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

March 17, 2022

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

RE: **Notice of Exempt Modification for T-Mobile**
Crown#828915; T-Mobile Site ID CT11053E
316 Woodhouse Avenue, Wallingford, CT 06492
Latitude: 41° 26′ 2.76" / Longitude: -72° 48' 5.26″

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 148-foot mount on the existing 148-foot monopole tower located at 316 Woodhouse Avenue, Wallingford, CT. The property is owned by Connecticut Street Rod Association and the tower is owned by Crown Castle. T-Mobile now intends to replace six (6) antennas and ancillary equipment at the 148ft 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-NS20 Antennas
(3) Ericsson - AIR649 B41 Antennas
(3) Ericsson – 4480 B71 + B85 RRU
(3) 6x24 Hybrid Cables
(1) Site Pro handrail and Kicker Support

Remove:

(6) Ericsson Air 21 KRC118023-1_B2P_B4A Antenna
(3) Andrew – LNX-6515DS-A1M Antennas
(3) Ericsson- 11 B12 RRU
(3) Ericsson- 4460 B25+B66 RRU
(3) Ericsson- KEY 112 144/1
(1) 9x18 HCS Hybrid Cable
(12) Coax Cables (1-5/8")

Ground:

Install New:
(1.) BB 6648
(1) BB 6630
(1) IXRe Router
(1) PSU 4813 Power Booster
(1) 6160 SSC Cabinet
(1) B160 Battery Cabinet

Remove:
(1) RBS 6131 Cabinet
(1) S8000 Outdoor Cabinet
(BB) DUW30

The facility was approved by the Town of Wallingford Planning and Zoning Commission on February 22, 2000.

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 William W. Dickinson, Jr. – Mayor, Town of Wallingford, Kevin Pagini – Town Planner, Town of Wallingford. Connecticut Street Rod Association, Property Owner and 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:

William W. Dickinson, Jr. – Mayor
Town of Wallingford
45 South Main Street, Room#310
Wallingford, CT 06492
(203) 294-2070

Kevin Pagini – Town Planner
Town of Wallingford
45 South Main Street, Room# G-40
Wallingford, CT 06492
(203) 294-2090

Connecticut Street Rod Association – Property Owner
PO Box 1517
Wallingford, CT 06492
203-239-3791

Crown Castle, Tower Owner

PLANNING AND ZONING COMMISSION, TOWN OF WALLINGFORD
MINUTES OF FEBRUARY 16, 2000

INDEX

19 23. Subdivision/Circle M/Atwater Place & Barker Drive - #108-95- ROADS ACCEPTED, COND. ON SIGN-OFFS & BOND REDUCTIONS TO BE MADE

WAIVER OF IMPROVEMENTS REQUESTED:

19 24. Subdivision/W&W Properties/Williams Road - #104-95 – NO ACTION
19 25. Subdivision/Your Father's Moustache/Williams Rd. - #102-92 – N.A.
19 26. Subdivision/Meadow Brook/Dighello/East Center St. & Williams Rd. – #108-95 – NO ACTION
19 26a. Subdivision/DelFavero/Chimney Hill Rd. – #429-90R – VOTED AS A MINOR REQUEST; NO ACTION ON WAIVER REQUEST

CORRESPONDENCE:

21 27. HR2372/Private Property Rights Implementation Act of 1999 – NOTED
21 28. CFPZA/Annual Meeting Notice – NOTED
22 29. Wallingford Landfill/Hamel – DISCUSSED: NO SPECIAL PERMIT NEEDED
22 30. NMHC/Multi-family Housing – NOTED

REPORTS OF OFFICERS AND STAFF:

22 31. ZBA Agenda – NOTED
22 32. Mobil Oil/Main Street, Yalesville/Town Attorney – FILE CLOSED
22 33. Administrative Approval/Change of Use/Vessichio/Yale Avenue – #301-00 – NOTED
22 34. Videotaping of P&Z Program 2/29/00 – NOTED by Chm. Whitney & Staff
22 35. CYTEC Industries' Inquiry – DISCUSSED: TO SHOW WORKPOND ON PERMIT RENEWAL PLANS

1. Final Inspection by the Zoning Enforcement Officer.

The motion was approved unanimously by Messrs. Menard, Seichter, DiNatale, Fitzsimmons, and Whitney.

7. Accessory Apartment/Good & McPhee/High Hill Road - #202-00
There was no correspondence on this item #7. Appearing for the applicants was Attorney Robert Regan of Wallingford.

Attorney Regan: Last month we went to the Zoning Board of Appeals, who approved a 648-square-foot accessory apartment. It is totally above the garage, with separate entrances on either end above the garage. I think we now comply.

MOTION: A motion was made by Mr. Seichter and seconded by Mr. Fitzsimmons to approve a 648 sq.ft. accessory apartment for Good & McPhee at 52 High Hill Road, subject to:

1. Final Inspection by the Zoning Enforcement Officer.

The motion was approved unanimously by Messrs. Menard, Seichter, DiNatale, Fitzsimmons, and Whitney.

