Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

December 30, 2021

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

RE: **Notice of Exempt Modification for T-Mobile: CTNH082A**
Crown Site ID#876320
528 Wheelers Farm Road, Milford, CT 06460
Latitude: 41° 14′ 54.35″ / Longitude: -73° 4′ 44.67″

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 120-foot mount level on the existing 120-foot monopole tower, located at Wheelers Farm Road, Milford, CT. The property is owned by The Village Foundation Inc. The tower is owned by Crown Castle. T-Mobile now intends to replace six (6) antennas and ancillary equipment at the 120-ft level. This modification/proposal includes hardware that is both 4G (LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:
Tower:

Installed New:
(3) RFS- APXVAALL24_43-U-NA20 – Antennas
(3) Ericsson- AIR 6449 B41- Antennas
(3) Ericsson – Radio 4460 B25+B66
(3) Ericsson Radio 4480 B71+B85
(3) HYBRID Cable

Remove:
(3) Clearwire- LLPX310R -Antenna
(3) RFS/Cellwave- APXVTIM14-ALU-120- Antenna
(3) RFS/Cellwave- APXVSPP18-C-A20- Antenna
(1) Clearwire- PX2F-52 -Dish
(2) Clearwire- VHLP2-11
(6) Sprint- RRUs
(9) Sprint- TMAs
(4) Hybrid Cables

Ground:

Install New:
(1) 6160 Equipment Cabinet
(1.) B160 Battery Cabinet

(3.) BB 6648 IN (P) Cabinet
(1.) PSU 4813 Voltage Booster
(1.) IXRe Router IN 6160
(1) DUG20

Remove:

(1) MMBS Equipment Cabinet
(1.) BBU Equipment Cabinet

The facility was approved by the City of Milford Planning and Zoning Board on March 4, 1997 via a special permit Amendment. The approval was given with conditions which this exempt modification is in compliance with.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Benjamin Blake, Mayor, City of Milford, David Sulkis, City Planner, City of Milford, The Village Foundation Inc, Property Owner. Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication 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, T-Mobile respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

Jeffrey Barbadora
Site Acquisition Specialist
1800 W. Park Drive
Westborough, MA 01581
(781) 970-0053
Jeff.Barbadora@crowncastle.com

Attachments
cc:

Benjamin Blake, Mayor
City of Milford
110 River Street
Milford, CT 06460
203-783-3201

David Sulkis, City Planner
City of Milford
70 West River Street
Milford, CT 06460
203-783-3245

The Village Foundation Inc, Property Owner
528 Wheelers Farm Road
Milford, CT 06461

Crown Castle, Tower Owner.

City of Milford, Connecticut

THIS IS TO CERTIFY THAT Sprint PCS

WAS GRANTED A SPECIAL PERMIT AMENDMENT

BY THE MILFORD PLANNING & ZONING BOARD ON MARCH 4, 1997

FOR PROPERTY LOCATED AT 528 WHEELERS FARMS ROAD

MAP 104 BLOCK 915 PARCEL 13

IN THE CITY OF MILFORD, COUNTY OF NEW HAVEN, STATE OF CONNECTICUT

FOR WHICH VILLAGE FOUNDATION, INC. ARE THE OWNERS.

THE SPECIAL PERMIT AMENDMENT WAS GRANTED TO:

construct a 120' telecommunications monopole and antenna with ancillary support facilities, i.e., 10' graveled access drive and fenced equipment area 20' x 27', at 528 Wheelers Farms Road, aka Boys Village, parcel 13, block 915, Assessor's map 104, of which Village Foundation, Inc. is the owner. This approval shall be in accordance with plans prepared by O'Brien and Gere Engineers, Inc. Said plans consisting of three sheets, Title Sheet dated December, 1996; Site Plan dated 12/4/96; Detail Plan and Elevations dated 11/18/96. With the following stipulations: construction and site development shall comply with Inland Wetland Office letter dated 12/21/96 and Permit #IWJR96-080; Fire Department letter dated 1/21/97; Director of Public Works memo dated 2/4/97 and United Technologies Sikorsky Aircraft letter dated 4/1/97 RE: Review of Sikorsky Aircraft Corporation Flight Operations related to the proposed telecommunication monopole location.

"NO VARIANCE, SPECIAL PERMIT OR SPECIAL EXCEPTION GRANTED PURSUANT TO CHAPTER 124 OF ANY SPECIAL ACT SHALL BE EFFECTIVE UNTIL A COPY THEREOF...IS RECORDED IN THE LAND RECORDS OF THE TOWN IN WHICH SUCH PREMISES ARE LOCATED."
P.A. 75-317

RECORDED ~~6-12-97~~ 6-12-97

CITY CLERK REC. NO. 5163

Nº 10574

PLANNING & ZONING BOARD

BY: Wade E. Pierce

WADE E. PIERCE
EXECUTIVE SECRETARY

SPCERT (REV.5/96)

City of Milford, CT

Property Listing Report

Map Block Lot	104 915 13	Bldg #	1	Sec #	1	PID	21152	Account	019893

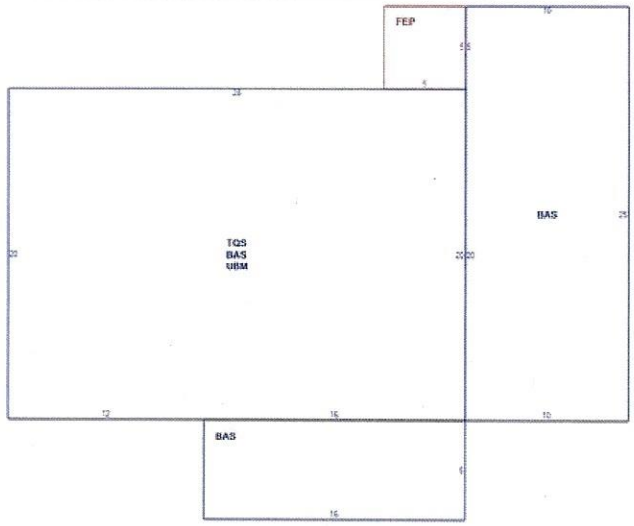
Property Information

Property Location	528 WHEELERS FARMS RD
Owner	VILLAGE FOUNDATION INC THE
Co-Owner	06-00
Mailing Address	528 WHEELERS FARM RD MILFORD CT 06461
Land Use	904R PVT SCHOOL MDL-01
Land Class	E
Zoning Code	DO25
Census Tract	

Neighborhood	GG
Acreage	11.34
Utilities	All Public,Public Sewer
Lot Setting/Desc	UNKNOWN UNKNOWN
Book / Page	00259/0563
Fire District	2

Photo

Sketch



Primary Construction Details

Year Built	1900
Building Desc.	PVT SCHOOL
Building Style	Conventional
Building Grade	Average
Stories	2
Occupancy	1.00
Exterior Walls	Vinyl Siding
Exterior Walls 2	NA
Roof Style	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Walls	Drywall/Sheet
Interior Walls 2	NA
Interior Floors 1	Carpet
Interior Floors 2	NA

Heating Fuel	Gas
Heating Type	Hot Water
AC Type	XF Per Sq Ft
Bedrooms	00
Full Bathrooms	0
Half Bathrooms	1
Extra Fixtures	0
Total Rooms	0
Bath Style	Updated
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	0

(*Industrial / Commercial Details)

Building Use	Residential
Building Condition	4
Sprinkler %	NA
Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
Wall Height	NA
First Floor Use	NA
Foundation	NA

Report Created On 12/29/2021

City of Milford, CT

Property Listing Report

Map Block Lot 104 915 13 | Bldg # 1 | Sec # 1 | PID 21152 | Account 019893

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	3208380	2245870
Extras	0	0
Improvements		
Outbuildings	52470	36730
Land	576960	403870
Total	3837810	2686470

Outbuilding and Extra Features

Type	Description
SHED FRAME	216 S.F.
SHED FRAME	192 S.F.
SHED FRAME	96 S.F.
OPN PRCH/SCRNHSE	120 S.F.
PAVING-ASPHALT	19000 S.F.
SHED FRAME	448 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	906	906
Porch, Enclosed, Finished	25	0
Three Quarter Story	560	504
Basement, Unfinished	560	0
Total Area	2051	1410

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
VILLAGE FOUNDATION INC THE	00259/0563	1942-05-15	0

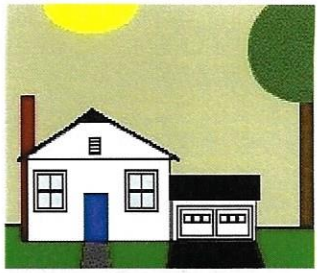
Report Created On 12/29/2021

City of Milford, CT

Property Listing Report

Map Block Lot	104 915 13	Bldg #	2	Sec #	1	PID	21152	Account	019893

Photo



Sketch

Primary Construction Details

Year Built	1983
Building Desc.	Commercial
Building Style	School/College
Building Grade	AVERAGE
Stories	1
Occupancy	1.00
Exterior Walls	Concr/Cinder
Exterior Walls 2	Pre-Fab Wood
Roof Style	Flat
Roof Cover	Tar & Gravel
Interior Walls	Drywall/Sheet
Interior Walls 2	NA
Interior Floors 1	Carpet
Interior Floors 2	Vinyl/Asphalt

Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	

(*Industrial / Commercial Details)

Building Use	PVT SCHOOL MDL-94
Building Condition	4
Sprinkler %	NA
Heat / AC	HEAT/AC SPLIT
Frame Type	STEEL
Baths / Plumbing	AVERAGE
Ceiling / Wall	SUS-CEIL & WL
Rooms / Prtns	AVERAGE
Wall Height	12.00
First Floor Use	NA
Foundation	NA

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	7807	7807
Porch, Enclosed, Finished	120	0
Deck, Wood	84	0

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	8011	7807

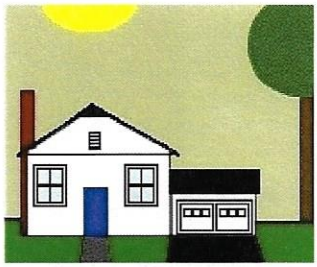
Report Created On 12/29/2021

City of Milford, CT

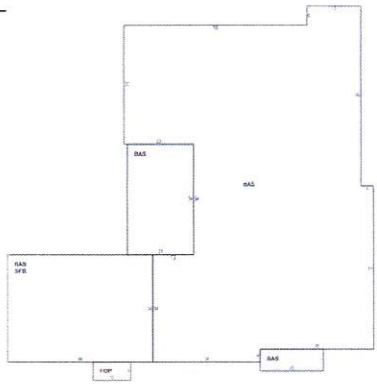
Property Listing Report

Map Block Lot	104 915 13	Bldg #	3	Sec #	1	PID	21152	Account	019893

Photo



Sketch



Primary Construction Details

Year Built	1957
Building Desc.	Commercial
Building Style	School/College
Building Grade	AVERAGE
Stories	1
Occupancy	1.00
Exterior Walls	Concr/Cinder
Exterior Walls 2	NA
Roof Style	Flat
Roof Cover	Tar & Gravel
Interior Walls	Minim/Masonry
Interior Walls 2	Drywall/Sheet
Interior Floors 1	Carpet
Interior Floors 2	Vinyl/Asphalt

Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	

(*Industrial / Commercial Details)

Building Use	PVT SCHOOL MDL-94
Building Condition	3
Sprinkler %	NA
Heat / AC	NONE
Frame Type	STEEL
Baths / Plumbing	AVERAGE
Ceiling / Wall	CEIL & MIN WL
Rooms / Prtns	AVERAGE
Wall Height	10.00
First Floor Use	NA
Foundation	NA

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	9417	9417
Porch, Open, Finished	72	0
Base, SL/RR-Finished	1564	0

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	11053	9417

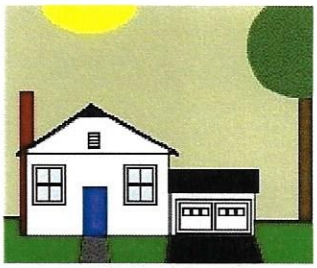
Report Created On 12/29/2021

City of Milford, CT

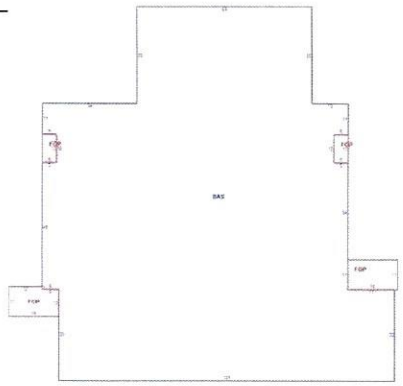
Property Listing Report

Map Block Lot	104 915 13	Bldg #	4	Sec #	1	PID	21152	Account	019893

Photo



Sketch



Primary Construction Details

Year Built	1989
Building Desc.	Commercial
Building Style	Auditorium
Building Grade	AVERAGE
Stories	1
Occupancy	1.00
Exterior Walls	Concr/Cinder
Exterior Walls 2	NA
Roof Style	Flat
Roof Cover	Tar & Gravel
Interior Walls	Minim/Masonry
Interior Walls 2	Drywall/Sheet
Interior Floors 1	Vinyl/Asphalt
Interior Floors 2	NA

Heating Fuel	Gas
Heating Type	Hydro-Air
AC Type	Central
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	

(*Industrial / Commercial Details)

Building Use	PVT SCHOOL MDL-94
Building Condition	3
Sprinkler %	NA
Heat / AC	HEAT/AC SPLIT
Frame Type	STEEL
Baths / Plumbing	AVERAGE
Ceiling / Wall	CEIL & MIN WL
Rooms / Prtns	AVERAGE
Wall Height	20.00
First Floor Use	NA
Foundation	NA

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	13232	13232
Porch, Open, Finished	490	0

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	13722	13232

Report Created On 12/29/2021

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Monday, January 3, 2022 8:57 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 775634770133: Your package has been delivered

Hi. Your package was delivered Mon, 01/03/2022 at 8:54am.

Delivered to 110 RIVER ST, MILFORD, CT 06460

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 775634770133

FROM Jeff Barbadora
1800 W. Park Drive
WESTBOROUGH, MA, US, 01581

TO	City of Milford Benjamin Blake, Mayor 110 River Street MILFORD, CT, US, 06460
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 12/30/2021 05:26 PM
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	MILFORD, CT, US, 06460
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Monday, January 3, 2022 8:54 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 775634786360: Your package has been delivered

Hi. Your package was delivered Mon, 01/03/2022 at 8:43am.

Delivered to 70 W RIVER ST, MILFORD, CT 06460
Received by T.HALL

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 775634786360

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	City of Milford David Sulkis, City Planner 70 West River Street MILFORD, CT, US, 06460
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 12/30/2021 05:26 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	MILFORD, CT, US, 06460
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, December 31, 2021 11:09 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 775634832271: Your package has been delivered

Hi. Your package was delivered Fri, 12/31/2021 at 11:07am.

Delivered to 528 WHEELERS FARMS RD, MILFORD, CT 06461
Received by K.KYLE

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 775634832271

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	The Village Foundation Inc Property Owner 528 Wheelers Farm Road MILFORD, CT, US, 06461
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 12/30/2021 05:26 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	MILFORD, CT, US, 06461
SPECIAL HANDLING	Residential Delivery
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Date: **September 28, 2021**

GPD Engineering and Architecture
Professional Corporation
520 South Main Street Suite 2531
Akron, Ohio 44311
(216) 927-8663

Subject:	**Structural Analysis Report**	
Carrier Designation:	**Site Number:**	CTNH082A
Crown Castle Designation:	**BU Number:**	876320
	Site Name:	528 WHEELERS FARM RD
	JDE Job Number:	650688
	Work Order Number:	2019808
	Order Number:	557900 Rev. 1
Engineering Firm Designation:	**GPD Project Number:**	2021777.876320.10
Site Data:	**528 Wheelers Farm Road, Milford, CT 06460, New Haven County** **Latitude 41° *14' 54.35"*, Longitude *-73° 4' 44.67"*** **120 Foot – Modified Monopole Tower**	

We are pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity – 81.1%**

This analysis utilizes an ultimate 3-second gust wind speed of 119 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Matt Steward

Respectfully submitted by:

9/28/2021

Christopher J. Scheks, P.E.
Connecticut #: 0030026

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 120 ft monopole tower designed by Semaan Engineering Solutions, Inc. in November of 2003.

The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	119 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
122.0	122.0	1		Platform Mount [LP 1201 HR-1]	3	1-5/8
	121.0	3	Ericsson	AIR6449 B41_T-MOBILE		
		3	RFS/Celwave	APXVAALL24_43-U-NA20_TMO		
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	Ericsson	Radio 4480_TMOV2		
75.0	76.0	1	Trimble	ACUTIME 2000	1	1/2
	75.0	1		Side Arm Mount [SO 701-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
113.0	116.0	3	Samsung Telecommunications	CBRS	8	1-5/8
	114.0	2	Commscope	JAHH-65B-R3B		
		2	Andrew	DB846F65ZAXY		
		4	Commscope	JAHH-45B-R3B		
		4	Antel	LPA-80063/4CF		
		3	Samsung Telecommunications	RFV01U-D2A		
		2	RFS/Celwave	DB-T1-6Z-8AB-0Z		
		3	Commscope	CBC78T-DS-43-2X		
		3	Samsung Telecommunications	RFV01U-D1A		
	113.0	1		Platform Mount [LP 305-1 KCKR HR-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
105.0	107.0	3	Ericsson	AIR 3246 B66	3 1	1-3/8 1-5/8
		3	RFS/Celwave	APXVARR24_43-U-NA20		
		3	Ericsson	AIR 32 B2A/B66AA		
		3	Ericsson	AIR6449 B41		
		3	Ericsson	RADIO 4449 B71/B85A		
		3	Ericsson	RRIS 4415 B25_CCIV2		
	105.0	1	Site Pro 1	RMQP-4096-HK		
97.0	98.0	3	Ericsson	AIR 6419 B77G	2	7/8
		3	Ericsson	AIR 6449 B77D		
		3	Quintel Technology	QD6616-7		
		2	Commsocpe	WCS-IMFQ-AMT		
		2	Ericsson	RRUS E2 B29		
	97.0	3	Ericsson	RRUS 32 B30		
		2	Raycap	DC6-48-60-18-8F		
		1		Side Arm Mount [SO 102-3]		
96.0	99.0	1		Handrail Kit [NA 507-1]	3 4 6	3/8 3/4 1-1/4
	98.0	3	Kathrein	80010965		
		1	Commscope	WCS-IMFQ-AMT		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRU 4478 B14		
		3	Ericsson	RRUS 8843 B2/B66A		
		1	Ericsson	RRUS E2 B29		
		1	Raycap	DC6-48-60-18-8F		
	96.0	1		Platform Mount [LP 712-1]		
86.0	86.0	3	JMA Wireless	MX08FRO665-21	1	1-3/8
		3	Fujitsu	TA08025-B604		
		3	Fujitsu	RA08025-B605		
		1	Raycap	RDIDC-9181-PF-48		
		1	Commscope	MC-PK8-DSH		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Geotechnical Report	1613534	CCIsites
Tower Foundation Drawings	1614583	CCIsites
Tower Manufacturer Drawings	1613579	CCIsites
Modification Design Drawings	1613579	CCIsites
Post Modification Inspection	3753892	CCIsites
Modification Design Drawings	2460630	CCIsites
Post Modification Inspection	2460628	CCIsites
Modification Design Drawings	3349207	CCIsites
Post Modification Inspection	3349204	CCIsites
Modification Design Drawings	3338935	CCIsites
Post Modification Inspection	3753892	CCIsites
Modification Design Drawings	4961357	CCIsites
Post Modification Inspection	5760332	CCIsites
Modification Design Drawings	5873963	CCIsites
Post Modification Inspection	6112300	CCIsites
Modification Design Drawings	8550831	CCIsites
Post Modification Inspection	8820087	CCIsites

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Caste has calculated and provided the effective area for panel antennas using approved methods following the intent of the of the TIA-222 standard.

3.1) Assumptions

1) The tower and structures were maintained in accordance with the TIA-222 standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions or items in Table 3 are not valid or have been made in error. GPD should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
120 - 115	Pole	TP23.01x22x0.25	Pole	5.3%	Pass
115 - 110	Pole	TP24.02x23.01x0.25	Pole	12.3%	Pass
110 - 105	Pole	TP25.031x24.02x0.25	Pole	19.3%	Pass
105 - 100	Pole	TP26.041x25.031x0.25	Pole	30.1%	Pass
100 - 99.25	Pole	TP26.192x26.041x0.25	Pole	31.5%	Pass
99.25 - 99	Pole + Reinf.	TP26.243x26.192x0.3563	Reinf. 14 Tension Rupture	28.7%	Pass
99 - 94	Pole + Reinf.	TP27.253x26.243x0.3563	Reinf. 14 Tension Rupture	38.9%	Pass
94 - 90.08	Pole + Reinf.	TP28.045x27.253x0.3125	Pole	46.9%	Pass
90.08 - 89.83	Pole + Reinf.	TP28.096x28.045x0.5125	Reinf. 11 Tension Rupture	39.1%	Pass
89.83 - 89.5	Pole + Reinf.	TP28.162x28.096x0.5125	Reinf. 11 Tension Rupture	39.6%	Pass
89.5 - 89.25	Pole + Reinf.	TP28.213x28.162x0.725	Reinf. 15 Tension Rupture	30.7%	Pass
89.25 - 84.25	Pole + Reinf.	TP29.223x28.213x0.7	Reinf. 15 Tension Rupture	37.4%	Pass
84.25 - 81.75	Pole + Reinf.	TP30.486x29.223x0.7	Reinf. 15 Tension Rupture	40.9%	Pass
81.75 - 77	Pole + Reinf.	TP30.188x29.228x0.8625	Reinf. 17 Tension Rupture	37.5%	Pass
77 - 76.75	Pole + Reinf.	TP30.239x30.188x0.8625	Reinf. 17 Tension Rupture	37.8%	Pass
76.75 - 76.5	Pole + Reinf.	TP30.289x30.239x0.9625	Reinf. 14 Tension Rupture	35.5%	Pass
76.5 - 75.5	Pole + Reinf.	TP30.491x30.289x0.9625	Reinf. 14 Tension Rupture	36.5%	Pass
75.5 - 75.25	Pole + Reinf.	TP30.542x30.491x0.7625	Reinf. 17 Tension Rupture	42.0%	Pass
75.25 - 74.5	Pole + Reinf.	TP30.693x30.542x0.7625	Reinf. 17 Tension Rupture	42.8%	Pass
74.5 - 74.25	Pole + Reinf.	TP30.744x30.693x0.8375	Reinf. 17 Tension Rupture	45.2%	Pass
74.25 - 72	Pole + Reinf.	TP31.198x30.744x0.825	Reinf. 17 Tension Rupture	47.6%	Pass
72 - 71.75	Pole + Reinf.	TP31.249x31.198x0.7625	Reinf. 17 Tension Rupture	45.7%	Pass
71.75 - 70.5	Pole + Reinf.	TP31.501x31.249x0.7625	Reinf. 17 Tension Rupture	46.9%	Pass
70.5 - 70.25	Pole + Reinf.	TP31.552x31.501x0.7875	Reinf. 17 Tension Rupture	47.0%	Pass
70.25 - 70	Pole + Reinf.	TP31.602x31.552x0.7875	Reinf. 17 Tension Rupture	47.2%	Pass
70 - 69.75	Pole + Reinf.	TP31.653x31.602x0.725	Reinf. 17 Tension Rupture	49.0%	Pass
69.75 - 69.5	Pole + Reinf.	TP31.703x31.653x0.875	Reinf. 4 Tension Rupture	41.6%	Pass
69.5 - 69.25	Pole + Reinf.	TP31.754x31.703x0.75	Reinf. 4 Tension Rupture	46.6%	Pass
69.25 - 64.25	Pole + Reinf.	TP32.764x31.754x0.7375	Reinf. 4 Tension Rupture	51.2%	Pass
64.25 - 59.25	Pole + Reinf.	TP33.774x32.764x0.7125	Reinf. 4 Tension Rupture	55.5%	Pass
59.25 - 56	Pole + Reinf.	TP34.431x33.774x0.7125	Reinf. 4 Tension Rupture	58.2%	Pass
56 - 55.75	Pole + Reinf.	TP34.481x34.431x0.8125	Reinf. 7 Tension Rupture	56.0%	Pass
55.75 - 55.5	Pole + Reinf.	TP34.532x34.481x0.8125	Reinf. 7 Tension Rupture	56.2%	Pass
55.5 - 55.25	Pole + Reinf.	TP34.582x34.532x0.8875	Reinf. 7 Tension Rupture	50.6%	Pass
55.25 - 54	Pole + Reinf.	TP34.835x34.582x0.875	Reinf. 7 Tension Rupture	51.5%	Pass
54 - 53.75	Pole + Reinf.	TP34.885x34.835x0.75	Reinf. 7 Tension Rupture	59.1%	Pass
53.75 - 53.5	Pole + Reinf.	TP34.936x34.885x0.7375	Reinf. 7 Tension Rupture	59.3%	Pass
53.5 - 53.25	Pole + Reinf.	TP34.986x34.936x0.6625	Reinf. 4 Tension Rupture	63.7%	Pass
53.25 - 53	Pole + Reinf.	TP35.037x34.986x0.6	Reinf. 12 Tension Rupture	65.8%	Pass
53 - 48	Pole + Reinf.	TP36.047x35.037x0.5875	Reinf. 12 Tension Rupture	70.0%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
48 - 44.5	Pole + Reinf.	TP37.714x36.047x0.5875	Reinf. 12 Tension Rupture	72.8%	Pass
44.5 - 38.75	Pole + Reinf.	TP37.291x36.129x0.6625	Reinf. 4 Tension Rupture	71.1%	Pass
38.75 - 34.75	Pole + Reinf.	TP38.099x37.291x0.6625	Reinf. 4 Tension Rupture	73.5%	Pass
34.75 - 34.5	Pole + Reinf.	TP38.15x38.099x0.825	Reinf. 3 Tension Rupture	58.9%	Pass
34.5 - 33.75	Pole + Reinf.	TP38.301x38.15x0.825	Reinf. 3 Tension Rupture	59.3%	Pass
33.75 - 33.5	Pole + Reinf.	TP38.352x38.301x0.625	Reinf. 6 Tension Rupture	73.0%	Pass
33.5 - 28.5	Pole + Reinf.	TP39.362x38.352x0.6125	Reinf. 6 Tension Rupture	75.5%	Pass
28.5 - 24	Pole + Reinf.	TP40.271x39.362x0.6625	Reinf. 3 Tension Rupture	77.8%	Pass
24 - 23.75	Pole + Reinf.	TP40.322x40.271x0.7	Reinf. 3 Tension Rupture	74.3%	Pass
23.75 - 18.75	Pole + Reinf.	TP41.332x40.322x0.6875	Reinf. 3 Tension Rupture	76.6%	Pass
18.75 - 14.25	Pole + Reinf.	TP42.241x41.332x0.675	Reinf. 3 Tension Rupture	78.6%	Pass
14.25 - 14	Pole + Reinf.	TP42.291x42.241x0.775	Reinf. 3 Tension Rupture	68.4%	Pass
14 - 9	Pole + Reinf.	TP43.302x42.291x0.7625	Reinf. 3 Tension Rupture	70.2%	Pass
9 - 5	Pole + Reinf.	TP44.11x43.302x0.75	Reinf. 3 Tension Rupture	71.6%	Pass
5 - 4.75	Pole + Reinf.	TP44.16x44.11x0.9	Reinf. 3 Tension Rupture	65.2%	Pass
4.75 - 4.5	Pole + Reinf.	TP44.211x44.16x0.75	Reinf. 5 Tension Rupture	68.0%	Pass
4.5 - 0	Pole + Reinf.	TP45.12x44.211x0.75	Reinf. 5 Tension Rupture	69.5%	Pass
				Summary	
			Pole	58.4%	Pass
			Reinforcement	78.6%	Pass
			Overall	78.6%	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	0	64.0	Pass
1,2	Baseplate	0	48.1	Pass
1,2	Base Foundation Structural	0	81.1	Pass
1,2	Base Foundation Soil Interaction	0	50.7	Pass

Structure Rating (max from all components) =	81.1%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Ratings per TIA-222-H, Section 15.5.

