Filed by:
Kri Pelletier, Property Specialist - SBA Communications
Please note new address: 134 Flanders Rd., Ste 125, Westborough, MA 01581
508.251.0720 x 3804 - kpelletier@sbasite.com

January 4, 2016

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

Notice of Exempt Modification
56 Roper Road, Plainfield, CT
41.74599 N
-71.88010 W
T-Mobile #: CT11155F_L700

Dear Ms. Bachman:

T-Mobile currently maintains three (3) antennas at the 165' level of the existing 178' Monopole Tower at 56 Roper Road. The tower is owned by SBA Properties, LLC. The property is owned by Tilcon Mineral, Inc. T-Mobile now intends to replace the existing antennas with three (3) new GSM/LTE Antennas and add three (3) additional L700 MHz antennas. These antennas would be installed at the 165-foot level of the tower.

T-Mobile intends to:

Remove and Replace:

- Remove (3) existing EMS panel antennas and replace with (3) new RFS APXV18-203219 panel antennas
- Remove (3) Tower Mounted Amplifiers and replace with (3) new Ericsson KRY 112 TMAs

Install:

- (1) SitePro1 Platform Reinforcement Kit (P/N: PRK-1245)
- (3) CommScope LNX-6515DS
- (3) Ericsson KRY 112 TMAs
- (6) 1-5/8" Coax Lines
- (3) Kathrein Smart Bias-T
- (1) Battery Backup Cabinet

Existing Equipment to Remain (Entitlements):

- (1) 6201 ODE Equipment cabinet
- (6) 1-5/8" Coax Lines

This facility was approved by the Planning and Zoning Commission of Plainfield on July 14, 1998. Special Permit 98-06 approved the construction of a telecommunication tower with no conditions, making this modification in full compliance with the Town's Special Permit.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to Paul Sweet, First Selectman for the Town of Plainfield, as well as the property owner. Since SBA owns the tower, there is no need for notice to tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading with certain modifications. A copy of the modification drawings is attached.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-referenced telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
Please note new address: 134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3804 + T
508.251.1755 + F
203.446.7700 + C
kpelletier@sbasite.com

Attachments

cc: First Selectman Paul Sweet – as elected official
Town of Plainfield, 8 Community Ave., Plainfield, CT 06374
Tilcon Mineral, Inc. -- as property owner
P. O. Box 32411, Hartford, CT 06150

T-Mobile Site
Inventory and Power
Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXV18-203219-C-A20	Make / Model:	RFS APXV18-203219-C-A20	Make / Model:	RFS APXV18-203219-C-A20
Gain:	18.5 dBd	Gain:	18.5 dBd	Gain:	18.5 dBd
Height (AGL):	165	Height (AGL):	165	Height (AGL):	165
Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)
Channel Count	6	Channel Count	6	# PCS Channels:	6
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	11,097.14	ERP (W):	11,097.14	ERP (W):	11,097.14
Antenna A1 MPE%	1.58	Antenna B1 MPE%	1.58	Antenna C1 MPE%	1.58
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	165	Height (AGL):	165	Height (AGL):	165
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	685.68	ERP (W):	685.68	ERP (W):	685.68
Antenna A2 MPE%	0.21	Antenna B2 MPE%	0.21	Antenna C2 MPE%	0.21

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	1.79 %
Verizon Wireless	3.45 %
AT&T	1.48 %
MetroPCS	0.26 %
Sprint	0.21 %
Nextel	0.20 %
Site Total MPE %:	**7.39 %**

T-Mobile Sector 1 Total:	1.79 %
T-Mobile Sector 2 Total:	1.79 %
T-Mobile Sector 3 Total:	1.79 %
Site Total:	7.39 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) LTE	2	2274.29	165	7.89	1900	1000	0.79 %
T-Mobile 1900 MHz (PCS) GSM	2	1387.14	165	3.95	1900	1000	0.39 %
T-Mobile 1900 MHz (PCS) UMTS	2	1387.14	165	3.95	1900	1000	0.39 %
T-Mobile 700 MHz LTE	1	685.68	165	0.98	700	467	0.21 %
						Total:	1.79%

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11155F

Plainfield/ I-395 X90_1
56 Roper Road
Plainfield, CT 06354

December 30, 2015

EBI Project Number: 6215006595

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	7.39 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

December 30, 2015

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11155F – Plainfield/ I-395 X90_1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **56 Roper Road, Plainfield, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the 1900 MHz PCS band is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **56 Roper Road, Plainfield, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

2) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) Since the radios are ground mounted there are additional cabling losses accounted for. For each RF path the following losses were calculated. 1.01 dB of additional cable loss at 700 MHz and 1.85 dB of additional cable loss at 1900 MHz. This is based on manufacturers Specifications for 180 feet of 1-5/8" coax cable on each path.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **RFS APXV18-203219-C-A20** for 1900 MHz (PCS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APXV18-203219-C-A20** have a maximum gain of **18.5 dBd** at their main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerline of the proposed antennas is **165 feet** above ground level (AGL).

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXV18-203219-C-A20	Make / Model:	RFS APXV18-203219-C-A20	Make / Model:	RFS APXV18-203219-C-A20
Gain:	18.5 dBd	Gain:	18.5 dBd	Gain:	18.5 dBd
Height (AGL):	165	Height (AGL):	165	Height (AGL):	165
Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)
Channel Count	6	Channel Count	6	# PCS Channels:	6
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	11,097.14	ERP (W):	11,097.14	ERP (W):	11,097.14
Antenna A1 MPE%	1.58	Antenna B1 MPE%	1.58	Antenna C1 MPE%	1.58
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	165	Height (AGL):	165	Height (AGL):	165
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	685.68	ERP (W):	685.68	ERP (W):	685.68
Antenna A2 MPE%	0.21	Antenna B2 MPE%	0.21	Antenna C2 MPE%	0.21

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**1.79 %**
Verizon Wireless	3.45 %
AT&T	1.48 %
MetroPCS	0.26 %
Sprint	0.21 %
Nextel	0.20 %
Site Total MPE %:	**7.39 %**

T-Mobile Sector 1 Total:	1.79 %
T-Mobile Sector 2 Total:	1.79 %
T-Mobile Sector 3 Total:	1.79 %
Site Total:	7.39 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) LTE	**2**	**2274.29**	**165**	**7.89**	**1900**	**1000**	**0.79 %**
T-Mobile 1900 MHz (PCS) GSM	**2**	**1387.14**	**165**	**3.95**	**1900**	**1000**	**0.39 %**
T-Mobile 1900 MHz (PCS) UMTS	**2**	**1387.14**	**165**	**3.95**	**1900**	**1000**	**0.39 %**
T-Mobile 700 MHz LTE	**1**	**685.68**	**165**	**0.98**	**700**	**467**	**0.21 %**
						Total:	**1.79%**

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector 1:	1.79 %
Sector 2:	1.79 %
Sector 3 :	1.79 %
T-Mobile Per Sector Maximum:	1.79 %
Site Total:	7.39 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.39%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Post-Mod Structural Analysis Report

Existing 178 ft. Valmont Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT00594-S

Customer Site Name: Plainfield North

Carrier Name: T-Mobile

Carrier Site ID/ Name: CT11155F

Site Location: 56 Roper Road

Plainfield, Connecticut

Windham County

Latitude: 41.746002

Longitude: -71.880158

Analysis Result:

Max Structural Usage: 85.5% [Pass]

Max Foundation Usage: 95.0% [Pass]

Report Prepared By : Walter Velez

Introduction

The purpose of this report is to summarize the analysis results on the 178 ft. Valmont Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Tower Drawings	Monopole original shaft section data prepared by Valmont. Dated 09-11-1998. Project No F138. Order No 17665-98. Monopole previous structural report prepared by Tower Engineering Solutions. Dated 10-22-2015. TES Project No 17975.
Foundation Drawing	Monopole foundation mapping report prepared by FDH Engineering, Inc. Dated 08-16-2012. Project No 1207132 EN1.
Geotechnical Report	Monopole geotechnical report prepared by Jaworski Geotech, Inc. Dated 07-23-1998. Project No C98326G.
Existing Modification	N/A
Proposed Modification	**Tower Engineering Solutions** Job # 18414

Analysis Criteria

The analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA-222-F**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	85.0 mph (fastest mile)
Wind Speed with Ice:	74 mph (fastest mile) with 1/2” radial ice concurrent
Operational Wind Speed:	50 mph + 0” Radial ice
Standard/Codes:	ANSI/TIA-222-F, 2003 IBC & 2005 Connecticut State Building Code

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	175.0[1]	-	-	Low Profile Platform	-	-
2	165.0	3	EMS RR90-18-02DP - Panel	Platform w/ Hand Rails	(6) 1 5/8"	T-Mobile
3		3	TMAs			
4	155.0	1	Kathrein 800 10764 - Panel	Platform w/ Hand Rails	(12) 1 5/8"; (2) 3/4" DC Power; (1) 7/16" Fiber; (1) 1/2"	AT&T
5		1	KMW AM-X-CD-17-65-00T - Panel			
6		1	Nokia CS72188.01			
7		6	Powerwave 7770 - Panel			
8		6	Powerwave LGP21401 TMAs			
9		6	Powerwave LGP21903 Diplexers			
10		1	Powerwave P65-17-XLH-RR - Panel			
11	152.5	6	Ericsson RRUS11 RRUs	Ring Mount (Part No LWRM)	-	-
12		1	Raycap DC2-48-60-18-8F			
13	145.0	6	Decibel DB908H90E-M - Panel	Platform w/ Hand Rails	(6) 1 5/8"	Sprint
14	135.0[2]	6	Kathrein 742-351 - Panel	(3) T-Arms	(12) 1 5/8"; (1) 3/8"	Metro PCS
15	125.0	3	Antel BXA-70063-6CF - Panel	Low Profile Platform	(12) 1 5/8"; (1) 1 5/8" Fiber	Verizon
16		3	Antel BXA-185090/8CF - Panel			
17		3	Antel WBX065X19R050 - Panel			
18		3	Antel BXA-70080-4CF - Panel			
19		3	ALU RRH2X40-AWS			
20		6	RFS FD9R6004/2C-3L			
21		1	RFS DB-T1-6Z-8AB-0Z			

[1] Existing low profile platform to be removed and was not considered in the analysis.
[2] Existing equipment to be removed and was not considered in the analysis.

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
22	165.0	3	RFS APXV18-203219-C-A20 - Panel	Platform w/ Hand Rails + Reinforcement Kit (SitePro1 PRK-1245)	(12) 1 5/8"	T-Mobile
23		3	Commscope LNX- 6515DS-VTM - Panel			
24		6	Ericsson KRY 112 144/1 TMAs			
25		3	Kathrein 782 11056 Bias T's			

All transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**85.5%**	**74.9%**	**52.4%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	5595.9	45.2	50.7
Analysis Reactions	4800.1	41.6	51.9
% of Design Reactions	85.8%	92.0%	102.4%

The foundation, with the proposed TES modifications referenced in this analysis included, was analyzed using the supplied documents and soils report and was found adequate.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA-222-F for the installed antennas. Maximum twist/sway at the elevation of the proposed equipment is 1.9323 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the design ANSI/TIA-222-F standards, the 2003 IBC and the 2005 Connecticut State Building Code the under a basic wind speed of 85 mph no ice and 74 mph with 1/2" radial ice after the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 18414

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed T-Mobile equipment loading can be installed prior to the completion of the required modifications. We ran a reduced wind loading case as required by TIA-1019 considering a construction period of no more than 6 months.

The tower and foundations passed, so the Carrier can proceed and install their proposed loading prior to the mods completion. Please be aware that this approval is being provided and is based on the method outlined in TIA-1019. This approval is not a blanket approval and there is still a risk that the tower will experience a wind event that cannot be predicted by TIA-1019 or our Engineers. In the event of an unforeseen wind event, Tower Engineering Solutions will not be liable nor responsible for damage to the tower or the Carriers equipment. Additionally, the tower cannot go beyond the 6 month construction period without the modifications being completed. If the modifications cannot be completed within 6 months from the completed installation of the Carrier's proposed equipment, TES must be notified immediately for further review.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.

4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.

5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.

6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed or/and ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Stress 85.5% at 0.0ft

Structure:	CT00594-S-SBA	**Code:**	EIA/TIA-222-F	11/17/2015
Site Name:	Plainfield North	**Exposure:**	C	
Height:	178.00 (ft)	**Gh:**	1.69	
Base Elev:	0.000 (ft)			Page: 1

Tower Engineering Solutions

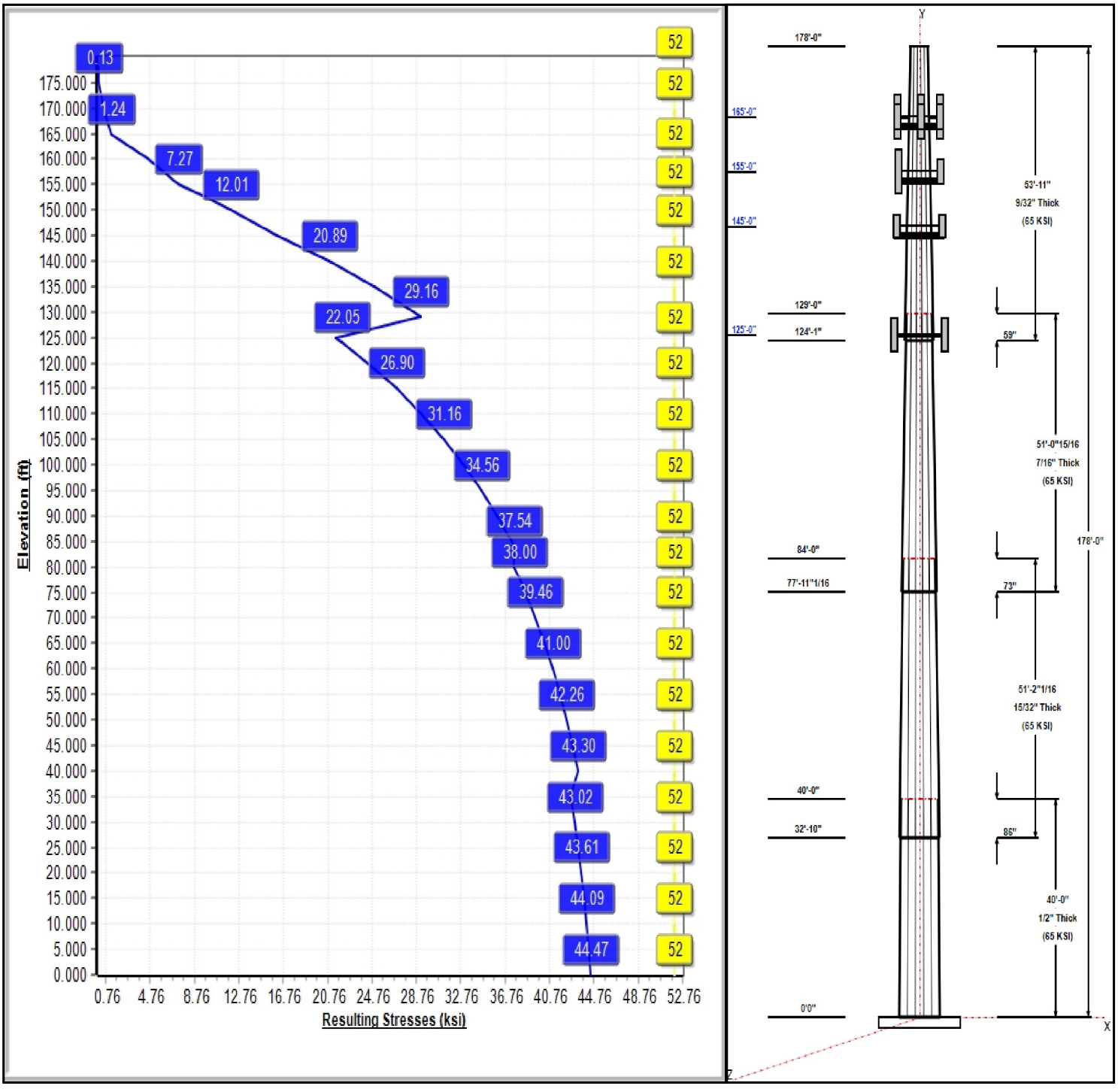
Dead Load Factor:	1.00
Wind Load Factor:	1.00

52 Alllowable Stress

44 Resulting Stress

Load Case : 85 mph Wind with 0 in Ice

Iterations: 25



Structure: CT00594-S-SBA

Type: Tapered
Site Name: Plainfield North
Height: 178.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 12 Sided
Taper: 0.22997

11/17/2015

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	40.00	49.05	58.25	0.500		0.22997	65
2	51.17	39.87	51.64	0.469	Slip	0.22997	65
3	51.08	30.40	42.14	0.438	Slip	0.22997	65
4	53.92	19.69	32.09	0.281	Slip	0.22997	65

Discrete Appurtenances

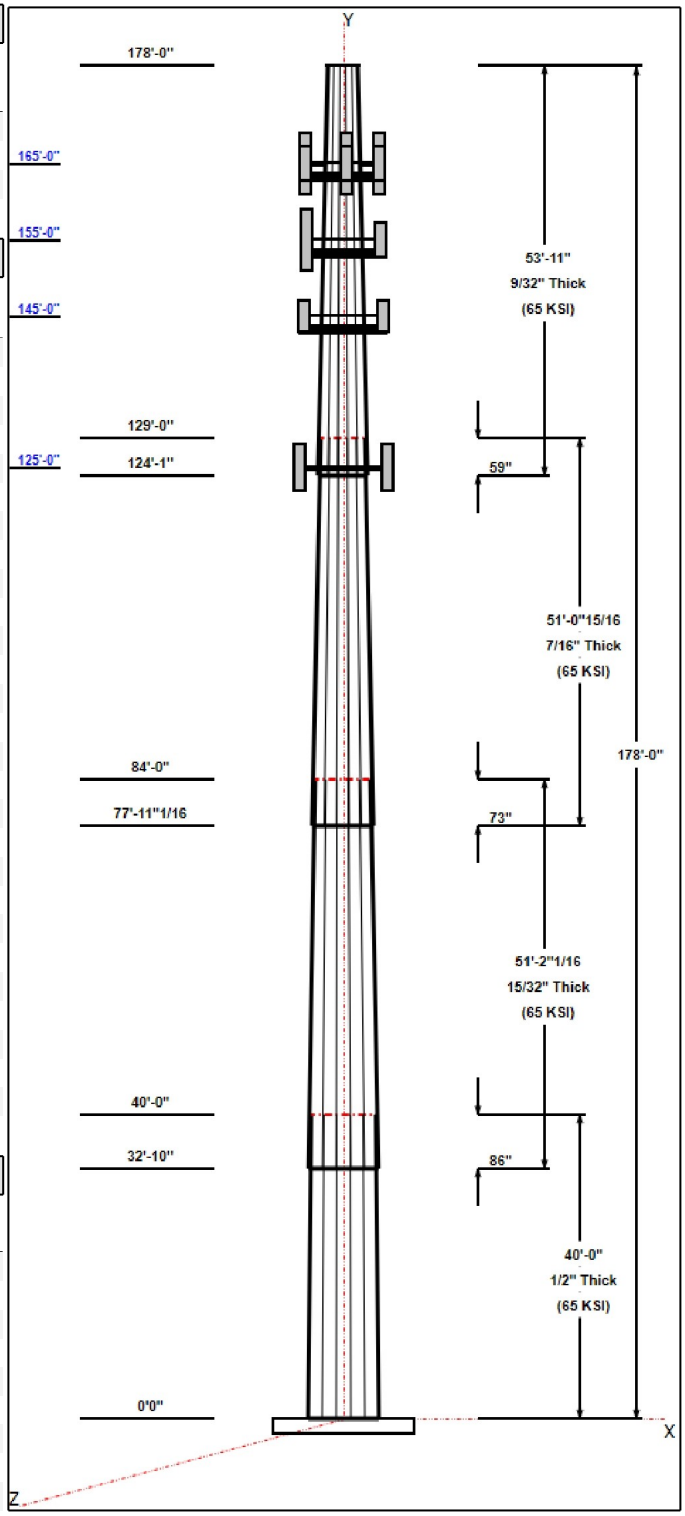
Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
165.00	165.00	3	Commscope LNX-	T-Mobile
165.00	165.00	6	Ericsson KRY 112 144/1	T-Mobile
165.00	165.00	3	Kathrein 782 11056 Bias	T-Mobile
165.00	165.00	1	Platform w/ Hand Rails	T-Mobile
165.00	165.00	3	Reinf. Kit (SitePro1	T-Mobile
165.00	165.00	3	RFS	T-Mobile
155.00	155.00	1	Kathrein 800 10764	AT&T
155.00	155.00	1	KMW AM-X-CD-17-65-00T	AT&T
155.00	155.00	1	Nokia CS72188.01	AT&T
155.00	155.00	1	Platform w/ Hand Rails	AT&T
155.00	155.00	6	Powerwave 7770	AT&T
155.00	155.00	6	Powerwave LGP21401	AT&T
155.00	155.00	6	Powerwave LGP21903	AT&T
155.00	155.00	1	Powerwave	AT&T
152.50	152.50	6	Ericsson RRUS11 RRUs	---
152.50	152.50	1	Raycap DC2-48-60-18-8F	---
152.50	152.50	1	Ring Mount (Part No	---
145.00	145.00	6	Decibel DB908H90E-M	Sprint
145.00	145.00	1	Platform w/ Hand Rails	Sprint
125.00	125.00	3	ALU RRH2x60-700	Verizon
125.00	125.00	3	ALU RRH2x60-AWS	Verizon
125.00	125.00	3	ALU RRH2X60-PCS	Verizon
125.00	125.00	6	Antel	Verizon
125.00	125.00	6	Commscope	Verizon
125.00	125.00	1	GPS	Verizon
125.00	125.00	1	Low Profile Platform	Verizon
125.00	125.00	2	RFS DB-T1-6Z-8AB-0Z	Verizon
125.00	125.00	6	RFS FD9R6004/2C-3L	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
3.00	165.00	Inside	1 5/8" Coax	T-Mobile
3.00	155.00	Inside	1 5/8" Coax	AT&T
3.00	155.00	Inside	1/2" Coax	AT&T
3.00	155.00	Inside	3/4" DC Power	AT&T
3.00	155.00	Inside	7/16" Fiber	AT&T
3.00	145.00	Inside	1 5/8" Coax	Sprint
3.00	125.00	Outside	1 5/8" Coax	Verizon
3.00	125.00	Outside	1 5/8" Hybrid	Verizon
3.00	125.00	Outside	1/2" Coax	Verizon

