Transcend Wireless

10 Industrial Avenue,
Suite 3
Mahwah, NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

April 1, 2019

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

Notice of Exempt Modification
2627 Day Hill Road, Bloomfield, CT
Latitude: 41.87650000
Longitude: -72.74183333

Dear Ms. Bachman,

T-Mobile currently maintains (9) existing antennas at the 100' level of the existing 109'Monople at 2627 Day Hill Road in Bloomfield, Connecticut. The tower is owned by American Tower and the property is owned by River Bend Development LLC. T-Mobile now intends to replace (6) of its existing antennas with (6) new antennas, and swap (3) RRUs. These antennas and RRUs would be installed at the same 100' level of the tower.

This facility was approved by Docket 0416 by the Siting Council November 3, 2011, with no record of conditions that would restrict exempt modifications. Therefore, this modification complies with the aforementioned approval.

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 Suzette DeBeatham-Brown, Mayor of Bloomfield, as well as the tower and property 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 modification will not result in an increase in the height of the existing structure

2. The proposed modifications 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.

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

Sincerely,

Elizabeth Jamieson

Elizabeth Jamieson
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, New Jersey 07430
860-605-7808
EJamieson@TranscendWireless.com

cc:
Mayor Suzette DeBeatham-Brown - as elected official
Jose Giner – Land Use Director
American Tower Corp – Tower Owner
River Bend Development LLC – Land Owner

Town of Bloomfield, CT

Property Listing Report

Map Block Lot **453-62** Account **R05814**

Property Information

Property Location	**2627 DAY HILL RD**
Owner	**RIVER BEND DEVELOPMENT CT LLC**
Co-Owner	**% GRIFFIN INDUSTRIAL REALTY INC**
Mailing Address	**204 WEST NEWBERRY ROAD** **BLOOMFIELD CT 06002**
Land Use	**717 Woodland**
Land Class	**S**
Zoning Code	**R-40**
Census Tract	
Sub Lot	

Neighborhood	
Acreage	**11.8**
Utilities	
Lot Setting/Desc	
Survey Map	
Foundation	

Photo

Sketch

Primary Construction Details

Year Built		Bedrooms		Exterior Walls	
Stories		Full Bathrooms		Interior Walls	
Building Style		Half Bathrooms		Heating Type	
Building Use		Bath Style		Heating Fuel	
Building Condition		Kitchen Style		AC Type	
Floors		Roof Style		Gross Bldg Area	
Total Rooms		Roof Cover		Total Living Area	

Report Created On **10/9/2018**

Town of Bloomfield, CT

Property Listing Report | Map Block Lot **453-62** | Account **R05814**

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Extras	0	0
Outbuildings	114600	80220
Land	320600	141070
Total	435200	221290

Outbuilding and Extra Items

Type	Description
Barn	4392 S.F.
Shed	1600 S.F.
Shed	2900 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		0

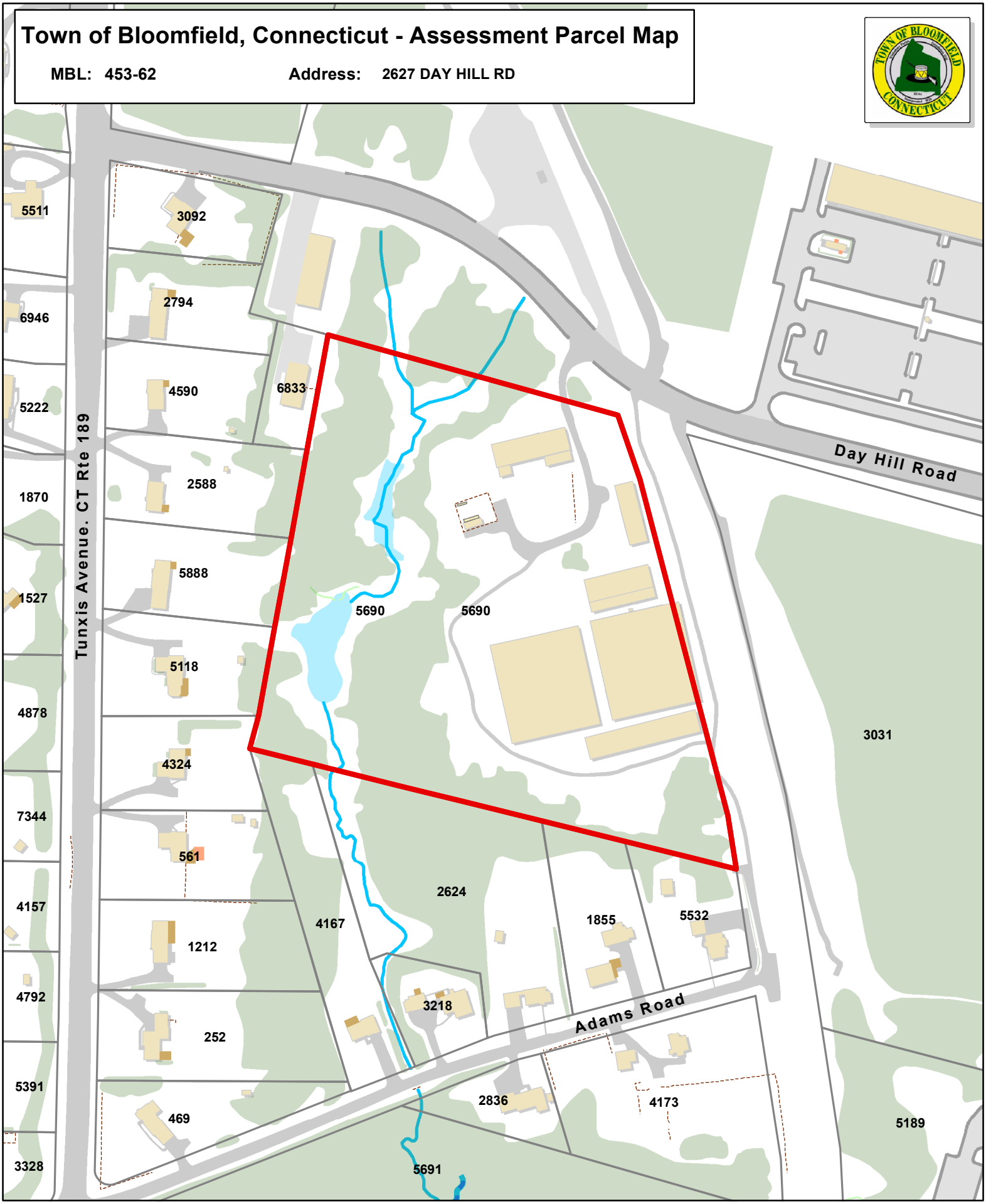
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
RIVER BEND DEVELOPMENT CT LLC	1737/ 22	7/12/2013	
RIVER BEND ASSOCIATES INC	737/ 25		0

Report Created On 10/9/2018

Town of Bloomfield, Connecticut - Assessment Parcel Map

MBL: 453-62 **Address:** 2627 DAY HILL RD



Approximate Scale:

1 inch = 200 feet

Disclaimer:
This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Bloomfield and its mapping contractors
assume no legal responsibility for the information contained herein.

Map Produced July 2017

Parcels labeled by Unique ID

EBI Consulting
environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTHA068A

CTHA068A replacement for CTHA500A
2627 Day Hill Road
Bloomfield, CT

August 21, 2018

EBI Project Number: 6218005758

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	14.41 %

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

EBI Consulting
environmental | engineering | due diligence

August 21, 2018

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

Emissions Analysis for Site: **CTHA068A – CTHA068A replacement for CTHA500A**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **2627 Day Hill Road, Bloomfield, 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 population 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 population 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 limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands 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 **2627 Day Hill Road, Bloomfield, 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 for directional panel antennas, 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) 1 GSM channels (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 15 Watts per Channel.

2) 1 UMTS channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 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 40 Watts per Channel.

4) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

6) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

7) 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.

8) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

9) The antennas used in this modeling are the **Ericsson AIR32 B2A/B66Aa** & **Ericsson AIR21 B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **RFS APXVAARR24_43-U-NA20** for 600 MHz and 700 MHz channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

10) The antenna mounting height centerline of the proposed antennas is **100 feet** above ground level (AGL).

11) 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.

12) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR32 B2A/B66Aa	Make / Model:	Ericsson AIR32 B2A/B66Aa	Make / Model:	Ericsson AIR32 B2A/B66Aa
Gain:	15.95 dBd	Gain:	15.95 dBd	Gain:	15.95 dBd
Height (AGL):	100 feet	Height (AGL):	100 feet	Height (AGL):	100 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	200	Total TX Power(W):	200	Total TX Power(W):	200
ERP (W):	7,780.90	ERP (W):	7,780.90	ERP (W):	7,780.90
Antenna A1 MPE%	**3.17**	Antenna B1 MPE%	**3.17**	Antenna C1 MPE%	**3.17**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.95 dBd	Gain:	15.95 dBd	Gain:	15.95 dBd
Height (AGL):	100 feet	Height (AGL):	100 feet	Height (AGL):	100 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	55	Total TX Power(W):	55	Total TX Power(W):	55
ERP (W):	2,139.75	ERP (W):	2,139.75	ERP (W):	2,139.75
Antenna A2 MPE%	**0.87**	Antenna B2 MPE%	**0.87**	Antenna C2 MPE%	**0.87**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd
Height (AGL):	100 feet	Height (AGL):	100 feet	Height (AGL):	100 feet
Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,443.03	ERP (W):	2,443.03	ERP (W):	2,443.03
Antenna A3 MPE%	**2.36**	Antenna B3 MPE%	**2.36**	Antenna C3 MPE%	**2.36**

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**6.40 %**
Verizon Wireless	**8.01** %
Site Total MPE %:	**14.41 %**

T-Mobile Sector A Total:	6.40 %
T-Mobile Sector B Total:	6.40 %
T-Mobile Sector C Total:	6.40 %
Site Total:	14.41 %

T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile _Frequency Band / Technology (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 PCS - 1900 MHz LTE	2	1,556.18	100	12.66	PCS - 1900 MHz	1000.00	1.27%
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	100	18.99	AWS - 2100 MHz	1000.00	1.90%
T-Mobile PCS - 1900 MHz GSM	1	583.57	100	2.37	PCS - 1900 MHz	1000.00	0.24%
T-Mobile AWS - 2100 MHz UMTS	1	1,556.18	100	6.33	AWS - 2100 MHz	1000.00	0.63%
T-Mobile 600 MHz LTE	2	788.97	100	6.42	600 MHz	400.00	1.61%
T-Mobile 700 MHz LTE	2	432.54	100	3.52	700 MHz	467.00	0.75%
						Total:	**6.40%**

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population 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 population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	6.40 %
Sector B:	6.40 %
Sector C:	6.40 %
T-Mobile Maximum MPE % (Per Sector):	6.40 %
Site Total:	14.41 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **14.41%** of the allowable FCC established general population 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.

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**109 ft Monopole**
ATC Site Name	:	**North Bloomfield CT, CT**
ATC Site Number	:	**283562**
Engineering Number	:	**12599544_C3_01**
Proposed Carrier	:	**T-Mobile**
Carrier Site Name	:	**CTHA068A**
Carrier Site Number	:	**CTHA068A**
Site Location	:	**2627 Day Hill Road** **Bloomfield, CT 06002-1177** **41.876500,-72.741800**
County	:	**Hartford**
Date	:	**July 30, 2018**
Max Usage	:	**90%**
Result	:	**Pass**

Prepared By:
Robert D. Barrett, E.I.
Structural Engineer II

Robert D. Barrett

Reviewed By:

Authorized by "EOR"
Mar 4 2019 4:07 PM cosign

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 109 ft monopole to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	Sabre Job #67167, dated October 15, 2012
Foundation Drawing	Sabre Job #67167, dated September 19, 2012
Geotechnical Report	DET Job #2011-20, dated January 28, 2012

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	97 mph (3-Second Gust, V_{asd}) / 125 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.18, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
109.0	111.0	3	Nokia AirScale RRH 4T4R B5 160W AHCA	T-Arms	(22) 1 5/8" Coax (1) 1 1/4" Hybriflex (1) 1 5/8" Fiber	Verizon
		3	Alcatel-Lucent B25 RRH4x30			
		3	Alcatel-Lucent B13 RRH4x30-4R			
		3	Alcatel-Lucent B66A RRH 4x45			
		1	Raycap RC3DC-3315-PF-48			
		3	Antel BXA-70063/6CF_			
		6	Commscope JAHH-65B-R3B			
		6	Antel LPA-80063/6CF			
100.0	100.0	3	Ericsson AIR 21, 1.3M, B2A B4P	T-Arms	(3) 1 5/8" Fiber	T-Mobile

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
100.0	100.0	3	Ericsson RRUS 11 B2	-	-	T-Mobile
		3	Ericsson AIR 21 B4A B2P			
		3	Commscope LNX-6515DS-VTM			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
100.0	100.0	3	Ericsson Radio 4449 B12,B71	T-Arms	-	T-Mobile
		3	Ericsson AIR-32 B2A/B66Aa			
		3	RFS APXVAARR24_43-U-NA20			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	69%	Pass
Shaft	80%	Pass
Base Plate	90%	Pass

Foundations

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Moment (Kips-Ft)	1,612.5	1,443.6	90%
Shear (Kips)	19.6	17.1	88%

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
100.0	Ericsson Radio 4449 B12,B71	T-Mobile	1.041	1.075
	Ericsson AIR-32 B2A/B66Aa			
	RFS APXVAARR24_43-U-NA20			

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

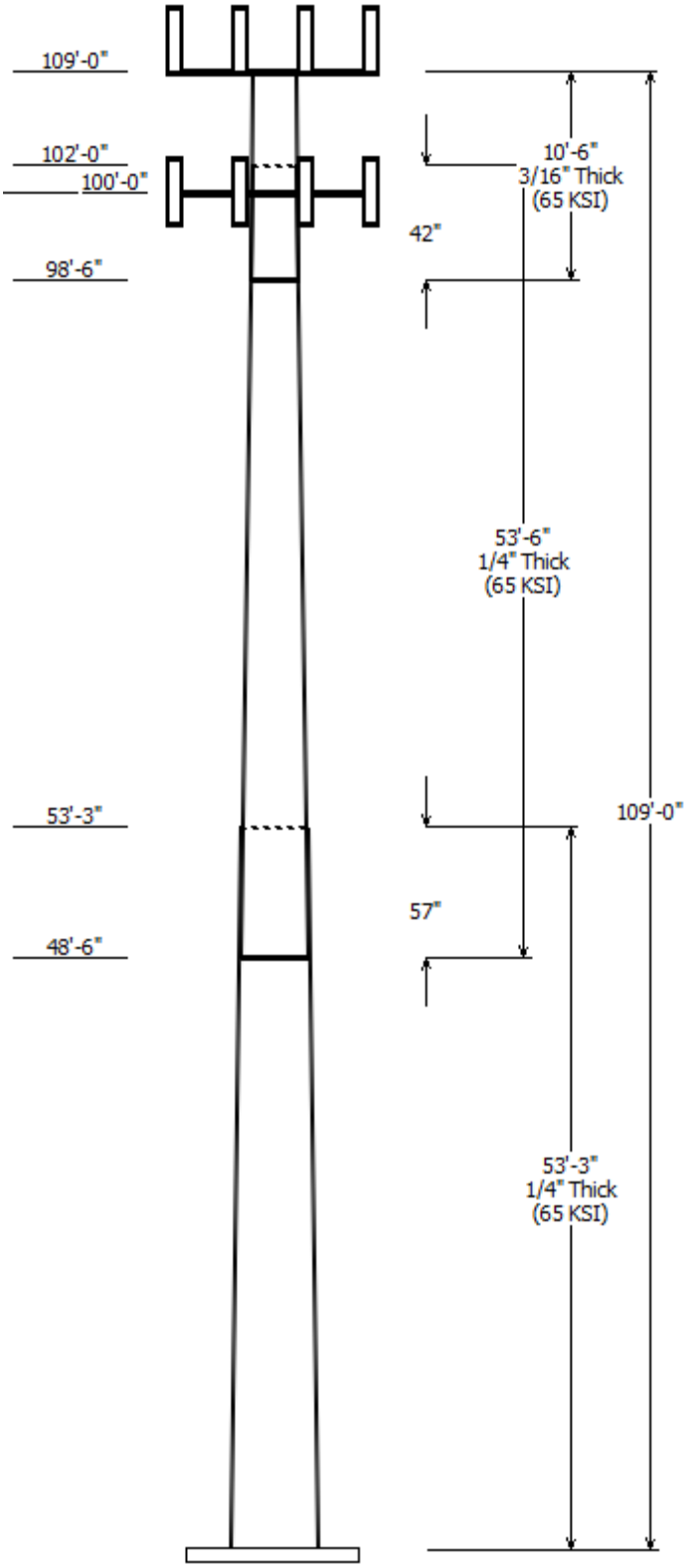
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Job Information

Pole :	283562	Code:	ANSI/TIA-222-G
Location :	North Bloomfield CT, CT		
Description :			
Client :	T-Mobile	Struct Class :	II
Shape :	18 Sides	Exposure :	C
Height :	109.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.199954 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	53.250	32.27	42.92	0.250		0.000	18 Sides	65
2	53.500	23.02	33.72	0.250	Slip Joint	57.000	18 Sides	65
3	10.500	22.00	24.09	0.188	Slip Joint	42.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
109.000	111.000	6	Commscope JAHH-65B-R3B
109.000	111.000	1	Raycap RC3DC-3315-PF-48
109.000	111.000	3	Alcatel-Lucent B66A RRH 4x45
109.000	111.000	3	Alcatel-Lucent B13 RRH4x30-4R
109.000	111.000	3	Alcatel-Lucent B25 RRH4x30
109.000	111.000	3	Nokia AirScale RRH 4T4R B5 160
109.000	111.000	6	Antel LPA-80063/6CF
109.000	109.000	3	Round T-Arm
109.000	111.000	3	Antel BXA-70063/6CF_
100.000	100.000	3	RFS APXVAARR24_43-U-NA20
100.000	100.000	3	Ericsson AIR-32 B2A/B66Aa
100.000	100.000	3	Ericsson Radio 4449 B12,B71
100.000	100.000	3	Round T-Arm
100.000	100.000	3	Ericsson AIR 21, 1.3M, B2A B4P

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	100.0	1 5/8" Fiber	No
0.000	109.0	1 1/4" Hybriflex	No
0.000	109.0	1 5/8" Coax	No
0.000	109.0	1 5/8" Fiber	No

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

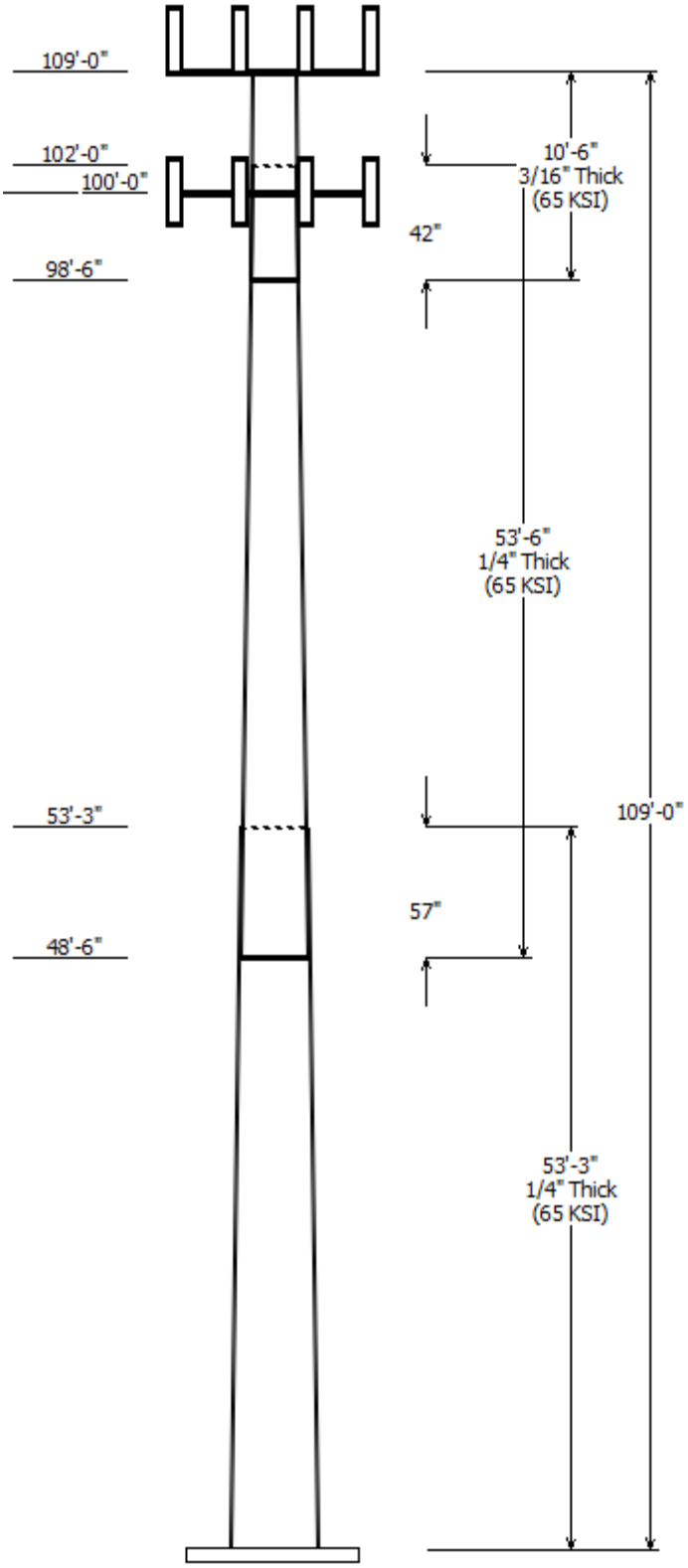
Reactions

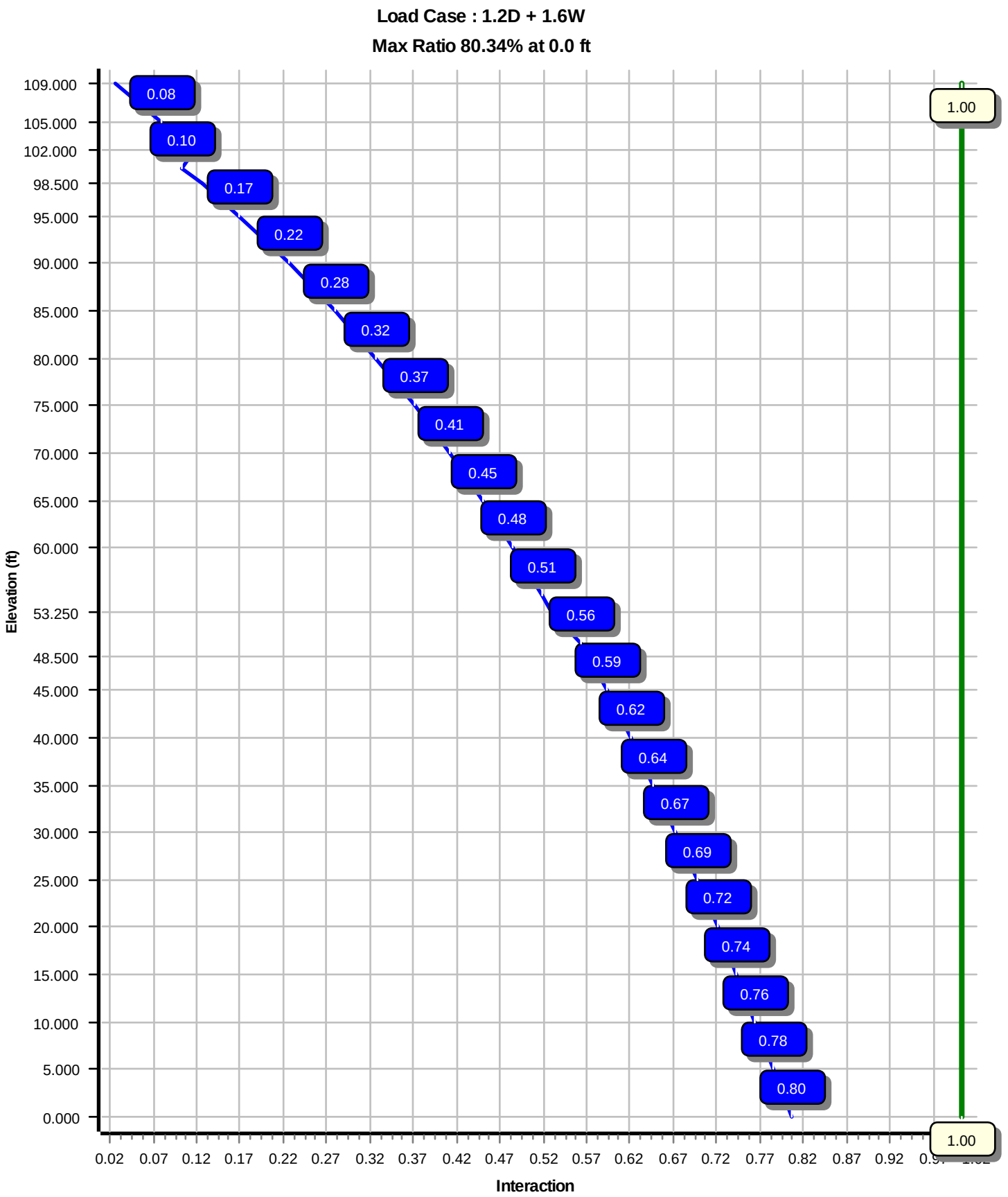
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	1443.60	17.13	19.97
0.9D + 1.6W	1431.38	17.12	14.97
1.2D + 1.0Di + 1.0Wi	405.98	4.89	39.77