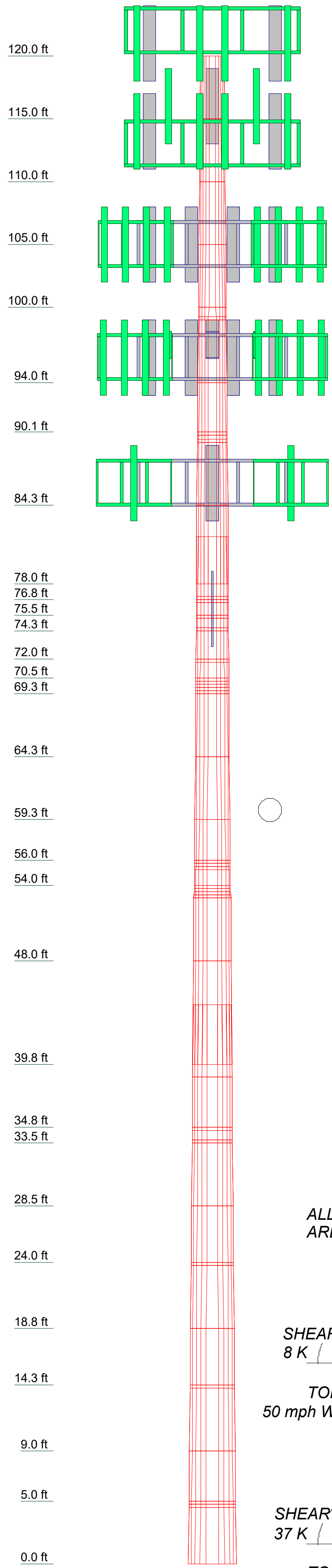
4.1) Recommendations

The tower and foundations have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	12	0.2500		22.0000	23.0102	A607-60	0.3
2	5.00	12	0.2500		23.0102	24.0205	A607-60	0.3
3	5.00	12	0.2500		24.0205	25.0307	A607-60	0.3
4	5.00	12	0.2500		25.0307	26.0410	A607-60	0.3
7	5.00	12	[illegible]		[illegible]	[illegible]	A607-60	0.5
8	3.92	12	[illegible]		[illegible]	[illegible]	A607-60	0.4
12	5.00	12	0.7000		[illegible]	[illegible]	A607-60	1.0
13	6.25	12	0.7000	3.75	29.2232	30.4860	A607-60	1.3
29	5.00	12	[illegible]		[illegible]	[illegible]	A607-60	1.2
30	5.00	12	0.7125		32.7640	33.7742	A607-60	1.3
31	3.25	12	[illegible]		[illegible]	[illegible]	A607-60	0.8
40	5.00	12	[illegible]		[illegible]	[illegible]	A607-60	1.2
41	8.25	12	0.5875	4.75	36.0472	37.7140	A607-60	2.1
42	[illegible]	12	[illegible]		[illegible]	[illegible]	A607-60	1.5
43	4.00	12	[illegible]		[illegible]	[illegible]	A607-60	1.0
47	5.00	12	[illegible]		[illegible]	[illegible]	A607-60	1.3
48	4.50	12	0.6625		[illegible]	[illegible]	A607-60	1.2
49	0.25	12	[illegible]		[illegible]	[illegible]	A607-60	0.1
50	5.00	12	[illegible]		[illegible]	[illegible]	A607-60	1.4
51	4.50	12	0.6750		[illegible]	[illegible]	A607-60	1.3
52	0.25	12	[illegible]		[illegible]	[illegible]	A607-60	0.1
53	5.00	12	[illegible]		[illegible]	[illegible]	A607-60	1.7
54	4.00	12	0.7500		[illegible]	[illegible]	A607-60	1.4
57	4.50	12	[illegible]		[illegible]	[illegible]	A607-60	1.7
								29.0

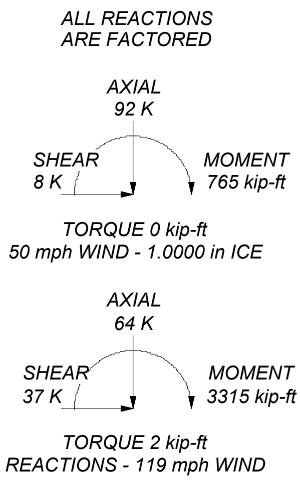


MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi			

TOWER DESIGN NOTES

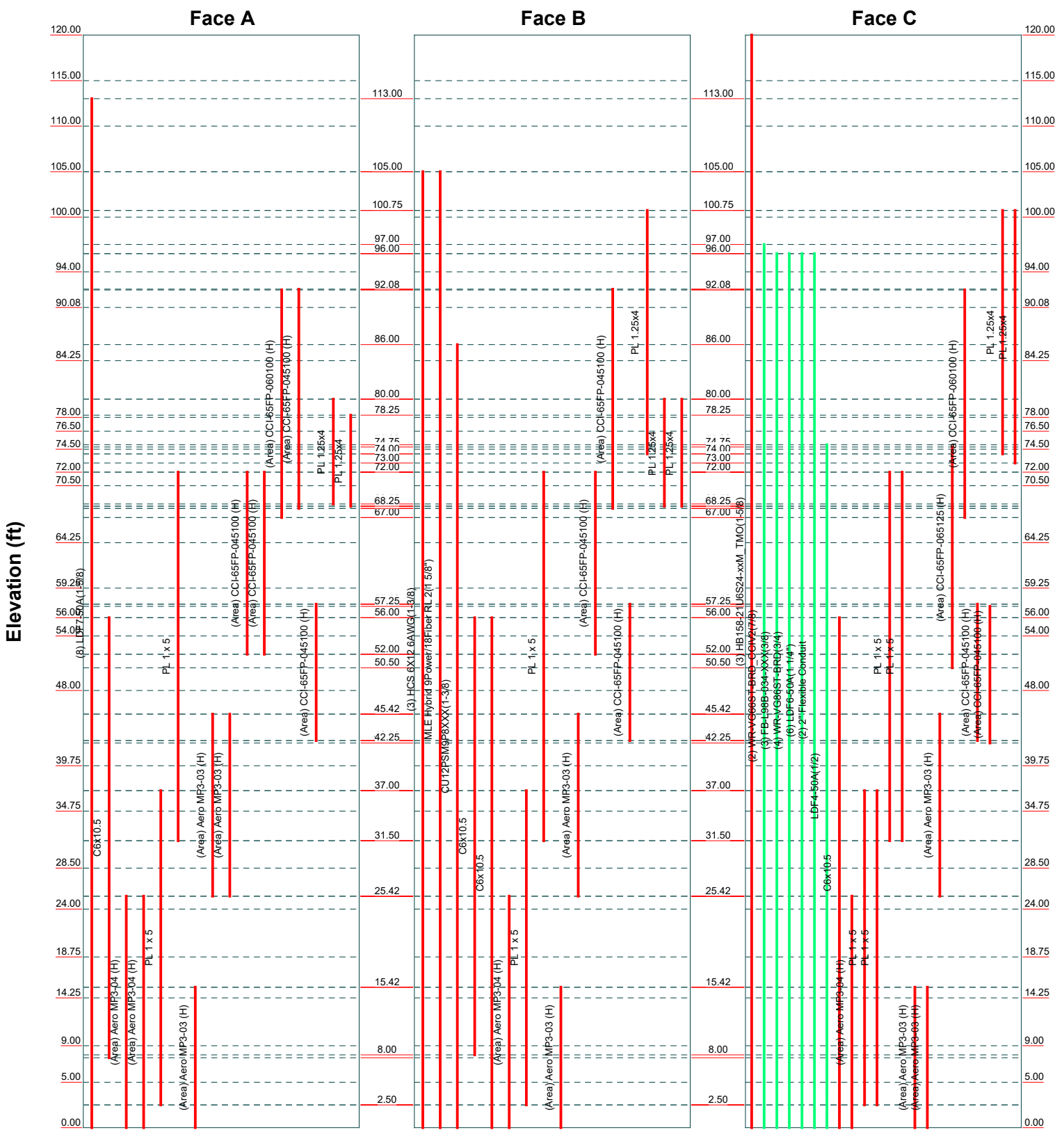
1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 119 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft



GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job: **528 WHEELERS FARM RD BU #: 876320**		
	Project: **2021777.876320.10**		
	Client: Crown Castle	Drawn by: msteward	App'd:
	Code: TIA-222-H	Date: 09/28/21	Scale: NTS
	Path: T:\Crown\876320\10\5_Structural\00_Structure\00_Rev 0\03_Modeling\876320 MOD.eri		Dwg No. E-1

Feed Line Distribution Chart
0' - 120'

Round | Flat | App In Face | App Out Face | Truss Leg



GPD
520 South Main Street Suite 2531
Akron, Ohio 44311
Phone: (330) 572-2100
FAX: (330) 572-2101

Job: **528 WHEELERS FARM RD BU #: 876320**		
Project: **2021777.876320.10**		
Client: Crown Castle	Drawn by: msteward	App'd:
Code: TIA-222-H	Date: 09/28/21	Scale: NTS
Path: T:\Crown\876320\10\5_Structural\00_Structure\00_Rev 0\03_Modeling\876320 MOD.eri		Dwg No. E-7

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 213.00 ft.
Basic wind speed of 119 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 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.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
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-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H 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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	120.00-115.00	5.00	0.00	12	22.0000	23.0102	0.2500	1.0000	A607-60 (60 ksi)
L2	115.00-110.00	5.00	0.00	12	23.0102	24.0205	0.2500	1.0000	A607-60 (60 ksi)
L3	110.00-105.00	5.00	0.00	12	24.0205	25.0307	0.2500	1.0000	A607-60 (60 ksi)
L4	105.00-100.00	5.00	0.00	12	25.0307	26.0410	0.2500	1.0000	A607-60 (60 ksi)
L5	100.00-99.25	0.75	0.00	12	26.0410	26.1925	0.2500	1.0000	A607-60 (60 ksi)
L6	99.25-99.00	0.25	0.00	12	26.1925	26.2430	0.3563	1.4250	A607-60 (60 ksi)
L7	99.00-94.00	5.00	0.00	12	26.2430	27.2532	0.3563	1.4250	A607-60 (60 ksi)
L8	94.00-90.08	3.92	0.00	12	27.2532	28.0453	0.3125	1.2500	A607-60 (60 ksi)
L9	90.08-89.83	0.25	0.00	12	28.0453	28.0958	0.5125	2.0500	A607-60 (60 ksi)
L10	89.83-89.50	0.33	0.00	12	28.0958	28.1625	0.5125	2.0500	A607-60 (60 ksi)
L11	89.50-89.25	0.25	0.00	12	28.1625	28.2130	0.7250	2.9000	A607-60 (60 ksi)
L12	89.25-84.25	5.00	0.00	12	28.2130	29.2232	0.7000	2.8000	A607-60 (60 ksi)
L13	84.25-78.00	6.25	3.75	12	29.2232	30.4860	0.7000	2.8000	A607-60 (60 ksi)
L14	78.00-77.00	4.75	0.00	12	29.2283	30.1880	0.8625	3.4500	A607-60 (60 ksi)
L15	77.00-76.75	0.25	0.00	12	30.1880	30.2385	0.8625	3.4500	A607-60 (60 ksi)
L16	76.75-76.50	0.25	0.00	12	30.2385	30.2890	0.9625	3.8500	A607-60 (60 ksi)
L17	76.50-75.50	1.00	0.00	12	30.2890	30.4911	0.9625	3.8500	A607-60 (60 ksi)
L18	75.50-75.25	0.25	0.00	12	30.4911	30.5416	0.7625	3.0500	A607-60 (60 ksi)
L19	75.25-74.50	0.75	0.00	12	30.5416	30.6931	0.7625	3.0500	A607-60 (60 ksi)
L20	74.50-74.25	0.25	0.00	12	30.6931	30.7436	0.8375	3.3500	A607-60 (60 ksi)
L21	74.25-72.00	2.25	0.00	12	30.7436	31.1982	0.8250	3.3000	A607-60 (60 ksi)
L22	72.00-71.75	0.25	0.00	12	31.1982	31.2487	0.7625	3.0500	A607-60 (60 ksi)
L23	71.75-70.50	1.25	0.00	12	31.2487	31.5013	0.7625	3.0500	A607-60 (60 ksi)
L24	70.50-70.25	0.25	0.00	12	31.5013	31.5518	0.7875	3.1500	A607-60 (60 ksi)
L25	70.25-70.00	0.25	0.00	12	31.5518	31.6023	0.7875	3.1500	A607-60 (60 ksi)
L26	70.00-69.75	0.25	0.00	12	31.6023	31.6528	0.7250	2.9000	A607-60 (60 ksi)
L27	69.75-69.50	0.25	0.00	12	31.6528	31.7033	0.8750	3.5000	A607-60 (60 ksi)
L28	69.50-69.25	0.25	0.00	12	31.7033	31.7538	0.7500	3.0000	A607-60 (60 ksi)
L29	69.25-64.25	5.00	0.00	12	31.7538	32.7640	0.7375	2.9500	A607-60 (60 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L30	64.25-59.25	5.00	0.00	12	32.7640	33.7742	0.7125	2.8500	A607-60 (60 ksi)
L31	59.25-56.00	3.25	0.00	12	33.7742	34.4309	0.7125	2.8500	A607-60 (60 ksi)
L32	56.00-55.75	0.25	0.00	12	34.4309	34.4814	0.8125	3.2500	A607-60 (60 ksi)
L33	55.75-55.50	0.25	0.00	12	34.4814	34.5319	0.8125	3.2500	A607-60 (60 ksi)
L34	55.50-55.25	0.25	0.00	12	34.5319	34.5824	0.8875	3.5500	A607-60 (60 ksi)
L35	55.25-54.00	1.25	0.00	12	34.5824	34.8349	0.8750	3.5000	A607-60 (60 ksi)
L36	54.00-53.75	0.25	0.00	12	34.8349	34.8854	0.7500	3.0000	A607-60 (60 ksi)
L37	53.75-53.50	0.25	0.00	12	34.8854	34.9360	0.7375	2.9500	A607-60 (60 ksi)
L38	53.50-53.25	0.25	0.00	12	34.9360	34.9865	0.6625	2.6500	A607-60 (60 ksi)
L39	53.25-53.00	0.25	0.00	12	34.9865	35.0370	0.6000	2.4000	A607-60 (60 ksi)
L40	53.00-48.00	5.00	0.00	12	35.0370	36.0472	0.5875	2.3500	A607-60 (60 ksi)
L41	48.00-39.75	8.25	4.75	12	36.0472	37.7140	0.5875	2.3500	A607-60 (60 ksi)
L42	39.75-38.75	5.75	0.00	12	36.1293	37.2910	0.6625	2.6500	A607-60 (60 ksi)
L43	38.75-34.75	4.00	0.00	12	37.2910	38.0992	0.6625	2.6500	A607-60 (60 ksi)
L44	34.75-34.50	0.25	0.00	12	38.0992	38.1497	0.8250	3.3000	A607-60 (60 ksi)
L45	34.50-33.75	0.75	0.00	12	38.1497	38.3012	0.8250	3.3000	A607-60 (60 ksi)
L46	33.75-33.50	0.25	0.00	12	38.3012	38.3517	0.6250	2.5000	A607-60 (60 ksi)
L47	33.50-28.50	5.00	0.00	12	38.3517	39.3619	0.6125	2.4500	A607-60 (60 ksi)
L48	28.50-24.00	4.50	0.00	12	39.3619	40.2711	0.6625	2.6500	A607-60 (60 ksi)
L49	24.00-23.75	0.25	0.00	12	40.2711	40.3216	0.7000	2.8000	A607-60 (60 ksi)
L50	23.75-18.75	5.00	0.00	12	40.3216	41.3318	0.6875	2.7500	A607-60 (60 ksi)
L51	18.75-14.25	4.50	0.00	12	41.3318	42.2410	0.6750	2.7000	A607-60 (60 ksi)
L52	14.25-14.00	0.25	0.00	12	42.2410	42.2915	0.7750	3.1000	A607-60 (60 ksi)
L53	14.00-9.00	5.00	0.00	12	42.2915	43.3017	0.7625	3.0500	A607-60 (60 ksi)
L54	9.00-5.00	4.00	0.00	12	43.3017	44.1098	0.7500	3.0000	A607-60 (60 ksi)
L55	5.00-4.75	0.25	0.00	12	44.1098	44.1603	0.9000	3.6000	A607-60 (60 ksi)
L56	4.75-4.50	0.25	0.00	12	44.1603	44.2108	0.7500	3.0000	A607-60 (60 ksi)
L57	4.50-0.00	4.50		12	44.2108	45.1200	0.7500	3.0000	A607-60 (60 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	22.6879	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	23.7338	18.3220	1211.4688	8.1482	11.9193	101.6392	2454.7642	9.0175	5.4967	21.987
L2	23.7338	18.3220	1211.4688	8.1482	11.9193	101.6392	2454.7642	9.0175	5.4967	21.987
	24.7796	19.1352	1380.0521	8.5098	12.4426	110.9134	2796.3597	9.4178	5.7675	23.07
L3	24.7796	19.1352	1380.0521	8.5098	12.4426	110.9134	2796.3597	9.4178	5.7675	23.07
	25.8255	19.9485	1563.5915	8.8715	12.9659	120.5925	3168.2602	9.8180	6.0382	24.153
L4	25.8255	19.9485	1563.5915	8.8715	12.9659	120.5925	3168.2602	9.8180	6.0382	24.153
	26.8714	20.7617	1762.7226	9.2332	13.4892	130.6765	3571.7539	10.2183	6.3090	25.236
L5	26.8714	20.7617	1762.7226	9.2332	13.4892	130.6765	3571.7539	10.2183	6.3090	25.236
	27.0283	20.8837	1793.9763	9.2874	13.5677	132.2240	3635.0824	10.2783	6.3496	25.398
L6	26.9908	29.6374	2525.1346	9.2494	13.5677	186.1136	5116.6073	14.5866	6.0648	17.024
	27.0431	29.6953	2539.9741	9.2675	13.5939	186.8470	5146.6761	14.6151	6.0784	17.062
L7	27.0431	29.6953	2539.9741	9.2675	13.5939	186.8470	5146.6761	14.6151	6.0784	17.062
	28.0890	30.8542	2849.0997	9.6291	14.1172	201.8179	5773.0484	15.1855	6.3491	17.822
L8	28.1044	27.1091	2511.4256	9.6448	14.1172	177.8986	5088.8291	13.3423	6.4664	20.692
	28.9244	27.9061	2739.5003	9.9283	14.5274	188.5741	5550.9703	13.7345	6.6786	21.372
L9	28.8538	45.4359	4396.2782	9.8567	14.5274	302.6188	8908.0515	22.3622	6.1426	11.986
	28.9061	45.5193	4420.5190	9.8748	14.5536	303.7403	8957.1699	22.4032	6.1562	12.012
L10	28.9061	45.5193	4420.5190	9.8748	14.5536	303.7403	8957.1699	22.4032	6.1562	12.012
	28.9751	45.6293	4452.6530	9.8987	14.5882	305.2240	9022.2822	22.4574	6.1740	12.047
L11	28.9002	64.0527	6154.7608	9.8226	14.5882	421.9014	12471.2140	31.5248	5.6045	7.73
	28.9525	64.1707	6188.8159	9.8407	14.6143	423.4763	12540.2188	31.5828	5.6181	7.749
L12	28.9613	62.0142	5991.7270	9.8496	14.6143	409.9903	12140.8633	30.5215	5.6851	8.122
	30.0072	64.2913	6676.2826	10.2113	15.1376	441.0392	13527.9586	31.6422	5.9558	8.508
L13	30.0072	64.2913	6676.2826	10.2113	15.1376	441.0392	13527.9586	31.6422	5.9558	8.508
	31.3145	67.1376	7602.8499	10.6634	15.7917	481.4445	15405.4352	33.0431	6.2942	8.992
L14	30.7395	78.7790	8090.7172	10.1550	15.1403	534.3839	16393.9865	38.7726	5.5217	6.402
	30.9487	81.4443	8940.0038	10.4985	15.6374	571.7069	18114.8714	40.0844	5.7789	6.7
L15	30.9487	81.4443	8940.0038	10.4985	15.6374	571.7069	18114.8714	40.0844	5.7789	6.7
	31.0010	81.5846	8986.2779	10.5166	15.6636	573.7062	18208.6354	40.1534	5.7924	6.716
L16	30.9657	90.7337	9926.1017	10.4808	15.6636	633.7069	20112.9732	44.6564	5.5244	5.74
	31.0180	90.8903	9977.5670	10.4989	15.6897	635.9303	20217.2558	44.7334	5.5380	5.754
L17	31.0180	90.8903	9977.5670	10.4989	15.6897	635.9303	20217.2558	44.7334	5.5380	5.754
	31.2271	91.5164	10185.2070	10.5712	15.7944	644.8629	20637.9908	45.0416	5.5921	5.81
L18	31.2977	72.9911	8233.8657	10.6428	15.7944	521.3163	16684.0443	35.9240	6.1281	8.037
	31.3500	73.1151	8275.9061	10.6609	15.8205	523.1115	16769.2294	35.9850	6.1416	8.055
L19	31.3500	73.1151	8275.9061	10.6609	15.8205	523.1115	16769.2294	35.9850	6.1416	8.055
	31.5069	73.4871	8402.8851	10.7152	15.8990	528.5155	17026.5234	36.1681	6.1823	8.108
L20	31.4804	80.5131	9160.1911	10.6883	15.8990	576.1477	18561.0307	39.6261	5.9813	7.142
	31.5327	80.6493	9206.7617	10.7064	15.9252	578.1255	18655.3953	39.6931	5.9948	7.158
L21	31.5371	79.4788	9080.7244	10.7109	15.9252	570.2112	18400.0095	39.1171	6.0283	7.307
	32.0077	80.6864	9500.9689	10.8736	16.1607	587.9067	19251.5388	39.7114	6.1501	7.455
L22	32.0298	74.7273	8835.5183	10.8960	16.1607	546.7296	17903.1554	36.7785	6.3176	8.285
	32.0821	74.8513	8879.5806	10.9141	16.1868	548.5680	17992.4377	36.8395	6.3312	8.303
L23	32.0821	74.8513	8879.5806	10.9141	16.1868	548.5680	17992.4377	36.8395	6.3312	8.303
	32.3435	75.4714	9102.0909	11.0045	16.3177	557.8062	18443.3039	37.1447	6.3988	8.392
L24	32.3347	77.8824	9377.6023	10.9955	16.3177	574.6904	19001.5647	38.3314	6.3318	8.04
	32.3870	78.0105	9423.9440	11.0136	16.3438	576.6059	19095.4654	38.3944	6.3454	8.058
L25	32.3870	78.0105	9423.9440	11.0136	16.3438	576.6059	19095.4654	38.3944	6.3454	8.058
	32.4393	78.1386	9470.4380	11.0317	16.3700	578.5245	19189.6749	38.4574	6.3589	8.075
L26	32.4613	72.0830	8771.9753	11.0541	16.3700	535.8572	17774.4002	35.4771	6.5264	9.002
	32.5136	72.2010	8815.0942	11.0722	16.3962	537.6319	17861.7707	35.5351	6.5400	9.021
L27	32.4607	86.7165	10484.8600	11.0185	16.3962	639.4708	21245.1690	42.6792	6.1380	7.015
	32.5130	86.8588	10536.5655	11.0365	16.4223	641.6005	21349.9382	42.7492	6.1515	7.03
L28	32.5571	74.7522	9141.6464	11.0813	16.4223	556.6600	18523.4541	36.7908	6.4865	8.649
	32.6094	74.8742	9186.4718	11.0994	16.4485	558.4998	18614.2825	36.8508	6.5000	8.667
L29	32.6138	73.6560	9044.2945	11.1038	16.4485	549.8560	18326.1927	36.2512	6.5335	8.859
	33.6596	76.0550	9957.1061	11.4655	16.9718	586.6866	20175.7964	37.4319	6.8043	9.226
L30	33.6685	73.5342	9642.1218	11.4744	16.9718	568.1273	19537.5530	36.1913	6.8713	9.644

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	34.7143	75.8519	10582.8599	11.8361	17.4950	604.9061	21443.7433	37.3320	7.1420	10.024
L31	34.7143	75.8519	10582.8599	11.8361	17.4950	604.9061	21443.7433	37.3320	7.1420	10.024
	35.3941	77.3583	11226.0160	12.0712	17.8352	629.4310	22746.9518	38.0734	7.3180	10.271
L32	35.3588	87.9540	12688.0358	12.0354	17.8352	711.4050	25709.4005	43.2883	7.0500	8.677
	35.4111	88.0862	12745.3113	12.0535	17.8613	713.5695	25825.4561	43.3533	7.0635	8.694
L33	35.4111	88.0862	12745.3113	12.0535	17.8613	713.5695	25825.4561	43.3533	7.0635	8.694
	35.4634	88.2183	12802.7589	12.0715	17.8875	715.7374	25941.8606	43.4184	7.0770	8.71
L34	35.4369	96.1472	13891.4444	12.0447	17.8875	776.6003	28147.8326	47.3207	6.8760	7.748
	35.4892	96.2915	13954.1037	12.0628	17.9137	778.9638	28274.7972	47.3918	6.8896	7.763
L35	35.4936	94.9705	13772.8839	12.0672	17.9137	768.8476	27907.5968	46.7416	6.9231	7.912
	35.7551	95.6821	14084.7860	12.1577	18.0445	780.5587	28539.5950	47.0918	6.9908	7.989
L36	35.7992	82.3151	12206.4766	12.2024	18.0445	676.4654	24733.6309	40.5130	7.3258	9.768
	35.8515	82.4371	12260.8229	12.2205	18.0707	678.4934	24843.7513	40.5730	7.3393	9.786
L37	35.8559	81.0928	12069.7255	12.2250	18.0707	667.9184	24456.5362	39.9114	7.3728	9.997
	35.9082	81.2128	12123.3636	12.2430	18.0968	669.9167	24565.2216	39.9705	7.3863	10.015
L38	35.9347	73.1138	10962.2876	12.2699	18.0968	605.7576	22212.5667	35.9844	7.5873	11.453
	35.9869	73.2216	11010.8256	12.2880	18.1230	607.5613	22310.9178	36.0374	7.6009	11.473
L39	36.0090	66.4346	10026.6417	12.3104	18.1230	553.2555	20316.6944	32.6971	7.7684	12.947
	36.0613	66.5322	10070.8908	12.3284	18.1492	554.8960	20406.3551	32.7451	7.7819	12.97
L40	36.0657	65.1698	9871.8226	12.3329	18.1492	543.9275	20002.9891	32.0746	7.8154	13.303
	37.1115	67.0808	10765.9850	12.6946	18.6724	576.5711	21814.8045	33.0151	8.0861	13.764
L41	37.1115	67.0808	10765.9850	12.6946	18.6724	576.5711	21814.8045	33.0151	8.0861	13.764
	38.8372	70.2341	12356.6777	13.2913	19.5359	632.5129	25037.9792	34.5671	8.5329	14.524
L42	38.1636	75.6596	12147.7010	12.6971	18.7150	649.0896	24614.5357	37.2373	7.9072	11.935
	38.3728	78.1378	13380.9245	13.1130	19.3168	692.7109	27113.3808	38.4571	8.2185	12.405
L43	38.3728	78.1378	13380.9245	13.1130	19.3168	692.7109	27113.3808	38.4571	8.2185	12.405
	39.2095	79.8618	14286.2978	13.4023	19.7354	723.8929	28947.9126	39.3055	8.4351	12.732
L44	39.1521	99.0189	17559.8208	13.3442	19.7354	889.7637	35580.9576	48.7341	7.9996	9.696
	39.2044	99.1530	17631.3024	13.3622	19.7615	892.2029	35725.7988	48.8001	8.0131	9.713
L45	39.2044	99.1530	17631.3024	13.3622	19.7615	892.2029	35725.7988	48.8001	8.0131	9.713
	39.3613	99.5556	17846.9108	13.4165	19.8400	899.5405	36162.6799	48.9982	8.0537	9.762
L46	39.4319	75.8234	13738.0077	13.4881	19.8400	692.4388	27836.9282	37.3180	8.5897	13.744
	39.4842	75.9250	13793.3342	13.5062	19.8662	694.3118	27949.0346	37.3680	8.6033	13.765
L47	39.4886	74.4312	13530.9082	13.5106	19.8662	681.1022	27417.2883	36.6328	8.6368	14.101
	40.5344	76.4235	14646.8238	13.8723	20.3895	718.3522	29678.4360	37.6133	8.9075	14.543
L48	40.5168	82.5555	15781.2354	13.8544	20.3895	773.9894	31977.0614	40.6313	8.7735	13.243
	41.4580	84.4950	16919.8227	14.1799	20.8604	811.0968	34284.1479	41.5859	9.0172	13.611
L49	41.4448	89.1932	17826.8191	14.1664	20.8604	854.5761	36121.9685	43.8982	8.9167	12.738
	41.4971	89.3071	17895.1700	14.1845	20.8866	856.7780	36260.4660	43.9542	8.9302	12.757
L50	41.5015	87.7400	17592.2531	14.1890	20.8866	842.2751	35646.6743	43.1830	8.9637	13.038
	42.5473	89.9763	18971.9986	14.5507	21.4099	886.1335	38442.4128	44.2836	9.2344	13.432
L51	42.5517	88.3675	18644.2445	14.5551	21.4099	870.8249	37778.2941	43.4918	9.2679	13.73
	43.4929	90.3436	19923.1959	14.8806	21.8808	910.5326	40369.7963	44.4644	9.5116	14.091
L52	43.4577	103.4783	22710.0799	14.8448	21.8808	1037.8991	46016.7789	50.9289	9.2436	11.927
	43.5100	103.6043	22793.1702	14.8629	21.9070	1040.4524	46185.1423	50.9909	9.2571	11.945
L53	43.5144	101.9640	22445.8005	14.8674	21.9070	1024.5958	45481.2771	50.1836	9.2906	12.184
	44.5602	104.4443	24123.9459	15.2290	22.4303	1075.5090	48881.6547	51.4043	9.5613	12.539
L54	44.5646	102.7623	23749.3951	15.2335	22.4303	1058.8106	48122.7133	50.5765	9.5948	12.793
	45.4013	104.7139	25128.4211	15.5228	22.8489	1099.7659	50916.9937	51.5370	9.8114	13.082
L55	45.3484	125.2220	29842.2391	15.4691	22.8489	1306.0700	60468.4670	61.6305	9.4094	10.455
	45.4006	125.3684	29947.0124	15.4872	22.8750	1309.1564	60680.7662	61.7025	9.4230	10.47
L56	45.4536	104.8359	25216.3391	15.5409	22.8750	1102.3514	51095.1395	51.5971	9.8250	13.1
	45.5058	104.9579	25304.4619	15.5590	22.9012	1104.9400	51273.7003	51.6571	9.8385	13.118
L57	45.5058	104.9579	25304.4619	15.5590	22.9012	1104.9400	51273.7003	51.6571	9.8385	13.118
	46.4471	107.1536	26925.9709	15.8845	23.3722	1152.0532	54559.3170	52.7377	10.0822	13.443