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
24	2.25" 18J	75.0	Radial



Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.0000	72.8	60.0	Polygon

Reactions

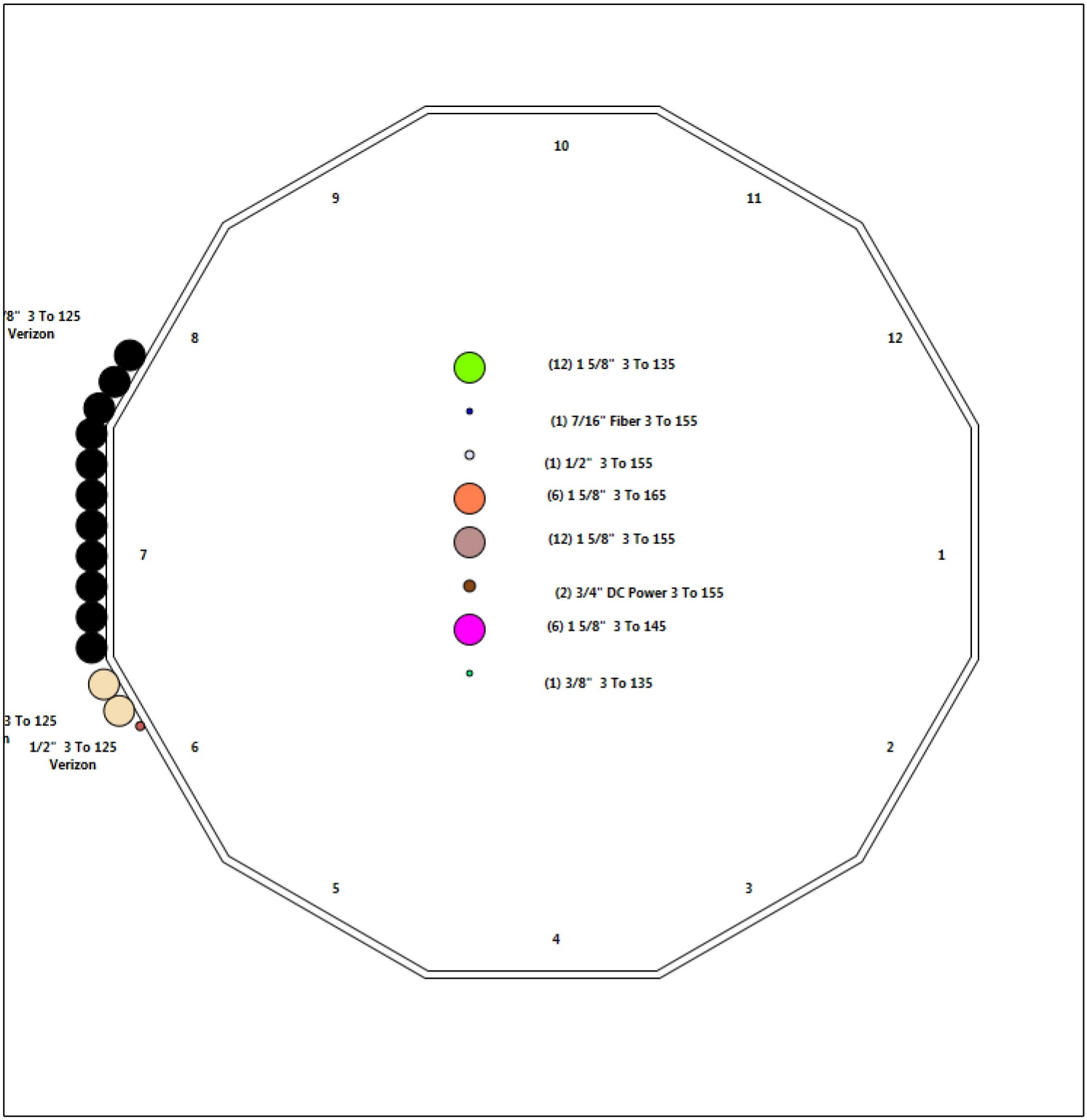
Load Case	Moment	Shear	Axial
85 mph Wind with 0" Ice	4800.1	41.6	51.9
73.61 mph Wind with 0.5" Ice	4108.9	35.1	58.5
50 mph Wind with 0" Ice	1662.9	14.4	51.9

Structure: CT00594-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Plainfield North
Height: 178.00 (ft)

11/17/2015

Tower Engineering Solutions



Shaft Properties

Structure:	CT00594-S-SBA	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	12	40.000	0.5000	65		0.00	11,647
2	12	51.170	0.4688	65	Slip	86.00	11,901
3	12	51.080	0.4375	65	Slip	73.00	8,774
4	12	53.917	0.2813	65	Slip	59.00	4,255
					Total Shaft Weight:		**36,577**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	58.25	0.00	92.98	39579.27	29.07	116.5	49.05	40.00	78.17	23518.5	24.14	98.10	0.229972
2	51.64	32.83	77.23	25809.44	27.37	110.1	39.87	84.00	59.47	11783.7	20.64	85.05	0.229972
3	42.14	77.92	58.75	13043.76	23.66	96.32	30.40	129.0	42.20	4834.88	16.47	69.47	0.229972
4	32.09	124.0	28.81	3720.03	28.42	114.0	19.69	178.0	17.58	845.14	16.61	70.00	0.229972

Loading Summary

Structure:	CT00594-S-SBA	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	165.0	Commscope LNX- 6515DS-VTM	3	50.30	11.45	0.82	115.70	12.38	0.82	0.00	0.00
2	165.0	Ericsson KRY 112 144/1 TMAs	6	11.00	0.41	0.67	14.10	0.550	0.67	0.00	0.00
3	165.0	Kathrein 782 11056 Bias T's	3	1.80	0.14	0.67	4.00	0.210	0.67	0.00	0.00
4	165.0	Platform w/ Hand Rails	1	2000.00	40.00	1.00	2600.00	48.00	1.00	0.00	0.00
5	165.0	Reinf. Kit (SitePro1 PRK-1245)	3	95.00	3.50	0.75	84.00	5.790	0.75	0.00	0.00
6	165.0	RFS APXV18-203219-C-A20	3	18.70	5.94	0.72	70.90	6.590	0.72	0.00	0.00
7	155.0	Kathrein 800 10764	1	40.80	6.33	0.77	77.30	6.990	0.77	0.00	0.00
8	155.0	KMW AM-X-CD-17-65-00T	1	30.80	5.51	0.78	63.00	6.100	0.78	0.00	0.00
9	155.0	Nokia CS72188.01	1	19.80	1.32	0.67	28.10	1.560	0.67	0.00	0.00
10	155.0	Platform w/ Hand Rails	1	2000.00	40.00	1.00	2600.00	48.00	1.00	0.00	0.00
11	155.0	Powerwave 7770	6	27.00	5.92	0.78	59.70	6.600	0.78	0.00	0.00
12	155.0	Powerwave LGP21401 TMAs	6	14.10	1.29	0.67	21.20	1.530	0.67	0.00	0.00
13	155.0	Powerwave LGP21903 Diplexers	6	5.50	0.27	0.67	7.90	0.380	0.67	0.00	0.00
14	155.0	Powerwave P65-17-XLH-RR	1	59.00	11.46	0.81	121.00	12.39	0.81	0.00	0.00
15	152.5	Ericsson RRUS11 RRUs	6	51.00	3.26	0.67	72.90	3.620	0.67	0.00	0.00
16	152.5	Raycap DC2-48-60-18-8F	1	32.80	1.47	0.67	50.50	1.670	0.67	0.00	0.00
17	152.5	Ring Mount (Part No LWRM)	1	150.00	5.00	0.75	450.00	6.000	0.75	0.00	0.00
18	145.0	Decibel DB908H90E-M	6	7.00	2.91	0.79	0.00	3.380	0.79	0.00	0.00
19	145.0	Platform w/ Hand Rails	1	2000.00	40.00	1.00	2600.00	48.00	1.00	0.00	0.00
20	125.0	ALU RRH2x60-700	3	60.00	3.96	0.67	80.10	4.230	0.67	0.00	0.00
21	125.0	ALU RRH2x60-AWS	3	60.00	3.96	0.67	80.10	4.230	0.67	0.00	0.00
22	125.0	ALU RRH2X60-PCS	3	55.00	2.57	0.67	80.10	4.230	0.67	0.00	0.00
23	125.0	Antel LPA-80080-4CF-EDIN-0	6	12.00	6.06	0.73	45.10	6.650	0.73	0.00	0.00
24	125.0	Commscope SBNHH-1D65B	6	50.71	8.30	0.83	87.00	8.800	0.83	0.00	0.00
25	125.0	GPS	1	10.00	1.00	0.67	18.00	1.250	0.67	0.00	0.00
26	125.0	Low Profile Platform	1	1200.00	25.00	1.00	1500.00	31.00	1.00	0.00	0.00
27	125.0	RFS DB-T1-6Z-8AB-0Z	2	44.00	5.60	0.67	51.10	5.040	0.67	0.00	0.00
28	125.0	RFS FD9R6004/2C-3L	6	3.10	0.37	0.67	5.40	0.500	0.67	0.00	0.00
		Totals:	**88**	**9,742.06**			**13,634.60**				

Linear Appurtenances

			No Ice		Ice		
Bottom Elev. (ft)	Top Elev. (ft)	Description	Weight (lb/ft)	CaAa (sf/ft)	Weight (lb/ft)	CaAa (sf/ft)	Exposed
3.00	165.0	(12) 1 5/8" Coax	6.24	0.00	0.00	0.00	Inside
3.00	155.0	(12) 1 5/8" Coax	12.48	0.00	0.00	0.00	Inside
3.00	155.0	(1) 1/2" Coax	0.16	0.00	0.00	0.00	Inside
3.00	155.0	(2) 3/4" DC Power	0.80	0.00	0.00	0.00	Inside
3.00	155.0	(1) 7/16" Fiber	0.08	0.00	0.00	0.00	Inside
3.00	145.0	(6) 1 5/8" Coax	6.24	0.00	0.00	0.00	Inside
3.00	125.0	(11) 1 5/8" Coax	11.44	0.00	0.00	0.16	Outside
3.00	125.0	(2) 1 5/8" Hybrid	2.20	0.00	0.00	0.16	Outside
3.00	125.0	(1) 1/2" Coax	0.16	0.00	0.00	0.05	Outside
		Totals:	**5,635.60**		**0.00**		

Shaft Section Properties

Structure:	CT00594-S-SBA	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
0.00		0.5000	58.250	92.978	39579.3	29.07	116.50	65	52	0.0
5.00		0.5000	57.100	91.126	37261.8	28.46	114.20	65	52	1566.2
10.00		0.5000	55.950	89.275	35036.7	27.84	111.90	65	52	1534.7
15.00		0.5000	54.800	87.424	32901.9	27.22	109.60	65	52	1503.2
20.00		0.5000	53.651	85.572	30855.7	26.61	107.30	65	52	1471.7
25.00		0.5000	52.501	83.721	28896.1	25.99	105.00	65	52	1440.2
30.00		0.5000	51.351	81.870	27021.3	25.38	102.70	65	52	1408.7
32.83	Bot - Section 2	0.5000	50.699	80.821	25995.8	25.03	101.40	65	52	784.3
35.00		0.5000	50.201	80.019	25229.4	24.76	100.40	65	52	1159.5
40.00	Top - Section 1	0.4688	49.989	74.744	23394.9	26.43	106.64	65	52	2632.1
45.00		0.4688	48.839	73.008	21802.8	25.77	104.19	65	52	1256.9
50.00		0.4688	47.689	71.273	20284.5	25.12	101.74	65	52	1227.4
55.00		0.4688	46.539	69.537	18838.5	24.46	99.28	65	52	1197.9
60.00		0.4688	45.389	67.802	17462.8	23.80	96.83	65	52	1168.3
65.00		0.4688	44.239	66.066	16155.9	23.14	94.38	65	52	1138.8
70.00		0.4688	43.089	64.331	14915.8	22.49	91.92	65	52	1109.3
75.00		0.4688	41.940	62.595	13740.8	21.83	89.47	65	52	1079.8
77.92	Bot - Section 3	0.4688	41.268	61.582	13084.1	21.45	88.04	65	52	616.9
80.00		0.4688	40.790	60.860	12629.2	21.17	87.02	65	52	846.8
84.00	Top - Section 2	0.4375	40.744	56.782	11774.7	22.81	93.13	65	52	1601.9
85.00		0.4375	40.515	56.459	11574.9	22.67	92.61	65	52	192.0
90.00		0.4375	39.365	54.839	10606.9	21.97	89.98	65	52	946.8
95.00		0.4375	38.215	53.219	9694.5	21.26	87.35	65	52	919.2
100.00		0.4375	37.065	51.599	8835.9	20.56	84.72	65	52	891.7
105.00		0.4375	35.915	49.980	8029.6	19.85	82.09	65	52	864.1
110.00		0.4375	34.766	48.360	7273.9	19.15	79.46	65	52	836.6
115.00		0.4375	33.616	46.740	6567.2	18.44	76.84	65	52	809.0
120.00		0.4375	32.466	45.120	5907.8	17.74	74.21	65	52	781.4
124.08	Bot - Section 4	0.4375	31.527	43.797	5403.2	17.17	72.06	65	52	617.7
125.00		0.4375	31.316	43.500	5294.1	17.04	71.58	65	52	225.7
129.00	Top - Section 3	0.2813	30.959	27.782	3337.3	27.35	110.08	65	52	967.1
130.00		0.2813	30.729	27.574	3262.8	27.13	109.26	65	52	94.2
135.00		0.2813	29.579	26.533	2906.9	26.04	105.17	65	52	460.3
140.00		0.2813	28.429	25.491	2577.9	24.94	101.08	65	52	442.6
145.00		0.2813	27.279	24.450	2274.7	23.85	96.99	65	52	424.8
150.00		0.2813	26.129	23.409	1996.2	22.75	92.90	65	52	407.1
152.50		0.2813	25.554	22.888	1866.0	22.20	90.86	65	52	196.9
155.00		0.2813	24.979	22.367	1741.5	21.65	88.82	65	52	192.5
160.00		0.2813	23.829	21.326	1509.4	20.56	84.73	65	52	371.7
165.00		0.2813	22.680	20.285	1298.9	19.46	80.64	65	52	354.0
170.00		0.2813	21.530	19.243	1109.0	18.37	76.55	65	52	336.3
175.00		0.2813	20.380	18.202	938.5	17.27	72.46	65	52	318.5
178.00		0.2813	19.690	17.577	845.1	16.62	70.01	65	52	182.6
										36577.3

Wind Loading - Shaft

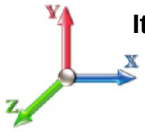
Structure:	CT00594-S-SBA	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	18.496	31.26	412.60	1.030	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	18.496	31.26	404.46	1.030	0.000	5.00	24.031	24.75	773.7	0.0	1566.2
10.00		0.00	1.00	18.496	31.26	396.31	1.030	0.000	5.00	23.552	24.26	758.3	0.0	1534.7
15.00		0.00	1.00	18.496	31.26	388.17	1.030	0.000	5.00	23.073	23.77	742.9	0.0	1503.2
20.00		0.00	1.00	18.496	31.26	380.02	1.030	0.000	5.00	22.594	23.27	727.4	0.0	1471.7
25.00		0.00	1.00	18.496	31.26	371.88	1.030	0.000	5.00	22.115	22.78	712.0	0.0	1440.2
30.00		0.00	1.00	18.496	31.26	363.74	1.030	0.000	5.00	21.636	22.28	696.6	0.0	1408.7
32.83	Bot - Section 2	0.00	1.00	18.496	31.26	359.12	1.030	0.000	2.83	12.048	12.41	387.9	0.0	784.3
35.00		0.00	1.02	18.810	31.79	358.59	1.030	0.000	2.17	9.278	9.56	303.8	0.0	1159.5
40.00	Top - Section 1	0.00	1.06	19.541	33.02	357.13	1.030	0.000	5.00	21.068	21.70	716.6	0.0	2632.1
45.00		0.00	1.09	20.210	34.15	361.61	1.030	0.000	5.00	20.589	21.21	724.3	0.0	1256.9
50.00		0.00	1.13	20.827	35.20	358.45	1.030	0.000	5.00	20.110	20.71	729.1	0.0	1227.4
55.00		0.00	1.16	21.402	36.17	354.61	1.030	0.000	5.00	19.631	20.22	731.4	0.0	1197.9
60.00		0.00	1.19	21.941	37.08	350.17	1.030	0.000	5.00	19.152	19.73	731.5	0.0	1168.3
65.00		0.00	1.21	22.449	37.94	345.23	1.030	0.000	5.00	18.673	19.23	729.7	0.0	1138.8
70.00		0.00	1.24	22.929	38.75	339.83	1.030	0.000	5.00	18.193	18.74	726.2	0.0	1109.3
75.00		0.00	1.26	23.386	39.52	334.04	1.030	0.000	5.00	17.714	18.25	721.1	0.0	1079.8
77.92	Bot - Section 3	0.00	1.28	23.642	39.96	330.49	1.030	0.000	2.92	10.124	10.43	416.6	0.0	616.9
80.00		0.00	1.29	23.821	40.26	327.89	1.030	0.000	2.08	7.263	7.48	301.2	0.0	846.8
84.00	Top - Section 2	0.00	1.31	24.155	40.82	322.73	1.030	0.000	4.00	13.746	14.16	578.0	0.0	1601.9
85.00		0.00	1.31	24.237	40.96	328.51	1.030	0.000	1.00	3.375	3.48	142.4	0.0	192.0
90.00		0.00	1.33	24.636	41.63	321.81	1.030	0.000	5.00	16.642	17.14	713.7	0.0	946.8
95.00		0.00	1.35	25.020	42.28	314.83	1.030	0.000	5.00	16.163	16.65	703.9	0.0	919.2
100.00		0.00	1.37	25.389	42.91	307.60	1.030	0.000	5.00	15.683	16.15	693.1	0.0	891.7
105.00		0.00	1.39	25.745	43.51	300.14	1.030	0.000	5.00	15.204	15.66	681.4	0.0	864.1
110.00		0.00	1.41	26.090	44.09	292.47	1.030	0.000	5.00	14.725	15.17	668.7	0.0	836.6
115.00		0.00	1.43	26.423	44.66	284.60	1.030	0.000	5.00	14.246	14.67	655.3	0.0	809.0
120.00		0.00	1.45	26.747	45.20	276.54	1.030	0.000	5.00	13.767	14.18	641.0	0.0	781.4
124.08	Bot - Section 4	0.00	1.46	27.004	45.64	269.83	1.030	0.000	4.08	10.888	11.21	511.8	0.0	617.7
125.00	Appurtenance(s)	0.00	1.46	27.060	45.73	268.31	1.030	0.000	0.92	2.443	2.52	115.1	0.0	225.7
129.00	Top - Section 3	0.00	1.48	27.305	46.15	261.60	1.030	0.000	4.00	10.473	10.79	497.8	0.0	967.1
130.00		0.00	1.48	27.365	46.25	264.75	1.030	0.000	1.00	2.570	2.65	122.4	0.0	94.2
135.00		0.00	1.50	27.662	46.75	256.22	1.030	0.000	5.00	12.564	12.94	605.0	0.0	460.3
140.00		0.00	1.51	27.951	47.24	247.55	1.030	0.000	5.00	12.085	12.45	588.0	0.0	442.6
145.00	Appurtenance(s)	0.00	1.53	28.233	47.71	238.73	1.030	0.000	5.00	11.606	11.95	570.4	0.0	424.8
150.00		0.00	1.54	28.507	48.18	229.78	1.030	0.000	5.00	11.127	11.46	552.1	0.0	407.1
152.50	Appurtenance(s)	0.00	1.55	28.642	48.41	225.25	1.030	0.000	2.50	5.384	5.55	268.4	0.0	196.9
155.00	Appurtenance(s)	0.00	1.56	28.776	48.63	220.70	1.030	0.000	2.50	5.264	5.42	263.7	0.0	192.5
160.00		0.00	1.57	29.038	49.07	211.49	1.030	0.000	5.00	10.169	10.47	514.0	0.0	371.7
165.00	Appurtenance(s)	0.00	1.58	29.294	49.51	202.17	1.030	0.000	5.00	9.689	9.98	494.1	0.0	354.0
170.00		0.00	1.60	29.545	49.93	192.74	1.030	0.000	5.00	9.210	9.49	473.7	0.0	336.3
175.00		0.00	1.61	29.791	50.35	183.21	1.030	0.000	5.00	8.731	8.99	452.8	0.0	318.5
178.00		0.00	1.62	29.936	50.59	177.44	1.030	0.000	3.00	5.009	5.16	261.0	0.0	182.6
							Totals:		**178.00**			**23,397.6**		**36,577.3**