(1.2 + 0.2Sds) * DL + E ELFM	76.73	0.85	19.79
(1.2 + 0.2Sds) * DL + E EMAM	144.26	1.50	19.79
(0.9 - 0.2Sds) * DL + E ELFM	75.96	0.84	13.77
(0.9 - 0.2Sds) * DL + E EMAM	142.75	1.50	13.77
1.0D + 1.0W	343.59	4.09	16.67

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000




Load Case : 1.2D + 1.6W
Max Ratio 80.34% at 0.0 ft
Elevation (ft)
109.000
105.000
102.000
98.500
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
53.250
48.500
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.08
0.10
0.17
0.22
0.28
0.32
0.37
0.41
0.45
0.48
0.51
0.56
0.59
0.62
0.64
0.67
0.69
0.72
0.74
0.76
0.78
0.80
1.00
1.00
0.02
0.07
0.12
0.17
0.22
0.27
0.32
0.37
0.42
0.47
0.52
0.57
0.62
0.67
0.72
0.77
0.82
0.87
0.92
Interaction

Site Number:	283562	Code: ANSI/TIA-222-G	
Site Name:	North Bloomfield CT, CT	Engineering Number:12599544_C3_01	7/30/2018 12:00:42 PM
Customer:	T-Mobile		

Analysis Parameters

Location :	Hartford County, CT	Height (ft) :	109
Code :	ANSI/TIA-222-G	Base Diameter (in) :	42.92
Shape :	18 Sides	Top Diameter (in) :	22.00
Pole Type :	Taper	Taper (in/ft) :	0.200
Pole Manfacturer :		Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	C	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	1.00 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	1.75				
T_L (sec):	6	p:	1.3	C_s:	0.039
S_s:	0.179	S_1:	0.064	C_s Max:	0.039
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.191	S_{d1}:	0.102		

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 283562 Code: ANSI/TIA-222-G

Site Name: North Bloomfield CT, CT Engineering Number:12599544_C3_01 7/30/2018 12:00:42 PM

Customer: T-Mobile

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	53.250	0.2500	65		0.00	5,369	42.92	0.00	33.86	7788.5	28.51	171.68	32.27	53.25	25.41	3291.9	21.00	129.09	0.199954
2-18	53.500	0.2500	65	Slip	57.00	4,062	33.72	48.50	26.56	3759.6	22.02	134.89	23.02	102.00	18.07	1184.2	14.48	92.10	0.199954
3-18	10.500	0.1875	65	Slip	42.00	486	24.10	98.50	14.23	1028.0	20.90	128.53	22.00	109.00	12.98	780.3	18.93	117.33	0.199954
				Shaft Weight		9,918													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
109.00	Alcatel-Lucent B13 RRH4x30-4R	3	0.000	2.000	57.80	2.140	0.67
109.00	Alcatel-Lucent B25 RRH4x30	3	0.000	2.000	53.00	2.120	0.67
109.00	Alcatel-Lucent B66A RRH 4x45	3	0.000	2.000	67.00	2.580	0.67
109.00	Antel BXA-70063/6CF_	3	0.000	2.000	17.00	7.570	0.65
109.00	Antel LPA-80063/6CF	6	0.000	2.000	27.00	9.590	0.76
109.00	Commscope JAHH-65B-R3B	6	0.000	2.000	60.60	9.110	0.69
109.00	Nokia AirScale RRH 4T4R B5 160	3	0.000	2.000	35.30	1.290	0.50
109.00	Raycap RC3DC-3315-PF-48	1	0.000	2.000	32.00	3.780	0.67
109.00	Round T-Arm	3	0.000	0.000	250.00	9.700	0.67
100.00	Ericsson AIR 21, 1.3M, B2A B4P	3	0.000	0.000	91.50	6.040	0.70
100.00	Ericsson AIR-32 B2A/B66Aa	3	0.000	0.000	132.20	6.510	0.71
100.00	Ericsson Radio 4449 B12,B71	3	0.000	0.000	74.00	1.640	0.50
100.00	RFS APXVAARR24_43-U-NA20	3	0.000	0.000	127.90	20.240	0.63
100.00	Round T-Arm	3	0.000	0.000	250.00	9.700	0.67
Totals	Num Loadings:14	46			4024.70		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	109.00	1	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	Verizon Wireless
0.00	109.00	22	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon Wireless
0.00	109.00	1	1 5/8" Fiber	1.63	1.61	N	0.00	N	Verizon Wireless
0.00	100.00	3	1 5/8" Fiber	1.63	1.61	N	0.00	N	T-Mobile

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.2500	42.920	33.857	7,788.5	28.51	171.68	67.9	357.4	0.0	0.0
5.00		0.2500	41.920	33.064	7,253.7	27.80	167.68	68.7	340.8	0.0	569.3
10.00		0.2500	40.920	32.271	6,744.1	27.10	163.68	69.5	324.6	0.0	555.8
15.00		0.2500	39.921	31.478	6,258.8	26.39	159.68	70.4	308.8	0.0	542.3
20.00		0.2500	38.921	30.684	5,797.5	25.69	155.68	71.2	293.4	0.0	528.8
25.00		0.2500	37.921	29.891	5,359.3	24.98	151.68	72.0	278.4	0.0	515.3
30.00		0.2500	36.921	29.098	4,943.9	24.28	147.69	72.8	263.7	0.0	501.8
35.00		0.2500	35.922	28.304	4,550.4	23.57	143.69	73.7	249.5	0.0	488.3
40.00		0.2500	34.922	27.511	4,178.4	22.87	139.69	74.5	235.7	0.0	474.8
45.00		0.2500	33.922	26.718	3,827.3	22.16	135.69	75.3	222.2	0.0	461.3
48.50	Bot - Section 2	0.2500	33.222	26.163	3,593.6	21.67	132.89	75.9	213.1	0.0	314.9
50.00		0.2500	32.922	25.925	3,496.4	21.46	131.69	76.2	209.2	0.0	267.9
53.25	Top - Section 1	0.2500	32.772	25.806	3,448.5	21.35	131.09	76.3	207.3	0.0	572.1
55.00		0.2500	32.423	25.528	3,338.4	21.10	129.69	76.6	202.8	0.0	152.8
60.00		0.2500	31.423	24.735	3,036.8	20.40	125.69	77.4	190.3	0.0	427.6
65.00		0.2500	30.423	23.941	2,753.8	19.69	121.69	78.2	178.3	0.0	414.1
70.00		0.2500	29.423	23.148	2,489.1	18.99	117.69	79.1	166.6	0.0	400.6
75.00		0.2500	28.423	22.355	2,241.8	18.28	113.69	79.9	155.3	0.0	387.1
80.00		0.2500	27.424	21.562	2,011.5	17.58	109.69	80.7	144.5	0.0	373.6
85.00		0.2500	26.424	20.768	1,797.6	16.87	105.70	81.6	134.0	0.0	360.1
90.00		0.2500	25.424	19.975	1,599.4	16.17	101.70	82.4	123.9	0.0	346.6
95.00		0.2500	24.424	19.182	1,416.3	15.46	97.70	82.6	114.2	0.0	333.1
98.50	Bot - Section 3	0.2500	23.725	18.626	1,296.8	14.97	94.90	82.6	107.7	0.0	225.1
100.0		0.2500	23.425	18.388	1,247.7	14.76	93.70	82.6	104.9	0.0	166.6
102.0	Top - Section 2	0.1875	23.400	13.814	940.4	20.24	124.80	77.6	79.2	0.0	218.9
105.0		0.1875	22.800	13.457	869.3	19.68	121.60	78.3	75.1	0.0	139.2
109.0		0.1875	22.000	12.981	780.3	18.93	117.33	79.1	69.9	0.0	179.9
											9,918.0

Site Number: 283562 Code: ANSI/TIA-222-G

Site Name: North Bloomfield CT, CT Engineering Number:12599544_C3_01 7/30/2018 12:00:42 PM

Customer: T-Mobile

Load Case: 1.2D + 1.6W 97 mph with No Ice 22 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		199.7	0.0					0.0	0.0	199.7	0.0	0.0	0.0
5.00		394.7	683.2					0.0	152.9	394.7	836.0	0.0	0.0
10.00		385.2	667.0					0.0	152.9	385.2	819.8	0.0	0.0
15.00		381.7	650.8					0.0	152.9	381.7	803.6	0.0	0.0
20.00		388.1	634.6					0.0	152.9	388.1	787.4	0.0	0.0
25.00		396.6	618.4					0.0	152.9	396.6	771.3	0.0	0.0
30.00		401.3	602.2					0.0	152.9	401.3	755.1	0.0	0.0
35.00		403.4	586.0					0.0	152.9	403.4	738.9	0.0	0.0
40.00		403.4	569.8					0.0	152.9	403.4	722.7	0.0	0.0
45.00		341.8	553.6					0.0	152.9	341.8	706.5	0.0	0.0
48.50	Bot - Section 2	201.2	377.9					0.0	107.0	201.2	484.9	0.0	0.0
50.00		192.0	321.5					0.0	45.9	192.0	367.3	0.0	0.0
53.25	Top - Section 1	201.5	686.5					0.0	99.4	201.5	785.9	0.0	0.0
55.00		269.4	183.4					0.0	53.5	269.4	236.9	0.0	0.0
60.00		395.4	513.1					0.0	152.9	395.4	666.0	0.0	0.0
65.00		389.4	496.9					0.0	152.9	389.4	649.8	0.0	0.0
70.00		382.5	480.7					0.0	152.9	382.5	633.6	0.0	0.0
75.00		374.9	464.5					0.0	152.9	374.9	617.4	0.0	0.0
80.00		366.7	448.3					0.0	152.9	366.7	601.2	0.0	0.0
85.00		357.9	432.1					0.0	152.9	357.9	585.0	0.0	0.0
90.00		348.5	415.9					0.0	152.9	348.5	568.8	0.0	0.0
95.00		289.1	399.7					0.0	152.9	289.1	552.6	0.0	0.0
98.50	Bot - Section 3	167.6	270.2					0.0	107.0	167.6	377.2	0.0	0.0
100.00	Appurtenance(s)	116.6	200.0	3,488.1	0.0	0.0	2,432.2	0.0	45.9	3,604.7	2,678.0	0.0	0.0
102.00	Top - Section 2	164.1	262.7					0.0	49.6	164.1	312.2	0.0	0.0
105.00		225.2	167.0					0.0	74.3	225.2	241.4	0.0	0.0
109.00	Appurtenance(s)	127.4	215.9	5,528.4	0.0	9,538.9	2,397.5	0.0	99.1	5,655.8	2,712.5	0.0	0.0
								Totals:		17,282.0	20,011.8	0.00	0.00

Site Number: 283562 Code: ANSI/TIA-222-G

Site Name: North Bloomfield CT, CT Engineering Number:12599544_C3_01 7/30/2018 12:00:43 PM

Customer: T-Mobile

Load Case: 1.2D + 1.6W 97 mph with No Ice 22 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-19.97	-17.13	0.00	-1,443.60	0.00	1,443.60	2,068.11	1,034.05	3,633.26	1,819.33	0.00	0.00	0.803
5.00	-19.06	-16.82	0.00	-1,357.97	0.00	1,357.97	2,044.33	1,022.16	3,506.85	1,756.03	0.14	-0.26	0.783
10.00	-18.17	-16.51	0.00	-1,273.89	0.00	1,273.89	2,019.37	1,009.68	3,380.43	1,692.72	0.54	-0.51	0.762
15.00	-17.30	-16.20	0.00	-1,191.35	0.00	1,191.35	1,993.22	996.61	3,254.13	1,629.49	1.22	-0.77	0.740
20.00	-16.44	-15.87	0.00	-1,110.37	0.00	1,110.37	1,965.89	982.95	3,128.13	1,566.39	2.17	-1.04	0.717
25.00	-15.61	-15.53	0.00	-1,031.01	0.00	1,031.01	1,937.38	968.69	3,002.54	1,503.50	3.40	-1.30	0.694
30.00	-14.80	-15.18	0.00	-953.36	0.00	953.36	1,907.68	953.84	2,877.54	1,440.91	4.90	-1.56	0.670
35.00	-14.00	-14.82	0.00	-877.47	0.00	877.47	1,876.80	938.40	2,753.25	1,378.67	6.68	-1.82	0.644
40.00	-13.23	-14.45	0.00	-803.38	0.00	803.38	1,844.73	922.37	2,629.83	1,316.87	8.73	-2.09	0.617
45.00	-12.48	-14.13	0.00	-731.13	0.00	731.13	1,811.48	905.74	2,507.43	1,255.58	11.06	-2.35	0.589
48.50	-11.97	-13.94	0.00	-681.67	0.00	681.67	1,787.50	893.75	2,422.44	1,213.02	12.85	-2.53	0.569
50.00	-11.58	-13.75	0.00	-660.77	0.00	660.77	1,777.05	888.52	2,386.20	1,194.87	13.66	-2.61	0.560
53.25	-10.78	-13.54	0.00	-616.07	0.00	616.07	1,771.78	885.89	2,368.14	1,185.83	15.49	-2.78	0.526
55.00	-10.52	-13.29	0.00	-592.38	0.00	592.38	1,759.39	879.70	2,326.08	1,164.77	16.53	-2.87	0.515
60.00	-9.82	-12.90	0.00	-525.93	0.00	525.93	1,723.18	861.59	2,206.86	1,105.07	19.66	-3.11	0.482
65.00	-9.14	-12.51	0.00	-461.43	0.00	461.43	1,685.78	842.89	2,089.18	1,046.14	23.05	-3.34	0.447
70.00	-8.49	-12.12	0.00	-398.88	0.00	398.88	1,647.20	823.60	1,973.17	988.05	26.67	-3.56	0.409
75.00	-7.85	-11.74	0.00	-338.27	0.00	338.27	1,607.44	803.72	1,858.99	930.88	30.51	-3.77	0.368
80.00	-7.24	-11.35	0.00	-279.58	0.00	279.58	1,566.49	783.25	1,746.78	874.69	34.57	-3.97	0.324
85.00	-6.65	-10.98	0.00	-222.81	0.00	222.81	1,524.36	762.18	1,636.69	819.56	38.82	-4.15	0.276
90.00	-6.08	-10.60	0.00	-167.93	0.00	167.93	1,481.04	740.52	1,528.86	765.57	43.25	-4.30	0.224
95.00	-5.54	-10.28	0.00	-114.93	0.00	114.93	1,425.10	712.55	1,412.12	707.11	47.82	-4.43	0.167
98.50	-5.17	-10.09	0.00	-78.95	0.00	78.95	1,383.85	691.92	1,331.13	666.56	51.09	-4.50	0.122
100.00	-2.78	-6.28	0.00	-63.82	0.00	63.82	1,366.16	683.08	1,297.16	649.54	52.51	-4.52	0.100
102.00	-2.48	-6.10	0.00	-51.25	0.00	51.25	964.65	482.33	919.88	460.62	54.41	-4.55	0.114
105.00	-2.25	-5.85	0.00	-32.96	0.00	32.96	947.76	473.88	880.23	440.77	57.27	-4.58	0.077
109.00	0.00	-5.66	0.00	-9.54	0.00	9.54	924.57	462.28	828.07	414.65	61.12	-4.61	0.023

Site Number: 283562 Code: ANSI/TIA-222-G

Site Name: North Bloomfield CT, CT Engineering Number:12599544_C3_01 7/30/2018 12:00:43 PM

Customer: T-Mobile

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 22 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		199.7	0.0					0.0	0.0	199.7	0.0	0.0	0.0
5.00		394.7	512.4					0.0	114.7	394.7	627.0	0.0	0.0
10.00		385.2	500.2					0.0	114.7	385.2	614.9	0.0	0.0
15.00		381.7	488.1					0.0	114.7	381.7	602.7	0.0	0.0
20.00		388.1	475.9					0.0	114.7	388.1	590.6	0.0	0.0
25.00		396.6	463.8					0.0	114.7	396.6	578.4	0.0	0.0
30.00		401.3	451.6					0.0	114.7	401.3	566.3	0.0	0.0
35.00		403.4	439.5					0.0	114.7	403.4	554.1	0.0	0.0
40.00		403.4	427.3					0.0	114.7	403.4	542.0	0.0	0.0
45.00		341.8	415.2					0.0	114.7	341.8	529.9	0.0	0.0
48.50	Bot - Section 2	201.2	283.4					0.0	80.3	201.2	363.7	0.0	0.0
50.00		192.0	241.1					0.0	34.4	192.0	275.5	0.0	0.0
53.25	Top - Section 1	201.5	514.9					0.0	74.5	201.5	589.4	0.0	0.0
55.00		269.4	137.6					0.0	40.1	269.4	177.7	0.0	0.0
60.00		395.4	384.8					0.0	114.7	395.4	499.5	0.0	0.0
65.00		389.4	372.7					0.0	114.7	389.4	487.3	0.0	0.0
70.00		382.5	360.5					0.0	114.7	382.5	475.2	0.0	0.0
75.00		374.9	348.4					0.0	114.7	374.9	463.0	0.0	0.0
80.00		366.7	336.2					0.0	114.7	366.7	450.9	0.0	0.0
85.00		357.9	324.1					0.0	114.7	357.9	438.7	0.0	0.0
90.00		348.5	311.9					0.0	114.7	348.5	426.6	0.0	0.0
95.00		289.1	299.8					0.0	114.7	289.1	414.5	0.0	0.0
98.50	Bot - Section 3	167.6	202.6					0.0	80.3	167.6	282.9	0.0	0.0
100.00	Appurtenance(s)	116.6	150.0	3,488.1	0.0	0.0	1,824.1	0.0	34.4	3,604.7	2,008.5	0.0	0.0
102.00	Top - Section 2	164.1	197.0					0.0	37.2	164.1	234.2	0.0	0.0
105.00		225.2	125.3					0.0	55.8	225.2	181.0	0.0	0.0
109.00	Appurtenance(s)	127.4	161.9	5,528.4	0.0	9,538.9	1,798.1	0.0	74.3	5,655.8	2,034.4	0.0	0.0
								Totals:		17,282.0	15,008.9	0.00	0.00

Site Number: 283562 Code: ANSI/TIA-222-G

Site Name: North Bloomfield CT, CT Engineering Number:12599544_C3_01 7/30/2018 12:00:44 PM

Customer: T-Mobile

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 22 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-14.97	-17.12	0.00	-1,431.38	0.00	1,431.38	2,068.11	1,034.05	3,633.26	1,819.33	0.00	0.00	0.794
5.00	-14.27	-16.78	0.00	-1,345.81	0.00	1,345.81	2,044.33	1,022.16	3,506.85	1,756.03	0.14	-0.25	0.774
10.00	-13.58	-16.45	0.00	-1,261.89	0.00	1,261.89	2,019.37	1,009.68	3,380.43	1,692.72	0.54	-0.51	0.752
15.00	-12.91	-16.12	0.00	-1,179.62	0.00	1,179.62	1,993.22	996.61	3,254.13	1,629.49	1.21	-0.77	0.731
20.00	-12.26	-15.78	0.00	-1,098.99	0.00	1,098.99	1,965.89	982.95	3,128.13	1,566.39	2.15	-1.03	0.708
25.00	-11.62	-15.43	0.00	-1,020.08	0.00	1,020.08	1,937.38	968.69	3,002.54	1,503.50	3.37	-1.29	0.685
30.00	-10.99	-15.06	0.00	-942.94	0.00	942.94	1,907.68	953.84	2,877.54	1,440.91	4.85	-1.55	0.660
35.00	-10.38	-14.69	0.00	-867.63	0.00	867.63	1,876.80	938.40	2,753.25	1,378.67	6.61	-1.81	0.635
40.00	-9.79	-14.31	0.00	-794.18	0.00	794.18	1,844.73	922.37	2,629.83	1,316.87	8.64	-2.07	0.609
45.00	-9.22	-13.99	0.00	-722.61	0.00	722.61	1,811.48	905.74	2,507.43	1,255.58	10.95	-2.32	0.581
48.50	-8.83	-13.79	0.00	-673.65	0.00	673.65	1,787.50	893.75	2,422.44	1,213.02	12.72	-2.51	0.561
50.00	-8.54	-13.61	0.00	-652.97	0.00	652.97	1,777.05	888.52	2,386.20	1,194.87	13.52	-2.59	0.552
53.25	-7.93	-13.39	0.00	-608.75	0.00	608.75	1,771.78	885.89	2,368.14	1,185.83	15.34	-2.75	0.518
55.00	-7.73	-13.14	0.00	-585.31	0.00	585.31	1,759.39	879.70	2,326.08	1,164.77	16.36	-2.84	0.507
60.00	-7.20	-12.75	0.00	-519.62	0.00	519.62	1,723.18	861.59	2,206.86	1,105.07	19.47	-3.08	0.475
65.00	-6.68	-12.36	0.00	-455.89	0.00	455.89	1,685.78	842.89	2,089.18	1,046.14	22.81	-3.31	0.440
70.00	-6.19	-11.97	0.00	-394.10	0.00	394.10	1,647.20	823.60	1,973.17	988.05	26.39	-3.53	0.403
75.00	-5.71	-11.59	0.00	-334.25	0.00	334.25	1,607.44	803.72	1,858.99	930.88	30.20	-3.73	0.363
80.00	-5.25	-11.21	0.00	-276.31	0.00	276.31	1,566.49	783.25	1,746.78	874.69	34.21	-3.93	0.319
85.00	-4.80	-10.83	0.00	-220.27	0.00	220.27	1,524.36	762.18	1,636.69	819.56	38.42	-4.10	0.272
90.00	-4.38	-10.47	0.00	-166.10	0.00	166.10	1,481.04	740.52	1,528.86	765.57	42.79	-4.26	0.220
95.00	-3.97	-10.15	0.00	-113.77	0.00	113.77	1,425.10	712.55	1,412.12	707.11	47.32	-4.38	0.164
98.50	-3.69	-9.97	0.00	-78.23	0.00	78.23	1,383.85	691.92	1,331.13	666.56	50.55	-4.45	0.120
100.00	-1.97	-6.22	0.00	-63.28	0.00	63.28	1,366.16	683.08	1,297.16	649.54	51.95	-4.47	0.099
102.00	-1.75	-6.04	0.00	-50.85	0.00	50.85	964.65	482.33	919.88	460.62	53.83	-4.50	0.112
105.00	-1.58	-5.80	0.00	-32.74	0.00	32.74	947.76	473.88	880.23	440.77	56.67	-4.53	0.076
109.00	0.00	-5.66	0.00	-9.54	0.00	9.54	924.57	462.28	828.07	414.65	60.47	-4.55	0.023