8. Site Plan/Omnipoint/Woodhouse Avenue - #226-98
Reference is made to the memorandum from Corporation Counsel Adam Mantzaris to the Commission dated February 16, 2000 (Attachment 8A).

Chairman Whitney: This item is a result of a judgment against the Town of Wallingford for denying Omnipoint's application. The judge ruled against us and ordered approval of the plan. Unless anyone has questions, I'd entertain a motion to approve the site plan.

Mr. Seichter: Are we approving the plan to April 18, 1998?

Ms. Bush: This plan is "revised to 5/30/98 per Town comments".

Mr. Seichter: I think there were comments from a Town department that the utilities must be underground. Is that on the revised plan?

Ms. Bush: Mr. Talbot made copies of all the staff comments. Let me see if I can find that in the file. The utilities must be underground, per your regulations, so you don't need to make it a condition. I don't remember discussion of having either overhead or underground utilities for Omnipoint. No, I don't see any mention of, or utilities shown on, this drawing; but they will have to be underground.

Chairman Whitney: I understanding that the judge reviewed the entire application that we would be approving.

Omnipoint Communications' attorney, Mr. Paul Tusch, came to the front of the audience, but he did not address the Commission.

Chairman Whitney: I'd call a five-minute recess to see if we can find anything in the office pertaining to this.

Ms. Bush: No. I brought the entire file up here.

RECESS: Chairman Whitney announced a five-minute recess of the meeting at 7:30 p.m. During the recess, Ms. Bush looked through the Omnipoint file. She showed the Return of Record list to the Commissioners. No Electric Division comments were listed. Mr. Talbot suggested looking in the prior meeting minutes. Chairman Whitney reconvened the meeting at 7:39 p.m. with the same Commissioners, staff, and audience present.

Chairman Whitney: The meeting is called to order. The Commission will resume discussion of item #8 for Omnipoint. We were ordered to approve this.

MOTION: A motion was made by Mr. Seichter and seconded by Mr. DiNatale to approve the Site Plan application for Omnipoint Communications for a 150-foot-high monopole and related equipment cabinetry for PCS Wireless Service ate 316 Woodhouse Avenue as shown on plans entitled "Omnipoint Communications, Inc., Junior Achievement, 316 Woodhouse Avenue, Town of Wallingford", dated 04/18/98, revised to 05/30/98, subject to no conditions.

The motion was approved unanimously by Messrs. Menard, Seichter, DiNatale, Fitzsimmons, and Whitney.

NEW BUSINESS:

5. Subdivision/Wiedenmann/George Washington Trail & Scard Rd. - #101-00

Secretary Mr. Menard acknowledged the correspondence received from: Fire Marshal Joe Micolizzi dated 1/12/00 (Attachment 5A); Director of Health Maryann Cherniak Lexius and Town Sanitarian George Yasensky to PZC Chairman Austin, the Town Planner, and Environmental Planner Brent Smith dated 1/24/00 (Attachment 5B—two pages); the Town Planner to Mr. Robert Wiedenmann, Jr., dated 1/31/00 (Attachment 5C); the Town Engineer to PZC Chairman William Austin dated 1/27/00 (Attachment 5D—two pages); Mr. Bruce Soroka, P.E., L.S., to Ms. Maryann Cherniak Lexius, Director of Health, dated 2/1/00 (Attachment 5E); Environmental Planner Brent Smith dated 2/4/00 (Attachment 5F); and from Water & Sewer Divisions Sr. Engineer Vincent Mascia dated 2/14/00 (Attachment 5G—enclosing Mr. Mascia's two-page memo of 12/21/99 to Environmental Planner Brent Smith). Appearing were Attorney Joan Molloy of Wallingford, applicant Mr. Robert Wiedenmann, Jr., and Mr. Robert Trottier, P.E., of Conklin & Soroka.

Attorney Molloy: This is about 47 acres, comprised of two parcels. The 9-acre parcel will be subdivided into two: 34 Washington Trail and 1364 Scard Road. The smallest lot

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Property Detail Report

For Property Located At :
316 WOODHOUSE AVE, WALLINGFORD, CT 06492-5439

CoreLogic RealQuest

Owner Information

Owner Name:	CONNECTICUT ST ROD ASSOC
Mailing Address:	PO BOX 1517, WALLINGFORD CT 06492-1117 B010
Vesting Codes:	/ /

Location Information

Legal Description:			
County:	NEW HAVEN, CT	APN:	WALL-000190-000000-000028
Census Tract / Block:	1760.00 / 1	Alternate APN:	2040774
Township-Range-Sect:		Subdivision:	
Legal Book/Page:		Map Reference:	/
Legal Lot:		Tract #:	
Legal Block:		School District:	
Market Area:		School District Name:	
Neighbor Code:		Munic/Township:	WALLINGFORD

Owner Transfer Information

Recording/Sale Date:	/	Deed Type:	
Sale Price:		1st Mtg Document #:	
Document #:			