Discrete Appurtenance Forces

Structure:	CT00594-S-SB	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	165.00	Reinf. Kit (SitePro1	3	29.294	49.507	0.75	7.88	285.00	0.000	0.000	389.87	0.00	0.00
2	165.00	Platform w/ Hand Rails	1	29.294	49.507	1.00	40.00	2000.00	0.000	0.000	1980.30	0.00	0.00
3	165.00	Kathrein 782 11056 Bias T's	3	29.294	49.507	0.67	0.28	5.40	0.000	0.000	13.93	0.00	0.00
4	165.00	Ericsson KRY 112 144/1	6	29.294	49.507	0.67	1.65	66.00	0.000	0.000	81.60	0.00	0.00
5	165.00	Commscope LNX-	3	29.294	49.507	0.82	28.17	150.90	0.000	0.000	1394.48	0.00	0.00
6	165.00	RFS APXV18-203219-C-A20	3	29.294	49.507	0.72	12.83	56.10	0.000	0.000	635.20	0.00	0.00
7	155.00	Platform w/ Hand Rails	1	28.776	48.631	1.00	40.00	2000.00	0.000	0.000	1945.24	0.00	0.00
8	155.00	Kathrein 800 10764	1	28.776	48.631	0.77	4.87	40.80	0.000	0.000	237.03	0.00	0.00
9	155.00	KMW AM-X-CD-17-65-00T	1	28.776	48.631	0.78	4.30	30.80	0.000	0.000	209.01	0.00	0.00
10	155.00	Nokia CS72188.01	1	28.776	48.631	0.67	0.88	19.80	0.000	0.000	43.01	0.00	0.00
11	155.00	Powerwave P65-17-XLH-RR	1	28.776	48.631	0.81	9.28	59.00	0.000	0.000	451.42	0.00	0.00
12	155.00	Powerwave 7770	6	28.776	48.631	0.78	27.71	162.00	0.000	0.000	1347.35	0.00	0.00
13	155.00	Powerwave LGP21401 TMAs	6	28.776	48.631	0.67	5.19	84.60	0.000	0.000	252.19	0.00	0.00
14	155.00	Powerwave LGP21903	6	28.776	48.631	0.67	1.09	33.00	0.000	0.000	52.78	0.00	0.00
15	152.50	Ring Mount (Part No LWRM)	1	28.642	48.406	0.75	3.75	150.00	0.000	0.000	181.52	0.00	0.00
16	152.50	Ericsson RRUS11 RRUs	6	28.642	48.406	0.67	13.11	306.00	0.000	0.000	634.36	0.00	0.00
17	152.50	Raycap DC2-48-60-18-8F	1	28.642	48.406	0.67	0.98	32.80	0.000	0.000	47.67	0.00	0.00
18	145.00	Platform w/ Hand Rails	1	28.233	47.713	1.00	40.00	2000.00	0.000	0.000	1908.52	0.00	0.00
19	145.00	Decibel DB908H90E-M	6	28.233	47.713	0.79	13.79	42.00	0.000	0.000	658.13	0.00	0.00
20	125.00	Antel	6	27.060	45.732	0.73	26.54	72.00	0.000	0.000	1213.86	0.00	0.00
21	125.00	ALU RRH2x60-700	3	27.060	45.732	0.67	7.96	180.00	0.000	0.000	364.01	0.00	0.00
22	125.00	ALU RRH2x60-AWS	3	27.060	45.732	0.67	7.96	180.00	0.000	0.000	364.01	0.00	0.00
23	125.00	ALU RRH2X60-PCS	3	27.060	45.732	0.67	5.17	165.00	0.000	0.000	236.24	0.00	0.00
24	125.00	Low Profile Platform	1	27.060	45.732	1.00	25.00	1200.00	0.000	0.000	1143.30	0.00	0.00
25	125.00	Commscope SBNHH-1D65B	6	27.060	45.732	0.83	41.33	304.26	0.000	0.000	1890.29	0.00	0.00
26	125.00	GPS	1	27.060	45.732	0.67	0.67	10.00	0.000	0.000	30.64	0.00	0.00
27	125.00	RFS DB-T1-6Z-8AB-0Z	2	27.060	45.732	0.67	7.50	88.00	0.000	0.000	343.17	0.00	0.00
28	125.00	RFS FD9R6004/2C-3L	6	27.060	45.732	0.67	1.49	18.60	0.000	0.000	68.02	0.00	0.00
						Totals:		**9,742.06**			**18,117.14**		

Total Applied Force Summary

Structure:	CT00594-S-SB	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		773.71	1645.76	0.00	0.00
10.00		758.29	1733.66	0.00	0.00
15.00		742.86	1702.17	0.00	0.00
20.00		727.43	1670.67	0.00	0.00
25.00		712.01	1639.17	0.00	0.00
30.00		696.58	1607.67	0.00	0.00
32.83		387.88	897.03	0.00	0.00
35.00		303.79	1245.78	0.00	0.00
40.00		716.64	2831.13	0.00	0.00
45.00		724.31	1455.92	0.00	0.00
50.00		729.07	1426.39	0.00	0.00
55.00		731.35	1396.87	0.00	0.00
60.00		731.46	1367.34	0.00	0.00
65.00		729.66	1337.81	0.00	0.00
70.00		726.15	1308.28	0.00	0.00
75.00		721.11	1278.75	0.00	0.00
77.92		416.63	733.13	0.00	0.00
80.00		301.17	929.54	0.00	0.00
84.00		577.99	1761.27	0.00	0.00
85.00		142.37	231.69	0.00	0.00
90.00		713.66	1145.81	0.00	0.00
95.00		703.91	1118.25	0.00	0.00
100.00		693.12	1090.69	0.00	0.00
105.00		681.38	1063.13	0.00	0.00
110.00		668.74	1035.57	0.00	0.00
115.00		655.25	1008.01	0.00	0.00
120.00		640.96	980.45	0.00	0.00
124.08		511.77	780.25	0.00	0.00
125.00	(31) appurtenances	5768.62	2480.05	0.00	0.00
129.00		497.77	1071.08	0.00	0.00
130.00		122.44	120.18	0.00	0.00
135.00		604.97	590.28	0.00	0.00
140.00		587.98	572.56	0.00	0.00
145.00	(7) appurtenances	3137.01	2596.85	0.00	0.00
150.00		552.14	505.93	0.00	0.00
152.50	(8) appurtenances	1131.98	735.12	0.00	0.00
155.00	(23) appurtenances	4801.70	2671.89	0.00	0.00
160.00		513.98	402.89	0.00	0.00
165.00	(19) appurtenances	4989.46	2948.58	0.00	0.00
170.00		473.68	336.26	0.00	0.00
175.00		452.77	318.54	0.00	0.00
178.00		261.00	182.62	0.00	0.00
	Totals:	**41,514.77**	**51,955.01**	**0.00**	**0.00**

Resulting Forces and Deflections

Structure:	CT00594-S-SB	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 25

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-41.593	-51.892	0.000	0.000	0.000	-4800.1	0.000	0.000	0.000	0.000	0.000
5.00	-40.966	-50.126	0.000	0.000	0.000	-4592.1	-0.091	0.000	0.091	-0.169	0.000
10.00	-40.345	-48.274	0.000	0.000	0.000	-4387.3	-0.360	0.000	0.360	-0.340	0.000
15.00	-39.732	-46.456	0.000	0.000	0.000	-4185.6	-0.810	0.000	0.810	-0.514	0.000
20.00	-39.126	-44.672	0.000	0.000	0.000	-3986.9	-1.443	0.000	1.443	-0.691	0.000
25.00	-38.527	-42.922	0.000	0.000	0.000	-3791.3	-2.263	0.000	2.263	-0.870	0.000
30.00	-37.907	-41.231	0.000	0.000	0.000	-3598.7	-3.273	0.000	3.273	-1.052	0.000
32.83	-37.568	-40.280	0.000	0.000	0.000	-3491.3	-3.930	0.000	3.930	-1.158	0.000
35.00	-37.330	-38.953	0.000	0.000	0.000	-3409.9	-4.474	0.000	4.474	-1.240	0.000
40.00	-36.666	-36.019	0.000	0.000	0.000	-3223.2	-5.873	0.000	5.873	-1.427	0.000
45.00	-36.019	-34.463	0.000	0.000	0.000	-3039.9	-7.469	0.000	7.469	-1.616	0.000
50.00	-35.359	-32.940	0.000	0.000	0.000	-2859.8	-9.265	0.000	9.265	-1.809	0.000
55.00	-34.688	-31.450	0.000	0.000	0.000	-2683.0	-11.263	0.000	11.263	-2.003	0.000
60.00	-34.011	-29.994	0.000	0.000	0.000	-2509.6	-13.466	0.000	13.466	-2.199	0.000
65.00	-33.327	-28.572	0.000	0.000	0.000	-2339.5	-15.875	0.000	15.875	-2.396	0.000
70.00	-32.639	-27.183	0.000	0.000	0.000	-2172.9	-18.491	0.000	18.491	-2.595	0.000
75.00	-31.930	-25.852	0.000	0.000	0.000	-2009.7	-21.315	0.000	21.315	-2.795	0.000
77.92	-31.522	-25.084	0.000	0.000	0.000	-1916.5	-23.061	0.000	23.061	-2.913	0.000
80.00	-31.225	-24.104	0.000	0.000	0.000	-1850.9	-24.350	0.000	24.350	-2.998	0.000
84.00	-30.593	-22.323	0.000	0.000	0.000	-1725.9	-26.932	0.000	26.932	-3.160	0.000
85.00	-30.485	-22.035	0.000	0.000	0.000	-1695.4	-27.596	0.000	27.596	-3.201	0.000
90.00	-29.778	-20.829	0.000	0.000	0.000	-1543.0	-31.054	0.000	31.054	-3.400	0.000
95.00	-29.075	-19.657	0.000	0.000	0.000	-1394.1	-34.720	0.000	34.720	-3.597	0.000
100.00	-28.375	-18.518	0.000	0.000	0.000	-1248.7	-38.589	0.000	38.589	-3.791	0.000
105.00	-27.680	-17.413	0.000	0.000	0.000	-1106.8	-42.659	0.000	42.659	-3.980	0.000
110.00	-26.991	-16.343	0.000	0.000	0.000	-968.49	-46.924	0.000	46.924	-4.164	0.000
115.00	-26.308	-15.308	0.000	0.000	0.000	-833.54	-51.378	0.000	51.378	-4.340	0.000
120.00	-25.630	-14.315	0.000	0.000	0.000	-702.00	-56.010	0.000	56.010	-4.507	0.000
124.08	-25.076	-13.544	0.000	0.000	0.000	-597.34	-59.918	0.000	59.918	-4.634	0.000
125.00	-19.140	-11.516	0.000	0.000	0.000	-574.35	-60.810	0.000	60.810	-4.663	0.000
129.00	-18.569	-10.466	0.000	0.000	0.000	-497.80	-64.763	0.000	64.763	-4.778	0.000
130.00	-18.457	-10.321	0.000	0.000	0.000	-479.23	-65.766	0.000	65.766	-4.807	0.000
135.00	-17.834	-9.729	0.000	0.000	0.000	-386.94	-70.898	0.000	70.898	-4.996	0.000
140.00	-17.222	-9.164	0.000	0.000	0.000	-297.77	-76.217	0.000	76.217	-5.163	0.000
145.00	-13.876	-6.834	0.000	0.000	0.000	-211.66	-81.697	0.000	81.697	-5.304	0.000
150.00	-13.288	-6.365	0.000	0.000	0.000	-142.28	-87.306	0.000	87.306	-5.414	0.000
152.50	-12.095	-5.732	0.000	0.000	0.000	-109.06	-90.150	0.000	90.150	-5.459	0.000
155.00	-7.063	-3.525	0.000	0.000	0.000	-78.831	-93.015	0.000	93.015	-5.495	0.000
160.00	-6.515	-3.170	0.000	0.000	0.000	-43.516	-98.791	0.000	98.791	-5.545	0.000
165.00	-1.263	-0.718	0.000	0.000	0.000	-10.943	-104.60	0.000	104.606	-5.571	0.000
170.00	-0.759	-0.429	0.000	0.000	0.000	-4.628	-110.43	0.000	110.435	-5.579	0.000
175.00	-0.277	-0.156	0.000	0.000	0.000	-0.832	-116.27	0.000	116.271	-5.583	0.000
178.00	-0.261	0.000	0.000	0.000	0.000	0.000	0.000	0.000	119.773	-5.583	0.000

Resulting Stresses

Structure:	CT00594-S-SBA	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 25

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.56	0.91	0.00	0.00	0.00	43.88	44.47	52.0	0.855
5.00	0.55	0.91	0.00	0.00	0.00	43.71	44.29	52.0	0.852
10.00	0.54	0.92	0.00	0.00	0.00	43.52	44.09	52.0	0.848
15.00	0.53	0.92	0.00	0.00	0.00	43.30	43.86	52.0	0.844
20.00	0.52	0.93	0.00	0.00	0.00	43.06	43.61	52.0	0.839
25.00	0.51	0.94	0.00	0.00	0.00	42.79	43.33	52.0	0.833
30.00	0.50	0.94	0.00	0.00	0.00	42.48	43.02	52.0	0.827
32.83	0.50	0.94	0.00	0.00	0.00	42.30	42.82	52.0	0.824
35.00	0.49	0.95	0.00	0.00	0.00	42.15	42.66	52.0	0.820
40.00	0.48	1.00	0.00	0.00	0.00	42.78	43.30	52.0	0.833
45.00	0.47	1.00	0.00	0.00	0.00	42.30	42.81	52.0	0.823
50.00	0.46	1.01	0.00	0.00	0.00	41.76	42.26	52.0	0.813
55.00	0.45	1.01	0.00	0.00	0.00	41.17	41.66	52.0	0.801
60.00	0.44	1.02	0.00	0.00	0.00	40.52	41.00	52.0	0.788
65.00	0.43	1.02	0.00	0.00	0.00	39.79	40.27	52.0	0.774
70.00	0.42	1.03	0.00	0.00	0.00	38.99	39.46	52.0	0.759
75.00	0.41	1.04	0.00	0.00	0.00	38.10	38.56	52.0	0.742
77.92	0.41	1.04	0.00	0.00	0.00	37.55	38.00	52.0	0.731
80.00	0.40	1.04	0.00	0.00	0.00	37.13	37.57	52.0	0.723
84.00	0.39	1.09	0.00	0.00	0.00	37.10	37.54	52.0	0.722
85.00	0.39	1.10	0.00	0.00	0.00	36.86	37.30	52.0	0.717
90.00	0.38	1.10	0.00	0.00	0.00	35.57	36.00	52.0	0.692
95.00	0.37	1.11	0.00	0.00	0.00	34.14	34.56	52.0	0.665
100.00	0.36	1.12	0.00	0.00	0.00	32.54	32.95	52.0	0.634
105.00	0.35	1.13	0.00	0.00	0.00	30.75	31.16	52.0	0.599
110.00	0.34	1.13	0.00	0.00	0.00	28.75	29.16	52.0	0.561
115.00	0.33	1.14	0.00	0.00	0.00	26.50	26.90	52.0	0.517
120.00	0.32	1.15	0.00	0.00	0.00	23.96	24.36	52.0	0.469
124.08	0.31	1.16	0.00	0.00	0.00	21.65	22.05	52.0	0.424
125.00	0.26	0.89	0.00	0.00	0.00	21.10	21.42	52.0	0.412
129.00	0.38	1.36	0.00	0.00	0.00	28.69	29.16	52.0	0.561
130.00	0.37	1.36	0.00	0.00	0.00	28.04	28.51	52.0	0.548
135.00	0.37	1.37	0.00	0.00	0.00	24.46	24.94	52.0	0.480
140.00	0.36	1.37	0.00	0.00	0.00	20.40	20.89	52.0	0.402
145.00	0.28	1.15	0.00	0.00	0.00	15.77	16.17	52.0	0.311
150.00	0.27	1.15	0.00	0.00	0.00	11.57	12.01	52.0	0.231
152.50	0.25	1.07	0.00	0.00	0.00	9.28	9.71	52.0	0.187
155.00	0.16	0.64	0.00	0.00	0.00	7.02	7.27	52.0	0.140
160.00	0.15	0.62	0.00	0.00	0.00	4.27	4.55	52.0	0.087
165.00	0.04	0.13	0.00	0.00	0.00	1.19	1.24	52.0	0.024
170.00	0.02	0.08	0.00	0.00	0.00	0.56	0.60	52.0	0.011
175.00	0.01	0.03	0.00	0.00	0.00	0.11	0.13	52.0	0.003
178.00	0.00	0.03	0.00	0.00	0.00	0.00	0.05	52.0	0.001

Wind Loading - Shaft

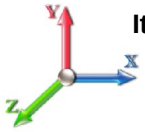
Structure:	CT00594-S-SBA	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	13.871	23.44	357.32	1.030	0.500	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	13.871	23.44	350.26	1.030	0.500	5.00	24.448	25.18	590.3	180.3	1746.5
10.00		0.00	1.00	13.871	23.44	343.21	1.030	0.500	5.00	23.969	24.69	578.7	176.7	1711.4
15.00		0.00	1.00	13.871	23.44	336.15	1.030	0.500	5.00	23.490	24.19	567.2	173.1	1676.3
20.00		0.00	1.00	13.871	23.44	329.10	1.030	0.500	5.00	23.011	23.70	555.6	169.5	1641.2
25.00		0.00	1.00	13.871	23.44	322.05	1.030	0.500	5.00	22.532	23.21	544.0	165.9	1606.1
30.00		0.00	1.00	13.871	23.44	314.99	1.030	0.500	5.00	22.052	22.71	532.5	162.3	1571.0
32.83	Bot - Section 2	0.00	1.00	13.871	23.44	311.00	1.030	0.500	2.83	12.284	12.65	296.6	90.8	875.1
35.00		0.00	1.02	14.106	23.84	310.54	1.030	0.500	2.17	9.459	9.74	232.3	70.1	1229.6
40.00	Top - Section 1	0.00	1.06	14.655	24.77	309.27	1.030	0.500	5.00	21.485	22.13	548.1	158.1	2790.2
45.00		0.00	1.09	15.156	25.61	313.16	1.030	0.500	5.00	21.006	21.64	554.2	154.5	1411.4
50.00		0.00	1.13	15.620	26.40	310.42	1.030	0.500	5.00	20.527	21.14	558.1	150.9	1378.3
55.00		0.00	1.16	16.051	27.13	307.09	1.030	0.500	5.00	20.047	20.65	560.1	147.3	1345.1
60.00		0.00	1.19	16.455	27.81	303.25	1.030	0.500	5.00	19.568	20.16	560.5	143.7	1312.0
65.00		0.00	1.21	16.836	28.45	298.97	1.030	0.500	5.00	19.089	19.66	559.4	140.1	1278.9
70.00		0.00	1.24	17.196	29.06	294.29	1.030	0.500	5.00	18.610	19.17	557.1	136.5	1245.7
75.00		0.00	1.26	17.538	29.64	289.28	1.030	0.500	5.00	18.131	18.67	553.5	132.9	1212.6
77.92	Bot - Section 3	0.00	1.28	17.731	29.96	286.20	1.030	0.500	2.92	10.367	10.68	320.0	76.4	693.3
80.00		0.00	1.29	17.865	30.19	283.95	1.030	0.500	2.08	7.437	7.66	231.3	54.9	901.7
84.00	Top - Section 2	0.00	1.31	18.116	30.62	279.49	1.030	0.500	4.00	14.080	14.50	444.0	103.4	1705.3
85.00		0.00	1.31	18.177	30.72	284.49	1.030	0.500	1.00	3.458	3.56	109.4	25.6	217.6
90.00		0.00	1.33	18.476	31.22	278.68	1.030	0.500	5.00	17.058	17.57	548.6	124.8	1071.6
95.00		0.00	1.35	18.764	31.71	272.64	1.030	0.500	5.00	16.579	17.08	541.5	121.2	1040.4
100.00		0.00	1.37	19.041	32.18	266.38	1.030	0.500	5.00	16.100	16.58	533.6	117.6	1009.3
105.00		0.00	1.39	19.308	32.63	259.92	1.030	0.500	5.00	15.621	16.09	525.0	114.0	978.1
110.00		0.00	1.41	19.566	33.07	253.28	1.030	0.500	5.00	15.142	15.60	515.7	110.4	947.0
115.00		0.00	1.43	19.816	33.49	246.46	1.030	0.500	5.00	14.663	15.10	505.8	106.8	915.8
120.00		0.00	1.45	20.059	33.90	239.48	1.030	0.500	5.00	14.184	14.61	495.2	103.2	884.6
124.08	Bot - Section 4	0.00	1.46	20.251	34.22	233.67	1.030	0.500	4.08	11.228	11.56	395.8	81.9	699.6
125.00	Appurtenance(s)	0.00	1.46	20.294	34.30	232.35	1.030	0.500	0.92	2.520	2.60	89.0	18.6	244.3
129.00	Top - Section 3	0.00	1.48	20.478	34.61	226.55	1.030	0.500	4.00	10.806	11.13	385.2	78.8	1045.9
130.00		0.00	1.48	20.523	34.68	229.28	1.030	0.500	1.00	2.654	2.73	94.8	19.6	113.7
135.00		0.00	1.50	20.745	35.06	221.89	1.030	0.500	5.00	12.981	13.37	468.8	94.2	554.4
140.00		0.00	1.51	20.962	35.43	214.38	1.030	0.500	5.00	12.502	12.88	456.2	90.6	533.1
145.00	Appurtenance(s)	0.00	1.53	21.173	35.78	206.74	1.030	0.500	5.00	12.023	12.38	443.1	87.0	511.8
150.00		0.00	1.54	21.379	36.13	198.99	1.030	0.500	5.00	11.543	11.89	429.6	83.4	490.5
152.50	Appurtenance(s)	0.00	1.55	21.480	36.30	195.07	1.030	0.500	2.50	5.592	5.76	209.1	40.8	237.7
155.00	Appurtenance(s)	0.00	1.56	21.581	36.47	191.12	1.030	0.500	2.50	5.472	5.64	205.6	39.9	232.4
160.00		0.00	1.57	21.777	36.80	183.15	1.030	0.500	5.00	10.585	10.90	401.3	76.2	447.9
165.00	Appurtenance(s)	0.00	1.58	21.969	37.13	175.08	1.030	0.500	5.00	10.106	10.41	386.5	72.6	426.5
170.00		0.00	1.60	22.158	37.45	166.92	1.030	0.500	5.00	9.627	9.92	371.3	69.0	405.2
175.00		0.00	1.61	22.342	37.76	158.66	1.030	0.500	5.00	9.148	9.42	355.8	65.4	383.9
178.00		0.00	1.62	22.451	37.94	153.66	1.030	0.500	3.00	5.259	5.42	205.5	37.9	220.5
								Totals:	**178.00**			**18,015.7**		**40,943.6**

