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Ship to:	**Ship from:**
Hon. Kurt B. Leng, Mayor	Paul Sagristano
Town of Hamden	CCC
2750 Dixwel Ave	4 Davis Road West
	Suite 5
HAMDEN, CT	OLD LYME, CT
06518	06371
US	US
203-287-7100	9178410247

Shipment Information:
Tracking no.: 774361952415
Ship date: 01/31/2019
Estimated shipping charges: 19.31 USD

Package Information
Pricing option: FedEx Standard Rate
Service type: FedEx Express Saver
Package type: FedEx Envelope
Number of packages: 1
Total weight: 0.50 LBS
Declared Value: 0.00 USD
Special Services: Direct signature required
Pickup/Drop-off: Drop off package at FedEx location

Billing Information:
Bill transportation to: My Account - 429-429
Your reference: CT33XC513 - CSC to Mayor
P.O. no.:
Invoice no.:
Department no.:

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FedEx Shipment Receipt

Address Information

Ship to:	**Ship from:**
Dan Kops - ZoningLand Use	Paul Sagristano
Town of Hamden	CCC
2750 Dixwel Ave	4 Davis Road West Suite 5
HAMDEN, CT	OLD LYME, CT
06518	06371
US	US
203-287-7070	9178410247

Shipment Information:
Tracking no.: 774361922423
Ship date: 01/31/2019
Estimated shipping charges: 19.31 USD

Package Information
Pricing option: FedEx Standard Rate
Service type: FedEx Express Saver
Package type: FedEx Envelope
Number of packages: 1
Total weight: 0.50 LBS
Declared Value: 0.00 USD
Special Services: Direct signature required
Pickup/Drop-off: Drop off package at FedEx location

Billing Information:
Bill transportation to: My Account - 429-429
Your reference: CT33XC513 - CSC to ZEO
P.O. no.:
Invoice no.:
Department no.:

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FedEx Shipment Receipt

Address Information

Ship to:	**Ship from:**
Al Kacerguis, Facilities Manager	Paul Sagristano
Nexstar Media Group - WTNH	CCC
8 Elm Street	4 Davis Road West Suite 5
NEW HAVEN, CT 06510 US	OLD LYME, CT 06371 US
203-627-7355	9178410247

Shipment Information:
Tracking no.: 774362016290
Ship date: 01/31/2019
Estimated shipping charges: 14.31 USD

Package Information
Pricing option: FedEx Standard Rate
Service type: FedEx Express Saver
Package type: FedEx Envelope
Number of packages: 1
Total weight: 0.50 LBS
Declared Value: 0.00 USD
Special Services: No signature required
Pickup/Drop-off: Drop off package at FedEx location

Billing Information:
Bill transportation to: My Account - 429-429
Your reference: CT33XC513 - CSC to LL
P.O. no.:
Invoice no.:
Department no.:

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Please Note

1280 Route 46 West, Suite 9, Parsippany NJ, 07054

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

Re: Notice of Exempt Modification Application
0 Talmadge Road, Hamden, CT 06518

January 31, 2019

Dear Ms. Bachman:

Sprint Spectrum Realty Company, L.P. ("Sprint"), is submitting to the Connecticut Siting Council for a Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site. Sprint currently maintains 3 existing panel antennae and 6 Remote Radio Heads at the 200' level of the Guyed Tower and proposes to add 3 new panel antennae, also at the 200' level of the Monopole.

There are no documents from the initial approvals by CT Siting Council or Town of Hamden, however there is a reference to an EM approval EM-062-130509. The documents enclosed have been modified where necessary to reflect the current reality of the installations on the Monopole.

If you have any questions, please feel free to contact me.

Thank you,

By: *Paul F. Sagristano*

Paul F. Sagristano
Cherundolo Consulting
917.841.0247
psagristano@lrivassoc.com

4 Davis Road West, Suite 5 Old Lyme, CT 06371

Ms. Melanie Bachman
Executive Director
CT Siting Council
10 Franklin Square
New Britain, CT 06051

January 31, 2019

Re: Notice of Exempt Modification –
Existing Sprint Telecommunication Facility
0 Talmadge Road, Hamden, CT 06518

Latitude: N41.42305
Longitude: W72.95111

Dear Ms. Bachman:

Sprint currently maintains 3 existing panel antenna and 6 remote radio units at the 200' centerline level of the aforementioned Guyed Tower. Sprint proposes to add 3 panel antenna and 6 remote radio units also at 200' centerline level of the aforementioned tower. Sprint is performing a new high-performance upgrade for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

There is no documentation for the original EM approval or the original Building Permit, there is however information on a recent EM approval from CSC (EM-062-130509).

Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, for construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).
In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to Hon. Kurt B Leng, Mayor of the Town of Hamden, Dan Kops, the director of P&Z for the Town of Hamden and Al Kacerguis, the Facilities Manager for WTNH, the property owners.
.
Attached is a summary of the planned modifications, including power density calculations reflecting the change in Sprint's operations at the site. Also included is documentation of the structural sufficiency of the tower with proposed modifications to accommodate the revised antenna configuration.

Existing Facility

The Hamden facility is located at 101 Talmadge Road, Hamden, CT 06518, the Site coordinates are: N41. 42305, W – 72.95111. The facility is owned by Nexstar Media Group, WTNH Television. The existing facility consists of a 907' guyed Tower and Sprint currently operates wireless communications equipment on a steel platform at the facility and has three antenna and three RRU's mounted on the monopole at a centerline of 200' feet

Statutory Considerations

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

1. The height of the overall structure will be unaffected.

2. The proposed changes will not require an extension of the property boundaries.

3. The proposed additions will not increase the noise level at the existing facility by

six decibels or more, or to levels that exceed state and/or local criteria

4. The changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications 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, Sprint respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section §16-50j-72(b)(2).

Respectfully submitted,

Paul F. Sagristano

Paul F. Sagristano
Charles Cherundolo Consulting
917-841-0247
psagristano@lrivassoc.com

PFS/mtf

Additional Recipients:
Town of Hamden – Mayor Kurt Leng – Via Fed Ex
WTNH – Al Kacerguis – Facilities Manager for Tower Owner - Via Fed Ex
Town of Hamden – Planning Director Dan Kops – Via Fed Ex

Google Maps

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No delays nearby

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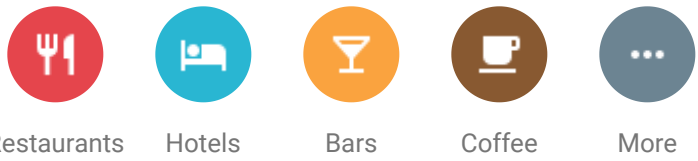


Hide

0 TALMADGE RD

Location	0 TALMADGE RD	**Mblu**	3123/ 008/ / /
Acct#		**Owner**	L I N TELEVISION CORP
Assessment	$373,940	**Appraisal**	$534,200
PID	100690	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$34,500	$499,700	$534,200
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$24,150	$349,790	$373,940

Owner of Record

Owner	L I N TELEVISION CORP	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	333 EAST FRANKLIN ST RICHMOND, VA 23219	**Book & Page**	1905/ 206
		Sale Date	11/29/1999

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
L I N TELEVISION CORP	$0		1905/ 206	11/29/1999
L W W I BROADCASTING INC	$605,000		1470/ 283	12/29/1994
COOK INLET COMMUNICATIONS CORP	$0		740/ 459	01/03/1986

Building Information

Building 1 : Section 1

Year Built:	1965
Living Area:	812
Building Percent Good:	65

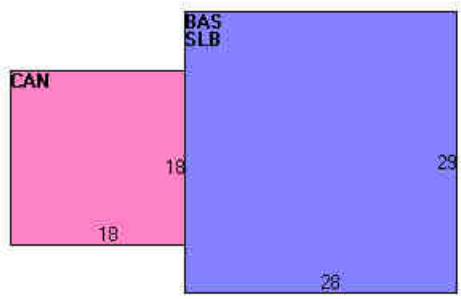
Building Attributes	
Field	**Description**
STYLE	Warehouse

MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	RAD/TV TR M96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	4330
Heat/AC	NONE
Frame Type	STEEL
Baths/Plumbing	NONE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	10
% Comn Wall	0

Building Photo

(http://images.vgsi.com/photos/HamdenCTPhotos//\00\02\80/12

Building Layout



(http://images.vgsi.com/photos/HamdenCTPhotos//Sketches/100

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	812	812
CAN	Canopy	324	0
SLB	Slab	0	0
		1,136	812

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 4330

Land Line Valuation

Size (Acres) 35.19

Description	RAD/TV TR M96	**Frontage**	0
Zone	R2	**Depth**	0
Neighborhood	140	**Assessed Value**	$349,790
Alt Land Appr	No	**Appraised Value**	$499,700
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN3	FENCE-6' CHAIN			770 L.F.	$3,500	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$34,500	$499,700	$534,200
2016	$34,500	$499,700	$534,200
2015	$477,600	$559,700	$1,037,300

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$24,150	$349,790	$373,940
2016	$24,150	$349,790	$373,940
2015	$334,320	$370,790	$705,110

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environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT33XC513

Bethany / L&N Communication
Talmadge Road
Hamden, CT 06518

January 23, 2019

EBI Project Number: 6219000181

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	2.12 %

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

EBI Consulting
environmental | engineering | due diligence

January 23, 2019

SPRINT
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Emissions Analysis for Site: **CT33XC513 – Bethany / L&N Communication**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **Talmadge Road, Hamden, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT 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.

General population 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 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) 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 SPRINT Wireless antenna facility located at **Talmadge Road, Hamden, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT 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 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

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

7) For the following calculations, the sample point was the top of a 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.

8) The antennas used in this modeling are the **RFS APXVSPP18-C-A20 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the 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.

9) The antenna mounting height centerlines of the proposed panel antennas are **200 feet** above ground level (AGL) for **Sector A**, **200 feet** above ground level (AGL) for **Sector B** and **200 feet** above ground level (AGL) for Sector C.

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

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**200 feet**	Height (AGL):	**200 feet**	Height (AGL):	**200 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	8,850.04	ERP (W):	8,850.04	ERP (W):	8,850.04
Antenna A1 MPE%	**1.04 %**	Antenna B1 MPE%	**1.04 %**	Antenna C1 MPE%	**1.04 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**200 feet**	Height (AGL):	**200 feet**	Height (AGL):	**200 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**0.59 %**	Antenna B2 MPE%	**0.59 %**	Antenna C2 MPE%	**0.59 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**1.63 %**
T-Mobile	0.49 %
Site Total MPE %:	**2.12 %**

SPRINT Sector A Total:	1.63 %
SPRINT Sector B Total:	1.63 %
SPRINT Sector C Total:	1.63 %
Site Total:	2.12 %

SPRINT _ 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**
Sprint 850 MHz CDMA	1	437.55	200	0.42	850 MHz	567	0.07%
Sprint 850 MHz LTE	2	1,093.88	200	2.09	850 MHz	567	0.37%
Sprint 1900 MHz (PCS) CDMA	5	622.47	200	2.97	1900 MHz (PCS)	1000	0.30%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	200	2.97	1900 MHz (PCS)	1000	0.30%
Sprint 2500 MHz (BRS) LTE	8	778.09	200	5.95	2500 MHz (BRS)	1000	0.59%
						Total:	**1.63%**

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 SPRINT 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:

SPRINT Sector	Power Density Value (%)
Sector A:	1.63 %
Sector B:	1.63 %
Sector C:	1.63 %
SPRINT Maximum MPE % (per sector):	1.63 %
Site Total:	2.12 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **2.12 %** 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.

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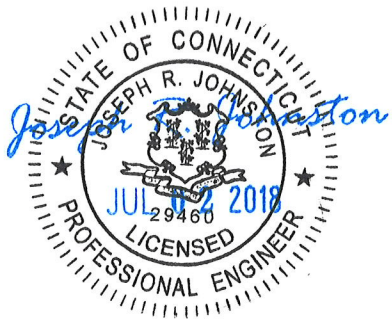
1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

Mount Analysis Report

July 1, 2018

Site Name	CT33XC513
Infinigy Job Number	526-102
Client	Cherundolo
Proposed Carrier	Sprint
Site Location	135 Honey Hill Road East Haddam, CT 06423 41.43690° N NAD83 72.36640° W NAD83
Mount Centerline El.	200.0 ft
Mount Classification	Sector Frame
Passing Structural Usage	**55.8%**
Overall Result	**Contingent Pass- See Required Modification Below.**
Note	**Install (2) SitePro1 SPTB Tie-Backs to opposite tower legs. Replace pipe as needed, Max 20' Length**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The mounts for the proposed carrier are therefore deemed adequate to support the final loading configuration as listed in this report.



Nathaniel R. Ober, E.I.T.
Northeast Structural Region Lead

Contents

Introduction

Infinigy Engineering has been requested to perform a mount analysis on the existing Sprint mounts. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using RISA-3D Version 16.0.4 analysis software.

Supporting Documentation

Sprint RFDS	Sprint Cascade # CT33XC513, dated June 12, 2018

Analysis Code Requirements

Wind Speed	97 mph (3-Second Gust,Vasd) / 127 mph (3-Second Gust,Vult)
Wind Speed w/ ice	50 mph (3-Second Gust,Vasd) w/ 3/4" Ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2012 IBC
Jurisdictional Code	2016 Connecticut State Building Code
Structure Class	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The mounts for the proposed carrier are therefore deemed adequate to support the final loading configuration as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Nathaniel R Ober E.I.T.
Northeast Structural Region Lead | Infinigy
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Final Configuration Loading

Mount CL (ft)	Rad. HT (ft)	Vert. O/S (ft)	Horiz. O/S (ft)*	Qty	Appurtenance	Carrier
200.0	200.0	0.0	0.0	3	Commscope DT465B-2XR	Sprint
			6.0	3	RFS APXVTM14-ALU-I20	
			--	3	Alcatel Lucent 1900 MHz RRH	
			0.0	6	Alcatel Lucent RRH2x50-08	
			0.0	3	Alcatel Lucent TD-RRH8x20-25	

***Horizontal Offset is defined as the distance from the left most edge of the mount face horizontal when viewed facing the tower**

Structure Usages

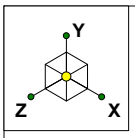
Tie-Back	10.7	Pass
Horizontal	52.7	Pass
Mount Pipe	55.8	Pass
RATING =	**55.8**	**Pass**

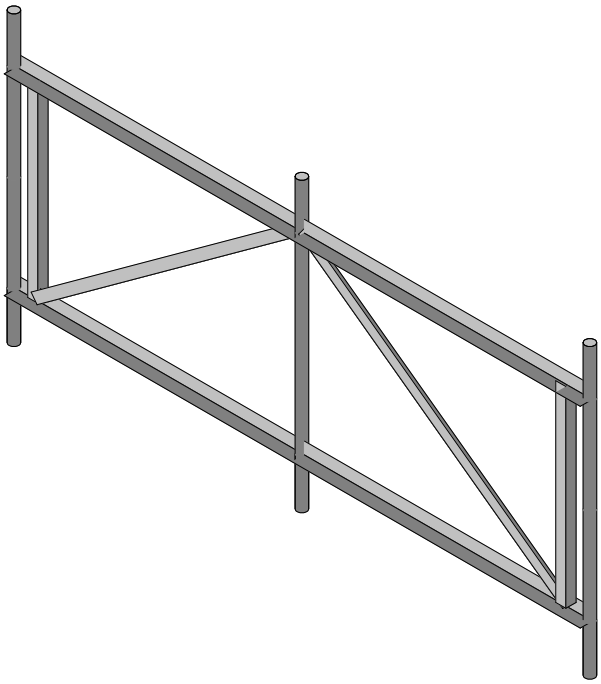
Assumptions and Limitations

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

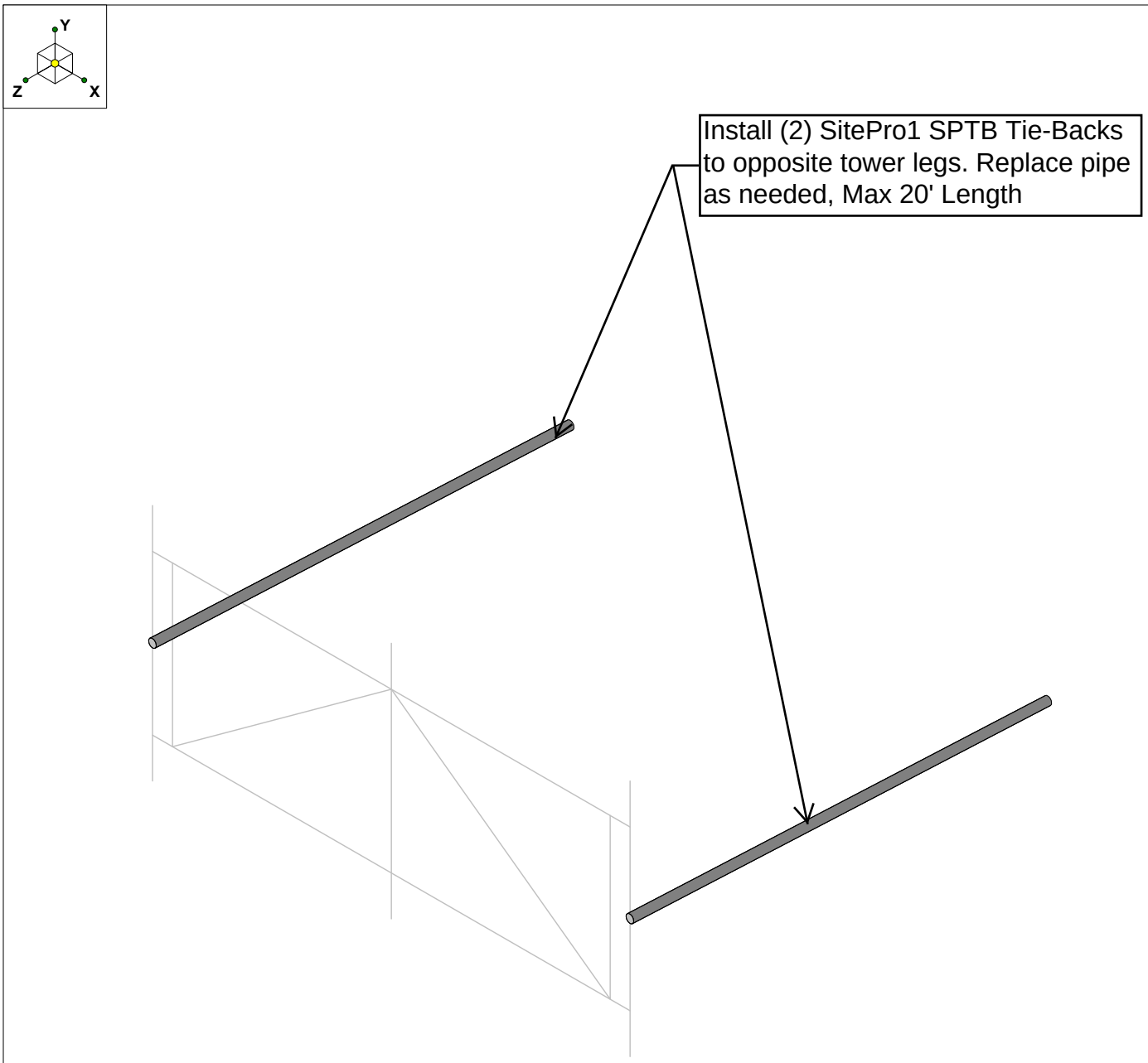
This report is an evaluation of the proposed carriers mount structure only and does not reflect adequacy of the existing tower, other mounts, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.





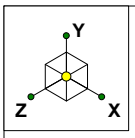
Envelope Only Solution

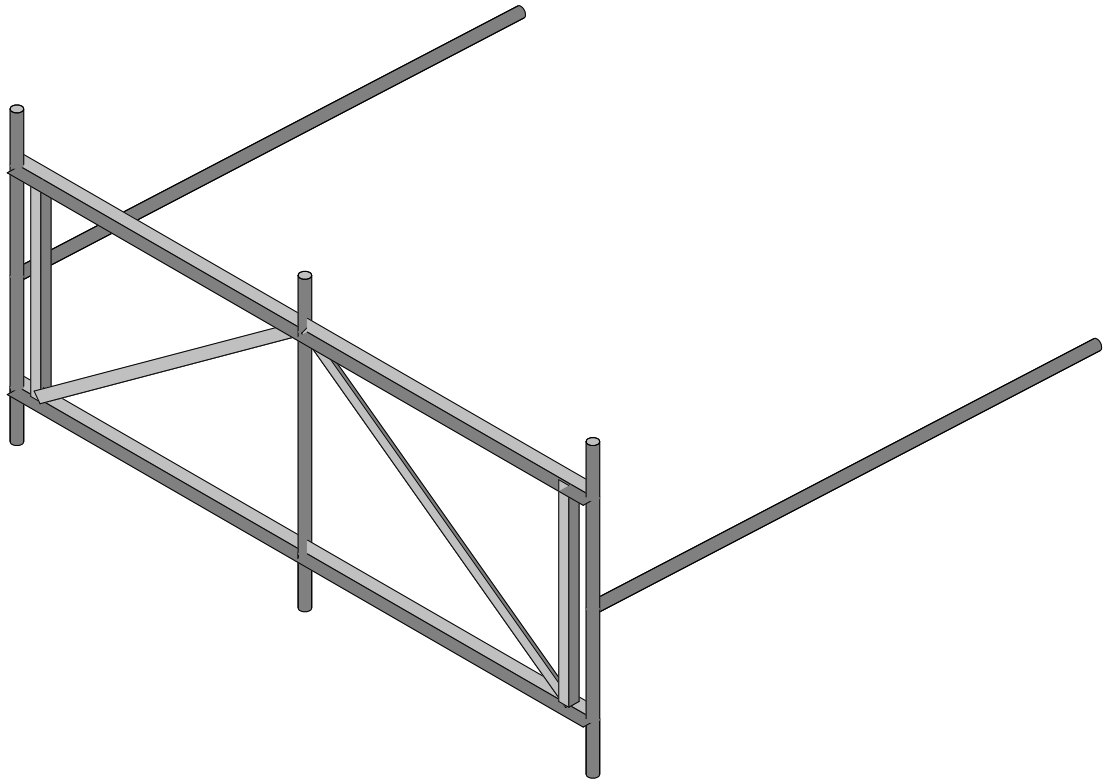
Infinigy Engineering PLLC		
NRO	CT33XC513	July 1, 2018 at 3:39 PM
526-102	Existing Configuration	CT33XC513.r3d



Envelope Only Solution

Infinigy Engineering PLLC		
NRO	CT33XC513	July 1, 2018 at 3:40 PM
526-102	Proposed Modification	CT33XC513.r3d





Envelope Only Solution

Infinigy Engineering PLLC		
NRO	CT33XC513	July 1, 2018 at 3:39 PM
526-102	Final Configuration	CT33XC513.r3d

Site Name:	CT33XC513
Client:	Cherundolo
Carrier:	Sprint
Engineer:	NRO
Date:	7/1/2018

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INFINIGY WIND LOAD CALCULATOR 3.0.2

Site Information Inputs:

Adopted Building Code:	2012 IBC
Structure Load Standard:	TIA-222-G
Antenna Load Standard:	TIA-222-G
Structure Risk Category:	II
Structure Type:	Mount - Sector
Number of Sectors:	3
Structure Shape 1:	Flat

Rooftop Inputs:

Rooftop Wind Speed-Up?:	No

Wind Loading Inputs:

Design Wind Velocity:	97	mph (nominal 3-second gust)
Wind Centerline 1 (z_1):	200.0	ft
Side Face Angle (θ):	60	degrees
Exposure Category:	C	
Topographic Category:	1	

Wind with No Ice		
q_z (psf)	Gh	F_{ST} (psf)
33.51	1.00	**67.02**

Wind with Ice		
q_z (psf)	Gh	F_{ST} (psf)
8.90	1.00	**25.62**

Ice Loading Inputs:

Is Ice Loading Needed?:	Yes	
Ice Wind Velocity:	50	mph (nominal 3-second gust)
Base Ice Thickness:	0.75	in

Input Appurtenance Information and Load Placements:

Appurtenance Name	Elevation (ft)	Total Quantity	Ka	Front Shape	Side Shape	q_z (psf)	EPA (ft^2)	Fz (lbs)	Fx (lbs)	Fz(60) (lbs)	Fx(30) (lbs)
RFS APXVSPP18-C-A20	200.0	3	1.00	Flat	Flat	33.51	8.02	268.91	177.05	200.01	245.94
Commscope DT465B-2XR	200.0	3	1.00	Flat	Flat	33.51	9.22	309.04	196.60	224.71	280.93
ALU TD-RRH8x20-25	200.0	3	1.00	Flat	Flat	33.51	4.03	135.05	51.13	72.11	114.07
ALU RRH 2x50-800	200.0	3	1.00	Flat	Flat	33.51	1.73	58.09	44.68	48.03	54.73
ALU RRH 2x50-800	200.0	3	1.00	Flat	Flat	33.51	1.73	58.09	44.68	48.03	54.73
1900 MHz RRH	200.0	3	1.00	Flat	Flat	33.51	2.40	80.51	49.08	56.94	72.65

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			Horizontal Angle	Beam	Single Angle	A36 Gr.36	Typical
2	M2	N3	N4			Horizontal Angle	Beam	Single Angle	A36 Gr.36	Typical
3	M3	N5	N6			Bracing Angle	None	None	A36 Gr.36	Typical
4	M4	N7	N8			Bracing Angle	None	None	A36 Gr.36	Typical
5	M5	N8	N9			Bracing Angle	None	None	A36 Gr.36	Typical
6	M6	N9	N6			Bracing Angle	None	None	A36 Gr.36	Typical
7	MP3	N10	N11			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
8	MP2	N12	N13			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
9	MP1	N14	N15			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
10	MP10	N20	N19			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
11	M11	N22	N21			Mount Pipe	Column	Pipe	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	Hot Rolled Steel				
2	A36 Gr.36	L2.5x2.5x3	4	259.2	0
3	A36 Gr.36	L3x3x3	2	288	0
4	A53 Gr.B	PIPE_2.0	5	456.3	.1
5	Total HR Steel		11	1003.5	.3

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut..	Area(M...	Surface...
1	Self Weight	DL		-1			6			
2	Wind Load AZI 000	WLZ					6		1	
3	Wind Load AZI 090	WLX					6		1	
4	Ice Weight	OL1					6	9		
5	Wind + Ice Load AZI 000	OL2					6		1	
6	Wind + Ice Load AZI 090	OL3					6		1	
7	Service Live 1	LL				2				
8	BLC 2 Transient Area Loads	None						10		
9	BLC 3 Transient Area Loads	None						9		
10	BLC 5 Transient Area Loads	None						10		
11	BLC 6 Transient Area Loads	None						9		

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..
1	1.4D	Yes	Y		DL	1.4																		
2	1.2D + 1.6W AZI 000	Yes	Y		DL	1.2	W...	1.6																
3	1.2D + 1.6W AZI 030	Yes	Y		DL	1.2	W...	1.3...	W...	.8														
4	1.2D + 1.6W AZI 060	Yes	Y		DL	1.2	W...	.8	W...	1.3...														
5	1.2D + 1.6W AZI 090	Yes	Y		DL	1.2			W...	1.6														
6	1.2D + 1.6W AZI 120	Yes	Y		DL	1.2	W...	-.8	W...	1.3...														
7	1.2D + 1.6W AZI 150	Yes	Y		DL	1.2	W...	-1.3...	W...	.8														
8	1.2D + 1.6W AZI 180	Yes	Y		DL	1.2	W...	-1.6																
9	1.2D + 1.6W AZI 210	Yes	Y		DL	1.2	W...	-1.3...	W...	-.8														
10	1.2D + 1.6W AZI 240	Yes	Y		DL	1.2	W...	-.8	W...	-1.3...														
11	1.2D + 1.6W AZI 270	Yes	Y		DL	1.2			W...	-1.6														
12	1.2D + 1.6W AZI 300	Yes	Y		DL	1.2	W...	.8	W...	-1.3...														
13	1.2D + 1.6W AZI 330	Yes	Y		DL	1.2	W...	1.3...	W...	-.8														
14	0.9D + 1.6W AZI 000	Yes	Y		DL	.9	W...	1.6																
15	0.9D + 1.6W AZI 030	Yes	Y		DL	.9	W...	1.3...	W...	.8														

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...
16	0.9D + 1.6W AZI 060	Yes	Y		DL	.9	W...	.8	W...	1.3...														
17	0.9D + 1.6W AZI 090	Yes	Y		DL	.9			W...	1.6														
18	0.9D + 1.6W AZI 120	Yes	Y		DL	.9	W...	-.8	W...	1.3...														
19	0.9D + 1.6W AZI 150	Yes	Y		DL	.9	W...	-1.3...	W...	.8														
20	0.9D + 1.6W AZI 180	Yes	Y		DL	.9	W...	-1.6																
21	0.9D + 1.6W AZI 210	Yes	Y		DL	.9	W...	-1.3...	W...	-.8														
22	0.9D + 1.6W AZI 240	Yes	Y		DL	.9	W...	-.8	W...	-1.3...														
23	0.9D + 1.6W AZI 270	Yes	Y		DL	.9			W...	-1.6														
24	0.9D + 1.6W AZI 300	Yes	Y		DL	.9	W...	.8	W...	-1.3...														
25	0.9D + 1.6W AZI 330	Yes	Y		DL	.9	W...	1.3...	W...	-.8														
26	1.2D + 1.0Di	Yes	Y		DL	1.2	OL1	1																
27	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	1														
28	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	.5												
29	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	.866												
30	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1			OL3	1												
31	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	.866												
32	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	.5												
33	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-1														
34	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	-.5												
35	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	-.866												
36	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1			OL3	-1												
37	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	-.866												
38	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	-.5												
39	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.096														
40	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.083	W...	.048												
41	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.048	W...	.083												
42	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5			W...	.096												
43	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.048	W...	.083												
44	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.083	W...	.048												
45	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.096														
46	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.083	W...	-.048												
47	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.048	W...	-.083												
48	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5			W...	-.096												
49	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.048	W...	-.083												
50	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.083	W...	-.048												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N9	max	1191.738	30	1750.312	27	701.774	2	.011	14	.095	14	.071	11
2		min	-487.258	23	307.228	20	-701.906	8	-.013	8	-.099	8	-.068	17
3	N16	max	451.251	17	322.745	33	651.051	14	.23	8	.228	14	.2	4
4		min	-1183.278	36	-52.176	14	-653.2	20	-.23	14	-.237	8	-.203	10
5	N19	max	52.042	20	24.326	1	1048.567	2	0	1	0	1	0	1
6		min	-52.178	2	15.591	14	-1046.567	20	0	1	0	1	0	1
7	N21	max	17.592	20	24.326	1	352.328	2	0	1	0	1	0	1
8		min	-17.622	2	15.637	15	-351.943	20	0	1	0	1	0	1
9	Totals:	max	1505.557	5	2065.14	27	2753.149	2						
10		min	-1505.557	23	499.521	20	-2753.149	20						

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

	Member	Shape	Code Check	Lo...	...	Shear C...	Loc[in]	...	LC	phi*Pnc...	phi*Pnt ...	phi*...	phi*...	...	Eqn
1	MP3	PIPE_2.0	.558	36	2	.097	36		8	20866....	32130	1.872	1.872	...	H1-...
2	M2	L3x3x3	.527	72	2	.203	6	y	2	4077.9	35316	1.32	2.132	...	H2-1
3	M6	L2.5x2....	.237	0	8	.011	0	z	8	7100.427	29192.4	.873	1.826	...	H2-1

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

	Member	Shape	Code Check	Lo...	...	Shear C...	Loc[in]	...	LC	phi*Pnc...	phi*Pnt ...	phi*...	phi*...	...	Eqn
4	M5	L2.5x2....	.175	81....	8	.011	81.6...	z	2	7100.427	29192.4	.873	1.878	...	H2-1
5	MP1	PIPE_2.0	.169	36	2	.036	36		2	20866....	32130	1.872	1.872	...	H1-...
6	M1	L3x3x3	.157	72	...	.191	6	y	8	4077.9	35316	1.32	2.068	...	H2-1
7	MP2	PIPE_2.0	.139	60	2	.028	60		2	20866....	32130	1.872	1.872	1	H1-...
8	MP10	PIPE_2.0	.107	12....	2	.003	0		1	9812.067	32130	1.872	1.872	...	H1-...
9	M3	L2.5x2....	.090	48	9	.012	0	z	8	17176....	29192.4	.873	1.909	...	H2-1
10	M4	L2.5x2....	.062	0	9	.008	0	z	2	17176....	29192.4	.873	1.719	...	H2-1
11	M11	PIPE_2.0	.046	60....	2	.003	0		1	9812.067	32130	1.872	1.872	...	H1-...

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Structural Analysis Report

January 14, 2019

Site Name	New Haven, CT
Infinigy Job Number	1108-B0003-B
Client	Sprint
Proposed Carrier	Sprint
Site Location	101 Talmadge Road, Hamden, CT 06518 41° 25' 32.8" N NAD83 72° 57' 0.7" W NAD83
Structure Type	907' Guyed Tower
Structural Usage Ratio	**99.5%**
Overall Result	**Pass**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and its foundation are therefore deemed adequate to support the existing and proposed loading as listed in this report.

Nathaniel R. Ober, E.I.T.
Northeast Structural Region Lead

Contents

Introduction

Infinigy Engineering has been requested to perform a structural analysis on the existing 907' Guyed tower. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The tower was analyzed using tnxTower version 8.0.5.0 tower analysis software.

Supporting Documentation

Structural Analysis	Stainless Report No. 362022, dated 'August 22, 2018'
Tower Drawings	Stainless Report No. 362000, dated 'September 5, 2007'
Site Photos	Infinigy PLLC, dated 'May 18, 2017'

Analysis Code Requirements

Wind Speed	97 mph (3-Second Gust, V_{ASD}) / 125 mph (3-Second Gust, V_{ULT})
Wind Speed w/ ice	50 mph
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2015 IBC / 2018 Connecticut State Building Code
Structure Class	II
Exposure Category	B
Topographic Category	1
Calculated Crest Height	0 ft
Seismic Design Values	S_s=0.185 g, S_1=0.063 g
Soil Type	D - Stiff Soil (Assumed)

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and its foundation are therefore deemed adequate to support the existing and proposed loading as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Nathaniel R Ober E.I.T.
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nober@infinigy.com | www.infinigy.com

Existing Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
875.0	1	Dielectric TCL-12A8(S) Ch. 8	-	(2) 6-1/8”	-
840.0	1	Dielectric THP-O-2-1	-	(1) 3-1/8”	-
804.0	1	TU-Series Antenna (4)	-	-	-
758.0	1	5' Omni	Sidearm	(1) 1-5/8”	-
750.0	1	10' Omni	Sidearm	(1) 7/8”	-
744.0	1	Super Quad ENG	Support Mount	(1) 1-5/8” (1) 1/2”	-
742.0	1	Decibel DB408	Sidearm	(1) 1-5/8”	-
715.0	1	Dielectric TFU-31E/V-R(S) Ch. 59	-	(1) WR1150	-
685.0	1	Ice Shield	-	-	-
678.0	1	Andrew PL8	Pipe Mount	(1) EW63 (1) 1/2”	-
652.0	1	Dielectric TFU 16DSB-B(C) Ch. 39 DTV	-	(1) 4-1/16” Rigid Conduit	-
630.0	1	Andrew PL6-65	Pipe Mount	(1) EW63 (1) 1/2”	-
591.0	1	6015-2/3R FM	Support Mount	(1) 4-1/16” Rigid Conduit	-
529.0	2	Decibel DB408	Sidearm	(2) 7/8”	-
510.0	1	Decibel DB408	Sidearm	(1) 7/8”	-
458.0	1	6810-2R 2-bay FM	Support Mount	(1) 6-1/8” Rigid Conduit	-
420.0	1	15' Omni	Sidearm	(1) 1-5/8” (1) 1/2”	-
	1	10' Omni			
348.0	1	5' Omni	Sidearm	(1) 7/8”	-
346.0	1	Ice Shield	-	-	-
339.0	1	6' Grid Dish	Pipe Mount	(1) 7/8”	-
315.0	3	Celwave APXV18-206517S-C-A20	Sector Mounts	(12) 7/8”	-
	3	Andrew LNX-6515DS-VTM			
200.0	3	APXVSPP18-C-A20	Sector Mounts	(3) 1 1/4” Hybrid Cable	Sprint
	6	RRUs			
166.0	1	Ice Shield	-	-	-
160.0	1	8' Std. Dish w/ Radome	Pipe Mount	(2) EW63	-
102.0	1	15' Omni	Sidearm	(1) 1/2”	-
100.0	1	Decibel ASPG952	Sidearm	(1) 2-1/4”	-
75.0	1	GPS	-	(1) 1/2”	-

To Be Removed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
715.0	1	Dielectric TFU-31E/V-R(S) Ch. 59	-	(1) WR1150	-
652.0	1	Dielectric TFU 16DSB-B(C) Ch. 39 DTV	-	(1) 4-1/16" Rigid Conduit	-

Proposed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
200.0	3	Celwave APXVTM14-C-120	-	(1) 1 1/4" Hybrid Cable	Sprint
	3	Alcatel Lucent TD-RRH8X20			

Final Configuration

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
875.0	1	Dielectric TCL-12A8(S) Ch. 8	-	(2) 6-1/8”	-
840.0	1	Dielectric THP-O-2-1	-	(1) 3-1/8”	-
804.0	1	TU-Series Antenna (4)	-	-	-
758.0	1	5' Omni	Sidearm	(1) 1-5/8”	-
750.0	1	10' Omni	Sidearm	(1) 7/8”	-
744.0	1	Super Quad ENG	Support Mount	(1) 1-5/8” (1) 1/2”	-
742.0	1	Decibel DB408	Sidearm	(1) 1-5/8”	-
685.0	1	Ice Shield	-	-	-
678.0	1	Andrew PL8	Pipe Mount	(1) EW63 (1) 1/2”	-
630.0	1	Andrew PL6-65	Pipe Mount	(1) EW63 (1) 1/2”	-
591.0	1	6015-2/3R FM	Support Mount	(1) 4-1/16” Rigid Conduit	-
529.0	2	Decibel DB408	Sidearm	(2) 7/8”	-
510.0	1	Decibel DB408	Sidearm	(1) 7/8”	-
458.0	1	6810-2R 2-bay FM	Support Mount	(1) 6-1/8” Rigid Conduit	-
420.0	1	15' Omni	Sidearm	(1) 1-5/8” (1) 1/2”	-
	1	10' Omni			
348.0	1	5' Omni	Sidearm	(1) 7/8”	-
346.0	1	Ice Shield	-	-	-
339.0	1	6' Grid Dish	Pipe Mount	(1) 7/8”	-
315.0	3	Celwave APXV18-206517S-C-A20	Sector Mounts	(12) 7/8”	-
	3	Andrew LNX-6515DS-VTM			
200.0	3	APXVSPP18-C-A20	Sector Mounts	(4) 1 1/4” Hybrid Cable	Sprint
	6	RRUs			
	3	Celwave APXVTM14-C-120			
	3	Alcatel Lucent TD-RRH8X20			
166.0	1	Ice Shield	-	-	-
160.0	1	8' Std. Dish w/ Radome	Pipe Mount	(2) EW63	-
102.0	1	15' Omni	Sidearm	(1) 1/2”	-
100.0	1	Decibel ASPG952	Sidearm	(1) 2-1/4”	-
75.0	1	GPS	-	(1) 1/2”	-

Structure Usages

Leg	99.5	Pass
Diagonal	79.5	Pass
Horizontal	39.5	Pass
Top Girt	82.4	Pass
Bottom Girt	6.9	Pass
Inner Bracing	1.3	Pass
Guy A	61.4	Pass
Guy B	58.7	Pass
Guy C	62.0	Pass
Top Guy Pull-Off	60.2	Pass
Bolt Checks	82.4	Pass
Base Foundation	72.1	Pass
RATING =	**99.5**	Pass

Foundation Reactions

Reaction Data	Analysis Reactions	Result
Base Axial (kip)	1174.4	72.1%
Base Shear (kip)	14.0	56.7%
Inner Anchor Uplift (kip)	118.3	60.4%
Inner Anchor Shear (kip)	129.1	78.8%
Outer Anchor Uplift (kip)	162.8	52.4%
Outer Anchor Shear (kip)	137.8	59.6%

Foundation was not analyzed due to lack of information provided at time of analysis.

Deflection, Twist, and Sway

Antenna Elevation (ft)	Deflection (in)	Twist (^{o})	Sway (^{o})
200.0	3.191	0.952	0.069

*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.
*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.
*Per ANSI/TIA-222-G Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.
*It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-G Annex D or other appropriate microwave signal degradation limits based on the provided values above.