Site Number: 283562 Code: ANSI/TIA-222-G

Site Name: North Bloomfield CT, CT Engineering Number:12599544_C3_01 7/30/2018 12:00:45 PM

Customer: T-Mobile

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 22 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance Factor :1.00

Dead Load Factor :1.20 Ice Importance Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		65.6	0.0					0.0	0.0	65.6	0.0	0.0	0.0
5.00		130.3	1,103.8					0.0	152.9	130.3	1,256.7	0.0	0.0
10.00		128.2	1,127.6					0.0	152.9	128.2	1,280.4	0.0	0.0
15.00		127.7	1,125.1					0.0	152.9	127.7	1,278.0	0.0	0.0
20.00		130.5	1,114.1					0.0	152.9	130.5	1,267.0	0.0	0.0
25.00		133.9	1,098.7					0.0	152.9	133.9	1,251.5	0.0	0.0
30.00		136.0	1,080.4					0.0	152.9	136.0	1,233.2	0.0	0.0
35.00		137.3	1,060.1					0.0	152.9	137.3	1,213.0	0.0	0.0
40.00		137.9	1,038.4					0.0	152.9	137.9	1,191.3	0.0	0.0
45.00		117.3	1,015.6					0.0	152.9	117.3	1,168.5	0.0	0.0
48.50	Bot - Section 2	69.2	698.2					0.0	107.0	69.2	805.2	0.0	0.0
50.00		66.1	460.3					0.0	45.9	66.1	506.2	0.0	0.0
53.25	Top - Section 1	69.5	983.3					0.0	99.4	69.5	1,082.6	0.0	0.0
55.00		93.3	342.4					0.0	53.5	93.3	395.9	0.0	0.0
60.00		137.4	957.0					0.0	152.9	137.4	1,109.9	0.0	0.0
65.00		135.9	931.4					0.0	152.9	135.9	1,084.3	0.0	0.0
70.00		134.2	905.3					0.0	152.9	134.2	1,058.2	0.0	0.0
75.00		132.2	878.8					0.0	152.9	132.2	1,031.7	0.0	0.0
80.00		130.1	851.9					0.0	152.9	130.1	1,004.8	0.0	0.0
85.00		127.7	824.7					0.0	152.9	127.7	977.6	0.0	0.0
90.00		125.1	797.2					0.0	152.9	125.1	950.1	0.0	0.0
95.00		104.4	769.4					0.0	152.9	104.4	922.3	0.0	0.0
98.50	Bot - Section 3	60.8	523.4					0.0	107.0	60.8	630.4	0.0	0.0
100.00	Appurtenance(s)	42.4	309.1	812.9	0.0	0.0	6,208.6	0.0	45.9	855.3	6,563.6	0.0	0.0
102.00	Top - Section 2	59.9	406.2					0.0	49.6	59.9	455.8	0.0	0.0
105.00		82.5	377.9					0.0	74.3	82.5	452.2	0.0	0.0
109.00	Appurtenance(s)	46.8	489.0	1,259.0	0.0	1,989.1	9,010.1	0.0	99.1	1,305.8	9,598.3	0.0	0.0
								Totals:		4,933.99	39,768.7	0.00	0.00

Site Number: 283562 Code: ANSI/TIA-222-G

Site Name: North Bloomfield CT, CT Engineering Number:12599544_C3_01 7/30/2018 12:00:46 PM

Customer: T-Mobile

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 22 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance Factor :1.00

Dead Load Factor :1.20 Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-39.77	-4.89	0.00	-405.98	0.00	405.98	2,068.11	1,034.05	3,633.26	1,819.33	0.00	0.00	0.242
5.00	-38.50	-4.81	0.00	-381.51	0.00	381.51	2,044.33	1,022.16	3,506.85	1,756.03	0.04	-0.07	0.236
10.00	-37.22	-4.73	0.00	-357.45	0.00	357.45	2,019.37	1,009.68	3,380.43	1,692.72	0.15	-0.14	0.230
15.00	-35.93	-4.64	0.00	-333.82	0.00	333.82	1,993.22	996.61	3,254.13	1,629.49	0.34	-0.22	0.223
20.00	-34.66	-4.55	0.00	-310.61	0.00	310.61	1,965.89	982.95	3,128.13	1,566.39	0.61	-0.29	0.216
25.00	-33.40	-4.45	0.00	-287.86	0.00	287.86	1,937.38	968.69	3,002.54	1,503.50	0.95	-0.36	0.209
30.00	-32.17	-4.35	0.00	-265.60	0.00	265.60	1,907.68	953.84	2,877.54	1,440.91	1.37	-0.44	0.201
35.00	-30.95	-4.24	0.00	-243.86	0.00	243.86	1,876.80	938.40	2,753.25	1,378.67	1.87	-0.51	0.193
40.00	-29.75	-4.13	0.00	-222.65	0.00	222.65	1,844.73	922.37	2,629.83	1,316.87	2.45	-0.58	0.185
45.00	-28.58	-4.03	0.00	-202.01	0.00	202.01	1,811.48	905.74	2,507.43	1,255.58	3.10	-0.66	0.177
48.50	-27.78	-3.97	0.00	-187.91	0.00	187.91	1,787.50	893.75	2,422.44	1,213.02	3.60	-0.71	0.170
50.00	-27.27	-3.91	0.00	-181.95	0.00	181.95	1,777.05	888.52	2,386.20	1,194.87	3.82	-0.73	0.168
53.25	-26.18	-3.84	0.00	-169.24	0.00	169.24	1,771.78	885.89	2,368.14	1,185.83	4.33	-0.78	0.158
55.00	-25.79	-3.77	0.00	-162.51	0.00	162.51	1,759.39	879.70	2,326.08	1,164.77	4.62	-0.80	0.154
60.00	-24.68	-3.64	0.00	-143.68	0.00	143.68	1,723.18	861.59	2,206.86	1,105.07	5.50	-0.87	0.144
65.00	-23.59	-3.51	0.00	-125.47	0.00	125.47	1,685.78	842.89	2,089.18	1,046.14	6.44	-0.93	0.134
70.00	-22.53	-3.38	0.00	-107.91	0.00	107.91	1,647.20	823.60	1,973.17	988.05	7.44	-0.99	0.123
75.00	-21.50	-3.25	0.00	-90.98	0.00	90.98	1,607.44	803.72	1,858.99	930.88	8.51	-1.05	0.111
80.00	-20.49	-3.12	0.00	-74.71	0.00	74.71	1,566.49	783.25	1,746.78	874.69	9.63	-1.10	0.099
85.00	-19.52	-2.99	0.00	-59.10	0.00	59.10	1,524.36	762.18	1,636.69	819.56	10.81	-1.15	0.085
90.00	-18.57	-2.86	0.00	-44.14	0.00	44.14	1,481.04	740.52	1,528.86	765.57	12.03	-1.19	0.070
95.00	-17.65	-2.74	0.00	-29.84	0.00	29.84	1,425.10	712.55	1,412.12	707.11	13.29	-1.22	0.055
98.50	-17.02	-2.67	0.00	-20.24	0.00	20.24	1,383.85	691.92	1,331.13	666.56	14.19	-1.24	0.043
100.00	-10.47	-1.68	0.00	-16.23	0.00	16.23	1,366.16	683.08	1,297.16	649.54	14.58	-1.24	0.033
102.00	-10.02	-1.61	0.00	-12.88	0.00	12.88	964.65	482.33	919.88	460.62	15.10	-1.25	0.038
105.00	-9.57	-1.52	0.00	-8.06	0.00	8.06	947.76	473.88	880.23	440.77	15.89	-1.26	0.028
109.00	0.00	-1.31	0.00	-1.99	0.00	1.99	924.57	462.28	828.07	414.65	16.95	-1.26	0.005

Site Number: 283562 Code: ANSI/TIA-222-G

Site Name: North Bloomfield CT, CT Engineering Number:12599544_C3_01 7/30/2018 12:00:46 PM

Customer: T-Mobile

Load Case: 1.0D + 1.0W Serviceability 60 mph 21 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		47.7	0.0					0.0	0.0	47.7	0.0	0.0	0.0
5.00		94.4	569.3					0.0	127.4	94.4	696.7	0.0	0.0
10.00		92.1	555.8					0.0	127.4	92.1	683.2	0.0	0.0
15.00		91.3	542.3					0.0	127.4	91.3	669.7	0.0	0.0
20.00		92.8	528.8					0.0	127.4	92.8	656.2	0.0	0.0
25.00		94.8	515.3					0.0	127.4	94.8	642.7	0.0	0.0
30.00		96.0	501.8					0.0	127.4	96.0	629.2	0.0	0.0
35.00		96.5	488.3					0.0	127.4	96.5	615.7	0.0	0.0
40.00		96.5	474.8					0.0	127.4	96.5	602.2	0.0	0.0
45.00		81.7	461.3					0.0	127.4	81.7	588.7	0.0	0.0
48.50	Bot - Section 2	48.1	314.9					0.0	89.2	48.1	404.1	0.0	0.0
50.00		45.9	267.9					0.0	38.2	45.9	306.1	0.0	0.0
53.25	Top - Section 1	48.2	572.1					0.0	82.8	48.2	654.9	0.0	0.0
55.00		64.4	152.8					0.0	44.6	64.4	197.4	0.0	0.0
60.00		94.6	427.6					0.0	127.4	94.6	555.0	0.0	0.0
65.00		93.1	414.1					0.0	127.4	93.1	541.5	0.0	0.0
70.00		91.5	400.6					0.0	127.4	91.5	528.0	0.0	0.0
75.00		89.7	387.1					0.0	127.4	89.7	514.5	0.0	0.0
80.00		87.7	373.6					0.0	127.4	87.7	501.0	0.0	0.0
85.00		85.6	360.1					0.0	127.4	85.6	487.5	0.0	0.0
90.00		83.3	346.6					0.0	127.4	83.3	474.0	0.0	0.0
95.00		69.1	333.1					0.0	127.4	69.1	460.5	0.0	0.0
98.50	Bot - Section 3	40.1	225.1					0.0	89.2	40.1	314.3	0.0	0.0
100.00	Appurtenance(s)	27.9	166.6	834.1	0.0	0.0	2,026.8	0.0	38.2	862.0	2,231.7	0.0	0.0
102.00	Top - Section 2	39.3	218.9					0.0	41.3	39.3	260.2	0.0	0.0
105.00		53.9	139.2					0.0	61.9	53.9	201.1	0.0	0.0
109.00	Appurtenance(s)	30.5	179.9	1,322.0	0.0	2,281.1	1,997.9	0.0	82.6	1,352.5	2,260.4	0.0	0.0
								Totals:		4,132.70	16,676.5	0.00	0.00

Site Number: 283562 Code: ANSI/TIA-222-G

Site Name: North Bloomfield CT, CT Engineering Number:12599544_C3_01 7/30/2018 12:00:47 PM

Customer: T-Mobile

Load Case: 1.0D + 1.0W Serviceability 60 mph 21 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-16.67	-4.09	0.00	-343.59	0.00	343.59	2,068.11	1,034.05	3,633.26	1,819.33	0.00	0.00	0.197
5.00	-15.97	-4.02	0.00	-323.13	0.00	323.13	2,044.33	1,022.16	3,506.85	1,756.03	0.03	-0.06	0.192
10.00	-15.29	-3.94	0.00	-303.05	0.00	303.05	2,019.37	1,009.68	3,380.43	1,692.72	0.13	-0.12	0.187
15.00	-14.61	-3.86	0.00	-283.35	0.00	283.35	1,993.22	996.61	3,254.13	1,629.49	0.29	-0.18	0.181
20.00	-13.95	-3.78	0.00	-264.04	0.00	264.04	1,965.89	982.95	3,128.13	1,566.39	0.52	-0.25	0.176
25.00	-13.31	-3.70	0.00	-245.14	0.00	245.14	1,937.38	968.69	3,002.54	1,503.50	0.81	-0.31	0.170
30.00	-12.67	-3.61	0.00	-226.65	0.00	226.65	1,907.68	953.84	2,877.54	1,440.91	1.17	-0.37	0.164
35.00	-12.05	-3.52	0.00	-208.59	0.00	208.59	1,876.80	938.40	2,753.25	1,378.67	1.59	-0.43	0.158
40.00	-11.45	-3.44	0.00	-190.96	0.00	190.96	1,844.73	922.37	2,629.83	1,316.87	2.08	-0.50	0.151
45.00	-10.86	-3.36	0.00	-173.78	0.00	173.78	1,811.48	905.74	2,507.43	1,255.58	2.63	-0.56	0.144
48.50	-10.45	-3.31	0.00	-162.03	0.00	162.03	1,787.50	893.75	2,422.44	1,213.02	3.06	-0.60	0.139
50.00	-10.15	-3.27	0.00	-157.06	0.00	157.06	1,777.05	888.52	2,386.20	1,194.87	3.25	-0.62	0.137
53.25	-9.49	-3.22	0.00	-146.44	0.00	146.44	1,771.78	885.89	2,368.14	1,185.83	3.69	-0.66	0.129
55.00	-9.29	-3.16	0.00	-140.81	0.00	140.81	1,759.39	879.70	2,326.08	1,164.77	3.93	-0.68	0.126
60.00	-8.73	-3.06	0.00	-125.02	0.00	125.02	1,723.18	861.59	2,206.86	1,105.07	4.68	-0.74	0.118
65.00	-8.19	-2.97	0.00	-109.70	0.00	109.70	1,685.78	842.89	2,089.18	1,046.14	5.48	-0.79	0.110
70.00	-7.66	-2.88	0.00	-94.84	0.00	94.84	1,647.20	823.60	1,973.17	988.05	6.34	-0.85	0.101
75.00	-7.15	-2.79	0.00	-80.44	0.00	80.44	1,607.44	803.72	1,858.99	930.88	7.26	-0.90	0.091
80.00	-6.65	-2.70	0.00	-66.50	0.00	66.50	1,566.49	783.25	1,746.78	874.69	8.22	-0.94	0.080
85.00	-6.16	-2.61	0.00	-53.01	0.00	53.01	1,524.36	762.18	1,636.69	819.56	9.24	-0.99	0.069
90.00	-5.68	-2.52	0.00	-39.97	0.00	39.97	1,481.04	740.52	1,528.86	765.57	10.29	-1.02	0.056
95.00	-5.22	-2.44	0.00	-27.37	0.00	27.37	1,425.10	712.55	1,412.12	707.11	11.38	-1.05	0.042
98.50	-4.91	-2.40	0.00	-18.81	0.00	18.81	1,383.85	691.92	1,331.13	666.56	12.16	-1.07	0.032
100.00	-2.69	-1.50	0.00	-15.21	0.00	15.21	1,366.16	683.08	1,297.16	649.54	12.49	-1.08	0.025
102.00	-2.43	-1.45	0.00	-12.22	0.00	12.22	964.65	482.33	919.88	460.62	12.95	-1.08	0.029
105.00	-2.23	-1.40	0.00	-7.86	0.00	7.86	947.76	473.88	880.23	440.77	13.63	-1.09	0.020
109.00	0.00	-1.35	0.00	-2.28	0.00	2.28	924.57	462.28	828.07	414.65	14.54	-1.10	0.006

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.18	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.04	
Upper Limit C_s	0.04	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	1.75	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	1.63	
Total Unfactored Dead Load:	16.68	k
Seismic Base Shear (E):	0.84	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
26	107.00	263	526	0.032	27	325
25	103.50	201	382	0.023	19	249
24	101.00	260	474	0.029	24	322
23	99.25	205	363	0.022	19	254
22	96.75	314	534	0.032	27	389
21	92.50	461	728	0.044	37	570
20	87.50	474	684	0.041	35	587
19	82.50	487	639	0.039	33	604
18	77.50	501	594	0.036	30	620
17	72.50	514	547	0.033	28	637
16	67.50	528	500	0.030	26	654
15	62.50	541	452	0.027	23	670
14	57.50	555	405	0.024	21	687
13	54.13	197	130	0.008	7	244
12	51.63	655	401	0.024	20	811
11	49.25	306	173	0.010	9	379
10	46.75	404	210	0.013	11	500
9	42.50	589	262	0.016	13	729
8	37.50	602	219	0.013	11	746
7	32.50	616	177	0.011	9	762
6	27.50	629	138	0.008	7	779
5	22.50	643	102	0.006	5	796
4	17.50	656	69	0.004	4	813

3	12.50	670	41	0.002	2	829
2	7.50	683	18	0.001	1	846
1	2.50	697	3	0.000	0	863
Nokia AirScale RRH 4	109.00	106	219	0.013	11	131
Alcatel-Lucent B25 R	109.00	159	328	0.020	17	197
Alcatel-Lucent B13 R	109.00	173	358	0.022	18	215
Alcatel-Lucent B66A	109.00	201	415	0.025	21	249
Raycap RC3DC-3315-PF	109.00	32	66	0.004	3	40
Antel BXA-70063/6CF_	109.00	51	105	0.006	5	63
Commscope JAHH-65B-R	109.00	364	750	0.045	38	450
Antel LPA-80063/6CF	109.00	162	334	0.020	17	201
Round T-Arm	109.00	750	1,548	0.094	79	929
Ericsson Radio 4449	100.00	222	398	0.024	20	275
Ericsson AIR 21, 1.3	100.00	275	492	0.030	25	340
Ericsson AIR-32 B2A/	100.00	397	711	0.043	36	491
Round T-Arm	100.00	750	1,345	0.081	69	929
RFS APXVAARR24_43-U-	100.00	384	688	0.042	35	475
		16,677	16,530	1.000	844	20,649

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
26	107.00	263	526	0.032	27	226
25	103.50	201	382	0.023	19	173
24	101.00	260	474	0.029	24	224
23	99.25	205	363	0.022	19	177
22	96.75	314	534	0.032	27	271
21	92.50	461	728	0.044	37	397
20	87.50	474	684	0.041	35	408
19	82.50	487	639	0.039	33	420
18	77.50	501	594	0.036	30	432
17	72.50	514	547	0.033	28	443
16	67.50	528	500	0.030	26	455
15	62.50	541	452	0.027	23	467
14	57.50	555	405	0.024	21	478
13	54.13	197	130	0.008	7	170
12	51.63	655	401	0.024	20	564
11	49.25	306	173	0.010	9	264
10	46.75	404	210	0.013	11	348
9	42.50	589	262	0.016	13	507
8	37.50	602	219	0.013	11	519
7	32.50	616	177	0.011	9	531
6	27.50	629	138	0.008	7	542
5	22.50	643	102	0.006	5	554
4	17.50	656	69	0.004	4	566
3	12.50	670	41	0.002	2	577
2	7.50	683	18	0.001	1	589
1	2.50	697	3	0.000	0	600
Nokia AirScale RRH 4	109.00	106	219	0.013	11	91
Alcatel-Lucent B25 R	109.00	159	328	0.020	17	137
Alcatel-Lucent B13 R	109.00	173	358	0.022	18	149
Alcatel-Lucent B66A	109.00	201	415	0.025	21	173
Raycap RC3DC-3315-PF	109.00	32	66	0.004	3	28
Antel BXA-70063/6CF_	109.00	51	105	0.006	5	44
Commscope JAHH-65B-R	109.00	364	750	0.045	38	313
Antel LPA-80063/6CF	109.00	162	334	0.020	17	140
Round T-Arm	109.00	750	1,548	0.094	79	646
Ericsson Radio 4449	100.00	222	398	0.024	20	191
Ericsson AIR 21, 1.3	100.00	275	492	0.030	25	237

Ericsson AIR-32 B2A/	100.00	397	711	0.043	36	342
Round T-Arm	100.00	750	1,345	0.081	69	646
RFS APXVAARR24_43-U-	100.00	384	688	0.042	35	331
		16,677	16,530	1.000	844	14,372