Discrete Appurtenance Forces

Structure:	CT00594-S-SB	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	165.00	Reinf. Kit (SitePro1	3	21.969	37.128	0.75	13.03	252.00	0.000	0.000	483.69	0.00	0.00
2	165.00	Platform w/ Hand Rails	1	21.969	37.128	1.00	48.00	2600.00	0.000	0.000	1782.16	0.00	0.00
3	165.00	Kathrein 782 11056 Bias T's	3	21.969	37.128	0.67	0.42	12.00	0.000	0.000	15.67	0.00	0.00
4	165.00	Ericsson KRY 112 144/1	6	21.969	37.128	0.67	2.21	84.60	0.000	0.000	82.09	0.00	0.00
5	165.00	Commscope LNX-	3	21.969	37.128	0.82	30.45	347.10	0.000	0.000	1130.74	0.00	0.00
6	165.00	RFS APXV18-203219-C-A20	3	21.969	37.128	0.72	14.23	212.70	0.000	0.000	528.50	0.00	0.00
7	155.00	Platform w/ Hand Rails	1	21.581	36.471	1.00	48.00	2600.00	0.000	0.000	1750.61	0.00	0.00
8	155.00	Kathrein 800 10764	1	21.581	36.471	0.77	5.38	77.30	0.000	0.000	196.30	0.00	0.00
9	155.00	KMW AM-X-CD-17-65-00T	1	21.581	36.471	0.78	4.76	63.00	0.000	0.000	173.53	0.00	0.00
10	155.00	Nokia CS72188.01	1	21.581	36.471	0.67	1.05	28.10	0.000	0.000	38.12	0.00	0.00
11	155.00	Powerwave P65-17-XLH-RR	1	21.581	36.471	0.81	10.04	121.00	0.000	0.000	366.02	0.00	0.00
12	155.00	Powerwave 7770	6	21.581	36.471	0.78	30.89	358.20	0.000	0.000	1126.52	0.00	0.00
13	155.00	Powerwave LGP21401 TMAs	6	21.581	36.471	0.67	6.15	127.20	0.000	0.000	224.32	0.00	0.00
14	155.00	Powerwave LGP21903	6	21.581	36.471	0.67	1.53	47.40	0.000	0.000	55.71	0.00	0.00
15	152.50	Ring Mount (Part No LWRM)	1	21.480	36.302	0.75	4.50	450.00	0.000	0.000	163.36	0.00	0.00
16	152.50	Ericsson RRUS11 RRUs	6	21.480	36.302	0.67	14.55	437.40	0.000	0.000	528.28	0.00	0.00
17	152.50	Raycap DC2-48-60-18-8F	1	21.480	36.302	0.67	1.12	50.50	0.000	0.000	40.62	0.00	0.00
18	145.00	Platform w/ Hand Rails	1	21.173	35.783	1.00	48.00	2600.00	0.000	0.000	1717.57	0.00	0.00
19	145.00	Decibel DB908H90E-M	6	21.173	35.783	0.79	16.02	0.00	0.000	0.000	573.28	0.00	0.00
20	125.00	Antel	6	20.294	34.297	0.73	29.13	270.60	0.000	0.000	998.97	0.00	0.00
21	125.00	ALU RRH2x60-700	3	20.294	34.297	0.67	8.50	240.30	0.000	0.000	291.60	0.00	0.00
22	125.00	ALU RRH2x60-AWS	3	20.294	34.297	0.67	8.50	240.30	0.000	0.000	291.60	0.00	0.00
23	125.00	ALU RRH2X60-PCS	3	20.294	34.297	0.67	8.50	240.30	0.000	0.000	291.60	0.00	0.00
24	125.00	Low Profile Platform	1	20.294	34.297	1.00	31.00	1500.00	0.000	0.000	1063.21	0.00	0.00
25	125.00	Commscope SBNHH-1D65B	6	20.294	34.297	0.83	43.82	522.00	0.000	0.000	1503.03	0.00	0.00
26	125.00	GPS	1	20.294	34.297	0.67	0.84	18.00	0.000	0.000	28.72	0.00	0.00
27	125.00	RFS DB-T1-6Z-8AB-0Z	2	20.294	34.297	0.67	6.75	102.20	0.000	0.000	231.63	0.00	0.00
28	125.00	RFS FD9R6004/2C-3L	6	20.294	34.297	0.67	2.01	32.40	0.000	0.000	68.94	0.00	0.00
						Totals:		**13,634.60**			**15,746.40**		

Total Applied Force Summary

Structure:	CT00594-S-SB	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Iterations: 24

Dead Load Factor 1.00

Wind Load Factor 1.00

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		607.66	1798.48	0.00	0.00
10.00		622.11	1841.38	0.00	0.00
15.00		610.54	1806.29	0.00	0.00
20.00		598.97	1771.19	0.00	0.00
25.00		587.40	1736.09	0.00	0.00
30.00		575.84	1701.00	0.00	0.00
32.83		321.17	948.76	0.00	0.00
35.00		251.37	1285.93	0.00	0.00
40.00		593.89	2920.19	0.00	0.00
45.00		601.58	1541.38	0.00	0.00
50.00		606.94	1508.25	0.00	0.00
55.00		610.31	1475.12	0.00	0.00
60.00		611.94	1442.00	0.00	0.00
65.00		612.06	1408.87	0.00	0.00
70.00		610.82	1375.74	0.00	0.00
75.00		608.35	1342.61	0.00	0.00
77.92		352.34	769.20	0.00	0.00
80.00		254.49	955.75	0.00	0.00
84.00		489.34	1809.40	0.00	0.00
85.00		120.73	243.53	0.00	0.00
90.00		606.38	1201.61	0.00	0.00
95.00		600.17	1170.45	0.00	0.00
100.00		593.15	1139.29	0.00	0.00
105.00		585.38	1108.13	0.00	0.00
110.00		576.89	1076.97	0.00	0.00
115.00		567.74	1045.81	0.00	0.00
120.00		557.95	1014.65	0.00	0.00
124.08		447.51	805.78	0.00	0.00
125.00	(31) appurtenances	4869.95	3434.22	0.00	0.00
129.00		385.19	1149.87	0.00	0.00
130.00		94.80	139.73	0.00	0.00
135.00		468.75	684.44	0.00	0.00
140.00		456.16	663.13	0.00	0.00
145.00	(7) appurtenances	2733.95	3241.81	0.00	0.00
150.00		429.59	589.29	0.00	0.00
152.50	(8) appurtenances	941.35	1225.00	0.00	0.00
155.00	(23) appurtenances	4136.69	3703.97	0.00	0.00
160.00		401.26	479.06	0.00	0.00
165.00	(19) appurtenances	4409.33	3966.14	0.00	0.00
170.00		371.31	405.23	0.00	0.00
175.00		355.77	383.91	0.00	0.00
178.00		205.51	220.55	0.00	0.00
	Totals:	**35,042.63**	**58,530.18**	**0.00**	**0.00**

Resulting Forces and Deflections

Structure: CT00594-S-SB
Site Name: Plainfield North
Height: 178.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

11/17/2015

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00

Iterations: 24

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-35.117	-58.485	0.000	0.000	0.000	-4108.9	0.000	0.000	0.000	0.000	0.000
5.00	-34.651	-56.599	0.000	0.000	0.000	-3933.3	-0.078	0.000	0.078	-0.145	0.000
10.00	-34.163	-54.672	0.000	0.000	0.000	-3760.0	-0.308	0.000	0.308	-0.291	0.000
15.00	-33.680	-52.781	0.000	0.000	0.000	-3589.2	-0.694	0.000	0.694	-0.441	0.000
20.00	-33.201	-50.927	0.000	0.000	0.000	-3420.8	-1.237	0.000	1.237	-0.592	0.000
25.00	-32.726	-49.110	0.000	0.000	0.000	-3254.8	-1.939	0.000	1.939	-0.746	0.000
30.00	-32.228	-47.348	0.000	0.000	0.000	-3091.2	-2.805	0.000	2.805	-0.902	0.000
32.83	-31.956	-46.360	0.000	0.000	0.000	-2999.9	-3.368	0.000	3.368	-0.993	0.000
35.00	-31.773	-45.015	0.000	0.000	0.000	-2930.7	-3.835	0.000	3.835	-1.063	0.000
40.00	-31.240	-42.019	0.000	0.000	0.000	-2771.8	-5.035	0.000	5.035	-1.224	0.000
45.00	-30.719	-40.404	0.000	0.000	0.000	-2615.6	-6.405	0.000	6.405	-1.387	0.000
50.00	-30.187	-38.824	0.000	0.000	0.000	-2462.0	-7.947	0.000	7.947	-1.553	0.000
55.00	-29.644	-37.280	0.000	0.000	0.000	-2311.1	-9.663	0.000	9.663	-1.720	0.000
60.00	-29.093	-35.772	0.000	0.000	0.000	-2162.9	-11.555	0.000	11.555	-1.889	0.000
65.00	-28.535	-34.300	0.000	0.000	0.000	-2017.4	-13.624	0.000	13.624	-2.059	0.000
70.00	-27.972	-32.864	0.000	0.000	0.000	-1874.7	-15.873	0.000	15.873	-2.231	0.000
75.00	-27.385	-31.482	0.000	0.000	0.000	-1734.9	-18.301	0.000	18.301	-2.403	0.000
77.92	-27.047	-30.688	0.000	0.000	0.000	-1654.9	-19.803	0.000	19.803	-2.505	0.000
80.00	-26.806	-29.694	0.000	0.000	0.000	-1598.7	-20.911	0.000	20.911	-2.579	0.000
84.00	-26.275	-27.869	0.000	0.000	0.000	-1491.3	-23.133	0.000	23.133	-2.718	0.000
85.00	-26.194	-27.584	0.000	0.000	0.000	-1465.2	-23.704	0.000	23.704	-2.754	0.000
90.00	-25.608	-26.337	0.000	0.000	0.000	-1334.2	-26.680	0.000	26.680	-2.926	0.000
95.00	-25.021	-25.126	0.000	0.000	0.000	-1206.2	-29.835	0.000	29.835	-3.096	0.000
100.00	-24.435	-23.951	0.000	0.000	0.000	-1081.1	-33.166	0.000	33.166	-3.264	0.000
105.00	-23.850	-22.812	0.000	0.000	0.000	-958.93	-36.672	0.000	36.672	-3.428	0.000
110.00	-23.268	-21.709	0.000	0.000	0.000	-839.68	-40.347	0.000	40.347	-3.587	0.000
115.00	-22.688	-20.643	0.000	0.000	0.000	-723.34	-44.185	0.000	44.185	-3.740	0.000
120.00	-22.108	-19.618	0.000	0.000	0.000	-609.90	-48.178	0.000	48.178	-3.885	0.000
124.08	-21.628	-18.820	0.000	0.000	0.000	-519.63	-51.548	0.000	51.548	-3.996	0.000
125.00	-16.547	-15.717	0.000	0.000	0.000	-499.80	-52.318	0.000	52.318	-4.020	0.000
129.00	-16.097	-14.580	0.000	0.000	0.000	-433.61	-55.727	0.000	55.727	-4.121	0.000
130.00	-16.017	-14.420	0.000	0.000	0.000	-417.52	-56.592	0.000	56.592	-4.146	0.000
135.00	-15.536	-13.730	0.000	0.000	0.000	-337.44	-61.021	0.000	61.021	-4.310	0.000
140.00	-15.062	-13.068	0.000	0.000	0.000	-259.76	-65.612	0.000	65.612	-4.456	0.000
145.00	-12.100	-10.029	0.000	0.000	0.000	-184.45	-70.344	0.000	70.344	-4.579	0.000
150.00	-11.635	-9.463	0.000	0.000	0.000	-123.95	-75.190	0.000	75.190	-4.675	0.000
152.50	-10.601	-8.313	0.000	0.000	0.000	-94.870	-77.647	0.000	77.647	-4.714	0.000
155.00	-6.176	-4.958	0.000	0.000	0.000	-68.367	-80.122	0.000	80.122	-4.745	0.000
160.00	-5.739	-4.511	0.000	0.000	0.000	-37.485	-85.112	0.000	85.112	-4.789	0.000
165.00	-1.014	-0.928	0.000	0.000	0.000	-8.788	-90.135	0.000	90.135	-4.811	0.000
170.00	-0.610	-0.555	0.000	0.000	0.000	-3.719	-95.171	0.000	95.171	-4.817	0.000
175.00	-0.223	-0.202	0.000	0.000	0.000	-0.670	-100.21	0.000	100.212	-4.820	0.000
178.00	-0.205	0.000	0.000	0.000	0.000	0.000	0.000	0.000	103.237	-4.820	0.000

Resulting Stresses

Structure:	CT00594-S-SBA	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 24

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.63	0.77	0.00	0.00	0.00	37.56	38.22	52.0	0.735
5.00	0.62	0.77	0.00	0.00	0.00	37.44	38.09	52.0	0.732
10.00	0.61	0.78	0.00	0.00	0.00	37.30	37.93	52.0	0.730
15.00	0.60	0.78	0.00	0.00	0.00	37.13	37.76	52.0	0.726
20.00	0.60	0.79	0.00	0.00	0.00	36.95	37.57	52.0	0.722
25.00	0.59	0.79	0.00	0.00	0.00	36.73	37.35	52.0	0.718
30.00	0.58	0.80	0.00	0.00	0.00	36.49	37.09	52.0	0.713
32.83	0.57	0.80	0.00	0.00	0.00	36.34	36.94	52.0	0.710
35.00	0.56	0.81	0.00	0.00	0.00	36.22	36.81	52.0	0.708
40.00	0.56	0.85	0.00	0.00	0.00	36.79	37.38	52.0	0.719
45.00	0.55	0.85	0.00	0.00	0.00	36.39	36.98	52.0	0.711
50.00	0.54	0.86	0.00	0.00	0.00	35.95	36.53	52.0	0.703
55.00	0.54	0.87	0.00	0.00	0.00	35.47	36.03	52.0	0.693
60.00	0.53	0.87	0.00	0.00	0.00	34.92	35.48	52.0	0.682
65.00	0.52	0.88	0.00	0.00	0.00	34.32	34.87	52.0	0.671
70.00	0.51	0.88	0.00	0.00	0.00	33.64	34.19	52.0	0.657
75.00	0.50	0.89	0.00	0.00	0.00	32.89	33.43	52.0	0.643
77.92	0.50	0.89	0.00	0.00	0.00	32.42	32.96	52.0	0.634
80.00	0.49	0.89	0.00	0.00	0.00	32.07	32.60	52.0	0.627
84.00	0.49	0.94	0.00	0.00	0.00	32.06	32.59	52.0	0.627
85.00	0.49	0.94	0.00	0.00	0.00	31.86	32.39	52.0	0.623
90.00	0.48	0.95	0.00	0.00	0.00	30.76	31.28	52.0	0.602
95.00	0.47	0.96	0.00	0.00	0.00	29.54	30.05	52.0	0.578
100.00	0.46	0.96	0.00	0.00	0.00	28.17	28.68	52.0	0.552
105.00	0.46	0.97	0.00	0.00	0.00	26.64	27.15	52.0	0.522
110.00	0.45	0.98	0.00	0.00	0.00	24.93	25.43	52.0	0.489
115.00	0.44	0.99	0.00	0.00	0.00	23.00	23.50	52.0	0.452
120.00	0.43	1.00	0.00	0.00	0.00	20.82	21.32	52.0	0.410
124.08	0.43	1.00	0.00	0.00	0.00	18.83	19.34	52.0	0.372
125.00	0.36	0.77	0.00	0.00	0.00	18.36	18.77	52.0	0.361
129.00	0.52	1.18	0.00	0.00	0.00	24.99	25.59	52.0	0.492
130.00	0.52	1.18	0.00	0.00	0.00	24.43	25.03	52.0	0.481
135.00	0.52	1.19	0.00	0.00	0.00	21.33	21.94	52.0	0.422
140.00	0.51	1.20	0.00	0.00	0.00	17.79	18.42	52.0	0.354
145.00	0.41	1.01	0.00	0.00	0.00	13.74	14.26	52.0	0.274
150.00	0.40	1.01	0.00	0.00	0.00	10.08	10.63	52.0	0.204
152.50	0.36	0.94	0.00	0.00	0.00	8.07	8.59	52.0	0.165
155.00	0.22	0.56	0.00	0.00	0.00	6.09	6.39	52.0	0.123
160.00	0.21	0.55	0.00	0.00	0.00	3.68	4.00	52.0	0.077
165.00	0.05	0.10	0.00	0.00	0.00	0.95	1.01	52.0	0.020
170.00	0.03	0.06	0.00	0.00	0.00	0.45	0.49	52.0	0.009
175.00	0.01	0.02	0.00	0.00	0.00	0.09	0.11	52.0	0.002
178.00	0.00	0.02	0.00	0.00	0.00	0.00	0.04	52.0	0.001

Wind Loading - Shaft

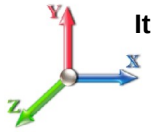
Structure:	CT00594-S-SBA	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	6.400	10.82	242.71	1.030	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	6.400	10.82	237.92	1.030	0.000	5.00	24.031	24.75	267.7	0.0	1566.2
10.00		0.00	1.00	6.400	10.82	233.13	1.030	0.000	5.00	23.552	24.26	262.4	0.0	1534.7
15.00		0.00	1.00	6.400	10.82	228.34	1.030	0.000	5.00	23.073	23.77	257.0	0.0	1503.2
20.00		0.00	1.00	6.400	10.82	223.54	1.030	0.000	5.00	22.594	23.27	251.7	0.0	1471.7
25.00		0.00	1.00	6.400	10.82	218.75	1.030	0.000	5.00	22.115	22.78	246.4	0.0	1440.2
30.00		0.00	1.00	6.400	10.82	213.96	1.030	0.000	5.00	21.636	22.28	241.0	0.0	1408.7
32.83	Bot - Section 2	0.00	1.00	6.400	10.82	211.25	1.030	0.000	2.83	12.048	12.41	134.2	0.0	784.3
35.00		0.00	1.02	6.509	11.00	210.94	1.030	0.000	2.17	9.278	9.56	105.1	0.0	1159.5
40.00	Top - Section 1	0.00	1.06	6.762	11.43	210.07	1.030	0.000	5.00	21.068	21.70	248.0	0.0	2632.1
45.00		0.00	1.09	6.993	11.82	212.71	1.030	0.000	5.00	20.589	21.21	250.6	0.0	1256.9
50.00		0.00	1.13	7.207	12.18	210.86	1.030	0.000	5.00	20.110	20.71	252.3	0.0	1227.4
55.00		0.00	1.16	7.406	12.52	208.59	1.030	0.000	5.00	19.631	20.22	253.1	0.0	1197.9
60.00		0.00	1.19	7.592	12.83	205.98	1.030	0.000	5.00	19.152	19.73	253.1	0.0	1168.3
65.00		0.00	1.21	7.768	13.13	203.07	1.030	0.000	5.00	18.673	19.23	252.5	0.0	1138.8
70.00		0.00	1.24	7.934	13.41	199.90	1.030	0.000	5.00	18.193	18.74	251.3	0.0	1109.3
75.00		0.00	1.26	8.092	13.68	196.49	1.030	0.000	5.00	17.714	18.25	249.5	0.0	1079.8
77.92	Bot - Section 3	0.00	1.28	8.181	13.83	194.41	1.030	0.000	2.92	10.124	10.43	144.2	0.0	616.9
80.00		0.00	1.29	8.242	13.93	192.88	1.030	0.000	2.08	7.263	7.48	104.2	0.0	846.8
84.00	Top - Section 2	0.00	1.31	8.358	14.13	189.84	1.030	0.000	4.00	13.746	14.16	200.0	0.0	1601.9
85.00		0.00	1.31	8.387	14.17	193.24	1.030	0.000	1.00	3.375	3.48	49.3	0.0	192.0
90.00		0.00	1.33	8.525	14.41	189.30	1.030	0.000	5.00	16.642	17.14	246.9	0.0	946.8
95.00		0.00	1.35	8.657	14.63	185.19	1.030	0.000	5.00	16.163	16.65	243.6	0.0	919.2
100.00		0.00	1.37	8.785	14.85	180.94	1.030	0.000	5.00	15.683	16.15	239.8	0.0	891.7
105.00		0.00	1.39	8.908	15.06	176.56	1.030	0.000	5.00	15.204	15.66	235.8	0.0	864.1
110.00		0.00	1.41	9.028	15.26	172.04	1.030	0.000	5.00	14.725	15.17	231.4	0.0	836.6
115.00		0.00	1.43	9.143	15.45	167.41	1.030	0.000	5.00	14.246	14.67	226.7	0.0	809.0
120.00		0.00	1.45	9.255	15.64	162.67	1.030	0.000	5.00	13.767	14.18	221.8	0.0	781.4
124.08	Bot - Section 4	0.00	1.46	9.344	15.79	158.72	1.030	0.000	4.08	10.888	11.21	177.1	0.0	617.7
125.00	Appurtenance(s)	0.00	1.46	9.363	15.82	157.83	1.030	0.000	0.92	2.443	2.52	39.8	0.0	225.7
129.00	Top - Section 3	0.00	1.48	9.448	15.97	153.88	1.030	0.000	4.00	10.473	10.79	172.2	0.0	967.1
130.00		0.00	1.48	9.469	16.00	155.74	1.030	0.000	1.00	2.570	2.65	42.4	0.0	94.2
135.00		0.00	1.50	9.572	16.18	150.72	1.030	0.000	5.00	12.564	12.94	209.3	0.0	460.3
140.00		0.00	1.51	9.672	16.35	145.62	1.030	0.000	5.00	12.085	12.45	203.5	0.0	442.6
145.00	Appurtenance(s)	0.00	1.53	9.769	16.51	140.43	1.030	0.000	5.00	11.606	11.95	197.4	0.0	424.8
150.00		0.00	1.54	9.864	16.67	135.16	1.030	0.000	5.00	11.127	11.46	191.1	0.0	407.1
152.50	Appurtenance(s)	0.00	1.55	9.911	16.75	132.50	1.030	0.000	2.50	5.384	5.55	92.9	0.0	196.9
155.00	Appurtenance(s)	0.00	1.56	9.957	16.83	129.82	1.030	0.000	2.50	5.264	5.42	91.2	0.0	192.5
160.00		0.00	1.57	10.048	16.98	124.41	1.030	0.000	5.00	10.169	10.47	177.8	0.0	371.7
165.00	Appurtenance(s)	0.00	1.58	10.136	17.13	118.93	1.030	0.000	5.00	9.689	9.98	171.0	0.0	354.0
170.00		0.00	1.60	10.223	17.28	113.38	1.030	0.000	5.00	9.210	9.49	163.9	0.0	336.3
175.00		0.00	1.61	10.308	17.42	107.77	1.030	0.000	5.00	8.731	8.99	156.7	0.0	318.5
178.00		0.00	1.62	10.358	17.51	104.37	1.030	0.000	3.00	5.009	5.16	90.3	0.0	182.6
							Totals:		**178.00**			**8,096.1**		**36,577.3**