Assumptions and Limitations

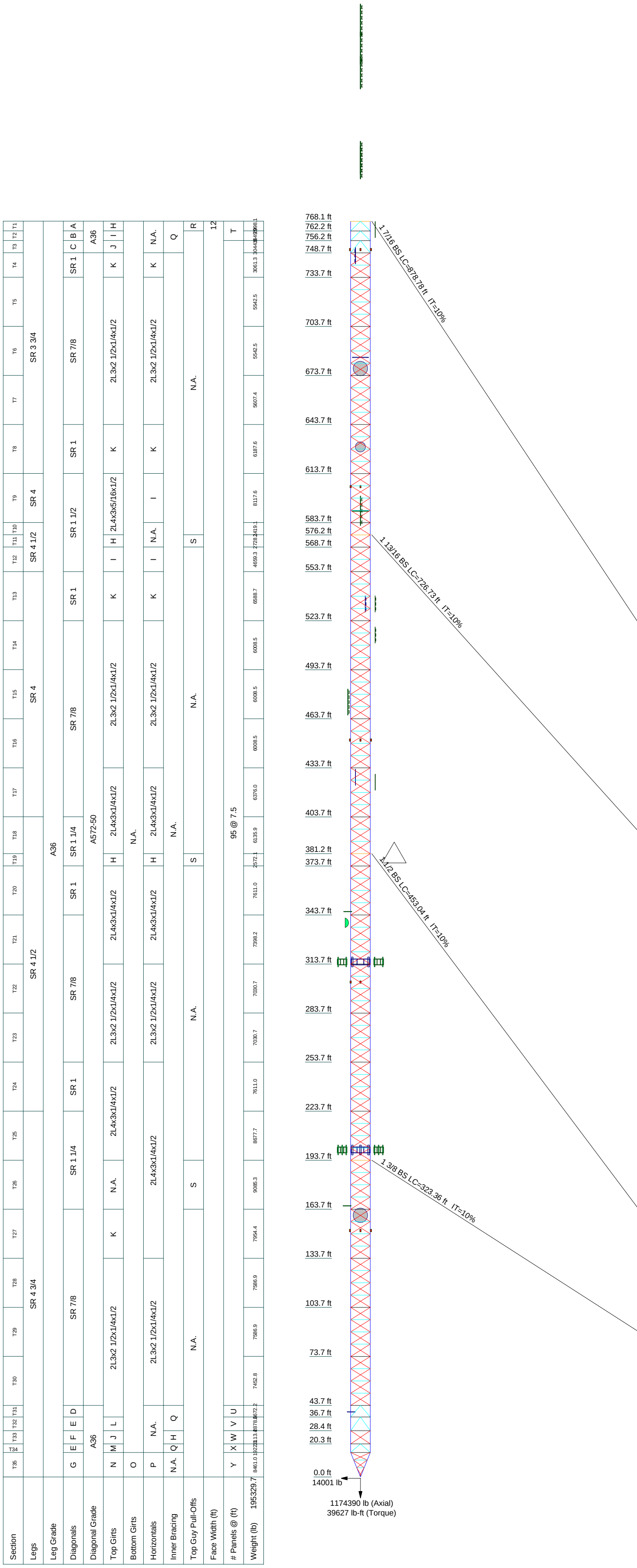
Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

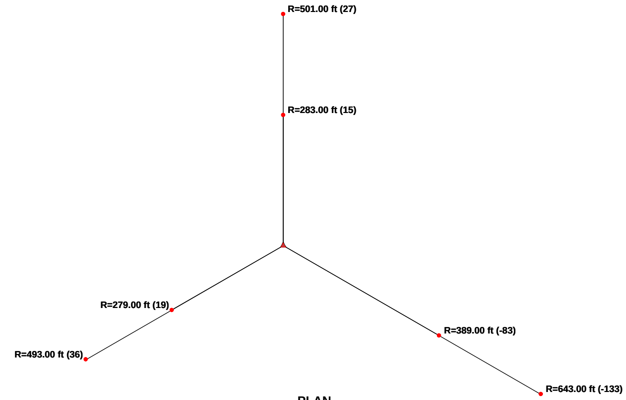
Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or cable mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

The tower leg steel grade information is unavailable and conservatively was assumed to be A36 grade with F_y=36 ksi.

Due to a lack of subsurface information the guy anchor foundations were analyzed based on TIA-222-G presumptive soil parameters.





PLAN

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
TCL-12A8(S) w/ THP-O-2-1 (Top)	891	15' Omni	420
6 1/8" Rigid Conduit	874	6' Angle Sidearm	420
TCL-12A8(S) w/ THP-O-2-1 (Middle)	859	6' x 2" Antenna Mount Pipe	420
TCL-12A8(S) w/ THP-O-2-1 (Bottom)	807	10' Omni	420
TU-Series Antenna (4)	804	6' Angle Sidearm	348
Tieback	765	6' x 2" Antenna Mount Pipe	348
6' Angle Sidearm	758	5' Omni	348
6' x 2" Antenna Mount Pipe	758	Ice Shield	346
10' Omni	758	Pipe Mount	339
Tieback	752	6' Grid Dish	339
Intermediate Side Lights	750	13' Sector Mount (3)	315
Intermediate Side Lights	750	APXV18-206517S-C-A20	315
Intermediate Side Lights	750	APXV18-206517S-C-A20	315
2' Sidearm	750	APXV18-206517S-C-A20	315
5' Omni	750	LNX-6515DS-VTM	315
Support Mount	744	LNX-6515DS-VTM	315
Super Quad ENG	744	LNX-6515DS-VTM	315
6' Angle Sidearm	742	2' Ice Shield	302
6' x 2" Antenna Mount Pipe	742	Flash Beacon Lighting	302
DB408	742	2' Ice Shield	302
Ice Shield	685	2' Ice Shield	302
Pipe Mount	678	Flash Beacon Lighting	302
Angle Tieback	678	2' Ice Shield	302
PL8	678	8' Sector Mount (3) (Sprint)	200
Pipe Mount	630	6'x4" Pipe Mount (Sprint)	200
PL6-65	630	6'x4" Pipe Mount (Sprint)	200
2' Ice Shield	605	6'x4" Pipe Mount (Sprint)	200
2' Ice Shield	605	APXVSPP18-C-A20 w/ Mount Pipe (Sprint)	200
Flash Beacon Lighting	605	APXVSPP18-C-A20 w/ Mount Pipe (Sprint)	200
2' Ice Shield	605	APXVSPP18-C-A20 w/ Mount Pipe (Sprint)	200
2' Ice Shield	605	APXVTM14-C-120 w/ Mount Pipe (Sprint)	200
Flash Beacon Lighting	605	APXVTM14-C-120 w/ Mount Pipe (Sprint)	200
Pipe Support Mount (6)	600 - 582	APXVTM14-C-120 w/ Mount Pipe (Sprint)	200
6015-2/3R FM	600 - 582	TD-RRH8X20 (Sprint)	200
Tieback	539	TD-RRH8X20 (Sprint)	200
Tieback	539	TD-RRH8X20 (Sprint)	200
6' Angle Sidearm	529	(2) RRUs (Sprint)	200
6' x 2" Antenna Mount Pipe	529	(2) RRUs (Sprint)	200
DB408	529	(2) RRUs (Sprint)	200
6' Angle Sidearm	529	Ice Shield	166
6' x 2" Antenna Mount Pipe	529	Pipe Mount	160
DB408	529	8' Std. Dish w/ Radome	160
Tieback	520	Intermediate Side Lights	150
6' Angle Sidearm	510	Intermediate Side Lights	150
6' x 2" Antenna Mount Pipe	510	Intermediate Side Lights	150
DB408	510	15' Omni	102
6810-2R 2-bay FM	482 - 466	3' Angle Sidearm	102
Intermediate Side Lights	450	3' Sidearm	100
Intermediate Side Lights	450	ASPG952	100
Intermediate Side Lights	450	GPS	75
6' Angle Sidearm	420	12' Ice Shield	40
6' x 2" Antenna Mount Pipe	420	Elevator System	15

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	2L5x5x5/16x1/2	N	(4) 5 1/4x1 1/4 (New Haven, CT)
B	2L2 1/2x2x3/16x1/2	O	C6x8.2 ,PL 5x5/8 (New Haven, CT)
C	2L3x3x1/4x1/2	P	C8x11.5 ,PL 7x5/8 (New Haven, CT)
D	2L4x3x3/8x1/2	Q	L3x3x1/4
E	2L3 1/2x3x1/4x1/2	R	C12x30
F	SR 7/8	S	2C8x11.5x0.5
G	4 1/2x1/2	T	2 @ 5.93229
H	N.A.	U	1 @ 7.0625
I	2L4x3x5/16x1/2	V	1 @ 8.33333
J	2C10x20x0.5	W	1 @ 8.0625
K	2L4x3x1/4x1/2	X	1 @ 5.29166
L	2C6x8.2x0.5	Y	3 @ 4.66667
M	2L3x2 1/2x1/4x1/2		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi	A572-50	50 ksi	65 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 99.5%

ALL REACTIONS ARE FACTORED

Infinigy Engineering PLLC
1033 Watervliet Shaker Road
Albany,NY 12205
Phone: (518) 690-0790
FAX: (716) 800-1364

Job: **1180-B0003-B**			
Project: **New Haven, CT**			
Client: Sprint		Drawn by: dalbul	App'd:
Code: TIA-222-G		Date: 01/11/19	Scale: NTS
Path:			Dwg No. E-1

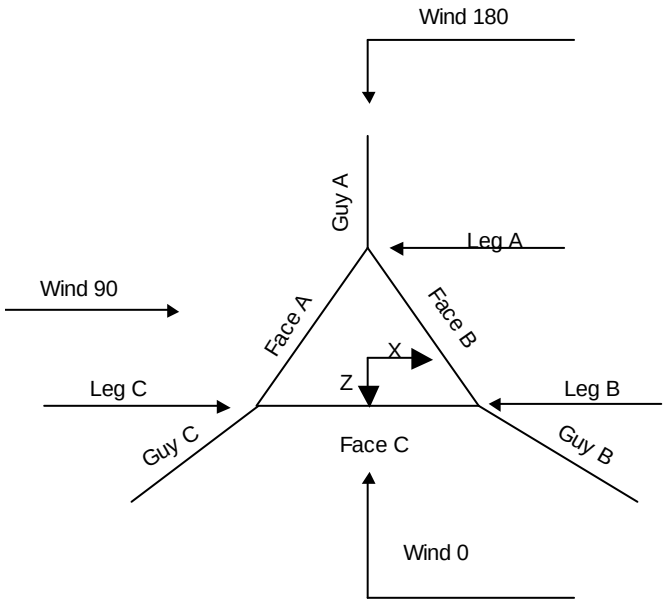
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 768.11 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 12.00 ft at the top and tapered at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Safety factor used in guy design is 1.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys	√	Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)	√	Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
√	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Corner & Starmount Guyed Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	768.11-762.18			12.00	1	5.93
T2	762.18-756.25			12.00	1	5.93
T3	756.25-748.75			12.00	1	7.50
T4	748.75-733.75			12.00	1	15.00
T5	733.75-703.75			12.00	1	30.00
T6	703.75-673.75			12.00	1	30.00
T7	673.75-643.75			12.00	1	30.00
T8	643.75-613.75			12.00	1	30.00
T9	613.75-583.75			12.00	1	30.00
T10	583.75-576.25			12.00	1	7.50
T11	576.25-568.75			12.00	1	7.50
T12	568.75-553.75			12.00	1	15.00
T13	553.75-523.75			12.00	1	30.00
T14	523.75-493.75			12.00	1	30.00
T15	493.75-463.75			12.00	1	30.00
T16	463.75-433.75			12.00	1	30.00
T17	433.75-403.75			12.00	1	30.00
T18	403.75-381.25			12.00	1	22.50
T19	381.25-373.75			12.00	1	7.50
T20	373.75-343.75			12.00	1	30.00
T21	343.75-313.75			12.00	1	30.00
T22	313.75-283.75			12.00	1	30.00

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T23	283.75-253.75			12.00	1	30.00
T24	253.75-223.75			12.00	1	30.00
T25	223.75-193.75			12.00	1	30.00
T26	193.75-163.75			12.00	1	30.00
T27	163.75-133.75			12.00	1	30.00
T28	133.75-103.75			12.00	1	30.00
T29	103.75-73.75			12.00	1	30.00
T30	73.75-43.75			12.00	1	30.00
T31	43.75-36.69			12.00	1	7.06
T32	36.69-28.35			12.00	1	8.33
T33	28.35-20.29			12.00	1	8.06
T34	20.29-15.00			12.00	1	5.29
T35	15.00-0.00			12.00	1	15.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	768.11-762.18	5.93	K Brace Down	No	Yes	0.0000	0.0000
T2	762.18-756.25	5.93	K Brace Down	No	Yes	0.0000	0.0000
T3	756.25-748.75	7.50	K Brace Down	No	Yes	0.0000	0.0000
T4	748.75-733.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T5	733.75-703.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T6	703.75-673.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T7	673.75-643.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T8	643.75-613.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T9	613.75-583.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T10	583.75-576.25	7.50	TX Brace	No	Yes	0.0000	0.0000
T11	576.25-568.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T12	568.75-553.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T13	553.75-523.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T14	523.75-493.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T15	493.75-463.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T16	463.75-433.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T17	433.75-403.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T18	403.75-381.25	7.50	TX Brace	No	Yes	0.0000	0.0000
T19	381.25-373.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T20	373.75-343.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T21	343.75-313.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T22	313.75-283.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T23	283.75-253.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T24	253.75-223.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T25	223.75-193.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T26	193.75-163.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T27	163.75-133.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T28	133.75-103.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T29	103.75-73.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T30	73.75-43.75	7.50	TX Brace	No	Yes	0.0000	0.0000
T31	43.75-36.69	7.06	K Brace Down	No	Yes	0.0000	0.0000
T32	36.69-28.35	8.33	K Brace Down	No	Yes	0.0000	0.0000
T33	28.35-20.29	8.06	TX Brace	No	Yes	0.0000	0.0000
T34	20.29-15.00	5.29	K Brace Down	No	Yes	0.0000	0.0000
T35	15.00-0.00	4.67	TX Brace	No	Yes	0.0000	12.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 768.11-762.18	Solid Round	3 3/4	A36 (36 ksi)	Double Angle	2L5x5x5/16x1/2	A36 (36 ksi)
T2 762.18-756.25	Solid Round	3 3/4	A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x1/2	A36 (36 ksi)
T3 756.25-748.75	Solid Round	3 3/4	A36 (36 ksi)	Double Angle	2L3x3x1/4x1/2	A36 (36 ksi)
T4 748.75-733.75	Solid Round	3 3/4	A36 (36 ksi)	Solid Round	1	A572-50 (50 ksi)
T5 733.75-703.75	Solid Round	3 3/4	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T6 703.75-673.75	Solid Round	3 3/4	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T7 673.75-643.75	Solid Round	3 3/4	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T8 643.75-613.75	Solid Round	3 3/4	A36 (36 ksi)	Solid Round	1	A572-50 (50 ksi)
T9 613.75-583.75	Solid Round	4	A36 (36 ksi)	Solid Round	1 1/2	A572-50 (50 ksi)
T10 583.75-576.25	Solid Round	4 1/2	A36 (36 ksi)	Solid Round	1 1/2	A572-50 (50 ksi)
T11 576.25-568.75	Solid Round	4 1/2	A36 (36 ksi)	Solid Round	1 1/2	A572-50 (50 ksi)
T12 568.75-553.75	Solid Round	4 1/2	A36 (36 ksi)	Solid Round	1 1/2	A572-50 (50 ksi)
T13 553.75-523.75	Solid Round	4	A36 (36 ksi)	Solid Round	1	A572-50 (50 ksi)
T14 523.75-493.75	Solid Round	4	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T15 493.75-463.75	Solid Round	4	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T16 463.75-433.75	Solid Round	4	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T17 433.75-403.75	Solid Round	4	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T18 403.75-381.25	Solid Round	4 1/2	A36 (36 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T19 381.25-373.75	Solid Round	4 1/2	A36 (36 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T20 373.75-343.75	Solid Round	4 1/2	A36 (36 ksi)	Solid Round	1	A572-50 (50 ksi)
T21 343.75-313.75	Solid Round	4 1/2	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T22 313.75-283.75	Solid Round	4 1/2	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T23 283.75-253.75	Solid Round	4 1/2	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T24 253.75-223.75	Solid Round	4 1/2	A36 (36 ksi)	Solid Round	1	A572-50 (50 ksi)
T25 223.75-193.75	Solid Round	4 3/4	A36 (36 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T26 193.75-163.75	Solid Round	4 3/4	A36 (36 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T27 163.75-133.75	Solid Round	4 3/4	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T28	Solid Round	4 3/4	A36	Solid Round	7/8	A572-50

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
133.75-103.75			(36 ksi)			(50 ksi)
T29 103.75-73.75	Solid Round	4 3/4	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T30 73.75-43.75	Solid Round	4 3/4	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T31 43.75-36.69	Solid Round	4 3/4	A36 (36 ksi)	Double Angle	2L4x3x3/8x1/2	A36 (36 ksi)
T32 36.69-28.35	Solid Round	4 3/4	A36 (36 ksi)	Double Angle	2L3 1/2x3x1/4x1/2	A36 (36 ksi)
T33 28.35-20.29	Solid Round	4 3/4	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T34 20.29-15.00	Solid Round	4 3/4	A36 (36 ksi)	Double Angle	2L3 1/2x3x1/4x1/2	A36 (36 ksi)
T35 15.00-0.00	Solid Round	4 3/4	A36 (36 ksi)	Flat Bar	4 1/2x1/2	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 768.11-762.18	Channel	C12x30	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 762.18-756.25	Double Angle	2L4x3x5/16x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T3 756.25-748.75	Double Channel	2C10x20x0.5	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T4 748.75-733.75	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T5 733.75-703.75	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T6 703.75-673.75	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T7 673.75-643.75	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T8 643.75-613.75	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T9 613.75-583.75	Double Angle	2L4x3x5/16x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T10 583.75-576.25	Double Angle	2L4x3x5/16x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T11 576.25-568.75	Double Channel	2C8x11.5x0.5	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T12 568.75-553.75	Double Angle	2L4x3x5/16x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T13 553.75-523.75	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T14 523.75-493.75	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T15 493.75-463.75	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T16 463.75-433.75	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T17 433.75-403.75	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T18	Double Angle	2L4x3x1/4x1/2	A36	Solid Round		A36

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
403.75-381.25			(36 ksi)			(36 ksi)
T19	Double Channel	2C8x11.5x0.5	A36	Solid Round		A36
381.25-373.75			(36 ksi)			(36 ksi)
T20	Double Angle	2L4x3x1/4x1/2	A36	Solid Round		A36
373.75-343.75			(36 ksi)			(36 ksi)
T21	Double Angle	2L4x3x1/4x1/2	A36	Solid Round		A36
343.75-313.75			(36 ksi)			(36 ksi)
T22	Double Angle	2L3x2 1/2x1/4x1/2	A36	Solid Round		A36
313.75-283.75			(36 ksi)			(36 ksi)
T23	Double Angle	2L3x2 1/2x1/4x1/2	A36	Solid Round		A36
283.75-253.75			(36 ksi)			(36 ksi)
T24	Double Angle	2L4x3x1/4x1/2	A36	Solid Round		A36
253.75-223.75			(36 ksi)			(36 ksi)
T25	Double Angle	2L4x3x1/4x1/2	A36	Solid Round		A36
223.75-193.75			(36 ksi)			(36 ksi)
T26	Double Channel	2C8x11.5x0.5	A36	Solid Round		A36
193.75-163.75			(36 ksi)			(36 ksi)
T27	Double Angle	2L4x3x1/4x1/2	A36	Solid Round		A36
163.75-133.75			(36 ksi)			(36 ksi)
T28	Double Angle	2L3x2 1/2x1/4x1/2	A36	Solid Round		A36
133.75-103.75			(36 ksi)			(36 ksi)
T29 103.75-73.75	Double Angle	2L3x2 1/2x1/4x1/2	A36	Solid Round		A36
			(36 ksi)			(36 ksi)
T30 73.75-43.75	Double Angle	2L3x2 1/2x1/4x1/2	A36	Solid Round		A36
			(36 ksi)			(36 ksi)
T31 43.75-36.69	Double Angle	2L3x2 1/2x1/4x1/2	A36	Solid Round		A36
			(36 ksi)			(36 ksi)
T32 36.69-28.35	Double Channel	2C6x8.2x0.5	A36	Solid Round		A36
			(36 ksi)			(36 ksi)
T33 28.35-20.29	Double Channel	2C10x20x0.5	A36	Solid Round		A36
			(36 ksi)			(36 ksi)
T34 20.29-15.00	Double Angle	2L3x2 1/2x1/4x1/2	A36	Solid Round		A36
			(36 ksi)			(36 ksi)
T35 15.00-0.00	Arbitrary Shape	(4) 5 1/4x1 1/4 (New Haven, CT)	A36 (36 ksi)	Arbitrary Shape	C6x8.2 & PL 5x5/8 (New Haven, CT)	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 768.11-762.18	None	Solid Round		A572-50 (50 ksi)	Channel	C12x30	A36 (36 ksi)
T2 762.18-756.25	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x5/16x1/2	A36 (36 ksi)
T3 756.25-748.75	None	Solid Round		A572-50 (50 ksi)	Double Channel	2C10x20x0.5	A36 (36 ksi)
T4 748.75-733.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)
T5 733.75-703.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)
T6 703.75-673.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)
T7 673.75-643.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T8 643.75-613.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)
T9 613.75-583.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x5/16x1/2	A36 (36 ksi)
T10 583.75-576.25	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x5/16x1/2	A36 (36 ksi)
T11 576.25-568.75	None	Solid Round		A572-50 (50 ksi)	Double Channel	2C8x11.5x0.5	A36 (36 ksi)
T12 568.75-553.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x5/16x1/2	A36 (36 ksi)
T13 553.75-523.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)
T14 523.75-493.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)
T15 493.75-463.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)
T16 463.75-433.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)
T17 433.75-403.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)
T18 403.75-381.25	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)
T19 381.25-373.75	None	Solid Round		A572-50 (50 ksi)	Double Channel	2C8x11.5x0.5	A36 (36 ksi)
T20 373.75-343.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)
T21 343.75-313.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)
T22 313.75-283.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)
T23 283.75-253.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)
T24 253.75-223.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)
T25 223.75-193.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)
T26 193.75-163.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)
T27 163.75-133.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L4x3x1/4x1/2	A36 (36 ksi)
T28 133.75-103.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)
T29 103.75-73.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)
T30 73.75-43.75	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)
T31 43.75-36.69	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)
T32 36.69-28.35	None	Solid Round		A572-50 (50 ksi)	Double Channel	2C6x8.2x0.5	A36 (36 ksi)
T33 28.35-20.29	None	Solid Round		A572-50 (50 ksi)	Double Channel	2C10x20x0.5	A36 (36 ksi)
T34 20.29-15.00	None	Solid Round		A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4x1/2	A36 (36 ksi)
T35 15.00-0.00	None	Solid Round		A572-50 (50 ksi)	Arbitrary Shape	C8x11.5 & PL 7x5/8 (New Haven, CT)	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 768.11-762.18	Single Angle		A36 (36 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T2 762.18-756.25	Single Angle		A36 (36 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T3 756.25-748.75	Single Angle		A36 (36 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T31 43.75-36.69	Single Angle		A36 (36 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T32 36.69-28.35	Single Angle		A36 (36 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T34 20.29-15.00	Single Angle		A36 (36 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 768.11-762.18	1.92	0.5000	A36 (36 ksi)	1	1	1	Third-Pt	Mid-Pt	36.0000
T2 762.18-756.25	1.67	0.5000	A36 (36 ksi)	1	1	1	Third-Pt	36.0000	36.0000
T3 756.25-748.75	1.87	0.5000	A36 (36 ksi)	1	1	1	Third-Pt	36.0000	36.0000
T4 748.75-733.75	1.46	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 733.75-703.75	2.92	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 703.75-673.75	2.92	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 673.75-643.75	3.98	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 643.75-613.75	3.98	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 613.75-583.75	2.92	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 583.75-576.25	2.92	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T11 576.25-568.75	2.92	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T12 568.75-553.75	2.92	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T13 553.75-523.75	2.92	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T14 523.75-493.75	2.92	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T15 493.75-463.75	2.92	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T16	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
463.75-433.75			(36 ksi)						
T17	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
433.75-403.75			(36 ksi)						
T18	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
403.75-381.25			(36 ksi)						
T19	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
381.25-373.75			(36 ksi)						
T20	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
373.75-343.75			(36 ksi)						
T21	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
343.75-313.75			(36 ksi)						
T22	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
313.75-283.75			(36 ksi)						
T23	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
283.75-253.75			(36 ksi)						
T24	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
253.75-223.75			(36 ksi)						
T25	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
223.75-193.75			(36 ksi)						
T26	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
193.75-163.75			(36 ksi)						
T27	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
163.75-133.75			(36 ksi)						
T28	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
133.75-103.75			(36 ksi)						
T29	2.92	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
103.75-73.75			(36 ksi)						
T30	0.73	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
73.75-43.75			(36 ksi)						
T31	0.73	0.5000	A36	1	1	1	Third-Pt	36.0000	36.0000
43.75-36.69			(36 ksi)						
T32	0.73	0.5000	A36	1	1	1	Third-Pt	36.0000	36.0000
36.69-28.35			(36 ksi)						
T33	0.73	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
28.35-20.29			(36 ksi)						
T34	0.73	0.5000	A36	1	1	1	Third-Pt	36.0000	36.0000
20.29-15.00			(36 ksi)						
T35 15.00-0.00	1.00	0.5000	A36	1	1	1	36.0000	36.0000	36.0000
			(36 ksi)						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	No	No	1	1	1	1	1	1	1	1
768.11-762.18				1	1	1	1	1	1	1
T2	No	No	1	1	1	1	1	1	1	1
762.18-756.25				1	1	1	1	1	1	1
T3	No	No	1	1	1	1	1	1	1	1
756.25-748.75				1	1	1	1	1	1	1
T4	No	No	1	1	1	1	0.5	0.5	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
748.75-733.75				1	1	1	1	1	1	1
T5	No	No	1	1	1	1	0.5	0.5	1	1
733.75-703.75				1	1	1	1	1	1	1
T6	No	No	1	1	1	1	0.5	0.5	1	1
703.75-673.75				1	1	1	1	1	1	1
T7	No	No	1	1	1	1	0.5	0.5	1	1
673.75-643.75				1	1	1	1	1	1	1
T8	No	No	1	1	1	1	0.5	0.5	1	1
643.75-613.75				1	1	1	1	1	1	1
T9	No	No	1	1	1	1	0.5	0.5	1	1
613.75-583.75				1	1	1	1	1	1	1
T10	No	No	1	1	1	1	0.5	0.5	1	1
583.75-576.25				1	1	1	1	1	1	1
T11	No	No	1	1	1	1	0.5	0.5	1	1
576.25-568.75				1	1	1	1	1	1	1
T12	No	No	1	1	1	1	0.5	0.5	1	1
568.75-553.75				1	1	1	1	1	1	1
T13	No	No	1	1	1	1	0.5	0.5	1	1
553.75-523.75				1	1	1	1	1	1	1
T14	No	No	1	1	1	1	0.5	0.5	1	1
523.75-493.75				1	1	1	1	1	1	1
T15	No	No	1	1	1	1	0.5	0.5	1	1
493.75-463.75				1	1	1	1	1	1	1
T16	No	No	1	1	1	1	0.5	0.5	1	1
463.75-433.75				1	1	1	1	1	1	1
T17	No	No	1	1	1	1	0.5	0.5	1	1
433.75-403.75				1	1	1	1	1	1	1
T18	No	No	1	1	1	1	0.5	0.5	1	1
403.75-381.25				1	1	1	1	1	1	1
T19	No	No	1	1	1	1	0.5	0.5	1	1
381.25-373.75				1	1	1	1	1	1	1
T20	No	No	1	1	1	1	0.5	0.5	1	1
373.75-343.75				1	1	1	1	1	1	1
T21	No	No	1	1	1	1	0.5	0.5	1	1
343.75-313.75				1	1	1	1	1	1	1
T22	No	No	1	1	1	1	0.5	0.5	1	1
313.75-283.75				1	1	1	1	1	1	1
T23	No	No	1	1	1	1	0.5	0.5	1	1
283.75-253.75				1	1	1	1	1	1	1
T24	No	No	1	1	1	1	0.5	0.5	1	1
253.75-223.75				1	1	1	1	1	1	1
T25	No	No	1	1	1	1	0.5	0.5	1	1
223.75-193.75				1	1	1	1	1	1	1
T26	No	No	1	1	1	1	0.5	0.5	1	1
193.75-163.75				1	1	1	1	1	1	1
T27	No	No	1	1	1	1	0.5	0.5	1	1
163.75-133.75				1	1	1	1	1	1	1
T28	No	No	1	1	1	1	0.5	0.5	1	1
133.75-103.75				1	1	1	1	1	1	1
T29	No	No	1	1	1	1	0.5	0.5	1	1
103.75-73.75				1	1	1	1	1	1	1
T30	No	No	1	1	1	1	0.5	0.5	1	1
73.75-43.75				1	1	1	1	1	1	1
T31	No	No	1	1	1	1	1	1	1	1
43.75-36.69				1	1	1	1	1	1	1
T32	No	No	1	1	1	1	1	1	1	1
36.69-28.35				1	1	1	1	1	1	1
T33	No	No	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
28.35-20.29				1	1	1	1	1	1	1
T34	No	No	1	1	1	1	1	1	1	1
20.29-15.00				1	1	1	1	1	1	1
T35	No	No	1	1	1	1	1	1	1	1
15.00-0.00				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 768.11-762.18	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T2 762.18-756.25	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T3 756.25-748.75	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T4 748.75-733.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T5 733.75-703.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T6 703.75-673.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T7 673.75-643.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T8 643.75-613.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T9 613.75-583.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T10 583.75-576.25	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T11 576.25-568.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T12 568.75-553.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T13 553.75-523.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T14 523.75-493.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T15 493.75-463.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T16 463.75-433.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T17 433.75-403.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T18 403.75-381.25	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T19 381.25-373.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T20 373.75-343.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T21 343.75-313.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T22 313.75-283.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T23 283.75-253.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T24 253.75-223.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T25 223.75-193.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T26 193.75-163.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T27 163.75-133.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T28 133.75-103.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T29 103.75-73.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T30 73.75-43.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T31 43.75-36.69	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T32 36.69-28.35	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T33 28.35-20.29	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T34 20.29-15.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75
T35 15.00-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 768.11-762.18	Flange	0.7500 A325N	6	0.7500 A325N	3	0.6250 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	4	0.6250 A325N	0
T2 762.18-756.25	Flange	0.7500 A325N	0	0.6250 A325N	2	1.0000 A325N	2	0.0000 A325N	0	0.6250 A325N	0	1.0000 A325N	2	0.6250 A325N	0
T3 756.25-748.75	Flange	0.7500 A325N	0	0.6250 A325N	2	0.7500 A325N	6	0.0000 A325N	0	0.6250 A325N	0	0.7500 A325N	6	0.6250 A325N	0
T4 748.75-733.75	Flange	0.7500 A325N	6	0.8750 A325N	2	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	2	0.6250 A325N	0
T5 733.75-703.75	Flange	0.7500 A325N	6	0.7500 A325N	2	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T6	Flange	0.7500	6	0.7500	2	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
703.75-673.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7	Flange	0.7500	6	0.7500	2	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
673.75-643.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T8	Flange	0.7500	6	0.8750	2	1.0000	2	0.6250	0	0.6250	0	1.0000	2	0.6250	0
643.75-613.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9	Flange	0.7500	6	0.8750	2	1.0000	2	0.6250	0	0.6250	0	1.0000	2	0.6250	0
613.75-583.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10	Flange	0.7500	0	0.8750	2	1.0000	2	0.0000	0	0.6250	0	1.0000	2	0.6250	0
583.75-576.25		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T11	Flange	0.7500	0	0.8750	2	0.7500	6	0.0000	0	0.6250	0	0.7500	6	0.6250	0
576.25-568.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T12	Flange	0.7500	6	0.8750	2	1.0000	2	0.6250	0	0.6250	0	1.0000	2	0.6250	0
568.75-553.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T13	Flange	0.7500	6	0.8750	2	1.0000	2	0.6250	0	0.6250	0	1.0000	2	0.6250	0
553.75-523.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T14	Flange	0.7500	6	0.7500	2	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
523.75-493.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T15	Flange	0.7500	6	0.7500	2	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
493.75-463.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T16	Flange	0.7500	6	0.7500	2	0.6250	2	0.0000	0	0.6250	0	0.6250	2	0.6250	0
463.75-433.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T17	Flange	0.7500	6	0.7500	2	1.0000	2	0.0000	0	0.6250	0	1.0000	2	0.6250	0
433.75-403.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T18	Flange	0.7500	0	1.0000	2	1.0000	2	0.0000	0	0.6250	0	1.0000	2	0.6250	0
403.75-381.25		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T19	Flange	0.7500	6	1.0000	2	0.7500	6	0.0000	0	0.6250	0	0.7500	6	0.6250	0
381.25-373.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T20	Flange	0.7500	6	0.8750	2	1.0000	2	0.6250	0	0.6250	0	1.0000	2	0.6250	0
373.75-343.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T21	Flange	0.7500	6	0.7500	2	1.0000	2	0.6250	0	0.6250	0	1.0000	2	0.6250	0
343.75-313.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T22	Flange	0.7500	6	0.7500	2	0.6250	2	0.0000	0	0.6250	0	0.6250	2	0.6250	0
313.75-283.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T23	Flange	0.7500	6	0.7500	2	0.6250	2	0.0000	0	0.6250	0	0.6250	2	0.6250	0
283.75-253.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T24	Flange	0.7500	6	0.8750	2	1.0000	2	0.0000	0	0.6250	0	1.0000	2	0.6250	0
253.75-223.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T25	Flange	0.7500	6	1.0000	2	1.0000	2	0.6250	0	0.6250	0	1.0000	2	0.6250	0
223.75-193.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T26	Flange	0.7500	6	1.0000	2	0.7500	6	0.6250	0	0.6250	0	1.0000	2	0.6250	0
193.75-163.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T27	Flange	0.7500	6	0.7500	2	1.0000	2	0.6250	0	0.6250	0	1.0000	2	0.6250	0
163.75-133.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T28	Flange	0.7500	6	0.7500	2	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
133.75-103.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T29	Flange	0.7500	6	0.7500	2	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
103.75-73.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T30	Flange	0.7500	6	0.7500	2	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
73.75-43.75		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T31	Flange	1.0000	0	0.8750	3	0.7500	2	0.0000	0	0.6250	0	0.7500	2	0.6250	0
43.75-36.69		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T32	Flange	1.0000	0	0.7500	2	0.7500	4	0.0000	0	0.6250	0	0.7500	4	0.6250	0
36.69-28.35		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T33	Flange	1.0000	0	0.7500	2	0.7500	6	0.0000	0	0.6250	0	0.7500	6	0.6250	0
28.35-20.29		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T34	Flange	1.0000	8	0.7500	2	0.7500	2	0.6250	0	0.6250	0	0.7500	2	0.6250	0
20.29-15.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T35 15.00-0.00	Flange	1.0000 A325N	0	0.8750 A325N	2	1.0000 A325N	4	0.7500 A325N	4	0.6250 A325N	0	0.7500 A325N	4	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
768.115	BS	A	1 7/16	25200.00	10%	24000	4.340	890.14	501.00	0.0000	27.00	100%
		B	1 7/16	25200.00	10%	24000	4.340	1102.47	643.00	0.0000	-133.00	100%
		C	1 7/16	25200.00	10%	24000	4.340	878.22	493.00	0.0000	36.00	100%
576.25	BS	A	1 13/16	40400.00	10%	24000	6.900	738.31	501.00	0.0000	27.00	100%
		B	1 13/16	40400.00	10%	24000	6.900	952.25	643.00	0.0000	-133.00	100%
		C	1 13/16	40400.00	10%	24000	6.900	726.27	493.00	0.0000	36.00	100%
381.25	BS	A	1 1/2	27600.00	10%	24000	4.730	458.28	283.00	0.0000	15.00	100%
		B	1 1/2	27600.00	10%	24000	4.730	600.82	389.00	0.0000	-83.00	100%
		C	1 1/2	27600.00	10%	24000	4.730	452.68	279.00	0.0000	19.00	100%
193.75	BS	A	1 3/8	23200.00	10%	24000	3.970	328.63	283.00	0.0000	15.00	100%
		B	1 3/8	23200.00	10%	24000	3.970	471.44	389.00	0.0000	-83.00	100%
		C	1 3/8	23200.00	10%	24000	3.970	323.11	279.00	0.0000	19.00	100%

Guy Data *(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
768.115	Corner						
576.25	Corner						
381.25	Corner						
193.75	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
768.11	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Channel	C12x30
576.25	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Channel	2C8x11.5x0.5
381.25	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Channel	2C8x11.5x0.5
193.75	A572-50	Solid Round			No	A36	Double	2C8x11.5x0.5

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
	(50 ksi)					(36 ksi)	Channel	

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
768.115	3863.22	4784.70	3811.47		64.23 13.8 sec/pulse	97.31 17.0 sec/pulse	62.57 13.7 sec/pulse	
576.25	5094.35	6570.50	5011.27		44.53 11.5 sec/pulse	73.15 14.8 sec/pulse	43.12 11.3 sec/pulse	
381.25	2167.67	2841.89	2141.20		17.47 7.2 sec/pulse	29.79 9.4 sec/pulse	17.05 7.1 sec/pulse	
193.75	1304.67	1871.62	1282.73		9.11 5.2 sec/pulse	18.60 7.4 sec/pulse	8.81 5.1 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
768.115	No	No			1	1	1	1
576.25	No	No			1	1	1	1
381.25	No	No			1	1	1	1
193.75	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
768.115	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	4	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
576.25	0.6250 A325N	0	0.0000	0.75	0.7500 A325N	6	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
381.25	0.6250 A325N	0	0.0000	0.75	0.7500 A325N	6	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
193.75	0.6250 A325N	0	0.0000	0.75	0.7500 A325N	6	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
768.115	A	397.56	30	8	1.9239
	B	317.56	28	7	1.8811
	C	402.06	30	8	1.9261
576.25	A	301.62	28	7	1.8715
	B	221.62	25	7	1.8147
	C	306.12	28	7	1.8743
381.25	A	198.12	25	7	1.7945
	B	149.12	23	6	1.7442
	C	200.12	25	7	1.7963
193.75	A	104.37	20	5	1.6831
	B	55.37	17	5	1.5797
	C	106.37	21	5	1.6863

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1" Rigid Conduit	A	No	No	Ar (CaAa)	45.00 - 16.00	-1.0000	-0.1	1	1	1.0000	1.0625		1.20
1 1/2" Conduit	A	No	No	Ar (CaAa)	200.00 - 16.00	-1.0000	-0.4	1	1	1.0000	1.6600		1.50
7/8" Conduit	A	No	No	Ar (CaAa)	110.00 - 16.00	-1.0000	-0.43	2	2	1.0000	1.0900		0.33
1 1/2" Conduit	A	No	No	Ar (CaAa)	768.11 - 16.00	-10.0000	0	1	1	1.0000	1.6600		1.50
MACX675A (6-1/8 AIR)	A	No	No	Ar (CaAa)	440.00 - 16.00	-4.0000	0.25	1	1	1.0000	6.0800		4.52
HJ8-50B (3 AIR)	A	No	No	Ar (CaAa)	460.00 - 440.00	-4.0000	0.25	1	1	1.0000	3.0100		1.78
MACX675A (6-1/8 AIR)	A	No	No	Ar (CaAa)	768.11 - 480.00	-4.0000	0.25	1	1	1.0000	6.0800		4.52
1 1/2" Conduit	A	No	No	Ar (CaAa)	529.00 - 16.00	-1.0000	0.3	1	1	1.0000	1.6600		1.50
7/8" Conduit	A	No	No	Ar (CaAa)	510.00 - 16.00	-2.0000	0.32	3	2	1.0000	1.0900		0.33
7/8" Conduit	A	No	No	Ar (CaAa)	529.00 - 510.00	-2.0000	0.32	2	2	1.0000	1.0900		0.33
1 1/2" Conduit	A	No	No	Ar (CaAa)	768.11 - 16.00	-1.0000	0.44	1	1	1.0000	1.6600		1.50
7/8" Conduit	A	No	No	Ar (CaAa)	750.00 - 16.00	-1.0000	0.43	1	1	1.0000	1.0900		0.33
HJ12-50 (2-1/4 AIR) ***	A	No	No	Ar (CaAa)	100.00 - 16.00	-2.0000	0.42	1	1	1.0000	2.3800		1.16
1 1/2" Conduit	B	No	No	Ar (CaAa)	348.00 - 16.00	-1.0000	-0.42	1	1	1.0000	1.6600		1.50
EW63	B	No	No	Ar (CaAa)	160.00 - 16.00	-1.0000	-0.42	2	2	1.0000	1.5742		0.51
7/8" Conduit	B	No	No	Ar (CaAa)	348.00 - 16.00	-3.0000	-0.42	1	1	1.0000	1.0900		0.33
MACX675A (6-1/8 AIR)	B	No	No	Ar (CaAa)	440.00 - 16.00	-4.0000	-0.35	1	1	1.0000	6.0800		4.52
1 1/2" Conduit	B	No	No	Ar (CaAa)	420.00 - 16.00	-1.0000	-0.25	1	1	1.0000	1.6600		1.50
LDF4-50A	B	No	No	Ar (CaAa)	102.00 -	-1.0000	-0.25	2	2	1.0000	0.6300		0.15