Last Market Sale Information

Recording/Sale Date:	03/28/2001 /	1st Mtg Amount/Type:	$150,000 / CONV
Sale Price:	$315,000	1st Mtg Int. Rate/Type:	/
Sale Type:	FULL	1st Mtg Document #:	
Document #:	981-1034	2nd Mtg Amount/Type:	/
Deed Type:	WARRANTY DEED	2nd Mtg Int. Rate/Type:	/
Transfer Document #:		Price Per SqFt:	$25.78
New Construction:		Multi/Split Sale:	
Title Company:			
Lender:	THE FIRST UNION NAT'L BK		
Seller Name:	JR ACHIEVEMENT OF S		

Prior Sale Information

Prior Rec/Sale Date:	/	Prior Lender:	
Prior Sale Price:		Prior 1st Mtg Amt/Type:	/
Prior Doc Number:	596-851	Prior 1st Mtg Rate/Type:	/
Prior Deed Type:	DEED (REG)		

Property Characteristics

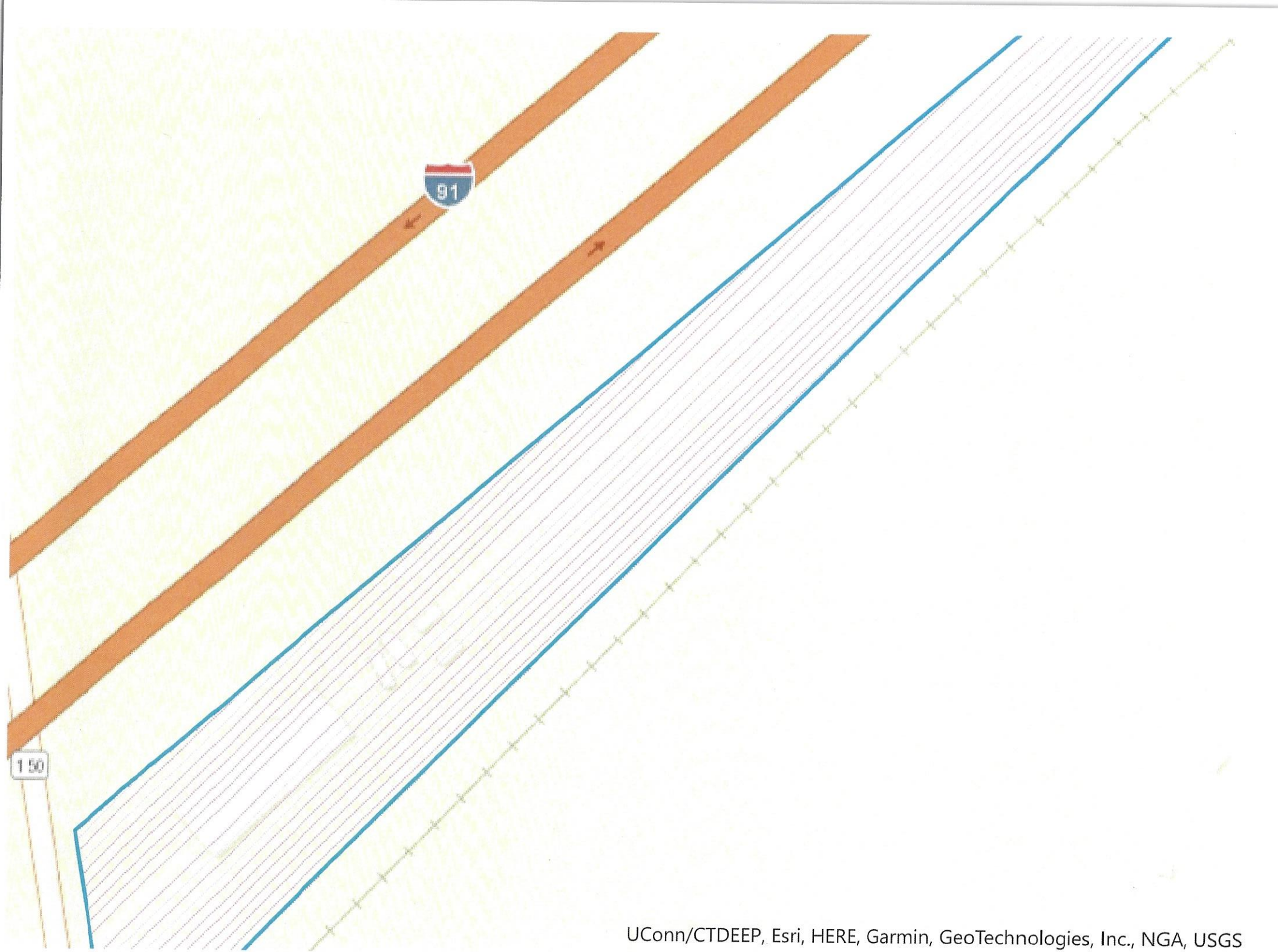
Year Built / Eff:	1969 /	Total Rooms/Offices		Garage Area:	
Gross Area:	12,220	Total Restrooms:		Garage Capacity:	
Building Area:	12,220	Roof Type:	GABLE	Parking Spaces:	
Tot Adj Area:		Roof Material:	ASPHALT SHINGLE	Heat Type:	FORCED AIR
Above Grade:		Construction:	FRAME	Air Cond:	YES
# of Stories:	1	Foundation:		Pool:	
Other Improvements:	Building Permit	Exterior wall:	VINYL	Quality:	
		Basement Area:		Condition:	FAIR