Discrete Appurtenance Forces

Structure:	CT00594-S-SB	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	165.00	Reinf. Kit (SitePro1	3	10.136	17.131	0.75	7.88	285.00	0.000	0.000	134.90	0.00	0.00
2	165.00	Platform w/ Hand Rails	1	10.136	17.131	1.00	40.00	2000.00	0.000	0.000	685.22	0.00	0.00
3	165.00	Kathrein 782 11056 Bias T's	3	10.136	17.131	0.67	0.28	5.40	0.000	0.000	4.82	0.00	0.00
4	165.00	Ericsson KRY 112 144/1	6	10.136	17.131	0.67	1.65	66.00	0.000	0.000	28.23	0.00	0.00
5	165.00	Commscope LNX-	3	10.136	17.131	0.82	28.17	150.90	0.000	0.000	482.52	0.00	0.00
6	165.00	RFS APXV18-203219-C-A20	3	10.136	17.131	0.72	12.83	56.10	0.000	0.000	219.79	0.00	0.00
7	155.00	Platform w/ Hand Rails	1	9.957	16.827	1.00	40.00	2000.00	0.000	0.000	673.09	0.00	0.00
8	155.00	Kathrein 800 10764	1	9.957	16.827	0.77	4.87	40.80	0.000	0.000	82.02	0.00	0.00
9	155.00	KMW AM-X-CD-17-65-00T	1	9.957	16.827	0.78	4.30	30.80	0.000	0.000	72.32	0.00	0.00
10	155.00	Nokia CS72188.01	1	9.957	16.827	0.67	0.88	19.80	0.000	0.000	14.88	0.00	0.00
11	155.00	Powerwave P65-17-XLH-RR	1	9.957	16.827	0.81	9.28	59.00	0.000	0.000	156.20	0.00	0.00
12	155.00	Powerwave 7770	6	9.957	16.827	0.78	27.71	162.00	0.000	0.000	466.21	0.00	0.00
13	155.00	Powerwave LGP21401 TMAs	6	9.957	16.827	0.67	5.19	84.60	0.000	0.000	87.26	0.00	0.00
14	155.00	Powerwave LGP21903	6	9.957	16.827	0.67	1.09	33.00	0.000	0.000	18.26	0.00	0.00
15	152.50	Ring Mount (Part No LWRM)	1	9.911	16.749	0.75	3.75	150.00	0.000	0.000	62.81	0.00	0.00
16	152.50	Ericsson RRUS11 RRUs	6	9.911	16.749	0.67	13.11	306.00	0.000	0.000	219.50	0.00	0.00
17	152.50	Raycap DC2-48-60-18-8F	1	9.911	16.749	0.67	0.98	32.80	0.000	0.000	16.50	0.00	0.00
18	145.00	Platform w/ Hand Rails	1	9.769	16.510	1.00	40.00	2000.00	0.000	0.000	660.39	0.00	0.00
19	145.00	Decibel DB908H90E-M	6	9.769	16.510	0.79	13.79	42.00	0.000	0.000	227.72	0.00	0.00
20	125.00	Antel	6	9.363	15.824	0.73	26.54	72.00	0.000	0.000	420.02	0.00	0.00
21	125.00	ALU RRH2x60-700	3	9.363	15.824	0.67	7.96	180.00	0.000	0.000	125.95	0.00	0.00
22	125.00	ALU RRH2x60-AWS	3	9.363	15.824	0.67	7.96	180.00	0.000	0.000	125.95	0.00	0.00
23	125.00	ALU RRH2X60-PCS	3	9.363	15.824	0.67	5.17	165.00	0.000	0.000	81.74	0.00	0.00
24	125.00	Low Profile Platform	1	9.363	15.824	1.00	25.00	1200.00	0.000	0.000	395.61	0.00	0.00
25	125.00	Commscope SBNHH-1D65B	6	9.363	15.824	0.83	41.33	304.26	0.000	0.000	654.08	0.00	0.00
26	125.00	GPS	1	9.363	15.824	0.67	0.67	10.00	0.000	0.000	10.60	0.00	0.00
27	125.00	RFS DB-T1-6Z-8AB-0Z	2	9.363	15.824	0.67	7.50	88.00	0.000	0.000	118.75	0.00	0.00
28	125.00	RFS FD9R6004/2C-3L	6	9.363	15.824	0.67	1.49	18.60	0.000	0.000	23.54	0.00	0.00
						Totals:		**9,742.06**			**6,268.91**		

Total Applied Force Summary

Structure:	CT00594-S-SB	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		267.72	1645.76	0.00	0.00
10.00		262.38	1733.66	0.00	0.00
15.00		257.04	1702.17	0.00	0.00
20.00		251.71	1670.67	0.00	0.00
25.00		246.37	1639.17	0.00	0.00
30.00		241.03	1607.67	0.00	0.00
32.83		134.22	897.03	0.00	0.00
35.00		105.12	1245.78	0.00	0.00
40.00		247.97	2831.13	0.00	0.00
45.00		250.63	1455.92	0.00	0.00
50.00		252.27	1426.39	0.00	0.00
55.00		253.06	1396.87	0.00	0.00
60.00		253.10	1367.34	0.00	0.00
65.00		252.48	1337.81	0.00	0.00
70.00		251.26	1308.28	0.00	0.00
75.00		249.52	1278.75	0.00	0.00
77.92		144.16	733.13	0.00	0.00
80.00		104.21	929.54	0.00	0.00
84.00		200.00	1761.27	0.00	0.00
85.00		49.26	231.69	0.00	0.00
90.00		246.94	1145.81	0.00	0.00
95.00		243.57	1118.25	0.00	0.00
100.00		239.83	1090.69	0.00	0.00
105.00		235.77	1063.13	0.00	0.00
110.00		231.40	1035.57	0.00	0.00
115.00		226.73	1008.01	0.00	0.00
120.00		221.79	980.45	0.00	0.00
124.08		177.08	780.25	0.00	0.00
125.00	(31) appurtenances	1996.06	2480.05	0.00	0.00
129.00		172.24	1071.08	0.00	0.00
130.00		42.37	120.18	0.00	0.00
135.00		209.33	590.28	0.00	0.00
140.00		203.45	572.56	0.00	0.00
145.00	(7) appurtenances	1085.47	2596.85	0.00	0.00
150.00		191.05	505.93	0.00	0.00
152.50	(8) appurtenances	391.69	735.12	0.00	0.00
155.00	(23) appurtenances	1661.49	2671.89	0.00	0.00
160.00		177.85	402.89	0.00	0.00
165.00	(19) appurtenances	1726.46	2948.58	0.00	0.00
170.00		163.90	336.26	0.00	0.00
175.00		156.67	318.54	0.00	0.00
178.00		90.31	182.62	0.00	0.00
	Totals:	**14,364.97**	**51,955.01**	**0.00**	**0.00**

Resulting Forces and Deflections

Structure: CT00594-S-SB
Site Name: Plainfield North
Height: 178.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

11/17/2015

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00

Iterations: 24

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-14.392	-51.947	0.000	0.000	0.000	-1662.9	0.000	0.000	0.000	0.000	0.000
5.00	-14.175	-50.287	0.000	0.000	0.000	-1590.9	-0.031	0.000	0.031	-0.058	0.000
10.00	-13.961	-48.539	0.000	0.000	0.000	-1520.0	-0.125	0.000	0.125	-0.118	0.000
15.00	-13.749	-46.823	0.000	0.000	0.000	-1450.2	-0.281	0.000	0.281	-0.178	0.000
20.00	-13.540	-45.139	0.000	0.000	0.000	-1381.5	-0.500	0.000	0.500	-0.239	0.000
25.00	-13.333	-43.487	0.000	0.000	0.000	-1313.8	-0.784	0.000	0.784	-0.302	0.000
30.00	-13.119	-41.869	0.000	0.000	0.000	-1247.1	-1.134	0.000	1.134	-0.365	0.000
32.83	-13.002	-40.966	0.000	0.000	0.000	-1209.9	-1.362	0.000	1.362	-0.401	0.000
35.00	-12.920	-39.710	0.000	0.000	0.000	-1181.8	-1.550	0.000	1.550	-0.430	0.000
40.00	-12.691	-36.867	0.000	0.000	0.000	-1117.2	-2.035	0.000	2.035	-0.494	0.000
45.00	-12.468	-35.399	0.000	0.000	0.000	-1053.7	-2.588	0.000	2.588	-0.560	0.000
50.00	-12.241	-33.961	0.000	0.000	0.000	-991.43	-3.211	0.000	3.211	-0.627	0.000
55.00	-12.010	-32.553	0.000	0.000	0.000	-930.23	-3.903	0.000	3.903	-0.694	0.000
60.00	-11.777	-31.175	0.000	0.000	0.000	-870.18	-4.667	0.000	4.667	-0.762	0.000
65.00	-11.542	-29.827	0.000	0.000	0.000	-811.29	-5.502	0.000	5.502	-0.831	0.000
70.00	-11.305	-28.509	0.000	0.000	0.000	-753.59	-6.409	0.000	6.409	-0.899	0.000
75.00	-11.061	-27.224	0.000	0.000	0.000	-697.06	-7.388	0.000	7.388	-0.969	0.000
77.92	-10.920	-26.486	0.000	0.000	0.000	-664.77	-7.993	0.000	7.993	-1.010	0.000
80.00	-10.819	-25.551	0.000	0.000	0.000	-642.05	-8.440	0.000	8.440	-1.039	0.000
84.00	-10.600	-23.787	0.000	0.000	0.000	-598.74	-9.336	0.000	9.336	-1.095	0.000
85.00	-10.564	-23.549	0.000	0.000	0.000	-588.18	-9.566	0.000	9.566	-1.110	0.000
90.00	-10.321	-22.396	0.000	0.000	0.000	-535.36	-10.766	0.000	10.766	-1.179	0.000
95.00	-10.079	-21.271	0.000	0.000	0.000	-483.76	-12.037	0.000	12.037	-1.247	0.000
100.00	-9.838	-20.174	0.000	0.000	0.000	-433.36	-13.379	0.000	13.379	-1.314	0.000
105.00	-9.599	-19.106	0.000	0.000	0.000	-384.17	-14.791	0.000	14.791	-1.380	0.000
110.00	-9.362	-18.066	0.000	0.000	0.000	-336.18	-16.271	0.000	16.271	-1.444	0.000
115.00	-9.127	-17.055	0.000	0.000	0.000	-289.37	-17.817	0.000	17.817	-1.505	0.000
120.00	-8.893	-16.073	0.000	0.000	0.000	-243.73	-19.425	0.000	19.425	-1.563	0.000
124.08	-8.702	-15.294	0.000	0.000	0.000	-207.42	-20.781	0.000	20.781	-1.607	0.000
125.00	-6.643	-12.868	0.000	0.000	0.000	-199.44	-21.091	0.000	21.091	-1.617	0.000
129.00	-6.445	-11.800	0.000	0.000	0.000	-172.87	-22.463	0.000	22.463	-1.657	0.000
130.00	-6.407	-11.676	0.000	0.000	0.000	-166.43	-22.811	0.000	22.811	-1.667	0.000
135.00	-6.192	-11.086	0.000	0.000	0.000	-134.39	-24.593	0.000	24.593	-1.733	0.000
140.00	-5.981	-10.514	0.000	0.000	0.000	-103.43	-26.439	0.000	26.439	-1.791	0.000
145.00	-4.820	-7.950	0.000	0.000	0.000	-73.531	-28.342	0.000	28.342	-1.840	0.000
150.00	-4.616	-7.448	0.000	0.000	0.000	-49.432	-30.291	0.000	30.291	-1.878	0.000
152.50	-4.202	-6.725	0.000	0.000	0.000	-37.892	-31.278	0.000	31.278	-1.894	0.000
155.00	-2.454	-4.109	0.000	0.000	0.000	-27.388	-32.274	0.000	32.274	-1.906	0.000
160.00	-2.263	-3.712	0.000	0.000	0.000	-15.119	-34.280	0.000	34.280	-1.923	0.000
165.00	-0.439	-0.823	0.000	0.000	0.000	-3.802	-36.299	0.000	36.299	-1.932	0.000
170.00	-0.264	-0.493	0.000	0.000	0.000	-1.608	-38.324	0.000	38.324	-1.935	0.000
175.00	-0.096	-0.179	0.000	0.000	0.000	-0.289	-40.351	0.000	40.351	-1.936	0.000
178.00	-0.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	41.568	-1.937	0.000

Resulting Stresses

Structure:	CT00594-S-SBA	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 24

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.56	0.31	0.00	0.00	0.00	15.20	15.77	52.0	0.303
5.00	0.55	0.32	0.00	0.00	0.00	15.14	15.71	52.0	0.302
10.00	0.54	0.32	0.00	0.00	0.00	15.08	15.63	52.0	0.301
15.00	0.54	0.32	0.00	0.00	0.00	15.00	15.55	52.0	0.299
20.00	0.53	0.32	0.00	0.00	0.00	14.92	15.46	52.0	0.297
25.00	0.52	0.32	0.00	0.00	0.00	14.83	15.36	52.0	0.295
30.00	0.51	0.33	0.00	0.00	0.00	14.72	15.24	52.0	0.293
32.83	0.51	0.33	0.00	0.00	0.00	14.66	15.18	52.0	0.292
35.00	0.50	0.33	0.00	0.00	0.00	14.61	15.11	52.0	0.291
40.00	0.49	0.34	0.00	0.00	0.00	14.83	15.33	52.0	0.295
45.00	0.48	0.35	0.00	0.00	0.00	14.66	15.16	52.0	0.292
50.00	0.48	0.35	0.00	0.00	0.00	14.48	14.97	52.0	0.288
55.00	0.47	0.35	0.00	0.00	0.00	14.27	14.76	52.0	0.284
60.00	0.46	0.35	0.00	0.00	0.00	14.05	14.52	52.0	0.279
65.00	0.45	0.35	0.00	0.00	0.00	13.80	14.26	52.0	0.274
70.00	0.44	0.36	0.00	0.00	0.00	13.52	13.98	52.0	0.269
75.00	0.43	0.36	0.00	0.00	0.00	13.22	13.66	52.0	0.263
77.92	0.43	0.36	0.00	0.00	0.00	13.02	13.47	52.0	0.259
80.00	0.42	0.36	0.00	0.00	0.00	12.88	13.32	52.0	0.256
84.00	0.42	0.38	0.00	0.00	0.00	12.87	13.30	52.0	0.256
85.00	0.42	0.38	0.00	0.00	0.00	12.79	13.22	52.0	0.254
90.00	0.41	0.38	0.00	0.00	0.00	12.34	12.77	52.0	0.246
95.00	0.40	0.38	0.00	0.00	0.00	11.85	12.26	52.0	0.236
100.00	0.39	0.39	0.00	0.00	0.00	11.29	11.70	52.0	0.225
105.00	0.38	0.39	0.00	0.00	0.00	10.67	11.08	52.0	0.213
110.00	0.37	0.39	0.00	0.00	0.00	9.98	10.38	52.0	0.200
115.00	0.36	0.40	0.00	0.00	0.00	9.20	9.59	52.0	0.184
120.00	0.36	0.40	0.00	0.00	0.00	8.32	8.70	52.0	0.167
124.08	0.35	0.40	0.00	0.00	0.00	7.52	7.90	52.0	0.152
125.00	0.30	0.31	0.00	0.00	0.00	7.33	7.64	52.0	0.147
129.00	0.42	0.47	0.00	0.00	0.00	9.96	10.42	52.0	0.200
130.00	0.42	0.47	0.00	0.00	0.00	9.74	10.19	52.0	0.196
135.00	0.42	0.47	0.00	0.00	0.00	8.49	8.95	52.0	0.172
140.00	0.41	0.48	0.00	0.00	0.00	7.09	7.54	52.0	0.145
145.00	0.33	0.40	0.00	0.00	0.00	5.48	5.84	52.0	0.112
150.00	0.32	0.40	0.00	0.00	0.00	4.02	4.39	52.0	0.084
152.50	0.29	0.37	0.00	0.00	0.00	3.22	3.58	52.0	0.069
155.00	0.18	0.22	0.00	0.00	0.00	2.44	2.65	52.0	0.051
160.00	0.17	0.22	0.00	0.00	0.00	1.48	1.70	52.0	0.033
165.00	0.04	0.04	0.00	0.00	0.00	0.41	0.46	52.0	0.009
170.00	0.03	0.03	0.00	0.00	0.00	0.19	0.22	52.0	0.004
175.00	0.01	0.01	0.00	0.00	0.00	0.04	0.05	52.0	0.001
178.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	52.0	0.000

Final Analysis Summary

Structure:	CT00594-S-SBA	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	t MZ (ft-kips)
85 mph Wind with 0" Ice	41.6	0.00	51.89	0.00	0.00	4800.13
73.61 mph Wind with 0.5" Ice	35.1	0.00	58.48	0.00	0.00	4108.92
50 mph Wind with 0" Ice	14.4	0.00	51.95	0.00	0.00	1662.90

Max Stresses

Load Case	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
85 mph Wind with 0" Ice	0.56	0.91	0.00	0.00	0.00	43.88	44.47	52.0	0.00	0.855
73.61 mph Wind with 0.5" Ice	0.63	0.77	0.00	0.00	0.00	37.56	38.22	52.0	0.00	0.735
50 mph Wind with 0" Ice	0.56	0.31	0.00	0.00	0.00	15.20	15.77	52.0	0.00	0.303

Base Plate Summary

Structure:	CT00594-S-SB	**Code:**	EIA/TIA-222-F	11/17/2015	
Site Name:	Plainfield North	**Exposure:**	C		
Height:	178.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Reactions

Original Design

Moment (kip-ft):	5595.92
Axial (kip):	50.66
Shear (kip):	45.22

Analysis

Moment (kip-ft):	4800.13
Axial (kip):	58.48
Shear (kip):	41.59
Moment Design %:	85.78

Base Plate

Yield (ksi):	60.00
Width (in):	72.81
Style:	Polygon
Polygon Sides:	12.00
Clip Length (in):	0.00
Effective Len (in):	13.27
Moment (kip-in):	625.44
Allow Stress (ksi):	60.00
Applied Stress (ksi):	31.42
Stress Ratio:	0.52

Anchor Bolts

Bolt Circle:	66.81
Number Bolts:	24.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	15.00

Compression

Force (kip):	146.13
Allowable (kip):	195.00
Ratio:	0.75

Tension

Force (kip):	141.26
Allowable (kip):	195.00
Ratio:	0.72

SITE NAME: PLAINFIELD / I-395 X90_1

56 ROPER ROAD
PLAINFIELD, CT 06374
WINDHAM COUNTY

SITE NUMBER: CT11155F

PROJECT: T-MOBILE L700

CONFIGURATION: 704G

SPECIAL CONSTRUCTION NOTE:
THE T-MOBILE TOWER TOP WORK IS CONTINGENT UPON COMPLETION OF ALL REQUIRED TOWER STRUCTURAL MODIFICATIONS, ENGINEERING CONSTRUCTION CONTROL INSPECTIONS, FINAL ENGINEERING AFFIDAVIT, AND ACCEPTANCE/APPROVAL BY SBA COMMUNICATIONS CORP.