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-19.79	-0.85	0.00	-76.73	0.00	76.73	2,068.11	1,034.05	3,633.26	1,819.33	0.00	0.00	0.052
5.00	-18.94	-0.85	0.00	-72.50	0.00	72.50	2,044.33	1,022.16	3,506.85	1,756.03	0.01	-0.01	0.051
10.00	-18.11	-0.85	0.00	-68.25	0.00	68.25	2,019.37	1,009.68	3,380.43	1,692.72	0.03	-0.03	0.049
15.00	-17.30	-0.85	0.00	-64.00	0.00	64.00	1,993.22	996.61	3,254.13	1,629.49	0.07	-0.04	0.048
20.00	-16.50	-0.85	0.00	-59.74	0.00	59.74	1,965.89	982.95	3,128.13	1,566.39	0.12	-0.06	0.047
25.00	-15.72	-0.85	0.00	-55.49	0.00	55.49	1,937.38	968.69	3,002.54	1,503.50	0.18	-0.07	0.045
30.00	-14.96	-0.84	0.00	-51.26	0.00	51.26	1,907.68	953.84	2,877.54	1,440.91	0.26	-0.08	0.043
35.00	-14.21	-0.83	0.00	-47.07	0.00	47.07	1,876.80	938.40	2,753.25	1,378.67	0.36	-0.10	0.042
40.00	-13.48	-0.82	0.00	-42.92	0.00	42.92	1,844.73	922.37	2,629.83	1,316.87	0.47	-0.11	0.040
45.00	-12.98	-0.81	0.00	-38.82	0.00	38.82	1,811.48	905.74	2,507.43	1,255.58	0.59	-0.13	0.038
48.50	-12.61	-0.80	0.00	-35.99	0.00	35.99	1,787.50	893.75	2,422.44	1,213.02	0.69	-0.14	0.037
50.00	-11.79	-0.78	0.00	-34.79	0.00	34.79	1,777.05	888.52	2,386.20	1,194.87	0.73	-0.14	0.036
53.25	-11.55	-0.77	0.00	-32.25	0.00	32.25	1,771.78	885.89	2,368.14	1,185.83	0.83	-0.15	0.034
55.00	-10.86	-0.75	0.00	-30.89	0.00	30.89	1,759.39	879.70	2,326.08	1,164.77	0.89	-0.15	0.033
60.00	-10.19	-0.73	0.00	-27.12	0.00	27.12	1,723.18	861.59	2,206.86	1,105.07	1.05	-0.17	0.030
65.00	-9.54	-0.71	0.00	-23.47	0.00	23.47	1,685.78	842.89	2,089.18	1,046.14	1.23	-0.18	0.028
70.00	-8.90	-0.68	0.00	-19.94	0.00	19.94	1,647.20	823.60	1,973.17	988.05	1.43	-0.19	0.026
75.00	-8.28	-0.65	0.00	-16.55	0.00	16.55	1,607.44	803.72	1,858.99	930.88	1.63	-0.20	0.023
80.00	-7.68	-0.61	0.00	-13.32	0.00	13.32	1,566.49	783.25	1,746.78	874.69	1.84	-0.21	0.020
85.00	-7.09	-0.58	0.00	-10.26	0.00	10.26	1,524.36	762.18	1,636.69	819.56	2.07	-0.22	0.017
90.00	-6.52	-0.54	0.00	-7.38	0.00	7.38	1,481.04	740.52	1,528.86	765.57	2.30	-0.22	0.014
95.00	-6.13	-0.51	0.00	-4.69	0.00	4.69	1,425.10	712.55	1,412.12	707.11	2.53	-0.23	0.011
98.50	-5.88	-0.49	0.00	-2.90	0.00	2.90	1,383.85	691.92	1,331.13	666.56	2.70	-0.23	0.009
100.00	-3.05	-0.27	0.00	-2.17	0.00	2.17	1,366.16	683.08	1,297.16	649.54	2.78	-0.23	0.006
102.00	-2.80	-0.25	0.00	-1.63	0.00	1.63	964.65	482.33	919.88	460.62	2.88	-0.23	0.006
105.00	-2.47	-0.22	0.00	-0.88	0.00	0.88	947.76	473.88	880.23	440.77	3.02	-0.23	0.005
109.00	0.00	-0.21	0.00	0.00	0.00	0.00	924.57	462.28	828.07	414.65	3.22	-0.24	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-13.77	-0.84	0.00	-75.96	0.00	75.96	2,068.11	1,034.05	3,633.26	1,819.33	0.00	0.00	0.048
5.00	-13.18	-0.85	0.00	-71.74	0.00	71.74	2,044.33	1,022.16	3,506.85	1,756.03	0.01	-0.01	0.047
10.00	-12.61	-0.85	0.00	-67.50	0.00	67.50	2,019.37	1,009.68	3,380.43	1,692.72	0.03	-0.03	0.046
15.00	-12.04	-0.85	0.00	-63.27	0.00	63.27	1,993.22	996.61	3,254.13	1,629.49	0.06	-0.04	0.045
20.00	-11.49	-0.84	0.00	-59.03	0.00	59.03	1,965.89	982.95	3,128.13	1,566.39	0.11	-0.05	0.044
25.00	-10.94	-0.84	0.00	-54.81	0.00	54.81	1,937.38	968.69	3,002.54	1,503.50	0.18	-0.07	0.042
30.00	-10.41	-0.83	0.00	-50.62	0.00	50.62	1,907.68	953.84	2,877.54	1,440.91	0.26	-0.08	0.041
35.00	-9.89	-0.82	0.00	-46.46	0.00	46.46	1,876.80	938.40	2,753.25	1,378.67	0.35	-0.10	0.039
40.00	-9.39	-0.81	0.00	-42.35	0.00	42.35	1,844.73	922.37	2,629.83	1,316.87	0.46	-0.11	0.037
45.00	-9.04	-0.80	0.00	-38.30	0.00	38.30	1,811.48	905.74	2,507.43	1,255.58	0.59	-0.12	0.035
48.50	-8.77	-0.79	0.00	-35.49	0.00	35.49	1,787.50	893.75	2,422.44	1,213.02	0.68	-0.13	0.034
50.00	-8.21	-0.77	0.00	-34.31	0.00	34.31	1,777.05	888.52	2,386.20	1,194.87	0.72	-0.14	0.033
53.25	-8.04	-0.77	0.00	-31.80	0.00	31.80	1,771.78	885.89	2,368.14	1,185.83	0.82	-0.15	0.031
55.00	-7.56	-0.74	0.00	-30.46	0.00	30.46	1,759.39	879.70	2,326.08	1,164.77	0.88	-0.15	0.030
60.00	-7.09	-0.72	0.00	-26.74	0.00	26.74	1,723.18	861.59	2,206.86	1,105.07	1.04	-0.16	0.028
65.00	-6.64	-0.70	0.00	-23.13	0.00	23.13	1,685.78	842.89	2,089.18	1,046.14	1.22	-0.18	0.026
70.00	-6.19	-0.67	0.00	-19.65	0.00	19.65	1,647.20	823.60	1,973.17	988.05	1.41	-0.19	0.024
75.00	-5.76	-0.64	0.00	-16.31	0.00	16.31	1,607.44	803.72	1,858.99	930.88	1.61	-0.20	0.021
80.00	-5.34	-0.60	0.00	-13.13	0.00	13.13	1,566.49	783.25	1,746.78	874.69	1.82	-0.21	0.018
85.00	-4.93	-0.57	0.00	-10.11	0.00	10.11	1,524.36	762.18	1,636.69	819.56	2.04	-0.21	0.016
90.00	-4.54	-0.53	0.00	-7.27	0.00	7.27	1,481.04	740.52	1,528.86	765.57	2.27	-0.22	0.013
95.00	-4.27	-0.50	0.00	-4.62	0.00	4.62	1,425.10	712.55	1,412.12	707.11	2.50	-0.23	0.010
98.50	-4.09	-0.48	0.00	-2.86	0.00	2.86	1,383.85	691.92	1,331.13	666.56	2.67	-0.23	0.007
100.00	-2.12	-0.27	0.00	-2.14	0.00	2.14	1,366.16	683.08	1,297.16	649.54	2.74	-0.23	0.005
102.00	-1.95	-0.25	0.00	-1.60	0.00	1.60	964.65	482.33	919.88	460.62	2.84	-0.23	0.006
105.00	-1.72	-0.22	0.00	-0.87	0.00	0.87	947.76	473.88	880.23	440.77	2.98	-0.23	0.004
109.00	0.00	-0.21	0.00	0.00	0.00	0.00	924.57	462.28	828.07	414.65	3.18	-0.23	0.000

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.75
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
26	107.00	263	1.821	1.637	1.014	0.328	75	325
25	103.50	201	1.704	1.138	0.821	0.259	45	249
24	101.00	260	1.623	0.851	0.701	0.215	48	322
23	99.25	205	1.567	0.680	0.626	0.186	33	254
22	96.75	314	1.489	0.474	0.530	0.148	40	389
21	92.50	461	1.361	0.214	0.393	0.094	37	570
20	87.50	474	1.218	0.022	0.268	0.043	18	587
19	82.50	487	1.083	-0.079	0.176	0.008	3	604
18	77.50	501	0.955	-0.118	0.110	-0.012	-5	620
17	72.50	514	0.836	-0.118	0.065	-0.019	-8	637
16	67.50	528	0.725	-0.094	0.035	-0.014	-6	654
15	62.50	541	0.621	-0.061	0.017	-0.001	-1	670
14	57.50	555	0.526	-0.026	0.008	0.014	7	687
13	54.13	197	0.466	-0.004	0.006	0.024	4	244
12	51.63	655	0.424	0.010	0.006	0.030	17	811
11	49.25	306	0.386	0.022	0.007	0.035	9	379
10	46.75	404	0.348	0.033	0.009	0.039	14	500
9	42.50	589	0.287	0.048	0.013	0.044	22	729
8	37.50	602	0.224	0.060	0.020	0.046	24	746
7	32.50	616	0.168	0.066	0.028	0.045	24	762
6	27.50	629	0.120	0.070	0.034	0.043	24	779
5	22.50	643	0.081	0.072	0.040	0.041	23	796
4	17.50	656	0.049	0.071	0.042	0.039	22	813
3	12.50	670	0.025	0.066	0.039	0.036	21	829
2	7.50	683	0.009	0.053	0.031	0.029	17	846
1	2.50	697	0.001	0.024	0.013	0.014	9	863
Nokia AirScale RRH 4	109.00	106	1.890	1.980	1.140	0.371	34	131
Alcatel-Lucent B25 R	109.00	159	1.890	1.980	1.140	0.371	51	197
Alcatel-Lucent B13 R	109.00	173	1.890	1.980	1.140	0.371	56	215
Alcatel-Lucent B66A	109.00	201	1.890	1.980	1.140	0.371	65	249
Raycap RC3DC-3315-PF	109.00	32	1.890	1.980	1.140	0.371	10	40
Antel BXA-70063/6CF_	109.00	51	1.890	1.980	1.140	0.371	16	63
Commscope JAHH-65B-	109.00	364	1.890	1.980	1.140	0.371	117	450
Antel LPA-80063/6CF	109.00	162	1.890	1.980	1.140	0.371	52	201

Round T-Arm	109.00	750	1.890	1.980	1.140	0.371	241	929
Ericsson Radio 4449	100.00	222	1.591	0.750	0.658	0.198	38	275
Ericsson AIR 21, 1.3	100.00	275	1.591	0.750	0.658	0.198	47	340
Ericsson AIR-32 B2A/	100.00	397	1.591	0.750	0.658	0.198	68	491
Round T-Arm	100.00	750	1.591	0.750	0.658	0.198	129	929
RFS APXVAARR24_43-U-	100.00	384	1.591	0.750	0.658	0.198	66	475
		16,677	43.080	26.684	18.601	6.042	1,506	20,649

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
26	107.00	263	1.821	1.637	1.014	0.328	75	226
25	103.50	201	1.704	1.138	0.821	0.259	45	173
24	101.00	260	1.623	0.851	0.701	0.215	48	224
23	99.25	205	1.567	0.680	0.626	0.186	33	177
22	96.75	314	1.489	0.474	0.530	0.148	40	271
21	92.50	461	1.361	0.214	0.393	0.094	37	397
20	87.50	474	1.218	0.022	0.268	0.043	18	408
19	82.50	487	1.083	-0.079	0.176	0.008	3	420
18	77.50	501	0.955	-0.118	0.110	-0.012	-5	432
17	72.50	514	0.836	-0.118	0.065	-0.019	-8	443
16	67.50	528	0.725	-0.094	0.035	-0.014	-6	455
15	62.50	541	0.621	-0.061	0.017	-0.001	-1	467
14	57.50	555	0.526	-0.026	0.008	0.014	7	478
13	54.13	197	0.466	-0.004	0.006	0.024	4	170
12	51.63	655	0.424	0.010	0.006	0.030	17	564
11	49.25	306	0.386	0.022	0.007	0.035	9	264
10	46.75	404	0.348	0.033	0.009	0.039	14	348
9	42.50	589	0.287	0.048	0.013	0.044	22	507
8	37.50	602	0.224	0.060	0.020	0.046	24	519
7	32.50	616	0.168	0.066	0.028	0.045	24	531
6	27.50	629	0.120	0.070	0.034	0.043	24	542
5	22.50	643	0.081	0.072	0.040	0.041	23	554
4	17.50	656	0.049	0.071	0.042	0.039	22	566
3	12.50	670	0.025	0.066	0.039	0.036	21	577
2	7.50	683	0.009	0.053	0.031	0.029	17	589
1	2.50	697	0.001	0.024	0.013	0.014	9	600
Nokia AirScale RRH 4	109.00	106	1.890	1.980	1.140	0.371	34	91
Alcatel-Lucent B25 R	109.00	159	1.890	1.980	1.140	0.371	51	137
Alcatel-Lucent B13 R	109.00	173	1.890	1.980	1.140	0.371	56	149
Alcatel-Lucent B66A	109.00	201	1.890	1.980	1.140	0.371	65	173
Raycap RC3DC-3315-PF	109.00	32	1.890	1.980	1.140	0.371	10	28
Antel BXA-70063/6CF_	109.00	51	1.890	1.980	1.140	0.371	16	44
Commscope JAHH-65B-	109.00	364	1.890	1.980	1.140	0.371	117	313
Antel LPA-80063/6CF	109.00	162	1.890	1.980	1.140	0.371	52	140
Round T-Arm	109.00	750	1.890	1.980	1.140	0.371	241	646
Ericsson Radio 4449	100.00	222	1.591	0.750	0.658	0.198	38	191
Ericsson AIR 21, 1.3	100.00	275	1.591	0.750	0.658	0.198	47	237
Ericsson AIR-32 B2A/	100.00	397	1.591	0.750	0.658	0.198	68	342
Round T-Arm	100.00	750	1.591	0.750	0.658	0.198	129	646
RFS APXVAARR24_43-U-	100.00	384	1.591	0.750	0.658	0.198	66	331
		16,677	43.080	26.684	18.601	6.042	1,506	14,372

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-19.79	-1.50	0.00	-144.26	0.00	144.26	2,068.11	1,034.05	3,633.26	1,819.33	0.00	0.00	0.089
5.00	-18.94	-1.49	0.00	-136.75	0.00	136.75	2,044.33	1,022.16	3,506.85	1,756.03	0.01	-0.03	0.087
10.00	-18.11	-1.48	0.00	-129.29	0.00	129.29	2,019.37	1,009.68	3,380.43	1,692.72	0.05	-0.05	0.085
15.00	-17.30	-1.46	0.00	-121.90	0.00	121.90	1,993.22	996.61	3,254.13	1,629.49	0.12	-0.08	0.083
20.00	-16.50	-1.45	0.00	-114.58	0.00	114.58	1,965.89	982.95	3,128.13	1,566.39	0.22	-0.11	0.082
25.00	-15.72	-1.43	0.00	-107.34	0.00	107.34	1,937.38	968.69	3,002.54	1,503.50	0.34	-0.13	0.080
30.00	-14.96	-1.41	0.00	-100.19	0.00	100.19	1,907.68	953.84	2,877.54	1,440.91	0.50	-0.16	0.077
35.00	-14.21	-1.39	0.00	-93.14	0.00	93.14	1,876.80	938.40	2,753.25	1,378.67	0.68	-0.19	0.075
40.00	-13.48	-1.37	0.00	-86.18	0.00	86.18	1,844.73	922.37	2,629.83	1,316.87	0.89	-0.22	0.073
45.00	-12.98	-1.36	0.00	-79.31	0.00	79.31	1,811.48	905.74	2,507.43	1,255.58	1.13	-0.24	0.070
48.50	-12.60	-1.36	0.00	-74.54	0.00	74.54	1,787.50	893.75	2,422.44	1,213.02	1.32	-0.26	0.068
50.00	-11.79	-1.34	0.00	-72.50	0.00	72.50	1,777.05	888.52	2,386.20	1,194.87	1.40	-0.27	0.067
53.25	-11.55	-1.33	0.00	-68.16	0.00	68.16	1,771.78	885.89	2,368.14	1,185.83	1.60	-0.29	0.064
55.00	-10.86	-1.33	0.00	-65.82	0.00	65.82	1,759.39	879.70	2,326.08	1,164.77	1.70	-0.30	0.063
60.00	-10.19	-1.33	0.00	-59.18	0.00	59.18	1,723.18	861.59	2,206.86	1,105.07	2.03	-0.33	0.059
65.00	-9.53	-1.34	0.00	-52.53	0.00	52.53	1,685.78	842.89	2,089.18	1,046.14	2.39	-0.35	0.056
70.00	-8.89	-1.34	0.00	-45.85	0.00	45.85	1,647.20	823.60	1,973.17	988.05	2.78	-0.38	0.052
75.00	-8.27	-1.35	0.00	-39.13	0.00	39.13	1,607.44	803.72	1,858.99	930.88	3.19	-0.40	0.047
80.00	-7.67	-1.34	0.00	-32.38	0.00	32.38	1,566.49	783.25	1,746.78	874.69	3.62	-0.43	0.042
85.00	-7.08	-1.32	0.00	-25.66	0.00	25.66	1,524.36	762.18	1,636.69	819.56	4.08	-0.45	0.036
90.00	-6.51	-1.28	0.00	-19.03	0.00	19.03	1,481.04	740.52	1,528.86	765.57	4.56	-0.46	0.029
95.00	-6.12	-1.24	0.00	-12.61	0.00	12.61	1,425.10	712.55	1,412.12	707.11	5.05	-0.48	0.022
98.50	-5.87	-1.21	0.00	-8.26	0.00	8.26	1,383.85	691.92	1,331.13	666.56	5.41	-0.49	0.017
100.00	-3.04	-0.79	0.00	-6.45	0.00	6.45	1,366.16	683.08	1,297.16	649.54	5.56	-0.49	0.012
102.00	-2.79	-0.74	0.00	-4.87	0.00	4.87	964.65	482.33	919.88	460.62	5.77	-0.49	0.013
105.00	-2.47	-0.66	0.00	-2.65	0.00	2.65	947.76	473.88	880.23	440.77	6.08	-0.49	0.009
109.00	0.00	-0.64	0.00	0.00	0.00	0.00	924.57	462.28	828.07	414.65	6.49	-0.50	0.000

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-13.77	-1.50	0.00	-142.75	0.00	142.75	2,068.11	1,034.05	3,633.26	1,819.33	0.00	0.00	0.085
5.00	-13.18	-1.49	0.00	-135.25	0.00	135.25	2,044.33	1,022.16	3,506.85	1,756.03	0.01	-0.03	0.083
10.00	-12.60	-1.47	0.00	-127.81	0.00	127.81	2,019.37	1,009.68	3,380.43	1,692.72	0.05	-0.05	0.082
15.00	-12.04	-1.46	0.00	-120.44	0.00	120.44	1,993.22	996.61	3,254.13	1,629.49	0.12	-0.08	0.080
20.00	-11.48	-1.44	0.00	-113.16	0.00	113.16	1,965.89	982.95	3,128.13	1,566.39	0.22	-0.10	0.078
25.00	-10.94	-1.42	0.00	-105.98	0.00	105.98	1,937.38	968.69	3,002.54	1,503.50	0.34	-0.13	0.076
30.00	-10.41	-1.40	0.00	-98.89	0.00	98.89	1,907.68	953.84	2,877.54	1,440.91	0.49	-0.16	0.074
35.00	-9.89	-1.38	0.00	-91.91	0.00	91.91	1,876.80	938.40	2,753.25	1,378.67	0.67	-0.19	0.072
40.00	-9.38	-1.36	0.00	-85.03	0.00	85.03	1,844.73	922.37	2,629.83	1,316.87	0.88	-0.21	0.070
45.00	-9.03	-1.35	0.00	-78.25	0.00	78.25	1,811.48	905.74	2,507.43	1,255.58	1.12	-0.24	0.067
48.50	-8.77	-1.34	0.00	-73.54	0.00	73.54	1,787.50	893.75	2,422.44	1,213.02	1.30	-0.26	0.066
50.00	-8.20	-1.32	0.00	-71.53	0.00	71.53	1,777.05	888.52	2,386.20	1,194.87	1.39	-0.27	0.064
53.25	-8.03	-1.32	0.00	-67.25	0.00	67.25	1,771.78	885.89	2,368.14	1,185.83	1.58	-0.29	0.061
55.00	-7.56	-1.31	0.00	-64.94	0.00	64.94	1,759.39	879.70	2,326.08	1,164.77	1.68	-0.30	0.060
60.00	-7.09	-1.31	0.00	-58.39	0.00	58.39	1,723.18	861.59	2,206.86	1,105.07	2.01	-0.32	0.057
65.00	-6.63	-1.32	0.00	-51.84	0.00	51.84	1,685.78	842.89	2,089.18	1,046.14	2.36	-0.35	0.053
70.00	-6.19	-1.33	0.00	-45.25	0.00	45.25	1,647.20	823.60	1,973.17	988.05	2.74	-0.37	0.050
75.00	-5.76	-1.33	0.00	-38.62	0.00	38.62	1,607.44	803.72	1,858.99	930.88	3.15	-0.40	0.045
80.00	-5.34	-1.33	0.00	-31.97	0.00	31.97	1,566.49	783.25	1,746.78	874.69	3.58	-0.42	0.040
85.00	-4.93	-1.31	0.00	-25.34	0.00	25.34	1,524.36	762.18	1,636.69	819.56	4.03	-0.44	0.034
90.00	-4.53	-1.27	0.00	-18.80	0.00	18.80	1,481.04	740.52	1,528.86	765.57	4.50	-0.46	0.028
95.00	-4.26	-1.23	0.00	-12.46	0.00	12.46	1,425.10	712.55	1,412.12	707.11	4.99	-0.47	0.021
98.50	-4.08	-1.19	0.00	-8.17	0.00	8.17	1,383.85	691.92	1,331.13	666.56	5.34	-0.48	0.015
100.00	-2.11	-0.78	0.00	-6.38	0.00	6.38	1,366.16	683.08	1,297.16	649.54	5.49	-0.48	0.011
102.00	-1.94	-0.73	0.00	-4.83	0.00	4.83	964.65	482.33	919.88	460.62	5.69	-0.48	0.012
105.00	-1.72	-0.66	0.00	-2.63	0.00	2.63	947.76	473.88	880.23	440.77	6.00	-0.49	0.008
109.00	0.00	-0.64	0.00	0.00	0.00	0.00	924.57	462.28	828.07	414.65	6.41	-0.49	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	17.13	0.00	19.97	0.00	0.00	1443.60	0.00	0.80
0.9D + 1.6W	17.12	0.00	14.97	0.00	0.00	1431.38	0.00	0.79
1.2D + 1.0Di + 1.0Wi	4.89	0.00	39.77	0.00	0.00	405.98	0.00	0.24
(1.2 + 0.2Sds) * DL + E ELFM	0.85	0.00	19.79	0.00	0.00	76.73	0.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	1.50	0.00	19.79	0.00	0.00	144.26	0.00	0.09
(0.9 - 0.2Sds) * DL + E ELFM	0.84	0.00	13.77	0.00	0.00	75.96	0.00	0.05
(0.9 - 0.2Sds) * DL + E EMAM	1.50	0.00	13.77	0.00	0.00	142.75	0.00	0.09
1.0D + 1.0W	4.09	0.00	16.67	0.00	0.00	343.59	0.00	0.20

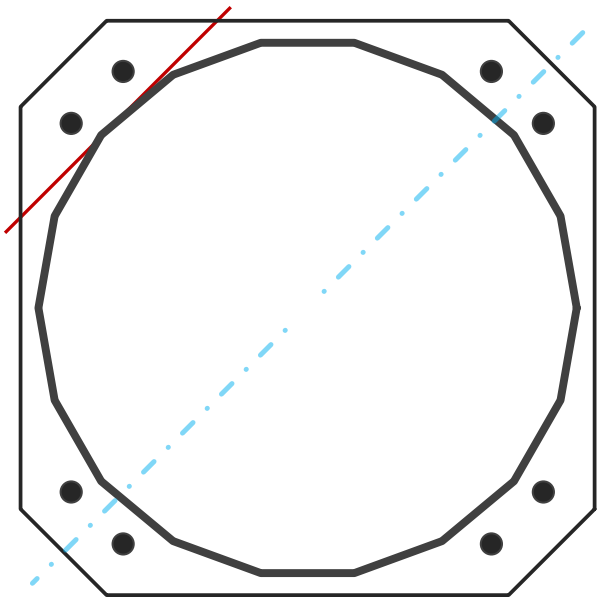
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	42.92	in
Thickness	0.25	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	1443.6	k-ft
Axial, Pu	20.0	k
Shear, Vu	17.1	k
Neutral Axis	45	°

Report Capacities		
Component	Capacity	Result
Base Plate	90%	Pass
Anchor Rods	69%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	46.75	in
Thickness	2	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	7	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	931.1	k
Bending Stress, ϕMn	1032.5	k



Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, ø	2 1/4	in
Bolt Circle	48.75	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	178.7	k
Anchor Rods, ϕPn	259.8	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	17.1	1443.6	1.00
Anchor Rod Forces	17.1	1443.6	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	33.3431	1.8524	0.0387		7589.28
Bolt	3.9761	3.2477	0.8393	4.5	7725.05
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate

Shape	Square	-
Width, W	46.75	in
Thickness, t	2	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	18.532	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

External Base Plate

Chord Length AA	22.944	in
Additional AA	0.000	in
Section Modulus, Z	22.944	in^3
Applied Moment, Mu	931.1	k-ft
Bending Capacity, ϕMn	1032.5	k-ft
Capacity, Mu/ϕMn	0.902	OK
Chord Length AB	22.279	in
Additional AB	0.000	in
Section Modulus, Z	22.279	in^3
Applied Moment, Mu	812.1	k-ft
Bending Capacity, ϕMn	1002.5	k-ft
Capacity, Mu/ϕMn	0.810	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Internal Base Plate

Arc Length	0.000	in
Section Modulus, Z	0.000	in^3
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Anchor Rods

Anchor Rod Quantity, N	8	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	48.75	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	178.7	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.688	OK
Interaction Capacity	0.688	OK

Additional Bolt Group 1

Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	0.0	k
Compressive Capacity, ϕPn		
Interaction Capacity		

Additional Bolt Group 2

Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	0.0	k
Compressive Capacity, ϕPn		
Interaction Capacity		

Dywidag Reinforcement

Dywidag Quantity, N	0	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	49.8	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	0.0	k
Compressive Capacity, ϕPn	0.0	k
Capacity, Pu/ϕPn		

Base Plate Stiffeners

Applied Axial Force, Pu	0.0	k
Applied Horizontal Force, Vu	0.00	k

Vertical Weld

Vert.-to-Stiffener a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Compressive Capacity, ϕPn	#DIV/0!	k
Vert.-to-Plate a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, ϕVn	#DIV/0!	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	-	

Horizontal Weld

Horz.-to-Stiffener a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Effective Fillet	0.000	in
Compressive Capacity, ϕPn	#DIV/0!	k
Horz.-to-Pole a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, ϕVn	#DIV/0!	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	-	

Plate Tension

Gross Cross Section	0.000	in^2
Net Cross Section	0.000	in^2
Tensile Capacity, ϕTn	0.0	k
Capacity, Tu/ϕTn	-	

Plate Compression

Radius of Gyration	#DIV/0!	in^3
kl/r	#DIV/0!	-
4.71 $\sqrt{(E/Fy)}$	0.00	-
Buckling Stress(Fe)	0.0	-
Crit. Buckling Stress(Fcr)	0.0	ksi
Compressive Capacity, ϕPn	0.0	k
Capacity, Pu/ϕPn	-	

Mount Analysis of Existing T-Arms for American Tower on behalf of T-Mobile
283562 - North Bloomfield CT, CT
Project #: 12605176

T-Mobile Site ID: CTHA068A
Program: L600

CLS Engineering PLLC Project #41124-12605176-01-MA-R1
February 20, 2019

MOUNT DESCRIPTION	Existing T-Arms at 100 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 100 ft AGL
SITE DESCRIPTION	109 ft Monopole
SITE ADDRESS	Day Hill Road, Bloomfield, CT 06002-1177, Hartford County
GPS COORDINATES	41.87650777, -72.7418397
ANALYSIS STANDARD	2012 IBC / 2016 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	125 mph, V_{ult} / 96.8 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 1" Ice

■ **ANALYSIS RESULT:** **Pass**

MEMBER USAGE	**92%**	**Pass**

Prepared by:
Bhishan Poudel, E.I.