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
L1 120.00-115.00				1	1	1			
L2 115.00-110.00				1	1	1			
L3 110.00-105.00				1	1	1			
L4 105.00-100.00				1	1	1			
L5 100.00-99.25				1	1	1			
L6 99.25-99.00				1	1	1.04187			
L7 99.00-94.00				1	1	1.0291			
L8 94.00-90.08				1	1	1.16066			
L9 90.08-89.83				1	1	1.02045			
L10 89.83-89.50				1	1	1.01917			
L11 89.50-89.25				1	1	0.912595			
L12 89.25-84.25				1	1	0.923531			
L13 84.25-78.00				1	1	0.913676			
L14 78.00-77.00				1	1	0.996207			
L15 77.00-76.75				1	1	0.995117			
L16 76.75-76.50				1	1	0.948882			
L17 76.50-75.50				1	1	0.944612			
L18 75.50-75.25				1	1	1.04608			
L19 75.25-74.50				1	1	1.04286			
L20 74.50-74.25				1	1	0.888787			
L21 74.25-72.00				1	1	0.894048			
L22 72.00-71.75				1	1	1.07313			
L23 71.75-70.50				1	1	1.06768			
L24 70.50-70.25				1	1	1.09135			
L25 70.25-70.00				1	1	1.09021			
L26 70.00-69.75				1	1	1.11122			
L27 69.75-69.50				1	1	0.981926			
L28 69.50-69.25				1	1	0.979276			
L29 69.25-64.25				1	1	0.977438			
L30 64.25-59.25				1	1	0.993457			
L31 59.25-56.00				1	1	0.982651			
L32				1	1	1.01703			

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
56.00-55.75									
L33				1	1	1.01608			
55.75-55.50									
L34				1	1	0.978222			
55.50-55.25									
L35				1	1	0.987109			
55.25-54.00									
L36				1	1	1.03699			
54.00-53.75									
L37				1	1	1.05325			
53.75-53.50									
L38				1	1	1.10735			
53.50-53.25									
L39				1	1	1.09715			
53.25-53.00									
L40				1	1	1.10333			
53.00-48.00									
L41				1	1	1.09216			
48.00-39.75									
L42				1	1	0.976499			
39.75-38.75									
L43				1	1	0.967639			
38.75-34.75									
L44				1	1	0.981987			
34.75-34.50									
L45				1	1	0.979855			
34.50-33.75									
L46				1	1	1.02183			
33.75-33.50									
L47				1	1	1.03112			
33.50-28.50									
L48				1	1	0.945617			
28.50-24.00									
L49				1	1	0.949621			
24.00-23.75									
L50				1	1	0.956115			
23.75-18.75									
L51				1	1	0.964379			
18.75-14.25									
L52				1	1	0.954431			
14.25-14.00									
L53 14.00-9.00				1	1	0.958435			
L54 9.00-5.00				1	1	0.965286			
L55 5.00-4.75				1	1	0.910959			
L56 4.75-4.50				1	1	1.04098			
L57 4.50-0.00				1	1	1.0299			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
HB158-21U6S24-xxM_T MO(1-5/8)	C	No	Surface Ar (CaAa)	120.00 - 0.00	3	3	0.000 0.000	1.9960		2.50
LDF7-50A(1-5/8)	A	No	Surface Ar (CaAa)	113.00 - 0.00	8	6	0.250 0.250	1.9800		0.82

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
HCS 6X12 6AWG(1-3/8)	B	No	Surface Ar (CaAa)	105.00 - 0.00	3	3	-0.250 -0.250	1.3800		1.70
MLE Hybrid 9Power/18Fiber RL 2(1 5/8")	B	No	Surface Ar (CaAa)	105.00 - 0.00	1	1	-0.220 -0.220	1.6250		1.07
CU12PSM9P8XXX(1-3/8)	B	No	Surface Ar (CaAa)	86.00 - 0.00	1	1	0.000 0.000	1.4110		1.66
C6x10.5	A	No	Surface Af (CaAa)	56.00 - 7.67	1	1	0.000 0.000	6.0000	16.0600	10.50
C6x10.5	B	No	Surface Af (CaAa)	56.00 - 8.00	1	1	-0.250 -0.250	6.0000	16.0600	10.50
C6x10.5	B	No	Surface Af (CaAa)	56.00 - 0.00	1	1	0.500 0.500	6.0000	16.0600	10.50
C6x10.5	C	No	Surface Af (CaAa)	56.00 - 0.00	1	1	0.500 0.500	6.0000	16.0600	10.50
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	25.42 - 0.00	1	1	-0.250 -0.250	4.7800	12.7800	0.00
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	25.42 - 0.00	1	1	0.250 0.250	4.7800	12.7800	0.00
(Area) Aero MP3-04 (H)	B	No	Surface Af (CaAa)	25.42 - 0.00	1	1	0.250 0.250	4.7800	12.7800	0.00
(Area) Aero MP3-04 (H)	C	No	Surface Af (CaAa)	25.42 - 0.00	1	1	-0.250 -0.250	4.7800	12.7800	0.00
PL 1 x 5	A	No	Surface Af (CaAa)	37.00 - 2.50	1	1	0.500 0.500	5.0000	12.0000	0.00
PL 1 x 5	B	No	Surface Af (CaAa)	37.00 - 2.50	1	1	0.000 0.000	5.0000	12.0000	0.00
PL 1 x 5	C	No	Surface Af (CaAa)	37.00 - 2.50	1	1	0.000 0.000	5.0000	12.0000	0.00
PL 1 x 5	C	No	Surface Af (CaAa)	37.00 - 2.50	1	1	0.500 0.500	5.0000	12.0000	0.00
PL 1 x 5	A	No	Surface Af (CaAa)	72.00 - 31.50	1	1	0.500 0.500	5.0000	12.0000	0.00
PL 1 x 5	B	No	Surface Af (CaAa)	72.00 - 31.50	1	1	0.000 0.000	5.0000	12.0000	0.00
PL 1 x 5	C	No	Surface Af (CaAa)	72.00 - 31.50	1	1	0.000 0.000	5.0000	12.0000	0.00
PL 1 x 5	C	No	Surface Af (CaAa)	72.00 - 31.50	1	1	0.500 0.500	5.0000	12.0000	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	15.42 - 0.00	1	1	0.500 0.500	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	B	No	Surface Af (CaAa)	15.42 - 0.00	1	1	0.000 0.000	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	C	No	Surface Af (CaAa)	15.42 - 0.00	1	1	0.000 0.000	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	C	No	Surface Af (CaAa)	15.42 - 0.00	1	1	0.500 0.500	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	45.42 - 25.42	1	1	-0.250 -0.250	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	45.42 - 25.42	1	1	0.250 0.250	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	B	No	Surface Af (CaAa)	45.42 - 25.42	1	1	0.250 0.250	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	C	No	Surface Af (CaAa)	45.42 - 25.42	1	1	-0.250 -0.250	4.0600	11.2600	0.00
(Area) CCI-65FP-045100 (H)	A	No	Surface Af (CaAa)	72.00 - 52.00	1	1	-0.250 -0.250	4.5000	11.0000	0.00
(Area) CCI-65FP-045100 (H)	A	No	Surface Af (CaAa)	72.00 - 52.00	1	1	0.250 0.250	4.5000	11.0000	0.00
(Area) CCI-65FP-045100	B	No	Surface Af	72.00 -	1	1	0.250	4.5000	11.0000	0.00

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
(H)			(CaAa)	52.00			0.250			
(Area) CCI-65FP-065125	C	No	Surface Af	74.75 -	1	1	-0.250	6.5000	15.5000	0.00
(H)			(CaAa)	50.50			-0.250			
(Area) CCI-65FP-060100	A	No	Surface Af	92.00 -	1	1	0.000	6.0000	14.0000	0.00
(H)			(CaAa)	67.00			0.000			
(Area) CCI-65FP-060100	C	No	Surface Af	92.00 -	1	1	0.250	6.0000	14.0000	0.00
(H)			(CaAa)	67.00			0.250			
(Area) CCI-65FP-045100	A	No	Surface Af	92.08 -	1	1	0.250	4.5000	11.0000	0.00
(H)			(CaAa)	68.00			0.250			
(Area) CCI-65FP-045100	B	No	Surface Af	92.08 -	1	1	0.250	4.5000	11.0000	0.00
(H)			(CaAa)	68.00			0.250			
(Area) CCI-65FP-045100	A	No	Surface Af	57.50 -	1	1	0.500	4.5000	11.0000	0.00
(H)			(CaAa)	42.50			0.500			
(Area) CCI-65FP-045100	B	No	Surface Af	57.50 -	1	1	0.000	4.5000	11.0000	0.00
(H)			(CaAa)	42.50			0.000			
(Area) CCI-65FP-045100	C	No	Surface Af	57.50 -	1	1	-0.250	4.5000	11.0000	0.00
(H)			(CaAa)	42.50			-0.250			
(Area) CCI-65FP-045100	C	No	Surface Af	57.25 -	1	1	0.500	4.5000	11.0000	0.00
(H)			(CaAa)	42.25			0.500			
PL 1.25x4	B	No	Surface Af	100.75 -	1	1	0.000	4.0000	10.5000	0.00
			(CaAa)	74.00			0.000			
PL 1.25x4	C	No	Surface Af	100.75 -	1	1	0.500	4.0000	10.5000	0.00
			(CaAa)	74.00			0.500			
PL 1.25x4	C	No	Surface Af	100.75 -	1	1	-0.250	4.0000	10.5000	0.00
			(CaAa)	73.00			-0.250			
PL 1.25x4	A	No	Surface Af	80.00 -	1	1	-0.250	4.0000	10.5000	0.00
			(CaAa)	68.50			-0.250			
PL 1.25x4	A	No	Surface Af	78.25 -	1	1	0.500	4.0000	10.5000	0.00
			(CaAa)	68.25			0.500			
PL 1.25x4	B	No	Surface Af	80.00 -	1	1	-0.250	4.0000	10.5000	0.00
			(CaAa)	68.25			-0.250			
PL 1.25x4	B	No	Surface Af	80.00 -	1	1	0.500	4.0000	10.5000	0.00
			(CaAa)	68.25			0.500			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
WR-VG66ST-BRD_	C	No	No	Inside Pole	97.00 - 0.00	2	No Ice	0.00	0.88
CCIV2(7/8)							1/2" Ice	0.00	0.88
							1" Ice	0.00	0.88
FB-L98B-034-XXX(	C	No	No	Inside Pole	96.00 - 0.00	3	No Ice	0.00	0.06
3/8)							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
WR-VG86ST-BRD(	C	No	No	Inside Pole	96.00 - 0.00	4	No Ice	0.00	0.58
3/4)							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
LDF6-50A(1 1/4")	C	No	No	Inside Pole	96.00 - 0.00	6	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
2" Flexible Conduit	C	No	No	Inside Pole	96.00 - 0.00	2	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
LDF4-50A(1/2)	C	No	No	Inside Pole	75.00 - 0.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15

Discrete Tower Loads

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 K
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 -1.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.18 0.31 0.45
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 -1.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.18 0.31 0.45
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 -1.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.18 0.31 0.45
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 -1.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 -1.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 -1.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23
RADIO 4480_TMOV2	A	From Centroid-Leg	4.00 0.00 -1.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	2.88 3.09 3.31	1.40 1.56 1.73	0.08 0.10 0.13
RADIO 4480_TMOV2	B	From Centroid-Leg	4.00 0.00 -1.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	2.88 3.09 3.31	1.40 1.56 1.73	0.08 0.10 0.13
RADIO 4480_TMOV2	C	From Centroid-Leg	4.00 0.00 -1.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	2.88 3.09 3.31	1.40 1.56 1.73	0.08 0.10 0.13
RADIO 4460 B2/B25 B66_TMO	A	From Centroid-Leg	4.00 0.00 -1.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.69 1.85 2.02	0.11 0.13 0.16
RADIO 4460 B2/B25 B66_TMO	B	From Centroid-Leg	4.00 0.00 -1.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.69 1.85 2.02	0.11 0.13 0.16
RADIO 4460 B2/B25 B66_TMO	C	From Centroid-Leg	4.00 0.00 -1.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.69 1.85 2.02	0.11 0.13 0.16
6' x 2" Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
Platform Mount [LP 1201-1_HR-1]	C	None		0.0000	122.00	No Ice 1/2" Ice 1" Ice	26.39 31.40 36.20	26.39 31.40 36.20	2.36 3.06 3.86
CBRS w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 3.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	1.45 1.67 1.90	0.99 1.18 1.39	0.03 0.05 0.07
CBRS w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 3.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	1.45 1.67 1.90	0.99 1.18 1.39	0.03 0.05 0.07

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 K
CBRS w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 3.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	1.45 1.67 1.90	0.99 1.18 1.39	0.03 0.05 0.07
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	5.50 5.97 6.45	4.38 4.84 5.30	0.10 0.17 0.25
(2) JAHH-45B-R3B w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	8.26 8.83 9.41	4.39 4.91 5.43	0.12 0.20 0.29
(2) JAHH-45B-R3B w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	8.26 8.83 9.41	4.39 4.91 5.43	0.12 0.20 0.29
(2) DB846F65ZAXY w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	6.10 6.80 7.51	6.81 7.52 8.24	0.06 0.12 0.19
(2) LPA-80063/4CF w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	6.38 6.78 7.19	6.60 7.23 7.88	0.04 0.10 0.18
(2) LPA-80063/4CF w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	6.38 6.78 7.19	6.60 7.23 7.88	0.04 0.10 0.18
(2) RFV01U-D1A	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	0.00 2.05 2.22	1.25 1.39 1.54	0.08 0.10 0.12
RFV01U-D1A	C	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	0.00 2.05 2.22	1.25 1.39 1.54	0.08 0.10 0.12
(2) RFV01U-D2A	B	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	0.00 2.05 2.22	1.01 1.14 1.28	0.07 0.09 0.11
RFV01U-D2A	C	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	0.00 2.05 2.22	1.01 1.14 1.28	0.07 0.09 0.11
DB-T1-6Z-8AB-0Z	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	4.80 5.07 5.35	2.00 2.19 2.39	0.04 0.08 0.12
DB-T1-6Z-8AB-0Z	B	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	4.80 5.07 5.35	2.00 2.19 2.39	0.04 0.08 0.12
CBC78T-DS-43-2X	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	0.37 0.45 0.53	0.51 0.60 0.70	0.02 0.03 0.04
CBC78T-DS-43-2X	B	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	0.37 0.45 0.53	0.51 0.60 0.70	0.02 0.03 0.04
CBC78T-DS-43-2X	C	From Centroid-Leg	4.00 0.00 1.00	0.0000	113.00	No Ice 1/2" Ice 1" Ice	0.37 0.45 0.53	0.51 0.60 0.70	0.02 0.03 0.04
Platform Mount [LP 305-1_KCKR-HR-1]	C	None		0.0000	113.00	No Ice 1/2" Ice 1" Ice	30.81 38.70 46.63	30.81 38.70 46.63	1.64 2.20 2.88
AIR 3246 B66 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	7.31 7.89 8.48	5.46 6.00 6.57	0.20 0.27 0.34
AIR 3246 B66 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	7.31 7.89 8.48	5.46 6.00 6.57	0.20 0.27 0.34

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 K
AIR 3246 B66 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	7.31 7.89 8.48	5.46 6.00 6.57	0.20 0.27 0.34
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.19 0.31 0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.19 0.31 0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.19 0.31 0.46
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	3.76 4.12 4.48	3.15 3.49 3.84	0.19 0.25 0.32
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	3.76 4.12 4.48	3.15 3.49 3.84	0.19 0.25 0.32
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	3.76 4.12 4.48	3.15 3.49 3.84	0.19 0.25 0.32
AIR6449 B41 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	5.18 5.59 6.01	2.72 3.05 3.39	0.12 0.16 0.22
AIR6449 B41 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	5.18 5.59 6.01	2.72 3.05 3.39	0.12 0.16 0.22
AIR6449 B41 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	5.18 5.59 6.01	2.72 3.05 3.39	0.12 0.16 0.22
RADIO 4449 B71/B85A	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.31 1.46 1.61	0.07 0.09 0.11
RADIO 4449 B71/B85A	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.31 1.46 1.61	0.07 0.09 0.11
RADIO 4449 B71/B85A	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.31 1.46 1.61	0.07 0.09 0.11
RRUS 4415 B25_CCIV2	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.82 0.94 1.07	0.05 0.06 0.08
RRUS 4415 B25_CCIV2	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.82 0.94 1.07	0.05 0.06 0.08
RRUS 4415 B25_CCIV2	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.82 0.94 1.07	0.05 0.06 0.08
SitePro1 RMQP-4096-HK	C	None		0.0000	105.00	No Ice 1/2" Ice 1" Ice	23.14 28.17 33.23	21.40 26.44 31.60	1.95 2.34 2.85
AIR 6419 B77G w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	4.32 4.74 5.17	2.49 2.84 3.21	0.08 0.11 0.15
AIR 6419 B77G w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	4.32 4.74 5.17	2.49 2.84 3.21	0.08 0.11 0.15

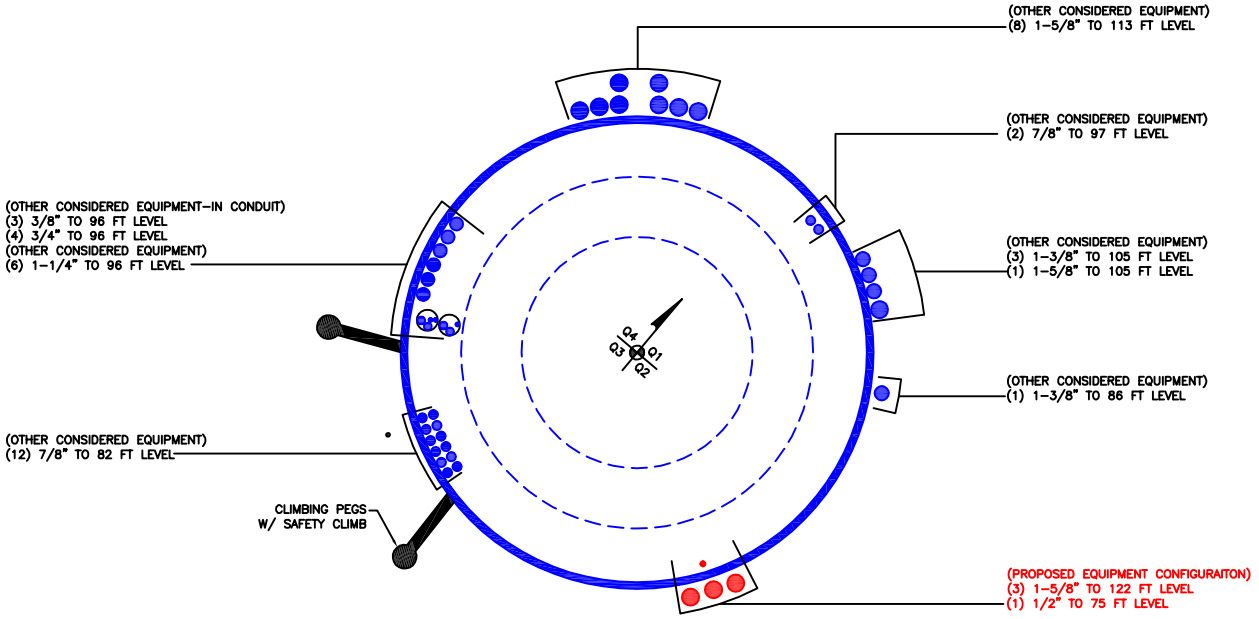
Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
AIR 6419 B77G w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	4.32 4.74 5.17	2.49 2.84 3.21	0.08 0.11 0.15
AIR 6449 B77D w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	3.58 3.92 4.27	2.31 2.60 2.91	0.09 0.13 0.17
AIR 6449 B77D w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	3.58 3.92 4.27	2.31 2.60 2.91	0.09 0.13 0.17
AIR 6449 B77D w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	3.58 3.92 4.27	2.31 2.60 2.91	0.09 0.13 0.17
QD4616-7 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	9.44 9.85 10.27	5.42 6.00 6.59	0.12 0.20 0.28
QD4616-7 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	9.44 9.85 10.27	5.42 6.00 6.59	0.12 0.20 0.28
QD4616-7 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	9.44 9.85 10.27	5.42 6.00 6.59	0.12 0.20 0.28
WCS-IMFQ-AMT	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	0.99 1.11 1.25	0.64 0.75 0.86	0.03 0.04 0.05
WCS-IMFQ-AMT	B	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	0.99 1.11 1.25	0.64 0.75 0.86	0.03 0.04 0.05
RRUS 32 B30	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	2.69 2.91 3.14	1.57 1.76 1.95	0.06 0.08 0.10
RRUS 32 B30	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	2.69 2.91 3.14	1.57 1.76 1.95	0.06 0.08 0.10
RRUS 32 B30	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	2.69 2.91 3.14	1.57 1.76 1.95	0.06 0.08 0.10
RRUS E2 B29	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	0.06 0.08 0.11
RRUS E2 B29	C	From Centroid-Leg	4.00 0.00 1.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	0.06 0.08 0.11
DC6-48-60-18-8F	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	2.20 2.40 2.60	2.20 2.40 2.60	0.02 0.04 0.07
DC6-48-60-18-8F	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	97.00	No Ice 1/2" Ice 1" Ice	2.20 2.40 2.60	2.20 2.40 2.60	0.02 0.04 0.07
Side Arm Mount [SO 102-3]	C	None		0.0000	97.00	No Ice 1/2" Ice 1" Ice	3.60 4.18 4.75	3.60 4.18 4.75	0.07 0.11 0.14
80010965 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	12.26 13.03 13.80	5.79 6.47 7.17	0.14 0.23 0.33
80010965 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	12.26 13.03 13.80	5.79 6.47 7.17	0.14 0.23 0.33

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 K
80010965 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	12.26 13.03 13.80	5.79 6.47 7.17	0.14 0.23 0.33
WCS-IMFQ-AMT	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	0.99 1.11 1.25	0.64 0.75 0.86	0.03 0.04 0.05
RRUS 4449 B5/B12	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11
RRUS 4449 B5/B12	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11
RRUS 4449 B5/B12	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11
RRUS 4478 B14	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	1.06 1.20 1.34	0.06 0.08 0.09
RRUS 4478 B14	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	1.06 1.20 1.34	0.06 0.08 0.09
RRUS 4478 B14	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	1.06 1.20 1.34	0.06 0.08 0.09
RRUS 8843 B2/B66A	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.35 1.50 1.65	0.07 0.09 0.11
RRUS 8843 B2/B66A	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.35 1.50 1.65	0.07 0.09 0.11
RRUS 8843 B2/B66A	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.35 1.50 1.65	0.07 0.09 0.11
RRUS E2 B29	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	0.06 0.08 0.11
DC6-48-60-18-8F	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	2.20 2.40 2.60	2.20 2.40 2.60	0.02 0.04 0.07
(2) L 2-1/2x2-1/2x3/16 (40" Long)	A	From Centroid-Leg	2.00 0.00 0.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	0.83 1.07 1.32	0.05 0.08 0.12	0.01 0.02 0.03
(2) L 2-1/2x2-1/2x3/16 (40" Long)	B	From Centroid-Leg	2.00 0.00 0.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	0.83 1.07 1.32	0.05 0.08 0.12	0.01 0.02 0.03
(2) L 2-1/2x2-1/2x3/16 (40" Long)	C	From Centroid-Leg	2.00 0.00 0.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice	0.83 1.07 1.32	0.05 0.08 0.12	0.01 0.02 0.03
Platform Mount [LP 712-1]	C	None		0.0000	96.00	No Ice 1/2" Ice 1" Ice	24.56 27.92 31.27	24.56 27.92 31.27	1.34 1.91 2.55
Miscellaneous [NA 507-1]	C	None		0.0000	99.00	No Ice 1/2" Ice 1" Ice	4.56 6.39 8.18	4.56 6.39 8.18	0.25 0.31 0.40
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29

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 K
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	2.56 2.76 2.97	1.34 1.49 1.66	0.02 0.04 0.07
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
Commscope MC-PK8-DSH	C	None		0.0000	86.00	No Ice 1/2" Ice 1" Ice	34.24 62.95 91.66	34.24 62.95 91.66	1.75 2.10 2.45
ACUTIME 2000	A	From Leg	3.00 0.00 1.00	0.0000	75.00	No Ice 1/2" Ice 1" Ice	0.26 0.32 0.39	0.26 0.32 0.39	0.00 0.00 0.01
Side Arm Mount [SO 701-1]	A	From Leg	1.50 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice 1" Ice	0.85 1.14 1.43	1.67 2.34 3.01	0.07 0.08 0.09

APPENDIX B

BASE LEVEL DRAWING



CROWN REGION ADDRESS

USA

	WMW	LR	NJ	SLW	SK	ST	CJL	WJT	DJ
22/10/19	UPDATED PER WORK ORDER 1802912								
10/06/20	UPDATED PER WORK ORDER 1860371,1826190								
18/06/20	UPDATED PER WORK ORDER 1862065								
23/07/20	UPDATED PER WORK ORDER 1873878								
29/10/20	UPDATED PER WORK ORDER 1880267								
28/04/21	UPDATED PER WORK ORDER 1902803								
03/08/21	UPDATED PER WORK ORDER 1903373								
12/08/21	UPDATED PER WORK ORDER 2006530								
07/09/21	UPDATED PER WORK ORDER 2019806								

DRAWN BY: BRK
CHECKED BY: ASK
DRAWING DATE: 01/02/08

SITE NUMBER:
SITE NAME:

SITE NAME

528 WHEELERS FARM RD

BUSINESS UNIT NUMBER

876320

SITE ADDRESS

528 WHEELERS FARM ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY
USA

SHEET TITLE

BASE LEVEL DRAWING

SHEET NUMBER

N.T.S.