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
(1/2 FOAM)					16.00								
LDF4-50A (1/2 FOAM)	B	No	No	Ar (CaAa)	420.00 - 102.00	-1.0000	-0.25	1	1	1.0000	0.6300		0.15
7/8" Conduit	B	No	No	Ar (CaAa)	339.00 - 16.00	-3.0000	-0.42	1	1	1.0000	1.0900		0.33
1 1/2" Conduit	B	No	No	Ar (CaAa)	758.00 - 16.00	-1.0000	-0.1	1	1	1.0000	1.6600		1.50
EW63	B	No	No	Ar (CaAa)	630.00 - 16.00	-1.0000	-0.1	2	2	1.0000	1.5742		0.51
EW63	B	No	No	Ar (CaAa)	678.00 - 630.00	-1.0000	-0.1	1	1	1.0000	1.5742		0.51
LDF7-50A (1-5/8 FOAM)	B	No	No	Ar (CaAa)	744.00 - 16.00	-3.0000	-0.1	1	1	1.0000	1.9800		0.82
LDF4-50A (1/2 FOAM)	B	No	No	Ar (CaAa)	630.00 - 16.00	-2.0000	-0.1	3	3	1.0000	0.6300		0.15
LDF4-50A (1/2 FOAM)	B	No	No	Ar (CaAa)	678.00 - 630.00	-2.0000	-0.1	2	2	1.0000	0.6300		0.15
LDF4-50A (1/2 FOAM)	B	No	No	Ar (CaAa)	744.00 - 678.00	-2.0000	-0.1	1	1	1.0000	0.6300		0.15
***													
HRL300 (3-1/8 RIGID AIR)	C	No	No	Ar (CaAa)	768.11 - 16.00	-15.0000	0	1	1	1.0000	3.1300		2.12
LDF5-50A (7/8 FOAM)	C	No	No	Ar (CaAa)	315.00 - 16.00	-3.0000	0.1	6	3	1.0000	1.0900		0.33
1" Rigid Conduit (Sprint)	C	No	No	Ar (CaAa)	200.00 - 16.00	-1.0000	0.2	1	1	1.0000	1.0625		1.20
HFT1206-24S 26-XXX (Sprint)	C	No	No	Ar (CaAa)	200.00 - 16.00	-1.0000	0.2	3	3	1.0000	1.4300		1.63
475-000 (4-1/16")	C	No	No	Ar (CaAa)	591.00 - 16.00	-3.0000	0.25	1	1	1.0000	4.0620		11.00
1 1/4" Conduit	C	No	No	Ar (CaAa)	315.00 - 16.00	-1.0000	0.3	1	1	1.0000	1.4300		1.63
LDF4-50A (1/2 FOAM)	C	No	No	Ar (CaAa)	75.00 - 16.00	-1.0000	0.3	2	2	1.0000	0.6300		0.15
HFT1206-24S 26-XXX (Sprint)	C	No	No	Ar (CaAa)	200.00 - 16.00	-1.0000	0.31	1	1	1.0000	1.4300		1.63
LDF5-50A (7/8 FOAM)	C	No	No	Ar (CaAa)	315.00 - 16.00	-3.0000	0.32	3	2	1.0000	1.0900		0.33
LDF5-50A (7/8 FOAM)	C	No	No	Ar (CaAa)	315.00 - 16.00	-3.0000	0.4	3	2	1.0000	1.0900		0.33
LDF7-50A (1-5/8 FOAM)	C	No	No	Ar (CaAa)	420.00 - 16.00	-3.0000	0.41	1	1	1.0000	1.9800		0.82
1 1/2" Conduit	C	No	No	Ar (CaAa)	420.00 - 16.00	-1.0000	0.42	1	1	1.0000	1.6600		2.30
***													
Climbing Ladder (Af)	A	No	No	Af (CaAa)	768.11 - 45.00	-25.0000	0.15	1	1	0.9000	0.9000		3.95
Climbing Ladder (Af)	B	No	No	Af (CaAa)	768.11 - 45.00	-25.0000	-0.15	1	1	0.9000	0.9000		3.95
Climbing Ladder (Af)	B	No	No	Af (CaAa)	40.00 - 10.00	0.5000	0	1	1	1.8000	1.8000		7.90

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	768.11-762.18	A	0.000	0.000	4.663	0.000	68.04
		B	0.000	0.000	0.890	0.000	23.43
		C	0.000	0.000	1.770	0.000	12.58
T2	762.18-756.25	A	0.000	0.000	4.663	0.000	68.04
		B	0.000	0.000	1.180	0.000	26.06
		C	0.000	0.000	1.772	0.000	12.58
T3	756.25-748.75	A	0.000	0.000	6.031	0.000	86.44
		B	0.000	0.000	2.370	0.000	40.88
		C	0.000	0.000	2.243	0.000	15.90
T4	748.75-733.75	A	0.000	0.000	13.425	0.000	177.00
		B	0.000	0.000	7.415	0.000	91.69
		C	0.000	0.000	4.495	0.000	31.80
T5	733.75-703.75	A	0.000	0.000	26.850	0.000	354.00
		B	0.000	0.000	17.310	0.000	192.60
		C	0.000	0.000	9.030	0.000	63.60
T6	703.75-673.75	A	0.000	0.000	26.850	0.000	354.00
		B	0.000	0.000	18.247	0.000	195.41
		C	0.000	0.000	9.085	0.000	63.60
T7	673.75-643.75	A	0.000	0.000	26.873	0.000	354.00
		B	0.000	0.000	23.923	0.000	212.40
		C	0.000	0.000	9.143	0.000	63.60
T8	643.75-613.75	A	0.000	0.000	26.934	0.000	354.00
		B	0.000	0.000	27.504	0.000	223.13
		C	0.000	0.000	9.204	0.000	63.60
T9	613.75-583.75	A	0.000	0.000	26.998	0.000	354.00
		B	0.000	0.000	30.535	0.000	232.20
		C	0.000	0.000	11.514	0.000	143.35
T10	583.75-576.25	A	0.000	0.000	6.760	0.000	88.50
		B	0.000	0.000	7.634	0.000	58.05
		C	0.000	0.000	4.655	0.000	98.40
T11	576.25-568.75	A	0.000	0.000	6.764	0.000	88.50
		B	0.000	0.000	7.634	0.000	58.05
		C	0.000	0.000	4.664	0.000	98.40
T12	568.75-553.75	A	0.000	0.000	13.542	0.000	177.00
		B	0.000	0.000	15.268	0.000	116.10
		C	0.000	0.000	9.354	0.000	196.80
T13	553.75-523.75	A	0.000	0.000	29.155	0.000	365.34
		B	0.000	0.000	30.535	0.000	232.20
		C	0.000	0.000	18.799	0.000	393.60
T14	523.75-493.75	A	0.000	0.000	40.508	0.000	424.16
		B	0.000	0.000	30.535	0.000	232.20
		C	0.000	0.000	18.877	0.000	393.60
T15	493.75-463.75	A	0.000	0.000	36.895	0.000	355.25
		B	0.000	0.000	30.535	0.000	232.20
		C	0.000	0.000	18.959	0.000	393.60
T16	463.75-433.75	A	0.000	0.000	40.560	0.000	356.95
		B	0.000	0.000	32.555	0.000	260.45
		C	0.000	0.000	19.048	0.000	393.60
T17	433.75-403.75	A	0.000	0.000	42.274	0.000	428.70
		B	0.000	0.000	44.011	0.000	394.61
		C	0.000	0.000	25.059	0.000	444.30
T18	403.75-381.25	A	0.000	0.000	31.774	0.000	321.52
		B	0.000	0.000	35.437	0.000	312.98
		C	0.000	0.000	22.616	0.000	365.40
T19	381.25-373.75	A	0.000	0.000	10.605	0.000	107.18
		B	0.000	0.000	11.826	0.000	104.33
		C	0.000	0.000	7.552	0.000	121.80
T20	373.75-343.75	A	0.000	0.000	42.492	0.000	428.70

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B	0.000	0.000	48.546	0.000	425.08
		C	0.000	0.000	30.282	0.000	487.20
T21	343.75-313.75	A	0.000	0.000	42.617	0.000	428.70
		B	0.000	0.000	58.505	0.000	480.53
		C	0.000	0.000	32.221	0.000	494.18
T22	313.75-283.75	A	0.000	0.000	42.756	0.000	428.70
		B	0.000	0.000	59.161	0.000	482.10
		C	0.000	0.000	74.076	0.000	654.81
T23	283.75-253.75	A	0.000	0.000	42.912	0.000	428.70
		B	0.000	0.000	59.317	0.000	482.10
		C	0.000	0.000	74.232	0.000	654.81
T24	253.75-223.75	A	0.000	0.000	43.089	0.000	428.70
		B	0.000	0.000	59.495	0.000	482.10
		C	0.000	0.000	74.409	0.000	654.81
T25	223.75-193.75	A	0.000	0.000	44.331	0.000	438.08
		B	0.000	0.000	59.699	0.000	482.10
		C	0.000	0.000	78.853	0.000	702.99
T26	193.75-163.75	A	0.000	0.000	48.515	0.000	473.70
		B	0.000	0.000	59.941	0.000	482.10
		C	0.000	0.000	95.203	0.000	886.05
T27	163.75-133.75	A	0.000	0.000	48.808	0.000	473.70
		B	0.000	0.000	68.498	0.000	508.88
		C	0.000	0.000	95.496	0.000	886.05
T28	133.75-103.75	A	0.000	0.000	50.541	0.000	477.83
		B	0.000	0.000	70.049	0.000	512.70
		C	0.000	0.000	95.866	0.000	886.05
T29	103.75-73.75	A	0.000	0.000	62.462	0.000	523.95
		B	0.000	0.000	72.325	0.000	516.94
		C	0.000	0.000	96.519	0.000	886.43
T30	73.75-43.75	A	0.000	0.000	64.039	0.000	524.86
		B	0.000	0.000	72.986	0.000	512.26
		C	0.000	0.000	100.153	0.000	895.05
T31	43.75-36.69	A	0.000	0.000	14.949	0.000	104.95
		B	0.000	0.000	17.330	0.000	120.03
		C	0.000	0.000	23.578	0.000	210.71
T32	36.69-28.35	A	0.000	0.000	17.755	0.000	123.83
		B	0.000	0.000	21.892	0.000	176.58
		C	0.000	0.000	27.820	0.000	248.62
T33	28.35-20.29	A	0.000	0.000	17.224	0.000	119.81
		B	0.000	0.000	21.226	0.000	170.84
		C	0.000	0.000	26.916	0.000	240.54
T34	20.29-15.00	A	0.000	0.000	9.168	0.000	63.77
		B	0.000	0.000	11.599	0.000	98.84
		C	0.000	0.000	14.327	0.000	128.04
T35	15.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.500	0.000	39.50
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	768.11-762.18	A	2.054	0.000	0.000	16.214	0.000	370.69
		B		0.000	0.000	3.327	0.000	94.40
		C		0.000	0.000	4.294	0.000	89.75
T2	762.18-756.25	A	2.052	0.000	0.000	16.207	0.000	370.35
		B		0.000	0.000	4.334	0.000	113.23

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		C		0.000	0.000	4.292	0.000	89.67
T3	756.25-748.75	A	2.051	0.000	0.000	21.128	0.000	477.99
		B		0.000	0.000	8.522	0.000	200.09
		C		0.000	0.000	5.423	0.000	113.24
T4	748.75-733.75	A	2.048	0.000	0.000	48.698	0.000	1056.52
		B		0.000	0.000	28.096	0.000	581.31
		C		0.000	0.000	10.838	0.000	226.08
T5	733.75-703.75	A	2.041	0.000	0.000	97.208	0.000	2105.17
		B		0.000	0.000	66.300	0.000	1325.70
		C		0.000	0.000	21.638	0.000	450.49
T6	703.75-673.75	A	2.033	0.000	0.000	96.947	0.000	2094.36
		B		0.000	0.000	70.678	0.000	1371.16
		C		0.000	0.000	21.585	0.000	448.20
T7	673.75-643.75	A	2.024	0.000	0.000	96.676	0.000	2083.14
		B		0.000	0.000	98.153	0.000	1682.28
		C		0.000	0.000	21.531	0.000	445.82
T8	643.75-613.75	A	2.014	0.000	0.000	96.394	0.000	2071.48
		B		0.000	0.000	111.623	0.000	1807.45
		C		0.000	0.000	21.475	0.000	443.35
T9	613.75-583.75	A	2.004	0.000	0.000	96.099	0.000	2059.35
		B		0.000	0.000	122.915	0.000	1910.37
		C		0.000	0.000	27.267	0.000	628.22
T10	583.75-576.25	A	1.998	0.000	0.000	23.977	0.000	512.88
		B		0.000	0.000	30.667	0.000	475.69
		C		0.000	0.000	11.388	0.000	303.22
T11	576.25-568.75	A	1.995	0.000	0.000	23.958	0.000	512.08
		B		0.000	0.000	30.642	0.000	474.91
		C		0.000	0.000	11.380	0.000	302.86
T12	568.75-553.75	A	1.991	0.000	0.000	47.856	0.000	1021.72
		B		0.000	0.000	61.207	0.000	947.45
		C		0.000	0.000	22.736	0.000	604.61
T13	553.75-523.75	A	1.983	0.000	0.000	104.167	0.000	2149.92
		B		0.000	0.000	122.100	0.000	1885.21
		C		0.000	0.000	45.375	0.000	1204.71
T14	523.75-493.75	A	1.972	0.000	0.000	147.396	0.000	2737.46
		B		0.000	0.000	121.662	0.000	1871.74
		C		0.000	0.000	45.239	0.000	1198.44
T15	493.75-463.75	A	1.960	0.000	0.000	132.912	0.000	2379.49
		B		0.000	0.000	121.200	0.000	1857.59
		C		0.000	0.000	45.096	0.000	1191.85
T16	463.75-433.75	A	1.947	0.000	0.000	138.693	0.000	2455.03
		B		0.000	0.000	126.945	0.000	1990.28
		C		0.000	0.000	44.944	0.000	1184.89
T17	433.75-403.75	A	1.934	0.000	0.000	147.947	0.000	2721.92
		B		0.000	0.000	166.327	0.000	2793.77
		C		0.000	0.000	63.268	0.000	1516.49
T18	403.75-381.25	A	1.921	0.000	0.000	110.524	0.000	2025.78
		B		0.000	0.000	134.554	0.000	2244.59
		C		0.000	0.000	58.958	0.000	1343.47
T19	381.25-373.75	A	1.914	0.000	0.000	36.754	0.000	672.15
		B		0.000	0.000	44.745	0.000	744.66
		C		0.000	0.000	19.608	0.000	446.03
T20	373.75-343.75	A	1.904	0.000	0.000	146.564	0.000	2672.41
		B		0.000	0.000	182.836	0.000	3032.88
		C		0.000	0.000	78.197	0.000	1774.82
T21	343.75-313.75	A	1.888	0.000	0.000	145.792	0.000	2644.98
		B		0.000	0.000	220.679	0.000	3617.21
		C		0.000	0.000	83.308	0.000	1834.87
T22	313.75-283.75	A	1.870	0.000	0.000	144.955	0.000	2615.37
		B		0.000	0.000	221.648	0.000	3607.80
		C		0.000	0.000	208.868	0.000	3543.29

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T23	283.75-253.75	A	1.850	0.000	0.000	144.037	0.000	2583.15
		B		0.000	0.000	220.179	0.000	3560.38
		C		0.000	0.000	207.653	0.000	3504.37
T24	253.75-223.75	A	1.828	0.000	0.000	143.023	0.000	2547.74
		B		0.000	0.000	218.555	0.000	3508.30
		C		0.000	0.000	206.309	0.000	3461.58
T25	223.75-193.75	A	1.804	0.000	0.000	145.179	0.000	2565.46
		B		0.000	0.000	216.735	0.000	3450.42
		C		0.000	0.000	219.548	0.000	3642.41
T26	193.75-163.75	A	1.776	0.000	0.000	156.228	0.000	2732.61
		B		0.000	0.000	214.663	0.000	3385.10
		C		0.000	0.000	273.248	0.000	4438.62
T27	163.75-133.75	A	1.744	0.000	0.000	154.528	0.000	2675.23
		B		0.000	0.000	242.311	0.000	3635.32
		C		0.000	0.000	270.538	0.000	4355.72
T28	133.75-103.75	A	1.705	0.000	0.000	158.718	0.000	2668.22
		B		0.000	0.000	243.304	0.000	3583.07
		C		0.000	0.000	267.284	0.000	4257.24
T29	103.75-73.75	A	1.656	0.000	0.000	194.265	0.000	3050.32
		B		0.000	0.000	252.113	0.000	3532.00
		C		0.000	0.000	264.251	0.000	4144.01
T30	73.75-43.75	A	1.589	0.000	0.000	191.726	0.000	2937.10
		B		0.000	0.000	246.350	0.000	3354.68
		C		0.000	0.000	282.476	0.000	4177.64
T31	43.75-36.69	A	1.530	0.000	0.000	43.879	0.000	624.70
		B		0.000	0.000	55.677	0.000	728.75
		C		0.000	0.000	65.189	0.000	947.60
T32	36.69-28.35	A	1.498	0.000	0.000	51.159	0.000	719.61
		B		0.000	0.000	67.579	0.000	907.68
		C		0.000	0.000	76.079	0.000	1095.42
T33	28.35-20.29	A	1.455	0.000	0.000	48.701	0.000	673.98
		B		0.000	0.000	64.354	0.000	851.00
		C		0.000	0.000	72.521	0.000	1030.92
T34	20.29-15.00	A	1.409	0.000	0.000	25.470	0.000	346.28
		B		0.000	0.000	34.251	0.000	452.51
		C		0.000	0.000	37.984	0.000	532.53
T35	15.00-0.00	A	1.293	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.793	0.000	69.92
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	768.11-762.18	-0.6929	-2.5289	-1.1465	-4.8316
T2	762.18-756.25	-0.9606	-4.0838	-1.5174	-7.7348
T3	756.25-748.75	-0.5233	-3.7953	-0.7557	-8.1124
T4	748.75-733.75	-0.2972	-7.7179	0.2469	-12.4382
T5	733.75-703.75	-0.0122	-8.6663	0.8135	-13.1873
T6	703.75-673.75	0.1105	-8.7581	0.9850	-13.3260
T7	673.75-643.75	0.8099	-9.2261	1.9732	-14.0760
T8	643.75-613.75	1.0495	-8.9127	2.1319	-14.0349
T9	613.75-583.75	0.7151	-8.2235	1.8552	-13.5231
T10	583.75-576.25	-0.8065	-5.4609	0.5466	-11.3039
T11	576.25-568.75	-0.6830	-4.6765	0.5017	-10.5122
T12	568.75-553.75	-0.8854	-5.8539	0.5616	-11.5899

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T13	553.75-523.75	-1.0898	-7.6317	0.4306	-12.6278
T14	523.75-493.75	-1.6944	-10.6226	-0.3221	-15.7984
T15	493.75-463.75	-1.4298	-9.5054	-0.0502	-14.8992
T16	463.75-433.75	-1.4880	-10.5763	-0.1681	-15.8047
T17	433.75-403.75	-2.3209	-12.7573	-1.4483	-17.0280
T18	403.75-381.25	-2.9653	-11.7473	-2.4033	-16.1098
T19	381.25-373.75	-2.3191	-9.4212	-2.1802	-14.8362
T20	373.75-343.75	-3.0485	-12.3402	-2.3899	-16.6229
T21	343.75-313.75	-3.0717	-14.1284	-2.3022	-19.3813
T22	313.75-283.75	-7.0175	-9.2070	-6.7211	-13.0815
T23	283.75-253.75	-7.0272	-9.2333	-6.7218	-13.0672
T24	253.75-223.75	-6.6713	-8.8217	-6.5988	-12.8430
T25	223.75-193.75	-7.0223	-8.2234	-7.2197	-11.8898
T26	193.75-163.75	-8.2840	-6.3166	-9.3920	-8.8382
T27	163.75-133.75	-8.5419	-8.1822	-9.2896	-10.7018
T28	133.75-103.75	-9.0653	-8.6075	-9.6393	-10.8110
T29	103.75-73.75	-9.5524	-9.3326	-10.3594	-11.2319
T30	73.75-43.75	-9.4773	-10.6400	-11.1744	-10.6145
T31	43.75-36.69	-7.6204	-8.7434	-10.6337	-9.6154
T32	36.69-28.35	-7.0971	-8.7666	-10.0420	-9.6826
T33	28.35-20.29	-7.1954	-8.8849	-9.9372	-9.5447
T34	20.29-15.00	-6.1484	-7.8684	-8.8152	-8.7698
T35	15.00-0.00	0.2215	-0.1450	0.2547	-0.1617

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	5	1 1/2" Conduit	762.18 - 768.11	0.6000	0.4831
T1	8	MACX675A (6-1/8 AIR)	762.18 - 768.11	1.0000	0.4831
T1	12	1 1/2" Conduit	762.18 - 768.11	0.6000	0.4831
T1	33	HRL300 (3-1/8 RIGID AIR)	762.18 - 768.11	1.0000	0.4831
T1	46	Climbing Ladder (Af)	762.18 - 768.11	0.6000	0.4831
T1	47	Climbing Ladder (Af)	762.18 - 768.11	0.6000	0.4831
T2	5	1 1/2" Conduit	756.25 - 762.18	0.6000	0.6000
T2	8	MACX675A (6-1/8 AIR)	756.25 - 762.18	1.0000	0.6000
T2	12	1 1/2" Conduit	756.25 - 762.18	0.6000	0.6000
T2	24	1 1/2" Conduit	756.25 - 758.00	0.6000	0.6000
T2	33	HRL300 (3-1/8 RIGID AIR)	756.25 - 762.18	1.0000	0.6000
T2	46	Climbing Ladder (Af)	756.25 - 762.18	0.6000	0.6000
T2	47	Climbing Ladder (Af)	756.25 - 762.18	0.6000	0.6000
T3	5	1 1/2" Conduit	748.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	8	MACX675A (6-1/8 AIR)	748.75 - 756.25	1.0000	0.6000
T3	12	1 1/2" Conduit	748.75 - 756.25	0.6000	0.6000
T3	13	7/8" Conduit	748.75 - 750.00	0.6000	0.6000
T3	24	1 1/2" Conduit	748.75 - 756.25	0.6000	0.6000
T3	33	HRL300 (3-1/8 RIGID AIR)	748.75 - 756.25	1.0000	0.6000
T3	46	Climbing Ladder (Af)	748.75 - 756.25	0.6000	0.6000
T3	47	Climbing Ladder (Af)	748.75 - 756.25	0.6000	0.6000
T4	5	1 1/2" Conduit	733.75 - 748.75	0.6000	0.6000
T4	8	MACX675A (6-1/8 AIR)	733.75 - 748.75	1.0000	0.6000
T4	12	1 1/2" Conduit	733.75 - 748.75	0.6000	0.6000
T4	13	7/8" Conduit	733.75 - 748.75	0.6000	0.6000
T4	24	1 1/2" Conduit	733.75 - 748.75	0.6000	0.6000
T4	27	LDF7-50A (1-5/8 FOAM)	733.75 - 744.00	0.6000	0.6000
T4	30	LDF4-50A (1/2 FOAM)	733.75 - 744.00	0.6000	0.6000
T4	33	HRL300 (3-1/8 RIGID AIR)	733.75 - 748.75	1.0000	0.6000
T4	46	Climbing Ladder (Af)	733.75 - 748.75	0.6000	0.6000
T4	47	Climbing Ladder (Af)	733.75 - 748.75	0.6000	0.6000
T5	5	1 1/2" Conduit	703.75 - 733.75	0.6000	0.6000
T5	8	MACX675A (6-1/8 AIR)	703.75 - 733.75	1.0000	0.6000
T5	12	1 1/2" Conduit	703.75 - 733.75	0.6000	0.6000
T5	13	7/8" Conduit	703.75 - 733.75	0.6000	0.6000
T5	24	1 1/2" Conduit	703.75 - 733.75	0.6000	0.6000
T5	27	LDF7-50A (1-5/8 FOAM)	703.75 - 733.75	0.6000	0.6000
T5	30	LDF4-50A (1/2 FOAM)	703.75 - 733.75	0.6000	0.6000
T5	33	HRL300 (3-1/8 RIGID AIR)	703.75 - 733.75	1.0000	0.6000
T5	46	Climbing Ladder (Af)	703.75 - 733.75	0.6000	0.6000
T5	47	Climbing Ladder (Af)	703.75 - 733.75	0.6000	0.6000
T6	5	1 1/2" Conduit	673.75 - 703.75	0.6000	0.6000
T6	8	MACX675A (6-1/8 AIR)	673.75 - 703.75	1.0000	0.6000
T6	12	1 1/2" Conduit	673.75 - 703.75	0.6000	0.6000
T6	13	7/8" Conduit	673.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	24	1 1/2" Conduit	673.75 - 703.75	0.6000	0.6000
T6	26	EW63	673.75 - 678.00	0.6000	0.6000
T6	27	LDF7-50A (1-5/8 FOAM)	673.75 - 703.75	0.6000	0.6000
T6	29	LDF4-50A (1/2 FOAM)	673.75 - 678.00	0.6000	0.6000
T6	30	LDF4-50A (1/2 FOAM)	678.00 - 703.75	0.6000	0.6000
T6	33	HRL300 (3-1/8 RIGID AIR)	673.75 - 703.75	1.0000	0.6000
T6	46	Climbing Ladder (Af)	673.75 - 703.75	0.6000	0.6000
T6	47	Climbing Ladder (Af)	673.75 - 703.75	0.6000	0.6000
T7	5	1 1/2" Conduit	643.75 - 673.75	0.6000	0.6000
T7	8	MACX675A (6-1/8 AIR)	643.75 - 673.75	1.0000	0.6000
T7	12	1 1/2" Conduit	643.75 - 673.75	0.6000	0.6000
T7	13	7/8" Conduit	643.75 - 673.75	0.6000	0.6000
T7	24	1 1/2" Conduit	643.75 - 673.75	0.6000	0.6000
T7	26	EW63	643.75 - 673.75	0.6000	0.6000
T7	27	LDF7-50A (1-5/8 FOAM)	643.75 - 673.75	0.6000	0.6000
T7	29	LDF4-50A (1/2 FOAM)	643.75 - 673.75	0.6000	0.6000
T7	33	HRL300 (3-1/8 RIGID AIR)	643.75 - 673.75	1.0000	0.6000
T7	46	Climbing Ladder (Af)	643.75 - 673.75	0.6000	0.6000
T7	47	Climbing Ladder (Af)	643.75 - 673.75	0.6000	0.6000
T8	5	1 1/2" Conduit	613.75 - 643.75	0.6000	0.6000
T8	8	MACX675A (6-1/8 AIR)	613.75 - 643.75	1.0000	0.6000
T8	12	1 1/2" Conduit	613.75 - 643.75	0.6000	0.6000
T8	13	7/8" Conduit	613.75 - 643.75	0.6000	0.6000
T8	24	1 1/2" Conduit	613.75 - 643.75	0.6000	0.6000
T8	25	EW63	613.75 - 630.00	0.6000	0.6000
T8	26	EW63	630.00 - 643.75	0.6000	0.6000
T8	27	LDF7-50A (1-5/8 FOAM)	613.75 - 643.75	0.6000	0.6000
T8	28	LDF4-50A (1/2 FOAM)	613.75 - 630.00	0.6000	0.6000
T8	29	LDF4-50A (1/2 FOAM)	630.00 - 643.75	0.6000	0.6000
T8	33	HRL300 (3-1/8 RIGID AIR)	613.75 - 643.75	1.0000	0.6000
T8	46	Climbing Ladder (Af)	613.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	47	Climbing Ladder (Af)	643.75 - 613.75	0.6000	0.6000
T9	5	1 1/2" Conduit	643.75 - 583.75	0.6000	0.6000
T9	8	MACX675A (6-1/8 AIR)	613.75 - 583.75	1.0000	0.6000
T9	12	1 1/2" Conduit	613.75 - 583.75	0.6000	0.6000
T9	13	7/8" Conduit	613.75 - 583.75	0.6000	0.6000
T9	24	1 1/2" Conduit	613.75 - 583.75	0.6000	0.6000
T9	25	EW63	613.75 - 583.75	0.6000	0.6000
T9	27	LDF7-50A (1-5/8 FOAM)	613.75 - 583.75	0.6000	0.6000
T9	28	LDF4-50A (1/2 FOAM)	613.75 - 583.75	0.6000	0.6000
T9	33	HRL300 (3-1/8 RIGID AIR)	613.75 - 583.75	1.0000	0.6000
T9	37	475-000 (4-1/16")	613.75 - 591.00	1.0000	0.6000
T9	46	Climbing Ladder (Af)	613.75 - 583.75	0.6000	0.6000
T9	47	Climbing Ladder (Af)	613.75 - 583.75	0.6000	0.6000
T10	5	1 1/2" Conduit	583.75 - 576.25	0.6000	0.6000
T10	8	MACX675A (6-1/8 AIR)	583.75 - 576.25	1.0000	0.6000
T10	12	1 1/2" Conduit	583.75 - 576.25	0.6000	0.6000
T10	13	7/8" Conduit	583.75 - 576.25	0.6000	0.6000
T10	24	1 1/2" Conduit	583.75 - 576.25	0.6000	0.6000
T10	25	EW63	583.75 - 576.25	0.6000	0.6000
T10	27	LDF7-50A (1-5/8 FOAM)	583.75 - 576.25	0.6000	0.6000
T10	28	LDF4-50A (1/2 FOAM)	583.75 - 576.25	0.6000	0.6000
T10	33	HRL300 (3-1/8 RIGID AIR)	583.75 - 576.25	1.0000	0.6000
T10	37	475-000 (4-1/16")	583.75 - 576.25	1.0000	0.6000
T10	46	Climbing Ladder (Af)	583.75 - 576.25	0.6000	0.6000
T10	47	Climbing Ladder (Af)	583.75 - 576.25	0.6000	0.6000
T11	5	1 1/2" Conduit	576.25 - 568.75	0.6000	0.5926
T11	8	MACX675A (6-1/8 AIR)	576.25 - 568.75	1.0000	0.5926
T11	12	1 1/2" Conduit	576.25 - 568.75	0.6000	0.5926
T11	13	7/8" Conduit	576.25 - 568.75	0.6000	0.5926
T11	24	1 1/2" Conduit	576.25 - 568.75	0.6000	0.5926
T11	25	EW63	576.25 - 568.75	0.6000	0.5926