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE NORTHEAST, LLC. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE NORTHEAST. LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL CONSTRUCTION NOTES

1. TOWER OWNER SHALL PROVIDE GLOBAL STRUCTURAL STABILITY ANALYSIS OF EXISTING ANTENNA SUPPORT STRUCTURE. GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE ALL REQUIRED STRUCTURAL MODIFICATIONS, RE-BUNDLING OF COAXIAL CABLES OR OTHER SPECIAL MODIFICATIONS AS OUTLINED THEREIN.
2. ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND DETERMINED THAT THE EXISTING ANTENNA MOUNT SHALL BE REPLACED OR MODIFIED TO ACCOMMODATE ANY ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.
3. PROTERRA DESIGN GROUP ASSUMES THAT THE TOWER IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTION ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
ANTENNA/TMA	
SECTOR A:	ACCESS NOT PERMITTED
SECTOR B:	ACCESS NOT PERMITTED
SECTOR C:	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED*
(*CAUTION: OSHA-APPROVED PORTABLE 8' STEP-LADDER REQUIRED)	
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY T-MOBILE EQUIPMENT MODERNIZATION
ZONING JURISDICTION:	BASED ON INFORMATION PROVIDED BY T-MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).
SITE ADDRESS:	56 ROPER ROAD PLAINFIELD, CT 06374
LATITUDE:	41.74599 (FROM T-MOBLE RFDS)
LONGITUDE:	-71.88010 (FROM T-MOBLE RFDS)
JURISDICTION:	TOWN OF PLAINFIELD
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
TOWER OWNER:	SBA PROPERTIES, LLC
SBA SITE ID:	CT00594-S
SBA SITE NAME:	PLAINFIELD NORTH
SBA REGIONAL SITE MANAGER:	STEPHEN ROTH (860) 539-4920

APPROVALS

PROJECT MANAGER	DATE
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING / SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE

DIG SAFE SYSTEM
(MA, ME, NH, RI, VT):
1-888-344-7233

CALL BEFORE YOU DIG
(CT): 1-800-922-4455

UNDERGROUND SERVICE ALERT

DRAWING INDEX

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T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
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STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED PROFESSIONAL ENGINEER
12-13-15

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	10/13/15	CONSTRUCTION REVISED	JEB
0	09/18/15	ISSUED FOR CONSTRUCTION	BLM

SITE NUMBER:
CT11155F
SITE NAME:
PLAINFIELD / I-395 X90_1
SITE ADDRESS:
56 ROPER ROAD
PLAINFIELD, CT 06374
WINDHAM COUNTY

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – SBA COMMUNICATIONS CORP.
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T-MOBILE

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CUR\BS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
14. ANY NEW CONCRETE NEEDED FOR CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (FY = 36 KSI) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (FY = 35 KSI). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH UMTS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: 2005 CONNECTICUT STATE BUILDING CODE WITH AMENDMENTS

    ELECTRICAL CODE: 2011 NATIONAL ELECTRICAL CODE AND AMENDMENTS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BTCW	BARE TINNED SOLID COPPER WIRE	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
		MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	PROPOSED	NEW OR (P)	TYP	TYPICAL
EXISTING	EXISTING OR (E)	N.T.S.	NOT TO SCALE	VIF	VERIFY IN FIELD
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTERLINE (ANTENNA)		
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

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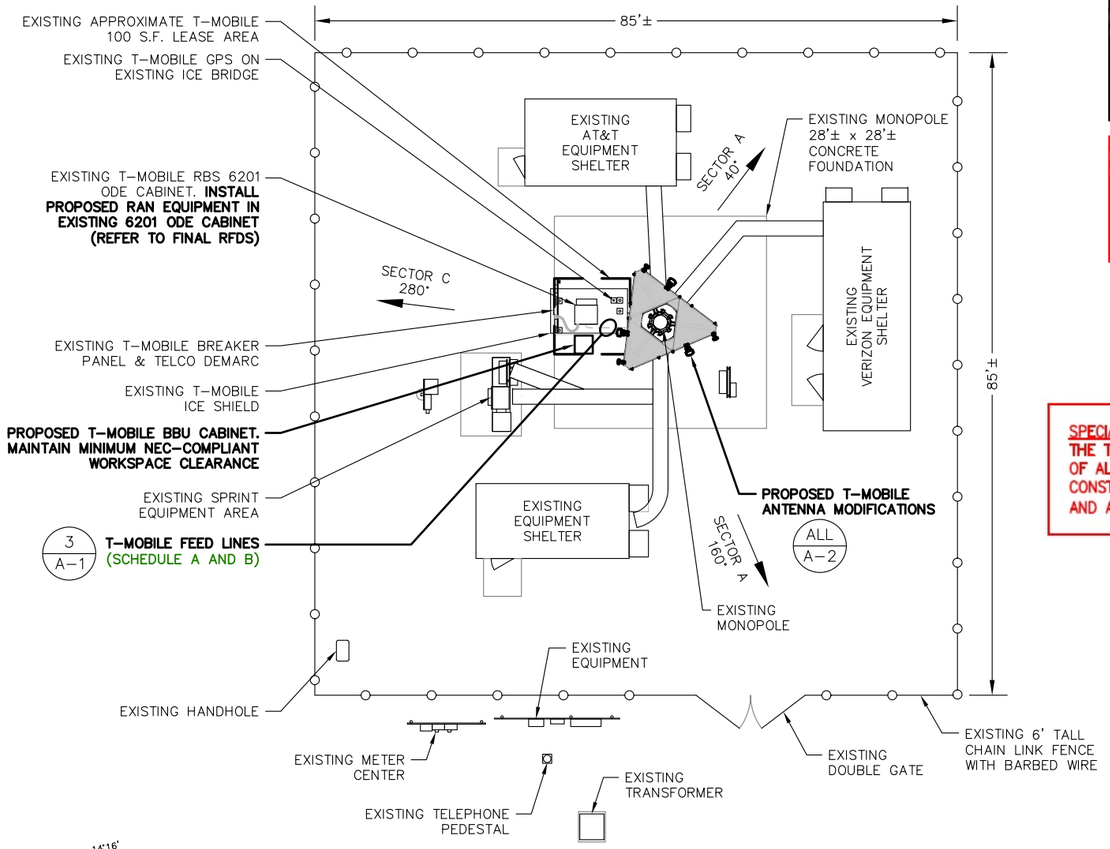
SITE NAME:
PLAINFIELD / I-395 X90_1

SITE ADDRESS:
56 ROPER ROAD
PLAINFIELD, CT 06374
WINDHAM COUNTY

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1



COMPOUND PLAN

1 / A-1

SCALE: 1"=20' (11"x17")
1"=10' (22"x34")

20 10 0 20

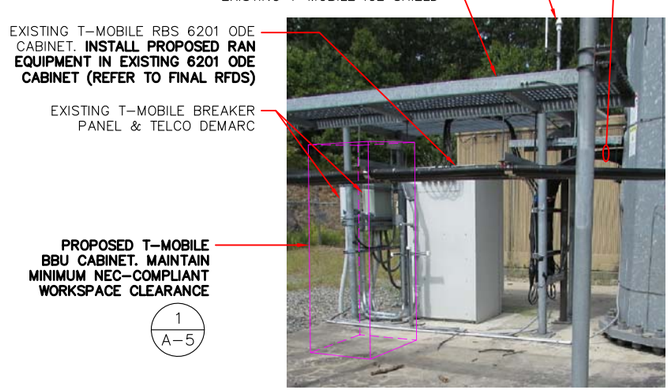


IMAGE SOURCE: PROTERRA 09/04/15

EQUIPMENT PHOTO DETAIL

2 / A-1

SCALE: N.T.S.

ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:

ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND DETERMINED THAT THE EXISTING ANTENNA MOUNT SHALL BE REPLACED OR MODIFIED TO ACCOMMODATE ANY ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.

STRUCTURAL NOTES:

PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY SBA TO DETERMINE IF THERE ARE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS FOR TOWER TOP EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING, OR RELOCATION ARRANGEMENTS

℄ OF PROPOSED T-MOBILE ANTENNAS
ELEV.= 165'± AGL (SBA DATABASE)
ALL A-2 | 1,2 A-3 | 1,2 A-4

SPECIAL CONSTRUCTION NOTE:
THE T-MOBILE TOWER TOP WORK IS CONTINGENT UPON COMPLETION OF ALL REQUIRED TOWER STRUCTURAL MODIFICATIONS, ENGINEERING CONSTRUCTION CONTROL INSPECTIONS, FINAL ENGINEERING AFFIDAVIT, AND ACCEPTANCE/APPROVAL BY SBA COMMUNICATIONS CORP.

FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	EXISTING: TO REMAIN (6) 1-5/8" COAX TO 165' RAD	INSIDE MONOPOLE TO RAD
B	PROPOSED: (6) 1-5/8" COAX TO 165' RAD	INSIDE MONOPOLE TO RAD

NOTE: EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

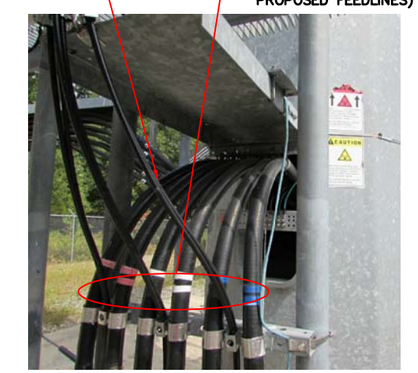


IMAGE SOURCE: PROTERRA 09/04/15

FEEDLINE PHOTO DETAIL AT TOWER BASE

3 / A-1

SCALE: N.T.S.

IMAGE SOURCE: PROTERRA 09/04/15

PARTIAL ELEVATION PHOTO DETAIL

4 / A-1

SCALE: N.T.S.

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PLAINFIELD, CT 06374
WINDHAM COUNTY

SHEET TITLE
COMPOUND & ELEVATION PLAN

SHEET NUMBER
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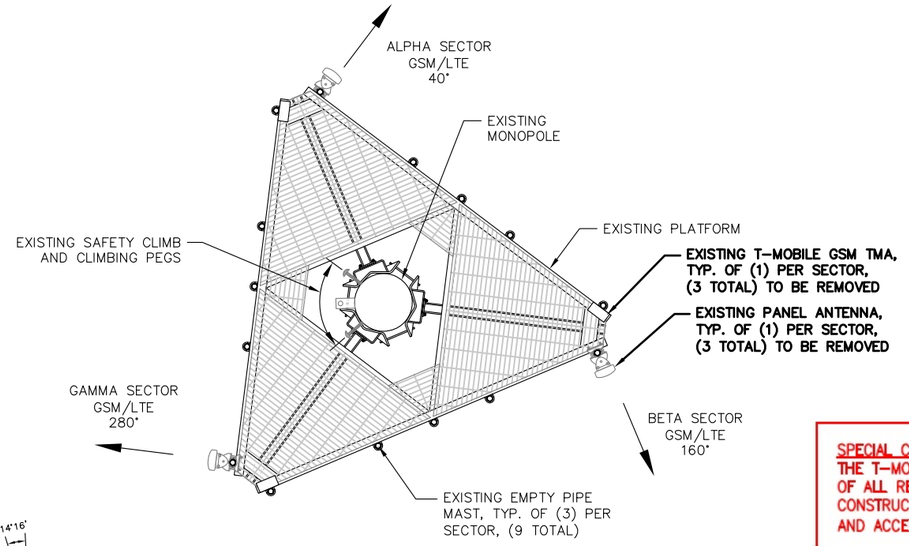


EXISTING ANTENNA PLAN

SCALE: N.T.S.

1 / A-2

ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:

ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND DETERMINED THAT THE EXISTING ANTENNA MOUNT SHALL BE REPLACED OR MODIFIED TO ACCOMMODATE ANY ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.

STRUCTURAL NOTES:

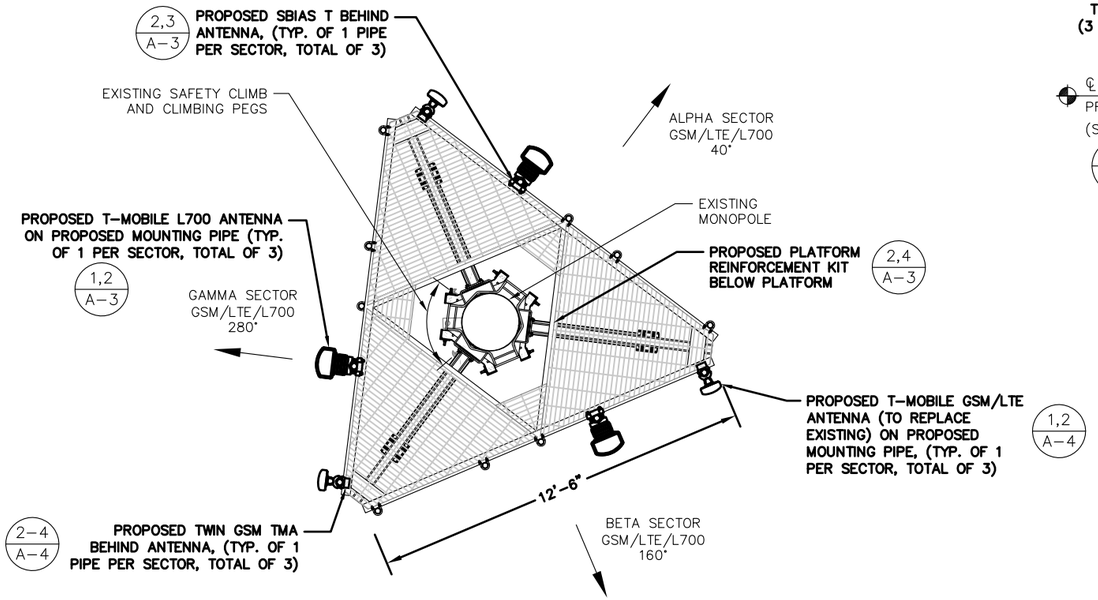
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY SBA TO DETERMINE IF THERE ARE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS FOR TOWER TOP EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING, OR RELOCATION ARRANGEMENTS

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

SPECIAL WORK NOTE:

VERTICALLY CENTER THE PIPE MAST AND THE PROPOSED ANTENNAS BETWEEN THE EXISTING PLATFORM AND HANDRAIL

SPECIAL CONSTRUCTION NOTE:
THE T-MOBILE TOWER TOP WORK IS CONTINGENT UPON COMPLETION OF ALL REQUIRED TOWER STRUCTURAL MODIFICATIONS, ENGINEERING CONSTRUCTION CONTROL INSPECTIONS, FINAL ENGINEERING AFFIDAVIT, AND ACCEPTANCE/APPROVAL BY SBA COMMUNICATIONS CORP.



PROPOSED ANTENNA PLAN

SCALE: N.T.S.

2 / A-2

NOTE:
ALL PIPE TO BE SCH40 GALVANIZED ASTM A53 GRADE B (35 KSI)

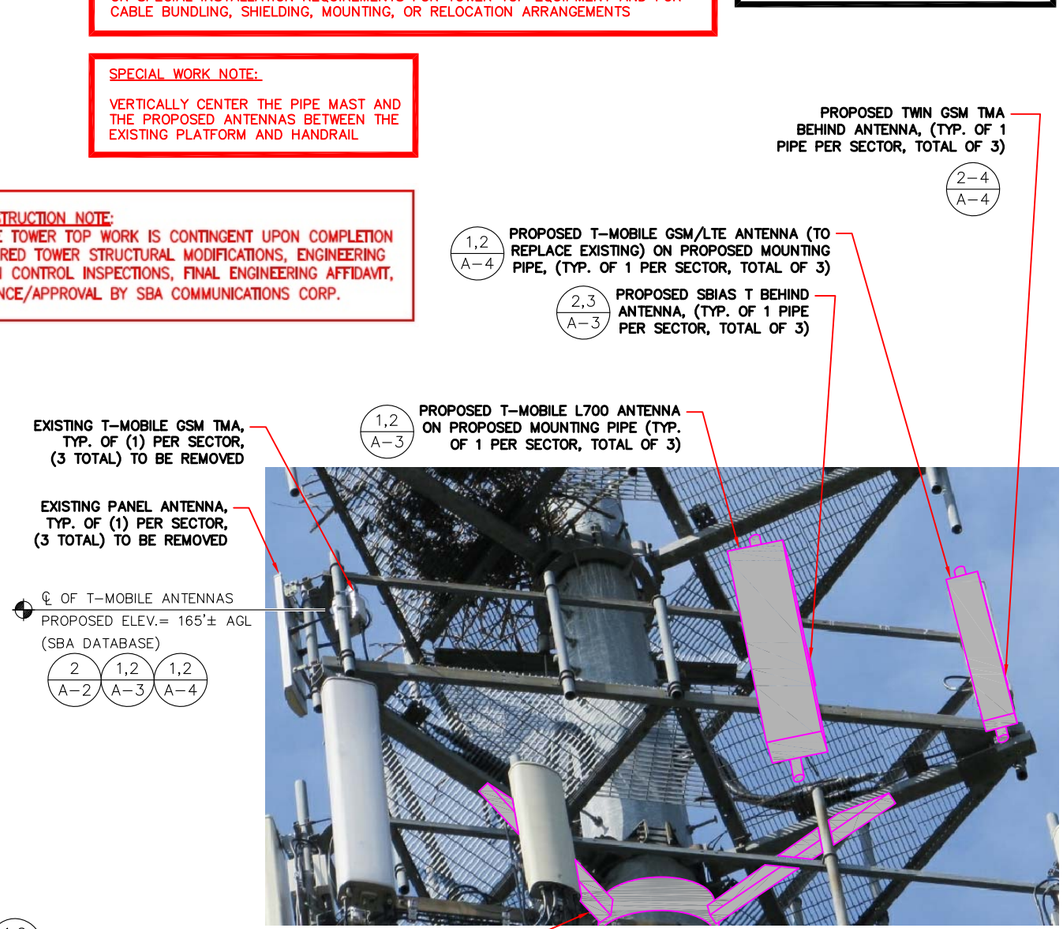


IMAGE SOURCE: PROTERRA 09/04/15
NOTE: ONE SECTOR SHOWN FOR CLARITY

ANTENNA PHOTO DETAIL

SCALE: N.T.S.

3 / A-2

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SITE ADDRESS:
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PLAINFIELD, CT 06374
WINDHAM COUNTY

SHEET TITLE
EXISTING & PROPOSED ANTENNA PLAN

SHEET NUMBER
A-2

SPECIAL CONSTRUCTION NOTE:
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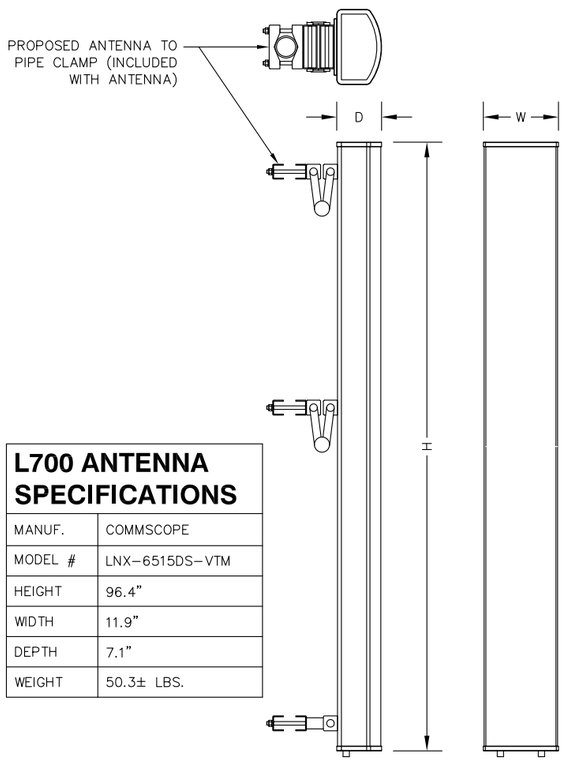
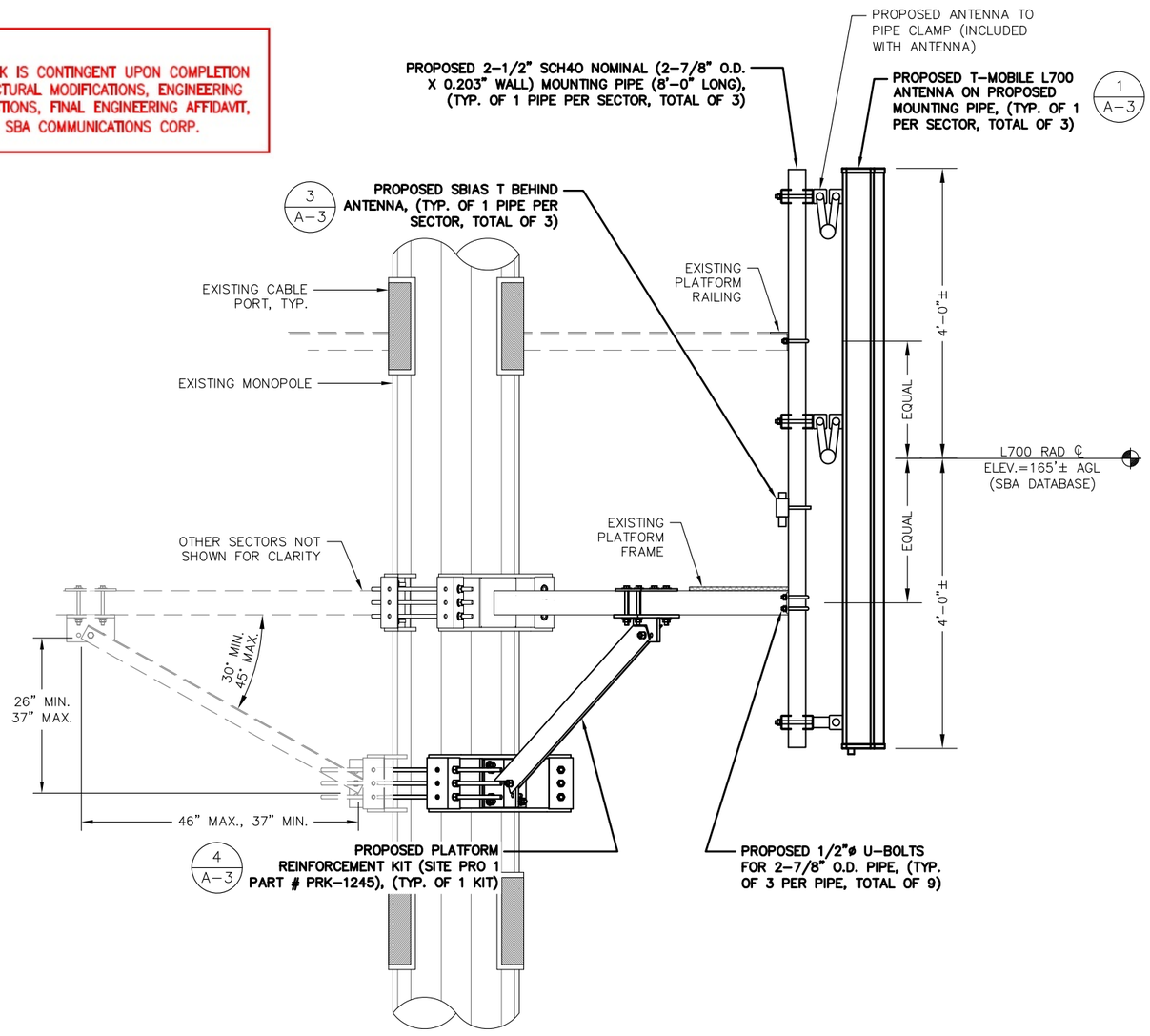


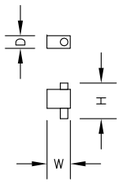
L700 ANTENNA SPECIFICATIONS	
MANUF.	COMMSCOPE
MODEL #	LNX-6515DS-VTM
HEIGHT	96.4"
WIDTH	11.9"
DEPTH	7.1"
WEIGHT	50.3± LBS.