A1-0

PLOT DATE: 6/24/2016

FILE NAME: 876320_BASELEVEL.DWG

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876320

Work Order: 2019808

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	120	42	3.75	12	22	30.486	0.25	Auto	A607-60
2	81.75	42	4.75	12	29.23	37.714	0.3125	Auto	A607-60
3	44.5	44.5	0	12	36.13	45.12	0.375	Auto	A607-60

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	0	4.75	plate	(TS) 1.25x4.00 (65ksi)	3			0		0						0	
2	0	24	channel	MP3-04 (1.25in)	4			0		0				0		0	
3	4.75	34.75	plate	PL 1" X 5"	4		3				-3		-4				-3.3
4	33.75	69.75	plate	PL 1" X 5"	4		-2.5				2.5		2.5				2.5
5	0	14.25	channel	MP3-03 (1.25in)	4		-1.8				1.5		1.5				1.75
6	24	44.25	channel	MP3-03 (1.25in)	4			0		0				0		0	
7	53.5	70.5	plate	CCI-SFP-045100	1											2.25	
8	53.25	72	plate	CCI-SFP-065125	1			0									
9	54	70	plate	CCI-AFP-045100	2					0				0			
10	69.5	89.5	plate	CCI-AFP-060100	2	0									0		
11	70	90.08	plate	CCI-AFP-045100	2					0				0			
12	44	56	plate	CCI-SFP-045100	3			3			-3		-3				
13	43.75	55.5	plate	CCI-SFP-045100	1												-3
14	74.5	99.25	plate	PL 1.25" X 4"	1			0									
15	75.5	99.25	plate	PL 1.25" X 4"	1						0						
16	75.5	99.25	plate	PL 1.25" X 4"	1												0
17	69.75	78.5	plate	PL 1.25" X 4"	2				0			0					
18	70	78.5	plate	PL 1.25" X 4"	1											-2	
19	69.75	76.75	plate	PL 1.25" X 4"	1								-3				
20	0	5	plate	(TS) 1.25x6.00	1										0		
21	0	5	plate	(TS) 1.25x6.00 (mod)	1							0					
22																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	1.25	4	5	2	Welded	n/a	Welded	n/a	6.000	5.000	0.0000	A572-65
2	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.566	1.2500	A572-65
3	5	1	5	0.5	PC 8.8 - M20 (100)	27	PC 8.8 - M20 (100)	27.000	18.000	3.750	1.1875	A572-65
4	5	1	5	0.5	PC 8.8 - M20 (100)	27	PC 8.8 - M20 (100)	27.000	18.000	3.750	1.1875	A572-65
5	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.526	1.2500	A572-65
6	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.526	1.2500	A572-65
7	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.000	3.250	1.1875	A572-65
8	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
9	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	20.000	3.250	1.1875	A572-65
10	6	1	6	0.5	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	16.000	4.750	1.1875	A572-65
11	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	20.000	3.250	1.1875	A572-65
12	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.000	3.250	1.1875	A572-65
13	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.000	3.250	1.1875	A572-65
14	4	1.25	5	0.625	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	27.000	3.438	1.1875	A572-65
15	4	1.25	5	0.625	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	27.000	3.438	1.1875	A572-65
16	4	1.25	5	0.625	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	27.000	3.438	1.1875	A572-65
17	4	1.25	5	0.625	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	27.000	3.438	1.1875	A572-65
18	4	1.25	5	0.625	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	27.000	3.438	1.1875	A572-65
19	4	1.25	5	0.625	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	27.000	3.438	1.1875	A572-65
20	1.25	5.25	6.5625	2.625	Welded	n/a	Welded	n/a	1.125	6.563	0.0000	A572-65
21	1.25	5.1875	6.48438	2.59375	Welded	n/a	Welded	n/a	1.250	6.484	0.0000	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
(TS) 1.25x4.00 (65ksi)	Top	-	-	-	-	80	None	-	-	-	-	39	0.375	-
	Bottom	-	-	-	-	80	CJP Groove	8	0.625	45	0.625	-	-	-
PL 1" X 5"	Top	9	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	9	N	3	3	-	-	-	-	-	-	-	-	-
PL 1.25" X 4"	Top	6	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	6	N	3	3	-	-	-	-	-	-	-	-	-
(TS) 1.25x6.00	Top	-	-	-	-	80	None	-	-	-	-	60	0.313	-
	Bottom	-	-	-	-	80	CJP Groove	10.5	0.625	45	0.3125	-	-	-
(TS) 1.25x6.00 (mod)	Top	-	-	-	-	80	None	-	-	-	-	60	0.313	-
	Bottom	-	-	-	-	80	CJP Groove	10.375	0.625	45	0.3125	-	-	-

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	120 - 115	5		12	22.000	23.010	0.25	A607-60	1.000
2	115 - 110	5		12	23.010	24.020	0.25	A607-60	1.000
3	110 - 105	5		12	24.020	25.031	0.25	A607-60	1.000
4	105 - 100	5		12	25.031	26.041	0.25	A607-60	1.000
5	100 - 99.25	0.75		12	26.041	26.192	0.25	A607-60	1.000
6	99.25 - 99	0.25		12	26.192	26.243	0.35625	A607-60	1.042
7	99 - 94	5		12	26.243	27.253	0.35625	A607-60	1.029
8	94 - 90.08	3.92		12	27.253	28.045	0.3125	A607-60	1.161
9	90.08 - 89.83	0.25		12	28.045	28.096	0.5125	A607-60	1.020
10	89.83 - 89.5	0.33		12	28.096	28.162	0.5125	A607-60	1.019
11	89.5 - 89.25	0.25		12	28.162	28.213	0.725	A607-60	0.913
12	89.25 - 84.25	5		12	28.213	29.223	0.7	A607-60	0.924
13	84.25 - 81.75	6.25	3.75	12	29.223	30.486	0.7	A607-60	0.914
14	81.75 - 77	4.75		12	29.228	30.188	0.8625	A607-60	0.996
15	77 - 76.75	0.25		12	30.188	30.239	0.8625	A607-60	0.995
16	76.75 - 76.5	0.25		12	30.239	30.289	0.9625	A607-60	0.949
17	76.5 - 75.5	1		12	30.289	30.491	0.9625	A607-60	0.945
18	75.5 - 75.25	0.25		12	30.491	30.542	0.7625	A607-60	1.046
19	75.25 - 74.5	0.75		12	30.542	30.693	0.7625	A607-60	1.043
20	74.5 - 74.25	0.25		12	30.693	30.744	0.8375	A607-60	0.889
21	74.25 - 72	2.25		12	30.744	31.198	0.825	A607-60	0.894
22	72 - 71.75	0.25		12	31.198	31.249	0.7625	A607-60	1.073
23	71.75 - 70.5	1.25		12	31.249	31.501	0.7625	A607-60	1.068
24	70.5 - 70.25	0.25		12	31.501	31.552	0.7875	A607-60	1.091
25	70.25 - 70	0.25		12	31.552	31.602	0.7875	A607-60	1.090
26	70 - 69.75	0.25		12	31.602	31.653	0.725	A607-60	1.111
27	69.75 - 69.5	0.25		12	31.653	31.703	0.875	A607-60	0.982
28	69.5 - 69.25	0.25		12	31.703	31.754	0.75	A607-60	0.979
29	69.25 - 64.25	5		12	31.754	32.764	0.7375	A607-60	0.977
30	64.25 - 59.25	5		12	32.764	33.774	0.7125	A607-60	0.993
31	59.25 - 56	3.25		12	33.774	34.431	0.7125	A607-60	0.983
32	56 - 55.75	0.25		12	34.431	34.481	0.8125	A607-60	1.017
33	55.75 - 55.5	0.25		12	34.481	34.532	0.8125	A607-60	1.016
34	55.5 - 55.25	0.25		12	34.532	34.582	0.8875	A607-60	0.978
35	55.25 - 54	1.25		12	34.582	34.835	0.875	A607-60	0.987
36	54 - 53.75	0.25		12	34.835	34.885	0.75	A607-60	1.037
37	53.75 - 53.5	0.25		12	34.885	34.936	0.7375	A607-60	1.053
38	53.5 - 53.25	0.25		12	34.936	34.986	0.6625	A607-60	1.107
39	53.25 - 53	0.25		12	34.986	35.037	0.6	A607-60	1.097
40	53 - 48	5		12	35.037	36.047	0.5875	A607-60	1.103
41	48 - 44.5	8.25	4.75	12	36.047	37.714	0.5875	A607-60	1.092
42	44.5 - 38.75	5.75		12	36.129	37.291	0.6625	A607-60	0.976
43	38.75 - 34.75	4		12	37.291	38.099	0.6625	A607-60	0.968
44	34.75 - 34.5	0.25		12	38.099	38.150	0.825	A607-60	0.982
45	34.5 - 33.75	0.75		12	38.150	38.301	0.825	A607-60	0.980
46	33.75 - 33.5	0.25		12	38.301	38.352	0.625	A607-60	1.022
47	33.5 - 28.5	5		12	38.352	39.362	0.6125	A607-60	1.031
48	28.5 - 24	4.5		12	39.362	40.271	0.6625	A607-60	0.946
49	24 - 23.75	0.25		12	40.271	40.322	0.7	A607-60	0.950
50	23.75 - 18.75	5		12	40.322	41.332	0.6875	A607-60	0.956
51	18.75 - 14.25	4.5		12	41.332	42.241	0.675	A607-60	0.964
52	14.25 - 14	0.25		12	42.241	42.291	0.775	A607-60	0.954
53	14 - 9	5		12	42.291	43.302	0.7625	A607-60	0.958
54	9 - 5	4		12	43.302	44.110	0.75	A607-60	0.965
55	5 - 4.75	0.25		12	44.110	44.160	0.9	A607-60	0.911
56	4.75 - 4.5	0.25		12	44.160	44.211	0.75	A607-60	1.041
57	4.5 - 0	4.5		12	44.211	45.120	0.75	A607-60	1.030

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	120 - 115	4.82	28.63	4.84
2	115 - 110	8.89	72.95	10.39
3	110 - 105	9.36	126.12	10.90
4	105 - 100	14.94	209.72	15.77
5	100 - 99.25	15.03	221.57	15.84
6	99.25 - 99	15.07	225.54	15.86
7	99 - 94	20.45	325.31	22.11
8	94 - 90.08	21.12	413.14	22.72
9	90.08 - 89.83	21.19	418.82	22.75
10	89.83 - 89.5	21.26	426.33	22.80
11	89.5 - 89.25	21.33	432.04	22.85
12	89.25 - 84.25	25.78	553.80	26.77
13	84.25 - 81.75	26.48	621.23	27.19
14	81.75 - 77	29.12	752.48	28.07
15	77 - 76.75	29.22	759.50	28.11
16	76.75 - 76.5	29.32	766.54	28.16
17	76.5 - 75.5	29.71	794.76	28.30
18	75.5 - 75.25	29.80	801.84	28.33
19	75.25 - 74.5	30.14	823.29	28.54
20	74.5 - 74.25	30.23	830.43	28.58
21	74.25 - 72	30.97	895.16	28.97
22	72 - 71.75	31.07	902.41	29.01
23	71.75 - 70.5	31.53	938.81	29.23
24	70.5 - 70.25	31.63	946.12	29.27
25	70.25 - 70	31.73	953.44	29.32
26	70 - 69.75	31.82	960.77	29.36
27	69.75 - 69.5	31.92	968.12	29.40
28	69.5 - 69.25	32.01	975.47	29.45
29	69.25 - 64.25	33.73	1124.36	30.12
30	64.25 - 59.25	35.49	1276.55	30.78
31	59.25 - 56	36.65	1377.24	31.21
32	56 - 55.75	36.78	1385.04	31.24
33	55.75 - 55.5	36.89	1392.86	31.29
34	55.5 - 55.25	37.01	1400.69	31.33
35	55.25 - 54	37.61	1439.99	31.56
36	54 - 53.75	37.72	1447.88	31.59
37	53.75 - 53.5	37.84	1455.78	31.64
38	53.5 - 53.25	37.94	1463.70	31.68
39	53.25 - 53	38.05	1471.62	31.72
40	53 - 48	40.06	1631.67	32.31
41	48 - 44.5	41.49	1745.47	32.74
42	44.5 - 38.75	45.29	1936.03	33.55
43	38.75 - 34.75	46.97	2071.12	34.02
44	34.75 - 34.5	47.10	2079.62	34.04
45	34.5 - 33.75	47.47	2105.18	34.13
46	33.75 - 33.5	47.59	2113.72	34.16
47	33.5 - 28.5	49.72	2285.86	34.71
48	28.5 - 24	51.67	2443.08	35.19
49	24 - 23.75	51.79	2451.87	35.20
50	23.75 - 18.75	54.07	2629.14	35.72
51	18.75 - 14.25	56.15	2790.76	36.14
52	14.25 - 14	56.29	2799.79	36.15
53	14 - 9	58.85	2981.70	36.63
54	9 - 5	60.85	3128.86	37.00
55	5 - 4.75	60.99	3138.11	37.01
56	4.75 - 4.5	61.13	3147.36	37.03
57	4.5 - 0	63.51	3314.88	37.46

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
120 - 115	Pole	TP23.01x22x0.25	Pole	5.3%	Pass
115 - 110	Pole	TP24.02x23.01x0.25	Pole	12.3%	Pass
110 - 105	Pole	TP25.031x24.02x0.25	Pole	19.3%	Pass
105 - 100	Pole	TP26.041x25.031x0.25	Pole	30.1%	Pass
100 - 99.25	Pole	TP26.192x26.041x0.25	Pole	31.5%	Pass
99.25 - 99	Pole + Reinf.	TP26.243x26.192x0.3563	Reinf. 14 Tension Rupture	28.7%	Pass
99 - 94	Pole + Reinf.	TP27.253x26.243x0.3563	Reinf. 14 Tension Rupture	38.9%	Pass
94 - 90.08	Pole + Reinf.	TP28.045x27.253x0.3125	Pole	47.0%	Pass
90.08 - 89.83	Pole + Reinf.	TP28.096x28.045x0.5125	Reinf. 11 Tension Rupture	39.1%	Pass
89.83 - 89.5	Pole + Reinf.	TP28.162x28.096x0.5125	Reinf. 11 Tension Rupture	39.7%	Pass
89.5 - 89.25	Pole + Reinf.	TP28.213x28.162x0.725	Reinf. 15 Tension Rupture	30.7%	Pass
89.25 - 84.25	Pole + Reinf.	TP29.223x28.213x0.7	Reinf. 15 Tension Rupture	37.5%	Pass
84.25 - 81.75	Pole + Reinf.	TP30.486x29.223x0.7	Reinf. 15 Tension Rupture	41.0%	Pass
81.75 - 77	Pole + Reinf.	TP30.188x29.228x0.8625	Reinf. 17 Tension Rupture	37.6%	Pass
77 - 76.75	Pole + Reinf.	TP30.239x30.188x0.8625	Reinf. 17 Tension Rupture	37.8%	Pass
76.75 - 76.5	Pole + Reinf.	TP30.289x30.239x0.9625	Reinf. 14 Tension Rupture	35.6%	Pass
76.5 - 75.5	Pole + Reinf.	TP30.491x30.289x0.9625	Reinf. 14 Tension Rupture	36.5%	Pass
75.5 - 75.25	Pole + Reinf.	TP30.542x30.491x0.7625	Reinf. 17 Tension Rupture	42.1%	Pass
75.25 - 74.5	Pole + Reinf.	TP30.693x30.542x0.7625	Reinf. 17 Tension Rupture	42.9%	Pass
74.5 - 74.25	Pole + Reinf.	TP30.744x30.693x0.8375	Reinf. 17 Tension Rupture	45.2%	Pass
74.25 - 72	Pole + Reinf.	TP31.198x30.744x0.825	Reinf. 17 Tension Rupture	47.7%	Pass
72 - 71.75	Pole + Reinf.	TP31.249x31.198x0.7625	Reinf. 17 Tension Rupture	45.7%	Pass
71.75 - 70.5	Pole + Reinf.	TP31.501x31.249x0.7625	Reinf. 17 Tension Rupture	47.0%	Pass
70.5 - 70.25	Pole + Reinf.	TP31.552x31.501x0.7875	Reinf. 17 Tension Rupture	47.0%	Pass
70.25 - 70	Pole + Reinf.	TP31.602x31.552x0.7875	Reinf. 17 Tension Rupture	47.3%	Pass
70 - 69.75	Pole + Reinf.	TP31.653x31.602x0.725	Reinf. 17 Tension Rupture	49.0%	Pass
69.75 - 69.5	Pole + Reinf.	TP31.703x31.653x0.875	Reinf. 4 Tension Rupture	41.7%	Pass
69.5 - 69.25	Pole + Reinf.	TP31.754x31.703x0.75	Reinf. 4 Tension Rupture	46.6%	Pass
69.25 - 64.25	Pole + Reinf.	TP32.764x31.754x0.7375	Reinf. 4 Tension Rupture	51.3%	Pass
64.25 - 59.25	Pole + Reinf.	TP33.774x32.764x0.7125	Reinf. 4 Tension Rupture	55.6%	Pass
59.25 - 56	Pole + Reinf.	TP34.431x33.774x0.7125	Reinf. 4 Tension Rupture	58.2%	Pass
56 - 55.75	Pole + Reinf.	TP34.481x34.431x0.8125	Reinf. 7 Tension Rupture	56.0%	Pass
55.75 - 55.5	Pole + Reinf.	TP34.532x34.481x0.8125	Reinf. 7 Tension Rupture	56.2%	Pass
55.5 - 55.25	Pole + Reinf.	TP34.582x34.532x0.8875	Reinf. 7 Tension Rupture	50.7%	Pass
55.25 - 54	Pole + Reinf.	TP34.835x34.582x0.875	Reinf. 7 Tension Rupture	51.6%	Pass
54 - 53.75	Pole + Reinf.	TP34.885x34.835x0.75	Reinf. 7 Tension Rupture	59.2%	Pass
53.75 - 53.5	Pole + Reinf.	TP34.936x34.885x0.7375	Reinf. 7 Tension Rupture	59.4%	Pass
53.5 - 53.25	Pole + Reinf.	TP34.986x34.936x0.6625	Reinf. 4 Tension Rupture	63.7%	Pass
53.25 - 53	Pole + Reinf.	TP35.037x34.986x0.6	Reinf. 12 Tension Rupture	65.9%	Pass
53 - 48	Pole + Reinf.	TP36.047x35.037x0.5875	Reinf. 12 Tension Rupture	70.1%	Pass
48 - 44.5	Pole + Reinf.	TP37.714x36.047x0.5875	Reinf. 12 Tension Rupture	72.9%	Pass
44.5 - 38.75	Pole + Reinf.	TP37.291x36.129x0.6625	Reinf. 4 Tension Rupture	71.2%	Pass
38.75 - 34.75	Pole + Reinf.	TP38.099x37.291x0.6625	Reinf. 4 Tension Rupture	73.6%	Pass
34.75 - 34.5	Pole + Reinf.	TP38.15x38.099x0.825	Reinf. 3 Tension Rupture	59.0%	Pass
34.5 - 33.75	Pole + Reinf.	TP38.301x38.15x0.825	Reinf. 3 Tension Rupture	59.3%	Pass
33.75 - 33.5	Pole + Reinf.	TP38.352x38.301x0.625	Reinf. 6 Tension Rupture	73.1%	Pass
33.5 - 28.5	Pole + Reinf.	TP39.362x38.352x0.6125	Reinf. 6 Tension Rupture	75.6%	Pass
28.5 - 24	Pole + Reinf.	TP40.271x39.362x0.6625	Reinf. 3 Tension Rupture	77.9%	Pass
24 - 23.75	Pole + Reinf.	TP40.322x40.271x0.7	Reinf. 3 Tension Rupture	74.4%	Pass
23.75 - 18.75	Pole + Reinf.	TP41.332x40.322x0.6875	Reinf. 3 Tension Rupture	76.7%	Pass
18.75 - 14.25	Pole + Reinf.	TP42.241x41.332x0.675	Reinf. 3 Tension Rupture	78.6%	Pass
14.25 - 14	Pole + Reinf.	TP42.291x42.241x0.775	Reinf. 3 Tension Rupture	68.5%	Pass
14 - 9	Pole + Reinf.	TP43.302x42.291x0.7625	Reinf. 3 Tension Rupture	70.3%	Pass
9 - 5	Pole + Reinf.	TP44.11x43.302x0.75	Reinf. 3 Tension Rupture	71.7%	Pass
5 - 4.75	Pole + Reinf.	TP44.16x44.11x0.9	Reinf. 3 Tension Rupture	65.3%	Pass
4.75 - 4.5	Pole + Reinf.	TP44.211x44.16x0.75	Reinf. 5 Tension Rupture	68.1%	Pass
4.5 - 0	Pole + Reinf.	TP45.12x44.211x0.75	Reinf. 5 Tension Rupture	69.6%	Pass
				Summary	
			Pole	58.5%	Pass
			Reinforcement	78.6%	Pass
			Overall	78.6%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*																				
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21
120 - 115	1213	n/a	1213	18.30	n/a	18.30	5.3%																					
115 - 110	1382	n/a	1382	19.11	n/a	19.11	12.3%																					
110 - 105	1566	n/a	1566	19.92	n/a	19.92	19.3%																					
105 - 100	1765	n/a	1765	20.73	n/a	20.73	30.1%																					
100 - 99.25	1796	n/a	1796	20.85	n/a	20.85	31.5%																					
99.25 - 99	1892	740	2633	20.89	10.00	30.89	24.7%														28.7%		28.7%					
99 - 94	2116	800	2916	21.71	10.00	31.71	33.7%														38.9%		38.9%					
94 - 90.08	2439	519	2958	22.34	10.00	32.34	47.0%														46.9%		46.9%					
90.08 - 89.83	2235	2180	4415	22.38	24.00	46.38	27.4%											39.1%			37.6%	32.8%	37.7%					
89.83 - 89.5	2251	2190	4441	22.44	24.00	46.44	27.8%											39.7%			38.1%	33.2%	38.3%					
89.5 - 89.25	2276	3952	6228	22.48	36.00	58.48	20.8%										25.1%	30.0%			30.6%	30.7%	26.5%					
89.25 - 84.25	2531	4227	6758	23.29	36.00	59.29	25.8%										30.6%	36.6%			37.4%	37.5%	32.5%					
84.25 - 81.75	2665	4368	7033	23.70	36.00	59.70	28.4%										33.5%	40.1%			40.9%	41.0%	35.5%					
81.75 - 77	3434	5537	8970	30.02	51.00	81.02	24.0%										31.0%	36.1%			37.5%	33.4%	31.7%	37.6%	30.3%			
77 - 76.75	3451	5554	9005	30.07	51.00	81.07	24.2%										31.2%	36.4%			37.7%	33.6%	31.9%	37.8%	30.5%			
76.75 - 76.5	3483	6565	10048	30.12	56.00	86.12	22.3%										30.0%	30.5%			35.6%	32.0%	32.1%	33.6%	30.7%	33.7%		
76.5 - 75.5	3554	6648	10202	30.32	56.00	86.32	22.9%										30.8%	31.3%			36.5%	32.9%	33.0%	34.5%	31.5%	34.6%		
75.5 - 75.25	3556	4807	8362	30.37	46.00	76.37	27.4%										37.8%	38.3%			37.3%			42.1%	40.2%	36.8%		
75.25 - 74.5	3609	4852	8461	30.53	46.00	76.53	28.0%										38.5%	39.0%			38.0%			42.9%	41.0%	37.5%		
74.5 - 74.25	3738	5532	9270	30.58	41.00	71.58	28.5%										42.2%	41.7%						45.2%	41.0%	39.9%		
74.25 - 72	3906	5690	9596	31.03	41.00	72.03	30.2%										44.5%	44.0%						47.7%	43.3%	42.1%		
72 - 71.75	3808	5092	8900	31.09	49.13	80.21	29.6%								30.9%		39.6%	40.6%						45.7%	43.8%	39.1%		
71.75 - 70.5	3902	5171	9072	31.34	49.13	80.46	30.5%								31.8%		40.7%	41.7%						47.0%	45.1%	40.2%		
70.5 - 70.25	3925	5537	9462	31.39	53.63	85.01	29.8%							34.5%	32.0%		39.0%	40.1%						47.0%	39.6%	40.4%		
70.25 - 70	3944	5554	9498	31.44	53.63	85.07	30.0%							34.7%	32.2%		39.2%	40.3%						47.3%	39.8%	40.6%		
70 - 69.75	3961	4823	8785	31.49	48.63	80.12	32.9%							42.0%	32.2%	43.3%	43.8%							49.0%		40.6%		
69.75 - 69.5	4028	6551	10579	31.54	53.63	85.17	28.5%				41.7%			35.7%	31.8%	40.6%	34.1%											
69.5 - 69.25	4004	5187	9190	31.59	41.63	73.22	32.2%				46.6%			46.2%	36.1%	44.2%												
69.25 - 64.25	4401	5507	9909	32.61	41.63	74.23	35.8%				51.3%			50.9%	39.8%	48.7%												
64.25 - 59.25	4825	5838	10663	33.62	41.63	75.25	39.3%				55.6%			55.3%	43.3%	53.0%												
59.25 - 56	5114	6058	11172	34.28	41.63	75.91	41.5%				58.2%			58.0%	45.5%	55.6%												
56 - 55.75	5209	7530	12738	34.33	55.13	89.46	38.1%				55.3%			56.0%	37.8%	47.6%			48.5%									
55.75 - 55.5	5232	7551	12782	34.38	55.13	89.51	38.3%				55.5%			56.2%	37.9%	47.8%			48.7%									
55.5 - 55.25	5199	8671	13870	34.43	59.63	94.06	34.9%				47.9%			50.7%	37.8%	46.2%			45.9%	47.9%								
55.25 - 54	5314	8793	14107	34.69	59.63	94.31	35.6%				48.7%			51.6%	38.5%	47.0%			46.7%	48.8%								
54 - 53.75	5328	6906	12234	34.74	50.63	85.36	41.4%				52.9%			59.2%	43.5%				52.7%	51.0%								
53.75 - 53.5	5351	6925	12276	34.79	50.63	85.41	41.5%				53.0%			59.4%	43.6%				52.9%	51.2%								
53.5 - 53.25	5418	5610	11027	34.84	46.13	80.97	47.6%				63.7%				45.4%				57.2%	59.6%								
53.25 - 53	5388	4730	10118	34.89	38.00	72.89	50.3%				64.0%								65.9%	59.3%								
53 - 48	5872	4982	10854	35.91	38.00	73.91	54.1%				67.8%								70.1%	63.0%								
48 - 44.5	6228	5162	11390	36.62	38.00	74.62	56.7%				70.3%								72.9%	65.5%								
44.5 - 38.75	7765	5730	13494	44.51	31.68	76.19	49.8%				71.2%		66.4%															
38.75 - 34.75	8286	5977	14263	45.49	31.68	77.17	51.9%				73.6%		68.6%															
34.75 - 34.5	8319	9342	17661	45.55	51.68	97.23	41.6%			59.0%	58.1%		58.1%															
34.5 - 33.75	8419	9412	17832	45.73	51.68	97.41	41.9%			59.3%	58.4%		58.5%															
33.75 - 33.5	8462	5241	13703	45.79	31.68	77.47	56.0%			72.9%			73.1%															
33.5 - 28.5	9154	5519	14674	47.01	31.68	78.69	58.5%			75.6%			75.6%															
28.5 - 24	9807	7211	17019	48.11	31.68	79.79	54.6%			77.9%			77.7%															
24 - 23.75	9844	8023	17867	48.17	36.52	84.69	52.2%		71.0%	74.4%																		
23.75 - 18.75	10609	8417	19026	49.38	36.52	85.90	54.3%		73.1%	76.7%																		
18.75 - 14.25	11331	8779	20110	50.48	36.52	87.00	56.2%		74.9%	78.6%																		
14.25 - 14	11366	11466	22832	50.54	48.20	98.74	50.6%		67.1%	68.4%		63.1%																
14 - 9	12208	11992	24200	51.76	48.20	99.96	52.6%		68.9%	70.3%		64.8%																
9 - 5	12911	12421	25331	52.73	48.20	100.93	54.2%		70.2%	71.7%		66.1%																
5 - 4.75	13150	17232	30382	52.80	61.25	114.04	47.7%		64.7%	65.3%		61.5%															53.4%	46.8%
4.75 - 4.5	13060	12501	25562	52.86	56.25	109.10	55.8%	57.3%	62.0%			68.1%															48.2%	58.4%
4.5 - 0	13888	12993	26881	53.95	56.25	110.20	57.5%	58.5%	63.4%			69.5%															49.3%	59.5%

Note: Section capacity checked using 5 degree increments.
Rating per TIA-222-H Section 15.5.