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T11	27	LDF7-50A (1-5/8 FOAM)	576.25 568.75 - 576.25	0.6000	0.5926
T11	28	LDF4-50A (1/2 FOAM)	568.75 - 576.25	0.6000	0.5926
T11	33	HRL300 (3-1/8 RIGID AIR)	568.75 - 576.25	1.0000	0.5926
T11	37	475-000 (4-1/16")	568.75 - 576.25	1.0000	0.5926
T11	46	Climbing Ladder (Af)	568.75 - 576.25	0.6000	0.5926
T11	47	Climbing Ladder (Af)	568.75 - 576.25	0.6000	0.5926
T12	5	1 1/2" Conduit	553.75 - 568.75	0.6000	0.6000
T12	8	MACX675A (6-1/8 AIR)	553.75 - 568.75	1.0000	0.6000
T12	12	1 1/2" Conduit	553.75 - 568.75	0.6000	0.6000
T12	13	7/8" Conduit	553.75 - 568.75	0.6000	0.6000
T12	24	1 1/2" Conduit	553.75 - 568.75	0.6000	0.6000
T12	25	EW63	553.75 - 568.75	0.6000	0.6000
T12	27	LDF7-50A (1-5/8 FOAM)	553.75 - 568.75	0.6000	0.6000
T12	28	LDF4-50A (1/2 FOAM)	553.75 - 568.75	0.6000	0.6000
T12	33	HRL300 (3-1/8 RIGID AIR)	553.75 - 568.75	1.0000	0.6000
T12	37	475-000 (4-1/16")	553.75 - 568.75	1.0000	0.6000
T12	46	Climbing Ladder (Af)	553.75 - 568.75	0.6000	0.6000
T12	47	Climbing Ladder (Af)	553.75 - 568.75	0.6000	0.6000
T13	5	1 1/2" Conduit	523.75 - 553.75	0.6000	0.6000
T13	8	MACX675A (6-1/8 AIR)	523.75 - 553.75	1.0000	0.6000
T13	9	1 1/2" Conduit	523.75 - 529.00	0.6000	0.6000
T13	11	7/8" Conduit	523.75 - 529.00	0.6000	0.6000
T13	12	1 1/2" Conduit	523.75 - 553.75	0.6000	0.6000
T13	13	7/8" Conduit	523.75 - 553.75	0.6000	0.6000
T13	24	1 1/2" Conduit	523.75 - 553.75	0.6000	0.6000
T13	25	EW63	523.75 - 553.75	0.6000	0.6000
T13	27	LDF7-50A (1-5/8 FOAM)	523.75 - 553.75	0.6000	0.6000
T13	28	LDF4-50A (1/2 FOAM)	523.75 - 553.75	0.6000	0.6000
T13	33	HRL300 (3-1/8 RIGID AIR)	523.75 - 553.75	0.6000	0.6000
T13	37	475-000 (4-1/16")	523.75 - 553.75	1.0000	0.6000
T13	46	Climbing Ladder (Af)	523.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T13	47	Climbing Ladder (Af)	523.75 - 553.75	0.6000	0.6000
T14	5	1 1/2" Conduit	493.75 - 523.75	0.6000	0.6000
T14	8	MACX675A (6-1/8 AIR)	493.75 - 523.75	1.0000	0.6000
T14	9	1 1/2" Conduit	493.75 - 523.75	0.6000	0.6000
T14	10	7/8" Conduit	493.75 - 510.00	0.6000	0.6000
T14	11	7/8" Conduit	510.00 - 523.75	0.6000	0.6000
T14	12	1 1/2" Conduit	493.75 - 523.75	0.6000	0.6000
T14	13	7/8" Conduit	493.75 - 523.75	0.6000	0.6000
T14	24	1 1/2" Conduit	493.75 - 523.75	0.6000	0.6000
T14	25	EW63	493.75 - 523.75	0.6000	0.6000
T14	27	LDF7-50A (1-5/8 FOAM)	493.75 - 523.75	0.6000	0.6000
T14	28	LDF4-50A (1/2 FOAM)	493.75 - 523.75	0.6000	0.6000
T14	33	HRL300 (3-1/8 RIGID AIR)	493.75 - 523.75	0.6000	0.6000
T14	37	475-000 (4-1/16")	493.75 - 523.75	1.0000	0.6000
T14	46	Climbing Ladder (Af)	493.75 - 523.75	0.6000	0.6000
T14	47	Climbing Ladder (Af)	493.75 - 523.75	0.6000	0.6000
T15	5	1 1/2" Conduit	463.75 - 493.75	0.6000	0.6000
T15	8	MACX675A (6-1/8 AIR)	480.00 - 493.75	1.0000	0.6000
T15	9	1 1/2" Conduit	463.75 - 493.75	0.6000	0.6000
T15	10	7/8" Conduit	463.75 - 493.75	0.6000	0.6000
T15	12	1 1/2" Conduit	463.75 - 493.75	0.6000	0.6000
T15	13	7/8" Conduit	463.75 - 493.75	0.6000	0.6000
T15	24	1 1/2" Conduit	463.75 - 493.75	0.6000	0.6000
T15	25	EW63	463.75 - 493.75	0.6000	0.6000
T15	27	LDF7-50A (1-5/8 FOAM)	463.75 - 493.75	0.6000	0.6000
T15	28	LDF4-50A (1/2 FOAM)	463.75 - 493.75	0.6000	0.6000
T15	33	HRL300 (3-1/8 RIGID AIR)	463.75 - 493.75	0.6000	0.6000
T15	37	475-000 (4-1/16")	463.75 - 493.75	1.0000	0.6000
T15	46	Climbing Ladder (Af)	463.75 - 493.75	0.6000	0.6000
T15	47	Climbing Ladder (Af)	463.75 - 493.75	0.6000	0.6000
T16	5	1 1/2" Conduit	433.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T16	6	MACX675A (6-1/8 AIR)	463.75 433.75 - 440.00	1.0000	0.6000
T16	7	HJ8-50B (3 AIR)	440.00 - 460.00	0.6000	0.6000
T16	9	1 1/2" Conduit	433.75 - 463.75	0.6000	0.6000
T16	10	7/8" Conduit	433.75 - 463.75	0.6000	0.6000
T16	12	1 1/2" Conduit	433.75 - 463.75	0.6000	0.6000
T16	13	7/8" Conduit	433.75 - 463.75	0.6000	0.6000
T16	19	MACX675A (6-1/8 AIR)	433.75 - 440.00	1.0000	0.6000
T16	24	1 1/2" Conduit	433.75 - 463.75	0.6000	0.6000
T16	25	EW63	433.75 - 463.75	0.6000	0.6000
T16	27	LDF7-50A (1-5/8 FOAM)	433.75 - 463.75	0.6000	0.6000
T16	28	LDF4-50A (1/2 FOAM)	433.75 - 463.75	0.6000	0.6000
T16	33	HRL300 (3-1/8 RIGID AIR)	433.75 - 463.75	0.6000	0.6000
T16	37	475-000 (4-1/16")	433.75 - 463.75	1.0000	0.6000
T16	46	Climbing Ladder (Af)	433.75 - 463.75	0.6000	0.6000
T16	47	Climbing Ladder (Af)	433.75 - 463.75	0.6000	0.6000
T17	5	1 1/2" Conduit	403.75 - 433.75	0.6000	0.6000
T17	6	MACX675A (6-1/8 AIR)	403.75 - 433.75	1.0000	0.6000
T17	9	1 1/2" Conduit	403.75 - 433.75	0.6000	0.6000
T17	10	7/8" Conduit	403.75 - 433.75	0.6000	0.6000
T17	12	1 1/2" Conduit	403.75 - 433.75	0.6000	0.6000
T17	13	7/8" Conduit	403.75 - 433.75	0.6000	0.6000
T17	19	MACX675A (6-1/8 AIR)	403.75 - 433.75	1.0000	0.6000
T17	20	1 1/2" Conduit	403.75 - 420.00	0.6000	0.6000
T17	22	LDF4-50A (1/2 FOAM)	403.75 - 420.00	0.6000	0.6000
T17	24	1 1/2" Conduit	403.75 - 433.75	0.6000	0.6000
T17	25	EW63	403.75 - 433.75	0.6000	0.6000
T17	27	LDF7-50A (1-5/8 FOAM)	403.75 - 433.75	0.6000	0.6000
T17	28	LDF4-50A (1/2 FOAM)	403.75 - 433.75	0.6000	0.6000
T17	33	HRL300 (3-1/8 RIGID AIR)	403.75 - 433.75	0.6000	0.6000
T17	37	475-000 (4-1/16")	403.75 - 433.75	1.0000	0.6000
T17	43	LDF7-50A (1-5/8 FOAM)	403.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T17	44	1 1/2" Conduit	420.00 403.75 -	0.6000	0.6000
T17	46	Climbing Ladder (Af)	420.00 403.75 -	0.6000	0.6000
T17	47	Climbing Ladder (Af)	433.75 403.75 -	0.6000	0.6000
T18	5	1 1/2" Conduit	433.75 381.25 -	0.6000	0.6000
T18	6	MACX675A (6-1/8 AIR)	403.75 381.25 -	1.0000	0.6000
T18	9	1 1/2" Conduit	403.75 381.25 -	0.6000	0.6000
T18	10	7/8" Conduit	403.75 381.25 -	0.6000	0.6000
T18	12	1 1/2" Conduit	403.75 381.25 -	0.6000	0.6000
T18	13	7/8" Conduit	403.75 381.25 -	0.6000	0.6000
T18	19	MACX675A (6-1/8 AIR)	403.75 381.25 -	1.0000	0.6000
T18	20	1 1/2" Conduit	403.75 381.25 -	0.6000	0.6000
T18	22	LDF4-50A (1/2 FOAM)	403.75 381.25 -	0.6000	0.6000
T18	24	1 1/2" Conduit	403.75 381.25 -	0.6000	0.6000
T18	25	EW63	403.75 381.25 -	0.6000	0.6000
T18	27	LDF7-50A (1-5/8 FOAM)	403.75 381.25 -	0.6000	0.6000
T18	28	LDF4-50A (1/2 FOAM)	403.75 381.25 -	0.6000	0.6000
T18	33	HRL300 (3-1/8 RIGID AIR)	403.75 381.25 -	0.6000	0.6000
T18	37	475-000 (4-1/16")	403.75 381.25 -	1.0000	0.6000
T18	43	LDF7-50A (1-5/8 FOAM)	403.75 381.25 -	0.6000	0.6000
T18	44	1 1/2" Conduit	403.75 381.25 -	0.6000	0.6000
T18	46	Climbing Ladder (Af)	403.75 381.25 -	0.6000	0.6000
T18	47	Climbing Ladder (Af)	403.75 381.25 -	0.6000	0.6000
T19	5	1 1/2" Conduit	403.75 373.75 -	0.6000	0.6000
T19	6	MACX675A (6-1/8 AIR)	381.25 373.75 -	1.0000	0.6000
T19	9	1 1/2" Conduit	381.25 373.75 -	0.6000	0.6000
T19	10	7/8" Conduit	381.25 373.75 -	0.6000	0.6000
T19	12	1 1/2" Conduit	381.25 373.75 -	0.6000	0.6000
T19	13	7/8" Conduit	381.25 373.75 -	0.6000	0.6000
T19	19	MACX675A (6-1/8 AIR)	381.25 373.75 -	1.0000	0.6000
T19	20	1 1/2" Conduit	381.25 373.75 -	0.6000	0.6000
T19	22	LDF4-50A (1/2 FOAM)	381.25 373.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T19	24	1 1/2" Conduit	381.25 - 373.75	0.6000	0.6000
T19	25	EW63	381.25 - 373.75	0.6000	0.6000
T19	27	LDF7-50A (1-5/8 FOAM)	381.25 - 373.75	0.6000	0.6000
T19	28	LDF4-50A (1/2 FOAM)	381.25 - 373.75	0.6000	0.6000
T19	33	HRL300 (3-1/8 RIGID AIR)	381.25 - 373.75	0.6000	0.6000
T19	37	475-000 (4-1/16")	381.25 - 373.75	1.0000	0.6000
T19	43	LDF7-50A (1-5/8 FOAM)	381.25 - 373.75	0.6000	0.6000
T19	44	1 1/2" Conduit	381.25 - 373.75	0.6000	0.6000
T19	46	Climbing Ladder (Af)	381.25 - 373.75	0.6000	0.6000
T19	47	Climbing Ladder (Af)	381.25 - 373.75	0.6000	0.6000
T20	5	1 1/2" Conduit	373.75 - 343.75	0.6000	0.6000
T20	6	MACX675A (6-1/8 AIR)	373.75 - 343.75	1.0000	0.6000
T20	9	1 1/2" Conduit	373.75 - 343.75	0.6000	0.6000
T20	10	7/8" Conduit	373.75 - 343.75	0.6000	0.6000
T20	12	1 1/2" Conduit	373.75 - 343.75	0.6000	0.6000
T20	13	7/8" Conduit	373.75 - 343.75	0.6000	0.6000
T20	16	1 1/2" Conduit	373.75 - 348.00	0.6000	0.6000
T20	18	7/8" Conduit	373.75 - 348.00	0.6000	0.6000
T20	19	MACX675A (6-1/8 AIR)	373.75 - 343.75	1.0000	0.6000
T20	20	1 1/2" Conduit	373.75 - 343.75	0.6000	0.6000
T20	22	LDF4-50A (1/2 FOAM)	373.75 - 343.75	0.6000	0.6000
T20	24	1 1/2" Conduit	373.75 - 343.75	0.6000	0.6000
T20	25	EW63	373.75 - 343.75	0.6000	0.6000
T20	27	LDF7-50A (1-5/8 FOAM)	373.75 - 343.75	0.6000	0.6000
T20	28	LDF4-50A (1/2 FOAM)	373.75 - 343.75	0.6000	0.6000
T20	33	HRL300 (3-1/8 RIGID AIR)	373.75 - 343.75	0.6000	0.6000
T20	37	475-000 (4-1/16")	373.75 - 343.75	1.0000	0.6000
T20	43	LDF7-50A (1-5/8 FOAM)	373.75 - 343.75	0.6000	0.6000
T20	44	1 1/2" Conduit	373.75 - 343.75	0.6000	0.6000
T20	46	Climbing Ladder (Af)	373.75 - 343.75	0.6000	0.6000
T20	47	Climbing Ladder (Af)	373.75 - 343.75	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T21	5	1 1/2" Conduit	313.75 - 343.75	0.6000	0.6000
T21	6	MACX675A (6-1/8 AIR)	313.75 - 343.75	1.0000	0.6000
T21	9	1 1/2" Conduit	313.75 - 343.75	0.6000	0.6000
T21	10	7/8" Conduit	313.75 - 343.75	0.6000	0.6000
T21	12	1 1/2" Conduit	313.75 - 343.75	0.6000	0.6000
T21	13	7/8" Conduit	313.75 - 343.75	0.6000	0.6000
T21	16	1 1/2" Conduit	313.75 - 343.75	0.6000	0.6000
T21	18	7/8" Conduit	313.75 - 343.75	0.6000	0.6000
T21	19	MACX675A (6-1/8 AIR)	313.75 - 343.75	1.0000	0.6000
T21	20	1 1/2" Conduit	313.75 - 343.75	0.6000	0.6000
T21	22	LDF4-50A (1/2 FOAM)	313.75 - 343.75	0.6000	0.6000
T21	23	7/8" Conduit	313.75 - 339.00	0.6000	0.6000
T21	24	1 1/2" Conduit	313.75 - 343.75	0.6000	0.6000
T21	25	EW63	313.75 - 343.75	0.6000	0.6000
T21	27	LDF7-50A (1-5/8 FOAM)	313.75 - 343.75	0.6000	0.6000
T21	28	LDF4-50A (1/2 FOAM)	313.75 - 343.75	0.6000	0.6000
T21	33	HRL300 (3-1/8 RIGID AIR)	313.75 - 343.75	0.6000	0.6000
T21	34	LDF5-50A (7/8 FOAM)	313.75 - 315.00	0.6000	0.6000
T21	37	475-000 (4-1/16")	313.75 - 343.75	1.0000	0.6000
T21	38	1 1/4" Conduit	313.75 - 315.00	0.6000	0.6000
T21	41	LDF5-50A (7/8 FOAM)	313.75 - 315.00	0.6000	0.6000
T21	42	LDF5-50A (7/8 FOAM)	313.75 - 315.00	0.6000	0.6000
T21	43	LDF7-50A (1-5/8 FOAM)	313.75 - 343.75	0.6000	0.6000
T21	44	1 1/2" Conduit	313.75 - 343.75	0.6000	0.6000
T21	46	Climbing Ladder (Af)	313.75 - 343.75	0.6000	0.6000
T21	47	Climbing Ladder (Af)	313.75 - 343.75	0.6000	0.6000
T22	5	1 1/2" Conduit	283.75 - 313.75	0.6000	0.6000
T22	6	MACX675A (6-1/8 AIR)	283.75 - 313.75	1.0000	0.6000
T22	9	1 1/2" Conduit	283.75 - 313.75	0.6000	0.6000
T22	10	7/8" Conduit	283.75 - 313.75	0.6000	0.6000
T22	12	1 1/2" Conduit	283.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T22	13	7/8" Conduit	283.75 - 313.75	0.6000	0.6000
T22	16	1 1/2" Conduit	283.75 - 313.75	0.6000	0.6000
T22	18	7/8" Conduit	283.75 - 313.75	0.6000	0.6000
T22	19	MACX675A (6-1/8 AIR)	283.75 - 313.75	1.0000	0.6000
T22	20	1 1/2" Conduit	283.75 - 313.75	0.6000	0.6000
T22	22	LDF4-50A (1/2 FOAM)	283.75 - 313.75	0.6000	0.6000
T22	23	7/8" Conduit	283.75 - 313.75	0.6000	0.6000
T22	24	1 1/2" Conduit	283.75 - 313.75	0.6000	0.6000
T22	25	EW63	283.75 - 313.75	0.6000	0.6000
T22	27	LDF7-50A (1-5/8 FOAM)	283.75 - 313.75	0.6000	0.6000
T22	28	LDF4-50A (1/2 FOAM)	283.75 - 313.75	0.6000	0.6000
T22	33	HRL300 (3-1/8 RIGID AIR)	283.75 - 313.75	0.6000	0.6000
T22	34	LDF5-50A (7/8 FOAM)	283.75 - 313.75	0.6000	0.6000
T22	37	475-000 (4-1/16")	283.75 - 313.75	1.0000	0.6000
T22	38	1 1/4" Conduit	283.75 - 313.75	0.6000	0.6000
T22	41	LDF5-50A (7/8 FOAM)	283.75 - 313.75	0.6000	0.6000
T22	42	LDF5-50A (7/8 FOAM)	283.75 - 313.75	0.6000	0.6000
T22	43	LDF7-50A (1-5/8 FOAM)	283.75 - 313.75	0.6000	0.6000
T22	44	1 1/2" Conduit	283.75 - 313.75	0.6000	0.6000
T22	46	Climbing Ladder (Af)	283.75 - 313.75	0.6000	0.6000
T22	47	Climbing Ladder (Af)	283.75 - 313.75	0.6000	0.6000
T23	5	1 1/2" Conduit	253.75 - 283.75	0.6000	0.6000
T23	6	MACX675A (6-1/8 AIR)	253.75 - 283.75	1.0000	0.6000
T23	9	1 1/2" Conduit	253.75 - 283.75	0.6000	0.6000
T23	10	7/8" Conduit	253.75 - 283.75	0.6000	0.6000
T23	12	1 1/2" Conduit	253.75 - 283.75	0.6000	0.6000
T23	13	7/8" Conduit	253.75 - 283.75	0.6000	0.6000
T23	16	1 1/2" Conduit	253.75 - 283.75	0.6000	0.6000
T23	18	7/8" Conduit	253.75 - 283.75	0.6000	0.6000
T23	19	MACX675A (6-1/8 AIR)	253.75 - 283.75	1.0000	0.6000
T23	20	1 1/2" Conduit	253.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T23	22	LDF4-50A (1/2 FOAM)	253.75 - 283.75	0.6000	0.6000
T23	23	7/8" Conduit	253.75 - 283.75	0.6000	0.6000
T23	24	1 1/2" Conduit	253.75 - 283.75	0.6000	0.6000
T23	25	EW63	253.75 - 283.75	0.6000	0.6000
T23	27	LDF7-50A (1-5/8 FOAM)	253.75 - 283.75	0.6000	0.6000
T23	28	LDF4-50A (1/2 FOAM)	253.75 - 283.75	0.6000	0.6000
T23	33	HRL300 (3-1/8 RIGID AIR)	253.75 - 283.75	0.6000	0.6000
T23	34	LDF5-50A (7/8 FOAM)	253.75 - 283.75	0.6000	0.6000
T23	37	475-000 (4-1/16")	253.75 - 283.75	1.0000	0.6000
T23	38	1 1/4" Conduit	253.75 - 283.75	0.6000	0.6000
T23	41	LDF5-50A (7/8 FOAM)	253.75 - 283.75	0.6000	0.6000
T23	42	LDF5-50A (7/8 FOAM)	253.75 - 283.75	0.6000	0.6000
T23	43	LDF7-50A (1-5/8 FOAM)	253.75 - 283.75	0.6000	0.6000
T23	44	1 1/2" Conduit	253.75 - 283.75	0.6000	0.6000
T23	46	Climbing Ladder (Af)	253.75 - 283.75	0.6000	0.6000
T23	47	Climbing Ladder (Af)	253.75 - 283.75	0.6000	0.6000
T24	5	1 1/2" Conduit	223.75 - 253.75	0.6000	0.6000
T24	6	MACX675A (6-1/8 AIR)	223.75 - 253.75	1.0000	0.6000
T24	9	1 1/2" Conduit	223.75 - 253.75	0.6000	0.6000
T24	10	7/8" Conduit	223.75 - 253.75	0.6000	0.6000
T24	12	1 1/2" Conduit	223.75 - 253.75	0.6000	0.6000
T24	13	7/8" Conduit	223.75 - 253.75	0.6000	0.6000
T24	16	1 1/2" Conduit	223.75 - 253.75	0.6000	0.6000
T24	18	7/8" Conduit	223.75 - 253.75	0.6000	0.6000
T24	19	MACX675A (6-1/8 AIR)	223.75 - 253.75	1.0000	0.6000
T24	20	1 1/2" Conduit	223.75 - 253.75	0.6000	0.6000
T24	22	LDF4-50A (1/2 FOAM)	223.75 - 253.75	0.6000	0.6000
T24	23	7/8" Conduit	223.75 - 253.75	0.6000	0.6000
T24	24	1 1/2" Conduit	223.75 - 253.75	0.6000	0.6000
T24	25	EW63	223.75 - 253.75	0.6000	0.6000
T24	27	LDF7-50A (1-5/8 FOAM)	223.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T24	28	LDF4-50A (1/2 FOAM)	223.75 - 253.75	0.6000	0.6000
T24	33	HRL300 (3-1/8 RIGID AIR)	223.75 - 253.75	0.6000	0.6000
T24	34	LDF5-50A (7/8 FOAM)	223.75 - 253.75	0.6000	0.6000
T24	37	475-000 (4-1/16")	223.75 - 253.75	1.0000	0.6000
T24	38	1 1/4" Conduit	223.75 - 253.75	0.6000	0.6000
T24	41	LDF5-50A (7/8 FOAM)	223.75 - 253.75	0.6000	0.6000
T24	42	LDF5-50A (7/8 FOAM)	223.75 - 253.75	0.6000	0.6000
T24	43	LDF7-50A (1-5/8 FOAM)	223.75 - 253.75	0.6000	0.6000
T24	44	1 1/2" Conduit	223.75 - 253.75	0.6000	0.6000
T24	46	Climbing Ladder (Af)	223.75 - 253.75	0.6000	0.6000
T24	47	Climbing Ladder (Af)	223.75 - 253.75	0.6000	0.6000
T25	3	1 1/2" Conduit	193.75 - 200.00	0.6000	0.6000
T25	5	1 1/2" Conduit	193.75 - 223.75	0.6000	0.6000
T25	6	MACX675A (6-1/8 AIR)	193.75 - 223.75	1.0000	0.6000
T25	9	1 1/2" Conduit	193.75 - 223.75	0.6000	0.6000
T25	10	7/8" Conduit	193.75 - 223.75	0.6000	0.6000
T25	12	1 1/2" Conduit	193.75 - 223.75	0.6000	0.6000
T25	13	7/8" Conduit	193.75 - 223.75	0.6000	0.6000
T25	16	1 1/2" Conduit	193.75 - 223.75	0.6000	0.6000
T25	18	7/8" Conduit	193.75 - 223.75	0.6000	0.6000
T25	19	MACX675A (6-1/8 AIR)	193.75 - 223.75	1.0000	0.6000
T25	20	1 1/2" Conduit	193.75 - 223.75	0.6000	0.6000
T25	22	LDF4-50A (1/2 FOAM)	193.75 - 223.75	0.6000	0.6000
T25	23	7/8" Conduit	193.75 - 223.75	0.6000	0.6000
T25	24	1 1/2" Conduit	193.75 - 223.75	0.6000	0.6000
T25	25	EW63	193.75 - 223.75	0.6000	0.6000
T25	27	LDF7-50A (1-5/8 FOAM)	193.75 - 223.75	0.6000	0.6000
T25	28	LDF4-50A (1/2 FOAM)	193.75 - 223.75	0.6000	0.6000
T25	33	HRL300 (3-1/8 RIGID AIR)	193.75 - 223.75	0.6000	0.6000
T25	34	LDF5-50A (7/8 FOAM)	193.75 - 223.75	0.6000	0.6000
T25	35	1" Rigid Conduit	193.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T25	36	HFT1206-24S26-XXX	200.00 193.75 - 200.00	0.6000	0.6000
T25	37	475-000 (4-1/16")	193.75 - 223.75	1.0000	0.6000
T25	38	1 1/4" Conduit	193.75 - 223.75	0.6000	0.6000
T25	40	HFT1206-24S26-XXX	193.75 - 200.00	0.6000	0.6000
T25	41	LDF5-50A (7/8 FOAM)	193.75 - 223.75	0.6000	0.6000
T25	42	LDF5-50A (7/8 FOAM)	193.75 - 223.75	0.6000	0.6000
T25	43	LDF7-50A (1-5/8 FOAM)	193.75 - 223.75	0.6000	0.6000
T25	44	1 1/2" Conduit	193.75 - 223.75	0.6000	0.6000
T25	46	Climbing Ladder (Af)	193.75 - 223.75	0.6000	0.6000
T25	47	Climbing Ladder (Af)	193.75 - 223.75	0.6000	0.6000
T26	3	1 1/2" Conduit	163.75 - 193.75	0.6000	0.6000
T26	5	1 1/2" Conduit	163.75 - 193.75	0.6000	0.6000
T26	6	MACX675A (6-1/8 AIR)	163.75 - 193.75	1.0000	0.6000
T26	9	1 1/2" Conduit	163.75 - 193.75	0.6000	0.6000
T26	10	7/8" Conduit	163.75 - 193.75	0.6000	0.6000
T26	12	1 1/2" Conduit	163.75 - 193.75	0.6000	0.6000
T26	13	7/8" Conduit	163.75 - 193.75	0.6000	0.6000
T26	16	1 1/2" Conduit	163.75 - 193.75	0.6000	0.6000
T26	18	7/8" Conduit	163.75 - 193.75	0.6000	0.6000
T26	19	MACX675A (6-1/8 AIR)	163.75 - 193.75	1.0000	0.6000
T26	20	1 1/2" Conduit	163.75 - 193.75	0.6000	0.6000
T26	22	LDF4-50A (1/2 FOAM)	163.75 - 193.75	0.6000	0.6000
T26	23	7/8" Conduit	163.75 - 193.75	0.6000	0.6000
T26	24	1 1/2" Conduit	163.75 - 193.75	0.6000	0.6000
T26	25	EW63	163.75 - 193.75	0.6000	0.6000
T26	27	LDF7-50A (1-5/8 FOAM)	163.75 - 193.75	0.6000	0.6000
T26	28	LDF4-50A (1/2 FOAM)	163.75 - 193.75	0.6000	0.6000
T26	33	HRL300 (3-1/8 RIGID AIR)	163.75 - 193.75	0.6000	0.6000
T26	34	LDF5-50A (7/8 FOAM)	163.75 - 193.75	0.6000	0.6000
T26	35	1" Rigid Conduit	163.75 - 193.75	0.6000	0.6000
T26	36	HFT1206-24S26-XXX	163.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T26	37	475-000 (4-1/16")	193.75 163.75 -	1.0000	0.6000
T26	38	1 1/4" Conduit	193.75 163.75 -	0.6000	0.6000
T26	40	HFT1206-24S26-XXX	193.75 163.75 -	0.6000	0.6000
T26	41	LDF5-50A (7/8 FOAM)	193.75 163.75 -	0.6000	0.6000
T26	42	LDF5-50A (7/8 FOAM)	193.75 163.75 -	0.6000	0.6000
T26	43	LDF7-50A (1-5/8 FOAM)	193.75 163.75 -	0.6000	0.6000
T26	44	1 1/2" Conduit	193.75 163.75 -	0.6000	0.6000
T26	46	Climbing Ladder (Af)	193.75 163.75 -	0.6000	0.6000
T26	47	Climbing Ladder (Af)	193.75 163.75 -	0.6000	0.6000
T27	3	1 1/2" Conduit	193.75 133.75 -	0.6000	0.6000
T27	5	1 1/2" Conduit	163.75 133.75 -	0.6000	0.6000
T27	6	MACX675A (6-1/8 AIR)	163.75 133.75 -	1.0000	0.6000
T27	9	1 1/2" Conduit	163.75 133.75 -	0.6000	0.6000
T27	10	7/8" Conduit	163.75 133.75 -	0.6000	0.6000
T27	12	1 1/2" Conduit	163.75 133.75 -	0.6000	0.6000
T27	13	7/8" Conduit	163.75 133.75 -	0.6000	0.6000
T27	16	1 1/2" Conduit	163.75 133.75 -	0.6000	0.6000
T27	17	EW63	163.75 133.75 -	0.6000	0.6000
T27	18	7/8" Conduit	160.00 133.75 -	0.6000	0.6000
T27	19	MACX675A (6-1/8 AIR)	163.75 133.75 -	1.0000	0.6000
T27	20	1 1/2" Conduit	163.75 133.75 -	0.6000	0.6000
T27	22	LDF4-50A (1/2 FOAM)	163.75 133.75 -	0.6000	0.6000
T27	23	7/8" Conduit	163.75 133.75 -	0.6000	0.6000
T27	24	1 1/2" Conduit	163.75 133.75 -	0.6000	0.6000
T27	25	EW63	163.75 133.75 -	0.6000	0.6000
T27	27	LDF7-50A (1-5/8 FOAM)	163.75 133.75 -	0.6000	0.6000
T27	28	LDF4-50A (1/2 FOAM)	163.75 133.75 -	0.6000	0.6000
T27	33	HRL300 (3-1/8 RIGID AIR)	163.75 133.75 -	0.6000	0.6000
T27	34	LDF5-50A (7/8 FOAM)	163.75 133.75 -	0.6000	0.6000
T27	35	1" Rigid Conduit	163.75 133.75 -	0.6000	0.6000
T27	36	HFT1206-24S26-XXX	163.75 133.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T27	37	475-000 (4-1/16")	133.75 - 163.75	1.0000	0.6000
T27	38	1 1/4" Conduit	133.75 - 163.75	0.6000	0.6000
T27	40	HFT1206-24S26-XXX	133.75 - 163.75	0.6000	0.6000
T27	41	LDF5-50A (7/8 FOAM)	133.75 - 163.75	0.6000	0.6000
T27	42	LDF5-50A (7/8 FOAM)	133.75 - 163.75	0.6000	0.6000
T27	43	LDF7-50A (1-5/8 FOAM)	133.75 - 163.75	0.6000	0.6000
T27	44	1 1/2" Conduit	133.75 - 163.75	0.6000	0.6000
T27	46	Climbing Ladder (Af)	133.75 - 163.75	0.6000	0.6000
T27	47	Climbing Ladder (Af)	133.75 - 163.75	0.6000	0.6000
T28	3	1 1/2" Conduit	103.75 - 133.75	0.6000	0.6000
T28	4	7/8" Conduit	103.75 - 110.00	0.6000	0.6000
T28	5	1 1/2" Conduit	103.75 - 133.75	0.6000	0.6000
T28	6	MACX675A (6-1/8 AIR)	103.75 - 133.75	1.0000	0.6000
T28	9	1 1/2" Conduit	103.75 - 133.75	0.6000	0.6000
T28	10	7/8" Conduit	103.75 - 133.75	0.6000	0.6000
T28	12	1 1/2" Conduit	103.75 - 133.75	0.6000	0.6000
T28	13	7/8" Conduit	103.75 - 133.75	0.6000	0.6000
T28	16	1 1/2" Conduit	103.75 - 133.75	0.6000	0.6000
T28	17	EW63	103.75 - 133.75	0.6000	0.6000
T28	18	7/8" Conduit	103.75 - 133.75	0.6000	0.6000
T28	19	MACX675A (6-1/8 AIR)	103.75 - 133.75	1.0000	0.6000
T28	20	1 1/2" Conduit	103.75 - 133.75	0.6000	0.6000
T28	22	LDF4-50A (1/2 FOAM)	103.75 - 133.75	0.6000	0.6000
T28	23	7/8" Conduit	103.75 - 133.75	0.6000	0.6000
T28	24	1 1/2" Conduit	103.75 - 133.75	0.6000	0.6000
T28	25	EW63	103.75 - 133.75	0.6000	0.6000
T28	27	LDF7-50A (1-5/8 FOAM)	103.75 - 133.75	0.6000	0.6000
T28	28	LDF4-50A (1/2 FOAM)	103.75 - 133.75	0.6000	0.6000
T28	33	HRL300 (3-1/8 RIGID AIR)	103.75 - 133.75	0.6000	0.6000
T28	34	LDF5-50A (7/8 FOAM)	103.75 - 133.75	0.6000	0.6000
T28	35	1" Rigid Conduit	103.75 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			133.75		
T28	36	HFT1206-24S26-XXX	103.75 - 133.75	0.6000	0.6000
T28	37	475-000 (4-1/16")	103.75 - 133.75	1.0000	0.6000
T28	38	1 1/4" Conduit	103.75 - 133.75	0.6000	0.6000
T28	40	HFT1206-24S26-XXX	103.75 - 133.75	0.6000	0.6000
T28	41	LDF5-50A (7/8 FOAM)	103.75 - 133.75	0.6000	0.6000
T28	42	LDF5-50A (7/8 FOAM)	103.75 - 133.75	0.6000	0.6000
T28	43	LDF7-50A (1-5/8 FOAM)	103.75 - 133.75	0.6000	0.6000
T28	44	1 1/2" Conduit	103.75 - 133.75	0.6000	0.6000
T28	46	Climbing Ladder (Af)	103.75 - 133.75	0.6000	0.6000
T28	47	Climbing Ladder (Af)	103.75 - 133.75	0.6000	0.6000
T29	3	1 1/2" Conduit	73.75 - 103.75	0.6000	0.6000
T29	4	7/8" Conduit	73.75 - 103.75	0.6000	0.6000
T29	5	1 1/2" Conduit	73.75 - 103.75	0.6000	0.6000
T29	6	MACX675A (6-1/8 AIR)	73.75 - 103.75	1.0000	0.6000
T29	9	1 1/2" Conduit	73.75 - 103.75	0.6000	0.6000
T29	10	7/8" Conduit	73.75 - 103.75	0.6000	0.6000
T29	12	1 1/2" Conduit	73.75 - 103.75	0.6000	0.6000
T29	13	7/8" Conduit	73.75 - 103.75	0.6000	0.6000
T29	14	HJ12-50 (2-1/4 AIR)	73.75 - 100.00	0.6000	0.6000
T29	16	1 1/2" Conduit	73.75 - 103.75	0.6000	0.6000
T29	17	EW63	73.75 - 103.75	0.6000	0.6000
T29	18	7/8" Conduit	73.75 - 103.75	0.6000	0.6000
T29	19	MACX675A (6-1/8 AIR)	73.75 - 103.75	1.0000	0.6000
T29	20	1 1/2" Conduit	73.75 - 103.75	0.6000	0.6000
T29	21	LDF4-50A (1/2 FOAM)	73.75 - 102.00	0.6000	0.6000
T29	22	LDF4-50A (1/2 FOAM)	102.00 - 103.75	0.6000	0.6000
T29	23	7/8" Conduit	73.75 - 103.75	0.6000	0.6000
T29	24	1 1/2" Conduit	73.75 - 103.75	0.6000	0.6000
T29	25	EW63	73.75 - 103.75	0.6000	0.6000
T29	27	LDF7-50A (1-5/8 FOAM)	73.75 - 103.75	0.6000	0.6000
T29	28	LDF4-50A (1/2 FOAM)	73.75 - 103.75	0.6000	0.6000
T29	33	HRL300 (3-1/8 RIGID AIR)	73.75 - 103.75	0.6000	0.6000
T29	34	LDF5-50A (7/8 FOAM)	73.75 - 103.75	0.6000	0.6000
T29	35	1" Rigid Conduit	73.75 - 103.75	0.6000	0.6000
T29	36	HFT1206-24S26-XXX	73.75 - 103.75	0.6000	0.6000
T29	37	475-000 (4-1/16")	73.75 - 103.75	1.0000	0.6000
T29	38	1 1/4" Conduit	73.75 - 103.75	0.6000	0.6000
T29	39	LDF4-50A (1/2 FOAM)	73.75 - 75.00	0.6000	0.6000
T29	40	HFT1206-24S26-XXX	73.75 - 103.75	0.6000	0.6000
T29	41	LDF5-50A (7/8 FOAM)	73.75 - 103.75	0.6000	0.6000
T29	42	LDF5-50A (7/8 FOAM)	73.75 - 103.75	0.6000	0.6000
T29	43	LDF7-50A (1-5/8 FOAM)	73.75 - 103.75	0.6000	0.6000
T29	44	1 1/2" Conduit	73.75 - 103.75	0.6000	0.6000
T29	46	Climbing Ladder (Af)	73.75 - 103.75	0.6000	0.6000
T29	47	Climbing Ladder (Af)	73.75 - 103.75	0.6000	0.6000
T30	2	1" Rigid Conduit	43.75 - 45.00	0.6000	0.6000
T30	3	1 1/2" Conduit	43.75 - 73.75	0.6000	0.6000
T30	4	7/8" Conduit	43.75 - 73.75	0.6000	0.6000
T30	5	1 1/2" Conduit	43.75 - 73.75	0.6000	0.6000
T30	6	MACX675A (6-1/8 AIR)	43.75 - 73.75	1.0000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T30	9	1 1/2" Conduit	43.75 - 73.75	0.6000	0.6000
T30	10	7/8" Conduit	43.75 - 73.75	0.6000	0.6000
T30	12	1 1/2" Conduit	43.75 - 73.75	0.6000	0.6000
T30	13	7/8" Conduit	43.75 - 73.75	0.6000	0.6000
T30	14	HJ12-50 (2-1/4 AIR)	43.75 - 73.75	0.6000	0.6000
T30	16	1 1/2" Conduit	43.75 - 73.75	0.6000	0.6000
T30	17	EW63	43.75 - 73.75	0.6000	0.6000
T30	18	7/8" Conduit	43.75 - 73.75	0.6000	0.6000
T30	19	MACX675A (6-1/8 AIR)	43.75 - 73.75	1.0000	0.6000
T30	20	1 1/2" Conduit	43.75 - 73.75	0.6000	0.6000
T30	21	LDF4-50A (1/2 FOAM)	43.75 - 73.75	0.6000	0.6000
T30	23	7/8" Conduit	43.75 - 73.75	0.6000	0.6000
T30	24	1 1/2" Conduit	43.75 - 73.75	0.6000	0.6000
T30	25	EW63	43.75 - 73.75	0.6000	0.6000
T30	27	LDF7-50A (1-5/8 FOAM)	43.75 - 73.75	0.6000	0.6000
T30	28	LDF4-50A (1/2 FOAM)	43.75 - 73.75	0.6000	0.6000
T30	33	HRL300 (3-1/8 RIGID AIR)	43.75 - 73.75	0.6000	0.6000
T30	34	LDF5-50A (7/8 FOAM)	43.75 - 73.75	0.6000	0.6000
T30	35	1" Rigid Conduit	43.75 - 73.75	0.6000	0.6000
T30	36	HFT1206-24S26-XXX	43.75 - 73.75	0.6000	0.6000
T30	37	475-000 (4-1/16")	43.75 - 73.75	0.6000	0.6000
T30	38	1 1/4" Conduit	43.75 - 73.75	0.6000	0.6000
T30	39	LDF4-50A (1/2 FOAM)	43.75 - 73.75	0.6000	0.6000
T30	40	HFT1206-24S26-XXX	43.75 - 73.75	0.6000	0.6000
T30	41	LDF5-50A (7/8 FOAM)	43.75 - 73.75	0.6000	0.6000
T30	42	LDF5-50A (7/8 FOAM)	43.75 - 73.75	0.6000	0.6000
T30	43	LDF7-50A (1-5/8 FOAM)	43.75 - 73.75	0.6000	0.6000
T30	44	1 1/2" Conduit	43.75 - 73.75	0.6000	0.6000
T30	46	Climbing Ladder (Af)	45.00 - 73.75	0.6000	0.6000
T30	47	Climbing Ladder (Af)	45.00 - 73.75	0.6000	0.6000
T31	2	1" Rigid Conduit	36.69 - 43.75	0.6000	0.6000
T31	3	1 1/2" Conduit	36.69 - 43.75	0.6000	0.6000
T31	4	7/8" Conduit	36.69 - 43.75	0.6000	0.6000
T31	5	1 1/2" Conduit	36.69 - 43.75	0.6000	0.6000
T31	6	MACX675A (6-1/8 AIR)	36.69 - 43.75	1.0000	0.6000
T31	9	1 1/2" Conduit	36.69 - 43.75	0.6000	0.6000
T31	10	7/8" Conduit	36.69 - 43.75	0.6000	0.6000
T31	12	1 1/2" Conduit	36.69 - 43.75	0.6000	0.6000
T31	13	7/8" Conduit	36.69 - 43.75	0.6000	0.6000
T31	14	HJ12-50 (2-1/4 AIR)	36.69 - 43.75	0.6000	0.6000
T31	16	1 1/2" Conduit	36.69 - 43.75	0.6000	0.6000
T31	17	EW63	36.69 - 43.75	0.6000	0.6000
T31	18	7/8" Conduit	36.69 - 43.75	0.6000	0.6000
T31	19	MACX675A (6-1/8 AIR)	36.69 - 43.75	1.0000	0.6000
T31	20	1 1/2" Conduit	36.69 - 43.75	0.6000	0.6000
T31	21	LDF4-50A (1/2 FOAM)	36.69 - 43.75	0.6000	0.6000
T31	23	7/8" Conduit	36.69 - 43.75	0.6000	0.6000
T31	24	1 1/2" Conduit	36.69 - 43.75	0.6000	0.6000
T31	25	EW63	36.69 - 43.75	0.6000	0.6000
T31	27	LDF7-50A (1-5/8 FOAM)	36.69 - 43.75	0.6000	0.6000
T31	28	LDF4-50A (1/2 FOAM)	36.69 - 43.75	0.6000	0.6000
T31	33	HRL300 (3-1/8 RIGID AIR)	36.69 - 43.75	0.6000	0.6000
T31	34	LDF5-50A (7/8 FOAM)	36.69 - 43.75	0.6000	0.6000
T31	35	1" Rigid Conduit	36.69 - 43.75	0.6000	0.6000
T31	36	HFT1206-24S26-XXX	36.69 - 43.75	0.6000	0.6000
T31	37	475-000 (4-1/16")	36.69 - 43.75	0.6000	0.6000
T31	38	1 1/4" Conduit	36.69 - 43.75	0.6000	0.6000
T31	39	LDF4-50A (1/2 FOAM)	36.69 - 43.75	0.6000	0.6000
T31	40	HFT1206-24S26-XXX	36.69 - 43.75	0.6000	0.6000
T31	41	LDF5-50A (7/8 FOAM)	36.69 - 43.75	0.6000	0.6000
T31	42	LDF5-50A (7/8 FOAM)	36.69 - 43.75	0.6000	0.6000
T31	43	LDF7-50A (1-5/8 FOAM)	36.69 - 43.75	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T31	44	1 1/2" Conduit	36.69 - 43.75	0.6000	0.6000
T31	48	Climbing Ladder (Af)	36.69 - 40.00	0.6000	0.6000
T32	2	1" Rigid Conduit	28.35 - 36.69	0.6000	0.6000
T32	3	1 1/2" Conduit	28.35 - 36.69	0.6000	0.6000
T32	4	7/8" Conduit	28.35 - 36.69	0.6000	0.6000
T32	5	1 1/2" Conduit	28.35 - 36.69	0.6000	0.6000
T32	6	MACX675A (6-1/8 AIR)	28.35 - 36.69	1.0000	0.6000
T32	9	1 1/2" Conduit	28.35 - 36.69	0.6000	0.6000
T32	10	7/8" Conduit	28.35 - 36.69	0.6000	0.6000
T32	12	1 1/2" Conduit	28.35 - 36.69	0.6000	0.6000
T32	13	7/8" Conduit	28.35 - 36.69	0.6000	0.6000
T32	14	HJ12-50 (2-1/4 AIR)	28.35 - 36.69	0.6000	0.6000
T32	16	1 1/2" Conduit	28.35 - 36.69	0.6000	0.6000
T32	17	EW63	28.35 - 36.69	0.6000	0.6000
T32	18	7/8" Conduit	28.35 - 36.69	0.6000	0.6000
T32	19	MACX675A (6-1/8 AIR)	28.35 - 36.69	1.0000	0.6000
T32	20	1 1/2" Conduit	28.35 - 36.69	0.6000	0.6000
T32	21	LDF4-50A (1/2 FOAM)	28.35 - 36.69	0.6000	0.6000
T32	23	7/8" Conduit	28.35 - 36.69	0.6000	0.6000
T32	24	1 1/2" Conduit	28.35 - 36.69	0.6000	0.6000
T32	25	EW63	28.35 - 36.69	0.6000	0.6000
T32	27	LDF7-50A (1-5/8 FOAM)	28.35 - 36.69	0.6000	0.6000
T32	28	LDF4-50A (1/2 FOAM)	28.35 - 36.69	0.6000	0.6000
T32	33	HRL300 (3-1/8 RIGID AIR)	28.35 - 36.69	0.6000	0.6000
T32	34	LDF5-50A (7/8 FOAM)	28.35 - 36.69	0.6000	0.6000
T32	35	1" Rigid Conduit	28.35 - 36.69	0.6000	0.6000
T32	36	HFT1206-24S26-XXX	28.35 - 36.69	0.6000	0.6000
T32	37	475-000 (4-1/16")	28.35 - 36.69	0.6000	0.6000
T32	38	1 1/4" Conduit	28.35 - 36.69	0.6000	0.6000
T32	39	LDF4-50A (1/2 FOAM)	28.35 - 36.69	0.6000	0.6000
T32	40	HFT1206-24S26-XXX	28.35 - 36.69	0.6000	0.6000
T32	41	LDF5-50A (7/8 FOAM)	28.35 - 36.69	0.6000	0.6000
T32	42	LDF5-50A (7/8 FOAM)	28.35 - 36.69	0.6000	0.6000
T32	43	LDF7-50A (1-5/8 FOAM)	28.35 - 36.69	0.6000	0.6000
T32	44	1 1/2" Conduit	28.35 - 36.69	0.6000	0.6000
T32	48	Climbing Ladder (Af)	28.35 - 36.69	0.6000	0.6000
T33	2	1" Rigid Conduit	20.29 - 28.35	0.6000	0.6000
T33	3	1 1/2" Conduit	20.29 - 28.35	0.6000	0.6000
T33	4	7/8" Conduit	20.29 - 28.35	0.6000	0.6000
T33	5	1 1/2" Conduit	20.29 - 28.35	0.6000	0.6000
T33	6	MACX675A (6-1/8 AIR)	20.29 - 28.35	1.0000	0.6000
T33	9	1 1/2" Conduit	20.29 - 28.35	0.6000	0.6000
T33	10	7/8" Conduit	20.29 - 28.35	0.6000	0.6000
T33	12	1 1/2" Conduit	20.29 - 28.35	0.6000	0.6000
T33	13	7/8" Conduit	20.29 - 28.35	0.6000	0.6000
T33	14	HJ12-50 (2-1/4 AIR)	20.29 - 28.35	0.6000	0.6000
T33	16	1 1/2" Conduit	20.29 - 28.35	0.6000	0.6000
T33	17	EW63	20.29 - 28.35	0.6000	0.6000
T33	18	7/8" Conduit	20.29 - 28.35	0.6000	0.6000
T33	19	MACX675A (6-1/8 AIR)	20.29 - 28.35	1.0000	0.6000
T33	20	1 1/2" Conduit	20.29 - 28.35	0.6000	0.6000
T33	21	LDF4-50A (1/2 FOAM)	20.29 - 28.35	0.6000	0.6000
T33	23	7/8" Conduit	20.29 - 28.35	0.6000	0.6000
T33	24	1 1/2" Conduit	20.29 - 28.35	0.6000	0.6000
T33	25	EW63	20.29 - 28.35	0.6000	0.6000
T33	27	LDF7-50A (1-5/8 FOAM)	20.29 - 28.35	0.6000	0.6000
T33	28	LDF4-50A (1/2 FOAM)	20.29 - 28.35	0.6000	0.6000
T33	33	HRL300 (3-1/8 RIGID AIR)	20.29 - 28.35	0.6000	0.6000
T33	34	LDF5-50A (7/8 FOAM)	20.29 - 28.35	0.6000	0.6000
T33	35	1" Rigid Conduit	20.29 - 28.35	0.6000	0.6000
T33	36	HFT1206-24S26-XXX	20.29 - 28.35	0.6000	0.6000
T33	37	475-000 (4-1/16")	20.29 - 28.35	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T33	38	1 1/4" Conduit	20.29 - 28.35	0.6000	0.6000
T33	39	LDF4-50A (1/2 FOAM)	20.29 - 28.35	0.6000	0.6000
T33	40	HFT1206-24S26-XXX	20.29 - 28.35	0.6000	0.6000
T33	41	LDF5-50A (7/8 FOAM)	20.29 - 28.35	0.6000	0.6000
T33	42	LDF5-50A (7/8 FOAM)	20.29 - 28.35	0.6000	0.6000
T33	43	LDF7-50A (1-5/8 FOAM)	20.29 - 28.35	0.6000	0.6000
T33	44	1 1/2" Conduit	20.29 - 28.35	0.6000	0.6000
T33	48	Climbing Ladder (Af)	20.29 - 28.35	0.6000	0.6000
T34	2	1" Rigid Conduit	16.00 - 20.29	0.6000	0.6000
T34	3	1 1/2" Conduit	16.00 - 20.29	0.6000	0.6000
T34	4	7/8" Conduit	16.00 - 20.29	0.6000	0.6000
T34	5	1 1/2" Conduit	16.00 - 20.29	0.6000	0.6000
T34	6	MACX675A (6-1/8 AIR)	16.00 - 20.29	1.0000	0.6000
T34	9	1 1/2" Conduit	16.00 - 20.29	0.6000	0.6000
T34	10	7/8" Conduit	16.00 - 20.29	0.6000	0.6000
T34	12	1 1/2" Conduit	16.00 - 20.29	0.6000	0.6000
T34	13	7/8" Conduit	16.00 - 20.29	0.6000	0.6000
T34	14	HJ12-50 (2-1/4 AIR)	16.00 - 20.29	0.6000	0.6000
T34	16	1 1/2" Conduit	16.00 - 20.29	0.6000	0.6000
T34	17	EW63	16.00 - 20.29	0.6000	0.6000
T34	18	7/8" Conduit	16.00 - 20.29	0.6000	0.6000
T34	19	MACX675A (6-1/8 AIR)	16.00 - 20.29	1.0000	0.6000
T34	20	1 1/2" Conduit	16.00 - 20.29	0.6000	0.6000
T34	21	LDF4-50A (1/2 FOAM)	16.00 - 20.29	0.6000	0.6000
T34	23	7/8" Conduit	16.00 - 20.29	0.6000	0.6000
T34	24	1 1/2" Conduit	16.00 - 20.29	0.6000	0.6000
T34	25	EW63	16.00 - 20.29	0.6000	0.6000
T34	27	LDF7-50A (1-5/8 FOAM)	16.00 - 20.29	0.6000	0.6000
T34	28	LDF4-50A (1/2 FOAM)	16.00 - 20.29	0.6000	0.6000
T34	33	HRL300 (3-1/8 RIGID AIR)	16.00 - 20.29	0.6000	0.6000
T34	34	LDF5-50A (7/8 FOAM)	16.00 - 20.29	0.6000	0.6000
T34	35	1" Rigid Conduit	16.00 - 20.29	0.6000	0.6000
T34	36	HFT1206-24S26-XXX	16.00 - 20.29	0.6000	0.6000
T34	37	475-000 (4-1/16")	16.00 - 20.29	0.6000	0.6000
T34	38	1 1/4" Conduit	16.00 - 20.29	0.6000	0.6000
T34	39	LDF4-50A (1/2 FOAM)	16.00 - 20.29	0.6000	0.6000
T34	40	HFT1206-24S26-XXX	16.00 - 20.29	0.6000	0.6000
T34	41	LDF5-50A (7/8 FOAM)	16.00 - 20.29	0.6000	0.6000
T34	42	LDF5-50A (7/8 FOAM)	16.00 - 20.29	0.6000	0.6000
T34	43	LDF7-50A (1-5/8 FOAM)	16.00 - 20.29	0.6000	0.6000
T34	44	1 1/2" Conduit	16.00 - 20.29	0.6000	0.6000
T34	48	Climbing Ladder (Af)	15.00 - 20.29	0.6000	0.6000
T35	48	Climbing Ladder (Af)	10.00 - 15.00	0.5171	0.3244