Reviewed and Approved by:
Tyler M. Barker, P.E.

STATE OF CONNECTICUT
TYLER M BARKER
No. 32402
LICENSED
PROFESSIONAL ENGINEER

Tyler M. Barker
CLS Engineering, PLLC
Director of Engineering
PE # 32402 Exp. 1/31/2020
COA # PEC.001833 Exp. 8/14/2019

Digitally signed by Tyler M. Barker
Date: 2019.02.21 08:53:50 -05'00'

■ INTRODUCTION

The proposed equipment is to be mounted to the existing T-Arms. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

■ STRUCTURAL DOCUMENTS PROVIDED

STRUCTURAL DATA	Site Photos, dated April 27, 2017
PREVIOUS ANALYSES	Tower SA by ATC, Eng. #12599544_C3_01, dated July 30, 2018
LOADING DATA	T-Mobile RFDS, Site ID #CTHA068A, Version 3.1, dated May 11, 2018

■ ANALYSIS CRITERIA

STANDARD	2012 IBC / 2016 Connecticut State Building Code / TIA-222-G
BASIC WIND SPEED	125 mph, V_{ult} / 97 mph, V_{asd} (3-Second Gust)
BASIC WIND SPEED W/ ICE	50 mph (3-Second Gust) w/ 1" Radial Ice (Escalating)
EXPOSURE CATEGORY	C
MAX. TOPOGRAPHIC FACTOR, K_{zt}	1.00
RISK CATEGORY	II
MAINTENANCE LIVE LOAD	L_M: 500 lb

■ FINAL EQUIPMENT

ELEVATION (ft)		**ANTENNAS**	
MOUNT	**RAD.**	**#**	**NAME**
100.0	100.0	3	RFS Celwave APXVAARR24_43-U-NA20
		3	Ericsson AIR-32 B2A/B66Aa
		3	Ericsson AIR 21, 1.3M, B2A B4P
		3	Ericsson Radio 4449 B12,B71

■ RESULTS SUMMARY

COMPONENT	**PEAK USAGE**	**RESULT**
Mount Pipes	92%	Pass
Stand-Off Horizontals	87%	Pass
Face Horizontals	64%	Pass
Unistruts	52%	Pass
Stiff Arms	5%	Pass

■ CONCLUSION AND RECOMMENDATIONS

According to our structural analysis, the mounts have been found to **PASS**. The mounting configuration considered in this analysis is capable of supporting the referenced loading pursuant to applicable standards.

■ ASSUMPTIONS AND CONDITIONS

This analysis is inclusive of the antenna supporting frames/mounts and all recorded connections that will support the equipment listed in this report. It considers only the theoretical capacity of structural components and it is not a condition assessment. The validity of the analysis may be dependent on the accuracy of structural information supplied by others. The client is responsible for verifying this information. If any provided information is revised after completion of this analysis, CLS Engineering PLLC should be notified immediately to revise results.

This analysis assumes the following:

1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In the absence of sufficient design information, all welds and connections are assumed to develop at least the capacity of the connected member, unless otherwise stated in this analysis.
4. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
5. The loading configuration is complete and accurate as supplied and/or as modeled in the previous analysis. All appurtenances are assumed to be properly installed and supported as per manufacturer requirements.
6. Some conservative assumptions may be used regarding appurtenances and their projected areas based on careful interpretation of data supplied, previous experience and standard industry practice.

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided exercising a level of care and diligence equivalent to the standard of our profession. No warranty or guarantee, either expressed or implied, is offered. All services are confidential in nature and this report will not be released to any other party without the client's consent. The use of this analysis is limited to the expressed purpose for which it was commissioned and it may not be reused, copied or disseminated for any other purpose without consent from CLS Engineering PLLC.

All services were performed, results obtained and recommendations made in accordance with generally accepted engineering principles and practices. CLS Engineering PLLC is not responsible for the conclusions, opinions or recommendations made by others based on the information supplied in this analysis.

It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by CLS Engineering PLLC verifies the adequacy of the primary members of the structure. CLS Engineering PLLC provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, gusset, etc.

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	100 ft	**K_a**	0.90
Nominal Rad Elevation (AGL), z_{rad}	100 ft	**K_d**	0.95
Elevation AMSL (ft)	-	**K_e**	-
Basic Wind Speed, V_{ult} (bare)	G	**K_z**	1.27
Basic Wind Speed, V_{ult} (bare)	125 mph	**K_{zt}**	1.00
Basic Wind Speed, V (ice)	50 mph	**K_s**	-
Design Ice Thickness, t_i	1 in	**t_{iz}**	2.23 in
Exposure Category	C	**G_h**	1.00
Risk Category	II	**q_z (bare)**	48.1 psf
Seismic Response Coeff., C_s	-	**q_z (ice)**	7.7 psf

Live Loading

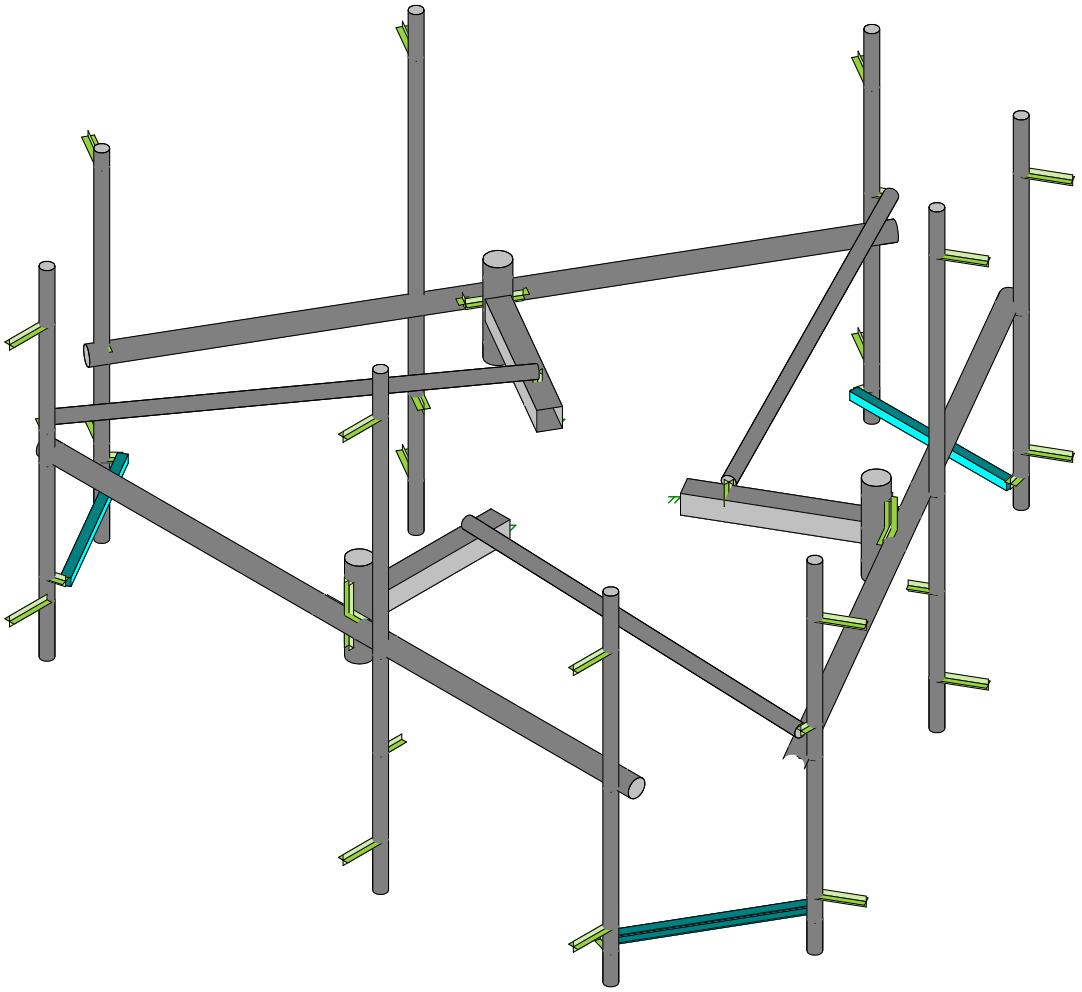
At Mount Pipes, L_M	500 lb
Joint Labels Considered	M1
	M2
	M3

Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Face Horizontal	PIPE_3.0	15.15	5.52	15.65
Mount Pipe	PIPE_2.0	10.28	4.74	12.58
Standoff Arm	HSS4X4X3	28.86	3.44	20.00
Standoff Pipe	PIPE_4.0	19.48	6.21	18.38
Tie Back	PIPE_2.0	10.28	4.74	12.58
Unistruts	Unistrut P1000	11.76	4.69	12.39

Appurtenances

Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft^2)		EPA_A (Ice) (ft^2)		F_A (Bare) (lb)		F_A (Ice) (lb)	
					Front	Side	0°	120°	240°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
AIR 21, 1.3M, B2A B4P				☐			1	1	1	3	A1	A2	A7	A8	A13	A14	55.9	12	7.8	91.5	Flat	225.74	6.04	4.26	8.64	6.73	261.30	184.21	59.86	46.58
APXVAARR24_43-U-NA20				☐			1	1	1	3	A3	A4	A9	A10	A15	A16	95.9	24	8.7	128	Flat	503.18	20.24	8.89	24.72	13.04	876.18	384.73	171.17	90.31
AIR-32 B2A/B66Aa				☐			1	1	1	3	A5	A6	A11	A12	A17	A18	56.6	12.9	8.7	132.2	Flat	246.82	6.51	4.71	9.17	7.23	281.77	203.97	63.52	50.09
Radio 4449 B12,B71				☐	0.5		1	1	1	3	R1		R2		R3		15	13.2	10.4	75	Flat	99.03	0.83	1.30	1.43	2.41	35.71	56.27	9.93	16.71



Envelope Only Solution

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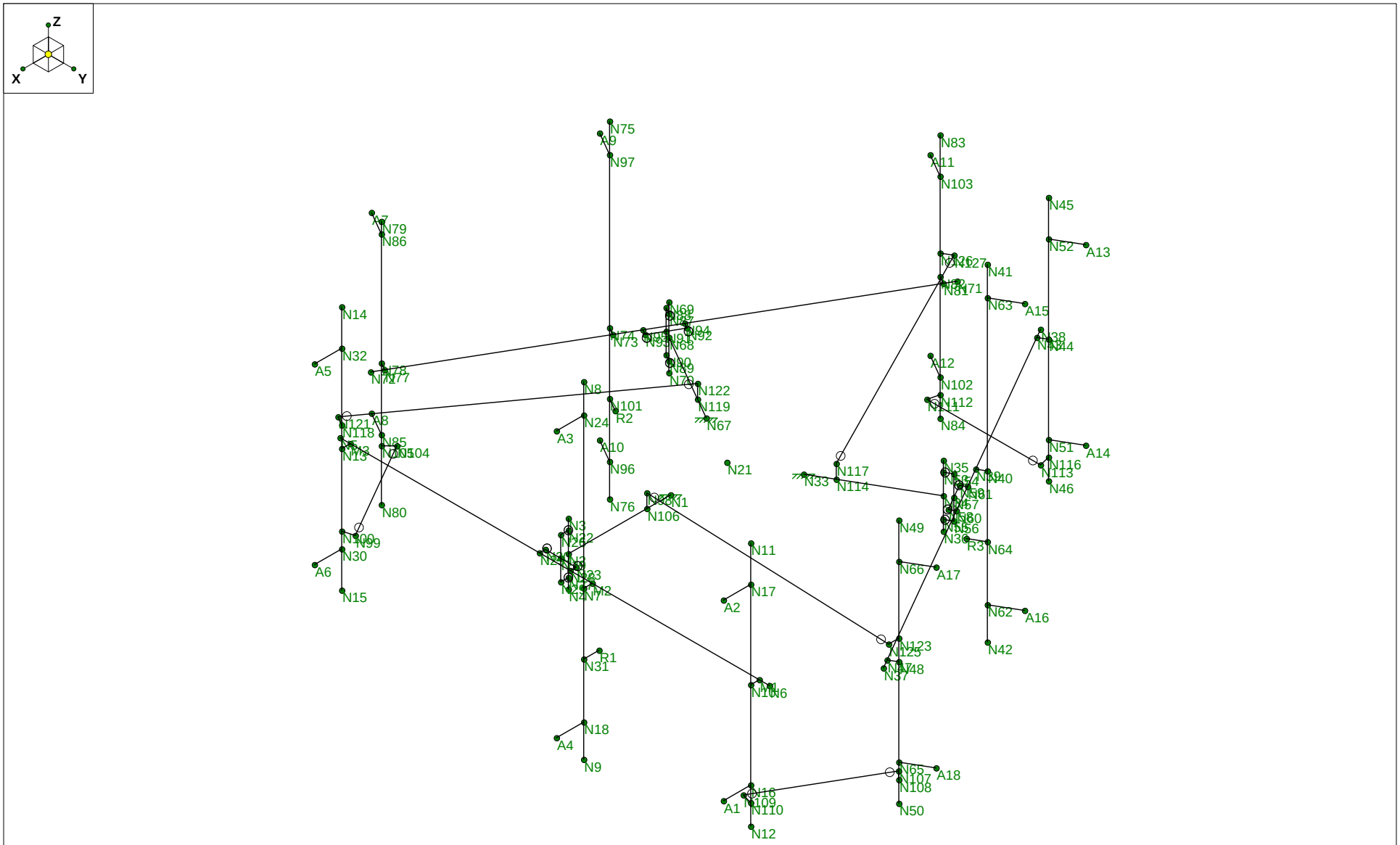

Envelope Only Solution

CLS	41124-12605176-North Bloomfield CT, CT	SK - 2
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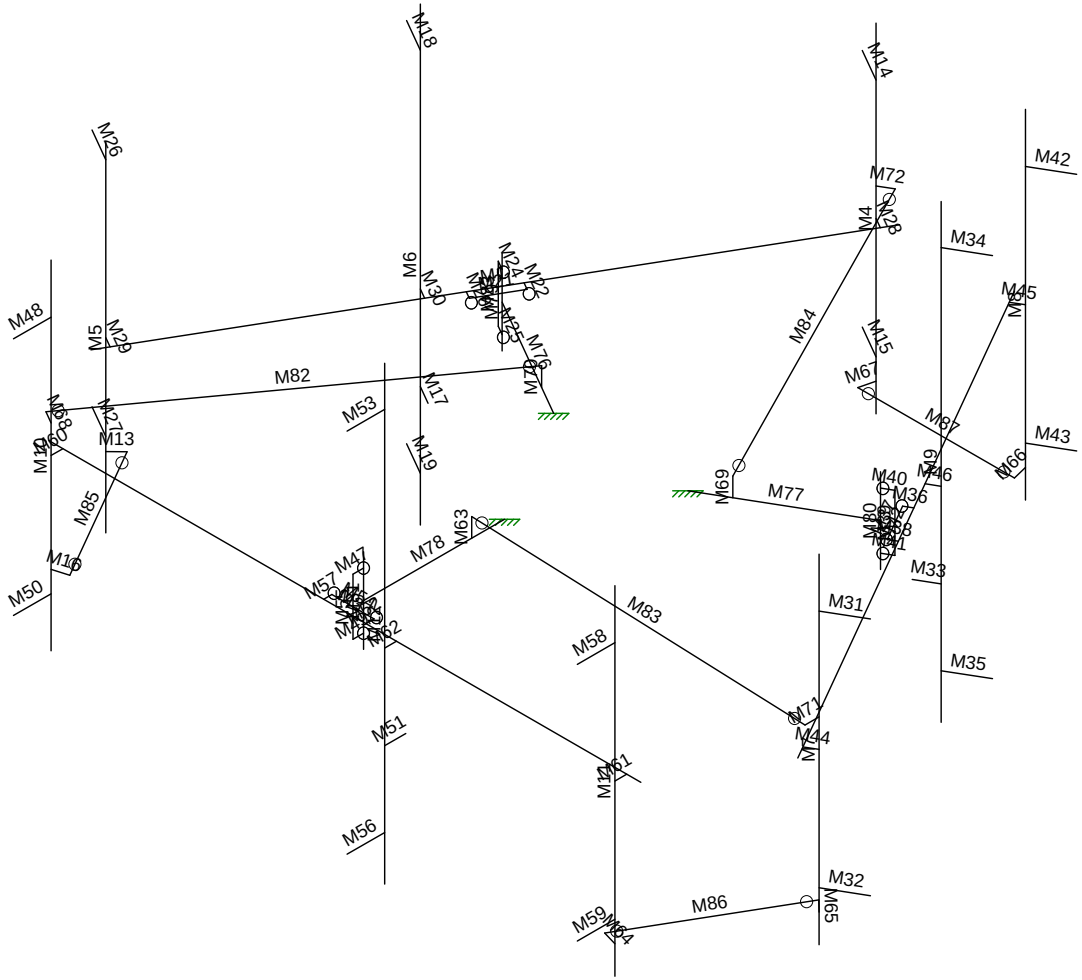

Envelope Only Solution

CLS	41124-12605176-North Bloomfield CT, CT	SK - 3
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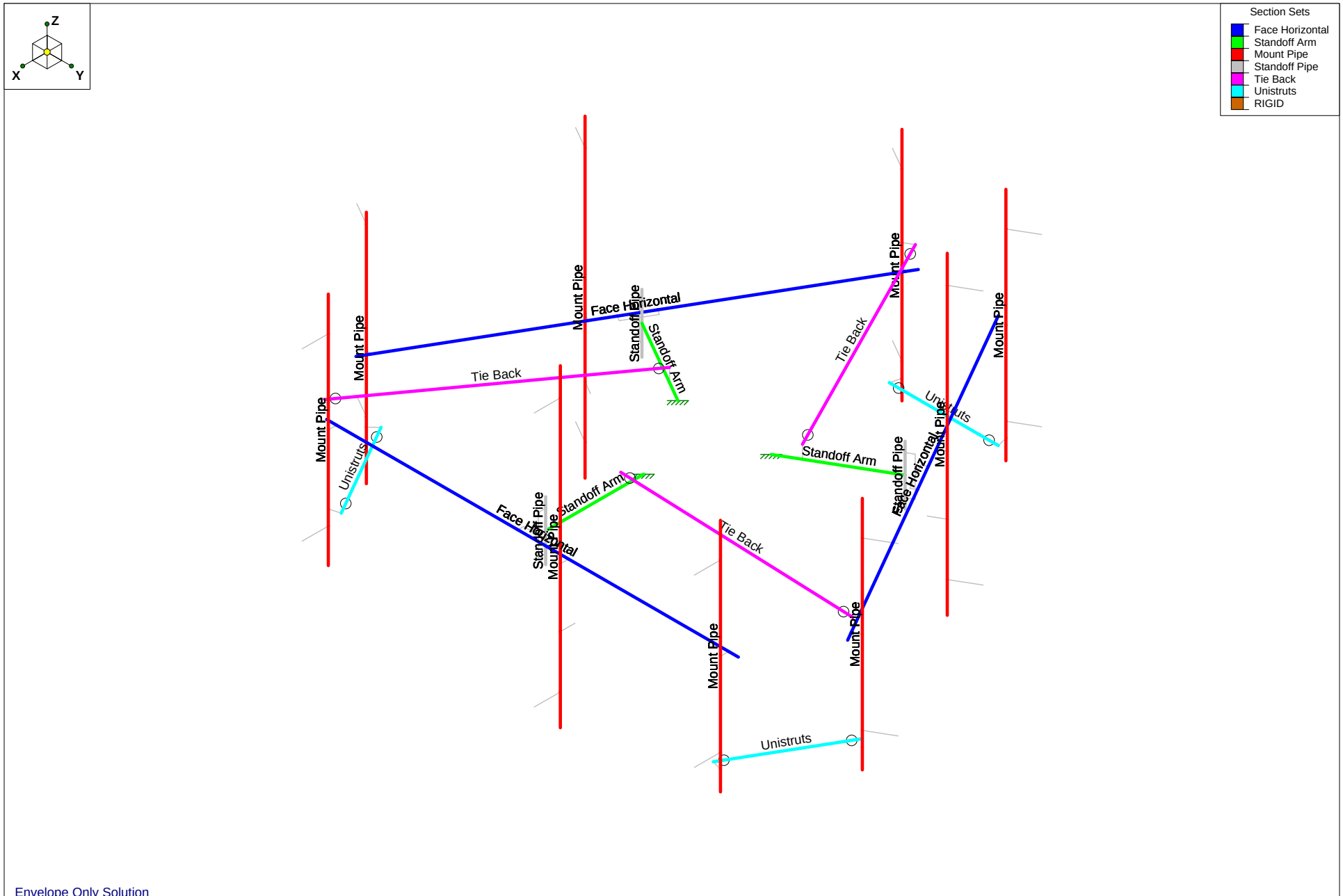
41124-12605176-01-MA-R1	Member Labels	41124-12605176-01-MA-R1.r3d