Site Information

Zoning:		Acres:	3.22	County Use:	
Lot Area:	140,096	Lot Width/Depth:	x	State Use:	MIXED USE-PRIM COMM & IND (034)
Land Use:	COMMERCIAL (NEC)	Commercial Units:	1	Water Type:	
Site Influence:		Sewer Type:		Building Class:	

Tax Information

Total Value:	$328,700	Assessed Year:	2018	Property Tax:	$9,414.00
Land Value:	$226,800	Improved %:	31%	Tax Area:	310
Improvement Value:	$101,900	Tax Year:	2018	Tax Exemption:	
Total Taxable Value:					


91
150
UConn/CTDEEP, Esri, HERE, Garmin, GeoTechnologies, Inc., NGA, USGS

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, March 18, 2022 10:01 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 776327830367: Your package has been delivered

Hi. Your package was delivered Fri, 03/18/2022 at 10:00am.

Delivered to 45 S MAIN ST, WALLINGFORD, CT 06492
Received by J.STAVE

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 776327830367

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Wallingford William Dickinson Jr. - Mayor 45 South Main Street Room #310 WALLINGFORD, CT, US, 06492
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 3/17/2022 05:30 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	WALLINGFORD, CT, US, 06492
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, March 18, 2022 9:58 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 776327860006: Your package has been delivered

Hi. Your package was delivered Fri, 03/18/2022 at 9:56am.

Delivered to 45 S MAIN ST, WALLINGFORD, CT 06492
Received by A.TORRE

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 776327860006

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Wallingford Kevin Pagini - Town Planner 45 South Main Street Roome #G-40 WALLINGFORD, CT, US, 06492
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 3/17/2022 05:30 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	WALLINGFORD, CT, US, 06492
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	2.00 LB
SERVICE TYPE	FedEx Priority Overnight

USPS Tracking®

FAQs >

Track Another Package +

Tracking Number: EI063980057US

Remove ×

Scheduled Delivery by

SATURDAY

19 MARCH 2022 ⓘ by **6:00pm** ⓘ

USPS Tracking Plus® Available ∨

Delivered, PO Box

March 19, 2022 at 7:11 am
WALLINGFORD, CT 06492

Get Updates ∨

Feedback

Text & Email Updates ∨

Proof of Delivery ∧

To request a Proof of Delivery email with full details including a delivery address, **sign in to your USPS.com® account. >**

For a Proof of Delivery email without a delivery address, provide your name and email address below.

*Indicates a required field

Money-back Guarantee: If the mailer submits an item at a designated USPS® Priority Mail Express® acceptance location on or before the specified deposit time, the Postal Service will deliver or attempt delivery to the addressee or agent before the applicable delivery date and time. Mailer may request the addressee's signature from the addressee upon delivery of the item by checking the "signature required" box at the time of mailing. If the Postal Service does not deliver or attempt delivery by the specified time and the mailer files a valid claim for a refund, the Postal Service will refund the postage, unless an exception applies. See *Mailing Standards of the United States Postal Service,* Domestic Mail Manual (DMM®) 604.9.5.5 which is available at *pe.usps.com.*

Note: The Postal Service does not offer money-back guarantee for military or DPO shipments delayed due to customs inspections or the item was destined for an APO/FPO/DPO that was closed on the intended day of delivery or the delay was caused by one of the situations in DMM 604.9.5.5. Consult USPS.com® or your local Post Office for information on delivery commitments and Priority Mail Express Military Service (PMEMS). For details, see DMM 703.2.6, which is available at *pe.usps.com.*

When a mailer submits a Priority Mail Express item requiring a signature and the Postal Service cannot deliver the item on the first attempt, the Postal Service leaves a notice for the addressee. If the addressee does not claim the item within 5 calendar days, the Postal Service returns the item to the sender at no additional charge.

Insurance coverage: The Postal Service provides insurance only in accordance with postal regulations in the DMM, which is available at *pe.usps.com.* The DMM sets forth the specific types of losses that are covered, the limitations on coverage, terms of insurance, conditions of payment, and adjudication procedures. Certain items are not insurable. The DMM consists of federal regulations, and USPS personnel are not authorized to change or waive these regulations or grant exceptions. A mailer who requires information on Priority Mail Express insurance may contact the Postal Service before submitting an item. Limitations prescribed in the DMM provide, in part, that:

1. Insurance coverage extends to the actual value of the contents at the time of mailing or the cost of repairs, not to exceed the insured limit for the item.
2. The Postal Service insures the contents of Priority Mail Express "merchandise" items (with "merchandise" defined by postal regulations) against loss, damage, or missing contents. The Postal Service includes coverage up to $100 per mailpiece at no additional charge. Additional merchandise insurance up to $5,000 per mailpiece may be available for purchase. Additional insurance for Priority Mail Express items is not available unless a signature is required.