L700 ANTENNA DETAIL (1/A-3)
SCALE: N.T.S.

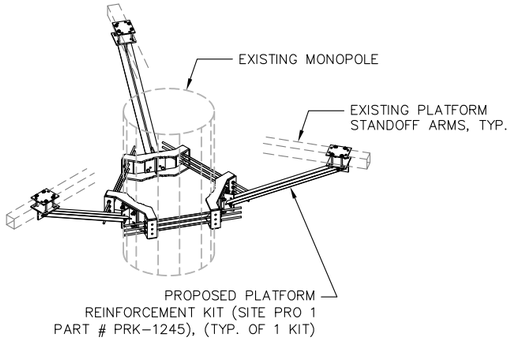


PROPOSED ANTENNA MOUNTING DETAIL (2/A-3)
SCALE: N.T.S.

SBT SPECIFICATIONS	
MANUF.	COMMSCOPE
MODEL #	ATSBT-TOP-FM-4G
HEIGHT	5.63"
WIDTH	3.7"
DEPTH	2.0"
WEIGHT	1.8 LBS.



SMART BIAS TEE (SBT) (3/A-3)
SCALE: N.T.S.



PLATFORM REINFORCEMENT KIT DETAIL (4/A-3)
SCALE: N.T.S.

SPECIAL WORK NOTE:
VERTICALLY CENTER THE PIPE MAST AND THE PROPOSED ANTENNAS BETWEEN THE EXISTING PLATFORM AND HANDRAIL

ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:
ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND DETERMINED THAT THE EXISTING ANTENNA MOUNT SHALL BE REPLACED OR MODIFIED TO ACCOMMODATE ANY ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
TEL: (860) 648-1116

SBA COMMUNICATIONS CORP.
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MARLBOROUGH, MA 01752 TEL: (508) 251-0720

ProTerra DESIGN GROUP, LLC
4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph: (413)320-4918

STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED PROFESSIONAL ENGINEER
10-13-15

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	10/13/15	CONSTRUCTION REVISED	JEB
0	09/18/15	ISSUED FOR CONSTRUCTION	BLM

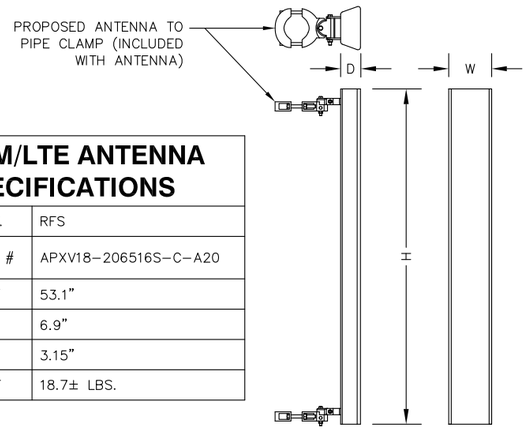
SITE NUMBER:
CT11155F
SITE NAME:
PLAINFIELD / I-395 X90_1

SITE ADDRESS:
56 ROPER ROAD
PLAINFIELD, CT 06374
WINDHAM COUNTY

SHEET TITLE
DETAILS

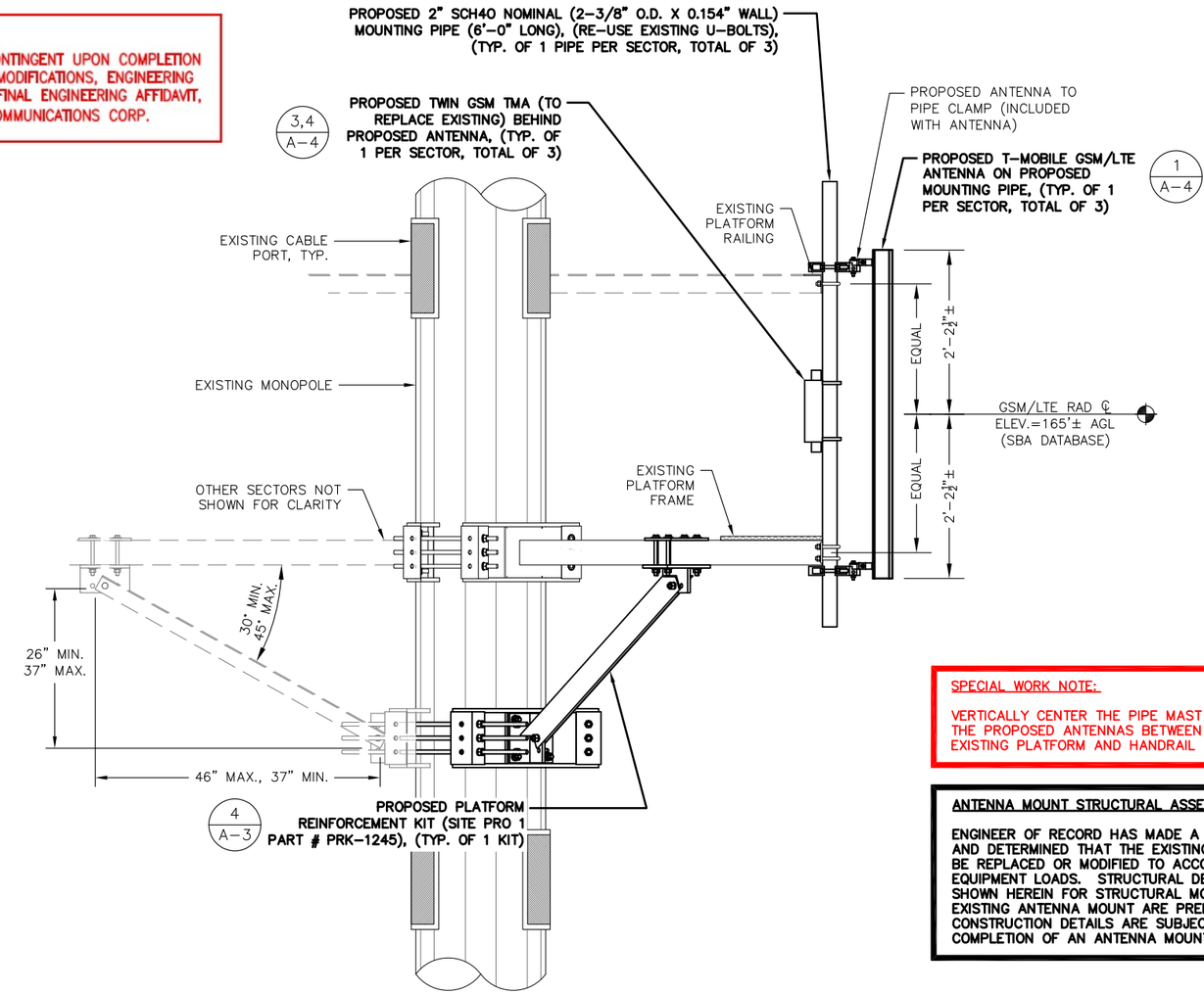
SHEET NUMBER
A-3

SPECIAL CONSTRUCTION NOTE:
THE T-MOBILE TOWER TOP WORK IS CONTINGENT UPON COMPLETION OF ALL REQUIRED TOWER STRUCTURAL MODIFICATIONS, ENGINEERING CONSTRUCTION CONTROL INSPECTIONS, FINAL ENGINEERING AFFIDAVIT, AND ACCEPTANCE/APPROVAL BY SBA COMMUNICATIONS CORP.



GSM/LTE ANTENNA SPECIFICATIONS	
MANUF.	RFS
MODEL #	APXV18-206516S-C-A20
HEIGHT	53.1"
WIDTH	6.9"
DEPTH	3.15"
WEIGHT	18.7± LBS.

GSM/LTE ANTENNA DETAIL 1/A-4
SCALE: N.T.S.



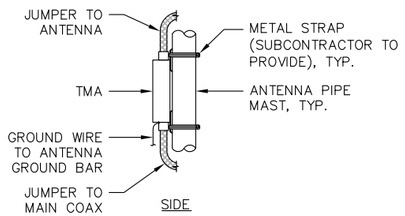
PROPOSED GSM/LTE ANTENNA MOUNTING DETAIL 2/A-4
SCALE: N.T.S.

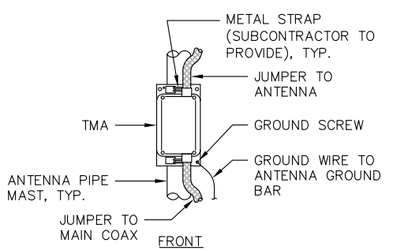
SPECIAL WORK NOTE:

VERTICALLY CENTER THE PIPE MAST AND THE PROPOSED ANTENNAS BETWEEN THE EXISTING PLATFORM AND HANDRAIL

ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:

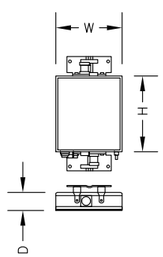
ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND DETERMINED THAT THE EXISTING ANTENNA MOUNT SHALL BE REPLACED OR MODIFIED TO ACCOMMODATE ANY ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.





TMA MOUNTING DETAIL 3/A-4
SCALE: N.T.S.

TWIN GSM TMA SPECIFICATIONS	
MANUF.	RFS
MODEL #	ATMAA1412D-1A20
HEIGHT	12"
WIDTH	10"
DEPTH	4"
WEIGHT	13 LBS.



TWIN GSM TMA 4/A-4
SCALE: N.T.S.

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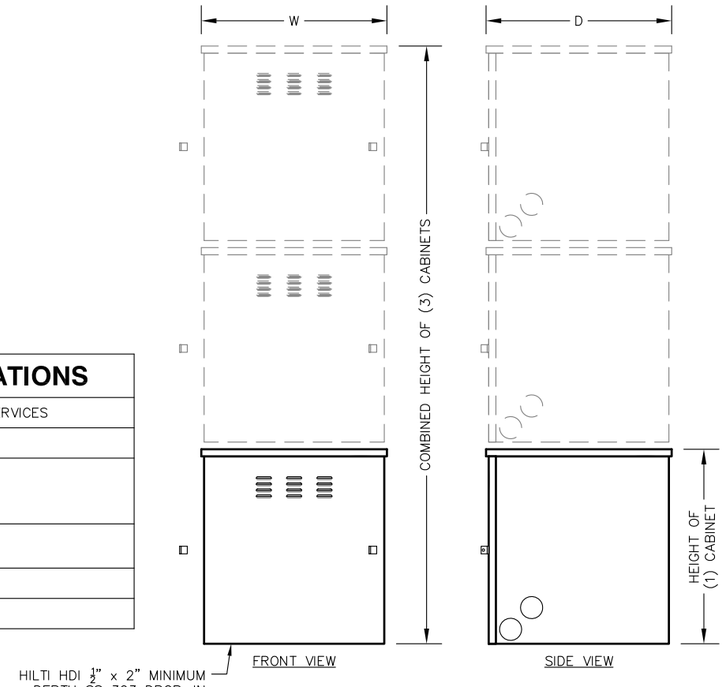
DETAILS

SHEET NUMBER
A-4

BBU SPECIFICATIONS	
MANUF.	MFS DATA SERVICES
MODEL #	DUBBM–2ALM
HEIGHT (1) CABINET	29.67"
HEIGHT (3) CABINETS	89.01"
WIDTH	28.54"
DEPTH	28.54"



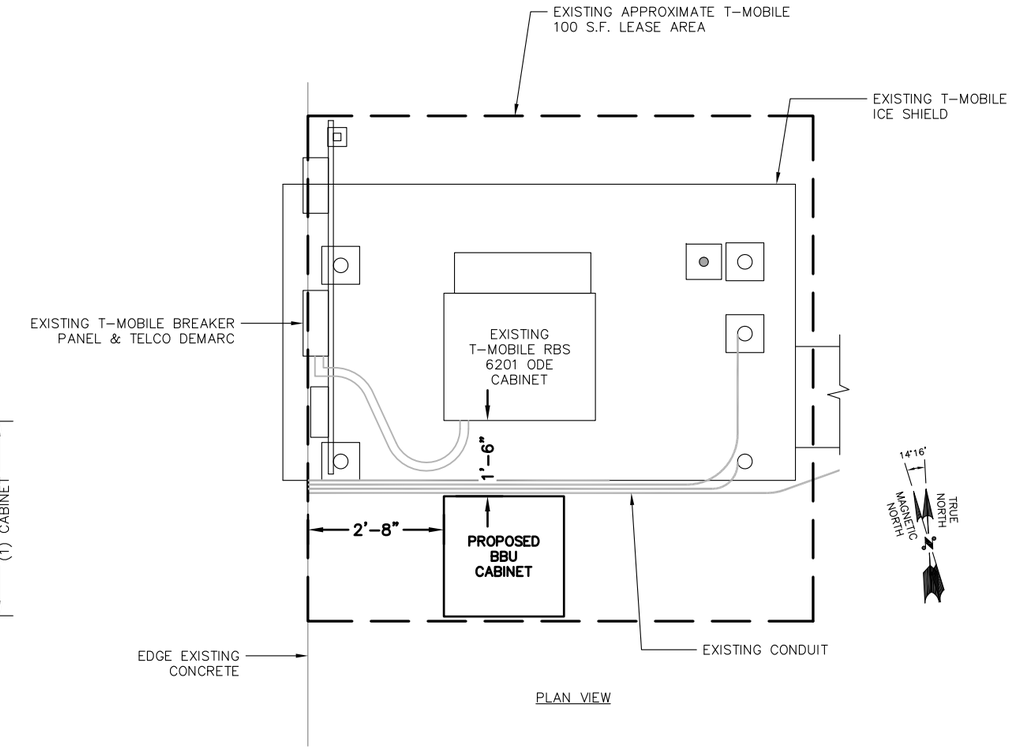
FRONT VIEW

SIDE VIEW

NOTE:
MFS DATA SERVICES BBU CABINET, MODEL DUBBM–2ALM (STACKABLE – 3 TOTAL PROPOSED)

SPECIAL WORK NOTE:
DO NOT BLOCK CABINET DOOR SWING WITH PROPOSED BBU CABINET.

SPECIAL WORK NOTE:
MAINTAIN MINIMUM NEC–COMPLIANT WORKSPACE CLEARANCE 30" WIDE, 36" DEEP, 6'–6" HEIGHT



PLAN VIEW

PROPOSED BBU CABINET DETAIL

SCALE: N.T.S.

1 / A–5

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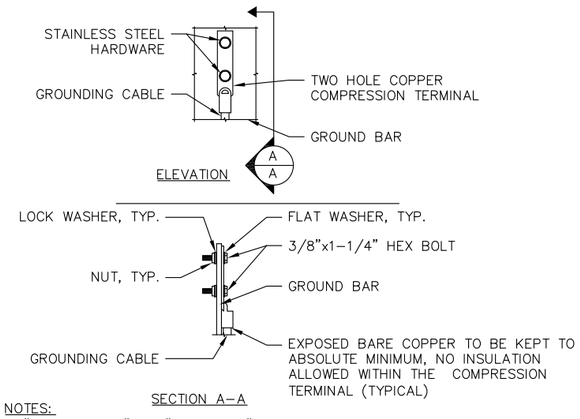
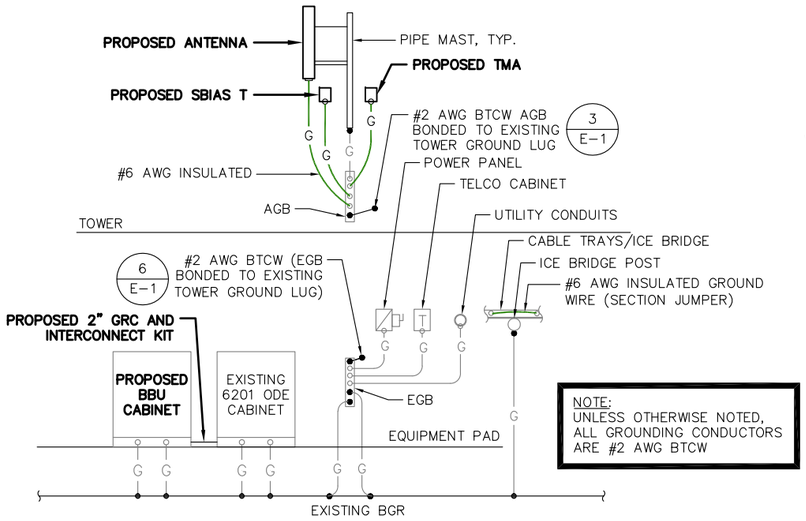


NOTES:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

1 / E-1

SCALE: N.T.S.

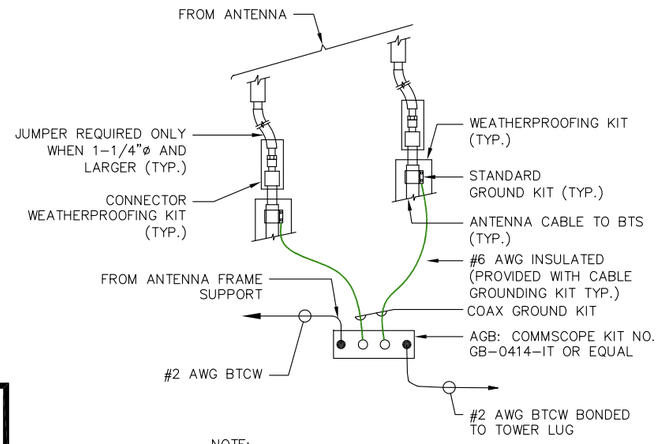


NOTE:
UNLESS OTHERWISE NOTED, ALL GROUNDING CONDUCTORS ARE #2 AWG BTCW

TYPICAL GROUNDING RISER DIAGRAM

2 / E-1

SCALE: N.T.S.

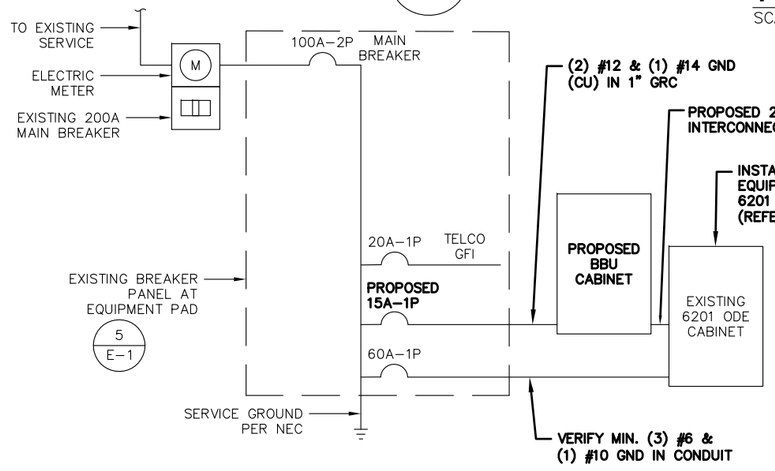


NOTE:
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB.

TOWER TOP CABLE GROUNDING DETAIL

3 / E-1

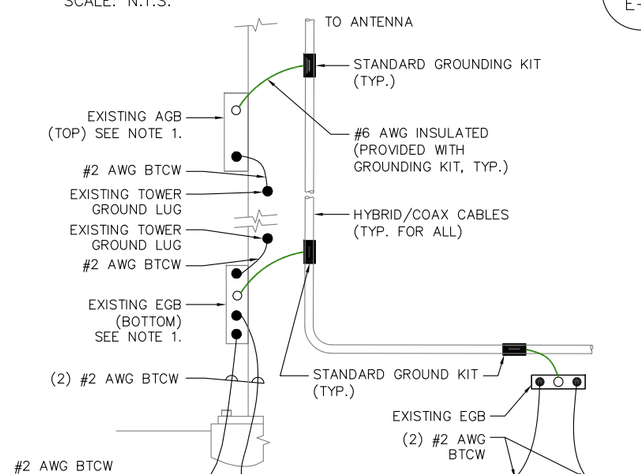
SCALE: N.T.S.



ONE LINE POWER SCHEMATIC

4 / E-1

SCALE: N.T.S.



