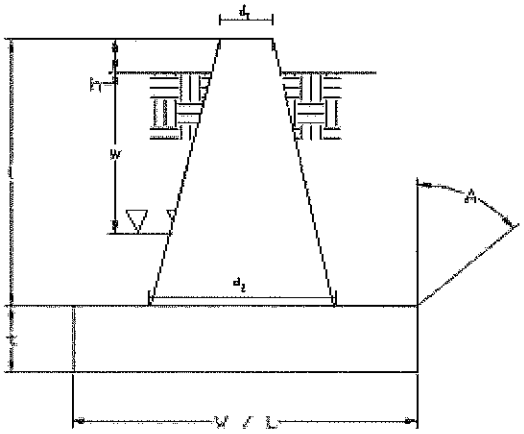
Foundation

Site No.:	88019
Engineer:	MED
Date:	10/04/11
Carrier:	S Immigration and Customs Enforceme

Design Loads (Unfactored)

Compression/Leg:	252.90	k
Uplift/Leg:	175.40	k

Face Width @ Top of Pier (d_1):	3.50	ft
Face Width @ Bottom of Pier (d_2):	8.50	ft
Total Length of Pier (l):	9.50	ft
Height of Pedestal Above Ground (h):	0.50	ft
Width of Pad (W):	20.50	ft
Length of Pad (L):	20.50	ft
Thickness of Pad (t):	2.00	ft
Water Table Depth (w):	30	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil (Above Water Table):	110.0	pcf
Unit Weight of Soil (Below Water Table):	55.0	pcf
Friction Angle of Uplift (A):	20	°
Allowable Compressive Bearing Pressure:	4000	psf



Volume Pier (Total):	361.79	ft^3
Volume Pad (Total):	840.50	ft^3
Volume Soil (Total):	4736.93	ft^3
Volume Pier (Buoyant):	0.00	ft^3
Volume Pad (Buoyant):	0.00	ft^3
Volume Soil (Buoyant):	0.00	ft^3
Weight Pier:	54.27	k
Weight Pad:	126.08	k
Weight Soil:	521.06	k

*** Foundation satisfies a factor of safety of 2.0 per State of Conn. Requirements***

Uplift Check

TIA Case 1: $\frac{\text{Wt. Soil} + \text{Wt. Concrete}}{2}$

TIA Case 2: $\frac{\text{Wt. Soil}}{2.0} + \frac{\text{Wt. Concrete}}{2}$

	Allowable Uplift (k)	Ratio	Result
TIA Case 1:	350.70	0.50	**OK**
TIA Case 2:	350.70	0.50	**OK**

Axial Check

Allowable Axial: $\frac{\text{Allowable Bearing Pressure} * W * L}{}$

	Allowable Axial (k)	Ratio	Result
	1681.00	0.15	**OK**

Anchor Bolt Check

Bolt Description	Allowable Uplift (k)	Ratio	Result
(4) 2 1/2" A36	375.81	0.47	**OK**

C Squared Systems, LLC
65 Dartmouth Drive, Unit A3
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions

Homeland Security

88008

(Bethany CT)

93 Old Amity Road, Bethany, CT 06524

a.k.a. (Bethany - 9 Meyers Road/aka 93 Old Amity Road)

April 11, 2013

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed installation of the U.S. Department of Homeland Security's antenna on the existing self-support tower located at 93 Old Amity Road in Bethany, CT. The coordinates of the tower are 41° 24' 17.13" N, 72° 59' 59.94" W.

The Department of Homeland Security is proposing the following installation:

1) Install one 160-174 MHz omni-directional antenna.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right)$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished installations.

4. Calculation Results

Table 1 below outlines the power density information for the site with the proposed Department of Homeland Security's installation.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
AT&T UMTS	165	880	2	565	0.0149	0.5867	2.54%
AT&T UMTS	165	1900	2	875	0.0231	1.0000	2.31%
AT&T GSM	165	880	1	283	0.0037	0.5867	0.64%
AT&T GSM	165	1900	4	525	0.0277	1.0000	2.77%
AT&T LTE	165	734	1	1375	0.0182	0.4893	3.71%
Pocket (now MetroPCS)	100	2130	3	631	0.0681	1.0000	6.81%
Verizon	180	869	9	210	0.0210	0.5793	3.62%
Verizon	180	1970	3	387	0.0129	1.0000	1.29%
Verizon	180	757	1	605	0.0067	0.5047	1.33%
Indus'l Commcns	345	855	N/A	N/A	0.0091	0.5700	1.59%
Sprint	240	1900	11	122	0.0084	1.0000	0.84%
Nextel	250	851	9	100	0.0091	0.5673	1.60%
T-Mobile	220	1935	8	137	0.0091	1.0000	0.91%
Rescue 21	275	165.313	5	159	0.0038	0.2000	1.88%
Rescue 21	310	412.975	1	159	0.0006	0.2753	0.22%
Dept. of Homeland Security	204	160	1	438	0.0038	0.2000	1.89%
						Total	**33.96%**

Table 1: Carrier Information[1] [2]

[1] The power density information for carriers other than Homeland Security was taken directly from the CSC database dated 1/14/2013. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

[2] Antenna height listed for Homeland Security is in reference to the American Tower Services, Inc. Construction Diagram dated March 22, 2013.

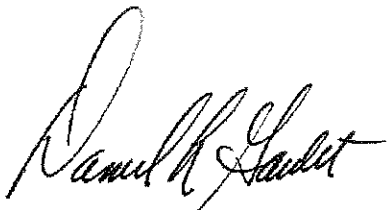
5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **33.96% of the FCC limit.**

As noted previously, obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished installation.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.