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
***									
Intermediate Side Lights	A	From Leg	0.50	0.0000	750.00	No Ice	0.67	0.67	29.13

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1/2" Ice	0.99	0.99	40.45
			0.00			1" Ice	1.25	1.25	54.02
Intermediate Side Lights	B	From Leg	0.50	0.0000	750.00	No Ice	0.67	0.67	29.13
			0.00			1/2" Ice	0.99	0.99	40.45
			0.00			1" Ice	1.25	1.25	54.02
Intermediate Side Lights	C	From Leg	0.50	0.0000	750.00	No Ice	0.67	0.67	29.13
			0.00			1/2" Ice	0.99	0.99	40.45
			0.00			1" Ice	1.25	1.25	54.02
***									
2' Ice Shield	A	From Leg	0.00	0.0000	605.00	No Ice	2.20	1.80	70.00
			0.00			1/2" Ice	3.35	2.65	95.00
			1.00			1" Ice	4.50	3.50	120.00
Flash Beacon Lighting	A	From Leg	0.00	0.0000	605.00	No Ice	2.70	2.70	50.00
			0.00			1/2" Ice	3.10	3.10	70.00
			0.00			1" Ice	3.50	3.50	90.00
2' Ice Shield	A	From Leg	0.00	0.0000	605.00	No Ice	2.20	1.80	70.00
			0.00			1/2" Ice	3.35	2.65	95.00
			-1.00			1" Ice	4.50	3.50	120.00
2' Ice Shield	C	From Leg	0.00	0.0000	605.00	No Ice	2.20	1.80	70.00
			0.00			1/2" Ice	3.35	2.65	95.00
			1.00			1" Ice	4.50	3.50	120.00
Flash Beacon Lighting	C	From Leg	0.00	0.0000	605.00	No Ice	2.70	2.70	50.00
			0.00			1/2" Ice	3.10	3.10	70.00
			0.00			1" Ice	3.50	3.50	90.00
2' Ice Shield	C	From Leg	0.00	0.0000	605.00	No Ice	2.20	1.80	70.00
			0.00			1/2" Ice	3.35	2.65	95.00
			-1.00			1" Ice	4.50	3.50	120.00
***									
Intermediate Side Lights	A	From Leg	0.50	0.0000	450.00	No Ice	0.67	0.67	29.13
			0.00			1/2" Ice	0.99	0.99	40.45
			0.00			1" Ice	1.25	1.25	54.02
Intermediate Side Lights	B	From Leg	0.50	0.0000	450.00	No Ice	0.67	0.67	29.13
			0.00			1/2" Ice	0.99	0.99	40.45
			0.00			1" Ice	1.25	1.25	54.02
Intermediate Side Lights	C	From Leg	0.50	0.0000	450.00	No Ice	0.67	0.67	29.13
			0.00			1/2" Ice	0.99	0.99	40.45
			0.00			1" Ice	1.25	1.25	54.02
***									
2' Ice Shield	A	From Leg	0.00	0.0000	302.00	No Ice	2.20	1.80	70.00
			0.00			1/2" Ice	3.35	2.65	95.00
			1.00			1" Ice	4.50	3.50	120.00
Flash Beacon Lighting	A	From Leg	0.00	0.0000	302.00	No Ice	2.70	2.70	50.00
			0.00			1/2" Ice	3.10	3.10	70.00
			0.00			1" Ice	3.50	3.50	90.00
2' Ice Shield	A	From Leg	0.00	0.0000	302.00	No Ice	2.20	1.80	70.00
			0.00			1/2" Ice	3.35	2.65	95.00
			-1.00			1" Ice	4.50	3.50	120.00
2' Ice Shield	C	From Leg	0.00	0.0000	302.00	No Ice	2.20	1.80	70.00
			0.00			1/2" Ice	3.35	2.65	95.00
			1.00			1" Ice	4.50	3.50	120.00
Flash Beacon Lighting	C	From Leg	0.00	0.0000	302.00	No Ice	2.70	2.70	50.00
			0.00			1/2" Ice	3.10	3.10	70.00
			0.00			1" Ice	3.50	3.50	90.00
2' Ice Shield	C	From Leg	0.00	0.0000	302.00	No Ice	2.20	1.80	70.00
			0.00			1/2" Ice	3.35	2.65	95.00
			-1.00			1" Ice	4.50	3.50	120.00
***									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Intermediate Side Lights	A	From Leg	0.50 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.69 0.99 1.25	0.69 0.99 1.25	29.13 40.45 54.02
Intermediate Side Lights	B	From Leg	0.50 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.69 0.99 1.25	0.69 0.99 1.25	29.13 40.45 54.02
Intermediate Side Lights	C	From Leg	0.50 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.69 0.99 1.25	0.69 0.99 1.25	29.13 40.45 54.02
***									
TCL-12A8(S) w/ THP-O-2-1 (Top)	C	None		0.0000	891.00	No Ice 1/2" Ice 1" Ice	12.80 28.88 32.17	12.80 28.88 32.17	913.60 1081.82 1270.55
TCL-12A8(S) w/ THP-O-2-1 (Middle)	C	None		0.0000	859.00	No Ice 1/2" Ice 1" Ice	19.20 41.71 45.03	19.20 41.71 45.03	1713.00 1961.65 2231.22
TCL-12A8(S) w/ THP-O-2-1 (Bottom)	C	None		0.0000	807.00	No Ice 1/2" Ice 1" Ice	80.30 168.09 175.60	80.30 168.09 175.60	10735.00 11751.81 12815.61
***									
6 1/8" Rigid Conduit	C	None		0.0000	874.00	No Ice 1/2" Ice 1" Ice	22.36 52.07 59.45	22.36 52.07 59.45	330.00 626.72 968.81
***									
TU-Series Antenna (4)	C	None		0.0000	804.00	No Ice 1/2" Ice 1" Ice	65.80 88.80 111.80	65.80 88.80 111.80	1400.00 2450.00 3500.00
***									
6' Angle Sidearm	B	Stand-Off Right	3.00 0.00 0.00	0.0000	758.00	No Ice 1/2" Ice 1" Ice	6.63 8.89 11.15	14.62 19.29 23.96	229.00 338.00 447.00
Tieback	B	Stand-Off Right	3.00 0.00 0.00	0.0000	765.00	No Ice 1/2" Ice 1" Ice	0.10 0.20 0.30	1.14 1.74 2.34	16.32 25.08 33.84
6' x 2" Antenna Mount Pipe	B	Stand-Off Right	6.00 0.00 0.00	0.0000	758.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	23.00 33.83 48.71
10' Omni	B	Stand-Off Right	6.00 0.00 5.00	0.0000	758.00	No Ice 1/2" Ice 1" Ice	1.75 2.77 3.81	1.75 2.77 3.81	20.00 33.94 54.31
***									
2' Sidearm	C	From Leg	1.00 0.00 0.00	0.0000	750.00	No Ice 1/2" Ice 1" Ice	1.00 1.39 1.78	0.90 1.42 1.94	23.00 32.57 42.14
5' Omni	C	From Leg	2.00 0.00 3.00	0.0000	750.00	No Ice 1/2" Ice 1" Ice	0.75 1.26 1.56	0.75 1.26 1.56	15.00 21.27 30.90
***									
Support Mount	B	From Face	3.00 0.00 0.00	0.0000	744.00	No Ice 1/2" Ice 1" Ice	21.50 29.00 36.50	17.70 24.00 30.30	298.50 430.00 561.50
Super Quad ENG	B	From Face	6.00 0.00 0.00	0.0000	744.00	No Ice 1/2" Ice 1" Ice	11.84 17.15 17.74	11.84 17.15 17.74	245.00 495.84 755.53
***									
6' Angle Sidearm	B	Stand-Off Left	3.00 0.00	0.0000	742.00	No Ice 1/2" Ice	6.63 8.89	14.62 19.29	229.00 338.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	11.15	23.96	447.00
Tieback	B	Stand-Off	3.00	0.0000	752.00	No Ice	0.10	1.14	16.32
		Left	0.00			1/2" Ice	0.20	1.74	25.08
			0.00			1" Ice	0.30	2.34	33.84
6' x 2" Antenna Mount Pipe	B	Stand-Off	6.00	0.0000	742.00	No Ice	1.43	1.43	23.00
		Left	0.00			1/2" Ice	1.92	1.92	33.83
			0.00			1" Ice	2.29	2.29	48.71
DB408	B	Stand-Off	6.00	0.0000	742.00	No Ice	1.90	1.90	17.00
		Left	0.00			1/2" Ice	3.42	3.42	22.10
			5.00			1" Ice	4.94	4.94	27.20
***									
Ice Shield	A	From Leg	3.00	30.0000	685.00	No Ice	14.90	12.07	563.60
			0.00			1/2" Ice	22.35	18.10	987.60
			0.00			1" Ice	29.80	24.13	1411.60
***									
Pipe Mount	A	From Leg	0.50	0.0000	678.00	No Ice	3.00	0.90	65.00
			0.00			1/2" Ice	3.74	1.12	79.14
			0.00			1" Ice	4.48	1.34	93.27
Angle Tieback	A	From Face	1.00	0.0000	678.00	No Ice	2.33	0.25	16.24
			0.00			1/2" Ice	4.67	0.50	22.00
			0.00			1" Ice	7.01	0.75	27.76
***									
Pipe Mount	A	From Leg	0.50	0.0000	630.00	No Ice	3.00	0.90	65.00
			0.00			1/2" Ice	3.74	1.12	79.14
			0.00			1" Ice	4.48	1.34	93.27
***									
***									
***									
Pipe Support Mount (6)	A	None		0.0000	600.00 - 582.00	No Ice	11.80	11.80	430.00
						1/2" Ice	17.90	17.90	582.00
						1" Ice	24.00	24.00	734.00
6015-2/3R FM	A	None		0.0000	600.00 - 582.00	No Ice	49.60	49.60	1350.00
						1/2" Ice	67.00	67.00	1824.00
						1" Ice	84.40	84.40	2298.00
***									
6' Angle Sidearm	A	Stand-Off	3.00	0.0000	529.00	No Ice	6.63	14.62	229.00
		Right	0.00			1/2" Ice	8.89	19.29	338.00
			0.00			1" Ice	11.15	23.96	447.00
Tieback	A	Stand-Off	3.00	0.0000	539.00	No Ice	0.10	1.14	16.32
		Right	0.00			1/2" Ice	0.20	1.74	25.08
			0.00			1" Ice	0.30	2.34	33.84
6' x 2" Antenna Mount Pipe	A	Stand-Off	6.00	0.0000	529.00	No Ice	1.43	1.43	23.00
		Right	0.00			1/2" Ice	1.92	1.92	33.83
			0.00			1" Ice	2.29	2.29	48.71
DB408	A	Stand-Off	6.00	0.0000	529.00	No Ice	1.90	1.90	17.00
		Right	0.00			1/2" Ice	3.42	3.42	22.10
			5.00			1" Ice	4.94	4.94	27.20
***									
6' Angle Sidearm	B	Stand-Off	3.00	0.0000	529.00	No Ice	6.63	14.62	229.00
		Right	0.00			1/2" Ice	8.89	19.29	338.00
			0.00			1" Ice	11.15	23.96	447.00
Tieback	B	Stand-Off	3.00	0.0000	539.00	No Ice	0.10	1.14	16.32
		Right	0.00			1/2" Ice	0.20	1.74	25.08
			0.00			1" Ice	0.30	2.34	33.84
6' x 2" Antenna Mount Pipe	B	Stand-Off	6.00	0.0000	529.00	No Ice	1.43	1.43	23.00
		Right	0.00			1/2" Ice	1.92	1.92	33.83
			0.00			1" Ice	2.29	2.29	48.71

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
DB408	B	Stand-Off	6.00	0.0000	529.00	No Ice	1.90	1.90	17.00
		Right	0.00			1/2" Ice	3.42	3.42	22.10
			5.00			1" Ice	4.94	4.94	27.20
***									
6' Angle Sidearm	B	Stand-Off	3.00	0.0000	510.00	No Ice	6.63	14.62	229.00
		Right	0.00			1/2" Ice	8.89	19.29	338.00
			0.00			1" Ice	11.15	23.96	447.00
Tieback	B	Stand-Off	3.00	0.0000	520.00	No Ice	0.10	1.14	16.32
		Right	0.00			1/2" Ice	0.20	1.74	25.08
			0.00			1" Ice	0.30	2.34	33.84
6' x 2" Antenna Mount Pipe	B	Stand-Off	6.00	0.0000	510.00	No Ice	1.43	1.43	23.00
		Right	0.00			1/2" Ice	1.92	1.92	33.83
			0.00			1" Ice	2.29	2.29	48.71
DB408	B	Stand-Off	6.00	0.0000	510.00	No Ice	1.90	1.90	17.00
		Right	0.00			1/2" Ice	3.42	3.42	22.10
			5.00			1" Ice	4.94	4.94	27.20
***									
6810-2R 2-bay FM	C	From Leg	2.00	0.0000	482.00 - 466.00	No Ice	24.10	24.10	261.00
			0.00			1/2" Ice	28.60	28.60	552.00
			0.00			1" Ice	33.10	33.10	843.00
***									
6' Angle Sidearm	B	Stand-Off	3.00	0.0000	420.00	No Ice	6.63	14.62	229.00
		Left	0.00			1/2" Ice	8.89	19.29	338.00
			0.00			1" Ice	11.15	23.96	447.00
6' x 2" Antenna Mount Pipe	B	Stand-Off	6.00	0.0000	420.00	No Ice	1.43	1.43	23.00
		Left	0.00			1/2" Ice	1.92	1.92	33.83
			0.00			1" Ice	2.29	2.29	48.71
15' Omni	B	Stand-Off	6.00	0.0000	420.00	No Ice	1.88	1.88	20.00
		Left	0.00			1/2" Ice	3.39	3.39	36.16
			8.00			1" Ice	4.93	4.93	61.77
***									
6' Angle Sidearm	B	Stand-Off	3.00	0.0000	420.00	No Ice	6.63	14.62	229.00
		Right	0.00			1/2" Ice	8.89	19.29	338.00
			0.00			1" Ice	11.15	23.96	447.00
6' x 2" Antenna Mount Pipe	B	Stand-Off	6.00	0.0000	420.00	No Ice	1.43	1.43	23.00
		Right	0.00			1/2" Ice	1.92	1.92	33.83
			0.00			1" Ice	2.29	2.29	48.71
10' Omni	B	Stand-Off	6.00	0.0000	420.00	No Ice	1.75	1.75	20.00
		Right	0.00			1/2" Ice	2.77	2.77	33.94
			5.00			1" Ice	3.81	3.81	54.31
***									
6' Angle Sidearm	A	Stand-Off	3.00	0.0000	348.00	No Ice	6.63	14.62	229.00
		Left	0.00			1/2" Ice	8.89	19.29	338.00
			0.00			1" Ice	11.15	23.96	447.00
6' x 2" Antenna Mount Pipe	A	Stand-Off	6.00	0.0000	348.00	No Ice	1.43	1.43	23.00
		Left	0.00			1/2" Ice	1.92	1.92	33.83
			0.00			1" Ice	2.29	2.29	48.71
5' Omni	A	Stand-Off	6.00	0.0000	348.00	No Ice	0.75	0.75	15.00
		Left	0.00			1/2" Ice	1.26	1.26	21.27
			3.00			1" Ice	1.56	1.56	30.90
***									
Ice Shield	C	From Leg	2.00	0.0000	346.00	No Ice	9.00	8.60	377.50
			0.00			1/2" Ice	12.20	11.60	612.00
			0.00			1" Ice	15.40	14.60	846.50
***									
Pipe Mount	C	From Leg	0.50	0.0000	339.00	No Ice	3.00	0.90	65.00
			0.00			1/2" Ice	3.74	1.12	79.14

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	4.48	1.34	93.27
***									
13' Sector Mount (3)	C	None		0.0000	315.00	No Ice	26.69	26.69	1083.00
						1/2" Ice	37.60	37.60	1489.60
						1" Ice	48.51	48.51	1896.20
APXV18-206517S-C-A20	A	From Leg	1.70	-30.0000	315.00	No Ice	5.17	3.04	26.40
			-1.00			1/2" Ice	5.62	3.47	53.00
			0.00			1" Ice	6.08	3.91	85.10
APXV18-206517S-C-A20	B	From Leg	0.00	-90.0000	315.00	No Ice	5.17	3.04	26.40
			-2.00			1/2" Ice	5.62	3.47	53.00
			0.00			1" Ice	6.08	3.91	85.10
APXV18-206517S-C-A20	C	From Leg	1.70	-30.0000	315.00	No Ice	5.17	3.04	26.40
			-1.00			1/2" Ice	5.62	3.47	53.00
			0.00			1" Ice	6.08	3.91	85.10
LNX-6515DS-VTM	A	From Leg	1.70	-30.0000	315.00	No Ice	11.39	7.66	40.80
			-1.00			1/2" Ice	12.01	8.25	106.41
			0.00			1" Ice	12.63	8.84	179.67
LNX-6515DS-VTM	B	From Leg	0.00	-90.0000	315.00	No Ice	11.39	7.66	40.80
			-2.00			1/2" Ice	12.01	8.25	106.41
			0.00			1" Ice	12.63	8.84	179.67
LNX-6515DS-VTM	C	From Leg	1.70	-30.0000	315.00	No Ice	11.39	7.66	40.80
			-1.00			1/2" Ice	12.01	8.25	106.41
			0.00			1" Ice	12.63	8.84	179.67
***									
8' Sector Mount (3) (Sprint)	C	None		0.0000	200.00	No Ice	18.56	18.56	474.00
						1/2" Ice	26.58	26.58	640.00
						1" Ice	34.60	34.60	806.00
6'x4" Pipe Mount (Sprint)	A	From Leg	0.50	0.0000	200.00	No Ice	1.91	1.91	65.00
			0.00			1/2" Ice	2.62	2.62	84.10
			0.00			1" Ice	3.00	3.00	107.47
6'x4" Pipe Mount (Sprint)	B	From Leg	0.50	0.0000	200.00	No Ice	1.91	1.91	65.00
			0.00			1/2" Ice	2.62	2.62	84.10
			0.00			1" Ice	3.00	3.00	107.47
6'x4" Pipe Mount (Sprint)	C	From Leg	0.50	0.0000	200.00	No Ice	1.91	1.91	65.00
			0.00			1/2" Ice	2.62	2.62	84.10
			0.00			1" Ice	3.00	3.00	107.47
APXVSPP18-C-A20 w/ Mount Pipe (Sprint)	A	From Leg	1.70	-30.0000	200.00	No Ice	8.26	6.95	82.55
			-1.00			1/2" Ice	8.82	8.13	150.56
			0.00			1" Ice	9.35	9.02	226.53
APXVSPP18-C-A20 w/ Mount Pipe (Sprint)	B	From Leg	1.70	-30.0000	200.00	No Ice	8.26	6.95	82.55
			-1.00			1/2" Ice	8.82	8.13	150.56
			0.00			1" Ice	9.35	9.02	226.53
APXVSPP18-C-A20 w/ Mount Pipe (Sprint)	C	From Leg	1.70	-30.0000	200.00	No Ice	8.26	6.95	82.55
			-1.00			1/2" Ice	8.82	8.13	150.56
			0.00			1" Ice	9.35	9.02	226.53
APXVTM14-C-120 w/ Mount Pipe (Sprint)	A	From Leg	1.70	-30.0000	200.00	No Ice	7.13	5.51	82.20
			-1.00			1/2" Ice	7.84	6.69	142.82
			0.00			1" Ice	8.50	7.73	210.60
APXVTM14-C-120 w/ Mount Pipe (Sprint)	B	From Leg	1.70	-30.0000	200.00	No Ice	7.13	5.51	82.20
			-1.00			1/2" Ice	7.84	6.69	142.82
			0.00			1" Ice	8.50	7.73	210.60
APXVTM14-C-120 w/ Mount Pipe (Sprint)	C	From Leg	1.70	-30.0000	200.00	No Ice	7.13	5.51	82.20
			-1.00			1/2" Ice	7.84	6.69	142.82
			0.00			1" Ice	8.50	7.73	210.60
TD-RRH8X20 (Sprint)	A	From Leg	1.00	0.0000	200.00	No Ice	3.69	1.29	66.10
			0.00			1/2" Ice	3.93	1.46	89.96
			0.00			1" Ice	4.18	1.64	117.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
TD-RRH8X20	B	From Leg	1.00	0.0000	200.00	No Ice	3.69	1.29	66.10
(Sprint)			0.00			1/2" Ice	3.93	1.46	89.96
			0.00			1" Ice	4.18	1.64	117.16
TD-RRH8X20	C	From Leg	1.00	0.0000	200.00	No Ice	3.69	1.29	66.10
(Sprint)			0.00			1/2" Ice	3.93	1.46	89.96
			0.00			1" Ice	4.18	1.64	117.16
(2) RRUs	A	From Leg	1.00	0.0000	200.00	No Ice	0.78	0.60	22.00
(Sprint)			0.00			1/2" Ice	0.90	0.70	29.50
			0.00			1" Ice	1.02	0.82	38.86
(2) RRUs	B	From Leg	1.00	0.0000	200.00	No Ice	0.78	0.60	22.00
(Sprint)			0.00			1/2" Ice	0.90	0.70	29.50
			0.00			1" Ice	1.02	0.82	38.86
(2) RRUs	C	From Leg	1.00	0.0000	200.00	No Ice	0.78	0.60	22.00
(Sprint)			0.00			1/2" Ice	0.90	0.70	29.50
			0.00			1" Ice	1.02	0.82	38.86
***									
Ice Shield	C	From Leg	2.50	-60.0000	166.00	No Ice	10.70	10.00	764.00
			0.00			1/2" Ice	14.50	13.50	1275.00
			0.00			1" Ice	18.30	17.00	1786.00
***									
Pipe Mount	C	From Leg	0.50	0.0000	160.00	No Ice	3.00	0.90	65.00
			0.00			1/2" Ice	3.74	1.12	79.14
			0.00			1" Ice	4.48	1.34	93.27
***									
3' Angle Sidearm	B	From Leg	1.50	0.0000	102.00	No Ice	1.22	6.30	158.70
			0.00			1/2" Ice	1.85	8.61	196.52
			0.00			1" Ice	2.48	10.92	234.34
15' Omni	B	From Leg	3.00	0.0000	102.00	No Ice	1.50	1.50	15.00
			0.00			1/2" Ice	3.02	3.02	28.85
			0.00			1" Ice	4.55	4.55	52.11
***									
3' Sidearm	A	From Leg	1.50	0.0000	100.00	No Ice	0.94	1.41	30.00
			0.00			1/2" Ice	1.48	2.17	43.27
			0.00			1" Ice	2.02	2.93	56.54
ASPG952	A	From Leg	3.00	0.0000	100.00	No Ice	1.75	1.75	20.00
			0.00			1/2" Ice	2.77	2.77	33.94
			0.00			1" Ice	3.81	3.81	54.31
***									
GPS	C	From Leg	1.00	0.0000	75.00	No Ice	0.12	0.12	0.87
			0.00			1/2" Ice	0.21	0.21	3.85
			0.00			1" Ice	0.28	0.28	7.85
***									
12' Ice Shield	A	From Face	3.00	0.0000	40.00	No Ice	21.66	11.64	1100.00
			0.00			1/2" Ice	26.30	17.10	1791.00
			0.00			1" Ice	30.94	22.56	2482.00
***									
Elevator System	C	None		0.0000	15.00	No Ice	30.00	30.00	3000.00
						1/2" Ice	40.00	40.00	4000.00
						1" Ice	50.00	50.00	5000.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert (ft)	Azimuth Adjustment (°)	3 dB Beam Width (°)	Elevation (ft)	Outside Diameter (ft)		Aperture Area (ft^2)	Weight (lb)
PL8	A	Paraboloid w/Radome	From Leg	1.50 0.00 0.00	30.0000		678.00	8.88	No Ice 1/2" Ice 1" Ice	61.86 63.03 64.20	301.00 624.55 948.10
***											
PL6-65	A	Paraboloid w/Radome	From Leg	1.50 0.00 0.00	30.0000		630.00	6.36	No Ice 1/2" Ice 1" Ice	31.75 32.59 33.43	154.00 303.23 452.46
***											
6' Grid Dish	C	Grid	From Leg	1.50 0.00 0.00	0.0000		339.00	6.00	No Ice 1/2" Ice 1" Ice	28.27 29.07 29.87	198.00 347.13 496.25
***											
8' Std. Dish w/ Radome	A	Paraboloid w/Radome	From Leg	1.50 0.00 0.00	-60.0000		160.00	8.88	No Ice 1/2" Ice 1" Ice	61.86 63.03 64.20	301.00 624.55 948.10

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2D+1.6W (pattern 1) 0 deg - No Ice+1.0 Guy
3	1.2D+1.6W (pattern 2) 0 deg - No Ice+1.0 Guy
4	1.2D+1.6W (pattern 3) 0 deg - No Ice+1.0 Guy
5	1.2D+1.6W (pattern 1) 30 deg - No Ice+1.0 Guy
6	1.2D+1.6W (pattern 2) 30 deg - No Ice+1.0 Guy
7	1.2D+1.6W (pattern 3) 30 deg - No Ice+1.0 Guy
8	1.2D+1.6W (pattern 1) 60 deg - No Ice+1.0 Guy
9	1.2D+1.6W (pattern 2) 60 deg - No Ice+1.0 Guy
10	1.2D+1.6W (pattern 3) 60 deg - No Ice+1.0 Guy
11	1.2D+1.6W (pattern 1) 90 deg - No Ice+1.0 Guy
12	1.2D+1.6W (pattern 2) 90 deg - No Ice+1.0 Guy
13	1.2D+1.6W (pattern 3) 90 deg - No Ice+1.0 Guy
14	1.2D+1.6W (pattern 1) 120 deg - No Ice+1.0 Guy
15	1.2D+1.6W (pattern 2) 120 deg - No Ice+1.0 Guy
16	1.2D+1.6W (pattern 3) 120 deg - No Ice+1.0 Guy
17	1.2D+1.6W (pattern 1) 150 deg - No Ice+1.0 Guy
18	1.2D+1.6W (pattern 2) 150 deg - No Ice+1.0 Guy
19	1.2D+1.6W (pattern 3) 150 deg - No Ice+1.0 Guy
20	1.2D+1.6W (pattern 1) 180 deg - No Ice+1.0 Guy
21	1.2D+1.6W (pattern 2) 180 deg - No Ice+1.0 Guy
22	1.2D+1.6W (pattern 3) 180 deg - No Ice+1.0 Guy
23	1.2D+1.6W (pattern 1) 210 deg - No Ice+1.0 Guy
24	1.2D+1.6W (pattern 2) 210 deg - No Ice+1.0 Guy
25	1.2D+1.6W (pattern 3) 210 deg - No Ice+1.0 Guy
26	1.2D+1.6W (pattern 1) 240 deg - No Ice+1.0 Guy
27	1.2D+1.6W (pattern 2) 240 deg - No Ice+1.0 Guy
28	1.2D+1.6W (pattern 3) 240 deg - No Ice+1.0 Guy
29	1.2D+1.6W (pattern 1) 270 deg - No Ice+1.0 Guy
30	1.2D+1.6W (pattern 2) 270 deg - No Ice+1.0 Guy
31	1.2D+1.6W (pattern 3) 270 deg - No Ice+1.0 Guy
32	1.2D+1.6W (pattern 1) 300 deg - No Ice+1.0 Guy
33	1.2D+1.6W (pattern 2) 300 deg - No Ice+1.0 Guy
34	1.2D+1.6W (pattern 3) 300 deg - No Ice+1.0 Guy
35	1.2D+1.6W (pattern 1) 330 deg - No Ice+1.0 Guy

Comb. No.	Description
36	1.2D+1.6W (pattern 2) 330 deg - No Ice+1.0 Guy
37	1.2D+1.6W (pattern 3) 330 deg - No Ice+1.0 Guy
38	1.2 Dead+1.0 Ice+1.0 Temp+Guy
39	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
40	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
41	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
42	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
43	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
44	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
45	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
46	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
47	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
48	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
49	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
50	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
51	Dead+Wind 0 deg - Service+Guy
52	Dead+Wind 30 deg - Service+Guy
53	Dead+Wind 60 deg - Service+Guy
54	Dead+Wind 90 deg - Service+Guy
55	Dead+Wind 120 deg - Service+Guy
56	Dead+Wind 150 deg - Service+Guy
57	Dead+Wind 180 deg - Service+Guy
58	Dead+Wind 210 deg - Service+Guy
59	Dead+Wind 240 deg - Service+Guy
60	Dead+Wind 270 deg - Service+Guy
61	Dead+Wind 300 deg - Service+Guy
62	Dead+Wind 330 deg - Service+Guy

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	768.115 - 762.182	8.369	55	0.0493	1.1476
T2	762.182 - 756.25	8.350	55	0.0488	1.1482
T3	756.25 - 748.75	8.337	55	0.0486	1.1502
T4	748.75 - 733.75	8.316	55	0.0487	1.1522
T5	733.75 - 703.75	8.312	55	0.0505	1.1736
T6	703.75 - 673.75	8.248	55	0.0561	1.2126
T7	673.75 - 643.75	8.031	55	0.0620	1.2413
T8	643.75 - 613.75	7.663	55	0.0642	1.1928
T9	613.75 - 583.75	7.243	55	0.0594	1.1381
T10	583.75 - 576.25	6.886	55	0.0458	1.0981
T11	576.25 - 568.75	6.813	55	0.0416	1.0917
T12	568.75 - 553.75	6.798	55	0.0390	1.0946
T13	553.75 - 523.75	6.789	55	0.0352	1.1060
T14	523.75 - 493.75	6.837	55	0.0313	1.1337
T15	493.75 - 463.75	6.824	55	0.0324	1.1575
T16	463.75 - 433.75	6.633	55	0.0355	1.1180
T17	433.75 - 403.75	6.259	55	0.0401	1.0802
T18	403.75 - 381.25	5.792	55	0.0405	1.0273
T19	381.25 - 373.75	5.489	55	0.0364	0.9974
T20	373.75 - 343.75	5.474	55	0.0361	1.0036
T21	343.75 - 313.75	5.455	55	0.0395	1.0552
T22	313.75 - 283.75	5.347	55	0.0486	1.0812
T23	283.75 - 253.75	4.971	55	0.0596	1.0834
T24	253.75 - 223.75	4.391	55	0.0683	1.0558
T25	223.75 - 193.75	3.731	55	0.0719	0.9945
T26	193.75 - 163.75	3.087	55	0.0678	0.9435

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T27	163.75 - 133.75	2.873	55	0.0660	0.9169
T28	133.75 - 103.75	2.671	55	0.0711	0.8553
T29	103.75 - 73.75	2.350	55	0.0800	0.7607
T30	73.75 - 43.75	1.780	55	0.0900	0.5872
T31	43.75 - 36.6875	1.019	55	0.0985	0.4483
T32	36.6875 - 28.3542	0.868	55	0.1002	0.4466
T33	28.3542 - 20.2917	0.685	55	0.1020	0.4434
T34	20.2917 - 15	0.453	55	0.1032	0.4190
T35	15 - 0	0.333	55	0.1040	0.4148

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
891.00	TCL-12A8(S) w/ THP-O-2-1 (Top)	55	8.369	0.0493	1.1476	61681
874.00	6 1/8" Rigid Conduit	55	8.369	0.0493	1.1476	61681
859.00	TCL-12A8(S) w/ THP-O-2-1 (Middle)	55	8.369	0.0493	1.1476	61681
807.00	TCL-12A8(S) w/ THP-O-2-1 (Bottom)	55	8.369	0.0493	1.1476	61681
804.00	TU-Series Antenna (4)	55	8.369	0.0493	1.1476	61681
768.11	Guy	55	8.369	0.0493	1.1476	61681
765.00	Tieback	55	8.358	0.0490	1.1477	61681
758.00	6' Angle Sidearm	55	8.341	0.0486	1.1496	124786
752.00	Tieback	55	8.324	0.0486	1.1510	90867
750.00	Intermediate Side Lights	55	8.319	0.0487	1.1516	40258
744.00	Support Mount	55	8.310	0.0491	1.1570	42113
742.00	6' Angle Sidearm	55	8.310	0.0493	1.1598	59642
685.00	Ice Shield	55	8.131	0.0600	1.2371	56077
678.00	PL8	55	8.071	0.0613	1.2414	51489
630.00	PL6-65	55	7.468	0.0631	1.1656	214917
605.00	2' Ice Shield	55	7.133	0.0563	1.1253	97414
600.00	Pipe Support Mount (6)	55	7.074	0.0542	1.1184	116037
594.00	Pipe Support Mount (6)	55	7.004	0.0514	1.1106	150584
588.00	Pipe Support Mount (6)	55	6.935	0.0482	1.1032	212436
582.00	Pipe Support Mount (6)	55	6.866	0.0447	1.0961	29503
576.25	Guy	55	6.813	0.0416	1.0917	9842
539.00	Tieback	55	6.807	0.0326	1.1182	146340
529.00	6' Angle Sidearm	55	6.828	0.0316	1.1278	157115
520.00	Tieback	55	6.843	0.0312	1.1381	84353
510.00	6' Angle Sidearm	55	6.848	0.0314	1.1498	66751
482.00	6810-2R 2-bay FM	55	6.773	0.0336	1.1470	49631
476.67	6810-2R 2-bay FM	55	6.740	0.0341	1.1390	50736
471.33	6810-2R 2-bay FM	55	6.700	0.0347	1.1303	45347
466.00	6810-2R 2-bay FM	55	6.654	0.0353	1.1215	41269
450.00	Intermediate Side Lights	55	6.479	0.0374	1.1001	65401
420.00	6' Angle Sidearm	55	6.055	0.0413	1.0586	131442
381.25	Guy	55	5.489	0.0364	0.9974	11146
348.00	6' Angle Sidearm	55	5.459	0.0387	1.0484	212442
346.00	Ice Shield	55	5.457	0.0391	1.0517	184116
339.00	6' Grid Dish	55	5.449	0.0407	1.0623	109500
315.00	13' Sector Mount (3)	55	5.356	0.0482	1.0813	31086
302.00	2' Ice Shield	55	5.233	0.0529	1.0822	36065
200.00	8' Sector Mount (3)	55	3.191	0.0688	0.9516	19861
193.75	Guy	55	3.087	0.0678	0.9435	15944
166.00	Ice Shield	55	2.884	0.0659	0.9170	108430

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
160.00	8' Std. Dish w/ Radome	55	2.855	0.0663	0.9145	68828
150.00	Intermediate Side Lights	55	2.794	0.0676	0.8975	64393
102.00	3' Angle Sidearm	55	2.325	0.0806	0.7529	29814
100.00	3' Sidearm	55	2.295	0.0813	0.7434	30095
75.00	GPS	55	1.810	0.0896	0.5954	28129
40.00	12' Ice Shield	55	0.936	0.0994	0.4462	32153
15.00	Elevator System	55	0.333	0.1040	0.4148	75324

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	768.115 - 762.182	66.099	26	0.4953	3.1184
T2	762.182 - 756.25	65.565	26	0.4926	3.1212
T3	756.25 - 748.75	65.051	26	0.4916	3.1307
T4	748.75 - 733.75	64.384	26	0.4921	3.1397
T5	733.75 - 703.75	63.162	26	0.4993	3.2246
T6	703.75 - 673.75	60.451	26	0.5216	3.3997
T7	673.75 - 643.75	57.227	26	0.5416	3.4863
T8	643.75 - 613.75	53.463	26	0.5399	3.3453
T9	613.75 - 583.75	49.615	26	0.4998	3.1745
T10	583.75 - 576.25	46.227	26	0.4208	3.0532
T11	576.25 - 568.75	45.454	26	0.3998	3.0289
T12	568.75 - 553.75	44.941	26	0.3854	3.0361
T13	553.75 - 523.75	43.991	26	0.3633	3.0597
T14	523.75 - 493.75	42.466	26	0.3371	3.1173
T15	493.75 - 463.75	40.830	26	0.3378	3.1523
T16	463.75 - 433.75	38.788	26	0.3494	3.1285
T17	433.75 - 403.75	36.863	28	0.3563	3.0752
T18	403.75 - 381.25	35.699	28	0.3438	3.0482
T19	381.25 - 373.75	34.792	28	0.3186	2.9919
T20	373.75 - 343.75	34.739	28	0.3133	3.0182
T21	343.75 - 313.75	34.552	28	0.3098	3.1482
T22	313.75 - 283.75	33.779	28	0.3269	3.2481
T23	283.75 - 253.75	31.966	28	0.3533	3.2126
T24	253.75 - 223.75	29.238	28	0.3871	3.0864
T25	223.75 - 193.75	25.964	28	0.4312	2.9324
T26	193.75 - 163.75	22.606	4	0.4388	2.7912
T27	163.75 - 133.75	20.442	4	0.4563	2.7522
T28	133.75 - 103.75	18.098	4	0.4989	2.5891
T29	103.75 - 73.75	15.085	4	0.5546	2.3525
T30	73.75 - 43.75	11.158	4	0.6130	1.9493
T31	43.75 - 36.6875	6.559	4	0.6602	1.5580
T32	36.6875 - 28.3542	5.555	4	0.6693	1.5508
T33	28.3542 - 20.2917	4.346	4	0.6787	1.5382
T34	20.2917 - 15	2.978	4	0.6848	1.4605
T35	15 - 0	2.194	4	0.6884	1.4451

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
891.00	TCL-12A8(S) w/ THP-O-2-1 (Top)	26	66.099	0.4953	3.1184	16872
874.00	6 1/8" Rigid Conduit	26	66.099	0.4953	3.1184	16872
859.00	TCL-12A8(S) w/ THP-O-2-1 (Middle)	26	66.099	0.4953	3.1184	16872
807.00	TCL-12A8(S) w/ THP-O-2-1 (Bottom)	26	66.099	0.4953	3.1184	16872
804.00	TU-Series Antenna (4)	26	66.099	0.4953	3.1184	16872
768.11	Guy	26	66.099	0.4953	3.1184	16872
765.00	Tieback	26	65.816	0.4937	3.1190	16872
758.00	6' Angle Sidearm	26	65.203	0.4917	3.1280	40117
752.00	Tieback	26	64.672	0.4916	3.1345	40405
750.00	Intermediate Side Lights	26	64.494	0.4918	3.1372	14901
744.00	Support Mount	26	63.985	0.4936	3.1583	15882
742.00	6' Angle Sidearm	26	63.823	0.4945	3.1693	23941
685.00	Ice Shield	26	58.502	0.5355	3.4768	18576
678.00	PL8	26	57.719	0.5396	3.4874	17224
630.00	PL6-65	26	51.661	0.5271	3.2608	27788
605.00	2' Ice Shield	26	48.592	0.4791	3.1367	17674
600.00	Pipe Support Mount (6)	26	48.027	0.4657	3.1169	23971
594.00	Pipe Support Mount (6)	26	47.361	0.4489	3.0939	35897
588.00	Pipe Support Mount (6)	26	46.699	0.4330	3.0706	70569
582.00	Pipe Support Mount (6)	26	46.033	0.4157	3.0459	6945
576.25	Guy	26	45.454	0.3998	3.0289	2180
539.00	Tieback	26	43.199	0.3471	3.0872	19639
529.00	6' Angle Sidearm	26	42.719	0.3397	3.1073	44593
520.00	Tieback	26	42.280	0.3359	3.1239	21645
510.00	6' Angle Sidearm	26	41.759	0.3348	3.1389	20709
482.00	6810-2R 2-bay FM	26	40.089	0.3420	3.1512	16035
476.67	6810-2R 2-bay FM	26	39.730	0.3442	3.1473	14870
471.33	6810-2R 2-bay FM	26	39.354	0.3464	3.1412	13862
466.00	6810-2R 2-bay FM	26	38.960	0.3486	3.1328	13022
450.00	Intermediate Side Lights	26	37.666	0.3540	3.0930	14833
420.00	6' Angle Sidearm	28	36.402	0.3542	3.0821	18300
381.25	Guy	28	34.792	0.3186	2.9919	3732
348.00	6' Angle Sidearm	28	34.601	0.3088	3.1298	21592
346.00	Ice Shield	28	34.579	0.3092	3.1385	20119
339.00	6' Grid Dish	28	34.483	0.3114	3.1687	16078
315.00	13' Sector Mount (3)	28	33.830	0.3259	3.2463	9420
302.00	2' Ice Shield	28	33.197	0.3369	3.2506	9753
200.00	8' Sector Mount (3)	4	23.222	0.4380	2.8109	6449
193.75	Guy	4	22.606	0.4388	2.7912	5125
166.00	Ice Shield	4	20.592	0.4540	2.7577	25361
160.00	8' Std. Dish w/ Radome	4	20.183	0.4604	2.7400	16912
150.00	Intermediate Side Lights	4	19.445	0.4732	2.6928	17023
102.00	3' Angle Sidearm	4	14.883	0.5580	2.3343	10424
100.00	3' Sidearm	4	14.649	0.5619	2.3127	10460
75.00	GPS	4	11.342	0.6108	1.9698	9752
40.00	12' Ice Shield	4	6.019	0.6651	1.5505	11365
15.00	Elevator System	4	2.194	0.6884	1.4451	19848