LABEL 11-B MAY 2021 PSN 7690-02-000-9996

EI 063 980 057 US

3. The Postal Service insures "nonnegotiable documents" (as defined by postal In regulations) against loss, damage, or missing contents up to $100 per mailpiec reconstruction, subject to additional limitations for multiple pieces lost or damag catastrophic occurrence. Document reconstruction insurance provides reimburs reasonable costs incurred in reconstructing duplicates of nonnegotiable docume Document reconstruction insurance coverage above $100 per mailpiece is not a mailer should not attempt to purchase additional document insurance, because document insurance is void.
4. The Postal Service insures "negotiable items" (defined by postal regulations as be converted to cash without forgery), currency, or bullion up to a maximum of $1
5. The Postal Service does not provide coverage for consequential losses due to l or delay of Priority Mail Express items or for concealed damage, spoilage of per and articles improperly packaged or too fragile to withstand normal handling in t

Coverage, terms, and limitations are subject to change. For additional limitations a coverage, consult the DMM, which is available at *pe.usps.com.*

Indemnity Claims (Loss, Damaged or Missing Contents): Either the mailer or ti may file an indemnity claim for loss, damaged or missing contents. The claimant m claim online at *usps.com*, or by mail; for more information see Publication 122, *Do Customer Reference Guide.* The timelines for claims are as follows: claims for loss than 7 days but no later than 60 days after the date of mailing; claims for damage contents – immediately but no later than 60 days from the date of mailing. Retain t USPS retail receipt or eReceipt/electronic receipt for claims purposes. For claims i damage or missing contents, also retain the article, container, and packaging for Pc inspection when requested.

Refund of Postage and Fees (Service Performance): If delivery of a Priority Mail (PME) item does not meet the scheduled delivery commitment(s), online and comm customers may submit a refund request by visiting *USPS.com.* Retail customers ma refund request either online at *USPS.com* or at retail locations. Refund requests for be submitted no sooner than 2 days and no later than 30 days from the date of the r Services fees refund requests must be submitted no sooner than 30 days and no lat from the date of mailing. Each tracking number can only be submitted once for all ap Refund requests for PME or PME with Extra Services must be combined into a sing

Thank you for choosing Priority Mail Express service.

Tracking: For USPS Tracking, scan the **QR Code** below or go to USPS.com or ca

EI 063 980 057

Priority Mail Express tracking

Date: **February 16, 2022**

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Site Number:	CT11053E
	Site Name:	Wallingford/ I-91/ X14/ S
Crown Castle Designation:	**BU Number:**	828915
	Site Name:	Wallingford/ I-91/ X14/ S
	JDE Job Number:	704584
	Work Order Number:	2076247
	Order Number:	603522 Rev. 0
Engineering Firm Designation:	**B+T Group Project Number:**	126632.013.01
Site Data:	**316 Woodhouse Avenue, Wallingford, New Haven County, CT** **Latitude *41° 26' 2.76"*, Longitude *-72° 48' 5.26"*** **147.083 Foot - Monopole Tower**	

B+T Group is 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:

LC5: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 120 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: Dominique E. Jones

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564; Expires: 02/01/2023

Chad E. Tuttle, P.E.

tnxTower Report - version 8.1.1.0

TABLE OF CONTENTS

1) INTRODUCTION

This is a 147.1 ft. monopole designed by PiRod.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1 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)
148.0	148.0	3	Ericsson	AIR 6419 B41_TMO	3	1-5/8
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	Ericsson	Radio 4480_TMOV2		
		3	Rfs Celwave	APXVAALL24_43-U-NA20_TMO		
		3	--	Proposed Handrail (2.0” Std. Pipe To Fit)		
		1	--	Platform Mount [LP 403-1]		
		1	Site Pro1	PRK-1245L Kicker Kit		

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)
138.0	138.0	1	Andrew	VHLP1-23-DW1	4 3	1-1/4 1/2
		3	Alcatel Lucent	PCS 1900MHZ 4X45W-65MHZ		
		6	Alcatel Lucent	RRH2X50-800		
		3	Commscope	NNVV-65B-R4		
		3	Nokia	FZHN		
		3	Rfs Celwave	APXVTM14-ALU-I20		
		1	--	Platform Mount [LP 404-1]		
128.0	128.0	3	CCI Antennas	HPA-65R-BUU-H6	12 2 1	1-5/8 7/16 3/8
		3	CCI Antennas	HPA65R-BU6A		
		3	CCI Antennas	TMABPD7823VG12A		
		3	Ericsson	RRUS 11 B12		
		3	Ericsson	RRUS 32 B2		
		3	Kathrein	782 10254		
		6	Kathrein	860 10025		
		3	Powerwave Tech.	7770.00		
		1	Raycap	DC6-48-60-18-8F		
		1	--	Platform Mount [LP 404-1_KCKR]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	3822414	CCI Sites
Mount Analysis Report	10199020	CCI Sites
Mount Modification Drawing	8548246	CCI Sites
Foundation Mapping	3590825	CCI Sites
Geotech Report	3590826	CCI Sites
Antenna Configuration	Date: 02/04/2022	CCI Sites