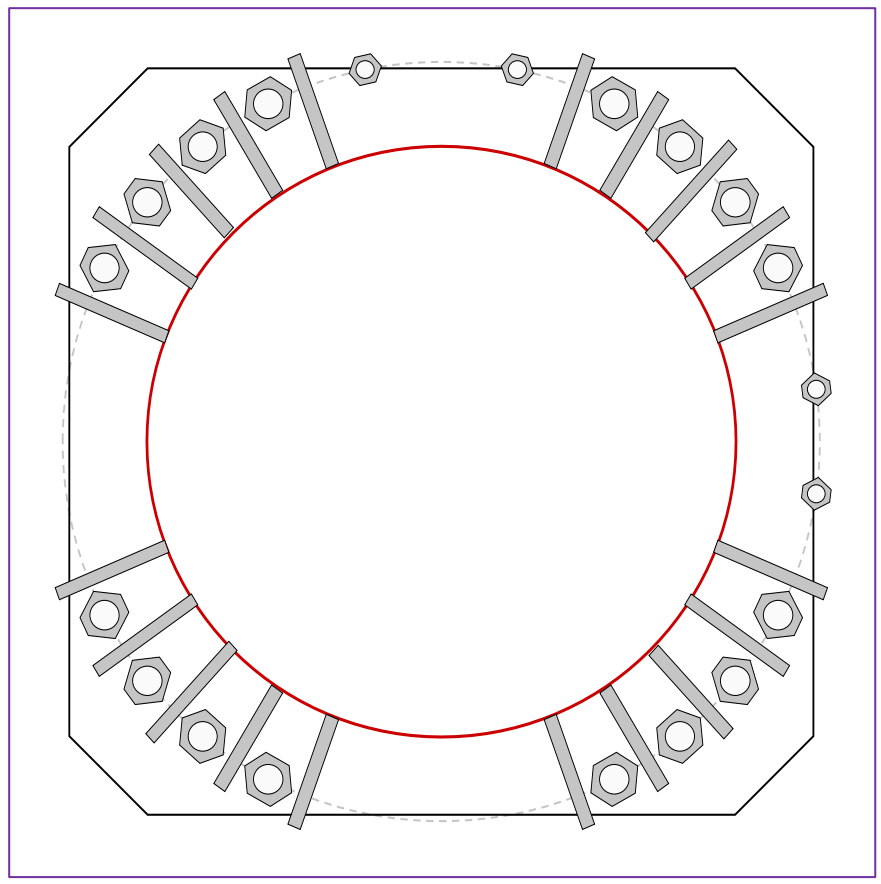
Monopole Base Plate Connection

Site Info	
BU #	876320
Site Name	28 WHEELERS FARM R
Order #	557900 Rev 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{ar} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	3314.88
Axial Force (kips)	63.51
Shear Force (kips)	37.46

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 58" BC

Anchor Spacing: 6 in

GROUP 2: (4) 1-3/8" ø bolts (R71 150ksi 1-3/8" N; Fy=120 ksi, Fu=125 ksi) on 58" BC

pos. (deg): 7.9, 78.4, 101.6, 352.1

Base Plate Data

57" W x 3.25" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 6 in

Stiffener Data

(20) 18"H x 9"W x 1"T, Notch: 0.75"

plate: Fy= 50 ksi ; weld: Fy= 80 ksi

horiz. weld: 0.5" groove, 45° dbl bevel, 0.5" fillet

vert. weld: 0.375" fillet

Pole Data

45.12" x 0.375" 12-sided pole (A607-60; Fy=60 ksi, Fu=75 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

GROUP 1:		
Pu_t = 163.73	ϕPn_t = 243.75	**Stress Rating**
Vu = 2.34	ϕVn = 149.1	**64.0%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 53.34	ϕPn_t = 108.75	**Stress Rating**
Vu = 0	ϕVn = 69.6	**46.7%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	3.27	(Shear)
Allowable Stress (ksi):	29.25	
Stress Rating:	**10.6%**	**Pass**

Stiffener Summary

Horizontal Weld:	**32.7%**	**Pass**
Vertical Weld:	**43.2%**	**Pass**
Plate Flexure+Shear:	**16.2%**	**Pass**
Plate Tension+Shear:	**33.8%**	**Pass**
Plate Compression:	**48.1%**	**Pass**

Pole Summary

Punching Shear:	**18.8%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	No	No	
2	Yes	No	No	No	No	

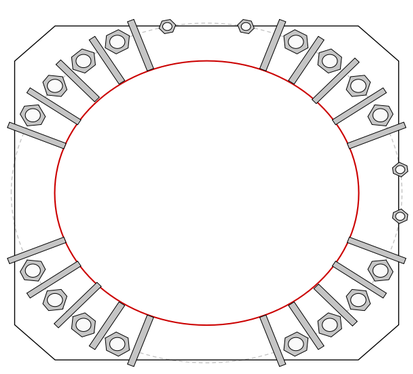
Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	27.1866826	2.25	A615-75	58	0.5	2	N-Included		No
2	1	39.0622275	2.25	A615-75	58	0.5	2	N-Included		No
3	1	50.9377725	2.25	A615-75	58	0.5	2	N-Included		No
4	1	62.8133174	2.25	A615-75	58	0.5	2	N-Included		No
5	1	117.186683	2.25	A615-75	58	0.5	2	N-Included		No
6	1	129.062228	2.25	A615-75	58	0.5	2	N-Included		No
7	1	140.937772	2.25	A615-75	58	0.5	2	N-Included		No
8	1	152.813317	2.25	A615-75	58	0.5	2	N-Included		No
9	1	207.186683	2.25	A615-75	58	0.5	2	N-Included		No
10	1	219.062228	2.25	A615-75	58	0.5	2	N-Included		No
11	1	230.937772	2.25	A615-75	58	0.5	2	N-Included		No
12	1	242.813317	2.25	A615-75	58	0.5	2	N-Included		No
13	1	297.186683	2.25	A615-75	58	0.5	2	N-Included		No
14	1	309.062228	2.25	A615-75	58	0.5	2	N-Included		No
15	1	320.937772	2.25	A615-75	58	0.5	2	N-Included		No
16	1	332.813317	2.25	A615-75	58	0.5	2	N-Included		No
17	2	7.9	1.375	R71 150ksi 1-3/8"	58	0.5	0.25	N-Included		No
18	2	78.4	1.375	R71 150ksi 1-3/8"	58	0.5	0.25	N-Included		No
19	2	101.6	1.375	R71 150ksi 1-3/8"	58	0.5	0.25	N-Included		No
20	2	352.1	1.375	R71 150ksi 1-3/8"	58	0.5	0.25	N-Included		No

Custom Stiffener Connection

Stiffener	Stiffener Group ID	Location (deg.)	Width (in)	Height (in)	Thickness (in)	H. Notch (in)	V. Notch (in)	Grade (ksi)	Weld Type	Groove Depth (in)	Groove Angle (deg.)	H. Fillet Weld Size (in)	V. Fillet Weld Size (in)	Weld Strength (ksi)
1	1	21.2489102	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
2	1	33.1244551	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
3	1	45	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
4	1	56.8755449	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
5	1	68.7510898	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
6	1	111.24891	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
7	1	123.124455	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
8	1	135	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
9	1	146.875545	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
10	1	158.75109	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
11	1	201.24891	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
12	1	213.124455	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
13	1	225	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
14	1	236.875545	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
15	1	248.75109	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
16	1	291.24891	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
17	1	303.124455	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
18	1	315	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
19	1	326.875545	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80
20	1	338.75109	9	18	1	0.75	0.75	50	Both	0.5	45	0.5	0.375	80

Plot Graphic



Drilled Pier Foundation

BU # :	876320
Site Name:	528 WHEELERS FARM RD
Order Number:	557900 Rev 1
TIA-222 Revison:	H
Tower Type:	Monopole

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

Go to Soil Calculations

Applied Loads	Comp.	Uplift
Moment (kip-ft)	3315	
Axial Force (kips)	64	
Shear Force (kips)	37	

Material Properties			Rebar 2, Fy Override (ksi)	Rebar 3, Fy Override (ksi)
Concrete Strength, f'c:	3	ksi		
Rebar Strength, Fy:	60	ksi		
Tie Yield Strength, Fyt:	40	ksi		

Pier Design Data		
Depth	19	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 19' below grade		
Pier Diameter	7	ft
Rebar Quantity	32	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	
Tie Spacing	18	in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	5.74	-
Soil Safety Factor	2.50	-
Max Moment (kip-ft)	3505.34	-
Rating*	*50.7%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	525.15	-
End Bearing (kips)	600.00	-
Weight of Concrete (kips)	100.49	-
Total Capacity (kips)	1125.15	-
Axial (kips)	164.49	-
Rating*	*13.9%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	5.57	-
Critical Moment (kip-ft)	3504.91	-
Critical Moment Capacity	7549.76	-
Rating*	*44.2%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	15.42	-
Critical Shear (kip)	593.64	-
Critical Shear Capacity	697.39	-
Rating*	*81.1%*	-

Structural Foundation Rating*	**81.1%**
Soil Interaction Rating*	**50.7%**

*Rating per TIA-222-H Section 15.5

Soil Profile

Groundwater Depth	7	# of Layers	7

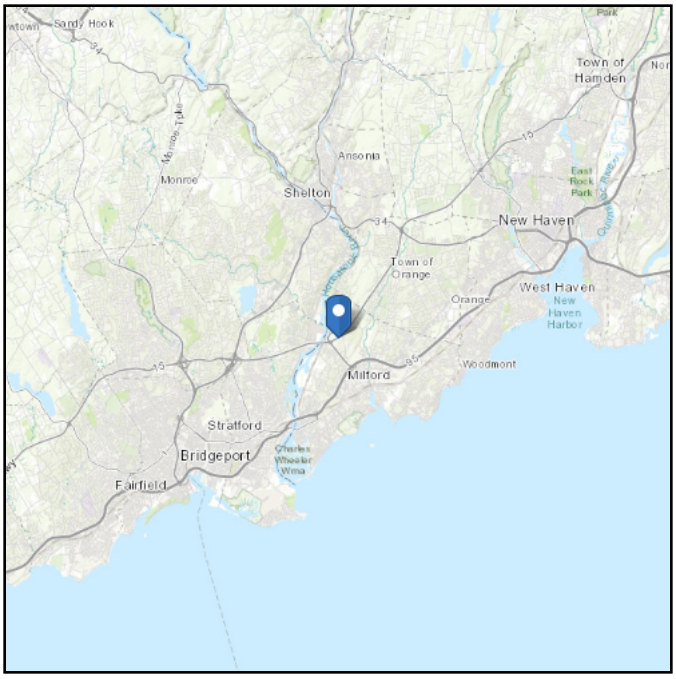
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2	2	100	150			0.000	0.000					Cohesionless
2	2	3.5	1.5	135	150			0.000	0.000					Cohesionless
3	3.5	6	2.5	135	150		42	0.000	0.000	0.00	0.00			Cohesionless
4	6	7	1	135	150		42	0.000	0.000	1.28	1.28			Cohesionless
5	7	13.5	6.5	72.6	87.6		42	0.000	0.000	1.28	1.28			Cohesionless
6	13.5	14	0.5	77.6	87.6	8		3.600	3.600	1.28	1.28			Cohesive
7	14	19	5	77.6	87.6	8		3.60	3.60	4.32	4.32	20.78758		Cohesive

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 212.97 ft (NAVD 88)
Latitude: 41.248431
Longitude: -73.079075



Wind

Results:

Wind Speed:	119 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Thu Sep 09 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

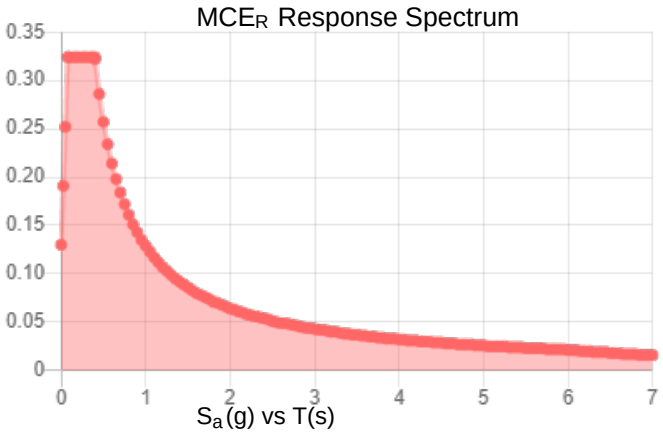
Seismic

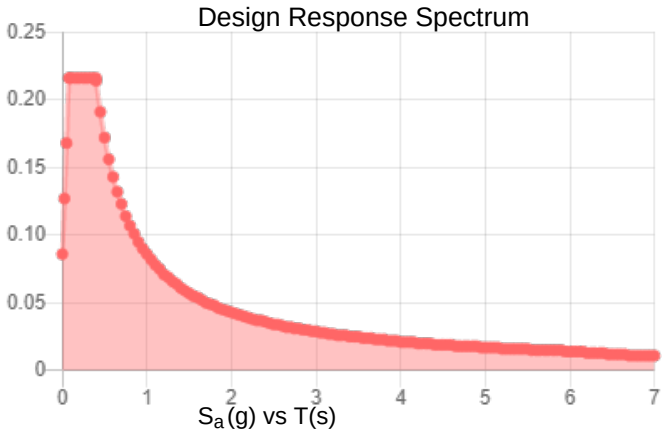
Site Soil Class: D - Default (see Section 11.4.3)

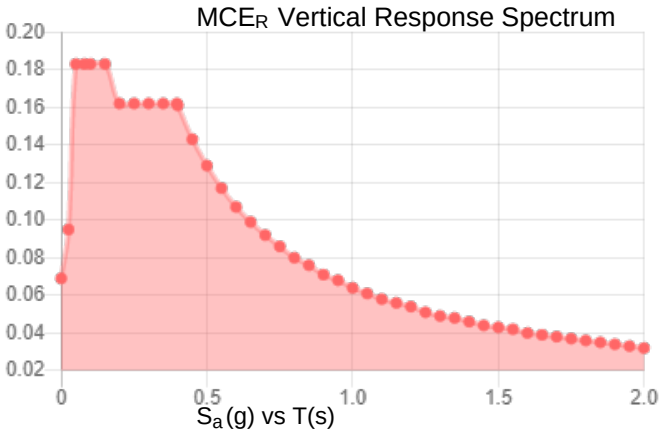
Results:

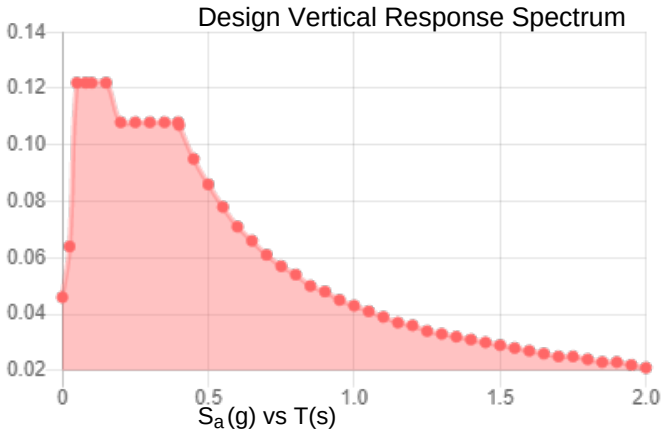
S_S :	0.203	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.114
F_v :	2.4	PGA_M :	0.179
S_{MS} :	0.324	F_{PGA} :	1.572
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.216	C_v :	0.705

Seismic Design Category B









Data Accessed: Thu Sep 09 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu Sep 09 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Date: **September 10, 2021**

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Darcy Tarr
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6589

Infinigy Engineering, PLLC
1033 Watervliet Shaker Road
Albany, NY 12205
518-690-0790
structural@infinigy.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**T-Mobile Retain**	
	Carrier Site Number:	CTNH082A
	Carrier Site Name:	CTNH082A
Crown Castle Designation:	**Crown Castle BU Number:**	876320
	Crown Castle Site Name:	528 WHEELERS FARM RD
	Crown Castle JDE Job Number:	650688
	Crown Castle Order Number:	557900 Rev.1
Engineering Firm Designation:	**Infinigy Engineering, PLLC Report Designation:** 1039-Z0001-B	
Site Data:	**528 Wheelers Farm Road, Milford, New Haven County, CT, 06460** **Latitude 41°14'54.35" Longitude -73°4'44.67"**	
Structure Information:	**Tower Height & Type:**	**120.0 ft Monopole**
	Mount Elevation:	**122.0 ft**
	Mount Type:	**14.0 ft Platform**

Dear Darcy Tarr,

Infinigy Engineering, PLLC is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

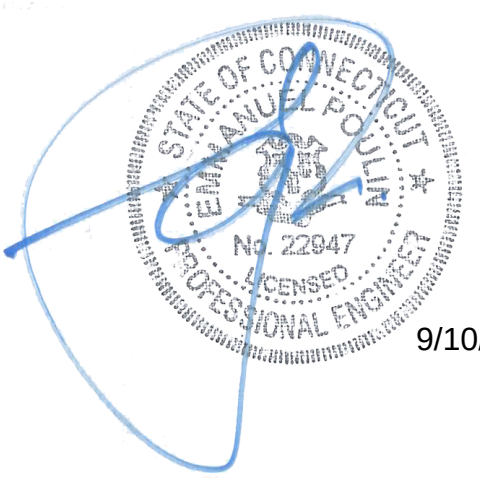
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Platform **Sufficient**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Alex Mercado, E.I.T.

Respectfully Submitted by:
Emmanuel Poulin, P.E.
518-690-0790
structural@infinigy.com
CT PE License No. 22947



9/10/21

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 3 sector 14.0 ft Platform.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	119 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.196
Seismic S_1:	0.063
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
122.0	121.0	3	ERICSSON	AIR64449 B41_T-MOBILE	14.0 ft Platform
		3	RFS/CELWAVE	APXVAALL24_43-U-NA_TMO	
		3	ERICSSON	RADIO 4460 B2/B25 B66_TMO	
		3	ERICSSON	RADIO 4480_TMOV2	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	557900 Rev.1	CCI Sites
Tower Manufacturer Drawings	Paul J. Ford	1614557	CCI Sites
Loading Documents	T-Mobile	RFDS Version 1	TSA

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

Infinigy Mount Analysis Tool V2.1.7, a tool internally developed by Infinigy, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B “Software Input Calculations”.

This analysis was performed in accordance with Crown Castle’s ENG-SOW-10208 *Tower Mount Analysis* (Revision B).

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Infinigy Engineering, PLLC should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2,3	Mount Pipe(s)	MP13	122.0	81.9	Pass
	Horizontal(s)	HOR2		40.9	Pass
	Standoff(s)	S2		71.8	Pass
	Grating Angle(s)	G5		42.2	Pass
	Handrail(s)	HR2		42.9	Pass
	Mount Connection(s)	--		45.3	Pass

Structure Rating (max from all components) =	81.9%

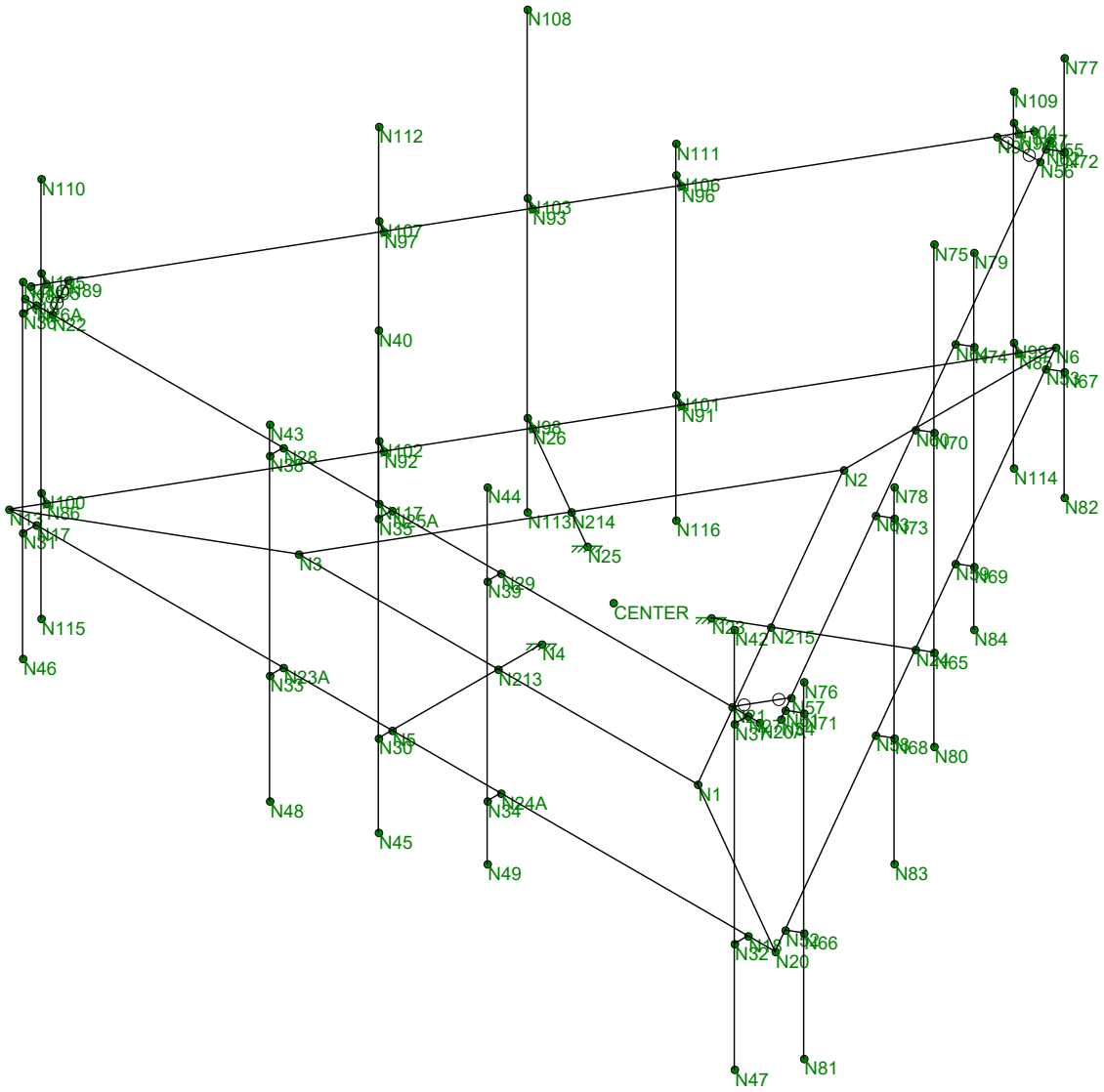
Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in “Appendix D – Additional Calculations” for detailed mount connection calculations.
3) All sectors are typical

4.1) Recommendations

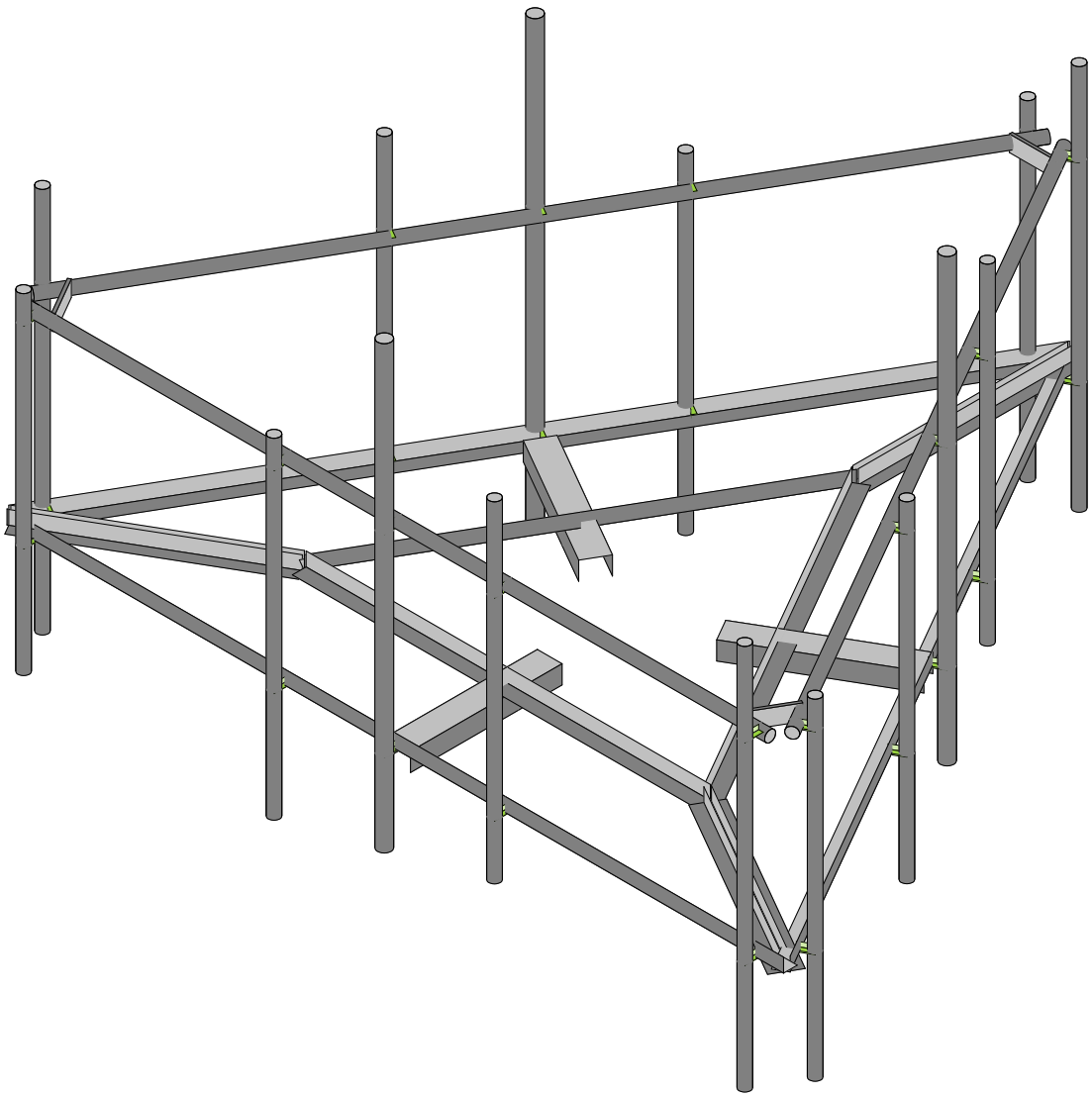
The mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Infinigy Engineering, PLLC	876320	Wireframe
AM		Sept 10, 2021 at 7:41 AM
1039-Z0001-B		876320_loaded.r3d



Infinigy Engineering, PLLC	876320	Rendered
AM		Sept 10, 2021 at 7:41 AM
1039-Z0001-B		876320_loaded.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION	
Client:	Crown Castle
Carrier:	T-Mobile
Engineer:	Alex Mercado

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	212.97	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	122.00	ft
Tower Height AGL:	120.00	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.992	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

CODE STANDARDS		
Building Code:	2015 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-10	

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	119	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Flat Pressure:	90.203	psf
Round Pressure:	54.122	psf
Ice Wind Pressure:	9.555	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.196	g
1-Second Accel. (S_1):	0.063	g
Short-Period Design (S_{DS}):	0.209	
1-Second Design (S_{D1}):	0.101	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY

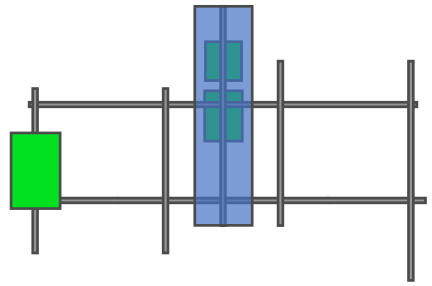
FROM ZERO TO INFINIGY

the solutions are endless

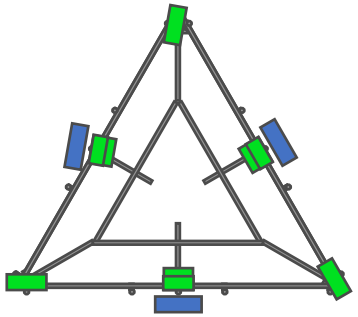
Infinigy Load Calculator V2.1.7

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION

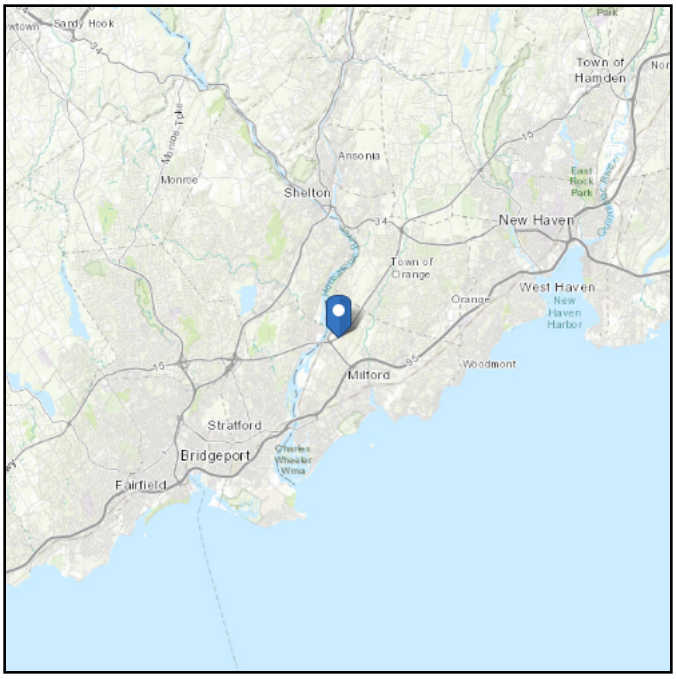
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
ERICSSON AIR6449 B41_T-MOBILE	121.0	3	0.90	45.02	5.27	2.03	213.55	82.26	114.63	35.95	MP5
ERICSSON RADIO 4460 B2/B25 B66_TMC	121.0	3	0.90	45.02	2.14	1.69	86.68	68.31	109.00	34.18	MP3
ERICSSON RADIO 4480_TMOV2	121.0	3	0.90	45.02	2.88	1.40	116.63	56.61	81.00	25.40	MP3
/CELWAVE APXVAALL24_43-U-NA20_TI	121.0	3	0.90	45.02	14.67	5.32	594.45	215.57	149.90	47.01	MP3

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 212.97 ft (NAVD 88)
Latitude: 41.248431
Longitude: -73.079075



Wind

Results:

Wind Speed:	119 Vmph per the state of Connecticut allowing to use ASCE-16 wind speeds
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	93 Vmph
100-year MRI	100 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Date Accessed: Thu Sep 09 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