NOTE:
1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION, AND CONNECTION ORIENTATION. PROVIDE ADDITIONAL AGB/EGB AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED

ELECTRICAL LEGEND

A	AMPERE
V	VOLT
KWH	KILOWATT - HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BTCW	BARE TINNED (SOLID) COPPER WIRE (#2 AWG, UNLESS NOTES OTHERWISE)
G	GROUND
	GROUND
MGB	MASTER GROUND BAR ○ MECHANICAL CONNECTION ● CADWELD CONNECTION
AGB/EGB	EQUIPMENT GROUND BAR/ANTENNA GROUND BAR
G	GROUND COPPER WIRE, SIZE AS NOTED
	EXPOSED WIRING
	INSULATED GROUNDING CONDUCTOR (#6 AWG STRANDED, UNLESS NOTED OTHERWISE)
	5/8"x10' COPPER CLAD STAINLESS STEEL GROUND ROD
	● EXOTHERMIC (CAD WELD) OR ○ MECHANICAL (COMPRESSION TYPE) CONNECTION
PPC	POWER PROTECTION CABINET
	OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

CONTRACTOR NOTE:
G.C. TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.

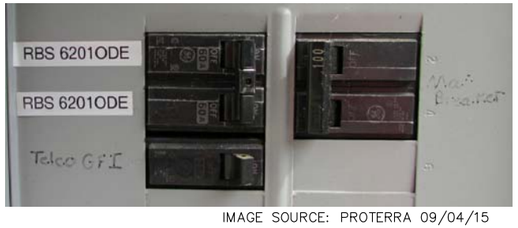


IMAGE SOURCE: PROTERRA 09/04/15

PHOTO DETAIL: BREAKER PANEL

5 / E-1

SCALE: N.T.S.

TOWER BOTTOM CABLE GROUNDING DETAIL

6 / E-1

SCALE: N.T.S.

ELECTRICAL & GROUNDING NOTES:

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) 2014 AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHN INSULATION AS REQUIRED BY NEC.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
11. GROUNDING SHALL COMPLY WITH NEC ART. 250.
12. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
13. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
14. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
15. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
16. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT).
17. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LYGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
19. BOMD ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
20. BOND ANTENNA EGB'S AND MGB TO WATER MAIN/GROUND RING.
21. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
22. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
23. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
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STATE OF CONNECTICUT
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12-13-15

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

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WINDHAM COUNTY

SHEET TITLE
ONE-LINE DIAGRAM & GROUNDING DETAILS

SHEET NUMBER
E-1

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 178' VALMONT MONOPOLE

PROPOSED CARRIER: T-MOBLE

SBA SITE: CT00594-S / PLAINFIELD NORTH

COORDINATES (LATITUDE: 41.746°, LONGITUDE: -71.88016°)

COMPLETE FABRICATION DRAWINGS FOR ALL MATERIALS REQUIRED FOR THIS PROJECT ARE AVAILABLE FROM TOWER ENGINEERING SOLUTIONS (TES). PLEASE CONTACT TES FOR MORE INFORMATION.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	TOWER PROFILE	0
A-2	MONOPOLE BASE FOUNDATION MODIFICATION DETAILS	0
RBL-1	REBAR LIST	0

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. 17975, DATED 10/22/15.

TES
Tower Engineering Solutions
8445 FREEPORT PARKWAY, SUITE 375
IRVING, TX 75063
PH: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
18414

CUSTOMER SITE NO:
CT00594-S

CUSTOMER SITE NAME:
PLAINFIELD NORTH
56 ROPER ROAD
PLAINFIELD, CT 06354

STATE OF CONNECTICUT
HANMING YOU
28931
LICENSED PROFESSIONAL ENGINEER
11/25/15

DRAWN BY:	CH
CHECKED BY:	WV/KMM
DATE:	11/25/15

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CH	11/25/15

SHEET TITLE:
TITLE SHEET

SHEET NUMBER: T-1

REV #: 0

BILL OF MATERIALS

QUANTITY REQUIRED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTION	LENGTH	SHEET LIST	PIECE WEIGHT	WEIGHT (lb)	NOTES
–	–	–	REBAR	–	RBL-1	–	–	
			ALL MATERIALS REQUIRED FOR FOUNDATION MODIFICATIONS THAT ARE NOT LISTED IN THE BILL OF MATERIALS WILL BE PROVIDED BY CONTRACTOR. REFERENCE MODIFICATION SHEETS.					

TOTAL WEIGHT (lb) = **0**

PAGE 1 OF 1

Tower Engineering Solutions
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5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
18414

CUSTOMER SITE NO:
CT00594-S

CUSTOMER SITE NAME:
PLAINFIELD NORTH

56 ROPER ROAD
PLAINFIELD, CT 06354

DRAWN BY:	CH
CHECKED BY:	WV/KMM
DATE:	11/25/15

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CH	11/25/15

SHEET TITLE:

BILL OF MATERIALS

SHEET NUMBER: BOM

REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-G, TIA-1019-A 2012 AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER TIA-1019-A 2001, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATES OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING CHART SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.

WELDING

1. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
2. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2012 SECTION 1705 - TABLE 1705.2.2 FOR STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL AND TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

TABLE 8.2 NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING [a,b]

BOLT LENGTH[c]	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 [d]	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS [d]
NOT MORE THAN $4d_b$	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN $4d_b$ BUT NOT MORE THAN $8d_b$	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN $8d_b$ BUT NOT MORE THAN $12d_b$	2/3 TURN	5/6 TURN	1 TURN

[a] NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

[b] APPLICATION ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

[c] WHEN THE BOLT LENGTH EXCEEDS 12d , THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

[d] BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004
RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. M16 HOLLO BOLT: 140 FT-LBS
2. M20 AJAX BOLT: 390 FT-LBS

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SHEET TITLE: GENERAL NOTES

SHEET NUMBER: GN-1

REV #: 0

PHOTO 1

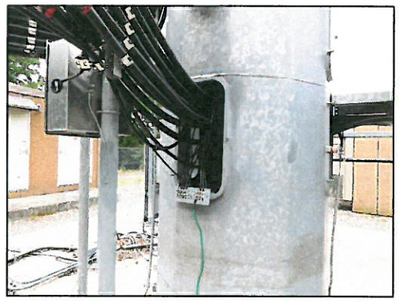
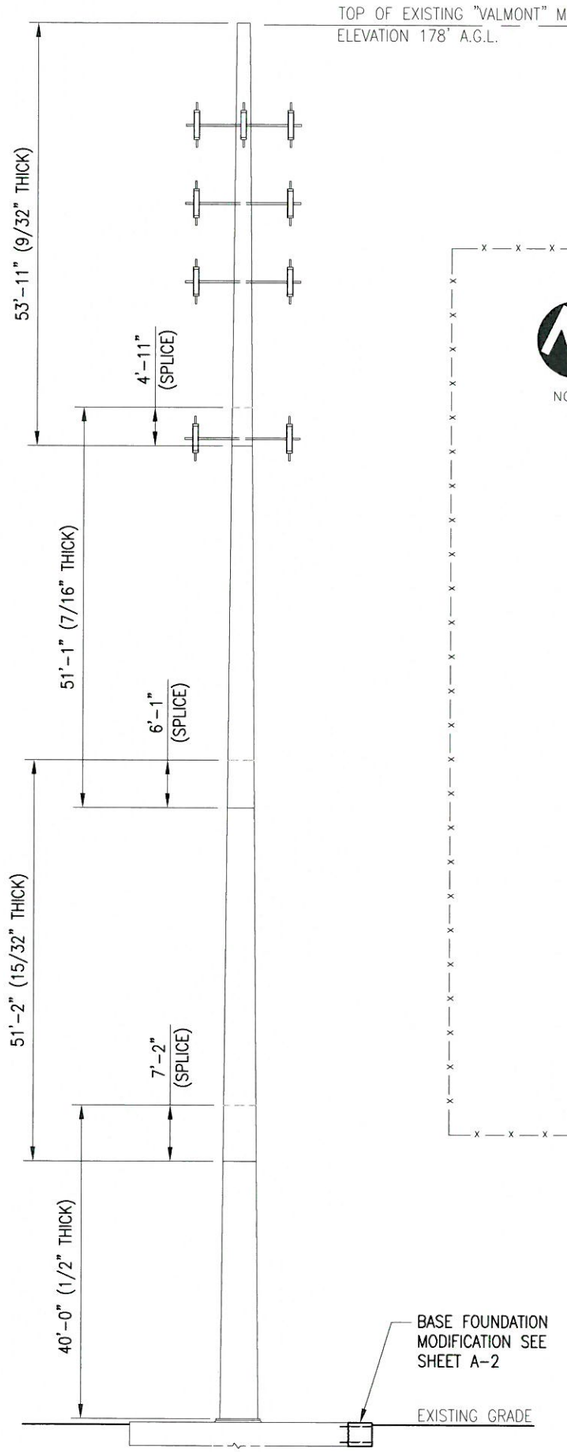
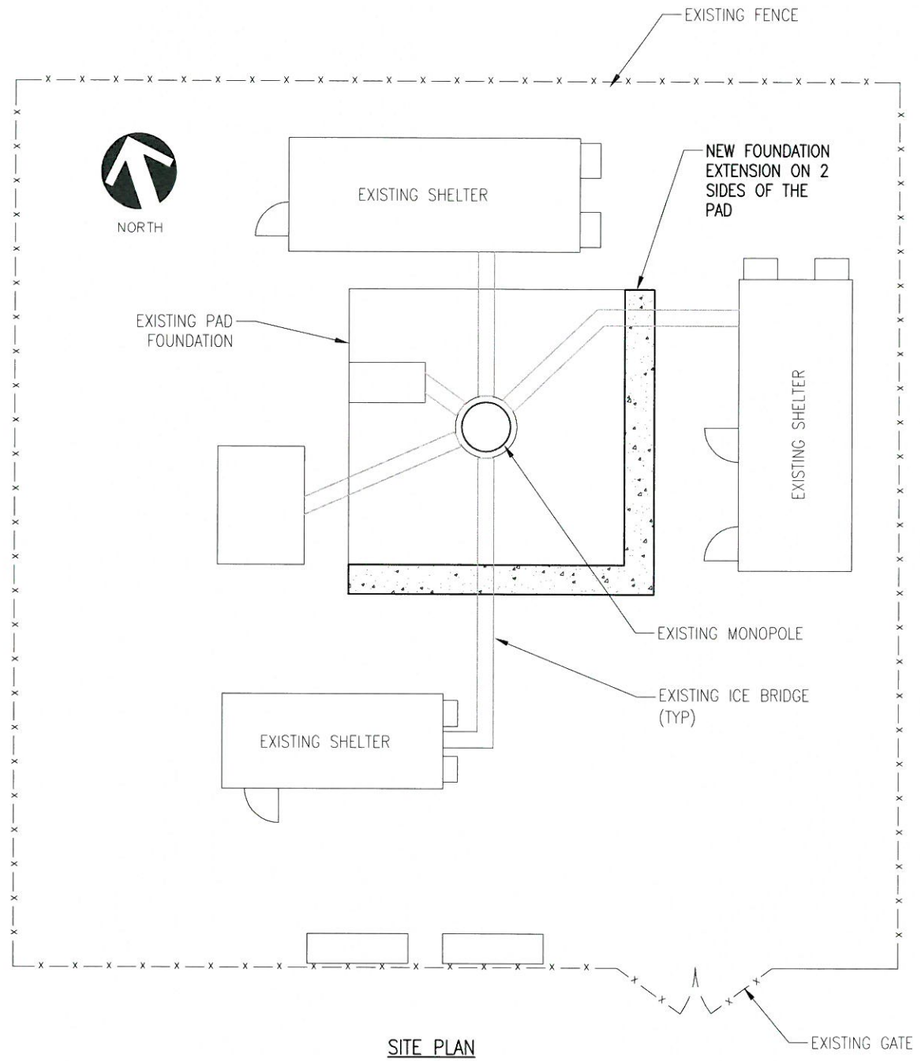


PHOTO 2

PHOTO 3





SITE PLAN

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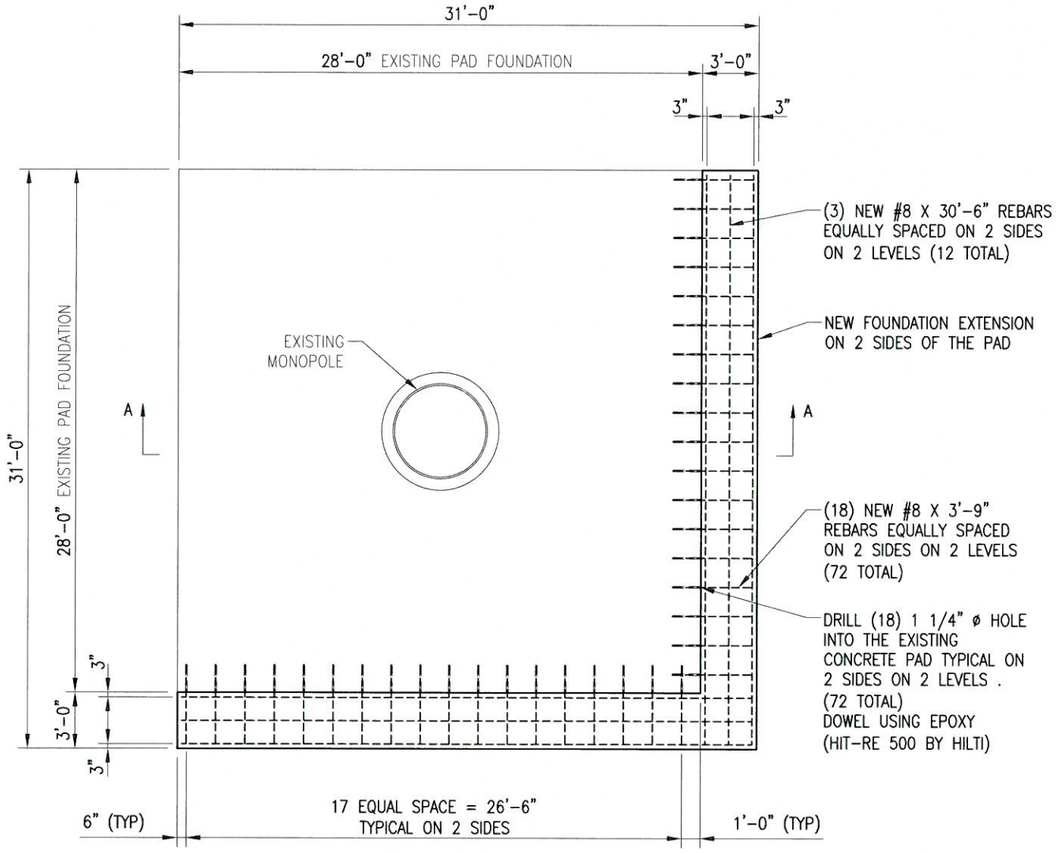
SHEET TITLE:

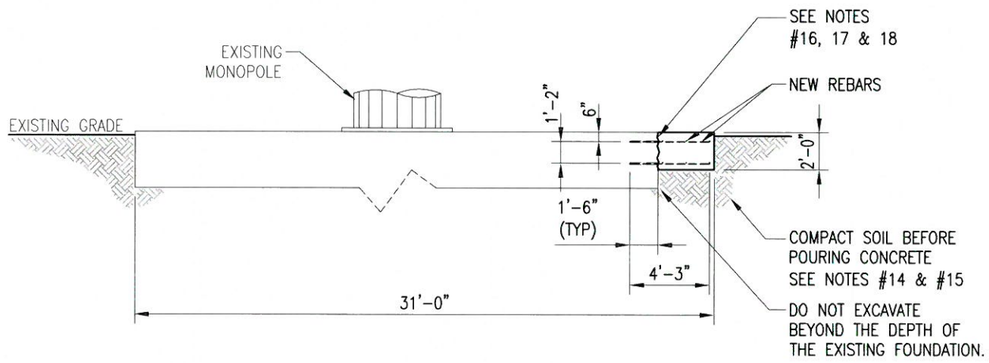
TOWER PROFILE

SHEET NUMBER: A-1

REV #: 0



PLAN VIEW



SECTION "A-A"

NOTES:

1. THE FOUNDATION MODIFICATION DESIGN IS BASED ON THE SOIL REPORT PROVIDED BY **JAWORSKI GEOTECH, INC.** (PROJECT # **C98326G**, DATED **7/23/98**).
2. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF **4000** PSI AT 28 DAYS.
3. TEST CYLINDERS SHALL BE MOLDED AND LABORATORY CURED IN ACCORDANCE WITH ASTM C31. THREE PAIRS OF CONCRETE COMPRESSION TEST CYLINDERS SHALL BE MADE FROM EACH TRUCK LOAD OF CONCRETE. TWO CYLINDERS SHALL BE TESTED AT 7 DAYS AND TWO CYLINDERS SHALL BE TESTED AT 28 DAYS. (REMAINING PAIR OF CYLINDERS ARE FOR REDUNDANCY).
4. REINFORCED CONCRETE CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH ACI STANDARDS 318.
5. ALL REBAR SHALL BE SECURELY WIRE TIED TO PREVENT DISPLACEMENT DURING POURING OF CONCRETE.
6. VERTICAL EMBEDMENTS OUT OF PLUMB: 1.0 DEGREE.
7. DEPTH OF FOUNDATION: PLUS 1" OR MINUS 0".
8. CONCRETE DIMENSIONS: PLUS OR MINUS 1/2".
9. REINFORCING STEEL PLACEMENT: PLUS OR MINUS 1/2" INCLUDING CONCRETE COVER.
10. CONCRETE VOLUME: **13.1** CUBIC YARDS.
11. MATERIALS FOR REINFORCING SHALL BE IN ACCORDANCE WITH ASTM SPECIFICATION A615-85.
12. ALL REBAR TO BE GRADE 60 (UNLESS NOTED OTHERWISE).
13. CONCRETE SLUMP: **2"~4"**.
14. FOUNDATION BASE SHOULD REST ON FIRM AND LEVELED SURFACE.
15. FILL MATERIALS SHALL BE COMPACTED USING LAYERS OF NO MORE THAN 6". FINAL COMPACTION MUST BE A MINIMUM OF 95% DENSITY (THE MAXIMUM DRY UNIT OF WEIGHT). BACKFILL MATERIALS SHALL BE SANDY SILT (ML), SILT SAND (SM), CLAYED SAND (SC). NO ORGANIC MATERIALS, ROOTS, PLASTIC SILTS OR CLAYS, DELETERIOUS MATERIALS AND STONES SHALL BE USED. IF ROCK/SOIL MIXTURE IS USED AS BACKFILL, THE ROCK SIZE SHOULD BE LESS THAN 4" IN GREATEST DIMENSION AND NOT MORE THAN 15% BY WEIGHT SHALL BE LARGER THAN 2" IN GREATEST DIMENSION.
16. CLEAN AND ROUGHEN THE SURFACE. THE SURFACE MUST BE PREPARED MECHANICALLY GIVING A SURFACE PROFILE OF MINIMUM 1/8", EXPOSING THE COARSE AGGREGATE OF THE OLD CONCRETE.
17. APPLY WELD-CRETE OR CORR-BOND AGENT OVER THE SURFACE OF THE OLD CONCRETE PER THE MANUFACTURER'S SPECIFICATIONS.
18. NEW CONCRETE MUST BE PLACED OVER THE BONDING AGENT WITHIN THE MAXIMUM ALLOWABLE TIME PER THE MANUFACTURER'S SPECIFICATIONS.
19. THE FOUNDATION MODIFICATION MUST BE PERFORMED AT A WIND SPEED LESS THAN 30 MPH.
20. THE EXCAVATION, FORMING AND CONCRETE PLACEMENT MUST BE COMPLETED IN A TIMEFRAME NOT TO EXCEED **72** HOURS.

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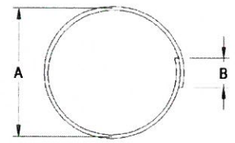
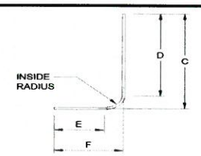
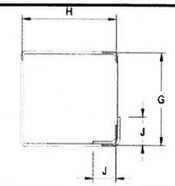
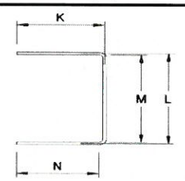
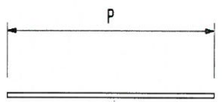
SHEET TITLE:

MONOPOLE BASE FOUNDATION MODIFICATION DETAILS

SHEET NUMBER: A-2

REV #: 0

REBAR CHART

TYPE OF REBAR DIAGRAM	ITEMS	QTY. REQ'D	REBAR SIZE	LENGTH REQ'D (FT.)	TOTAL WEIGHT (LBS)	DETAILS OF BAR DIMENSIONS								REBAR DIAGRAM
ROUND TIE		-	-		-	A (FT.)	A	B	B (FT.)					
90° BEND VERTICAL BAR		-	-	-	-	C (FT.)	C	D (ft)	D	E (ft.)	E	F	RADIUS	
SQUARE OR RETANGULAR TIE		-	-	-	-	G (FT.)	G	H (ft)	H	J (ft.)	J	RADIUS		
U-SHAPE 90° BEND		-	-	-	-	K (FT.)	K	L (ft)	L	M (ft.)	M	N	RADIUS	
STRAIGHT	1	12	8	30'-6"	977.2	30.500	30'-6"							
	2	72	8	4'-3"	817.0	4.250	4'-3"							

MINIMUM SPLICE LENGTHS REQUIRED	
BAR SIZE	LENGTH REQ'D
#6	2'-4 3/8"
#7	3'-5 1/2"
#8	3'-11 3/8"
#9	4'-4 1/2"
#10	5'-0"
#11	5'-6"

BILL OF MATERIALS

TYPES OF REBAR CONFIGURATIONS	QTY. REQ'D	REBAR SIZE	LENGTH REQ'D (FT.)	TOTAL WEIGHT (LBS)
STRAIGHT	12	8	30'-6"	977.2
STRAIGHT	72	8	4'-3"	817.0
TOTAL STEEL WEIGHT (LBS):	1794.2			

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SHEET TITLE: REBAR CHART

SHEET NUMBER: RBL-1

REV #: 0