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	768.115	Leg	A325N	0.7500	6	4304.37	29820.60	0.144	1	Bolt Tension
		Diagonal	A325N	0.7500	3	3574.69	35784.70	0.100	1	Bolt Shear
		Top Guy Pull-Off@768.115	A325N	0.6250	4	7475.08	12425.20	0.602	1	Bolt Shear
T2	762.182	Diagonal	A325N	0.6250	2	4160.01	14375.40	0.289	1	Member Block Shear
		Top Girt	A325N	1.0000	2	3323.38	35525.40	0.094	1	Member Block Shear
T3	756.25	Diagonal	A325N	0.6250	2	5158.61	24850.50	0.208	1	Bolt Shear
		Top Girt	A325N	0.7500	6	981.78	35784.70	0.027	1	Bolt Shear
T4	748.75	Leg	A325N	0.7500	6	4166.72	29820.60	0.140	1	Bolt Tension
		Diagonal	A325N	0.8750	2	5103.75	24353.50	0.210	1	Bolt Shear
		Horizontal	A325N	1.0000	2	3818.05	55680.00	0.069	1	Gusset Bearing
		Top Girt	A325N	1.0000	2	2059.36	55680.00	0.037	1	Gusset Bearing
T5	733.75	Leg	A325N	0.7500	6	4855.15	29820.60	0.163	1	Bolt Tension
		Diagonal	A325N	0.7500	2	3169.54	17892.40	0.177	1	Bolt Shear
		Horizontal	A325N	0.6250	2	2432.25	24850.50	0.098	1	Bolt Shear
		Top Girt	A325N	0.6250	2	2955.20	24850.50	0.119	1	Bolt Shear
T6	703.75	Leg	A325N	0.7500	6	5117.61	29820.60	0.172	1	Bolt Tension
		Diagonal	A325N	0.7500	2	3764.37	17892.40	0.210	1	Bolt Shear
		Horizontal	A325N	0.6250	2	2488.35	24850.50	0.100	1	Bolt Shear
		Top Girt	A325N	0.6250	2	1191.33	24850.50	0.048	1	Bolt Shear
T7	673.75	Leg	A325N	0.7500	6	5372.27	29820.60	0.180	1	Bolt Tension
		Diagonal	A325N	0.7500	2	6693.66	17892.40	0.374	1	Bolt Shear
		Horizontal	A325N	0.6250	2	5421.08	24850.50	0.218	1	Bolt Shear
		Top Girt	A325N	0.6250	2	3673.22	24850.50	0.148	1	Bolt Shear
T8	643.75	Leg	A325N	0.7500	6	8136.13	29820.60	0.273	1	Bolt Tension
		Diagonal	A325N	0.8750	2	9766.87	24353.50	0.401	1	Bolt Shear
		Horizontal	A325N	1.0000	2	8077.13	55680.00	0.145	1	Gusset Bearing
		Top Girt	A325N	1.0000	2	5955.81	55680.00	0.107	1	Member Bearing
T9	613.75	Leg	A325N	0.7500	6	13023.00	29820.60	0.437	1	Bolt Tension
		Diagonal	A325N	0.8750	2	13433.70	24353.50	0.552	1	Bolt Shear
		Horizontal	A325N	1.0000	2	10905.00	55680.00	0.196	1	Gusset Bearing
		Top Girt	A325N	1.0000	2	8655.12	55680.00	0.155	1	Gusset Bearing
T10	583.75	Diagonal	A325N	0.8750	2	14020.20	24353.50	0.576	1	Bolt Shear
		Top Girt	A325N	1.0000	2	11603.60	55680.00	0.208	1	Gusset Bearing
T11	576.25	Diagonal	A325N	0.8750	2	11054.20	24353.50	0.454	1	Bolt Shear
		Top Guy Pull-Off@576.25	A325N	0.7500	6	6498.51	34324.40	0.189	1	Member Bearing
T12	568.75	Leg	A325N	0.7500	6	13359.80	29820.60	0.448	1	Bolt Tension
		Diagonal	A325N	0.8750	2	10677.80	24353.50	0.438	1	Bolt Shear
		Horizontal	A325N	1.0000	2	8806.65	55680.00	0.158	1	Gusset Bearing
		Top Girt	A325N	1.0000	2	9151.53	55680.00	0.164	1	Gusset Bearing
T13	553.75	Leg	A325N	0.7500	6	10976.30	29820.60	0.368	1	Bolt Tension
		Diagonal	A325N	0.8750	2	9215.35	24353.50	0.378	1	Bolt Shear
		Horizontal	A325N	1.0000	2	7604.98	55680.00	0.137	1	Gusset Bearing
		Top Girt	A325N	1.0000	2	8174.00	55680.00	0.147	1	Gusset Bearing
T14	523.75	Leg	A325N	0.7500	6	10991.90	29820.60	0.369	1	Bolt Tension
		Diagonal	A325N	0.7500	2	6568.69	17892.40	0.367	1	Bolt Shear
		Horizontal	A325N	0.6250	2	5324.75	24850.50	0.214	1	Bolt Shear
		Top Girt	A325N	0.6250	2	5876.90	24850.50	0.236	1	Bolt Shear
T15	493.75	Leg	A325N	0.7500	6	11337.00	29820.60	0.380	1	Bolt Tension
		Diagonal	A325N	0.7500	2	4062.84	17892.40	0.227	1	Bolt Shear
		Horizontal	A325N	0.6250	2	3253.21	24850.50	0.131	1	Bolt Shear
		Top Girt	A325N	0.6250	2	3758.82	24850.50	0.151	1	Bolt Shear
T16	463.75	Leg	A325N	0.7500	6	11417.10	29820.60	0.383	1	Bolt Tension
		Diagonal	A325N	0.7500	2	4064.91	17892.40	0.227	1	Bolt Shear
		Horizontal	A325N	0.6250	2	3193.82	24850.50	0.129	1	Bolt Shear
		Top Girt	A325N	0.6250	2	1610.35	24850.50	0.065	1	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T17	433.75	Leg	A325N	0.7500	6	11701.80	29820.60	0.392	1	Bolt Tension
		Diagonal	A325N	0.7500	2	7224.03	17892.40	0.404	1	Bolt Shear
		Horizontal	A325N	1.0000	2	5907.78	55680.00	0.106	1	Gusset Bearing
		Top Girt	A325N	1.0000	2	3718.95	55680.00	0.067	1	Member Bearing
T18	403.75	Diagonal	A325N	1.0000	2	8942.22	31808.60	0.281	1	Bolt Shear
		Horizontal	A325N	1.0000	2	7428.43	55680.00	0.133	1	Member Bearing
		Top Girt	A325N	1.0000	2	6483.91	55680.00	0.116	1	Gusset Bearing
T19	381.25	Leg	A325N	0.7500	6	14232.40	29820.60	0.477	1	Bolt Tension
		Diagonal	A325N	1.0000	2	11065.20	31808.60	0.348	1	Bolt Shear
		Top Guy Pull-Off@381.25	A325N	0.7500	6	4499.85	34324.40	0.131	1	Member Bearing
T20	373.75	Leg	A325N	0.7500	6	15256.80	29820.60	0.512	1	Bolt Tension
		Diagonal	A325N	0.8750	2	10636.60	24353.50	0.437	1	Bolt Shear
		Horizontal	A325N	1.0000	2	8727.38	55680.00	0.157	1	Gusset Bearing
		Top Girt	A325N	1.0000	2	9145.04	55680.00	0.164	1	Member Bearing
T21	343.75	Leg	A325N	0.7500	6	16356.30	29820.60	0.548	1	Bolt Tension
		Diagonal	A325N	0.7500	2	6814.31	17892.40	0.381	1	Bolt Shear
		Horizontal	A325N	1.0000	2	5349.55	55680.00	0.096	1	Member Bearing
		Top Girt	A325N	1.0000	2	6357.35	55680.00	0.114	1	Gusset Bearing
T22	313.75	Leg	A325N	0.7500	6	16780.90	29820.60	0.563	1	Bolt Tension
		Diagonal	A325N	0.7500	2	2955.75	17892.40	0.165	1	Bolt Shear
		Horizontal	A325N	0.6250	2	2615.89	20526.60	0.127	1	Member Block Shear
		Top Girt	A325N	0.6250	2	3104.26	24850.50	0.125	1	Bolt Shear
T23	283.75	Leg	A325N	0.7500	6	16807.10	29820.60	0.564	1	Bolt Tension
		Diagonal	A325N	0.7500	2	5759.66	17892.40	0.322	1	Bolt Shear
		Horizontal	A325N	0.6250	2	4548.41	24850.50	0.183	1	Bolt Shear
		Top Girt	A325N	0.6250	2	2454.95	24850.50	0.099	1	Bolt Shear
T24	253.75	Leg	A325N	0.7500	6	16632.40	29820.60	0.558	1	Bolt Tension
		Diagonal	A325N	0.8750	2	9188.06	24353.50	0.377	1	Bolt Shear
		Horizontal	A325N	1.0000	2	7492.78	55680.00	0.135	1	Member Bearing
		Top Girt	A325N	1.0000	2	5299.70	55680.00	0.095	1	Gusset Bearing
T25	223.75	Leg	A325N	0.7500	6	18729.40	29820.60	0.628	1	Bolt Tension
		Diagonal	A325N	1.0000	2	12490.70	31808.60	0.393	1	Bolt Shear
		Horizontal	A325N	1.0000	2	10248.90	55680.00	0.184	1	Member Bearing
		Top Girt	A325N	1.0000	2	8214.41	55680.00	0.148	1	Member Bearing
T26	193.75	Leg	A325N	0.7500	6	19200.30	29820.60	0.644	1	Bolt Tension
		Diagonal	A325N	1.0000	2	10613.60	31808.60	0.334	1	Bolt Shear
		Horizontal	A325N	1.0000	2	8905.25	55680.00	0.160	1	Member Bearing
		Top Guy Pull-Off@193.75	A325N	0.7500	6	6075.44	34324.40	0.177	1	Member Bearing
T27	163.75	Leg	A325N	0.7500	6	20426.70	29820.60	0.685	1	Bolt Tension
		Diagonal	A325N	0.7500	2	7475.28	17892.40	0.418	1	Bolt Shear
		Horizontal	A325N	1.0000	2	3184.20	28420.30	0.112	1	Member Block Shear
		Top Girt	A325N	1.0000	2	6775.03	55680.00	0.122	1	Member Bearing
T28	133.75	Leg	A325N	0.7500	6	21308.00	29820.60	0.715	1	Bolt Tension
		Diagonal	A325N	0.7500	2	5004.09	17892.40	0.280	1	Bolt Shear
		Horizontal	A325N	0.6250	2	3321.59	20526.60	0.162	1	Member Block Shear
		Top Girt	A325N	0.6250	2	4510.97	24850.50	0.182	1	Bolt Shear
T29	103.75	Leg	A325N	0.7500	6	21777.20	29820.60	0.730	1	Bolt Tension
		Diagonal	A325N	0.7500	2	3603.43	17892.40	0.201	1	Bolt Shear
		Horizontal	A325N	0.6250	2	3394.73	20526.60	0.165	1	Member Block Shear
		Top Girt	A325N	0.6250	2	2393.91	24850.50	0.096	1	Bolt Shear
T30	73.75	Leg	A325N	0.7500	6	21830.60	29820.60	0.732	1	Bolt Tension
		Diagonal	A325N	0.7500	2	5917.93	17892.40	0.331	1	Bolt Shear
		Horizontal	A325N	0.6250	2	4920.93	24850.50	0.198	1	Bolt Shear
		Top Girt	A325N	0.6250	2	3462.21	24850.50	0.139	1	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T31	43.75	Diagonal	A325N	0.8750	3	2841.14	37382.80	0.076	1	Member Block Shear
		Top Girt	A325N	0.7500	2	5270.17	35784.70	0.147	1	Bolt Shear
T32	36.6875	Diagonal	A325N	0.7500	2	5239.62	25012.50	0.209	1	Member Block Shear
		Top Girt	A325N	0.7500	4	1650.45	30102.00	0.055	1	Member Bearing
T33	28.3542	Diagonal	A325N	0.7500	2	7747.26	17892.40	0.433	1	Bolt Shear
		Top Girt	A325N	0.7500	6	1044.05	35784.70	0.029	1	Bolt Shear
T34	20.2917	Leg	A325N	1.0000	8	16353.00	53014.40	0.308	1	Bolt Tension
		Diagonal	A325N	0.7500	2	6181.28	25012.50	0.247	1	Member Block Shear
		Top Girt	A325N	0.7500	2	7762.37	35784.70	0.217	1	Bolt Shear
T35	15	Diagonal	A325N	0.8750	2	6359.18	24353.50	0.261	1	Bolt Shear
		Horizontal	A325N	0.7500	4	2039.21	17892.40	0.114	1	Bolt Shear
		Top Girt	A325N	1.0000	4	26204.20	31808.60	0.824	1	Bolt Shear
		Bottom Girt	A325N	0.7500	4	1238.37	17892.40	0.069	1	Bolt Shear

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T_u lb	Allowable ϕT_n lb	Required S.F.	Actual S.F.
T1	768.11 (A) (1065)	1 7/16 BS	25200.00	252000.23	90948.40	151200.00	1.000	1.662
	768.11 (B) (1064)	1 7/16 BS	25200.00	252000.23	85226.80	151200.00	1.000	1.774
	768.11 (C) (1063)	1 7/16 BS	25200.00	252000.23	91531.30	151200.00	1.000	1.652
T11	576.25 (A) (1068)	1 13/16 BS	40400.00	403999.72	128727.00	242400.00	1.000	1.883
	576.25 (B) (1067)	1 13/16 BS	40400.00	403999.72	120270.00	242400.00	1.000	2.015
	576.25 (C) (1066)	1 13/16 BS	40400.00	403999.72	129095.00	242400.00	1.000	1.878
T19	381.25 (A) (1071)	1 1/2 BS	27600.00	275999.41	92842.30	165600.00	1.000	1.784
	381.25 (B) (1070)	1 1/2 BS	27600.00	275999.41	93216.20	165600.00	1.000	1.777
	381.25 (C) (1069)	1 1/2 BS	27600.00	275999.41	93912.00	165600.00	1.000	1.763
T26	193.75 (A) (1074)	1 3/8 BS	23200.00	232000.30	85504.30	139200.00	1.000	1.628
	193.75 (B) (1073)	1 3/8 BS	23200.00	232000.30	81768.20	139200.00	1.000	1.702
	193.75 (C) (1072)	1 3/8 BS	23200.00	232000.30	86264.20	139200.00	1.000	1.614

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	768.115 - 762.182	3 3/4	5.93	5.93	75.9 K=1.00	11.0447	-77478.70	264162.00	0.293 [1]
T2	762.182 - 756.25	3 3/4	5.93	5.93	75.9 K=1.00	11.0447	-64672.10	264162.00	0.245 [1]
T3	756.25 - 748.75	3 3/4	7.50	7.50	96.0 K=1.00	11.0447	-62408.50	220288.00	0.283 [1]
T4	748.75 - 733.75	3 3/4	15.00	7.50	96.0 K=1.00	11.0447	-75001.00	220288.00	0.340 [1]
T5	733.75 - 703.75	3 3/4	30.00	7.50	96.0 K=1.00	11.0447	-87392.70	220288.00	0.397 [1]
T6	703.75 - 673.75	3 3/4	30.00	7.50	96.0 K=1.00	11.0447	-92117.00	220288.00	0.418 [1]
T7	673.75 - 643.75	3 3/4	30.00	7.50	96.0 K=1.00	11.0447	-96700.80	220288.00	0.439 [1]
T8	643.75 - 613.75	3 3/4	30.00	7.50	96.0 K=1.00	11.0447	-146450.00	220288.00	0.665 [1]
T9	613.75 - 583.75	4	30.00	7.50	90.0 K=1.00	12.5664	-234414.00	265805.00	0.882 [1]
T10	583.75 - 576.25	4 1/2	7.50	7.50	80.0 K=1.00	15.9043	-260720.00	367905.00	0.709 [1]
T11	576.25 - 568.75	4 1/2	7.50	7.50	80.0 K=1.00	15.9043	-265674.00	367905.00	0.722 [1]
T12	568.75 - 553.75	4 1/2	15.00	7.50	80.0 K=1.00	15.9043	-253055.00	367905.00	0.688 [1]
T13	553.75 - 523.75	4	30.00	7.50	90.0 K=1.00	12.5664	-228568.00	265805.00	0.860 [1]
T14	523.75 - 493.75	4	30.00	7.50	90.0 K=1.00	12.5664	-197853.00	265805.00	0.744 [1]
T15	493.75 - 463.75	4	30.00	7.50	90.0 K=1.00	12.5664	-204066.00	265805.00	0.768 [1]
T16	463.75 - 433.75	4	30.00	7.50	90.0 K=1.00	12.5664	-205561.00	265805.00	0.773 [1]
T17	433.75 - 403.75	4	30.00	7.50	90.0 K=1.00	12.5664	-210632.00	265805.00	0.792 [1]
T18	403.75 - 381.25	4 1/2	22.50	7.50	80.0 K=1.00	15.9043	-229016.00	367905.00	0.622 [1]
T19	381.25 - 373.75	4 1/2	7.50	7.50	80.0 K=1.00	15.9043	-256183.00	367905.00	0.696 [1]
T20	373.75 - 343.75	4 1/2	30.00	7.50	80.0 K=1.00	15.9043	-274622.00	367905.00	0.746 [1]
T21	343.75 - 313.75	4 1/2	30.00	7.50	80.0 K=1.00	15.9043	-294413.00	367905.00	0.800 [1]
T22	313.75 - 283.75	4 1/2	30.00	7.50	80.0 K=1.00	15.9043	-302057.00	367905.00	0.821 [1]
T23	283.75 - 253.75	4 1/2	30.00	7.50	80.0 K=1.00	15.9043	-302832.00	367905.00	0.823 [1]
T24	253.75 - 223.75	4 1/2	30.00	7.50	80.0 K=1.00	15.9043	-301812.00	367905.00	0.820 [1]
T25	223.75 - 193.75	4 3/4	30.00	7.50	75.8 K=1.00	17.7205	-337129.00	424321.00	0.795 [1]
T26	193.75 - 163.75	4 3/4	30.00	7.50	75.8 K=1.00	17.7205	-354729.00	424321.00	0.836 [1]
T27	163.75 - 133.75	4 3/4	30.00	7.50	75.8 K=1.00	17.7205	-367680.00	424321.00	0.867 [1]
T28	133.75 - 103.75	4 3/4	30.00	7.50	75.8 K=1.00	17.7205	-383544.00	424321.00	0.904 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T29	103.75 - 73.75	4 3/4	30.00	7.50	75.8 K=1.00	17.7205	-391990.00	424321.00	0.924 [1]
T30	73.75 - 43.75	4 3/4	30.00	7.50	75.8 K=1.00	17.7205	-393471.00	424321.00	0.927 [1]
T31	43.75 - 36.6875	4 3/4	7.06	7.06	71.4 K=1.00	17.7205	-393888.00	439106.00	0.897 [1]
T32	36.6875 - 28.3542	4 3/4	8.33	8.33	84.2 K=1.00	17.7205	-393370.00	395266.00	0.995 [1]
T33	28.3542 - 20.2917	4 3/4	8.06	8.06	81.5 K=1.00	17.7205	-395023.00	404816.00	0.976 [1]
T34	20.2917 - 15	4 3/4	5.29	5.29	53.5 K=1.00	17.7205	-392472.00	493908.00	0.795 [1]
T35	15 - 0	4 3/4	16.52	5.14	51.9 K=1.00	17.7205	-438787.00	498116.00	0.881 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	768.115 - 762.182	2L5x5x5/16x1/2	8.44	8.22	63.0 K=1.00	6.0547	-10724.10	154896.00	0.069 [1]
T2	762.182 - 756.25	2L2 1/2x2x3/16x1/2	8.44	8.22	127.3 K=1.00	1.6172	-8674.56	22310.80	0.389 [1]
T3	756.25 - 748.75	2L3x3x1/4x1/2	9.60	9.35	120.7 K=1.00	2.8750	-10317.20	43284.40	0.238 [1]
T31	43.75 - 36.6875	2L4x3x3/8x1/2	9.27	8.96	96.9 K=1.00	4.9688	-8968.43	98188.60	0.091 [1]
T32	36.6875 - 28.3542	2L3 1/2x3x1/4x1/2	10.27	9.93	107.7 K=1.00	3.1250	-11563.40	54992.90	0.210 [1]
T34	20.2917 - 15	2L3 1/2x3x1/4x1/2	8.00	7.74	83.9 K=1.00	3.1250	-12718.90	69902.70	0.182 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T4	748.75 - 733.75	2L4x3x1/4x1/2	12.00	11.69	118.9 K=1.00	3.3750	-7636.09	51480.90	0.148 [1]
T5	733.75 - 703.75	2L3x2 1/2x1/4x1/2	12.00	11.69	136.9 K=1.00	2.6250	-4864.49	31635.20	0.154 [1]
T6	703.75 - 673.75	2L3x2 1/2x1/4x1/2	12.00	11.69	136.9 K=1.00	2.6250	-4976.70	31635.20	0.157 [1]
T7	673.75 - 643.75	2L3x2 1/2x1/4x1/2	12.00	11.69	136.9 K=1.00	2.6250	-10842.20	31635.20	0.343 [1]
T8	643.75 -	2L4x3x1/4x1/2	12.00	11.69	118.9	3.3750	-16154.30	51480.90	0.314 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
	613.75				K=1.00				
T9	613.75 - 583.75	2L4x3x5/16x1/2	12.00	11.67	118.1 K=1.00	4.1797	-21810.00	64984.30	0.336 [1]
T12	568.75 - 553.75	2L4x3x5/16x1/2	12.00	11.63	117.8 K=1.00	4.1797	-17613.30	65249.60	0.270 [1]
T13	553.75 - 523.75	2L4x3x1/4x1/2	12.00	11.67	118.7 K=1.00	3.3750	-15210.00	51584.40	0.295 [1]
T14	523.75 - 493.75	2L3x2 1/2x1/4x1/2	12.00	11.67	136.7 K=1.00	2.6250	-10649.50	31720.20	0.336 [1]
T15	493.75 - 463.75	2L3x2 1/2x1/4x1/2	12.00	11.67	136.7 K=1.00	2.6250	-6506.42	31720.20	0.205 [1]
T16	463.75 - 433.75	2L3x2 1/2x1/4x1/2	12.00	11.67	136.7 K=1.00	2.6250	-6387.65	31720.20	0.201 [1]
T17	433.75 - 403.75	2L4x3x1/4x1/2	12.00	11.67	118.7 K=1.00	3.3750	-11815.60	51584.40	0.229 [1]
T18	403.75 - 381.25	2L4x3x1/4x1/2	12.00	11.63	118.4 K=1.00	3.3750	-14856.90	51791.30	0.287 [1]
T20	373.75 - 343.75	2L4x3x1/4x1/2	12.00	11.63	118.4 K=1.00	3.3750	-17454.80	51791.30	0.337 [1]
T21	343.75 - 313.75	2L4x3x1/4x1/2	12.00	11.63	118.4 K=1.00	3.3750	-10699.10	51791.30	0.207 [1]
T22	313.75 - 283.75	2L3x2 1/2x1/4x1/2	12.00	11.63	136.4 K=1.00	2.6250	-5231.77	31891.00	0.164 [1]
T23	283.75 - 253.75	2L3x2 1/2x1/4x1/2	12.00	11.63	136.4 K=1.00	2.6250	-9096.83	31891.00	0.285 [1]
T24	253.75 - 223.75	2L4x3x1/4x1/2	12.00	11.63	118.4 K=1.00	3.3750	-14985.60	51791.30	0.289 [1]
T25	223.75 - 193.75	2L4x3x1/4x1/2	12.00	11.60	118.2 K=1.00	3.3750	-20497.70	51894.80	0.395 [1]
T26	193.75 - 163.75	2L4x3x1/4x1/2	12.00	11.60	118.2 K=1.00	3.3750	-17810.50	51894.80	0.343 [1]
T27	163.75 - 133.75	2L4x3x1/4x1/2	12.00	11.60	118.2 K=1.00	3.3750	-12317.80	51894.80	0.237 [1]
T28	133.75 - 103.75	2L3x2 1/2x1/4x1/2	12.00	11.60	136.2 K=1.00	2.6250	-8011.19	31976.80	0.251 [1]
T29	103.75 - 73.75	2L3x2 1/2x1/4x1/2	12.00	11.60	136.2 K=1.00	2.6250	-6789.46	31976.80	0.212 [1]
T30	73.75 - 43.75	2L3x2 1/2x1/4x1/2	12.00	11.60	136.2 K=1.00	2.6250	-9841.85	31976.80	0.308 [1]
T35	15 - 0	C8x11.5 & PL 7x5/8 (New Haven, CT)	8.27	7.87	103.2 K=1.00	7.7759	-8156.83	143866.00	0.057 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	762.182 - 756.25	2L4x3x5/16x1/2	12.00	5.84	76.3 K=1.00	4.1797	-5633.57	99702.50	0.057 [1]
T3	756.25 - 748.75	2L 'a' > 26.7642 in - 21 2C10x20x0.5	12.00	5.84	63.4 K=1.00	11.6958	-5862.11	306599.00	0.019 [1]
T4	748.75 - 733.75	2L4x3x1/4x1/2	12.00	11.69	118.9 K=1.00	3.3750	-4118.73	51480.90	0.080 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T5	733.75 - 703.75	2L3x2 1/2x1/4x1/2	12.00	11.69	136.9 K=1.00	2.6250	-5910.40	31635.20	0.187 [1]
T6	703.75 - 673.75	2L3x2 1/2x1/4x1/2	12.00	11.69	136.9 K=1.00	2.6250	-2382.67	31635.20	0.075 [1]
T7	673.75 - 643.75	2L3x2 1/2x1/4x1/2	12.00	11.69	136.9 K=1.00	2.6250	-7346.43	31635.20	0.232 [1]
T8	643.75 - 613.75	2L4x3x1/4x1/2	12.00	11.69	118.9 K=1.00	3.3750	-11911.60	51480.90	0.231 [1]
T9	613.75 - 583.75	2L4x3x5/16x1/2	12.00	11.69	118.3 K=1.00	4.1797	-17310.20	64851.70	0.267 [1]
T10	583.75 - 576.25	2L4x3x5/16x1/2	12.00	11.67	118.1 K=1.00	4.1797	-23207.20	64984.30	0.357 [1]
T12	568.75 - 553.75	2L4x3x5/16x1/2	12.00	11.63	117.8 K=1.00	4.1797	-18303.10	65249.60	0.281 [1]
T13	553.75 - 523.75	2L4x3x1/4x1/2	12.00	11.63	118.4 K=1.00	3.3750	-16348.00	51791.30	0.316 [1]
T14	523.75 - 493.75	2L3x2 1/2x1/4x1/2	12.00	11.67	136.7 K=1.00	2.6250	-11753.80	31720.20	0.371 [1]
T15	493.75 - 463.75	2L3x2 1/2x1/4x1/2	12.00	11.67	136.7 K=1.00	2.6250	-7517.63	31720.20	0.237 [1]
T16	463.75 - 433.75	2L3x2 1/2x1/4x1/2	12.00	11.67	136.7 K=1.00	2.6250	-3220.69	31720.20	0.102 [1]
T17	433.75 - 403.75	2L4x3x1/4x1/2	12.00	11.67	118.7 K=1.00	3.3750	-7437.89	51584.40	0.144 [1]
T18	403.75 - 381.25	2L4x3x1/4x1/2	12.00	11.67	118.7 K=1.00	3.3750	-12967.80	51584.40	0.251 [1]
T20	373.75 - 343.75	2L4x3x1/4x1/2	12.00	11.63	118.4 K=1.00	3.3750	-18290.10	51791.30	0.353 [1]
T21	343.75 - 313.75	2L4x3x1/4x1/2	12.00	11.63	118.4 K=1.00	3.3750	-12714.70	51791.30	0.245 [1]
T22	313.75 - 283.75	2L3x2 1/2x1/4x1/2	12.00	11.63	136.4 K=1.00	2.6250	-6208.51	31891.00	0.195 [1]
T23	283.75 - 253.75	2L3x2 1/2x1/4x1/2	12.00	11.63	136.4 K=1.00	2.6250	-4909.91	31891.00	0.154 [1]
T24	253.75 - 223.75	2L4x3x1/4x1/2	12.00	11.63	118.4 K=1.00	3.3750	-10599.40	51791.30	0.205 [1]
T25	223.75 - 193.75	2L4x3x1/4x1/2	12.00	11.63	118.4 K=1.00	3.3750	-16428.80	51791.30	0.317 [1]
T27	163.75 - 133.75	2L4x3x1/4x1/2	12.00	11.60	118.2 K=1.00	3.3750	-13550.10	51894.80	0.261 [1]
T28	133.75 - 103.75	2L3x2 1/2x1/4x1/2	12.00	11.60	136.2 K=1.00	2.6250	-9021.95	31976.80	0.282 [1]
T29	103.75 - 73.75	2L3x2 1/2x1/4x1/2	12.00	11.60	136.2 K=1.00	2.6250	-4787.82	31976.80	0.150 [1]
T30	73.75 - 43.75	2L3x2 1/2x1/4x1/2	12.00	11.60	136.2 K=1.00	2.6250	-6924.43	31976.80	0.217 [1]
T31	43.75 - 36.6875	2L3x2 1/2x1/4x1/2 2L 'a' > 29.1483 in - 978	12.00	5.80	90.1 K=1.00	2.6250	-10540.30	55446.80	0.190 [1]
T32	36.6875 - 28.3542	2C6x8.2x0.5	12.00	5.80	74.2 K=1.00	4.7598	-6329.10	115430.00	0.055 [1]
T33	28.3542 - 20.2917	2C10x20x0.5	12.00	11.60	126.0 K=1.00	11.6958	-6264.27	164355.00	0.038 [1]
T34	20.2917 - 15	2L3x2 1/2x1/4x1/2 2L 'a' > 29.1483 in - 1020	12.00	5.80	90.1 K=1.00	2.6250	-15524.70	55446.80	0.280 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T35	15 - 0	C6x8.2 & PL 5x5/8 (New Haven, CT)	0.80	0.40	5.6 K=1.00	5.5417	-4953.50	179254.00	0.028 [1]

[1] P_u / ϕP_n controls

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	768.115 - 762.182	L3x3x1/4	6.00	6.00	121.6 K=1.00	1.4400	-8.30	21415.10	0.000 [1]
T2	762.182 - 756.25	L3x3x1/4	6.00	6.00	121.6 K=1.00	1.4400	-97.58	21415.10	0.005 [1]
T3	756.25 - 748.75	L3x3x1/4	6.00	6.00	121.6 K=1.00	1.4400	-101.54	21415.10	0.005 [1]
T31	43.75 - 36.6875	L3x3x1/4	6.00	6.00	121.6 K=1.00	1.4400	-182.56	21415.10	0.009 [1]
T32	36.6875 - 28.3542	L3x3x1/4	6.00	6.00	121.6 K=1.00	1.4400	-109.62	21415.10	0.005 [1]
T34	20.2917 - 15	L3x3x1/4	6.00	6.00	121.6 K=1.00	1.4400	-268.90	21415.10	0.013 [1]

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T8	643.75 - 613.75	3 3/4	30.00	7.50	96.0	11.0447	7457.17	357847.00	0.021 [1]
T9	613.75 - 583.75	4	30.00	7.50	90.0	12.5664	65772.40	407150.00	0.162 [1]
T10	583.75 - 576.25	4 1/2	7.50	7.50	80.0	15.9043	86423.40	515300.00	0.168 [1]
T11	576.25 - 568.75	4 1/2	7.50	7.50	80.0	15.9043	2569.01	515300.00	0.005 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	768.115 - 762.182	2L5x5x5/16x1/2	8.44	8.22	63.0	4.1309	8969.83	179692.00	0.050 [1]
T2	762.182 - 756.25	2L2 1/2x2x3/16x1/2	8.44	8.22	124.3	1.0020	8320.02	43585.00	0.191 [1]
T3	756.25 - 748.75	2L3x3x1/4x1/2	9.60	9.35	120.7	1.8750	8312.85	81562.50	0.102 [1]
T4	748.75 - 733.75	1	14.15	13.78	661.6	0.7854	10207.50	35342.90	0.289 [1]
T5	733.75 - 703.75	7/8	14.15	13.78	756.1	0.6013	6339.07	27059.40	0.234 [1]
T6	703.75 - 673.75	7/8	14.15	13.78	756.1	0.6013	7528.74	27059.40	0.278 [1]
T7	673.75 - 643.75	7/8	14.15	13.78	756.1	0.6013	13387.30	27059.40	0.495 [1]
T8	643.75 - 613.75	1	14.15	13.78	661.6	0.7854	19533.70	35342.90	0.553 [1]
T9	613.75 - 583.75	1 1/2	14.15	13.76	440.3	1.7672	26867.40	79521.60	0.338 [1]
T10	583.75 - 576.25	1 1/2	14.15	13.73	439.5	1.7672	28040.30	79521.60	0.353 [1]
T11	576.25 - 568.75	1 1/2	14.15	13.71	438.7	1.7672	22108.40	79521.60	0.278 [1]
T12	568.75 - 553.75	1 1/2	14.15	13.71	438.7	1.7672	21355.50	79521.60	0.269 [1]
T13	553.75 - 523.75	1	14.15	13.76	660.4	0.7854	18430.70	35342.90	0.521 [1]
T14	523.75 - 493.75	7/8	14.15	13.76	754.7	0.6013	13137.40	27059.40	0.486 [1]
T15	493.75 - 463.75	7/8	14.15	13.76	754.7	0.6013	8125.68	27059.40	0.300 [1]
T16	463.75 - 433.75	7/8	14.15	13.76	754.7	0.6013	8129.82	27059.40	0.300 [1]
T17	433.75 - 403.75	7/8	14.15	13.76	754.7	0.6013	14448.10	27059.40	0.534 [1]
T18	403.75 - 381.25	1 1/4	14.15	13.71	526.4	1.2272	17884.40	55223.30	0.324 [1]
T19	381.25 - 373.75	1 1/4	14.15	13.71	526.4	1.2272	22130.40	55223.30	0.401 [1]
T20	373.75 - 343.75	1	14.15	13.71	658.0	0.7854	21273.20	35342.90	0.602 [1]
T21	343.75 - 313.75	7/8	14.15	13.71	752.0	0.6013	13628.60	27059.40	0.504 [1]
T22	313.75 - 283.75	7/8	14.15	13.71	752.0	0.6013	5911.51	27059.40	0.218 [1]
T23	283.75 - 253.75	7/8	14.15	13.71	752.0	0.6013	11519.30	27059.40	0.426 [1]
T24	253.75 - 223.75	1	14.15	13.71	658.0	0.7854	18376.10	35342.90	0.520 [1]
T25	223.75 - 193.75	1 1/4	14.15	13.68	525.5	1.2272	24981.30	55223.30	0.452 [1]
T26	193.75 - 163.75	1 1/4	14.15	13.68	525.5	1.2272	21227.10	55223.30	0.384 [1]
T27	163.75 - 133.75	7/8	14.15	13.68	750.7	0.6013	14950.60	27059.40	0.553 [1]
T28	133.75 -	7/8	14.15	13.68	750.7	0.6013	10008.20	27059.40	0.370 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
	103.75								
T29	103.75 - 73.75	7/8	14.15	13.68	750.7	0.6013	7206.86	27059.40	0.266 [1]
T30	73.75 - 43.75	7/8	14.15	13.68	750.7	0.6013	11835.90	27059.40	0.437 [1]
T31	43.75 - 36.6875	2L4x3x3/8x1/2	9.27	8.96	85.1	3.1641	8523.42	137637.00	0.062 [1]
T32	36.6875 - 28.3542	2L3 1/2x3x1/4x1/2	10.27	9.93	107.7	2.0156	10479.20	87679.70	0.120 [1]
T33	28.3542 - 20.2917	7/8	14.46	13.98	766.9	0.6013	15494.50	19482.80	0.795 [1]
T34	20.2917 - 15	2L3 1/2x3x1/4x1/2	8.00	7.74	83.9	2.0156	12362.60	87679.70	0.141 [1]
T35	15 - 0	4 1/2x1/2 L/R > 500 (T) - 1049	7.99	7.24	601.9	2.2500	12718.40	72900.00	0.174 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T4	748.75 - 733.75	2L4x3x1/4x1/2	12.00	11.69	109.5	2.1094	1299.06	91757.80	0.014 [1]
T5	733.75 - 703.75	2L3x2 1/2x1/4x1/2	12.00	11.69	148.3	1.6875	1513.69	73406.30	0.021 [1]
T6	703.75 - 673.75	2L3x2 1/2x1/4x1/2	12.00	11.69	148.3	1.6875	1595.51	73406.30	0.022 [1]
T7	673.75 - 643.75	2L3x2 1/2x1/4x1/2	12.00	11.69	148.3	1.6875	1674.91	73406.30	0.023 [1]
T8	643.75 - 613.75	2L4x3x1/4x1/2	12.00	11.69	109.5	2.1094	2536.59	91757.80	0.028 [1]
T9	613.75 - 583.75	2L4x3x5/16x1/2	12.00	11.67	110.1	2.6074	4060.18	113423.00	0.036 [1]
T12	568.75 - 553.75	2L4x3x5/16x1/2	12.00	11.63	109.7	2.6074	4383.04	113423.00	0.039 [1]
T13	553.75 - 523.75	2L4x3x1/4x1/2	12.00	11.67	109.3	2.1094	3958.91	91757.80	0.043 [1]
T14	523.75 - 493.75	2L3x2 1/2x1/4x1/2	12.00	11.67	148.1	1.6875	3426.92	73406.30	0.047 [1]
T15	493.75 - 463.75	2L3x2 1/2x1/4x1/2	12.00	11.67	148.1	1.6875	3534.53	73406.30	0.048 [1]
T16	463.75 - 433.75	2L3x2 1/2x1/4x1/2	12.00	11.67	148.1	1.6875	3560.42	73406.30	0.049 [1]
T17	433.75 - 403.75	2L4x3x1/4x1/2	12.00	11.67	109.3	2.1094	3648.25	91757.80	0.040 [1]
T18	403.75 - 381.25	2L4x3x1/4x1/2	12.00	11.63	108.9	2.1094	3966.68	91757.80	0.043 [1]
T20	373.75 - 343.75	2L4x3x1/4x1/2	12.00	11.63	108.9	2.1094	4756.59	91757.80	0.052 [1]
T21	343.75 - 313.75	2L4x3x1/4x1/2	12.00	11.63	108.9	2.1094	5099.38	91757.80	0.056 [1]
T22	313.75 - 283.75	2L3x2 1/2x1/4x1/2	12.00	11.63	147.6	1.6875	5231.77	73406.30	0.071 [1]
T23	283.75 - 253.75	2L3x2 1/2x1/4x1/2	12.00	11.63	147.6	1.6875	5245.21	73406.30	0.071 [1]
T24	253.75 - 223.75	2L4x3x1/4x1/2	12.00	11.63	108.9	2.1094	5227.53	91757.80	0.057 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T25	223.75 - 193.75	2L4x3x1/4x1/2	12.00	11.60	108.7	2.1094	5839.25	91757.80	0.064 [1]
T26	193.75 - 163.75	2L4x3x1/4x1/2	12.00	11.60	108.7	2.1094	6144.08	91757.80	0.067 [1]
T27	163.75 - 133.75	2L4x3x1/4x1/2	12.00	11.60	108.7	2.1094	6368.40	91757.80	0.069 [1]
T28	133.75 - 103.75	2L3x2 1/2x1/4x1/2	12.00	11.60	147.3	1.6875	6643.18	73406.30	0.090 [1]
T29	103.75 - 73.75	2L3x2 1/2x1/4x1/2	12.00	11.60	147.3	1.6875	6789.46	73406.30	0.092 [1]
T30	73.75 - 43.75	2L3x2 1/2x1/4x1/2	12.00	11.60	147.3	1.6875	6815.12	73406.30	0.093 [1]
T35	15 - 0	C8x11.5 & PL 7x5/8 (New Haven, CT)	8.27	7.87	103.2	7.7759	8156.83	251939.00	0.032 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	762.182 - 756.25	2L4x3x5/16x1/2 2L 'a' > 26.7642 in - 20	12.00	5.84	55.1	2.6074	6646.76	113423.00	0.059 [1]
T3	756.25 - 748.75	2C10x20x0.5	12.00	5.84	63.4	8.2744	5890.69	359938.00	0.016 [1]
T4	748.75 - 733.75	2L4x3x1/4x1/2	12.00	11.69	109.5	2.1094	1085.00	91757.80	0.012 [1]
T5	733.75 - 703.75	2L3x2 1/2x1/4x1/2	12.00	11.69	148.3	1.6875	86.40	73406.30	0.001 [1]
T6	703.75 - 673.75	2L3x2 1/2x1/4x1/2	12.00	11.69	148.3	1.6875	60.33	73406.30	0.001 [1]
T7	673.75 - 643.75	2L3x2 1/2x1/4x1/2	12.00	11.69	148.3	1.6875	138.36	73406.30	0.002 [1]
T12	568.75 - 553.75	2L4x3x5/16x1/2	12.00	11.63	109.7	2.6074	20.00	113423.00	0.000[*1]
T13	553.75 - 523.75	2L4x3x1/4x1/2	12.00	11.63	108.9	2.1094	305.06	91757.80	0.003 [1]
T14	523.75 - 493.75	2L3x2 1/2x1/4x1/2	12.00	11.67	148.1	1.6875	276.88	73406.30	0.004 [1]
T15	493.75 - 463.75	2L3x2 1/2x1/4x1/2	12.00	11.67	148.1	1.6875	77.76	73406.30	0.001 [1]
T16	463.75 - 433.75	2L3x2 1/2x1/4x1/2	12.00	11.67	148.1	1.6875	181.56	73406.30	0.002 [1]
T17	433.75 - 403.75	2L4x3x1/4x1/2	12.00	11.67	109.3	2.1094	59.99	91757.80	0.001 [1]
T20	373.75 - 343.75	2L4x3x1/4x1/2	12.00	11.63	108.9	2.1094	175.97	91757.80	0.002 [1]
T21	343.75 - 313.75	2L4x3x1/4x1/2	12.00	11.63	108.9	2.1094	406.18	91757.80	0.004 [1]
T22	313.75 - 283.75	2L3x2 1/2x1/4x1/2	12.00	11.63	147.6	1.6875	536.27	73406.30	0.007 [1]
T23	283.75 - 253.75	2L3x2 1/2x1/4x1/2	12.00	11.63	147.6	1.6875	14.52	73406.30	0.000 [1]
T24	253.75 - 223.75	2L4x3x1/4x1/2	12.00	11.63	108.9	2.1094	8.03	91757.80	0.000 [1]
T25	223.75 -	2L4x3x1/4x1/2	12.00	11.63	108.9	2.1094	237.71	91757.80	0.003 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T27	193.75 - 163.75	2L4x3x1/4x1/2	12.00	11.60	108.7	2.1094	349.85	91757.80	0.004 [1]
T28	133.75 - 103.75	2L3x2 1/2x1/4x1/2	12.00	11.60	147.3	1.6875	77.75	73406.30	0.001 [1]
T29	103.75 - 73.75	2L3x2 1/2x1/4x1/2	12.00	11.60	147.3	1.6875	33.95	73406.30	0.000 [1]
T31	43.75 - 36.6875	2L3x2 1/2x1/4x1/2	12.00	5.80	73.6	1.6406	757.10	71367.20	0.011 [1]
T32	36.6875 - 28.3542	2L 'a' > 29.1483 in - 978 2C6x8.2x0.5	12.00	5.80	74.2	3.3074	6601.82	143871.00	0.046 [1]
T33	28.3542 - 20.2917	2C10x20x0.5	12.00	11.60	126.0	8.2744	549.06	359938.00	0.002*[1]
T34	20.2917 - 15	2L3x2 1/2x1/4x1/2	12.00	5.80	73.6	1.6406	3758.21	71367.20	0.053 [1]
T35	15 - 0	2L 'a' > 29.1483 in - 1020 (4) 5 1/4x1 1/4 (New Haven, CT)	12.00	11.60	61.0	26.2500	104817.00	850500.00	0.123 [1]