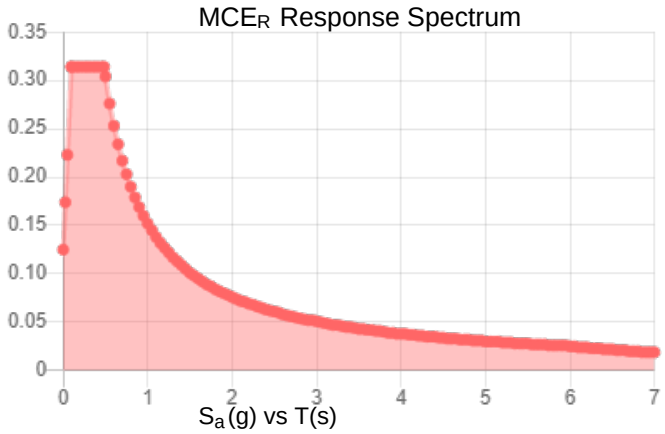
Seismic

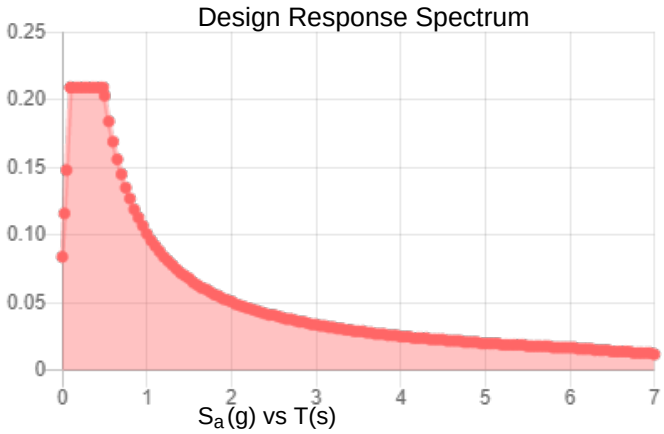
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.196	S_{DS} :	0.209
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.104
S_{MS} :	0.314	PGA_M :	0.166
S_{M1} :	0.152	F_{PGA} :	1.591
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Sep 09 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Sep 09 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
1	HOR1	N13	N20		270	Face Horizontal	Beam	Single Angle	A36 Gr.36	Typical
2	HOR2	N13	N6			Face Horizontal	Beam	Single Angle	A36 Gr.36	Typical
3	HOR3	N20	N6		270	Face Horizontal	Beam	Single Angle	A36 Gr.36	Typical
4	G4	N3	N1			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
5	G5	N3	N2		270	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
6	G6	N1	N2			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
7	G3	N20	N1		180	Corner Angle	Beam	Double Angl...	A36 Gr.36	Typical
8	G2	N6	N2		180	Corner Angle	Beam	Double Angl...	A36 Gr.36	Typical
9	G1	N13	N3		180	Corner Angle	Beam	Double Angl...	A36 Gr.36	Typical
10	S1	N4	N5		90	Standoff	Beam	Channel	A36 Gr.36	Typical
11	S3	N23	N24		90	Standoff	Beam	Channel	A36 Gr.36	Typical
12	S2	N25	N26		90	Standoff	Beam	Channel	A36 Gr.36	Typical
13	HR1	N19	N20A			Handrail	Beam	Pipe	A53 Gr.B	Typical
14	M14	N26A	N36			RIGID	None	None	RIGID	Typical
15	M15	N17	N31			RIGID	None	None	RIGID	Typical
16	M16	N28	N38			RIGID	None	None	RIGID	Typical
17	M17	N25A	N35			RIGID	None	None	RIGID	Typical
18	M18	N5	N30			RIGID	None	None	RIGID	Typical
19	M19	N23A	N33			RIGID	None	None	RIGID	Typical
20	M20	N29	N39			RIGID	None	None	RIGID	Typical
21	M21A	N27	N37			RIGID	None	None	RIGID	Typical
22	M22A	N18	N32			RIGID	None	None	RIGID	Typical
23	M23	N34	N24A			RIGID	None	None	RIGID	Typical
24	MP5	N41	N46			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
25	MP4	N43	N48			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
26	MP3	N40	N45			2.5 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
27	MP2	N44	N49			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
28	MP1	N42	N47			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
29	HR3	N54	N55			Handrail	Beam	Pipe	A53 Gr.B	Typical
30	M30	N61	N71			RIGID	None	None	RIGID	Typical
31	M31	N52	N66			RIGID	None	None	RIGID	Typical
32	M32	N63	N73			RIGID	None	None	RIGID	Typical
33	M33	N60	N70			RIGID	None	None	RIGID	Typical
34	M34	N24	N65			RIGID	None	None	RIGID	Typical
35	M35	N58	N68			RIGID	None	None	RIGID	Typical
36	M36	N64	N74			RIGID	None	None	RIGID	Typical
37	M37	N62	N72			RIGID	None	None	RIGID	Typical
38	M38	N53	N67			RIGID	None	None	RIGID	Typical
39	M39	N69	N59			RIGID	None	None	RIGID	Typical
40	MP15	N76	N81			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
41	MP14	N78	N83			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
42	MP13	N75	N80			2.5 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
43	MP12	N79	N84			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
44	MP11	N77	N82			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
45	HR2	N87	N88			Handrail	Beam	Pipe	A53 Gr.B	Typical
46	M46	N94	N104			RIGID	None	None	RIGID	Typical
47	M47	N85	N99			RIGID	None	None	RIGID	Typical
48	M48	N96	N106			RIGID	None	None	RIGID	Typical
49	M49	N93	N103			RIGID	None	None	RIGID	Typical
50	M50	N26	N98			RIGID	None	None	RIGID	Typical
51	M51	N91	N101			RIGID	None	None	RIGID	Typical
52	M52	N97	N107			RIGID	None	None	RIGID	Typical
53	M53	N95	N105			RIGID	None	None	RIGID	Typical
54	M54	N86	N100			RIGID	None	None	RIGID	Typical
55	M55	N102	N92			RIGID	None	None	RIGID	Typical
56	MP10	N109	N114			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
57	MP9	N111	N116			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
58	MP8	N108	N113			2.5 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
59	MP7	N112	N117			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
60	MP6	N110	N115			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
61	CP1	N22	N89			Handrail Corner Plate	Beam	RECT	A36 Gr.36	Typical
62	CP2	N56	N90			Handrail Corner Plate	Beam	RECT	A36 Gr.36	Typical
63	CP3	N21	N57			Handrail Corner Plate	Beam	RECT	A36 Gr.36	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		30	90	0
3	Total General		30	90	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	BPL 5.375x4x0.375	3	99	132.908
7	A36 Gr.36	L3X3X4	6	771	314.825
8	A36 Gr.36	LL3x3x4x0	3	140.3	114.575
9	A36 Gr.36	PL 3.5"x.625"	3	28.5	17.679
10	A53 Gr.B	PIPE_2.0	15	1386	400.882
11	A53 Gr.B	PIPE_2.5	3	288	131.483
12	Total HR Steel		33	2712.8	1112.352

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(Plate/Wall)
1	Self Weight	DL		-1			15		3	
2	Wind Load AZI 0	WLZ					30			
3	Wind Load AZI 30	None					30			
4	Wind Load AZI 60	None					30			
5	Wind Load AZI 90	WLX					30			
6	Wind Load AZI 120	None					30			
7	Wind Load AZI 150	None					30			
8	Wind Load AZI 180	None					30			
9	Wind Load AZI 210	None					30			
10	Wind Load AZI 240	None					30			
11	Wind Load AZI 270	None					30			
12	Wind Load AZI 300	None					30			
13	Wind Load AZI 330	None					30			
14	Distr. Wind Load Z	WLZ						63		
15	Distr. Wind Load X	WLX						63		
16	Ice Weight	OL1					15	63	3	
17	Ice Wind Load AZI ...	OL2					30			
18	Ice Wind Load AZI ...	None					30			
19	Ice Wind Load AZI ...	None					30			
20	Ice Wind Load AZI ...	OL3					30			
21	Ice Wind Load AZI ...	None					30			
22	Ice Wind Load AZI ...	None					30			
23	Ice Wind Load AZI ...	None					30			
24	Ice Wind Load AZI ...	None					30			
25	Ice Wind Load AZI ...	None					30			
26	Ice Wind Load AZI ...	None					30			
27	Ice Wind Load AZI ...	None					30			
28	Ice Wind Load AZI ...	None					30			
29	Distr. Ice Wind Loa...	OL2						63		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(Plate/Wall)
30	Distr. Ice Wind Loa...	OL3						63		
31	Seismic Load Z	ELZ			-.31		15			
32	Seismic Load X	ELX	-.31				15			
33	Service Live Loads	LL				1				
34	Maintenance Load 1	LL				1				
35	Maintenance Load 2	LL				1				
36	Maintenance Load 3	LL				1				
37	Maintenance Load 4	LL				1				
38	Maintenance Load 5	LL				1				
39	Maintenance Load 6	LL				1				
40	Maintenance Load 7	LL				1				
41	Maintenance Load 8	LL				1				
42	Maintenance Load 9	LL				1				
43	Maintenance Load ...	LL				1				
44	Maintenance Load ...	LL				1				
45	Maintenance Load ...	LL				1				
46	Maintenance Load ...	LL				1				
47	Maintenance Load ...	LL				1				
48	Maintenance Load ...	LL				1				
49	BLC 1 Transient Ar...	None						102		
50	BLC 16 Transient ...	None						102		

Load Combinations

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4DL	Yes	Y		1	1.4																		
2	1.2DL + 1WL AZI 0	Yes	Y		1	1.2	2	1	14	1	15													
3	1.2DL + 1WL AZI 30	Yes	Y		1	1.2	3	1	14	.866	15	.5												
4	1.2DL + 1WL AZI 60	Yes	Y		1	1.2	4	1	14	.5	15	.866												
5	1.2DL + 1WL AZI 90	Yes	Y		1	1.2	5	1	14		15	1												
6	1.2DL + 1WL AZI 120	Yes	Y		1	1.2	6	1	14	-.5	15	.866												
7	1.2DL + 1WL AZI 150	Yes	Y		1	1.2	7	1	14	-.8...	15	.5												
8	1.2DL + 1WL AZI 180	Yes	Y		1	1.2	8	1	14	-1	15													
9	1.2DL + 1WL AZI 210	Yes	Y		1	1.2	9	1	14	-.8...	15	-.5												
10	1.2DL + 1WL AZI 240	Yes	Y		1	1.2	10	1	14	-.5	15	-.8...												
11	1.2DL + 1WL AZI 270	Yes	Y		1	1.2	11	1	14		15	-1												
12	1.2DL + 1WL AZI 300	Yes	Y		1	1.2	12	1	14	.5	15	-.8...												
13	1.2DL + 1WL AZI 330	Yes	Y		1	1.2	13	1	14	.866	15	-.5												
14	0.9DL + 1WL AZI 0	Yes	Y		1	.9	2	1	14	1	15													
15	0.9DL + 1WL AZI 30	Yes	Y		1	.9	3	1	14	.866	15	.5												
16	0.9DL + 1WL AZI 60	Yes	Y		1	.9	4	1	14	.5	15	.866												
17	0.9DL + 1WL AZI 90	Yes	Y		1	.9	5	1	14		15	1												
18	0.9DL + 1WL AZI 120	Yes	Y		1	.9	6	1	14	-.5	15	.866												
19	0.9DL + 1WL AZI 150	Yes	Y		1	.9	7	1	14	-.8...	15	.5												
20	0.9DL + 1WL AZI 180	Yes	Y		1	.9	8	1	14	-1	15													
21	0.9DL + 1WL AZI 210	Yes	Y		1	.9	9	1	14	-.8...	15	-.5												
22	0.9DL + 1WL AZI 240	Yes	Y		1	.9	10	1	14	-.5	15	-.8...												
23	0.9DL + 1WL AZI 270	Yes	Y		1	.9	11	1	14		15	-1												
24	0.9DL + 1WL AZI 300	Yes	Y		1	.9	12	1	14	.5	15	-.8...												
25	0.9DL + 1WL AZI 330	Yes	Y		1	.9	13	1	14	.866	15	-.5												
26	1.2D + 1.0Di	Yes	Y		1	1.2	16	1																
27	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	17	1	29	1	30											
28	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	18	1	29	.866	30	.5										
29	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	19	1	29	.5	30	.866										
30	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	20	1	29		30	1										
31	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	21	1	29	-.5	30	.866										

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
32	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	22	1	29	-.8...	30	.5										
33	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	23	1	29	-1	30											
34	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	24	1	29	-.8...	30	-.5										
35	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	25	1	29	-.5	30	-.8...										
36	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	26	1	29		30	-1										
37	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	27	1	29	.5	30	-.8...										
38	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	28	1	29	.866	30	-.5										
39	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.241	31	1	32															
40	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.241	31	.866	32	.5														
41	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.241	31	.5	32	.866														
42	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.241	31		32	1														
43	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.241	31	-.5	32	.866														
44	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.241	31	-.8...	32	.5														
45	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.241	31	-1	32															
46	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.241	31	-.8...	32	-.5														
47	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.241	31	-.5	32	-.8...														
48	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.241	31		32	-1														
49	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.241	31	.5	32	-.8...														
50	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.241	31	.866	32	-.5														
51	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.859	31	1	32															
52	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.859	31	.866	32	.5														
53	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.859	31	.5	32	.866														
54	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.859	31		32	1														
55	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.859	31	-.5	32	.866														
56	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.859	31	-.8...	32	.5														
57	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.859	31	-1	32															
58	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.859	31	-.8...	32	-.5														
59	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.859	31	-.5	32	-.8...														
60	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.859	31		32	-1														
61	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.859	31	.5	32	-.8...														
62	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.859	31	.866	32	-.5														
63	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	2	.254	14	.254	15		33	1.5										
64	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	3	.254	14	.22	15	.127	33	1.5										
65	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	4	.254	14	.127	15	.22	33	1.5										
66	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	5	.254	14		15	.254	33	1.5										
67	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	6	.254	14	-.1...	15	.22	33	1.5										
68	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	7	.254	14	-.22	15	.127	33	1.5										
69	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	8	.254	14	-.2...	15		33	1.5										
70	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	9	.254	14	-.22	15	-.1...	33	1.5										
71	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	10	.254	14	-.1...	15	-.22	33	1.5										
72	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	11	.254	14		15	-.2...	33	1.5										
73	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	12	.254	14	.127	15	-.22	33	1.5										
74	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	13	.254	14	.22	15	-.1...	33	1.5										
75	1.2DL + 1.5LL	Yes	Y		1	1.2	33	1.5																
76	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	2	.064	14	.064	15											
77	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	3	.064	14	.055	15	.032										
78	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	4	.064	14	.032	15	.055										
79	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	5	.064	14		15	.064										
80	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	6	.064	14	-.0...	15	.055										
81	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	7	.064	14	-.0...	15	.032										
82	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	8	.064	14	-.0...	15											
83	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	9	.064	14	-.0...	15	-.0...										
84	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	10	.064	14	-.0...	15	-.0...										
85	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	11	.064	14		15	-.0...										
86	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	12	.064	14	.032	15	-.0...										
87	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	13	.064	14	.055	15	-.0...										
88	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	2	.064	14	.064	15											

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
89	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	3	.064	14	.055	15	.032												
90	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	4	.064	14	.032	15	.055												
91	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	5	.064	14		15	.064												
92	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	6	.064	14	-.0...	15	.055												
93	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	7	.064	14	-.0...	15	.032												
94	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	8	.064	14	-.0...	15													
95	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	9	.064	14	-.0...	15	-.0...												
96	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	10	.064	14	-.0...	15	-.0...												
97	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	11	.064	14		15	-.0...												
98	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	12	.064	14	.032	15	-.0...												
99	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	13	.064	14	.055	15	-.0...												
100	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	2	.064	14	.064	15													
101	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	3	.064	14	.055	15	.032												
102	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	4	.064	14	.032	15	.055												
103	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	5	.064	14		15	.064												
104	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	6	.064	14	-.0...	15	.055												
105	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	7	.064	14	-.0...	15	.032												
106	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	8	.064	14	-.0...	15													
107	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	9	.064	14	-.0...	15	-.0...												
108	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	10	.064	14	-.0...	15	-.0...												
109	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	11	.064	14		15	-.0...												
110	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	12	.064	14	.032	15	-.0...												
111	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	13	.064	14	.055	15	-.0...												
112	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	2	.064	14	.064	15													
113	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	3	.064	14	.055	15	.032												
114	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	4	.064	14	.032	15	.055												
115	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	5	.064	14		15	.064												
116	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	6	.064	14	-.0...	15	.055												
117	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	7	.064	14	-.0...	15	.032												
118	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	8	.064	14	-.0...	15													
119	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	9	.064	14	-.0...	15	-.0...												
120	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	10	.064	14	-.0...	15	-.0...												
121	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	11	.064	14		15	-.0...												
122	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	12	.064	14	.032	15	-.0...												
123	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	13	.064	14	.055	15	-.0...												
124	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	2	.064	14	.064	15													
125	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	3	.064	14	.055	15	.032												
126	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	4	.064	14	.032	15	.055												
127	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	5	.064	14		15	.064												
128	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	6	.064	14	-.0...	15	.055												
129	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	7	.064	14	-.0...	15	.032												
130	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	8	.064	14	-.0...	15													
131	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	9	.064	14	-.0...	15	-.0...												
132	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	10	.064	14	-.0...	15	-.0...												
133	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	11	.064	14		15	-.0...												
134	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	12	.064	14	.032	15	-.0...												
135	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	13	.064	14	.055	15	-.0...												
136	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	2	.064	14	.064	15													
137	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	3	.064	14	.055	15	.032												
138	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	4	.064	14	.032	15	.055												
139	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	5	.064	14		15	.064												
140	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	6	.064	14	-.0...	15	.055												
141	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	7	.064	14	-.0...	15	.032												
142	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	8	.064	14	-.0...	15													
143	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	9	.064	14	-.0...	15	-.0...												
144	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	10	.064	14	-.0...	15	-.0...												
145	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	11	.064	14		15	-.0...												

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
146	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	12	.064	14	.032	15	-.0...										
147	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	13	.064	14	.055	15	-.0...										
148	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	2	.064	14	.064	15											
149	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	3	.064	14	.055	15	.032										
150	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	4	.064	14	.032	15	.055										
151	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	5	.064	14		15	.064										
152	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	6	.064	14	-.0...	15	.055										
153	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	7	.064	14	-.0...	15	.032										
154	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	8	.064	14	-.0...	15											
155	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	9	.064	14	-.0...	15	-.0...										
156	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	10	.064	14	-.0...	15	-.0...										
157	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	11	.064	14		15	-.0...										
158	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	12	.064	14	.032	15	-.0...										
159	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	13	.064	14	.055	15	-.0...										
160	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	2	.064	14	.064	15											
161	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	3	.064	14	.055	15	.032										
162	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	4	.064	14	.032	15	.055										
163	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	5	.064	14		15	.064										
164	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	6	.064	14	-.0...	15	.055										
165	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	7	.064	14	-.0...	15	.032										
166	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	8	.064	14	-.0...	15											
167	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	9	.064	14	-.0...	15	-.0...										
168	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	10	.064	14	-.0...	15	-.0...										
169	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	11	.064	14		15	-.0...										
170	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	12	.064	14	.032	15	-.0...										
171	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	13	.064	14	.055	15	-.0...										
172	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	2	.064	14	.064	15											
173	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	3	.064	14	.055	15	.032										
174	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	4	.064	14	.032	15	.055										
175	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	5	.064	14		15	.064										
176	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	6	.064	14	-.0...	15	.055										
177	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	7	.064	14	-.0...	15	.032										
178	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	8	.064	14	-.0...	15											
179	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	9	.064	14	-.0...	15	-.0...										
180	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	10	.064	14	-.0...	15	-.0...										
181	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	11	.064	14		15	-.0...										
182	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	12	.064	14	.032	15	-.0...										
183	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	13	.064	14	.055	15	-.0...										
184	1.2DL + 1.5LM-MP10 +...	Yes	Y		1	1.2	43	1.5	2	.064	14	.064	15											
185	1.2DL + 1.5LM-MP10 +...	Yes	Y		1	1.2	43	1.5	3	.064	14	.055	15	.032										
186	1.2DL + 1.5LM-MP10 +...	Yes	Y		1	1.2	43	1.5	4	.064	14	.032	15	.055										
187	1.2DL + 1.5LM-MP10 +...	Yes	Y		1	1.2	43	1.5	5	.064	14		15	.064										
188	1.2DL + 1.5LM-MP10 +...	Yes	Y		1	1.2	43	1.5	6	.064	14	-.0...	15	.055										
189	1.2DL + 1.5LM-MP10 +...	Yes	Y		1	1.2	43	1.5	7	.064	14	-.0...	15	.032										
190	1.2DL + 1.5LM-MP10 +...	Yes	Y		1	1.2	43	1.5	8	.064	14	-.0...	15											
191	1.2DL + 1.5LM-MP10 +...	Yes	Y		1	1.2	43	1.5	9	.064	14	-.0...	15	-.0...										
192	1.2DL + 1.5LM-MP10 +...	Yes	Y		1	1.2	43	1.5	10	.064	14	-.0...	15	-.0...										
193	1.2DL + 1.5LM-MP10 +...	Yes	Y		1	1.2	43	1.5	11	.064	14		15	-.0...										
194	1.2DL + 1.5LM-MP10 +...	Yes	Y		1	1.2	43	1.5	12	.064	14	.032	15	-.0...										
195	1.2DL + 1.5LM-MP10 +...	Yes	Y		1	1.2	43	1.5	13	.064	14	.055	15	-.0...										
196	1.2DL + 1.5LM-MP11 +...	Yes	Y		1	1.2	44	1.5	2	.064	14	.064	15											
197	1.2DL + 1.5LM-MP11 +...	Yes	Y		1	1.2	44	1.5	3	.064	14	.055	15	.032										
198	1.2DL + 1.5LM-MP11 +...	Yes	Y		1	1.2	44	1.5	4	.064	14	.032	15	.055										
199	1.2DL + 1.5LM-MP11 +...	Yes	Y		1	1.2	44	1.5	5	.064	14		15	.064										
200	1.2DL + 1.5LM-MP11 +...	Yes	Y		1	1.2	44	1.5	6	.064	14	-.0...	15	.055										
201	1.2DL + 1.5LM-MP11 +...	Yes	Y		1	1.2	44	1.5	7	.064	14	-.0...	15	.032										
202	1.2DL + 1.5LM-MP11 +...	Yes	Y		1	1.2	44	1.5	8	.064	14	-.0...	15											

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
203	1.2DL + 1.5LM-MP11 +...	Yes	Y		1	1.2	44	1.5	9	.064	14	-.0...	15	-.0...										
204	1.2DL + 1.5LM-MP11 +...	Yes	Y		1	1.2	44	1.5	10	.064	14	-.0...	15	-.0...										
205	1.2DL + 1.5LM-MP11 +...	Yes	Y		1	1.2	44	1.5	11	.064	14		15	-.0...										
206	1.2DL + 1.5LM-MP11 +...	Yes	Y		1	1.2	44	1.5	12	.064	14	.032	15	-.0...										
207	1.2DL + 1.5LM-MP11 +...	Yes	Y		1	1.2	44	1.5	13	.064	14	.055	15	-.0...										
208	1.2DL + 1.5LM-MP12 +...	Yes	Y		1	1.2	45	1.5	2	.064	14	.064	15											
209	1.2DL + 1.5LM-MP12 +...	Yes	Y		1	1.2	45	1.5	3	.064	14	.055	15	.032										
210	1.2DL + 1.5LM-MP12 +...	Yes	Y		1	1.2	45	1.5	4	.064	14	.032	15	.055										
211	1.2DL + 1.5LM-MP12 +...	Yes	Y		1	1.2	45	1.5	5	.064	14		15	.064										
212	1.2DL + 1.5LM-MP12 +...	Yes	Y		1	1.2	45	1.5	6	.064	14	-.0...	15	.055										
213	1.2DL + 1.5LM-MP12 +...	Yes	Y		1	1.2	45	1.5	7	.064	14	-.0...	15	.032										
214	1.2DL + 1.5LM-MP12 +...	Yes	Y		1	1.2	45	1.5	8	.064	14	-.0...	15											
215	1.2DL + 1.5LM-MP12 +...	Yes	Y		1	1.2	45	1.5	9	.064	14	-.0...	15	-.0...										
216	1.2DL + 1.5LM-MP12 +...	Yes	Y		1	1.2	45	1.5	10	.064	14	-.0...	15	-.0...										
217	1.2DL + 1.5LM-MP12 +...	Yes	Y		1	1.2	45	1.5	11	.064	14		15	-.0...										
218	1.2DL + 1.5LM-MP12 +...	Yes	Y		1	1.2	45	1.5	12	.064	14	.032	15	-.0...										
219	1.2DL + 1.5LM-MP12 +...	Yes	Y		1	1.2	45	1.5	13	.064	14	.055	15	-.0...										
220	1.2DL + 1.5LM-MP13 +...	Yes	Y		1	1.2	46	1.5	2	.064	14	.064	15											
221	1.2DL + 1.5LM-MP13 +...	Yes	Y		1	1.2	46	1.5	3	.064	14	.055	15	.032										
222	1.2DL + 1.5LM-MP13 +...	Yes	Y		1	1.2	46	1.5	4	.064	14	.032	15	.055										
223	1.2DL + 1.5LM-MP13 +...	Yes	Y		1	1.2	46	1.5	5	.064	14		15	.064										
224	1.2DL + 1.5LM-MP13 +...	Yes	Y		1	1.2	46	1.5	6	.064	14	-.0...	15	.055										
225	1.2DL + 1.5LM-MP13 +...	Yes	Y		1	1.2	46	1.5	7	.064	14	-.0...	15	.032										
226	1.2DL + 1.5LM-MP13 +...	Yes	Y		1	1.2	46	1.5	8	.064	14	-.0...	15											
227	1.2DL + 1.5LM-MP13 +...	Yes	Y		1	1.2	46	1.5	9	.064	14	-.0...	15	-.0...										
228	1.2DL + 1.5LM-MP13 +...	Yes	Y		1	1.2	46	1.5	10	.064	14	-.0...	15	-.0...										
229	1.2DL + 1.5LM-MP13 +...	Yes	Y		1	1.2	46	1.5	11	.064	14		15	-.0...										
230	1.2DL + 1.5LM-MP13 +...	Yes	Y		1	1.2	46	1.5	12	.064	14	.032	15	-.0...										
231	1.2DL + 1.5LM-MP13 +...	Yes	Y		1	1.2	46	1.5	13	.064	14	.055	15	-.0...										
232	1.2DL + 1.5LM-MP14 +...	Yes	Y		1	1.2	47	1.5	2	.064	14	.064	15											
233	1.2DL + 1.5LM-MP14 +...	Yes	Y		1	1.2	47	1.5	3	.064	14	.055	15	.032										
234	1.2DL + 1.5LM-MP14 +...	Yes	Y		1	1.2	47	1.5	4	.064	14	.032	15	.055										
235	1.2DL + 1.5LM-MP14 +...	Yes	Y		1	1.2	47	1.5	5	.064	14		15	.064										
236	1.2DL + 1.5LM-MP14 +...	Yes	Y		1	1.2	47	1.5	6	.064	14	-.0...	15	.055										
237	1.2DL + 1.5LM-MP14 +...	Yes	Y		1	1.2	47	1.5	7	.064	14	-.0...	15	.032										
238	1.2DL + 1.5LM-MP14 +...	Yes	Y		1	1.2	47	1.5	8	.064	14	-.0...	15											
239	1.2DL + 1.5LM-MP14 +...	Yes	Y		1	1.2	47	1.5	9	.064	14	-.0...	15	-.0...										
240	1.2DL + 1.5LM-MP14 +...	Yes	Y		1	1.2	47	1.5	10	.064	14	-.0...	15	-.0...										
241	1.2DL + 1.5LM-MP14 +...	Yes	Y		1	1.2	47	1.5	11	.064	14		15	-.0...										
242	1.2DL + 1.5LM-MP14 +...	Yes	Y		1	1.2	47	1.5	12	.064	14	.032	15	-.0...										
243	1.2DL + 1.5LM-MP14 +...	Yes	Y		1	1.2	47	1.5	13	.064	14	.055	15	-.0...										
244	1.2DL + 1.5LM-MP15 +...	Yes	Y		1	1.2	48	1.5	2	.064	14	.064	15											
245	1.2DL + 1.5LM-MP15 +...	Yes	Y		1	1.2	48	1.5	3	.064	14	.055	15	.032										
246	1.2DL + 1.5LM-MP15 +...	Yes	Y		1	1.2	48	1.5	4	.064	14	.032	15	.055										
247	1.2DL + 1.5LM-MP15 +...	Yes	Y		1	1.2	48	1.5	5	.064	14		15	.064										
248	1.2DL + 1.5LM-MP15 +...	Yes	Y		1	1.2	48	1.5	6	.064	14	-.0...	15	.055										
249	1.2DL + 1.5LM-MP15 +...	Yes	Y		1	1.2	48	1.5	7	.064	14	-.0...	15	.032										
250	1.2DL + 1.5LM-MP15 +...	Yes	Y		1	1.2	48	1.5	8	.064	14	-.0...	15											
251	1.2DL + 1.5LM-MP15 +...	Yes	Y		1	1.2	48	1.5	9	.064	14	-.0...	15	-.0...										
252	1.2DL + 1.5LM-MP15 +...	Yes	Y		1	1.2	48	1.5	10	.064	14	-.0...	15	-.0...										
253	1.2DL + 1.5LM-MP15 +...	Yes	Y		1	1.2	48	1.5	11	.064	14		15	-.0...										
254	1.2DL + 1.5LM-MP15 +...	Yes	Y		1	1.2	48	1.5	12	.064	14	.032	15	-.0...										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N4	max	1487.45	18	2998.933	33	1376.851	2	2365.023	14	756.894	3	410.726	133
2		min	-1497.559	12	6.558	14	-1356.336	20	-7720.859	33	-751.283	21	-411.738	79
3	N23	max	1669.621	5	2998.919	37	1672.282	14	3858.703	37	1458.469	10	6672.406	37
4		min	-1650.811	23	-69.638	18	-1678.69	8	-1292.323	18	-1451.536	16	-2194.691	18
5	N25	max	1723.286	17	2994.734	29	1681.404	14	3849.912	29	1470.853	12	1946.641	22
6		min	-1737.173	11	-3.714	22	-1696.39	8	-1155.369	22	-1466.41	18	-6654.589	29
7	Totals:	max	4859.205	17	8419.034	35	4728.628	2						
8		min	-4859.211	11	2219.919	53	-4728.597	20						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*...	phi*...	phi*...	phi*...	...	Eqn
1	MP13	PIPE_2.5	.819	78	6	.072	78		5	3003...	50715	3596...	3596...		H1-...
2	MP3	PIPE_2.5	.817	78	2	.077	78		12	3003...	50715	3596...	3596...		H1-...
3	MP8	PIPE_2.5	.776	78	10	.071	78		8	3003...	50715	3596...	3596...		H1-...
4	S2	BPL 5.375...	.718	0	5	.190	9.281	z	13	1387...	1533...	1237...	2566...		H1-...
5	S3	BPL 5.375...	.709	0	11	.178	9.281	z	9	1387...	1533...	1237...	2566...		H1-...
6	S1	BPL 5.375...	.684	0	7	.182	9.281	z	5	1387...	1533...	1237...	2566...		H1-...
7	HR2	PIPE_2.0	.429	81	5	.227	81		5	5397...	32130	1871...	1871...		H1-...
8	G5	L3X3X4	.422	44	30	.024	44	z	196	1437...	46656	1688...	3134...		H2-1
9	G6	L3X3X4	.420	44	38	.024	44	y	144	1437...	46656	1688...	3133...		H2-1
10	G4	L3X3X4	.419	44	34	.024	43.083	y	80	1437...	46656	1688...	3134...		H2-1
11	HR3	PIPE_2.0	.406	81	11	.210	81		12	5397...	32130	1871...	1871...		H1-...
12	HR1	PIPE_2.0	.405	81	7	.212	81		8	5397...	32130	1871...	1871...		H1-...
13	HOR2	L3X3X4	.403	109.146	5	.403	169	y	11	2954...	46656	1688...	3755...		H2-1
14	HOR3	L3X3X4	.396	109.146	11	.389	0	z	7	2954...	46656	1688...	3755...		H2-1
15	MP9	PIPE_2.0	.390	6	5	.073	48		12	2086...	32130	1871...	1871...		H1-...
16	HOR1	L3X3X4	.389	109.146	7	.366	169	z	13	2954...	46656	1688...	3755...		H2-1
17	MP12	PIPE_2.0	.383	18	11	.085	60		4	2086...	32130	1871...	1871...		H1-...
18	MP14	PIPE_2.0	.377	6	13	.076	48		8	2086...	32130	1871...	1871...		H1-...
19	MP2	PIPE_2.0	.375	18	7	.093	60		12	2086...	32130	1871...	1871...		H1-...
20	MP11	PIPE_2.0	.370	59.5	205	.086	18.375		38	1785...	32130	1871...	1871...		H1-...
21	MP1	PIPE_2.0	.369	59.5	141	.088	18.375		36	1785...	32130	1871...	1871...		H1-...
22	MP6	PIPE_2.0	.368	59.5	77	.087	18.375		32	1785...	32130	1871...	1871...		H1-...
23	MP10	PIPE_2.0	.362	48	187	.075	6		246	2086...	32130	1871...	1871...		H1-...
24	MP15	PIPE_2.0	.361	48	135	.078	48		8	2086...	32130	1871...	1871...		H1-...
25	MP5	PIPE_2.0	.360	48	251	.075	6		127	2086...	32130	1871...	1871...		H1-...
26	MP4	PIPE_2.0	.360	6	9	.073	48		4	2086...	32130	1871...	1871...		H1-...
27	MP7	PIPE_2.0	.348	18	3	.094	60		8	2086...	32130	1871...	1871...		H1-...
28	G2	LL3x3x4x0	.106	0	198	.018	46.765	z	5	7639...	93312	6480	4361...		H1-...
29	G3	LL3x3x4x0	.106	0	146	.017	46.765	z	13	7639...	93312	6480	4361...		H1-...
30	G1	LL3x3x4x0	.106	0	82	.016	46.765	z	9	7639...	93312	6480	4361...		H1-...
31	CP2	PL 3.5"x.6...	.003	4.75	2	.495	0	y	5	6124...	70875	922....	5167...		H1-...
32	CP3	PL 3.5"x.6...	.003	4.75	11	.480	9.5	y	13	6124...	70875	922....	5167...		H1-...
33	CP1	PL 3.5"x.6...	.003	4.75	6	.450	0	y	9	6124...	70875	922....	5167...		H1-...