Envelope Only Solution

CLS	41124-12605176-North Bloomfield CT, CT	SK - 4
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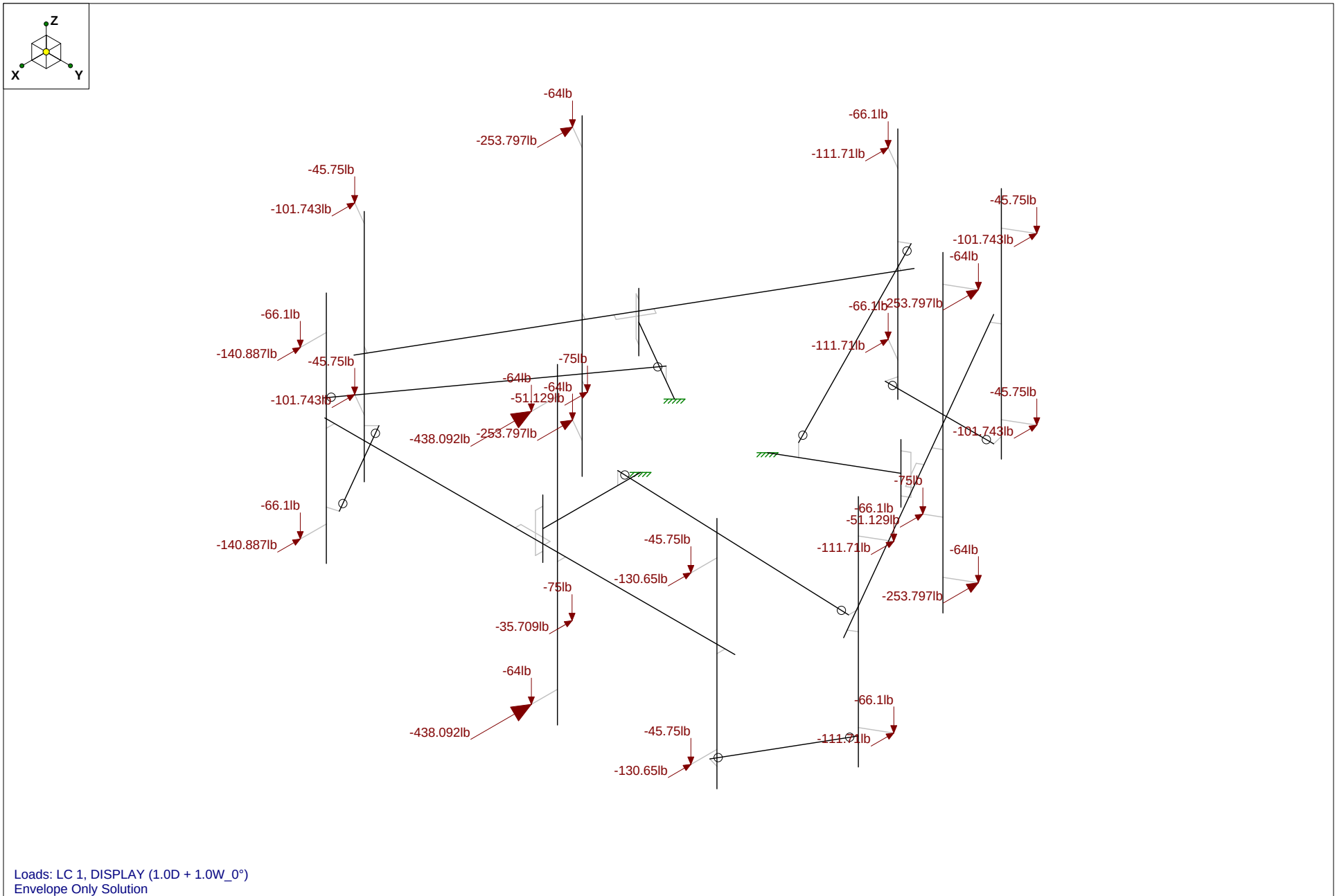
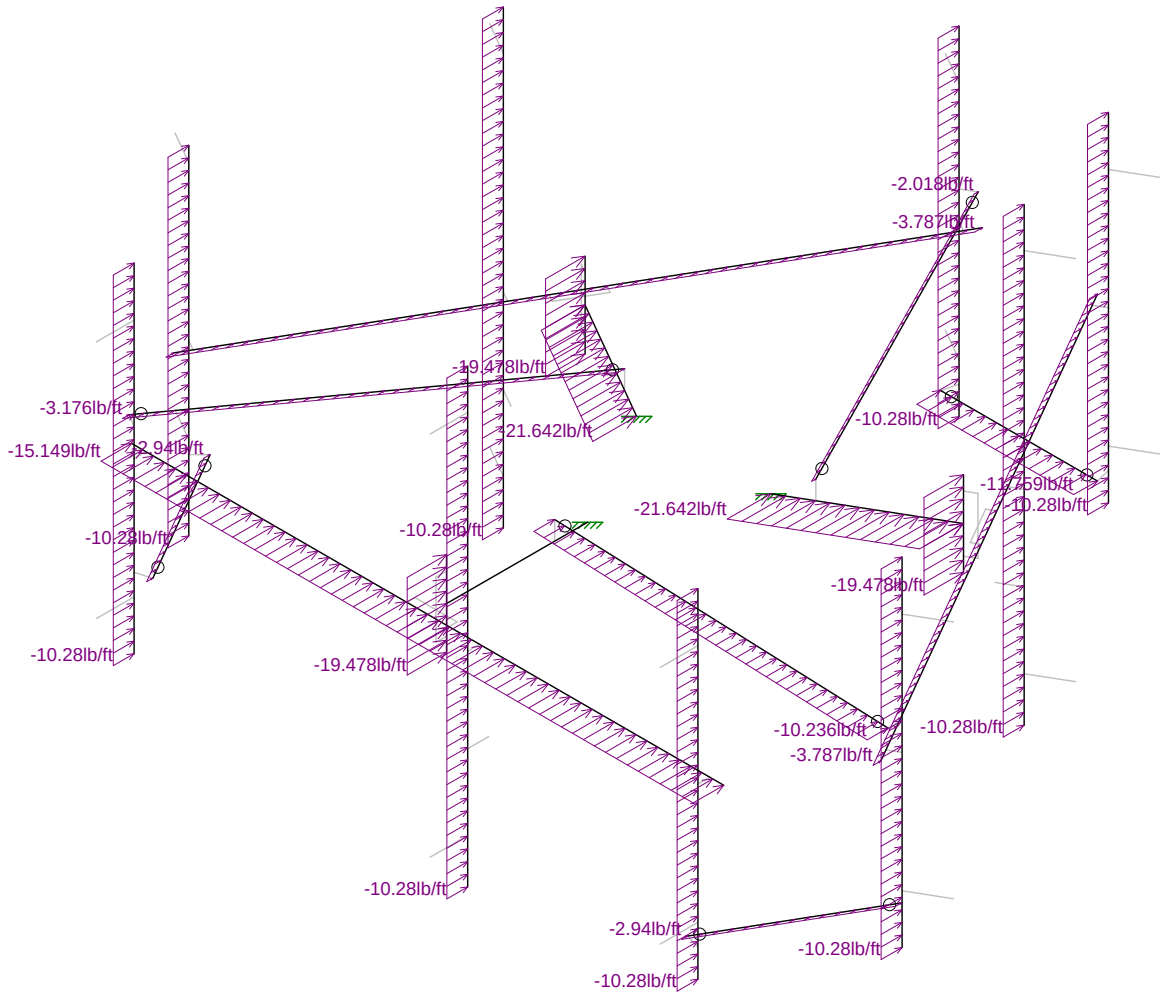


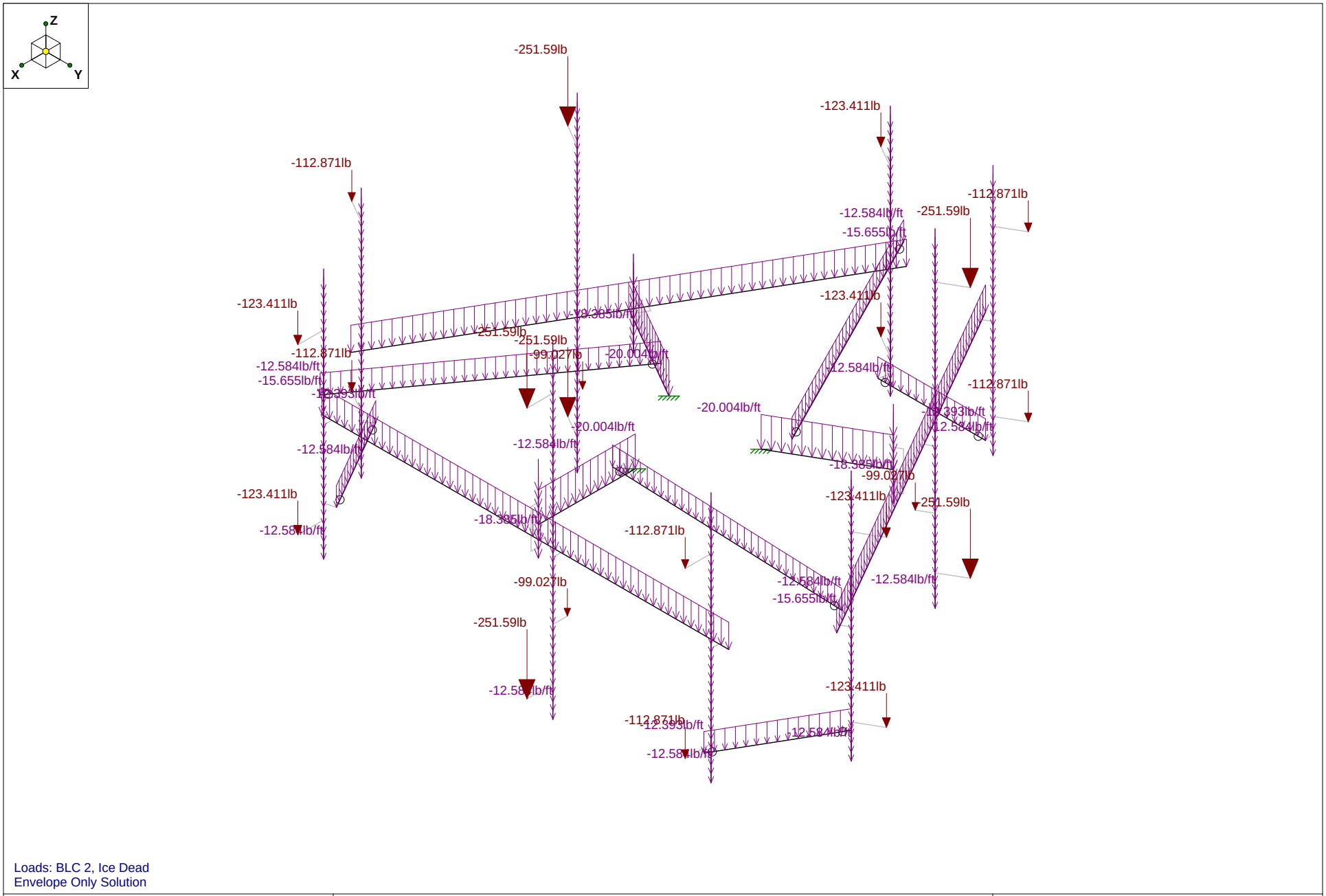
Loads: LC 1, DISPLAY (1.0D + 1.0W_0°)
Envelope Only Solution

CLS		SK - 5
BP	41124-12605176-North Bloomfield CT, CT	Feb 20, 2019 at 5:19 PM
41124-12605176-01-MA-R1	Joint Loads - Dead and Normal Wind	41124-12605176-01-MA-R1.r3d



Loads: BLC 4, Structure Wind 0°
Envelope Only Solution

CLS	41124-12605176-North Bloomfield CT, CT	SK - 6
BP		Feb 20, 2019 at 5:19 PM
41124-12605176-01-MA-R1	Distributed Load - Normal Wind	41124-12605176-01-MA-R1.r3d



Loads: BLC 2, Ice Dead
Envelope Only Solution

CLS		SK - 7
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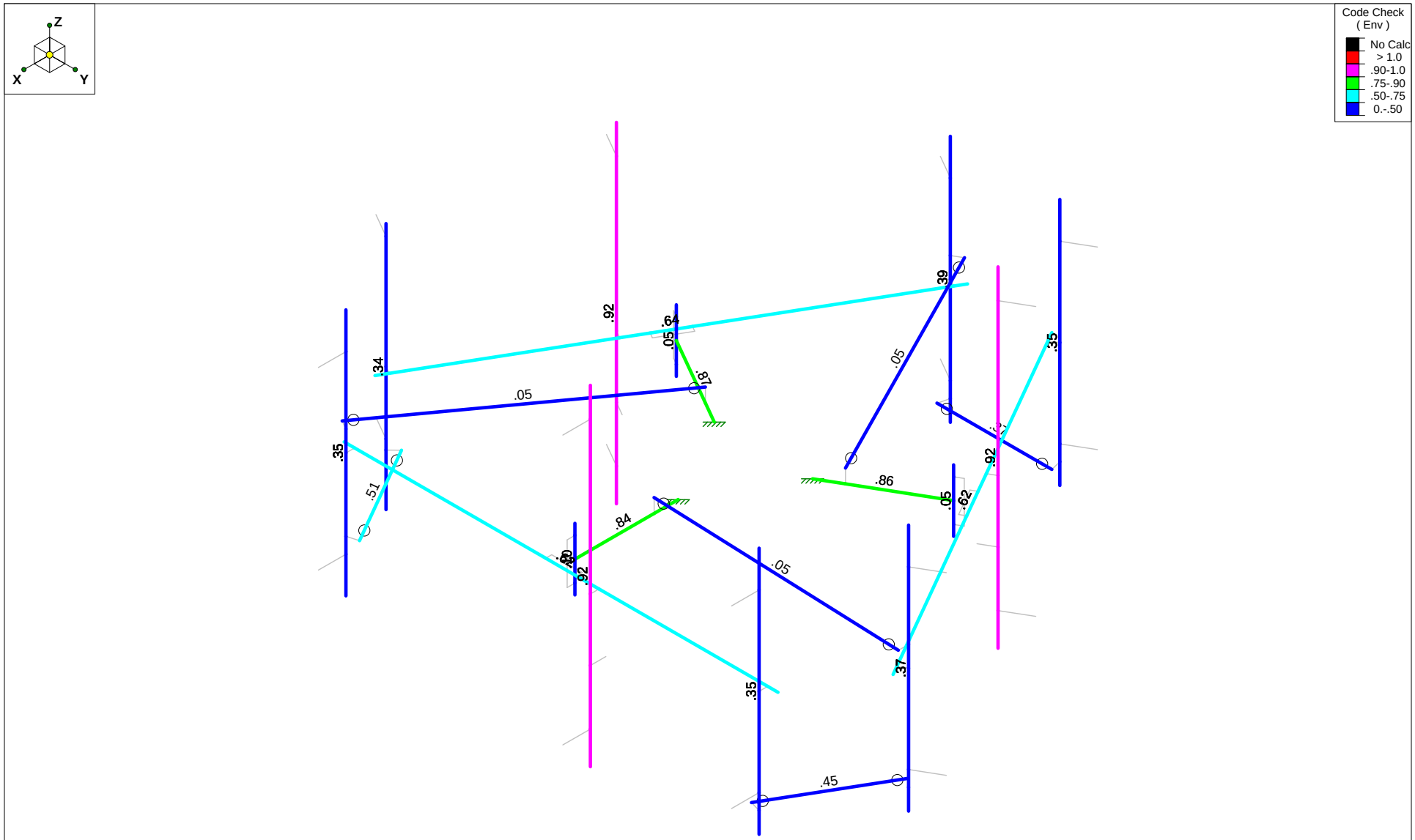
41124-12605176-01-MA-R1	Ice Dead Loads	41124-12605176-01-MA-R1.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-12605176-North Bloomfield CT, CT	SK - 8
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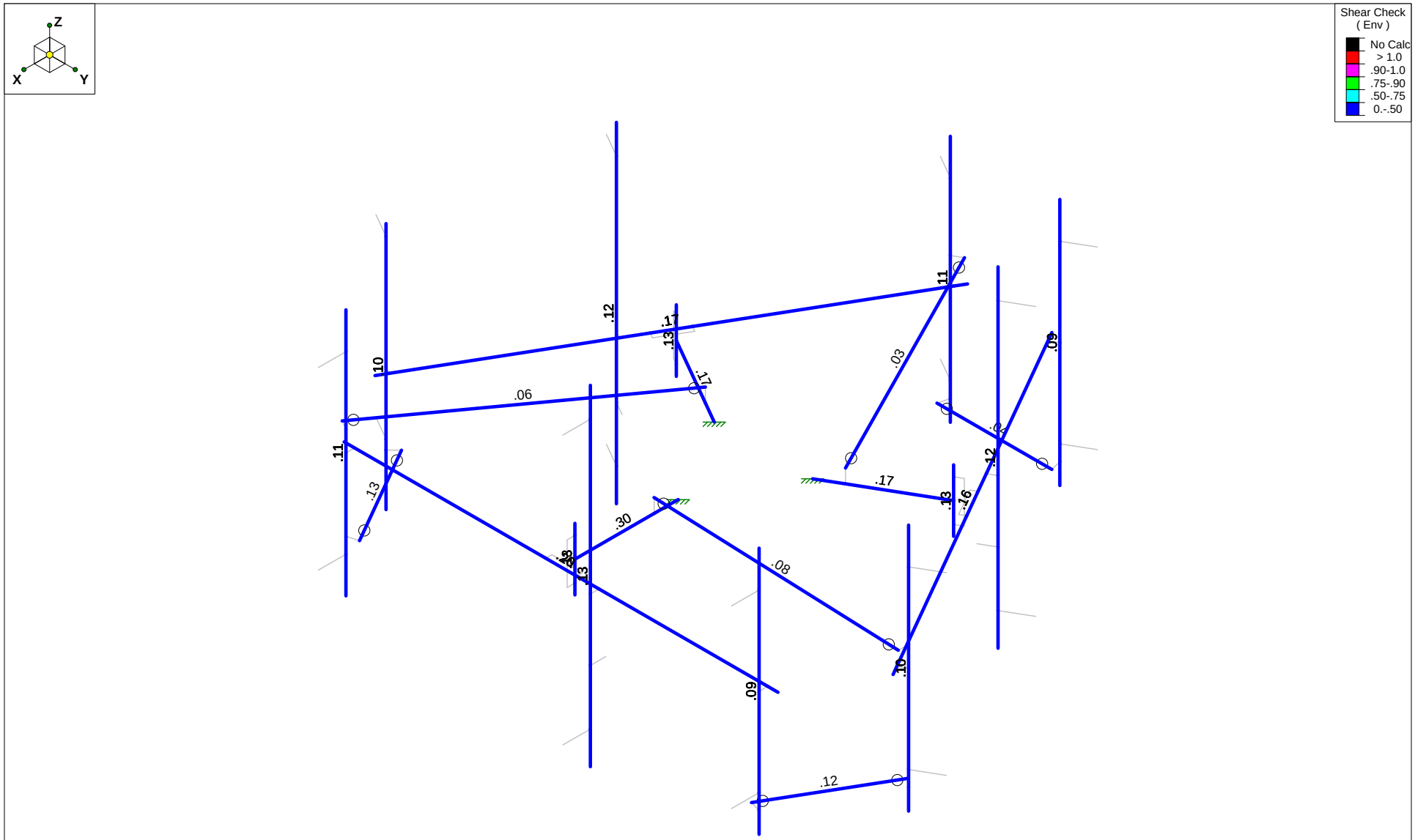
41124-12605176-01-MA-R1	Envelope Member Unity Check Results - Bending	41124-12605176-01-MA-R1.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS		SK - 9
BP	41124-12605176-North Bloomfield CT, CT	Feb 20, 2019 at 5:19 PM
41124-12605176-01-MA-R1	Envelope Member Check Results - Shear	41124-12605176-01-MA-R1.r3d

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	DL			-1	21				
2	Ice Dead	RL				21		24		
4	Structure Wind 0Á	None						23		
5	Structure Wind 30Á	None						44		
6	Structure Wind 45Á	None						48		
7	Structure Wind 60Á	None						46		
8	Structure Wind 90Á	None						22		
9	Structure Wind 120Á	None						46		
10	Structure Wind 135Á	None						48		
11	Structure Wind 150Á	None						44		
12	Structure Wind w/ Ice 0Á	None						23		
13	Structure Wind w/ Ice 30Á	None						44		
14	Structure Wind w/ Ice 45Á	None						48		
15	Structure Wind w/ Ice 60Á	None						46		
16	Structure Wind w/ Ice 90Á	None						22		
17	Structure Wind w/ Ice 120Á	None						46		
18	Structure Wind w/ Ice 135Á	None						48		
19	Structure Wind w/ Ice 150Á	None						44		
20	Antenna Wind 0Á	None				21				
21	Antenna Wind 30Á	None				42				
22	Antenna Wind 45Á	None				42				
23	Antenna Wind 60Á	None				42				
24	Antenna Wind 90Á	None				21				
25	Antenna Wind 120Á	None				42				
26	Antenna Wind 135Á	None				42				
27	Antenna Wind 150Á	None				42				
28	Antenna Wind w/ Ice 0Á	None				21				
29	Antenna Wind w/ Ice 30Á	None				42				
30	Antenna Wind w/ Ice 45Á	None				42				
31	Antenna Wind w/ Ice 60Á	None				42				
32	Antenna Wind w/ Ice 90Á	None				21				
33	Antenna Wind w/ Ice 120Á	None				42				
34	Antenna Wind w/ Ice 135Á	None				42				
35	Antenna Wind w/ Ice 150Á	None				42				
39	Maintenance Live 500 (1)	OL1				1				
40	Maintenance Live 500 (2)	OL2				1				
41	Maintenance Live 500 (3)	OL3				1				

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	DISPLAY (1.0D + 1.0...	Yes	Y		DL	1	20	1																				
2	1.4D	Yes	Y		DL	1.4																						
3	1.2D + 1.0W_0Á	Yes	Y		DL	1.2	4	1	20	1																		
4	1.2D + 1.0W_30Á	Yes	Y		DL	1.2	5	1	21	1																		
5	1.2D + 1.0W_45Á	Yes	Y		DL	1.2	6	1	22	1																		
6	1.2D + 1.0W_60Á	Yes	Y		DL	1.2	7	1	23	1																		
7	1.2D + 1.0W_90Á	Yes	Y		DL	1.2	8	1	24	1																		
8	1.2D + 1.0W_120Á	Yes	Y		DL	1.2	9	1	25	1																		
9	1.2D + 1.0W_135Á	Yes	Y		DL	1.2	10	1	26	1																		

Load Combinations (Continued)