Daniel L. Goulet
C Squared Systems, LLC

April 11, 2013
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[3]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[4]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[3] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[4] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

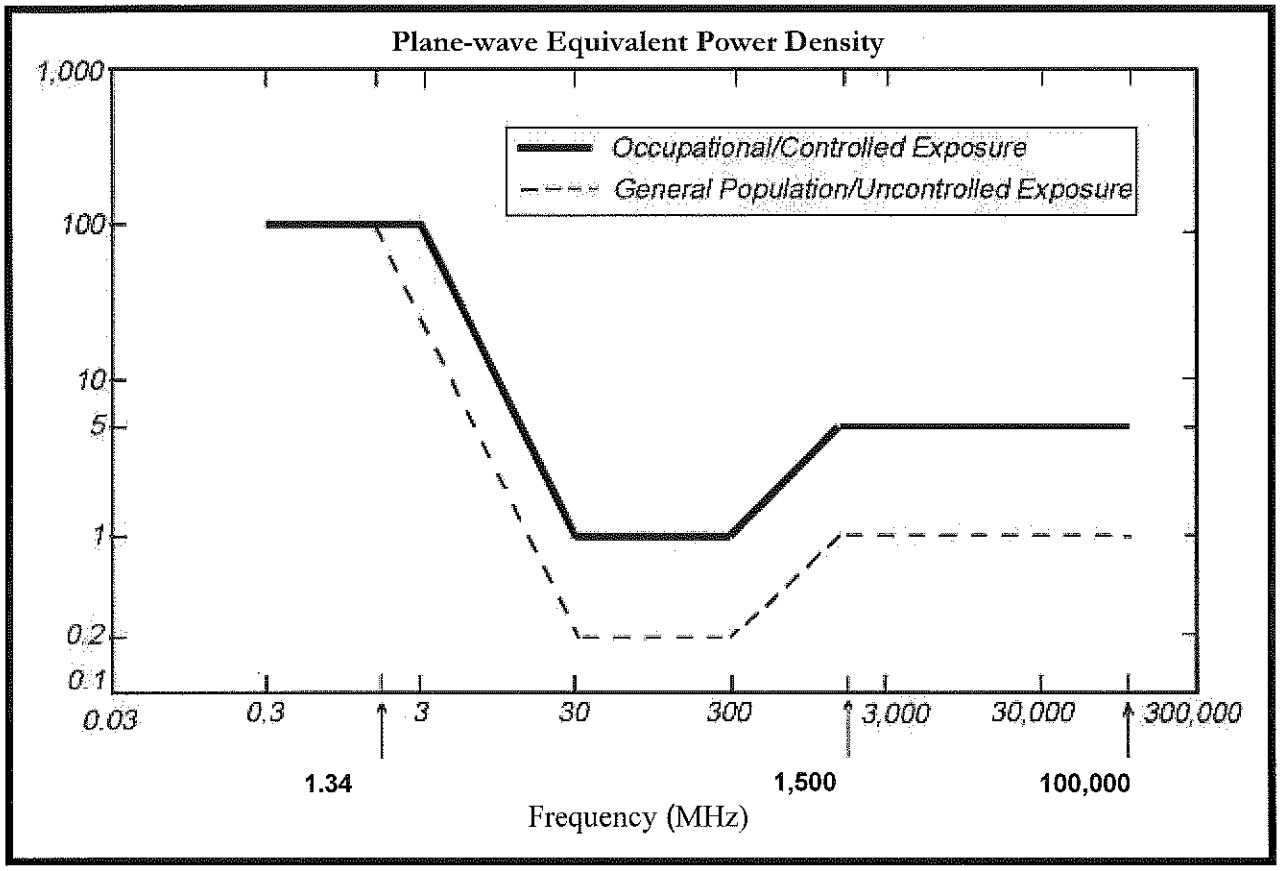
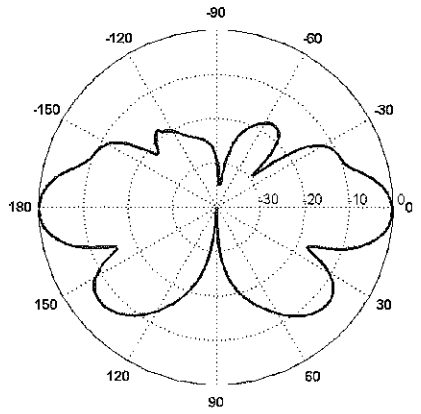


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Antenna Data Sheet and Electrical Pattern

160-174 MHz

Manufacturer:	Commscope
Model #:	DB616E-BC
Frequency Band:	160-174 MHz
Gain:	5.5 dBd
Vertical Beamwidth:	18°
Horizontal Beamwidth:	360°
Polarization:	Vertical
Length:	231"



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

April 23, 2013

The Honorable Derrylyn Gorski
First Selectman
Town of Bethany
Town Hall
40 Peck Road
Bethany, CT 06524-3338

RE: **TS-ATC-008-130416** – American Tower Corporation ("ATC") request for an order to approved the shared used of an existing telecommunications facility located at 9 Meyers Road, a/k/a 93 Old Amity Road, Bethany, Connecticut.

Dear Ms. Gorski:

The Connecticut Siting Council (Council) received a request for tower sharing, pursuant to Connecticut General Statutes § 16-50aa. A copy of which has already been provided to you.

The Council will consider this item at the next meeting scheduled for May 2, 2013, at 1:00 p.m. in Hearing Room Two, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding the proposal, please call me or inform the council May 1, 2013.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/jb

c: Isabel Kearns, Zoning Enforcement Officer, Town of Bethany