APPENDIX D

ADDITIONAL CALCUATIONS

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	528 WHEELERS FARM RD
Site Number:	876320
Connection Description:	Platform to Tower

MAXIMUM BOLT LOADS		
Bolt Tension:	4795.49	lbs
Bolt Shear:	16010.30	lbs

WORST CASE BOLT LOADS[1]		
Bolt Tension:	590.80	lbs
Bolt Shear:	16010.30	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	1	in
Bolt Grade:	A325	-
# of Bolts:	2	-
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #12 on member SA3 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of SA1, SA3, M22

BOLT CHECK		
Tensile Strength	54516.96	
Shear Strength	35342.92	
Max Tensile Usage	8.8%	
Max Shear Usage	45.3%	
Interaction Check (Worst Case)	0.21	***≤1.05***
Result	Pass	

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTNH082A

876320
528 Wheelers Farm Road
Milford, Connecticut 06460

December 23, 2021

EBI Project Number: 6221008007

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**88.75%**

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

December 23, 2021

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

Emissions Analysis for Site: CTNH082A - 876320

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **528 Wheelers Farm Road** in **Milford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 528 Wheelers Farm Road in Milford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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 power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

11) 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.

12) 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

13) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied

specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

14) The antenna mounting height centerline of the proposed antennas is 121 feet above ground level (AGL).

15) 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.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	121 feet	Height (AGL):	121 feet	Height (AGL):	121 feet
Channel Count:	13	Channel Count:	13	Channel Count:	13
Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts
ERP (W):	17,868.72	ERP (W):	17,868.72	ERP (W):	17,868.72
Antenna A1 MPE %:	**6.41%**	Antenna B1 MPE %:	**6.41%**	Antenna C1 MPE %:	**6.41%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	121 feet	Height (AGL):	121 feet	Height (AGL):	121 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	**9.88%**	Antenna B2 MPE %:	**9.88%**	Antenna C2 MPE %:	**9.88%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	16.30%
AT&T	14.52%
XM Radio	0.2%
Clearwire	0.15%
T-Mobile (Existing)	19.89%
Metricom	0.67%
Verizon	37.02%
Site Total MPE % :	88.75%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	16.30%
T-Mobile Sector B Total:	16.30%
T-Mobile Sector C Total:	16.30%
Site Total MPE % :	88.75%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	121.0	3.22	600 MHz LTE	400	0.80%
T-Mobile 600 MHz NR	1	1577.94	121.0	4.29	600 MHz NR	400	1.07%
T-Mobile 700 MHz LTE	2	695.22	121.0	3.78	700 MHz LTE	467	0.81%
T-Mobile 1900 MHz GSM	4	1052.26	121.0	11.44	1900 MHz GSM	1000	1.14%
T-Mobile 1900 MHz LTE	2	2104.51	121.0	11.44	1900 MHz LTE	1000	1.14%
T-Mobile 2100 MHz LTE	2	2649.42	121.0	14.40	2100 MHz LTE	1000	1.44%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	121.0	30.02	2500 MHz LTE 1C & 2C Traffic	1000	3.00%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	121.0	2.92	2500 MHz LTE 1C & 2C Broadcast	1000	0.29%
T-Mobile 2500 MHz NR Traffic	1	22089.26	121.0	60.05	2500 MHz NR Traffic	1000	6.00%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	121.0	5.84	2500 MHz NR Broadcast	1000	0.58%
						Total:	**16.30%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	16.30%
Sector B:	16.30%
Sector C:	16.30%
T-Mobile Maximum MPE % (Sector A):	16.30%
Site Total:	88.75%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **88.75%** 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.

T-Mobile

T-MOBILE SITE NUMBER: CTNH082A
T-MOBILE SITE NAME: CTNH082A
SITE TYPE: MONOPOLE
TOWER HEIGHT: 120'-0"

BUSINESS UNIT #: 876320
SITE ADDRESS: 528 WHEELERS FARM ROAD MILFORD, CT 06460
COUNTY: NEW HAVEN
JURISDICTION: NEW HAVEN COUNTY

T-MOBILE SPRINT RETAIN SITE CONFIGURATION: 67E5998E_1XAIR+1OP

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	528 WHEELERS FARM RD
SITE ADDRESS:	528 WHEELERS FARM ROAD MILFORD, CT 06460
COUNTY:	NEW HAVEN
MAP/PARCEL #:	104 915 13
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.24843055° (41° 14' 54.35")
LONGITUDE:	-73.07907500° (-73° 4' 44.67")
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	196.86 FT
CURRENT ZONING:	DO25
JURISDICTION:	NEW HAVEN COUNTY
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	VILLAGE FOUNDATION INC. 528 WHEELERS FARM RD MILFORD CT 06461
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	TBD
TELCO PROVIDER:	TBD

PROJECT TEAM

A&E FIRM:	INFINIGY 1033 WATERVLIET SHAKER RD. ALBANY, NY 12205
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1500 CORPORATE DRIVE CANONSBURG, PA 15317
	TRICIA PELON - PROJECT MANAGER (518) 373-3507
	JASON D'AMICO - CONSTRUCTION MANAGER (860) 209-0104

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
C-6	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR ANSI-D. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

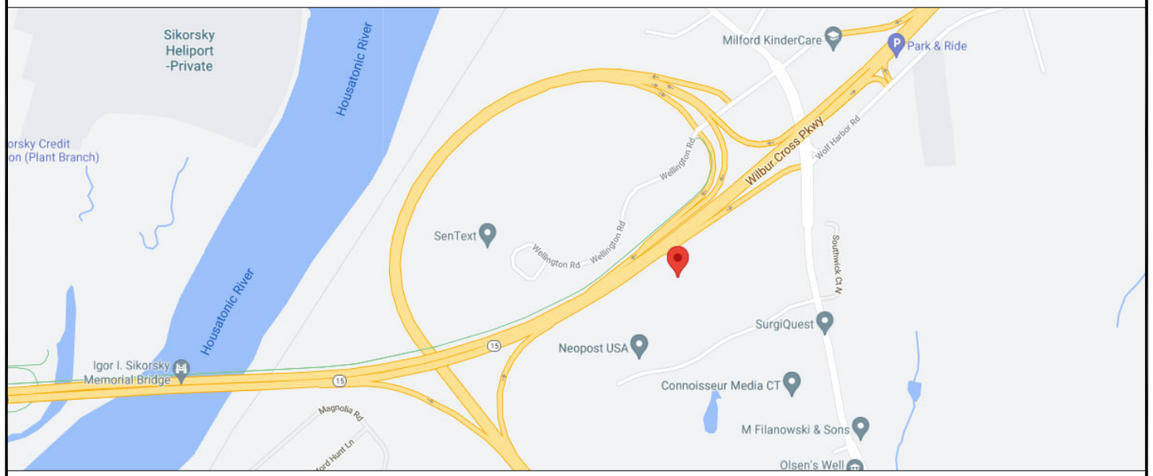
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (6) ANTENNAS
- REMOVE (6) RRHs
- REMOVE (9) TMAs
- REMOVE (4) HYBRID CABLES
- INSTALL (6) ANTENNAS
- INSTALL (6) RRHs
- INSTALL (3) HYBRID CABLES OUTSIDE THE POLE
- INSTALL (1) GPS
- INSTALL (1) GPS LINE

GROUND SCOPE OF WORK:
- REMOVE (1) MMBS EQUIPMENT CABINET
- REMOVE (1) BBU EQUIPMENT CABINET
- INSTALL (1) 6160 & (1) B160 BATTERY CABINETS
- INSTALL (3) BB 6648
- INSTALL (1) DUG20
- INSTALL (1) PSU 4813
- INSTALL (1) CSR 1XRe V2 (GEN2)
- UPGRADE SERVICE TO 200AMP.

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED 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:

CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	GPD ENGINEERING
DATED:	09/28/2021
MOUNT ANALYSIS:	INFINIGY
DATED:	09/10/2021
RFDS REVISION:	1
DATED:	03/30/2021
ORDER ID:	557900
REVISION:	0

CALL CONNECTICUT ONE CALL (800) 922-4455 CBYD.COM CALL 2 WORKING DAYS BEFORE YOU DIG! 811

APPROVALS

APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.		
LAND USE PLANNER		
T-MOBILE		
OPERATIONS		
RF		
NETWORK		
BACKHAUL		
CONSTRUCTION MANAGER		

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH082A

BU #: **876320**
528 WHEELERS FARM RD

528 WHEELERS FARM ROAD
MILFORD, CT 06460

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	06/01/21	RCD	FINAL	SS
1	10/12/21	TJ	FINAL	SS
2	12/01/21	TJ	AZIMUTH UPDATED	SS

STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER

12/01/2021

SHEET NUMBER: T-1
REVISION: 2

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: T–MOBILE
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER……………………40 ksi
   #5 BARS AND LARGER……………………60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH……………3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
      #6 BARS AND LARGER……………………2"
      #5 BARS AND SMALLER……………………1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
      SLAB AND WALLS……………………3/4"
      BEAMS AND COLUMNS……………………1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T–MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE

SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH082A

BU #: **876320**
528 WHEELERS FARM RD

528 WHEELERS FARM ROAD
MILFORD, CT 06460

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	06/01/21	RCD	FINAL	SS
1	10/12/21	TJ	FINAL	SS
2	12/01/21	TJ	AZIMUTH UPDATED	SS

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER

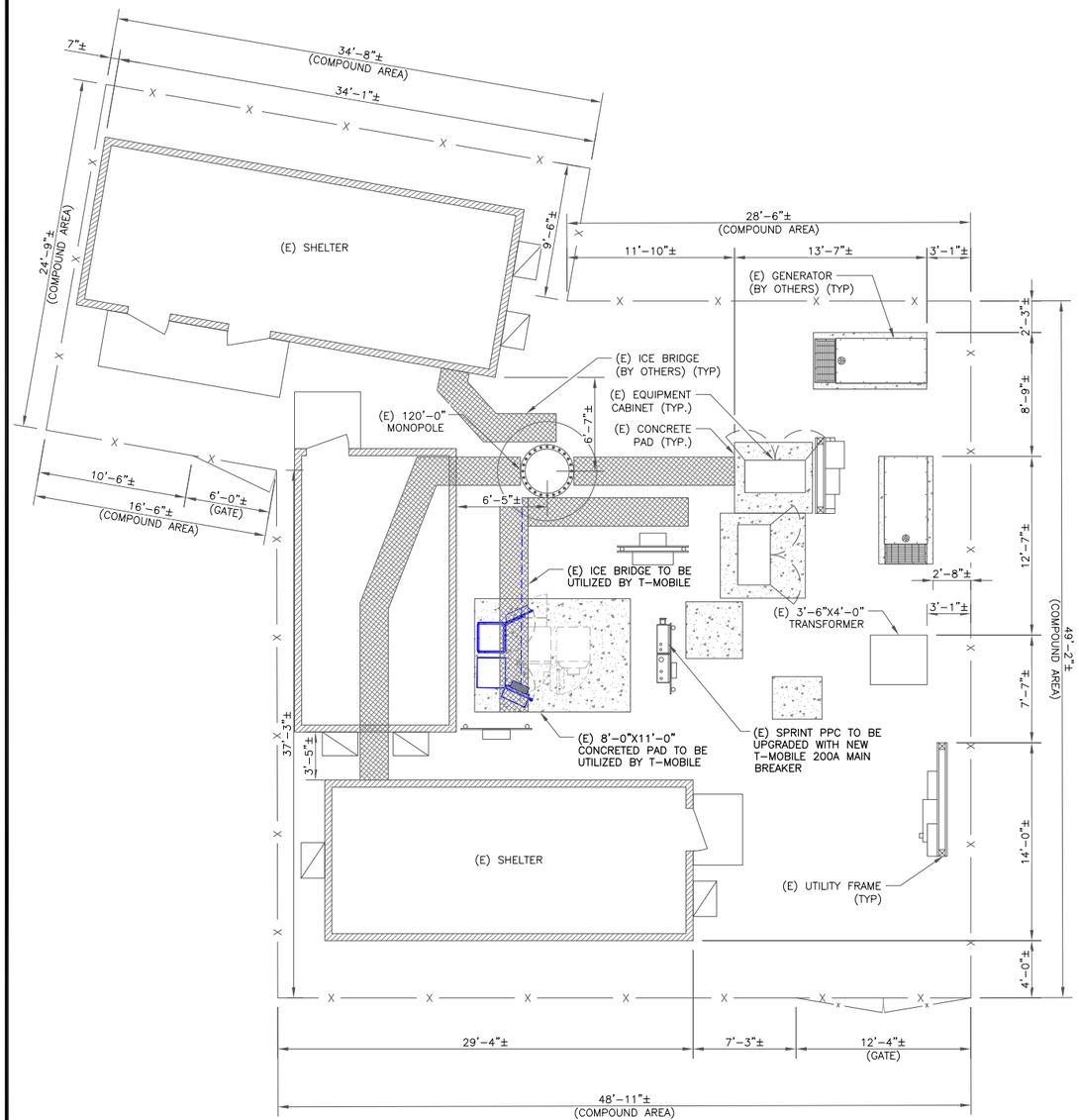
12/01/2021

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-2
REVISION: 2

NOTE:

1. PLANS BASED ON SITE PLAN PROVIDED BY TOWER OWNER AND SITE VISIT PERFORMED BY INFINIGY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING T–MOBILE EQUIPMENT.

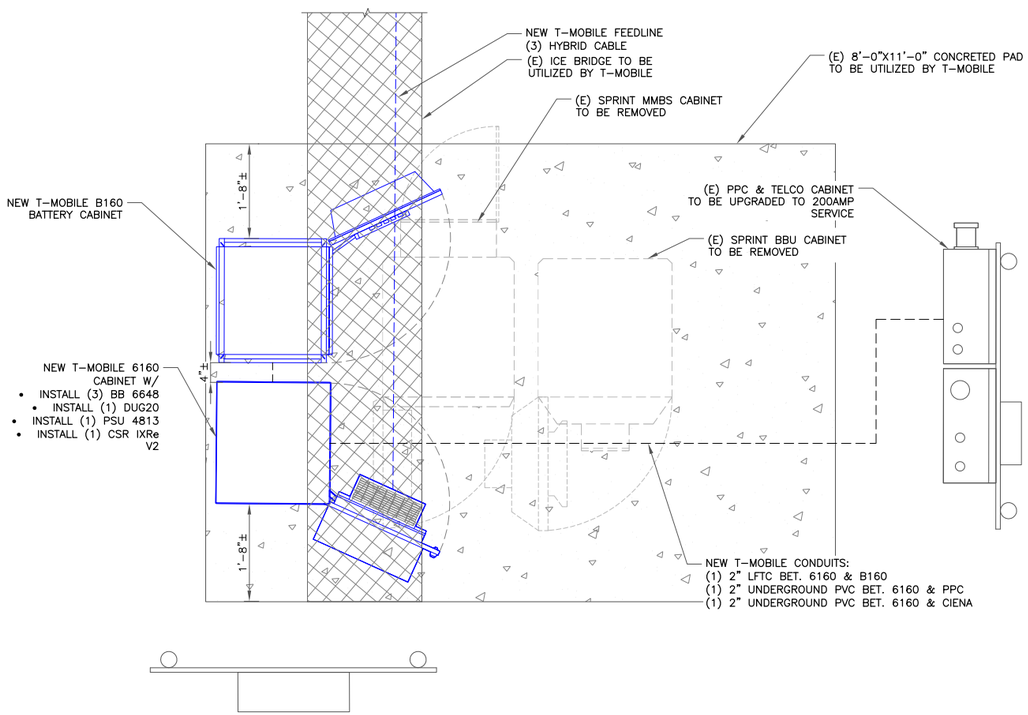


1 SITE PLAN
SCALE: 4' 2' 0 4' 3/16"=1'–0" (FULL SIZE) 3/32"=1'–0" (11x17)

N

NOTES:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T–MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.



2 ENLARGED SITE PLAN
SCALE: 1' 6" 0 1' 3/4"=1'–0" (FULL SIZE) 3/8"=1'–0" (11x17)

N

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH082A

BU #: **876320**
528 WHEELERS FARM RD

528 WHEELERS FARM ROAD
MILFORD, CT 06460

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	06/01/21	RCD	FINAL	SS
1	10/12/21	TJ	FINAL	SS
2	12/01/21	TJ	AZIMUTH UPDATED	SS

STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER

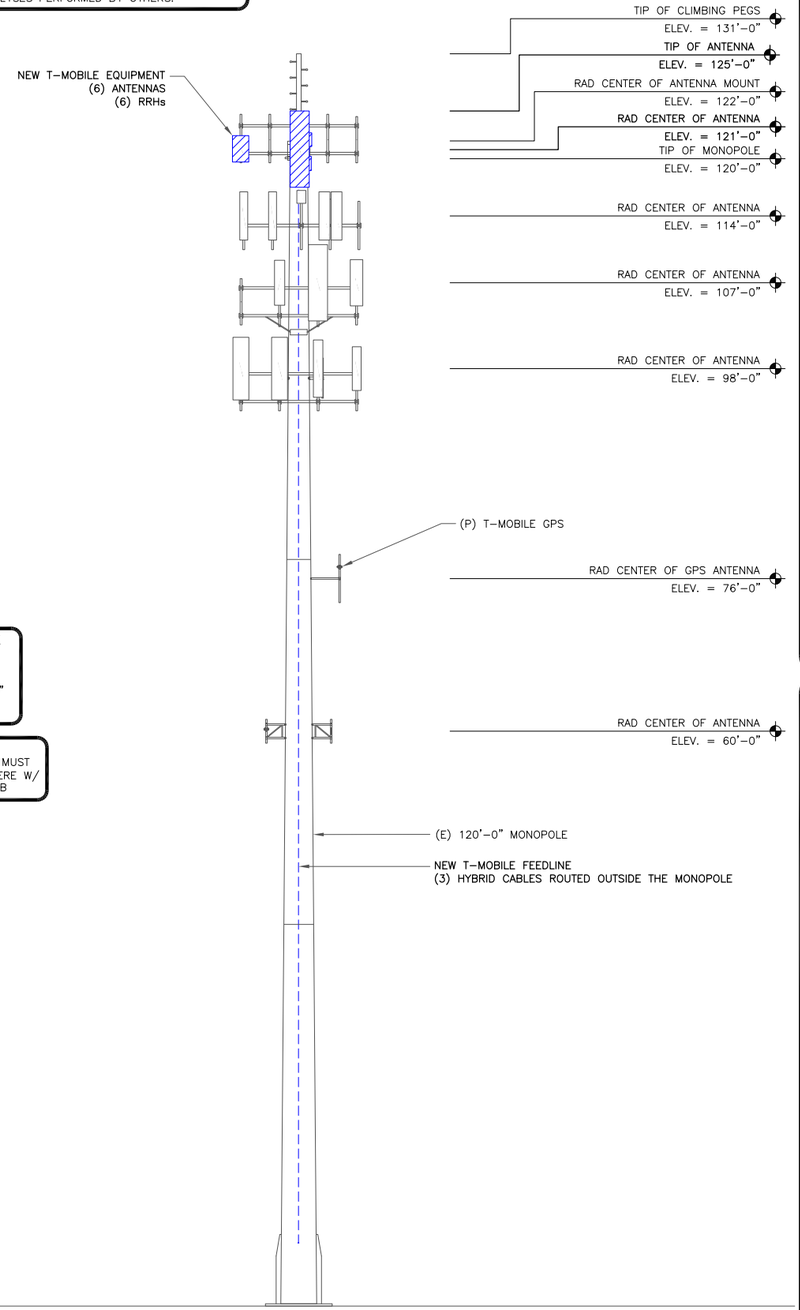
12/01/2021

SHEET NUMBER: C-1

REVISION: 2

NOTES:

1. ELEVATION BASED ON DRAWING PROVIDED BY TOWER OWNER. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.
2. INFINIGY HAS NOT EVALUATED THE TOWER STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.

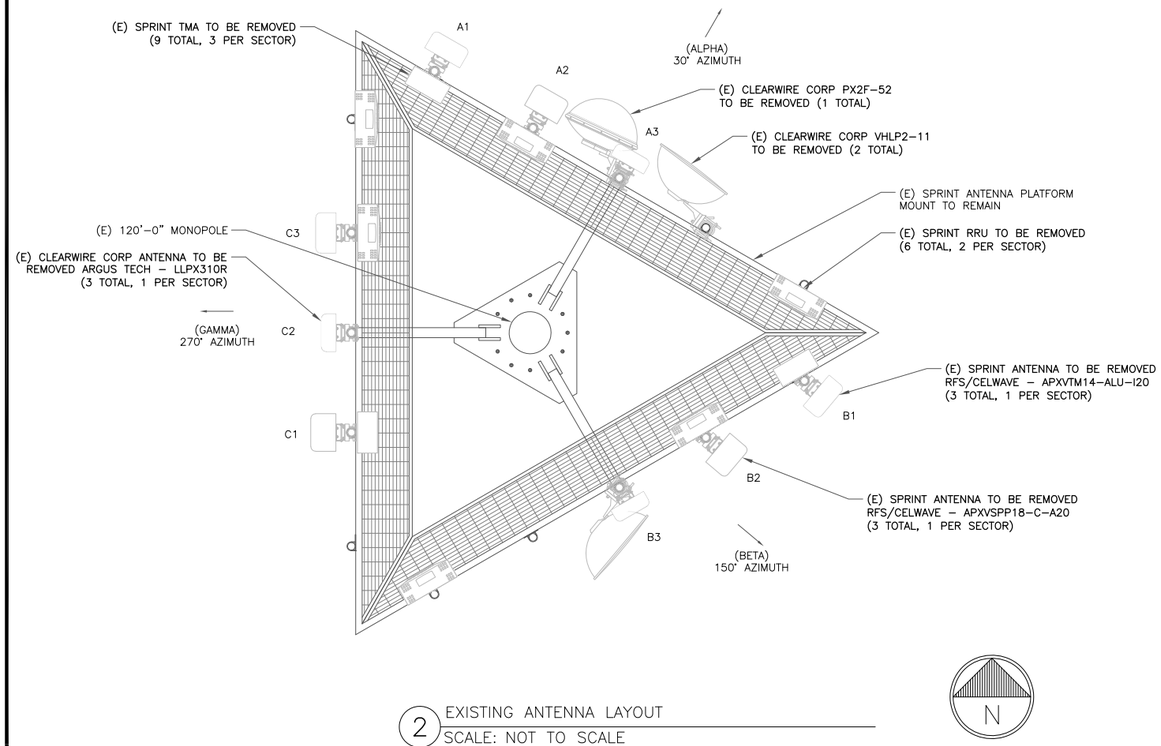


T-MOBILE EQUIPMENT

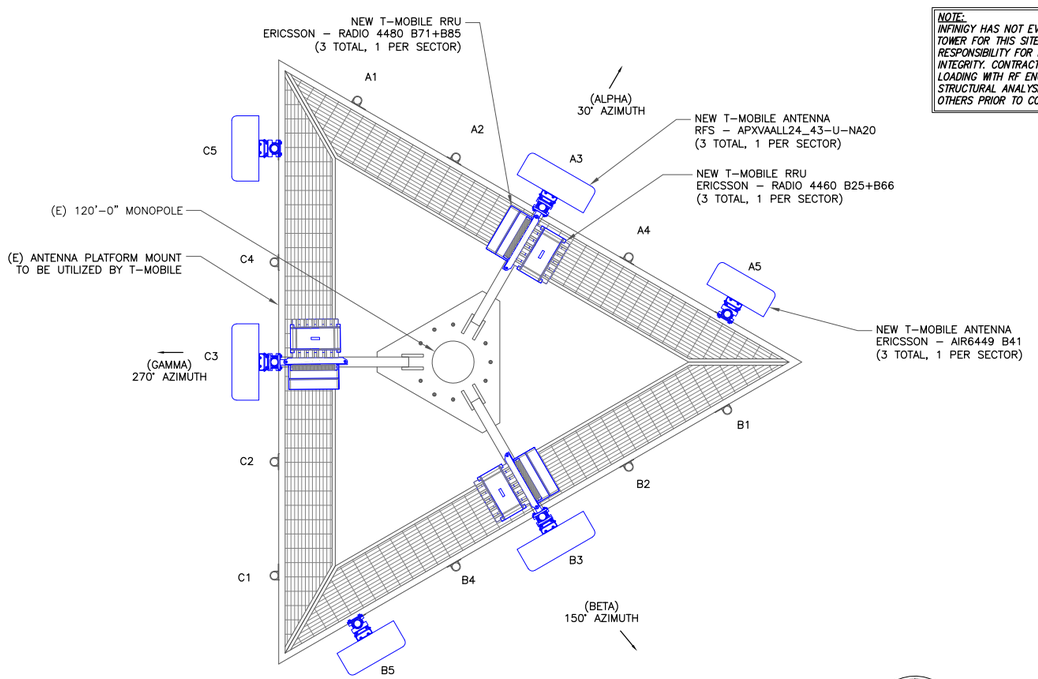
ANTENNA CL: 76'-0"
MOUNT CL: 75'-0"
ANTENNA CL: 121'-0"
MOUNT CL: 122'-0"

ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB

1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



NOTE:
INFINIGY HAS NOT EVALUATED THE TOWER FOR THIS SITE AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. CONTRACTOR TO COORDINATE LOADING WITH RF ENGINEER. REFER TO STRUCTURAL ANALYSIS PERFORMED BY OTHERS PRIOR TO CONSTRUCTION.