* DL controls
[1] P_u / ϕP_n controls

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	768.115 - 762.182	L3x3x1/4	6.00	6.00	77.4	1.4400	16.01	46656.00	0.000 [1]
T2	762.182 - 756.25	L3x3x1/4	6.00	6.00	77.4	1.4400	97.58	46656.00	0.002 [1]
T3	756.25 - 748.75	L3x3x1/4	6.00	6.00	77.4	1.4400	101.54	46656.00	0.002 [1]
T31	43.75 - 36.6875	L3x3x1/4	6.00	6.00	77.4	1.4400	182.56	46656.00	0.004 [1]
T32	36.6875 - 28.3542	L3x3x1/4	6.00	6.00	77.4	1.4400	109.62	46656.00	0.002 [1]
T34	20.2917 - 15	L3x3x1/4	6.00	6.00	77.4	1.4400	268.90	46656.00	0.006 [1]

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	768.115 - 762.182	C12x30	12.00	5.84	91.9	6.3281	29900.30	275273.00	0.109 [1]
T11	576.25 - 568.75	2C8x11.5x0.5	12.00	11.63	134.3	4.7380	38991.00	206105.00	0.189 [1]
T19	381.25 - 373.75	2C8x11.5x0.5	12.00	11.63	134.3	4.7380	26999.10	206105.00	0.131 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T26	193.75 - 163.75	2C8x11.5x0.5	12.00	11.60	134.0	4.7380	36452.60	206105.00	0.177 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	768.115 - 762.182	Leg	3 3/4	1	-77478.70	264162.00	29.3	Pass
T2	762.182 - 756.25	Leg	3 3/4	17	-64672.10	264162.00	24.5	Pass
T3	756.25 - 748.75	Leg	3 3/4	32	-62408.50	220288.00	28.3	Pass
T4	748.75 - 733.75	Leg	3 3/4	48	-75001.00	220288.00	34.0	Pass
T5	733.75 - 703.75	Leg	3 3/4	68	-87392.70	220288.00	39.7	Pass
T6	703.75 - 673.75	Leg	3 3/4	107	-92117.00	220288.00	41.8	Pass
T7	673.75 - 643.75	Leg	3 3/4	146	-96700.80	220288.00	43.9	Pass
T8	643.75 - 613.75	Leg	3 3/4	185	-146450.00	220288.00	66.5	Pass
T9	613.75 - 583.75	Leg	4	223	-234414.00	265805.00	88.2	Pass
T10	583.75 - 576.25	Leg	4 1/2	262	-260720.00	367905.00	70.9	Pass
T11	576.25 - 568.75	Leg	4 1/2	274	-265674.00	367905.00	72.2	Pass
T12	568.75 - 553.75	Leg	4 1/2	286	-253055.00	367905.00	68.8	Pass
T13	553.75 - 523.75	Leg	4	307	-228568.00	265805.00	86.0	Pass
T14	523.75 - 493.75	Leg	4	347	-197853.00	265805.00	74.4	Pass
T15	493.75 - 463.75	Leg	4	386	-204066.00	265805.00	76.8	Pass
T16	463.75 - 433.75	Leg	4	425	-205561.00	265805.00	77.3	Pass
T17	433.75 - 403.75	Leg	4	465	-210632.00	265805.00	79.2	Pass
T18	403.75 - 381.25	Leg	4 1/2	502	-229016.00	367905.00	62.2	Pass
T19	381.25 - 373.75	Leg	4 1/2	534	-256183.00	367905.00	69.6	Pass
T20	373.75 - 343.75	Leg	4 1/2	544	-274622.00	367905.00	74.6	Pass
T21	343.75 - 313.75	Leg	4 1/2	583	-294413.00	367905.00	80.0	Pass
T22	313.75 - 283.75	Leg	4 1/2	622	-302057.00	367905.00	82.1	Pass
T23	283.75 - 253.75	Leg	4 1/2	662	-302832.00	367905.00	82.3	Pass
T24	253.75 - 223.75	Leg	4 1/2	701	-301812.00	367905.00	82.0	Pass
T25	223.75 - 193.75	Leg	4 3/4	740	-337129.00	424321.00	79.5	Pass
T26	193.75 - 163.75	Leg	4 3/4	779	-354729.00	424321.00	83.6	Pass
T27	163.75 - 133.75	Leg	4 3/4	818	-367680.00	424321.00	86.7	Pass
T28	133.75 - 103.75	Leg	4 3/4	857	-383544.00	424321.00	90.4	Pass
T29	103.75 - 73.75	Leg	4 3/4	897	-391990.00	424321.00	92.4	Pass
T30	73.75 - 43.75	Leg	4 3/4	936	-393471.00	424321.00	92.7	Pass
T31	43.75 - 36.6875	Leg	4 3/4	973	-393888.00	439106.00	89.7	Pass
T32	36.6875 - 28.3542	Leg	4 3/4	988	-393370.00	395266.00	99.5	Pass
T33	28.3542 - 20.2917	Leg	4 3/4	1003	-395023.00	404816.00	97.6	Pass
T34	20.2917 - 15	Leg	4 3/4	1015	-392472.00	493908.00	79.5	Pass
T35	15 - 0	Leg	4 3/4	1030	-438787.00	498116.00	88.1	Pass
T1	768.115 - 762.182	Diagonal	2L5x5x5/16x1/2	11	-10724.10	154896.00	6.9 10.0 (b)	Pass
T2	762.182 - 756.25	Diagonal	2L2 1/2x2x3/16x1/2	26	-8674.56	22310.80	38.9	Pass
T3	756.25 - 748.75	Diagonal	2L3x3x1/4x1/2	41	-10317.20	43284.40	23.8	Pass
T4	748.75 - 733.75	Diagonal	1	66	10207.50	35342.90	28.9	Pass
T5	733.75 - 703.75	Diagonal	7/8	105	6339.07	27059.40	23.4	Pass
T6	703.75 - 673.75	Diagonal	7/8	115	7528.74	27059.40	27.8	Pass
T7	673.75 - 643.75	Diagonal	7/8	154	13387.30	27059.40	49.5	Pass
T8	643.75 - 613.75	Diagonal	1	193	19533.70	35342.90	55.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T9	613.75 - 583.75	Diagonal	1 1/2	232	26867.40	79521.60	33.8 55.2 (b)	Pass
T10	583.75 - 576.25	Diagonal	1 1/2	271	28040.30	79521.60	35.3 57.6 (b)	Pass
T11	576.25 - 568.75	Diagonal	1 1/2	284	22108.40	79521.60	27.8 45.4 (b)	Pass
T12	568.75 - 553.75	Diagonal	1 1/2	305	21355.50	79521.60	26.9 43.8 (b)	Pass
T13	553.75 - 523.75	Diagonal	1	344	18430.70	35342.90	52.1	Pass
T14	523.75 - 493.75	Diagonal	7/8	383	13137.40	27059.40	48.6	Pass
T15	493.75 - 463.75	Diagonal	7/8	422	8125.68	27059.40	30.0	Pass
T16	463.75 - 433.75	Diagonal	7/8	432	8129.82	27059.40	30.0	Pass
T17	433.75 - 403.75	Diagonal	7/8	471	14448.10	27059.40	53.4	Pass
T18	403.75 - 381.25	Diagonal	1 1/4	510	17884.40	55223.30	32.4	Pass
T19	381.25 - 373.75	Diagonal	1 1/4	542	22130.40	55223.30	40.1	Pass
T20	373.75 - 343.75	Diagonal	1	581	21273.20	35342.90	60.2	Pass
T21	343.75 - 313.75	Diagonal	7/8	620	13628.60	27059.40	50.4	Pass
T22	313.75 - 283.75	Diagonal	7/8	655	5911.51	27059.40	21.8	Pass
T23	283.75 - 253.75	Diagonal	7/8	671	11519.30	27059.40	42.6	Pass
T24	253.75 - 223.75	Diagonal	1	710	18376.10	35342.90	52.0	Pass
T25	223.75 - 193.75	Diagonal	1 1/4	749	24981.30	55223.30	45.2	Pass
T26	193.75 - 163.75	Diagonal	1 1/4	806	21227.10	55223.30	38.4	Pass
T27	163.75 - 133.75	Diagonal	7/8	851	14950.60	27059.40	55.3	Pass
T28	133.75 - 103.75	Diagonal	7/8	890	10008.20	27059.40	37.0	Pass
T29	103.75 - 73.75	Diagonal	7/8	905	7206.86	27059.40	26.6	Pass
T30	73.75 - 43.75	Diagonal	7/8	945	11835.90	27059.40	43.7	Pass
T31	43.75 - 36.6875	Diagonal	2L4x3x3/8x1/2	983	-8968.43	98188.60	9.1	Pass
T32	36.6875 - 28.3542	Diagonal	2L3 1/2x3x1/4x1/2	998	-11563.40	54992.90	21.0	Pass
T33	28.3542 - 20.2917	Diagonal	7/8	1014	15494.50	19482.80	79.5	Pass
T34	20.2917 - 15	Diagonal	2L3 1/2x3x1/4x1/2	1025	-12718.90	69902.70	18.2 24.7 (b)	Pass
T35	15 - 0	Diagonal	4 1/2x1/2	1049	12718.40	72900.00	17.4 26.1 (b)	Pass
T4	748.75 - 733.75	Horizontal	2L4x3x1/4x1/2	60	-7636.09	51480.90	14.8	Pass
T5	733.75 - 703.75	Horizontal	2L3x2 1/2x1/4x1/2	99	-4864.49	31635.20	15.4	Pass
T6	703.75 - 673.75	Horizontal	2L3x2 1/2x1/4x1/2	119	-4976.70	31635.20	15.7	Pass
T7	673.75 - 643.75	Horizontal	2L3x2 1/2x1/4x1/2	158	-10842.20	31635.20	34.3	Pass
T8	643.75 - 613.75	Horizontal	2L4x3x1/4x1/2	197	-16154.30	51480.90	31.4	Pass
T9	613.75 - 583.75	Horizontal	2L4x3x5/16x1/2	236	-21810.00	64984.30	33.6	Pass
T12	568.75 - 553.75	Horizontal	2L4x3x5/16x1/2	300	-17613.30	65249.60	27.0	Pass
T13	553.75 - 523.75	Horizontal	2L4x3x1/4x1/2	339	-15210.00	51584.40	29.5	Pass
T14	523.75 - 493.75	Horizontal	2L3x2 1/2x1/4x1/2	378	-10649.50	31720.20	33.6	Pass
T15	493.75 - 463.75	Horizontal	2L3x2 1/2x1/4x1/2	417	-6506.42	31720.20	20.5	Pass
T16	463.75 - 433.75	Horizontal	2L3x2 1/2x1/4x1/2	437	-6387.65	31720.20	20.1	Pass
T17	433.75 - 403.75	Horizontal	2L4x3x1/4x1/2	476	-11815.60	51584.40	22.9	Pass
T18	403.75 - 381.25	Horizontal	2L4x3x1/4x1/2	515	-14856.90	51791.30	28.7	Pass
T20	373.75 - 343.75	Horizontal	2L4x3x1/4x1/2	576	-17454.80	51791.30	33.7	Pass
T21	343.75 - 313.75	Horizontal	2L4x3x1/4x1/2	615	-10699.10	51791.30	20.7	Pass
T22	313.75 - 283.75	Horizontal	2L3x2 1/2x1/4x1/2	634	-5231.77	31891.00	16.4	Pass
T23	283.75 - 253.75	Horizontal	2L3x2 1/2x1/4x1/2	675	-9096.83	31891.00	28.5	Pass
T24	253.75 - 223.75	Horizontal	2L4x3x1/4x1/2	714	-14985.60	51791.30	28.9	Pass
T25	223.75 - 193.75	Horizontal	2L4x3x1/4x1/2	753	-20497.70	51894.80	39.5	Pass
T26	193.75 - 163.75	Horizontal	2L4x3x1/4x1/2	810	-17810.50	51894.80	34.3	Pass
T27	163.75 - 133.75	Horizontal	2L4x3x1/4x1/2	847	-12317.80	51894.80	23.7	Pass
T28	133.75 - 103.75	Horizontal	2L3x2 1/2x1/4x1/2	886	-8011.19	31976.80	25.1	Pass
T29	103.75 - 73.75	Horizontal	2L3x2 1/2x1/4x1/2	908	-6789.46	31976.80	21.2	Pass
T30	73.75 - 43.75	Horizontal	2L3x2 1/2x1/4x1/2	948	-9841.85	31976.80	30.8	Pass
T35	15 - 0	Horizontal	C8x11.5 & PL 7x5/8 (New Haven, CT)	1054	-8156.83	143866.00	5.7 11.4 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T2	762.182 - 756.25	Top Girt	2L4x3x5/16x1/2	20	6646.76	113423.00	5.9 9.4 (b)	Pass
T3	756.25 - 748.75	Top Girt	2C10x20x0.5	35	-5382.38	306599.00	2.0 2.7 (b)	Pass
T4	748.75 - 733.75	Top Girt	2L4x3x1/4x1/2	51	-4118.73	51480.90	8.0	Pass
T5	733.75 - 703.75	Top Girt	2L3x2 1/2x1/4x1/2	72	-5910.40	31635.20	18.7	Pass
T6	703.75 - 673.75	Top Girt	2L3x2 1/2x1/4x1/2	109	-2382.67	31635.20	7.5	Pass
T7	673.75 - 643.75	Top Girt	2L3x2 1/2x1/4x1/2	149	-7346.43	31635.20	23.2	Pass
T8	643.75 - 613.75	Top Girt	2L4x3x1/4x1/2	188	-11911.60	51480.90	23.1	Pass
T9	613.75 - 583.75	Top Girt	2L4x3x5/16x1/2	227	-17310.20	64851.70	26.7	Pass
T10	583.75 - 576.25	Top Girt	2L4x3x5/16x1/2	266	-23207.20	64984.30	35.7	Pass
T12	568.75 - 553.75	Top Girt	2L4x3x5/16x1/2	291	-18303.10	65249.60	28.1	Pass
T13	553.75 - 523.75	Top Girt	2L4x3x1/4x1/2	312	-16348.00	51791.30	31.6	Pass
T14	523.75 - 493.75	Top Girt	2L3x2 1/2x1/4x1/2	351	-11753.80	31720.20	37.1	Pass
T15	493.75 - 463.75	Top Girt	2L3x2 1/2x1/4x1/2	390	-7517.63	31720.20	23.7	Pass
T16	463.75 - 433.75	Top Girt	2L3x2 1/2x1/4x1/2	428	-3220.69	31720.20	10.2	Pass
T17	433.75 - 403.75	Top Girt	2L4x3x1/4x1/2	467	-7437.89	51584.40	14.4	Pass
T18	403.75 - 381.25	Top Girt	2L4x3x1/4x1/2	506	-12967.80	51584.40	25.1	Pass
T20	373.75 - 343.75	Top Girt	2L4x3x1/4x1/2	549	-18290.10	51791.30	35.3	Pass
T21	343.75 - 313.75	Top Girt	2L4x3x1/4x1/2	588	-12714.70	51791.30	24.5	Pass
T22	313.75 - 283.75	Top Girt	2L3x2 1/2x1/4x1/2	625	-6208.51	31891.00	19.5	Pass
T23	283.75 - 253.75	Top Girt	2L3x2 1/2x1/4x1/2	665	-4909.91	31891.00	15.4	Pass
T24	253.75 - 223.75	Top Girt	2L4x3x1/4x1/2	705	-10599.40	51791.30	20.5	Pass
T25	223.75 - 193.75	Top Girt	2L4x3x1/4x1/2	744	-16428.80	51791.30	31.7	Pass
T27	163.75 - 133.75	Top Girt	2L4x3x1/4x1/2	822	-13550.10	51894.80	26.1	Pass
T28	133.75 - 103.75	Top Girt	2L3x2 1/2x1/4x1/2	859	-9021.95	31976.80	28.2	Pass
T29	103.75 - 73.75	Top Girt	2L3x2 1/2x1/4x1/2	898	-4787.82	31976.80	15.0	Pass
T30	73.75 - 43.75	Top Girt	2L3x2 1/2x1/4x1/2	939	-6924.43	31976.80	21.7	Pass
T31	43.75 - 36.6875	Top Girt	2L3x2 1/2x1/4x1/2	978	-10540.30	55446.80	19.0	Pass
T32	36.6875 - 28.3542	Top Girt	2C6x8.2x0.5	993	-6329.10	115430.00	5.5	Pass
T33	28.3542 - 20.2917	Top Girt	2C10x20x0.5	1008	-6264.27	164355.00	3.8	Pass
T34	20.2917 - 15	Top Girt	2L3x2 1/2x1/4x1/2	1020	-15524.70	55446.80	28.0	Pass
T35	15 - 0	Top Girt	(4) 5 1/4x1 1/4 (New Haven, CT)	1035	104817.00	850500.00	12.3 82.4 (b)	Pass
T35	15 - 0	Bottom Girt	C6x8.2 & PL 5x5/8 (New Haven, CT)	1038	-4953.50	179254.00	2.8 6.9 (b)	Pass
T1	768.115 - 762.182	Inner Bracing	L3x3x1/4	14	-8.30	21415.10	0.4	Pass
T2	762.182 - 756.25	Inner Bracing	L3x3x1/4	29	-97.58	21415.10	0.5	Pass
T3	756.25 - 748.75	Inner Bracing	L3x3x1/4	44	-101.54	21415.10	0.5	Pass
T31	43.75 - 36.6875	Inner Bracing	L3x3x1/4	986	-182.56	21415.10	0.9	Pass
T32	36.6875 - 28.3542	Inner Bracing	L3x3x1/4	1001	-109.62	21415.10	0.5	Pass
T34	20.2917 - 15	Inner Bracing	L3x3x1/4	1028	-268.90	21415.10	1.3	Pass
T1	768.115 - 762.182	Guy A@768.115	1 7/16	1065	90948.40	151200.00	60.2	Pass
T11	576.25 - 568.75	Guy A@576.25	1 13/16	1068	128727.00	242400.00	53.1	Pass
T19	381.25 - 373.75	Guy A@381.25	1 1/2	1071	92842.30	165600.00	56.1	Pass
T26	193.75 - 163.75	Guy A@193.75	1 3/8	1074	85504.30	139200.00	61.4	Pass
T1	768.115 - 762.182	Guy B@768.115	1 7/16	1064	85226.80	151200.00	56.4	Pass
T11	576.25 - 568.75	Guy B@576.25	1 13/16	1067	120270.00	242400.00	49.6	Pass
T19	381.25 - 373.75	Guy B@381.25	1 1/2	1070	93216.20	165600.00	56.3	Pass
T26	193.75 - 163.75	Guy B@193.75	1 3/8	1073	81768.20	139200.00	58.7	Pass
T1	768.115 - 762.182	Guy C@768.115	1 7/16	1063	91531.30	151200.00	60.5	Pass
T11	576.25 - 568.75	Guy C@576.25	1 13/16	1066	129095.00	242400.00	53.3	Pass
T19	381.25 - 373.75	Guy C@381.25	1 1/2	1069	93912.00	165600.00	56.7	Pass
T26	193.75 - 163.75	Guy C@193.75	1 3/8	1072	86264.20	139200.00	62.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	768.115 - 762.182	Top Guy Pull-Off@768.115	C12x30	5	29900.30	275273.00	10.9 60.2 (b)	Pass
T11	576.25 - 568.75	Top Guy Pull-Off@576.25	2C8x11.5x0.5	278	38991.00	206105.00	18.9 18.9 (b)	Pass
T19	381.25 - 373.75	Top Guy Pull-Off@381.25	2C8x11.5x0.5	537	26999.10	206105.00	13.1 13.1 (b)	Pass
T26	193.75 - 163.75	Top Guy Pull-Off@193.75	2C8x11.5x0.5	783	36452.60	206105.00	17.7 17.7 (b)	Pass
						Summary		
						Leg (T32)	99.5	Pass
						Diagonal (T33)	79.5	Pass
						Horizontal (T25)	39.5	Pass
						Top Girt (T35)	82.4	Pass
						Bottom Girt (T35)	6.9	Pass
						Inner Bracing (T34)	1.3	Pass
						Guy A (T26)	61.4	Pass
						Guy B (T26)	58.7	Pass
						Guy C (T26)	62.0	Pass
						Top Guy Pull-Off (T1)	60.2	Pass
						Bolt Checks	82.4	Pass
						RATING =	**99.5**	**Pass**

FOUNDATION REACTION COMPARISON

New Haven, CT

Base Foundation

REACTIONS PER BASE	DESIGN REACTION	*MODIFIED DESIGN REACTION	CURRENT REACTION	% CAPACITY
COMPRESSION (kips)	1206.2	1628.4	1174.4	72.1%
BASE SHEAR (kips)	18.3	24.7	14.0	56.7%

* Design loads were multiplied by 1.35 for comparison as allowed by TIA-222-G, Section 15.5.

Design loads from: Stainless Report No. 362000, Drawing E-2.0

Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

Site Name:	New Haven, CT
Location:	*Inner*
TIA-222 Revision:	G

Design Reactions		
Shear, **S**:	129.12	kips
Uplift, **Ua**:	118.26	kips
Resultant Force, **Rf**:	175.1	kips
Tower Height, **H**:	768.10	ft
Guy Anchor Radius, **R**:		ft
Resultant Angle to Horizontal, **θ**:	42.5	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	12.0	ft
Anchor Width, **Wa**:	3.0	ft
Anchor Thickness, **Ta**:	3.0	ft
Anchor Length, **La**:	19.0	ft
Concrete Volume, **Vc**:	6.3	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	11	
No. of Bars in Top of Block:	4	
Guyed Anchor Front Rebar Size, **Saf**:	11	
No. of Bars in Front of Block:	6	
Stirrup Size:	5	

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Wt. Avg.Concrete Density, **δx**:	0.150	kcf
Clear Cover, **cc**:	3	in

Design Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral Capacity (kips):	163.86	129.12	**78.8%**	**Pass**
Uplift Capacity (kips):	195.95	118.26	**60.4%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	1205.10	306.65	**25.4%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	832.03	280.87	**33.8%**	**Pass**

Frost Depth, **Fd**:	3.33	ft
Groundwater Level, **gw**:	N/A	ft

Soil Properties:	**No. of Soil Layers?**			1		
Layer	**φ, deg**	**cu, ksf**	**δ, kcf**	**d, ft**	**Ultimate fs (ksf)**	**N (blows/ft)**
1		1.000	0.110	12.00		

*key: φ = *Internal Angle of Friction*
cu = Cohesion / Undrained Shear Strength
δ = *Buoyant Soil Unit Weight*
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

Site Name:	New Haven, CT
Location:	*Outer B*
TIA-222 Revision:	G

Design Reactions		
Shear, **S**:	137.80	kips
Uplift, **Ua**:	162.78	kips
Resultant Force, **Rf**:	213.3	kips
Tower Height, **H**:	768.10	ft
Guy Anchor Radius, **R**:		ft
Resultant Angle to Horizontal, **θ**:	49.8	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	12.0	ft
Anchor Width, **Wa**:	4.5	ft
Anchor Thickness, **Ta**:	3.0	ft
Anchor Length, **La**:	25.0	ft
Concrete Volume, **Vc**:	12.5	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	11	
No. of Bars in Top of Block:	8	
Guyed Anchor Front Rebar Size, **Saf**:	11	
No. of Bars in Front of Block:	6	
Stirrup Size:	5	

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Wt. Avg.Concrete Density, **δx**:	0.150	kcf
Clear Cover, **cc**:	3	in

Design Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral Capacity (kips):	231.07	137.80	**59.6%**	**Pass**
Uplift Capacity (kips):	310.69	162.78	**52.4%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	1963.26	430.61	**21.9%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	1625.89	508.69	**31.3%**	**Pass**

Frost Depth, **Fd**:	3.33	ft
Groundwater Level, **gw**:	N/A	ft

Soil Properties:	**No. of Soil Layers?**			1		
Layer	**φ, deg**	**cu, ksf**	**δ, kcf**	**d, ft**	**Ultimate fs (ksf)**	**N (blows/ft)**
1		1.000	0.110	12.00		

*key: φ = *Internal Angle of Friction*
cu = Cohesion / Undrained Shear Strength
δ = *Buoyant Soil Unit Weight*
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

Site Name:	New Haven, CT
Location:	*Outer A & C*
TIA-222 Revision:	G

Design Reactions		
Shear, **S**:	137.80	kips
Uplift, **Ua**:	162.78	kips
Resultant Force, **Rf**:	213.3	kips
Tower Height, **H**:	768.10	ft
Guy Anchor Radius, **R**:		ft
Resultant Angle to Horizontal, **θ**:	49.8	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	3.5	ft
Anchor Width, **Wa**:	9.0	ft
Anchor Thickness, **Ta**:	3.3	ft
Anchor Length, **La**:	8.5	ft
Concrete Volume, **Vc**:	9.2	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	6	
No. of Bars in Top of Block:	9	
Guyed Anchor Front Rebar Size, **Saf**:	6	
No. of Bars in Front of Block:	4	
Stirrup Size:	6	

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Wt. Avg.Concrete Density, **δx**:	0.150	kcf
Clear Cover, **cc**:	3	in

Design Checks	Capacity	Demand	Rating	Check
Lateral Capacity (kips):	#N/A	137.80	**#N/A**	**#N/A**
Uplift Capacity (kips):	#N/A	162.78	**#N/A**	**#N/A**
*Lateral Flexural Capacity (ft*kips):*	818.49	146.41	**17.9%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	613.79	172.95	**28.2%**	**Pass**

*key: φ = *Internal Angle of Friction*
cu = Cohesion / Undrained Shear Strength
δ = *Buoyant Soil Unit Weight*
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

ROCK ANCHOR FND CALCULATIONS

Site Name:	New Haven, CT
Job Number:	1180-B0003-B
Tower Model:	768.1' Stainless Guyed Tower
Date:	01/11/19

TIA Revision:	G		
Tower Type:	GT		
TNX Reactions:			
Uplift Reaction	162.780	kips	
Horizontal Reaction	137.795	kips	
Pad Information:			
Pier	No		
Concrete Pad Width, W	9.00	ft	
Concrete Pad Length, L	8.50	ft	
Concrete Pad Thickness, T	3.25	ft	
Ult. Gross Bearing Pressure, σ ult	N/A	ksf	
Rock Anchor Information:			
Anchor Type	Epoxy		
Anchor Quantity	6		
Anchor Diameter, D	1.375	in	
Anchor Manufacturer	Williams		
Steel Grade, Fu	150	ksi	
Anchor Rod Tensile Capacity, φRn	189.6	kips	
Grout / Hole Properties:			
Drilled Hole Diameter, Dh	3.00	in	
Rock Hole Length, Lh	23.5	ft	
Ult. Grout to Rock Bond Strength, σrg	0.100	ksi	(Assumed)
Ult. Grout to Steel Bond Strength, σsg	0.250	ksi	(Assumed)

Anchor Rod Tensile Load	**43.9**	kips
Anchor Rod Tensile Check	**23.2%**	**OK**
Foundation Uplift Check	**63.0%**	**OK**
Anchor Rod Shear Check	**24.2%**	**OK**

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

GUY ANCHOR SHAFT TENSION CALCULATIONS

Site Name: New Haven, CT
Job Number: 1180-B0003-B
Tower Model: 768.1' Stainless Guyed Tower
Date: 01/11/19

	Guy Anchor Shaft Type	*Steel Grade (ksi)*	*Area of Anchor Shaft (in^2)*	***Tension Capacity (kips)** $\Phi_t P_n$*	*Applied Tension from tnxTower (kips)*	Tensile Capacity %
Inner	2" thick. Plate w/ 3.25" Ø Pin	36.00	21.000	**329.512**	175.090	53.1%
Outer	2.5" thick. Plate w/ 4.25" Ø Pin	36.00	35.000	**619.650**	213.272	34.4%

***Anchor Shaft pin bearing on plate controls anchor head capacity**

Sprint

PROJECT:	2.5 EQUIPMENT DEPLOYMENT
SITE NAME:	BETHANY / L&N COMMUNICATION
SITE CASCADE:	CT33XC513
SITE ADDRESS:	TALMADGE ROAD HAMDEN, CT 06518
SITE TYPE:	GUYED TOWER
MARKET:	SOUTHERN CONNECTICUT

SITE INFORMATION

PROPERTY OWNER:
LIN TELEVISION CORPORATION
ONE WEST EXCHANGE STREET
SUITE 5A
PROVIDENCE, RI 02903

LATITUDE (NAD83):
41° 25' 23" N
41.42305556°

LONGITUDE (NAD83):
72° 57' 4" W
-72.95111111°

COUNTY:
NEW HAVEN

ZONING JURISDICTION:
TOWN OF HAMDEN

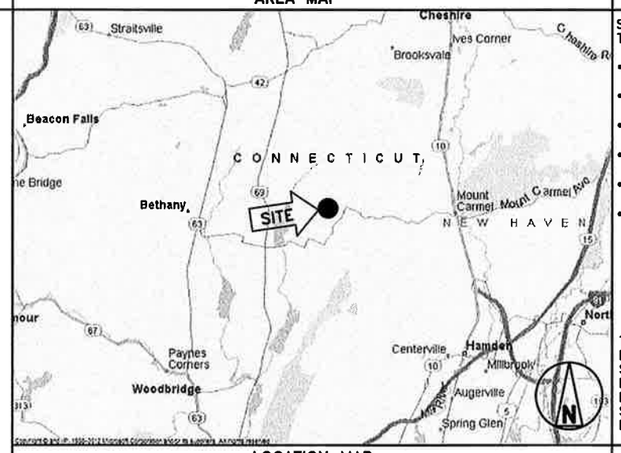
ZONING DISTRICT:
TBD

POWER COMPANY:
CL&P
888-783-6617

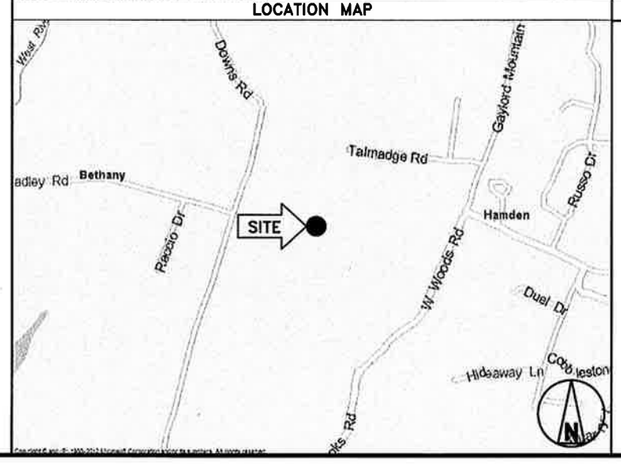
AAV PROVIDER:
AT&T
(800) 246-2020

SPRINT CM:
GARY WOOD
PHONE: (860) 940-9168
gary.wood@sprint.com

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL NEW EQUIPMENT IN EXISTING N.V. MMBS CABINET
- INSTALL (3) 2500 MHz PANEL ANTENNAS
- INSTALL (6) RRU'S (2500/800) TO TOWER
- INSTALL (27) JUMPER CABLES
- INSTALL (1) FIBER CABLE
- INSTALL (4) BATTERIES IN EXISTING BBU CABINET

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

APPLICABLE CODES

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

1. INTERNATIONAL BUILDING CODE (2012 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CT BUILDING CODE
7. LOCAL BUILDING CODE
8. CITY/COUNTY ORDINANCES

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DRAWING INDEX

SHEET NO.	SHEET TITLE	REV.
T-1	TITLE SHEET & PROJECT DATA	0
SP-1	SPRINT SPECIFICATIONS	0
SP-2	SPRINT SPECIFICATIONS	0
SP-3	SPRINT SPECIFICATIONS	0
A-1	SITE PLAN	0
A-2	TOWER ELEVATION & CABLE PLAN	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	COLOR CODING & NOTES	0
A-5	EQUIPMENT & MOUNTING DETAILS	0
A-6	CIVIL DETAILS	0
A-7	PLUMBING DIAGRAM	0
E-1	ELECTRICAL & GROUNDING PLAN	0
E-2	ELECTRICAL & GROUNDING DETAILS	0

PLANS PREPARED FOR:
Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
JUL 11 2018
No. 24705
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	07/11/18	ASW	0

SITE NAME:
BETHANY / L&N COMMUNICATION

SITE CASCADE:
CT33XC513

SITE ADDRESS:
TALMADGE ROAD
HAMDEN, CT 06518

SHEET DESCRIPTION:
TITLE SHEET & PROJECT DATA

SHEET NUMBER:
T-1

THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:

1. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
7. AMERICAN CONCRETE INSTITUTE (ACI)
8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
11. PORTLAND CEMENT ASSOCIATION (PCA)
12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
13. BRICK INDUSTRY ASSOCIATION (BIA)
14. AMERICAN WELDING SOCIETY (AWS)
15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
17. DOOR AND HARDWARE INSTITUTE (DHI)
18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.

B. COMPANY: SPRINT CORPORATION

C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.

D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.

E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

1.6 SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

1.8 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.9 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.

B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.

C. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

1.10 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.11 UTILITIES SERVICES: WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED:

1.12 PERMITS / FEES: WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.13 CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

NOTE: IN SHORT-FORM SPECIFICATIONS ON THE DRAWINGS, A/E TO INSERT LIST OF APPLICABLE MOPS INCLUDING EN-2012-001, EN-2013-002, EL-0568, AND TS-0193

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

3.5 EXISTING CONDITIONS: NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

A. A COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

1 ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 NOTICE TO PROCEED

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.

B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT · S. ST... · LICENSED PROFESSIONAL ENGINEER
JUL 24 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	07/11/18	ASW	0

SITE NAME:

BETHANY / L&N COMMUNICATION

SITE CASCADE:

CT33XC513

SITE ADDRESS:

TALMADGE ROAD
HAMDEN, CT 06518

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-1

CONTINUE FROM SP-1

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H-FRAMES", CABINETS AND SHELTERS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
19. PERFORM ANTENNAL AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.

1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER

B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.

1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
2. PROJECT PROGRESS REPORTS.
3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
12. NETWORK OPERATIONS HANDOFF CHECKLIST (HOC WALK) COMPLETE (UPLOAD FORM IN SMS)
13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 SUBMITTALS:

A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.

1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
5. CHEMICAL GROUNDING DESIGN

D. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING;

1. AZIMUTH, DOWNTILT, AGL – UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPs

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

1. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
2. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS – ANTENNALIGN ALIGNMENT TOOL (AAT)

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Sprint

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Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY

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1033 Watervliet Shaker Rd
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Office # (518) 690-0790

JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24796
PROFESSIONAL ENGINEER
JUL 11 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	07/11/18	ASW	0

SITE NAME:

BETHANY / L&N COMMUNICATION

SITE CASCADE:

CT33XC513

SITE ADDRESS:

TALMADGE ROAD
HAMDEN, CT 06518

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.
8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.
9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.
10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
11. ALL AVAILABLE JURISDICTIONAL INFORMATION
12. PDF SCAN OF REDLINES PRODUCED IN FIELD

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

D. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.

3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.

A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.

1. CONCRETE MIX AND CYLINDER BREAK REPORTS.
2. STRUCTURAL BACKFILL COMPACTION REPORTS.
3. SITE RESISTANCE TO EARTH TEST.
4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.
2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;
3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.
8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.
9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.

B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

3.2 PROJECT CONFERENCE CALLS:

A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.

3.3 PROJECT TRACKING IN SMS:

A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.

3.4 ADDITIONAL REPORTING:

A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.

3.5 PROJECT PHOTOGRAPHS:

A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:

1. 1SHELTER AND TOWER OVERVIEW.
2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).
3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).
4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
5. PHOTOS OF TOWER SECTION STACKING.
6. CONCRETE TESTING / SAMPLES.
7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.
9. SHELTER FOUNDATION--FORMS AND STEEL BEFORE POURING.
10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.
11. COAX CABLE ENTRY INTO SHELTER.
12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.
16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.
17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.
18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
25. ALL BTS GROUND CONNECTIONS.
26. ALL GROUND TEST WELLS.
27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
30. GPS ANTENNAS.
31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
32. DOGHOUSE/CABLE EXIT FROM ROOF.
33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
34. MASTER BUS BAR.
35. TELCO BOARD AND NIU.
36. ELECTRICAL DISTRIBUTION WALL.
37. CABLE ENTRY WITH SURGE SUPPRESSION.
38. ENTRANCE TO EQUIPMENT ROOM.
39. COAX WEATHERPROOFING-TOP AND BOTTOM OF TOWER.
40. COAX GROUNDING -TOP AND BOTTOM OF TOWER.
41. ANTENNA AND MAST GROUNDING.
42. LANDSCAPING – WHERE APPLICABLE.