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 Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) 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.
3) Base and flange plate design methodology of the manufacturer has been reviewed and found to be an acceptable means of designing to resist the full capacity of the bolts and shaft.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	147.083 - 136.583	Pole	TP17.688x15x0.25	1	-3.912	824.966	15.6	Pass
L2	136.583 - 101.083	Pole	TP26x16.676x0.25	2	-15.380	1219.722	75.9	Pass
L3	101.083 - 66.5	Pole	TP34.063x24.775x0.313	3	-21.801	1998.402	75.0	Pass
L4	66.5 - 32.8333	Pole	TP41.75x32.488x0.375	4	-30.247	2940.703	66.0	Pass
L5	32.8333 - 0	Pole	TP49.063x39.847x0.375	5	-41.719	3559.594	70.0	Pass
							Summary	
						Pole (L2)	75.9	Pass
						Rating =	75.9	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,3	Splice Connection	101.083	89.5	Pass
1,3	Anchor Rods	Base	78.9	Pass
1,2,3	Base Plate	Base	70.0	Pass
1,3	Base Foundation	Base	91.2	Pass
1,3	Base Foundation Soil Interaction	Base	81.2	Pass

Structure Rating (max from all components) =	91.2%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Base plate has the same capacity as its respective shaft.
3) Rating per TIA-222-H Section 15.5

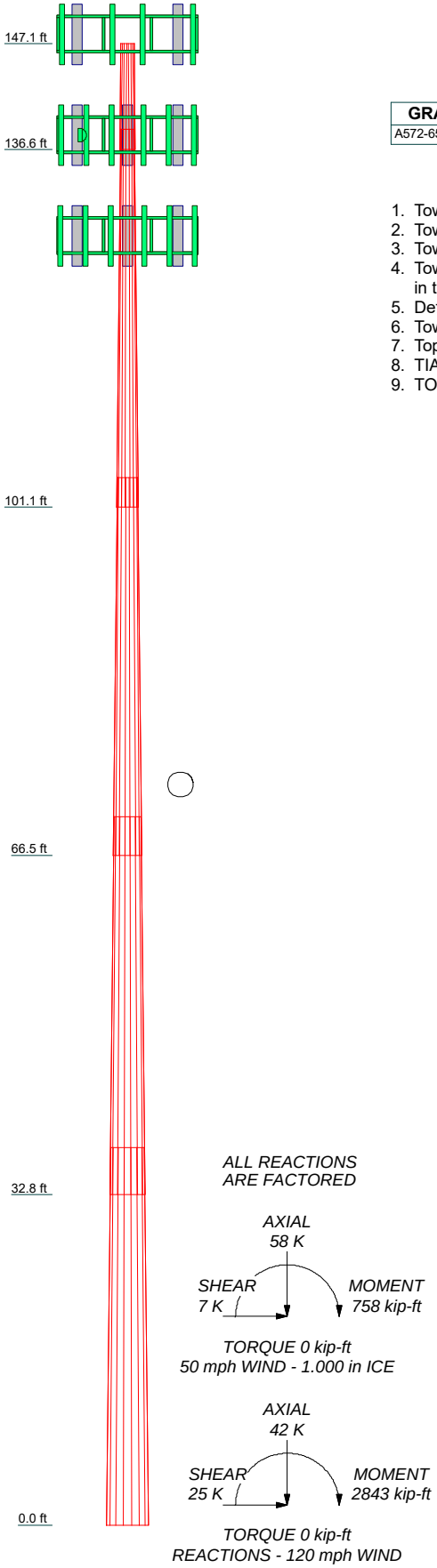
4.1) Recommendations

The tower and its 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	10.500	18	0.250	2.000	15.000	17.688		0.5
2	37.500	18	0.250	2.917	16.676	26.000		2.1
3	37.500	18	0.313	3.833	24.775	34.063	A572-65	3.7
4	37.500	18	0.375	4.667	32.488	41.750		5.6
5	37.500	18	0.375		39.847	49.063		6.7
								18.6



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 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 120 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 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 75.9%