3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH082A

BU #: **876320**
528 WHEELERS FARM RD

528 WHEELERS FARM ROAD
MILFORD, CT 06460

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	06/01/21	RCD	FINAL	SS
1	10/12/21	TJ	FINAL	SS
2	12/01/21	TJ	AZIMUTH UPDATED	SS

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED
PROFESSIONAL ENGINEER

12/01/2021

SHEET NUMBER: C-2

REVISION: 2

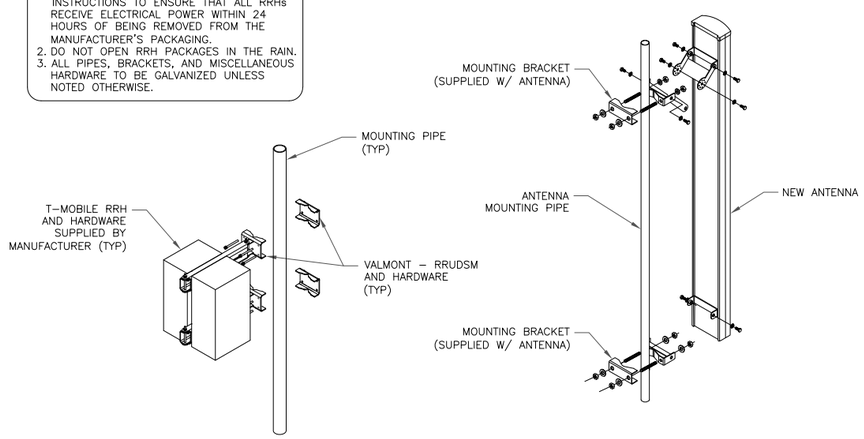
ANTENNA SCHEDULE

SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	--	--	--	--	--	--	--	--	(3) 1-5/8 HYBRID (SHARED)
ALPHA	A2	--	--	--	--	--	--	--	--	
ALPHA	A3	L700, L600, N600, L1900, G1900, L2100	121'-0"	30°	RFS	APXVAALL24_43-U-NA20	--	--	(1) ERICSSON - RRUS 4480 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	
ALPHA	A4	--	--	--	--	--	--	--	--	
ALPHA	A5	L2500, N2500	121'-0"	30°	ERICSSON	AIR6449 B41	--	--	--	
BETA	B1	--	--	--	--	--	--	--	--	(3) 1-5/8 HYBRID (SHARED)
BETA	B2	--	--	--	--	--	--	--	--	
BETA	B3	L700, L600, N600, L1900, G1900, L2100	121'-0"	150°	RFS	APXVAALL24_43-U-NA20	--	--	(1) ERICSSON - RRUS 4480 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	
BETA	B4	--	--	--	--	--	--	--	--	
BETA	B5	L2500, N2500	121'-0"	150°	ERICSSON	AIR6449 B41	--	--	--	
GAMMA	C1	--	--	--	--	--	--	--	--	(3) 1-5/8 HYBRID (SHARED)
GAMMA	C2	--	--	--	--	--	--	--	--	
GAMMA	C3	L700, L600, N600, L1900, G1900, L2100	121'-0"	270°	RFS	APXVAALL24_43-U-NA20	--	--	(1) ERICSSON - RRUS 4480 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	
GAMMA	C4	--	--	--	--	--	--	--	--	
GAMMA	C5	L2500, N2500	121'-0"	270°	ERICSSON	AIR6449 B41	--	--	--	

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH082A

BU #: **876320**
528 WHEELERS FARM RD

528 WHEELERS FARM ROAD
MILFORD, CT 06460

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

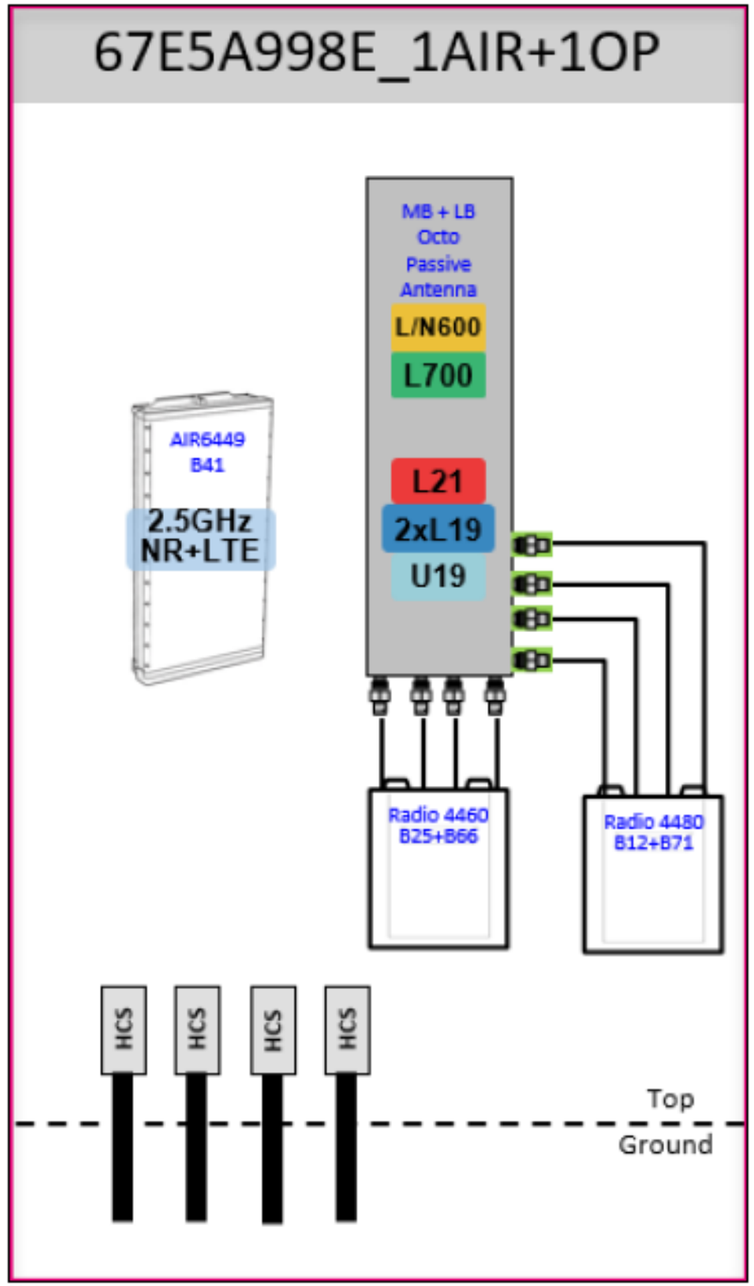
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	06/01/21	RCD	FINAL	SS
1	10/12/21	TJ	FINAL	SS
2	12/01/21	TJ	AZIMUTH UPDATED	SS

STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER

12/01/2021

SHEET NUMBER: C-3

REVISION: 2



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH082A

BU #: **876320**
528 WHEELERS FARM RD

528 WHEELERS FARM ROAD
MILFORD, CT 06460

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	06/01/21	RCD	FINAL	SS
1	10/12/21	TJ	FINAL	SS
2	12/01/21	TJ	AZIMUTH UPDATED	SS

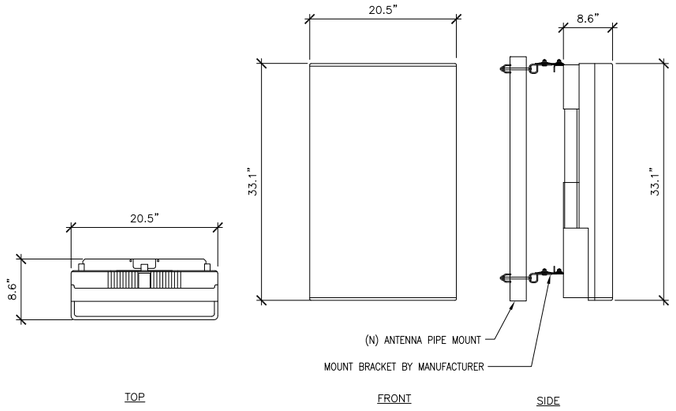
STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED
PROFESSIONAL ENGINEER

12/01/2021

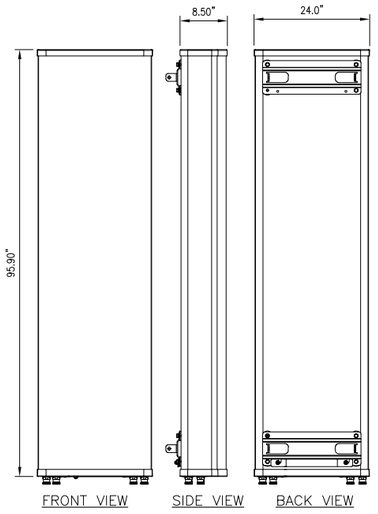
SHEET NUMBER: C-4

REVISION: 2

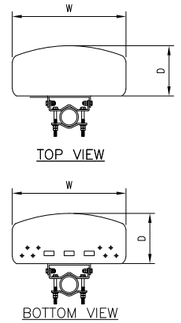
MANUFACTURER: ERICSSON
MODEL: AIR6449 B41
WEIGHT: 104 LBS (W/ MOUNT BRACKET 113)
DIMENSIONS: 33.1"H. X 20.5"W. X 8.6"D.
FREQUENCY: REFER TO RF DATA SHEET



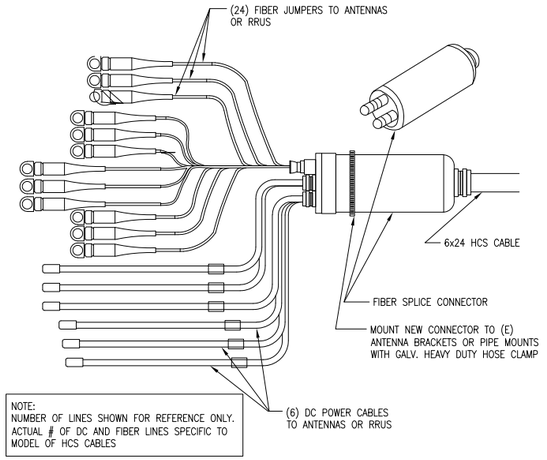
1 (N) AIR6449 B41 ANTENNA SPEC
SCALE: NOT TO SCALE



700MHz RFS ANTENNAS	
MODEL	WEIGHT (lb)
(8') APXVAALL24_43-UNA20	149.90
WEIGHT W/ MOUNTING BRACKET (lb):	154



2 (N) APXVAALL24_43-UNA20 ANTENNA SPEC
SCALE: NOT TO SCALE

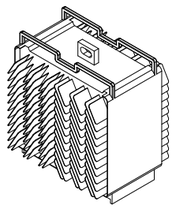


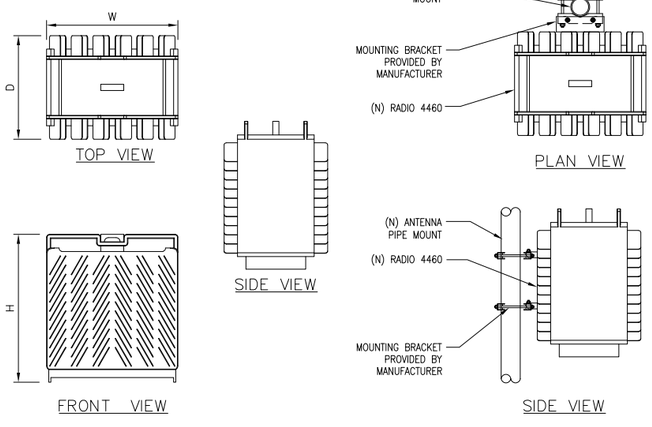
NOTE:
NUMBER OF LINES SHOWN FOR REFERENCE ONLY. ACTUAL # OF DC AND FIBER LINES SPECIFIC TO MODEL OF HCS CABLES

3 (N) 6X24 HCS CABLE DETAIL
SCALE: NOT TO SCALE

ERICSSON RADIO-4460 B25 B66

DIMENSIONS, WxDxH:	17.0"x15.1"x11.9"
MAX OUTPUT POWER:	4x80W (2x(2x80W))
TOTAL WEIGHT:	109 lbs
TEMPERATURE:	-40° TO 55° C

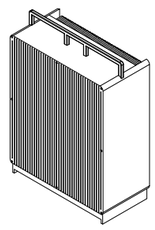


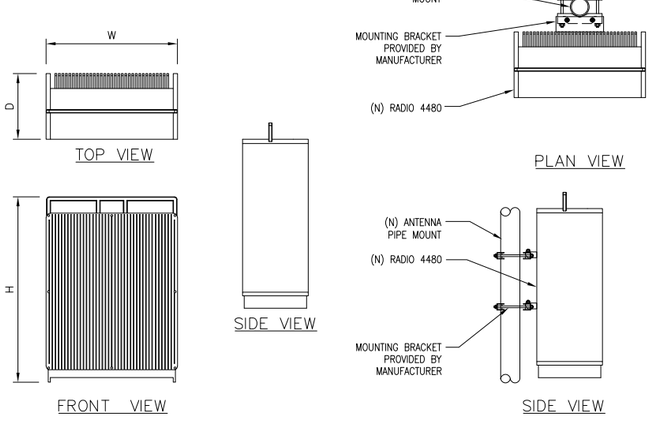


4 (N) RADIO 4460 SPEC
SCALE: NOT TO SCALE

ERICSSON RADIO-4480 B71 B85

DIMENSIONS, WxDxH:	21.8"x15.7"x7.5"
MAX OUTPUT POWER:	4x80W (2x(2x80W))
TOTAL WEIGHT:	93 lbs
TEMPERATURE:	-40° TO 55° C





5 (N) RADIO 4480 SPEC
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH082A

BU #: **876320**
528 WHEELERS FARM RD

528 WHEELERS FARM ROAD
MILFORD, CT 06460

EXISTING 120'-0" MONOPOLE

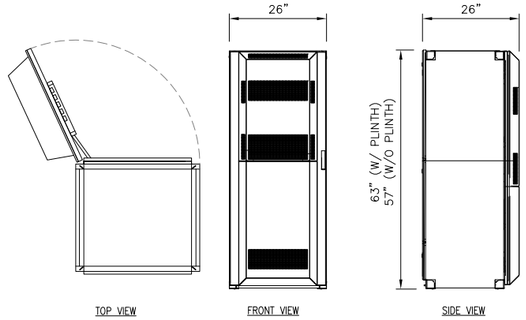
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	06/01/21	RCD	FINAL	SS
1	10/12/21	TJ	FINAL	SS
2	12/01/21	TJ	AZIMUTH UPDATED	SS

STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER

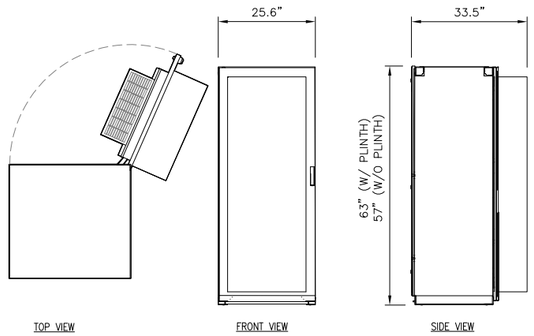
12/01/2021

SHEET NUMBER: C-5
REVISION: 2



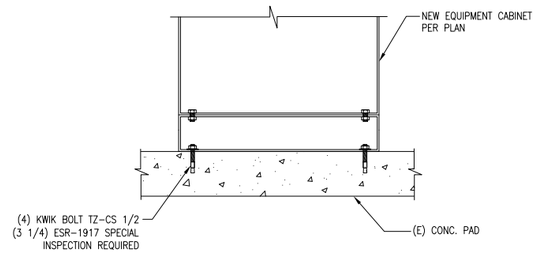
ERICSSON MODEL NO.:	B160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x26"x26" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	485 LBS
MAXIMUM WEIGHT:	2100± LBS

1 (N) B160 CABINET DETAIL
SCALE: NOT TO SCALE

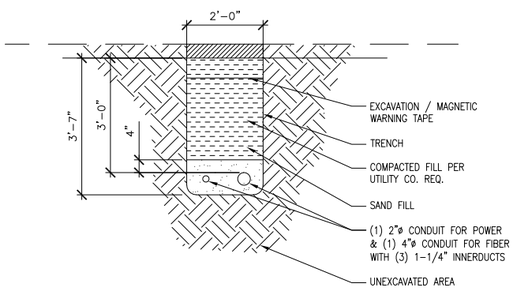


ERICSSON MODEL NO.:	6160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x25.6"x25.6" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	410 LBS
MAXIMUM WEIGHT:	770± LBS

2 (N) 6160 CABINET DETAIL
SCALE: NOT TO SCALE



3 (N) EQUIPMENT CABINET MOUNTING DETAIL
SCALE: NOT TO SCALE



4 (N) CONDUIT TRENCH DETAIL
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH082A

BU #: **876320**
528 WHEELERS FARM RD

528 WHEELERS FARM ROAD
MILFORD, CT 06460

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	06/01/21	RCD	FINAL	SS
1	10/12/21	TJ	FINAL	SS
2	12/01/21	TJ	AZIMUTH UPDATED	SS

STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER

12/01/2021

SHEET NUMBER: C-6
REVISION: 2

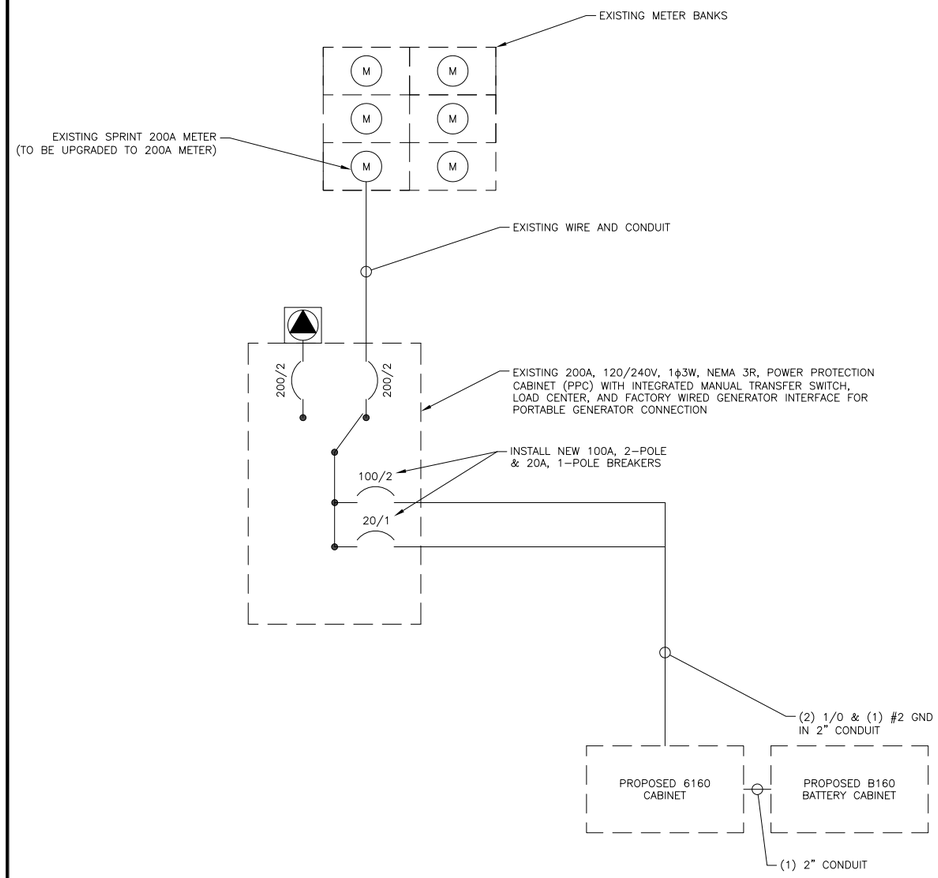
T-MOBILE PANEL SCHEDULE

MAIN: 200A MAIN BREAKER			**VOTAGE/PHASE:** 120/240V, 1-PHASE, 3-WIRE						**SHORT CIRCUIT CURRENT RATING:** --		
MOUNTING: INSIDE PPC ENCLOSURE			**ENCLOSURE:** NEMA 3R						**SURGE PROTECTION DEVICE:** YES		
					PHASE LOADS (VA)						
DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	A	B	CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
TRANSIENT VOLTAGE SURGE SUPPRESSOR (TVSS)	1	C	60	1	901		2	10	NC	900	FAN
	1	C		3		101	4	15	NC	100	OUTLET
6160	**7000**	**C**	**100**	**5**	7200		6	60	NC	200	TOWER LIGHS
	7000	**C**		**7**		7200	8		NC	200	
6160 GFI	**180**	**C**	**20**	**9**	180		10				BLANK
BLANK				11		0	12				
				13	0		14				
				15		0	16				
				17	0		18				
				19		0	20				
				21	0		22	50	NC	0	SPARE
				23		0	24		NC	0	
BASE LOAD (VA) =					8281	7301	C = CONTINUOUS LOAD; NC = NON-CONTINUOUS LOAD				
25% OF CONTINUOUS LOAD (VA) =					1750	1750					
TOTAL LOAD (VA) =					10031	9051					
TOTAL LOAD (A) =					84	75	NEW BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING. CUSTOMER HAS NOT PROVIDED LOADS FOR EQUIPMENT CABINETS THEREFORE THE CABINET LOADS SHOWN ARE ESTIMATED VALUES.				

1 AC PANEL SCHEDULE
SCALE: NOT TO SCALE

NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH082A

BU #: **876320**
528 WHEELERS FARM RD

528 WHEELERS FARM ROAD
MILFORD, CT 06460

EXISTING 120'-0" MONOPOLE

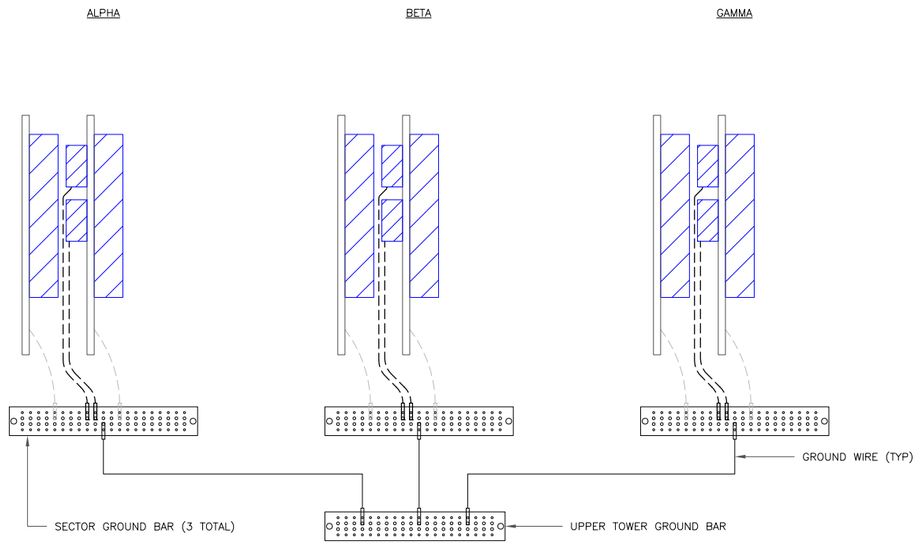
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	06/01/21	RCD	FINAL	SS
1	10/12/21	TJ	FINAL	SS
2	12/01/21	TJ	AZIMUTH UPDATED	SS

STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER

12/01/2021

SHEET NUMBER: E-1
REVISION: 2



NOTE:

ALL NEW GROUNDS TO BE #6 STRANDED COPPER WITH GREEN INSULATION UNLESS NOTED OTHERWISE.

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH082A

BU #: **876320**
528 WHEELERS FARM RD

528 WHEELERS FARM ROAD
MILFORD, CT 06460

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

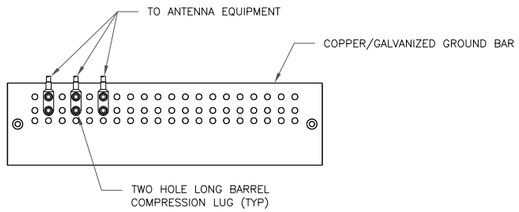
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	06/01/21	RCD	FINAL	SS
1	10/12/21	TJ	FINAL	SS
2	12/01/21	TJ	AZIMUTH UPDATED	SS

STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER

12/01/2021

SHEET NUMBER: G-1

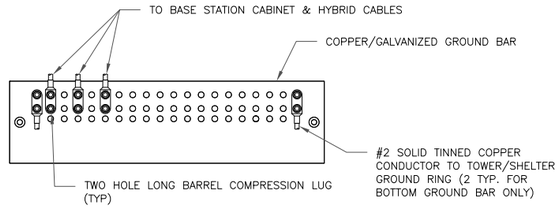
REVISION: 2



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

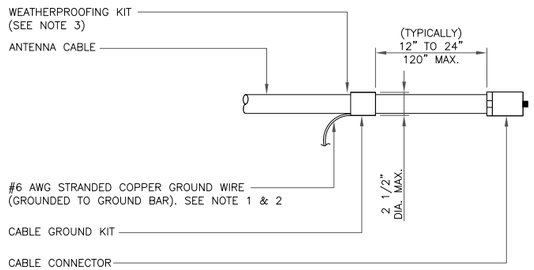
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

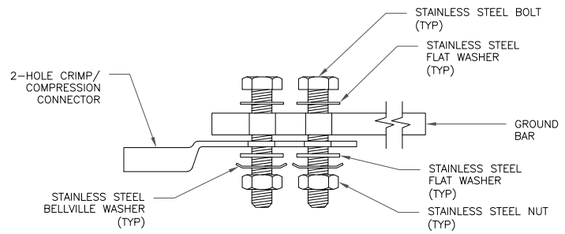
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



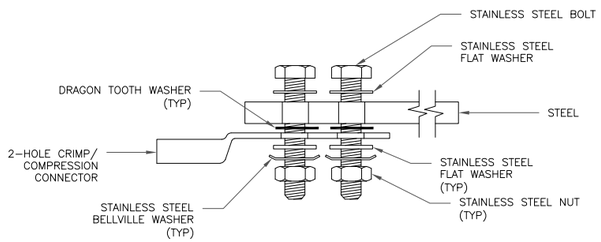
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

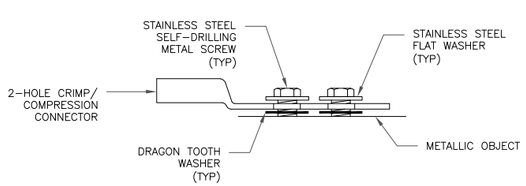
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS



SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

4 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH082A

BU #: **876320**
528 WHEELERS FARM RD

528 WHEELERS FARM ROAD
MILFORD, CT 06460

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	06/01/21	RCD	FINAL	SS
1	10/12/21	TJ	FINAL	SS
2	12/01/21	TJ	AZIMUTH UPDATED	SS

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER

12/01/2021

SHEET NUMBER: G-2
REVISION: 2