3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

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JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
PROFESSIONAL ENGINEER
11 2018

DRAWING NOTICE:

REVISIONS:

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ISSUED FOR PERMIT	07/11/18	ASW	0

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SITE CASCADE:

CT33XC513

SITE ADDRESS:

TALMADGE ROAD
HAMDEN, CT 06518

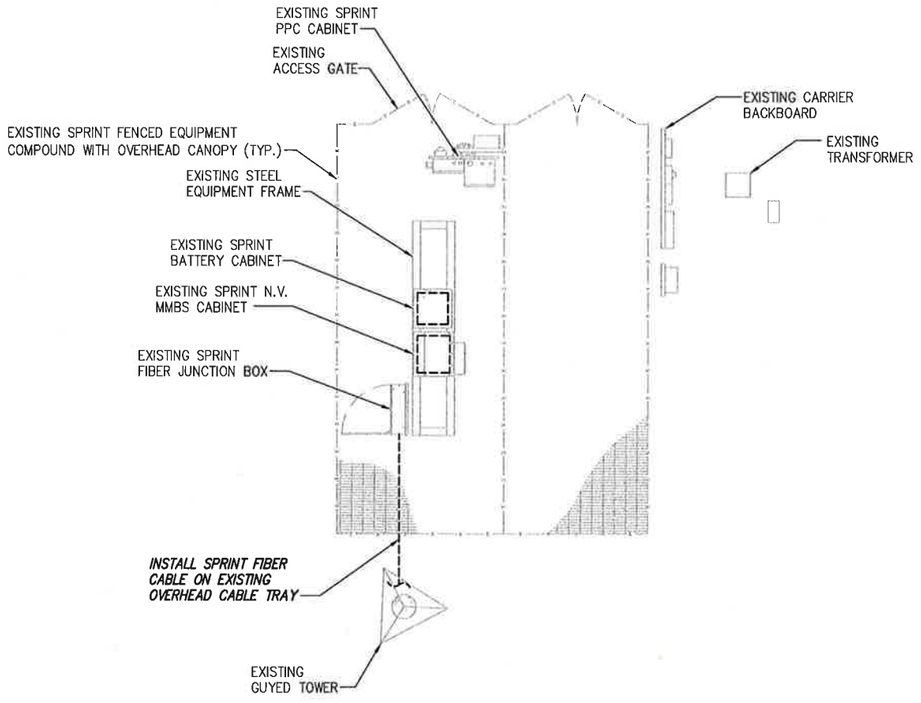
SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

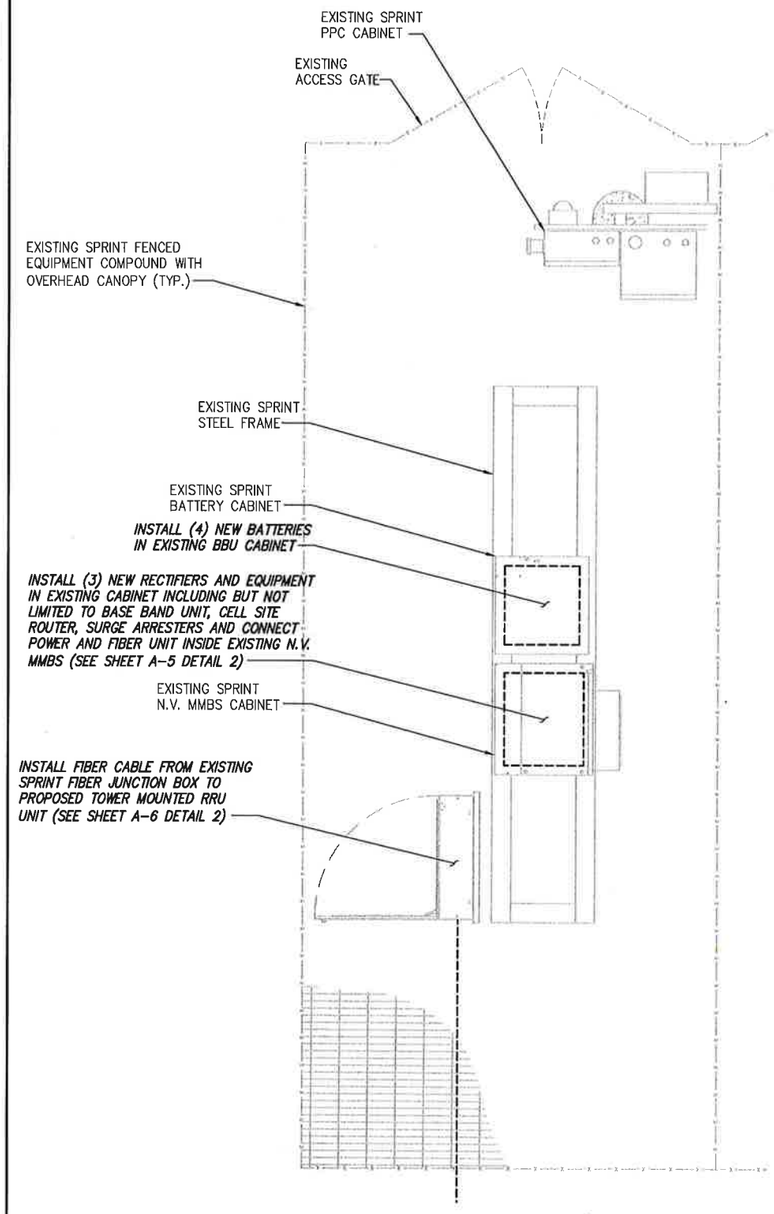
SP-3

INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.



2.5' 0 2.5' 5' 10'
(IN FEET)
SCALE: 24"x36" SHEET 1" = 5'-0"
SCALE: 11"x17" SHEET 1" = 10'-0"

OVERALL SITE PLAN | SCALE: AS NOTED | 1



1' 0 1' 2' 4'
(IN FEET)
SCALE: 24"x36" SHEET 1" = 2'-0"
SCALE: 11"x17" SHEET 1" = 4'-0"

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

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JOB NUMBER 526-102

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ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
JUL 11 2018
PROFESSIONAL ENGINEER

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ISSUED FOR PERMIT	07/11/18	ASW	0

SITE NAME:
BETHANY / L&N COMMUNICATION

SITE CASCADE:
CT33XC513

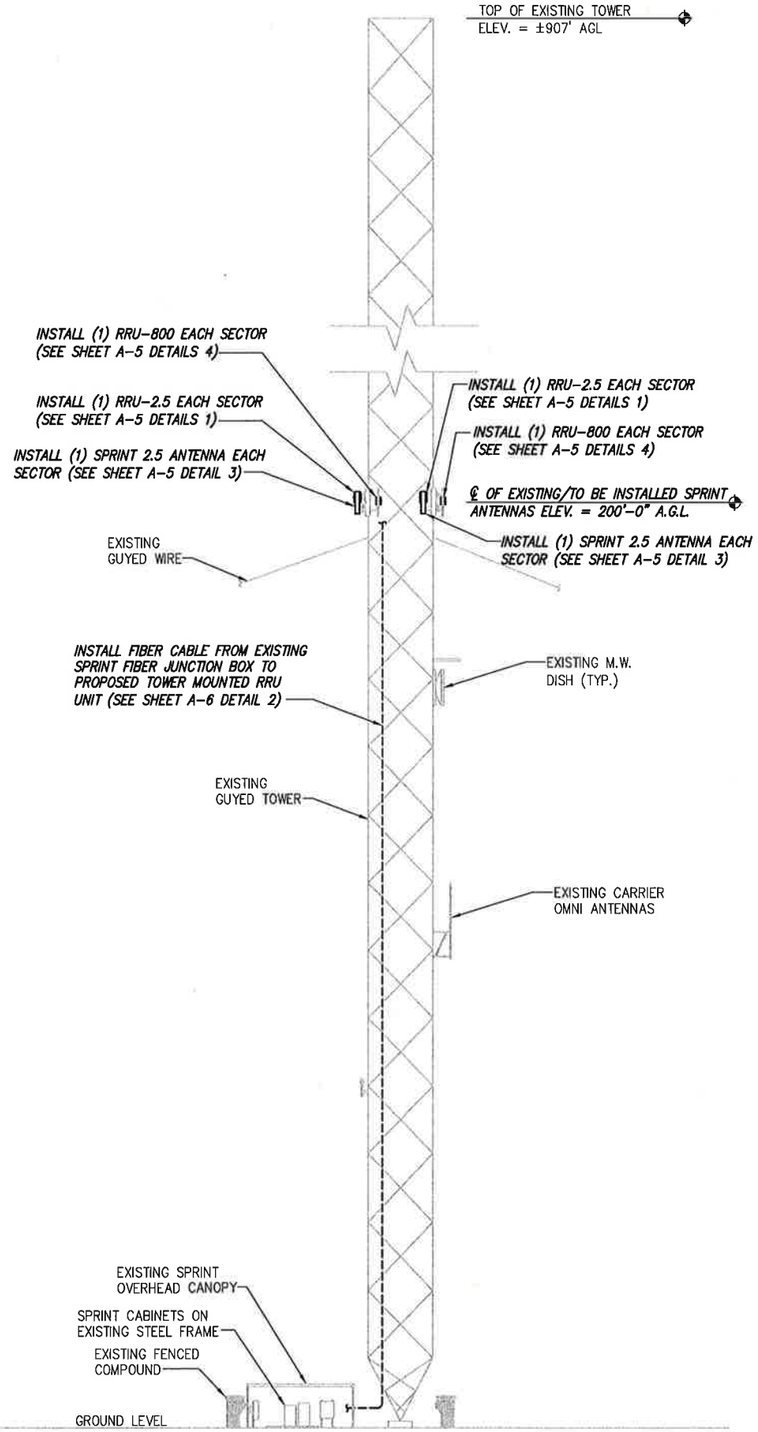
SITE ADDRESS:
TALMADGE ROAD
HAMDEN, CT 06518

SHEET DESCRIPTION:
SITE PLAN

SHEET NUMBER:
A-1

NOTE:
- INFINIGY ENGINEERING HAS NOT EVALUATED THE EXISTING STRUCTURE FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. REFER TO STRUCTURAL ANALYSIS BY OTHERS PRIOR TO ANY CONSTRUCTION.
- SEE 'MOUNT ANALYSIS REPORT' COMPLETED BY INFINIGY, DATED 7/1/18. CONTRACTOR TO INSTALL (2) SITE PRO1 SPTB TIE-BACKS TO OPPOSITE TOWER LEGS. REPLACE PIPE AS NEEDED, MAX 20' LENGTH (TYP. EACH SECTOR)

NOTE:
SEE DETAIL 2 ON A-3 FOR ANTENNA LAYOUT



BUILDING ELEVATION | NO SCALE | 1

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JOHN S. STEVENS
No. 24790
LICENSED PROFESSIONAL ENGINEER
JUL 11 2018

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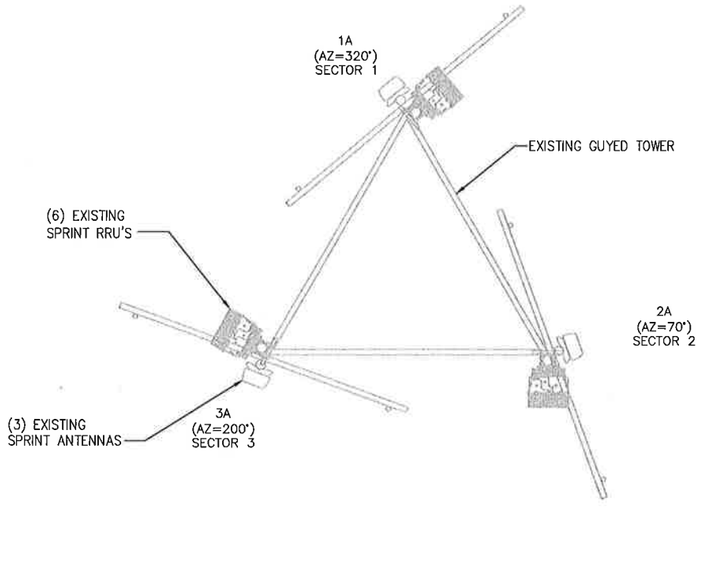
SITE NAME:
BETHANY / L&N COMMUNICATION

SITE CASCADE:
CT33XC513

SITE ADDRESS:
TALMADGE ROAD
HAMDEN, CT 06518

SHEET DESCRIPTION:
BUILDING ELEVATION & CABLE PLAN

SHEET NUMBER:
A-2

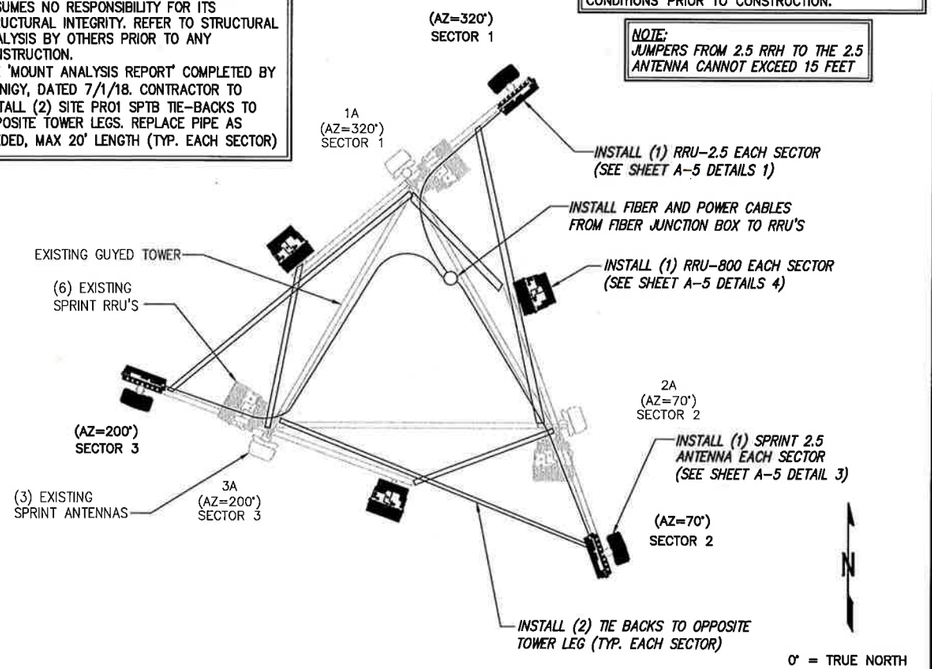


EXISTING ANTENNA & RRU LAYOUT | NO SCALE | 1

NOTE:
- INFINIGY ENGINEERING HAS NOT EVALUATED THE EXISTING STRUCTURE FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. REFER TO STRUCTURAL ANALYSIS BY OTHERS PRIOR TO ANY CONSTRUCTION.
- SEE "MOUNT ANALYSIS REPORT" COMPLETED BY INFINIGY, DATED 7/1/18. CONTRACTOR TO INSTALL (2) SITE PRO1 SPTB TIE-BACKS TO OPPOSITE TOWER LEGS. REPLACE PIPE AS NEEDED, MAX 20' LENGTH (TYP. EACH SECTOR)

THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.

NOTE:
JUMPERS FROM 2.5 RRH TO THE 2.5 ANTENNA CANNOT EXCEED 15 FEET

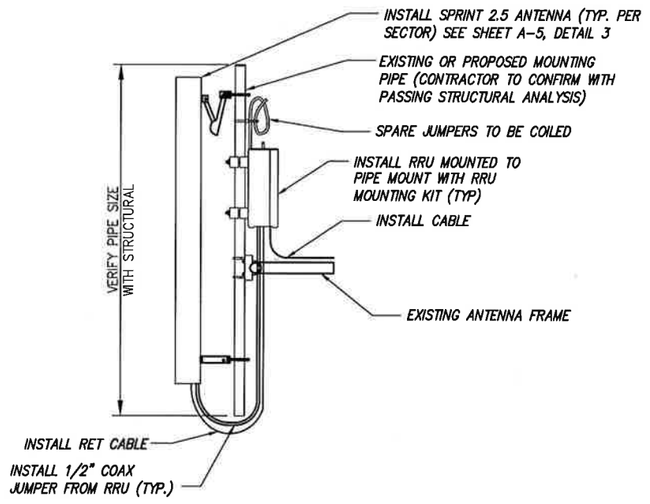


FINAL ANTENNA LAYOUT | NO SCALE | 2

SECTOR	POSITION	ANTENNA MAKE/MODEL	AZIMUTH	CENTERLINE	RRH	CABLE TYPE	CABLE LENGTH	JUMPER TYPE
ALPHA	1	**PROPOSED 2.5 ANTENNA (DT465B-2XR)** EXISTING DUAL BAND ANTENNA (APXVSPP18-C-A20)	320°	200'-0"	(1) (E) RRH 1900 4X45 65 MHz (1) (E) RRH 800 MHz 2X50W **(1) (P) RRH 800 MHz 2X50W** **(1) (P) RRH 2.5 (TD-RRH8X20-25)**	**(1) PROPOSED HYBRIFLEX** **(1) PROPOSED HYBRIFLEX SHARED W/ BETA**	*±260'	8' HYBRID
BETA	1	**PROPOSED 2.5 ANTENNA (DT465B-2XR)** EXISTING DUAL BAND ANTENNA (APXVSPP18-C-A20)	70°	200'-0"	(1) (E) RRH 1900 4X45 65 MHz (1) (E) RRH 800 MHz 2X50W **(1) (P) RRH 800 MHz 2X50W** **(1) (P) RRH 2.5 (TD-RRH8X20-25)**	**(1) PROPOSED HYBRIFLEX** **(1) PROPOSED HYBRIFLEX**	*±260'	8' HYBRID
GAMMA	1	**PROPOSED 2.5 ANTENNA (DT465B-2XR)** EXISTING DUAL BAND ANTENNA (APXVSPP18-C-A20)	200°	200'-0"	(1) (E) RRH 1900 4X45 65 MHz (1) (E) RRH 800 MHz 2X50W **(1) (P) RRH 800 MHz 2X50W** **(1) (P) RRH 2.5 (TD-RRH8X20-25)**	**(1) PROPOSED HYBRIFLEX** **(1) PROPOSED HYBRIFLEX SHARED W/ BETA**	*±260'	8' HYBRID

*CONTRACTOR TO VERIFY CABLE LENGTH PRIOR TO ORDERING

EQUIPMENT TABLE | NO SCALE | 3



NOTES:

1. CUT DC CONDUCTORS TO LENGTH.
2. COIL FIBER CABLE AND SECURE AT SIDE OF RRU.
3. DO NO EXCEED BEND RADIUS.

NOTE:
CONTRACTOR TO POSITION RRU ON MOUNT BEHIND ANTENNA SUCH THAT THE RRU DOES NOT INTERFERE WITH THE EXISTING MOUNTING HARDWARE.

NOTE:
SPARE DC CABLES ARE COILED UP ON NV RRHS AT SPRINT ARRAY. THESE ARE TO BE USED TO POWER UP THE 2.5 RRHS AND TIED INTO EXISTING DC BREAKERS INSIDE THE FIBER JUNCTION BOX LOCATED AT EQUIPMENT.

NOTE:
THE DIAGRAM IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO REFER TO PASSING STRUCTURAL ANALYSIS FOR ANTENNA AND RRU MOUNTING DETAILS

TYPICAL ANTENNA & RRU MOUNTING DETAILS | NO SCALE | 4

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JUL 11 2018

DRAWING NOTICE:

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SITE NAME:
BETHANY / L&N COMMUNICATION

SITE CASCADE:
CT33XC513

SITE ADDRESS:
TALMADGE ROAD
HAMDEN, CT 06518

SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

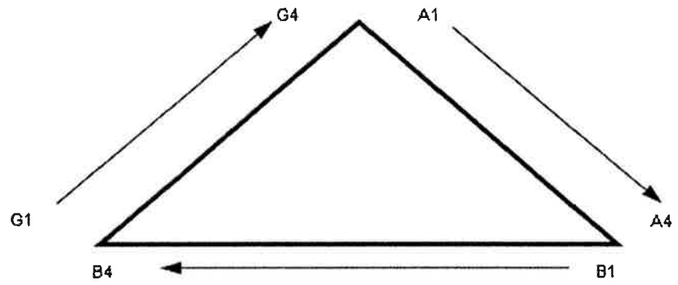
SHEET NUMBER:
A-3

NV CABLES				
BAND	INDICATOR		PORT	COLOR
800-1	YEL	GRN	NV-1	GRN
1900-1	YEL	RED	NV-2	BLU
1900-2	YEL	BRN	NV-3	BRN
1900-3	YEL	BLU	NV-4	WHT
1900-4	YEL	SLT	NV-5	RED
800-2	YEL	ORG	NV-6	SLT
SPARE	YEL	WHT	NV-7	PPL
2500	YEL	PPL	NV-8	ORG

HYBRID	
HYBRID	COLOR
1	GRN
2	BLU
3	BRN
4	WHT
5	RED
6	SLT
7	PPL
8	ORG

2.5 Band		
2500 Radio 1		COLOR
YEL	WHT	GRN
YEL	WHT	BLU
YEL	WHT	BRN
YEL	WHT	WHT
YEL	WHT	RED
YEL	WHT	SLT
YEL	WHT	PPL
YEL	WHT	ORG

Figure 1: Antenna Orientation



NOTES:

1. ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.

2. THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAK-OUT CYLINDER. THERE SHALL BE A 1" SPACE BETWEEN EACH RING FOR THE CABLE IDENTIFIER, AND NO SPACES BETWEEN THE FREQUENCY BANDS.

3. A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.

4. THE 2" COLORED TAPE(S) SHALL EACH BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.

5. SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE NEXT COLOR IN THE SEQUENCE FOR ADDITIONAL CABLES IN EACH SECTOR.

6. HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.

7. HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.

8. INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABELED WITH BOTH THE CABLE AND FREQUENCY.

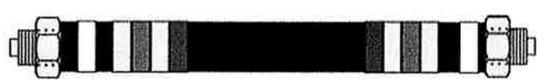
Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2	Blue	No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2	Blue	Blue	No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2	Blue	Blue	Blue
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange

NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

Example – Sector 2, Cable 2, 800mhz Radio #1

Example – Sector 3, Cable 1, 1900mhz Radio #1



Example – Sector 1, Cable 4, 800 mhz Radio #1 and 1900mhz Radio #1

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SITE CASCADE:
CT33XC513

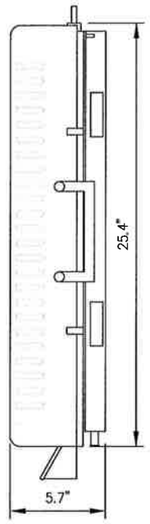
SITE ADDRESS:
TALMADGE ROAD
HAMDEN, CT 06518

SHEET DESCRIPTION:
COLOR CODING AND NOTES

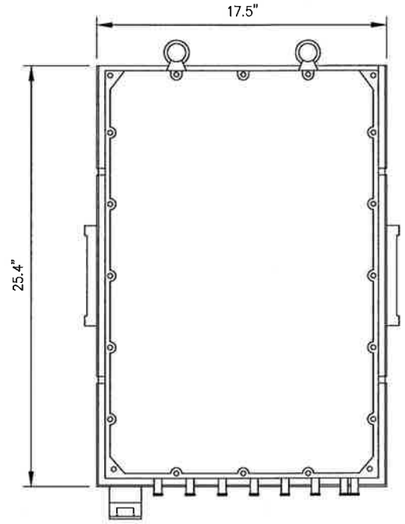
SHEET NUMBER:
A-4

RRU: ALCATEL LUCENT TD-RRH8X20

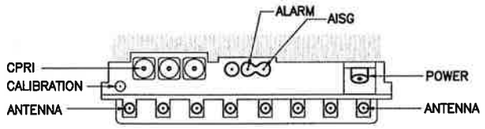
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW

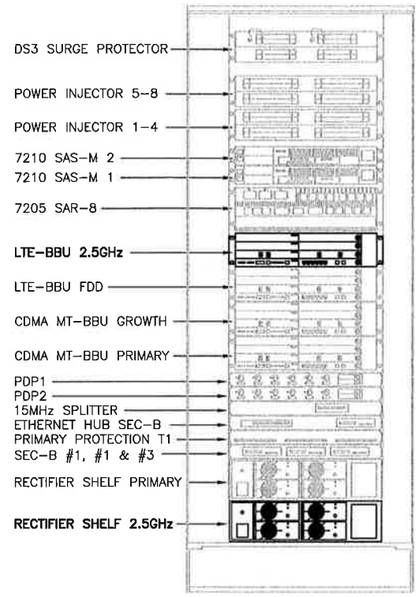


PLAN VIEW

NOTES

COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRU'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN.

2.5 RRU'S | NO SCALE | 1

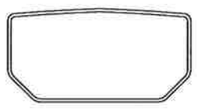


FRONT VIEW

2.5 EQUIPMENT IN EXISTING N.V. MMBS | NO SCALE | 2

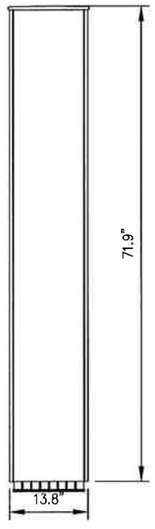
ANTENNA COMMSCOPE DT465B-2XR

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	71.9"x13.8"x8.2" (1825x350x209mm)
WEIGHT:	58 lbs
CONNECTORS:	(2) 7/16" DIN FEMALE
	(8) 4.1/9.5 DIN FEMALE



PLAN VIEW

SIDE VIEW



FRONT VIEW

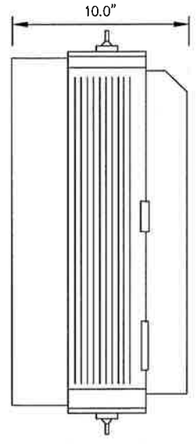
2.5 ANTENNA | NO SCALE | 3

RRU: ALCATEL LUCENT RRH 800 MHz 2x50W

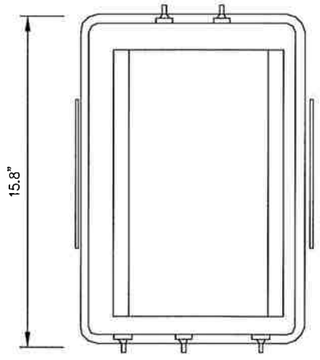
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

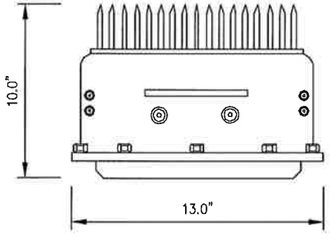
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRU'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN.



SIDE VIEW



FRONT VIEW



PLAN VIEW

800 RRU'S | NO SCALE | 4

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SITE CASCADE:
CT33XC513

SITE ADDRESS:
TALMADGE ROAD
HAMDEN, CT 06518

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-5

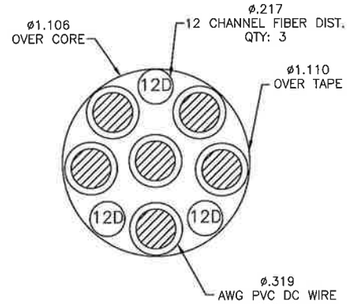
RFS HYBRIFLEX RISER CABLE SCHEDULE

Fiber Only (Existing DC Power)	Hybrid cable MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
	MN: HB058-M12-200F	200 ft
8 AWG Power	Hybrid cable MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	Hybrid cable MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	Hybrid cable MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

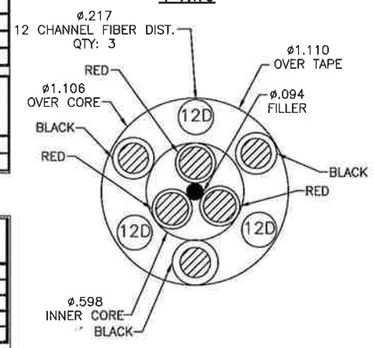
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

Fiber Only	Hybrid Jumper cable MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	Hybrid Jumper cable MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
	MN: HBF058-08U1M3-15F1	15 ft
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
	MN: HBF058-08U1M3-30F1	30 ft
6 AWG Power	Hybrid Jumper cable MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
	MN: HBF058-13U1M3-15F1	15 ft
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
	MN: HBF058-13U1M3-30F1	30 ft
4 AWG Power	Hybrid Jumper cable MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft
	MN: HBF078-21U1M3-30F1	30 ft

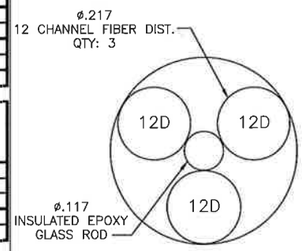
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG



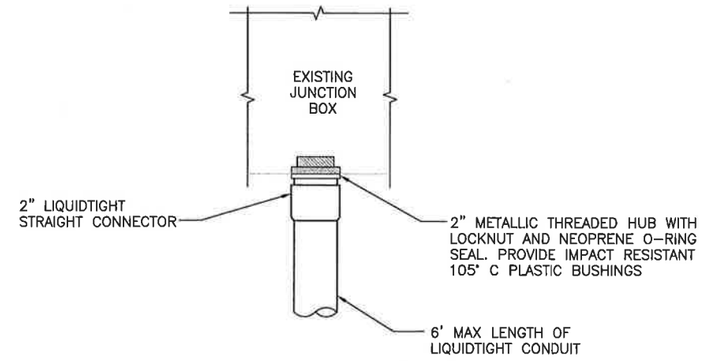
8 & 6 AWG



FIBER ONLY

2.5 CABLE CROSS SECTION DATA

NO SCALE | 1



FIBER JUNCTION BOX PENETRATION

NO SCALE | 2

DETAIL NOT USED

NO SCALE | 3

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SITE ADDRESS:
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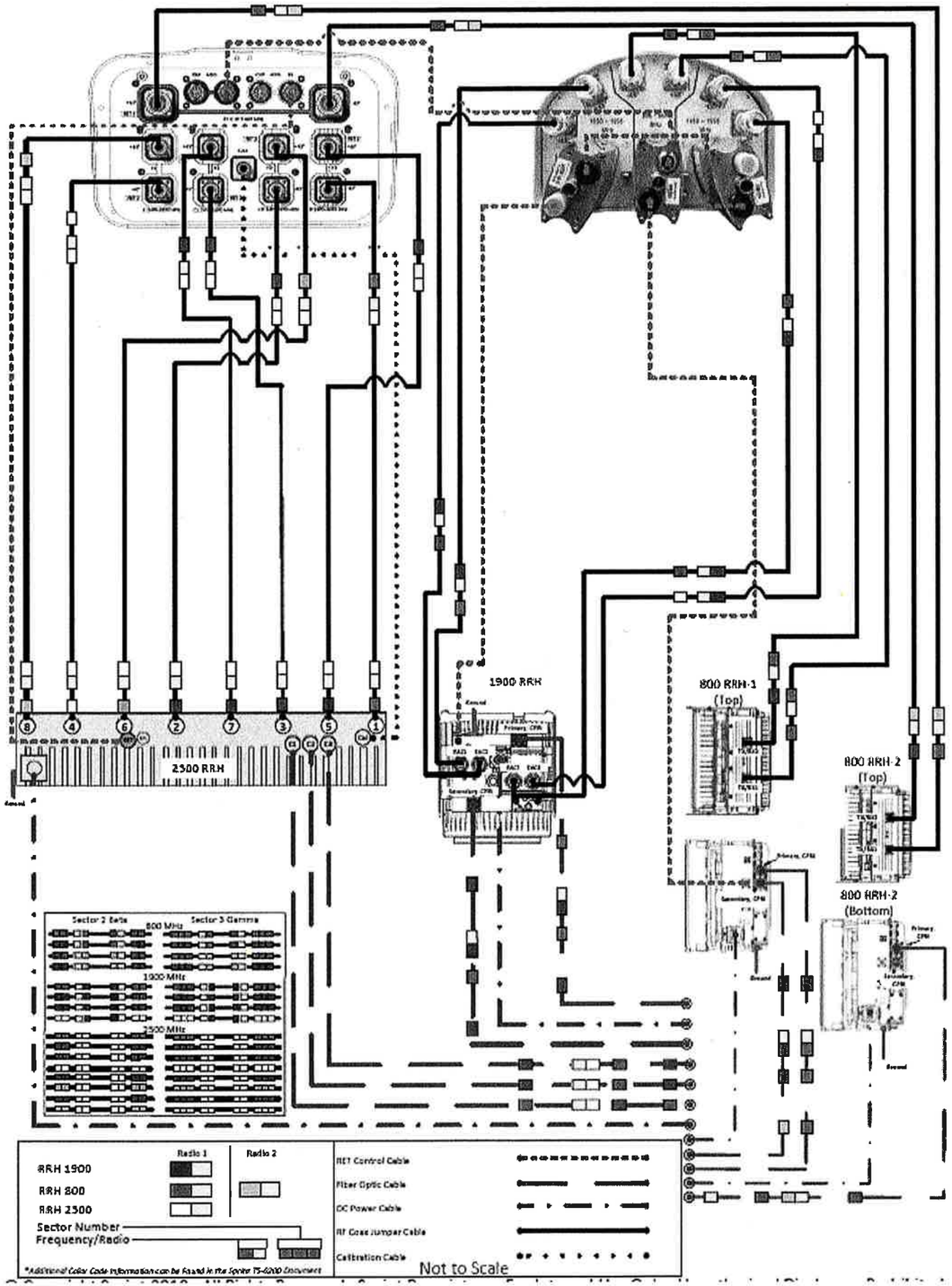
HAMDEN, CT 06518

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-6

ALU 211 DT465B-2XR-V2 & APXVSPP18-C-A20 wo Filters



PLUMBING DIAGRAM | NO SCALE | 1

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PLUMBING DIAGRAM

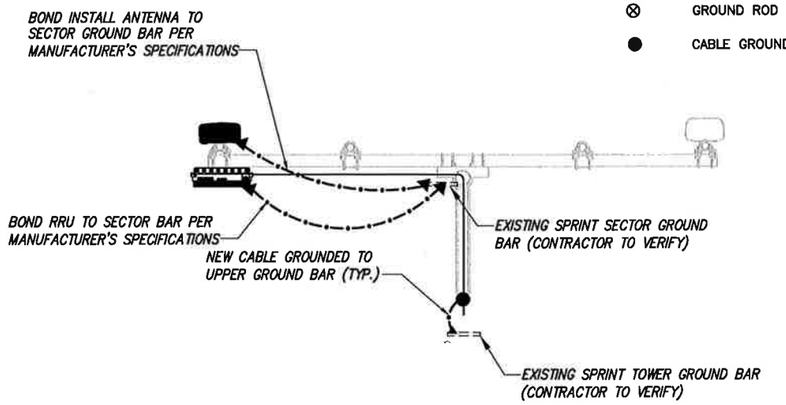
SHEET NUMBER:

A-7

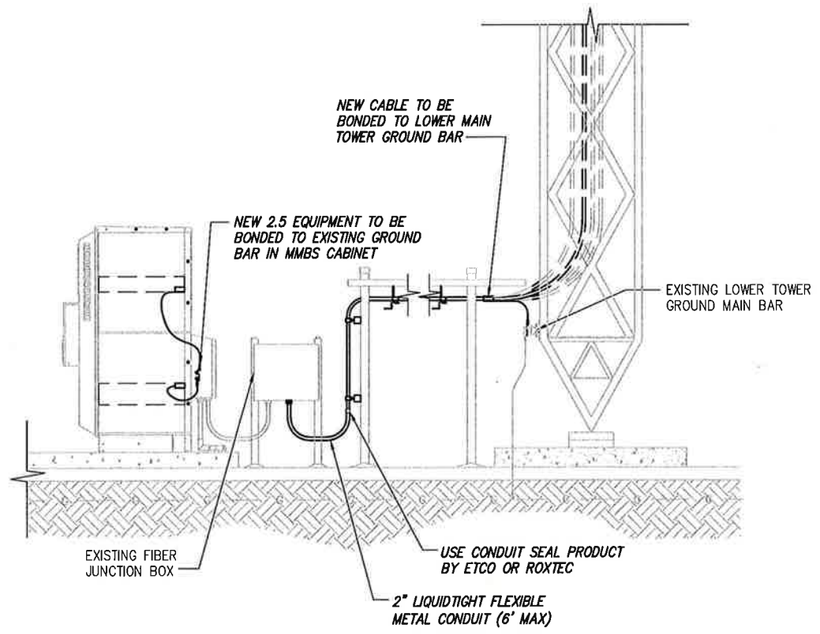
PLAN NOT USED | NO SCALE | 1

LEGEND:

- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- MECHANICAL CONNECTION
- GROUND ROD
- CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2



TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION) | NO SCALE | 3

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SITE ADDRESS:

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HAMDEN, CT 06518

SHEET DESCRIPTION:

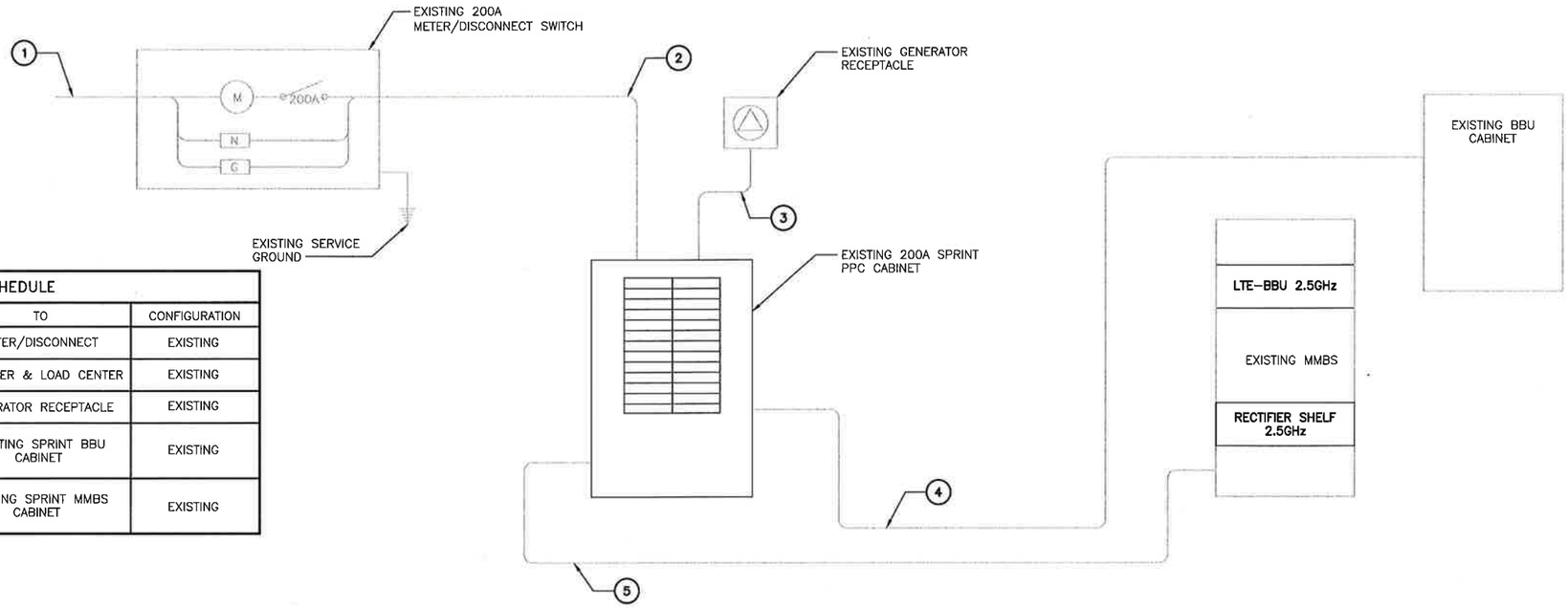
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

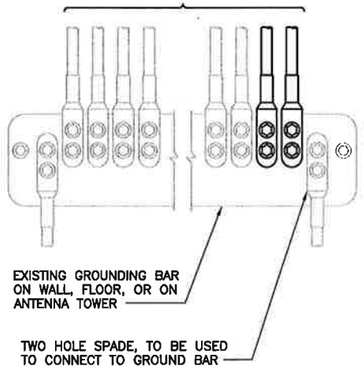
NOTES

CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/DISCONNECT	EXISTING
2	METER/DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	EXISTING SPRINT BBU CABINET	EXISTING
5	TRANSFER & LOAD CENTER	EXISTING SPRINT MMBS CABINET	EXISTING

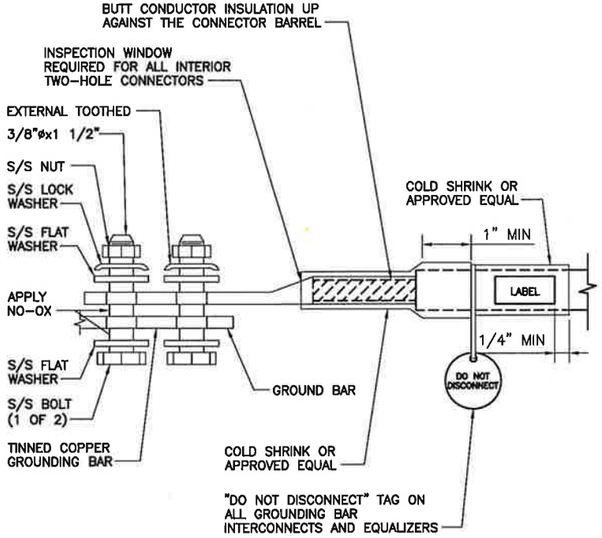
ELECTRICAL ONE–LINE DIAGRAM | NO SCALE | 1



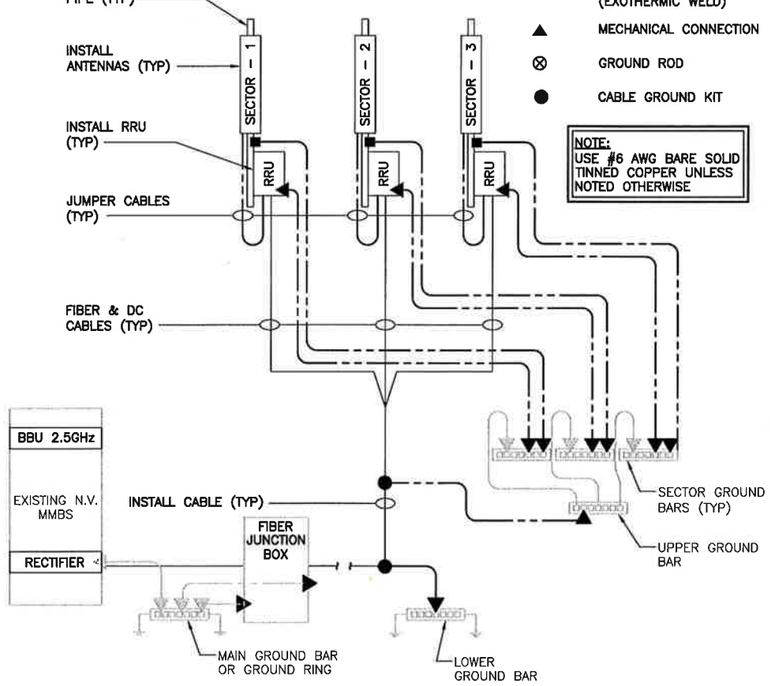
NOTES

1. APPLY NO–OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR | NO SCALE | 2



TWO HOLE LUG | NO SCALE | 3



GROUNDING RISER DIAGRAM | NO SCALE | 4

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SITE NAME:

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SITE CASCADE:

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SITE ADDRESS:

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HAMDEN, CT 06518

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2