	Description	So..	P..	S..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
10	1.2D + 1.0W_150Á	Yes	Y		DL	1.2	11	1	27	1																
11	1.2D + 1.0W_180Á	Yes	Y		DL	1.2	4	-1	20	-1																
12	1.2D + 1.0W_210Á	Yes	Y		DL	1.2	5	-1	21	-1																
13	1.2D + 1.0W_225Á	Yes	Y		DL	1.2	6	-1	22	-1																
14	1.2D + 1.0W_240Á	Yes	Y		DL	1.2	7	-1	23	-1																
15	1.2D + 1.0W_270Á	Yes	Y		DL	1.2	8	-1	24	-1																
16	1.2D + 1.0W_300Á	Yes	Y		DL	1.2	9	-1	25	-1																
17	1.2D + 1.0W_315Á	Yes	Y		DL	1.2	10	-1	26	-1																
18	1.2D + 1.0W_330Á	Yes	Y		DL	1.2	11	-1	27	-1																
19	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	12	1	28	1	RL	1														
20	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	13	1	29	1	RL	1														
21	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	14	1	30	1	RL	1														
22	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	15	1	31	1	RL	1														
23	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	16	1	32	1	RL	1														
24	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	17	1	33	1	RL	1														
25	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	18	1	34	1	RL	1														
26	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	19	1	35	1	RL	1														
27	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	12	-1	28	-1	RL	1														
28	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	13	-1	29	-1	RL	1														
29	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	14	-1	30	-1	RL	1														
30	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	15	-1	31	-1	RL	1														
31	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	16	-1	32	-1	RL	1														
32	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	17	-1	33	-1	RL	1														
33	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	18	-1	34	-1	RL	1														
34	1.2D + 1.0Di + 1.0Wi...	Yes	Y		DL	1.2	19	-1	35	-1	RL	1														
35	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	4	.061	20	.061	OL1	1.5														
36	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	5	.061	21	.061	OL1	1.5														
37	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	6	.061	22	.061	OL1	1.5														
38	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	7	.061	23	.061	OL1	1.5														
39	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	8	.061	24	.061	OL1	1.5														
40	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	9	.061	25	.061	OL1	1.5														
41	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	10	.061	26	.061	OL1	1.5														
42	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	11	.061	27	.061	OL1	1.5														
43	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	4	-.061	20	-.061	OL1	1.5														
44	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	5	-.061	21	-.061	OL1	1.5														
45	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	6	-.061	22	-.061	OL1	1.5														
46	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	7	-.061	23	-.061	OL1	1.5														
47	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	8	-.061	24	-.061	OL1	1.5														
48	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	9	-.061	25	-.061	OL1	1.5														
49	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	10	-.061	26	-.061	OL1	1.5														
50	1.2D + 1.5Lm_1 + 1.0...	Yes	Y		DL	1.2	11	-.061	27	-.061	OL1	1.5														
51	1.2D + 1.5Lm_2 + 1.0...	Yes	Y		DL	1.2	4	.061	20	.061	OL2	1.5														
52	1.2D + 1.5Lm_2 + 1.0...	Yes	Y		DL	1.2	5	.061	21	.061	OL2	1.5														
53	1.2D + 1.5Lm_2 + 1.0...	Yes	Y		DL	1.2	6	.061	22	.061	OL2	1.5														
54	1.2D + 1.5Lm_2 + 1.0...	Yes	Y		DL	1.2	7	.061	23	.061	OL2	1.5														
55	1.2D + 1.5Lm_2 + 1.0...	Yes	Y		DL	1.2	8	.061	24	.061	OL2	1.5														
56	1.2D + 1.5Lm_2 + 1.0...	Yes	Y		DL	1.2	9	.061	25	.061	OL2	1.5														
57	1.2D + 1.5Lm_2 + 1.0...	Yes	Y		DL	1.2	10	.061	26	.061	OL2	1.5														
58	1.2D + 1.5Lm_2 + 1.0...	Yes	Y		DL	1.2	11	.061	27	.061	OL2	1.5														
59	1.2D + 1.5Lm_2 + 1.0...	Yes	Y		DL	1.2	4	-.061	20	-.061	OL2	1.5														
60	1.2D + 1.5Lm_2 + 1.0...	Yes	Y		DL	1.2	5	-.061	21	-.061	OL2	1.5														
61	1.2D + 1.5Lm_2 + 1.0...	Yes	Y		DL	1.2	6	-.061	22	-.061	OL2	1.5														

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
62	1.2D + 1.5Lm_2 + 1.0..	Yes	Y		DL	1.2	7	-.061	23	-.061	OL2	1.5												
63	1.2D + 1.5Lm_2 + 1.0..	Yes	Y		DL	1.2	8	-.061	24	-.061	OL2	1.5												
64	1.2D + 1.5Lm_2 + 1.0..	Yes	Y		DL	1.2	9	-.061	25	-.061	OL2	1.5												
65	1.2D + 1.5Lm_2 + 1.0..	Yes	Y		DL	1.2	10	-.061	26	-.061	OL2	1.5												
66	1.2D + 1.5Lm_2 + 1.0..	Yes	Y		DL	1.2	11	-.061	27	-.061	OL2	1.5												
67	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	4	.061	20	.061	OL3	1.5												
68	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	5	.061	21	.061	OL3	1.5												
69	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	6	.061	22	.061	OL3	1.5												
70	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	7	.061	23	.061	OL3	1.5												
71	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	8	.061	24	.061	OL3	1.5												
72	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	9	.061	25	.061	OL3	1.5												
73	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	10	.061	26	.061	OL3	1.5												
74	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	11	.061	27	.061	OL3	1.5												
75	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	4	-.061	20	-.061	OL3	1.5												
76	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	5	-.061	21	-.061	OL3	1.5												
77	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	6	-.061	22	-.061	OL3	1.5												
78	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	7	-.061	23	-.061	OL3	1.5												
79	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	8	-.061	24	-.061	OL3	1.5												
80	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	9	-.061	25	-.061	OL3	1.5												
81	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	10	-.061	26	-.061	OL3	1.5												
82	1.2D + 1.5Lm_3 + 1.0..	Yes	Y		DL	1.2	11	-.061	27	-.061	OL3	1.5												

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A570 Gr.33	29500	11346	.3	.65	.49	33	45

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Face Horizontal	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Standoff Arm	HSS4X4X3	Beam	Pipe	A53 Gr.B	Typical	2.58	6.21	6.21	10
3	Mount Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	Standoff Pipe	PIPE_4.0	Beam	None	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
5	Tie Back	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Unistruts	Unistrut P1000	Beam	None	A570 Gr.33	Typical	.555	.185	.234	.002

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Face Horizo...	126									Lateral
2	M2	Face Horizo...	126									Lateral
3	M3	Face Horizo...	126									Lateral
4	M4	Mount Pipe	72									Lateral
5	M5	Mount Pipe	72									Lateral
6	M6	Mount Pipe	96									Lateral
7	M7	Mount Pipe	72									Lateral
8	M8	Mount Pipe	72									Lateral
9	M9	Mount Pipe	96									Lateral
10	M10	Mount Pipe	72									Lateral
11	M11	Mount Pipe	72									Lateral
12	M12	Mount Pipe	96									Lateral
13	M76	Standoff Arm	30						2.1	2.1		Lateral
14	M77	Standoff Arm	30						2.1	2.1		Lateral
15	M78	Standoff Arm	30						2.1	2.1		Lateral
16	M79	Standoff Pipe	18									Lateral
17	M80	Standoff Pipe	18									Lateral
18	M81	Standoff Pipe	18									Lateral
19	M82	Tie Back	76.088			Lbyy						Lateral
20	M83	Tie Back	76.088			Lbyy						Lateral
21	M84	Tie Back	76.088			Lbyy						Lateral

Cold Formed Steel Design Parameters

	Label	Shape	Lengt...	Lbyy[in]	Lbzz[in]	Lcomp t...	Lcomp ...	L-torque...	Kyy	Kzz	Cm-...	Cm-...	Cb	R	a[in]	y sw...	z sw...
1	M85	Unistruts	33.352			Lbyy											
2	M86	Unistruts	33.352			Lbyy											
3	M87	Unistruts	33.352			Lbyy											

Envelope Joint Reactions

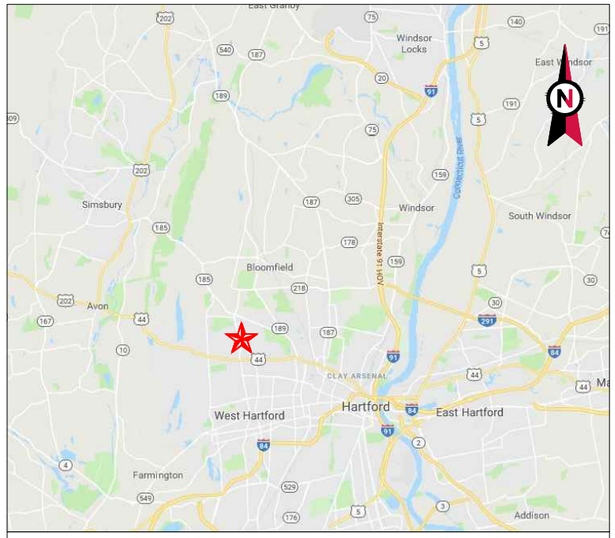
	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N1	max	1623.079	3	1228.632	16	2463.981	31	1953.211	37	-1668.736	1	3185.91	13
2		min	-1758.6...	11	-1515.6...	8	585.869	1	-1850.93	77	-6768.956	32	-2913.976	5
3	N67	max	1484.085	18	1763.327	15	2475.247	20	-1402.845	50	3218.53	19	3137.535	3
4		min	-1635.9...	10	-1475.3...	7	633.075	43	-6039.857	25	437.285	11	-2707.866	11
5	N33	max	1660.532	4	1673.086	15	2462.192	26	5722.313	25	3740.644	31	3229.334	8
6		min	-1370.2...	12	-1675.4...	7	590.513	1	1304.96	1	645.903	39	-2881.411	16
7	Totals:	max	4624.347	3	4624.373	15	7331.692	27						
8		min	-4624.39	11	-4624.4...	7	1903.152	1						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Lo...	LC	Shear Check	Loc[in]	Dir	LC	phi*...	phi*...	phi*...	phi*...	...	Eqn
1	M6	PIPE_2.0	.919	44...	16	.121	44.463		10	1491..	32130	1871..	1871..		H1-...
2	M9	PIPE_2.0	.919	44...	6	.121	44.463		15	1491..	32130	1871..	1871..		H1-...
3	M12	PIPE_2.0	.919	44...	11	.128	44.463		5	1491..	32130	1871..	1871..		H1-...
4	M76	HSS4X4X3	.872	0	19	.175	0	y	74	7469..	81270	9633..	9633..		H1-...
5	M77	HSS4X4X3	.860	0	24	.165	0	y	32	7469..	81270	9633..	9633..		H1-...
6	M78	HSS4X4X3	.843	0	30	.304	0	y	37	7469..	81270	9633..	9633..		H1-...
7	M1	PIPE_3.0	.637	67...	32	.167	67.642		32	3613..	65205	5748..	5748..		H1-...
8	M3	PIPE_3.0	.618	67...	27	.199	66.316		43	3613..	65205	5748..	5748..		H1-...
9	M2	PIPE_3.0	.618	67...	22	.156	67.642		22	3613..	65205	5748..	5748..		H1-...
10	M4	PIPE_2.0	.390	35...	32	.106	41.684		16	2086..	32130	1871..	1871..		H1-...
11	M7	PIPE_2.0	.366	35...	22	.102	41.684		5	2086..	32130	1871..	1871..		H1-...
12	M8	PIPE_2.0	.351	35...	22	.090	10.611		17	2086..	32130	1871..	1871..		H1-...
13	M10	PIPE_2.0	.349	35...	27	.114	41.684		11	2086..	32130	1871..	1871..		H1-...
14	M11	PIPE_2.0	.346	35...	27	.088	35.621		7	2086..	32130	1871..	1871..		H1-...
15	M5	PIPE_2.0	.339	35...	33	.104	18.189		12	2086..	32130	1871..	1871..		H1-...
16	M81	PIPE_4.0	.103	9....	38	.131	9.095		11	9257..	93240	1063..	1063..		H1-...
17	M79	PIPE_4.0	.054	9....	31	.134	9.095		16	9257..	93240	1063..	1063..		H1-...
18	M80	PIPE_4.0	.054	9....	20	.129	9.095		6	9257..	93240	1063..	1063..		H1-...
19	M82	PIPE_2.0	.054	38...	25	.060	0		73	1984..	32130	1871..	1871..		H1-...
20	M84	PIPE_2.0	.052	38...	31	.033	0		14	1984..	32130	1871..	1871..		H1-...
21	M83	PIPE_2.0	.052	38...	20	.083	0		35	1984..	32130	1871..	1871..		H1-...

Envelope AISI S100-12: LRFD Cold Formed Steel Code Checks

	Memb...	Shape	Code Check	Loc[in]	LC	Shear Ch...	Loc...	Dir	LC	phi*P...	phi*T...	phi*M...	phi*M...	Cb	Cm...	Cm...	Eqn
1	M85	Unistrut P1...	.515	33.352	74	.126	0	y	82	9712...	1648...	492.6...	707.9...	2.1...	.6	.85	C3.3...
2	M86	Unistrut P1...	.451	0	38	.124	33....	y	36	9712...	1648...	492.6...	707.9...	2.2...	1	.85	C3.3...
3	M87	Unistrut P1...	.370	0	8	.043	0	y	11	9712...	1648...	561.81	710.6...	1.2...	1	.85	C5.1...



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: NORTH BLOOMFIELD CT
ATC SITE NUMBER: 283562
T-MOBILE SITE ID: CTHA068A
SITE ADDRESS: 2627 DAY HILL ROAD BLOOMFIELD, CT 06002

T-MOBILE ANTENNA AMENDMENT
67D92DB OUTDOOR CONFIGURATION

LOCATION MAP

COMPLIANCE CODE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE (IBC)
2. NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: CONNECTICUT LIGHT & POWER
PHONE: (888) 783-6617

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS
PHONE: (800) 921-8102

811 Know what's below. Call before you dig.

PROJECT SUMMARY

SITE ADDRESS:

2627 DAY HILL ROAD
BLOOMFIELD, CT 06002
COUNTY: HARTFORD

GEOGRAPHIC COORDINATES:

LATITUDE: 41.87650777

LONGITUDE: -72.7418397

GROUND ELEVATION: 207' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

ENGINEER:

ATC TOWER SERVICES, LLC
3500 REGENCY PKWY STE 100
CARY, NC 27518

PROPERTY OWNER:

RIVER BEND DEVELOPMENT INC
C/O GRIFFIN LAND
204 WEST NEWBERRY RD
BLOOMFIELD, CT, 44702-1410

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:

REMOVE (6) PANELS AND (3) RRUs

INSTALL (6) NEW PANELS AND (3) RRUs

EXISTING (3) PANELS AND (3) 1-5/8" HYBRID CABLES TO REMAIN

PROJECT NOTES

1. THE FACILITY IS UNMANNED.
2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
5. HANDICAP ACCESS IS NOT REQUIRED.

PROJECT LOCATION DIRECTIONS

FROM HARTFORD, CT:

TAKE I-91 NORTH TOWARD SPRINGFIELD MA. TAKE EXIT 36 CT-178 TOWARD BLOOMFIELD. TURN LEFT ONTO CT-178. TURN RIGHT ONTO BLUE HILLS AVE CT-187. TURN LEFT ONT DAY HILL ROAD. SITE IS ON LEFT JUST PAST RR TRACKS

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	2	01/18/19	KL
G-002	GENERAL NOTES	1	10/17/18	AMM
C-101	DETAILED SITE PLAN & TOWER ELEVATION	1	10/17/18	AMM
C-501	ANTENNA INFORMATION & SCHEDULE	2	01/18/19	KL
E-501	GROUNDING DETAILS	1	10/17/18	AMM
R-601	SUPPLEMENTAL			

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

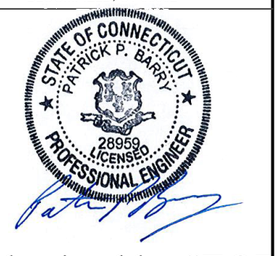
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	NS	08/29/18
1	REVISED ADDRESS	AMM	10/17/18
2	REVISED HYBRIDS	KL	01/18/19

ATC SITE NUMBER:
283562

ATC SITE NAME:
NORTH BLOOMFIELD CT

SITE ADDRESS:
2627 DAY HILL ROAD
BLOOMFIELD, CT 06002

SEAL:



Authorized by "EOR"
Jan 22 2019 10:57 AM

T-Mobile cosign

DRAWN BY:	NS
APPROVED BY:	KRF
DATE DRAWN:	08/29/18
ATC JOB NO:	12607180

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	2

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC MASTER SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE WIRELESS REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE WIRELESS REP PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE WIRELESS REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE WIRELESS CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE WIRELESS REP IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
17. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
18. CONTRACTOR SHALL FURNISH T-MOBILE WIRELESS WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
19. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE WIRELESS REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
20. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE WIRELESS REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE WIRELESS MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE WIRELESS SPECIFICATIONS AND REQUIREMENTS.
22. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE WIRELESS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
23. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE WIRELESS SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
24. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
25. CONTRACTOR SHALL NOTIFY T-MOBILE WIRELESS REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
27. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
28. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE WIRELESS REP. ANY WORK FOUND BY THE T-MOBILE WIRELESS REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
29. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
   A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
   B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
   C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
   D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
   E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
   A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
   B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
   C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
   D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
   E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
   F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
   G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING ½" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

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A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

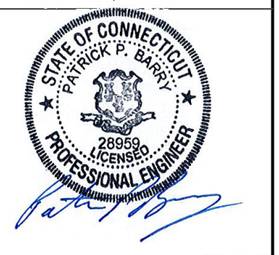
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	NS	08/29/18
1	REVISED ADDRESS	AMM	10/17/18

ATC SITE NUMBER:
283562

ATC SITE NAME:
NORTH BLOOMFIELD CT

SITE ADDRESS:
2627 DAY HILL ROAD
BLOOMFIELD, CT 06002

SEAL:



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DRAWN BY:	NS
APPROVED BY:	KRF
DATE DRAWN:	08/29/18
ATC JOB NO:	12607180

GENERAL NOTES

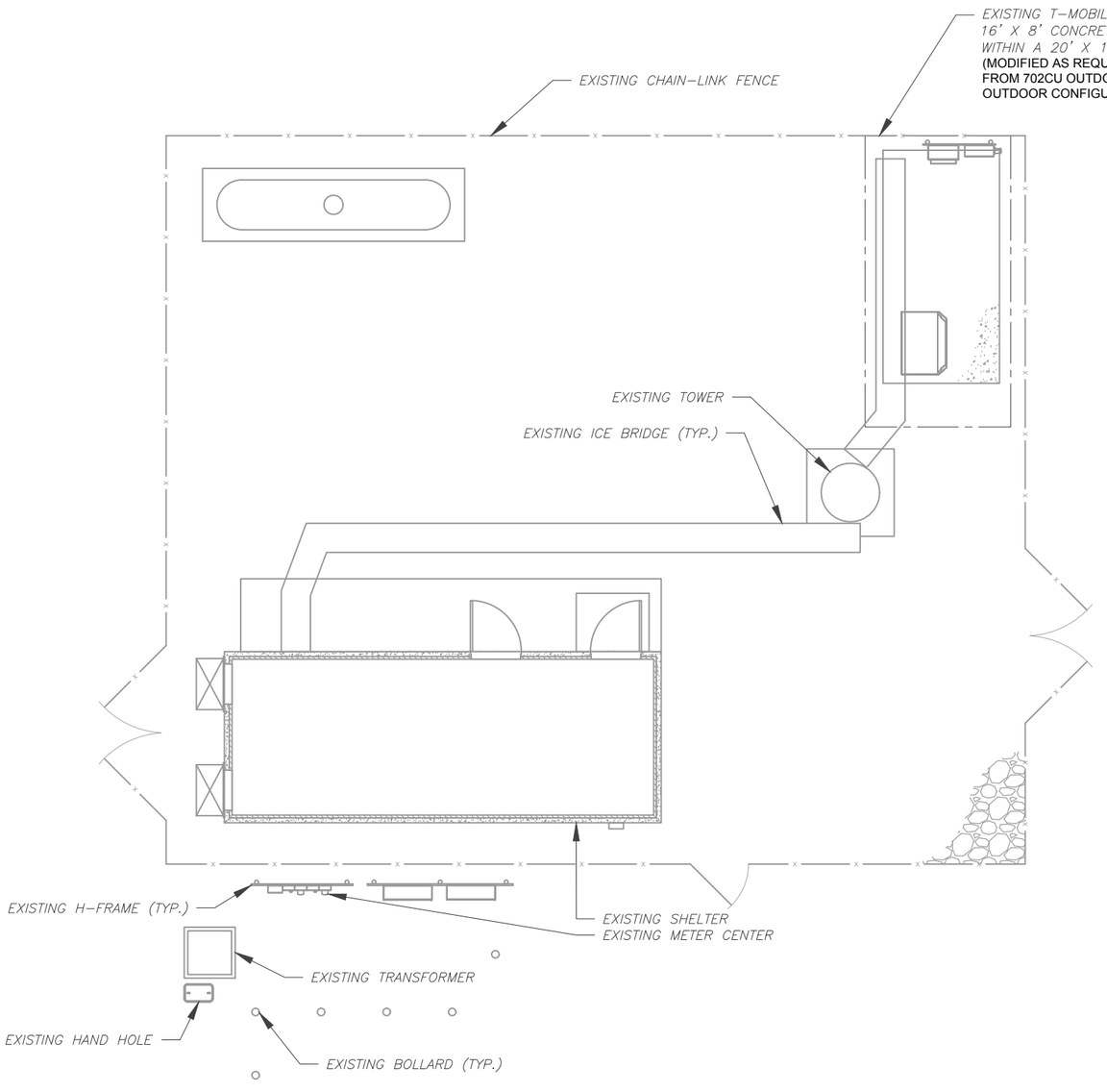
SHEET NUMBER:	REVISION:
G-002	1

SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.

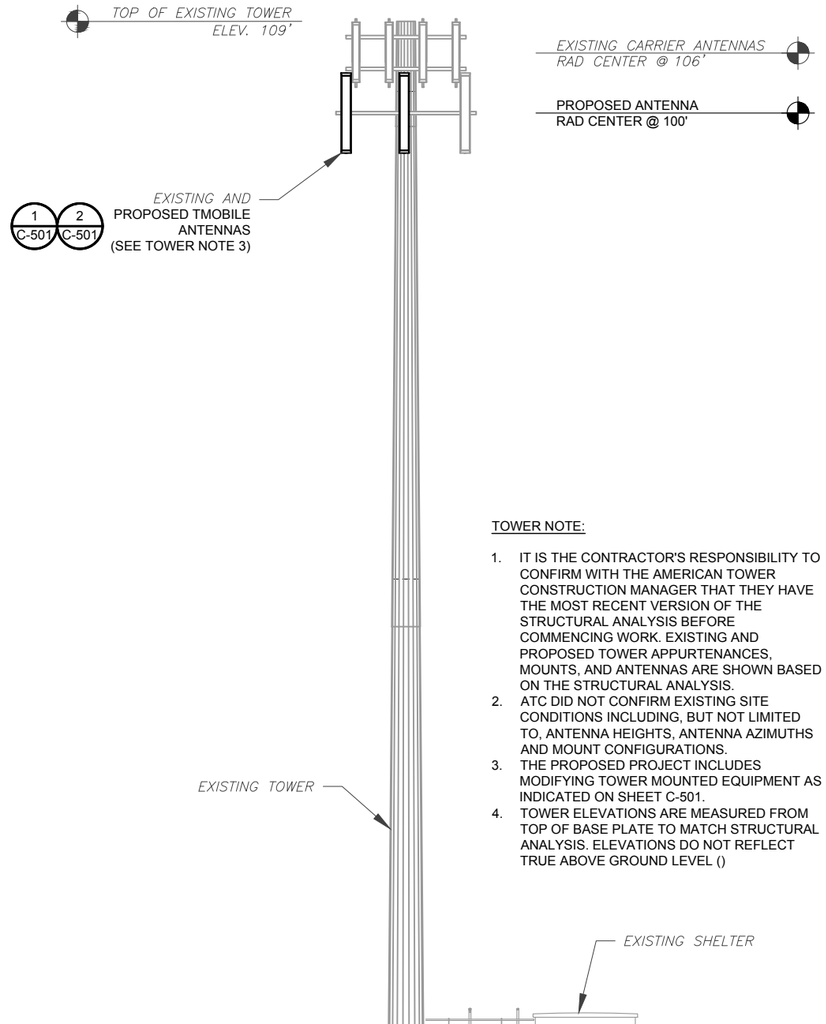
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.