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

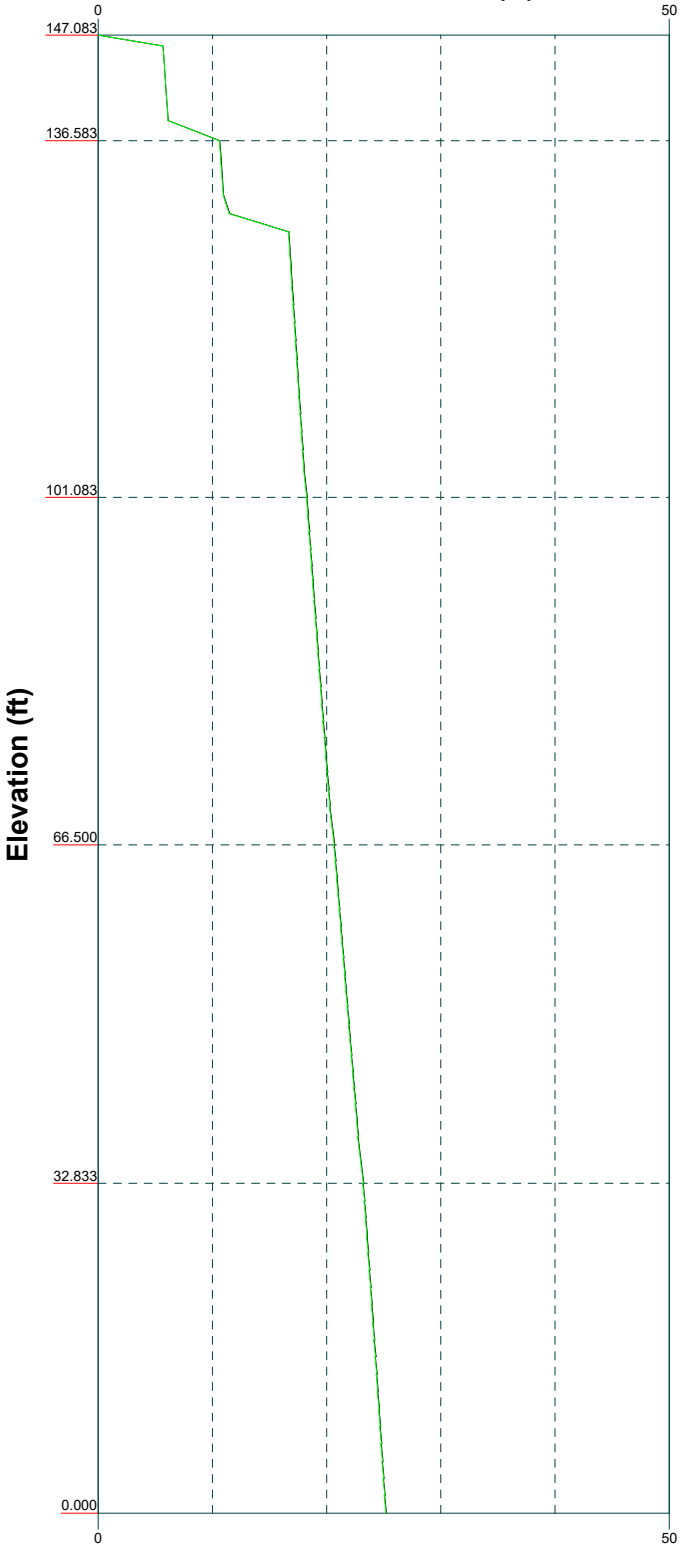
Job: 126632.013.01 - Wallingford/ I-91/ X14/ S, CT (BU# 828915			
Project:			
Client: Crown Castle	Drawn by: S. SHET	App'd:	
Code: TIA-222-H	Date: 02/15/22	Scale: NTS	
Path:		Dwg No. E-1	