1 DETAILED SITE PLAN

0 10' 20'

SCALE: 1"=10' (11X17)
1"=5' (22X34)



TOWER NOTE:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
2. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
3. THE PROPOSED PROJECT INCLUDES MODIFYING TOWER MOUNTED EQUIPMENT AS INDICATED ON SHEET C-501.
4. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL ()

2 TOWER ELEVATION
SCALE: NOT TO SCALE

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COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	NS	08/29/18
1	REVISED ADDRESS	AMM	10/17/18

ATC SITE NUMBER:
283562

ATC SITE NAME:
NORTH BLOOMFIELD CT

SITE ADDRESS:
2627 DAY HILL ROAD
BLOOMFIELD, CT 06002

SEAL:

STATE OF CONNECTICUT
PATRICK P. BARRY
28959
LICENSED
PROFESSIONAL ENGINEER

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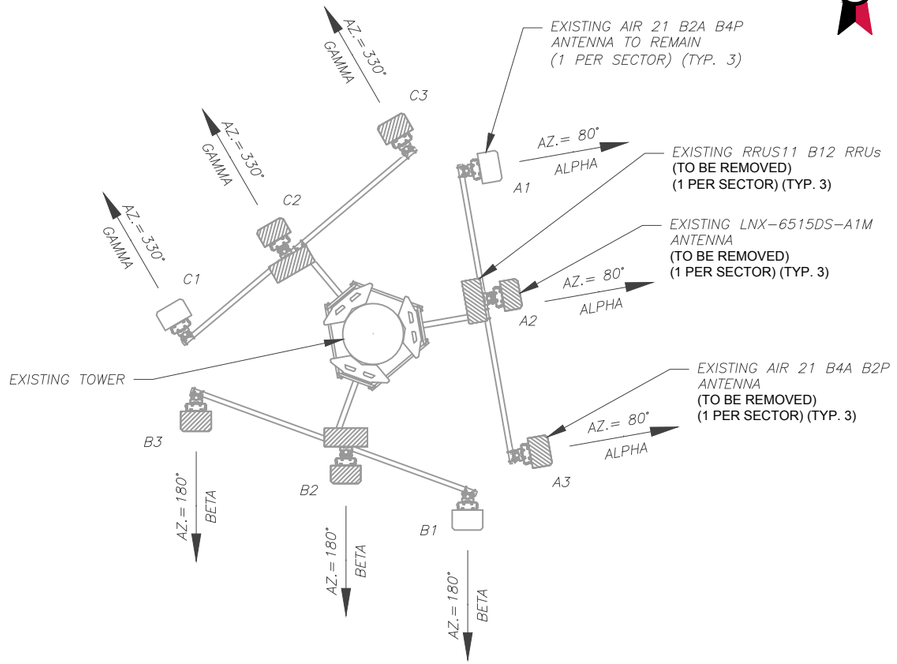
APPROVED BY:	KRF
DATE DRAWN:	08/29/18
ATC JOB NO:	12607180

DETAILED SITE PLAN & TOWER ELEVATION

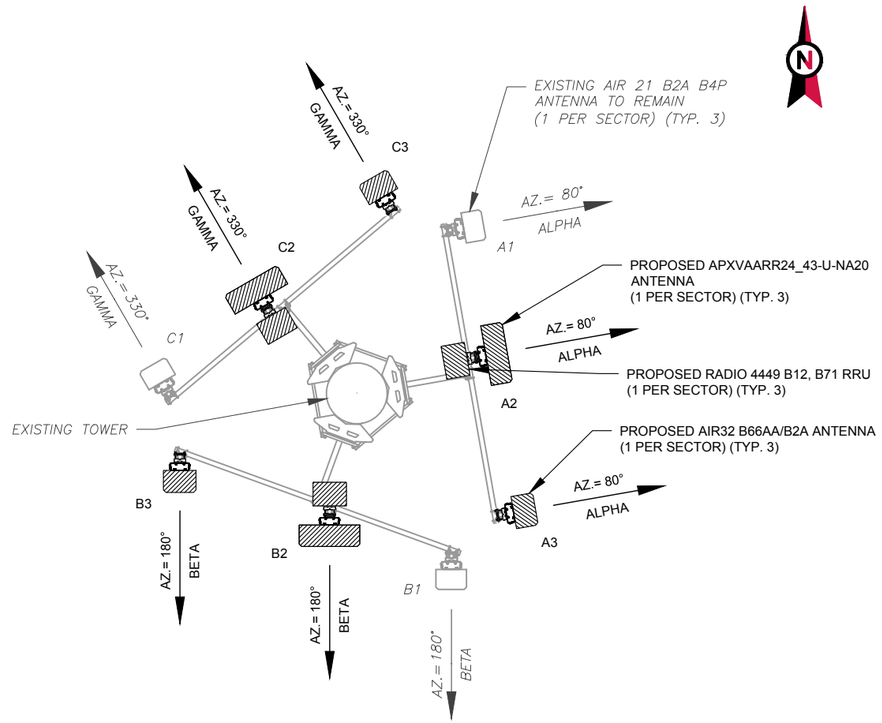
SHEET NUMBER:	REVISION:
C-101	1



1 EXISTING ANTENNA PLAN

NOTES:

1. ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIGURATION OR MOUNT CONFIGURATION. CONTRACTOR TO VERIFY MOUNT CONFIGURATION HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (I.E. CLEARANCES, MOUNT PIPE OR SUFFICIENT LENGTH, ETC.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.



2 FINAL ANTENNA PLAN

NOTES:

1. ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH THE ATC CM.
2. SPACING OF PROPOSED EQUIPMENT SHALL BE CONFIRMED FOR TOWER CONFLICTS AND PROPOSED MOUNTS SHALL NOT IMPEDE TOWER CLIMBING PEGS.

EXISTING ANTENNA/ COAX SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA COAX DESCRIPTION
ALPHA	A1	AIR 21 B2A B4P	100'-0"	80°	0°	2°	–	–
ALPHA	A2	LNX-6515DS-A1M	100'-0"	80°	0°	2°	RRUS11 B2	–
ALPHA	A3	AIR 21 B4A B2P	100'-0"	80°	0°	2°	–	–
BETA	B1	AIR 21 B2A B4P	100'-0"	180°	0°	2°	–	–
BETA	B2	LNX-6515DS-A1M	100'-0"	180°	0°	2°	RRUS11 B2	–
BETA	B3	AIR 21 B4A B2P	100'-0"	180°	0°	2°	–	–
GAMMA	C1	AIR 21 B2A B4P	100'-0"	330°	0°	2°	–	–
GAMMA	C2	LNX-6515DS-A1M	100'-0"	330°	0°	2°	RRUS11 B2	–
GAMMA	C3	AIR 21 B4A B2P	100'-0"	330°	0°	2°	–	–

1. (3) EXISTING 1-5/8" HYBRID CABLE (TO REMAIN)

3 ANTENNA SCHEDULE

FINAL ANTENNA/ COAX SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA COAX DESCRIPTION
ALPHA	A1	AIR 21 B2A B4P	100'-0"	80°	0°	2°	–	–
ALPHA	A2	APXVAARR24_43-U-NA20	100'-0"	80°	0°	2°	RADIO 4449 B12, B71	–
ALPHA	A3	AIR32 B66AA/B2A	100'-0"	80°	0°	2°	-	–
BETA	B1	AIR 21 B2A B4P	100'-0"	180°	0°	2°	–	–
BETA	B2	APXVAARR24_43-U-NA20	100'-0"	180°	0°	2°	RADIO 4449 B12, B71	–
BETA	B3	AIR32 B66AA/B2A	100'-0"	180°	0°	2°	-	–
GAMMA	C1	AIR 21 B2A B4P	100'-0"	330°	0°	2°	–	–
GAMMA	C2	APXVAARR24_43-U-NA20	100'-0"	330°	0°	2°	RADIO 4449 B12, B71	–
GAMMA	C3	AIR32 B66AA/B2A	100'-0"	330°	0°	2°	-	–

1. BASED ON APPROVED ATC APPLICATION 12605176, DATED 08/13/2018. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS.
2. (3) EXISTING 1-5/8" HYBRID CABLE (TO REMAIN)

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	NS	08/29/18
1	REVISED ADDRESS	AMM	10/17/18
2	REVISED HYBRIDS	KL	01/18/19

ATC SITE NUMBER:
283562

ATC SITE NAME:
NORTH BLOOMFIELD CT

SITE ADDRESS:
2627 DAY HILL ROAD
BLOOMFIELD, CT 06002

SEAL:

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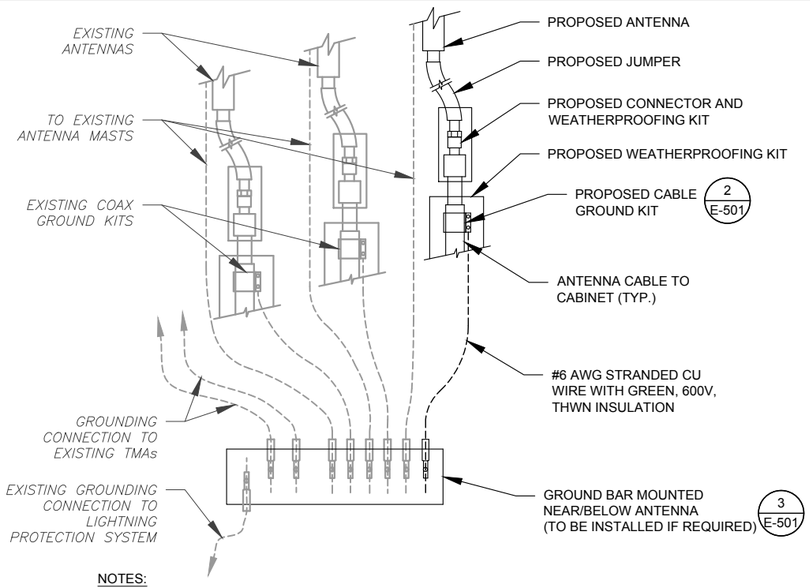
DRAWN BY:	NS
APPROVED BY:	KRF
DATE DRAWN:	08/29/18
ATC JOB NO:	12607180

ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-501	2

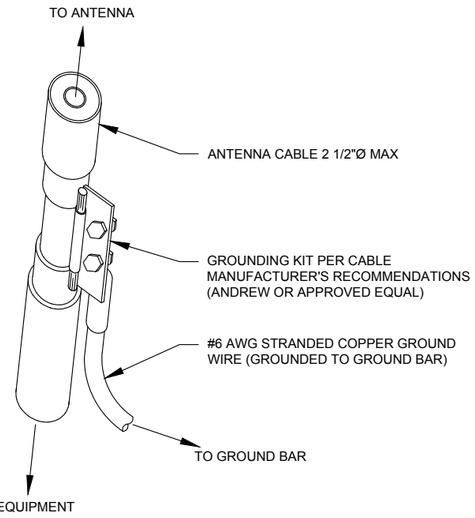


NOTES:

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: NOT TO SCALE

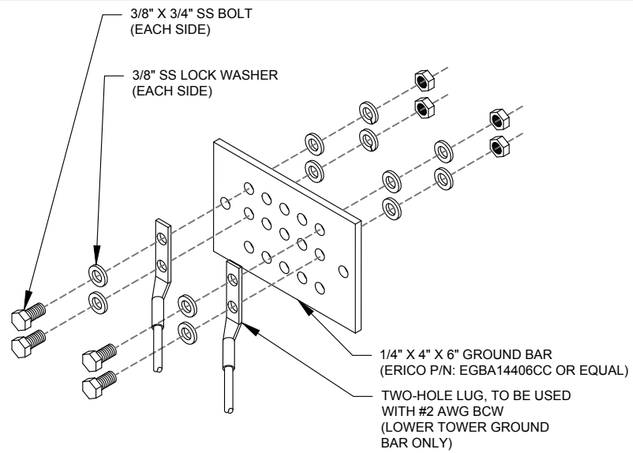


GROUND KIT NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

2 CABLE GROUND KIT CONNECTION DETAIL

SCALE: NOT TO SCALE



GROUND BAR NOTES:

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL

SCALE: NOT TO SCALE

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SUITE 100
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PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	NS	08/29/18
1	REVISED ADDRESS	AMM	10/17/18

ATC SITE NUMBER:
283562

ATC SITE NAME:
NORTH BLOOMFIELD CT

SITE ADDRESS:
2627 DAY HILL ROAD
BLOOMFIELD, CT 06002

SEAL:

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DRAWN BY:	NS
APPROVED BY:	KRF
DATE DRAWN:	08/29/18
ATC JOB NO:	12607180

GROUNDING DETAILS

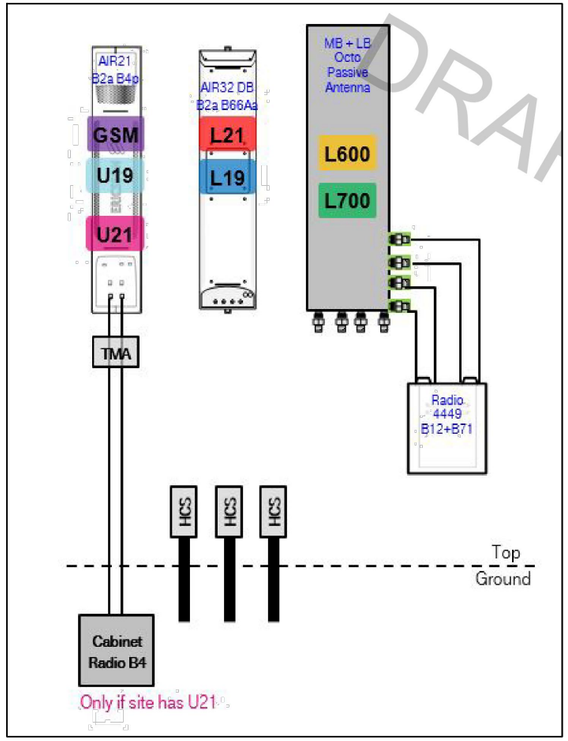
SHEET NUMBER:	REVISION:
E-501	1

Section 5 - RAN Equipment

Existing RAN Equipment		
Template: 702Cu Outdoor		
Enclosure	1	2
Enclosure Type	RBS 6131	Ancillary Equipment
Baseband	DUS41 (L2100); DUW30 (U1900 (DECOMMISSIONED)); DUG20 (G1900)	
Hybrid Cable System		Ericsson 9x18 HCS *Select Length*
Multiplexer	XMU (L700)	

Proposed RAN Equipment		
Template: 67D92DB Outdoor		
Enclosure	1	2
Enclosure Type	RBS 6131	Ancillary Equipment
Baseband	DUW30 (U2100); DUG20 (G1900); BB 5216 (L2100, L1900, L700, L600)	
Hybrid Cable System		Ericsson 9x18 HCS *Select Length*; Ericsson 6x12 HCS 6AWG 50m
Multiplexer	XMU	
Radio	RU22 (x3) (U2100)	
RAN Scope of Work:		

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE



2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	1

UPS Internet Shipping: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.
   Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages.
   Hand the package to any UPS driver in your area.

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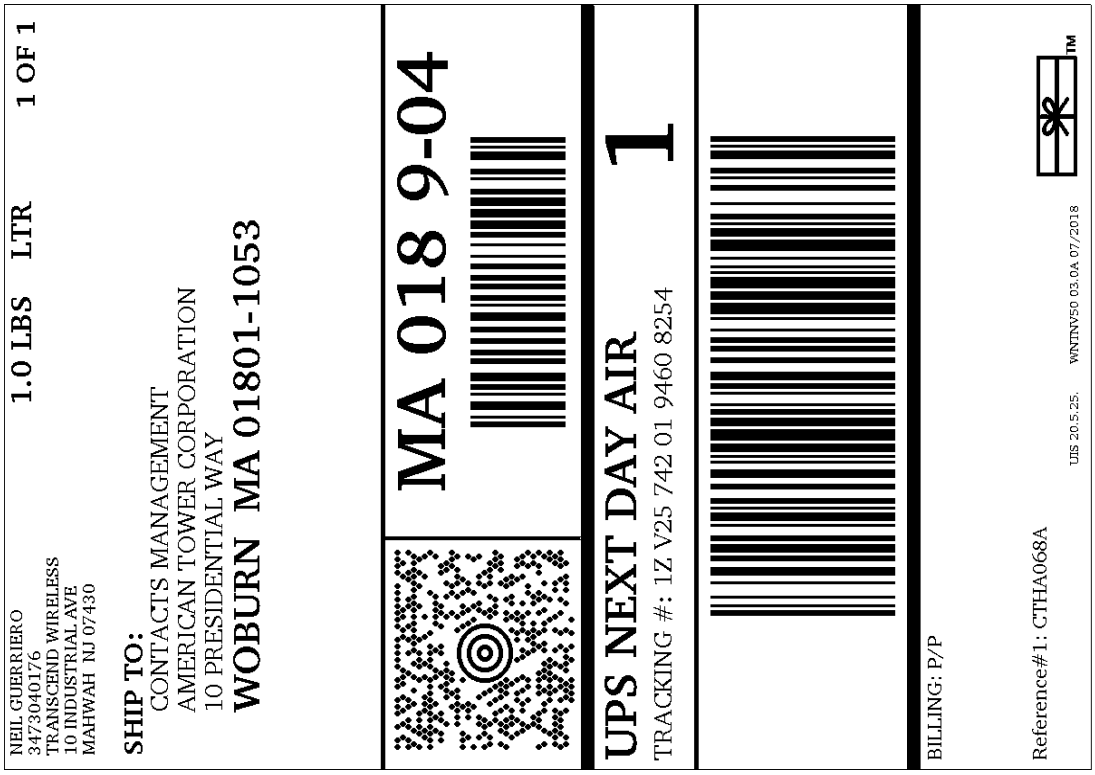
THE UPS STORE
50 E RIDGEWOOD AVE
RIDGEWOOD ,NJ 07450

UPS Access Point™
AMERICAN MAIL STOP
103 GODWIN AVE
MIDLAND PARK ,NJ 07432

UPS Access Point™
FRANKLIN'S PHARMACY
204 WARREN AVE
HO HO KUS ,NJ 07423

FOLD HERE



UPS Internet Shipping: View/Print Label

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2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.
   Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages.
   Hand the package to any UPS driver in your area.

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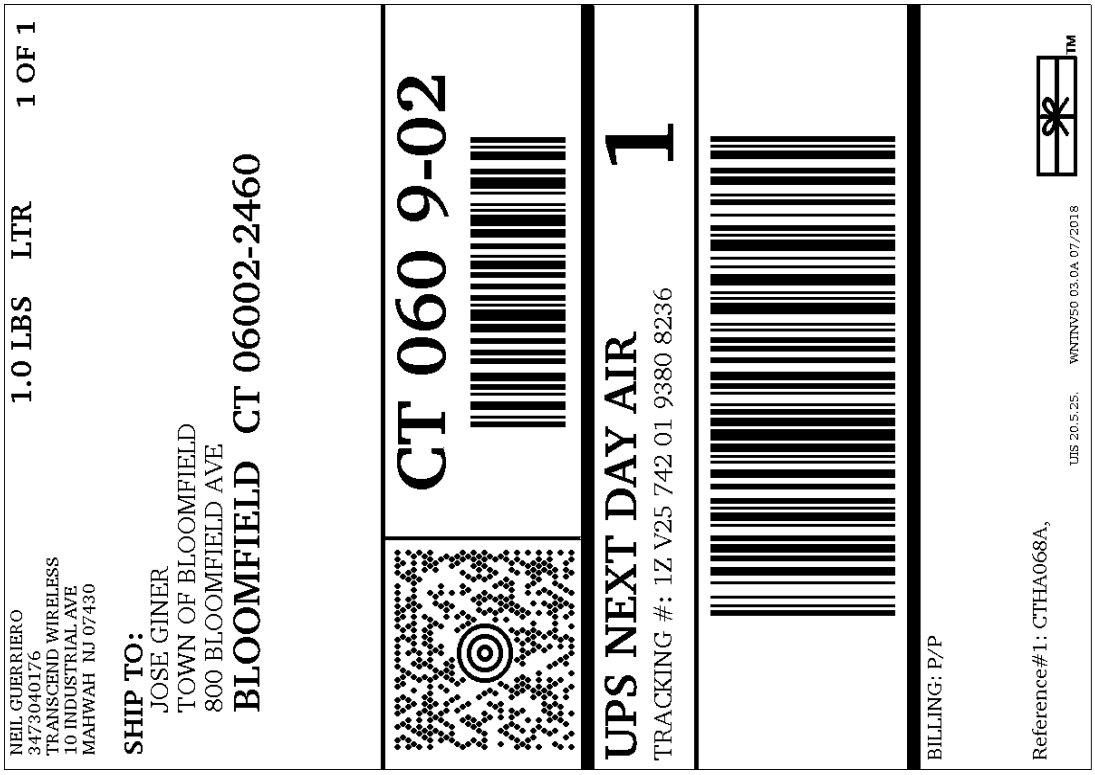
50 E RIDGEWOOD AVE
RIDGEWOOD ,NJ 07450

UPS Access Point™
AMERICAN MAIL STOP
103 GODWIN AVE
MIDLAND PARK ,NJ 07432

UPS Access Point™
FRANKLIN'S PHARMACY
204 WARREN AVE
HO HO KUS ,NJ 07423

FOLD HERE



UPS Internet Shipping: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.
   Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
THE UPS STORE
50 E RIDGEWOOD AVE
RIDGEWOOD ,NJ 07450

UPS Access Point™
AMERICAN MAIL STOP
103 GODWIN AVE
MIDLAND PARK ,NJ 07432

UPS Access Point™
FRANKLIN'S PHARMACY
204 WARREN AVE
HO HO KUS ,NJ 07423

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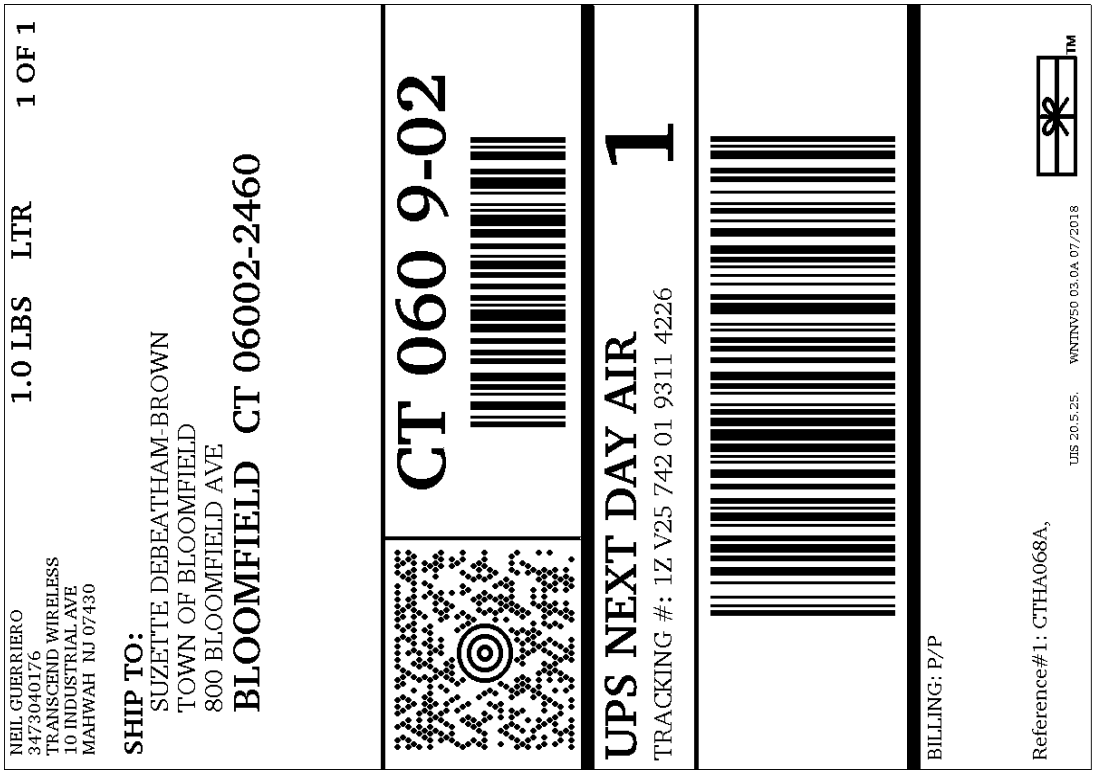

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