TIA-222-H - 120 mph/50 mph 1.000 in Ice Exposure C

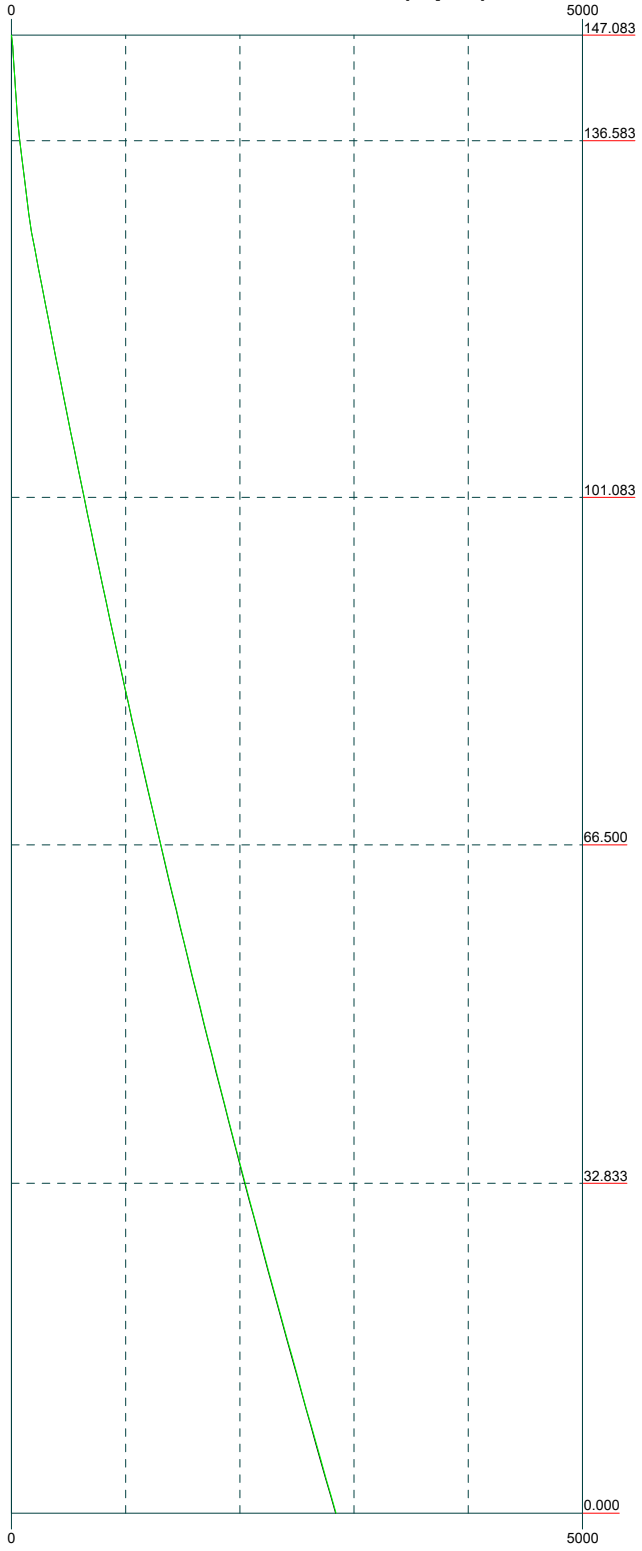
Maximum Values

Vx Vz Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)



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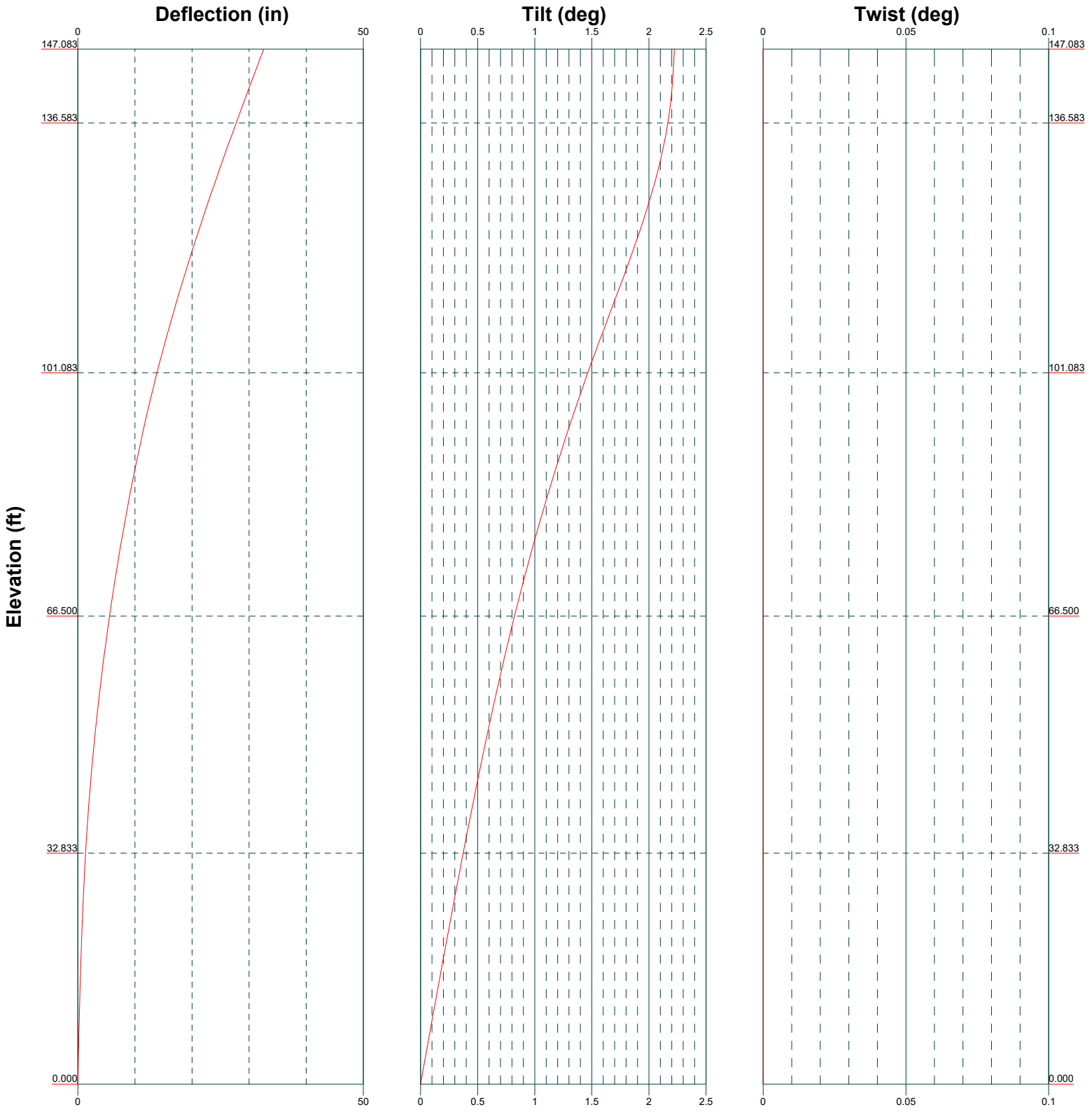
Job: 126632.013.01 - Wallingford/ I-91/ X14/ S, CT (BU# 828915		
Project:		
Client: Crown Castle	Drawn by: S. SHET	App'd:
Code: TIA-222-H	Date: 02/15/22	Scale: NTS
Path:		Dwg No. E-4

TIA-222-H - Service - 60 mph

Maximum Values



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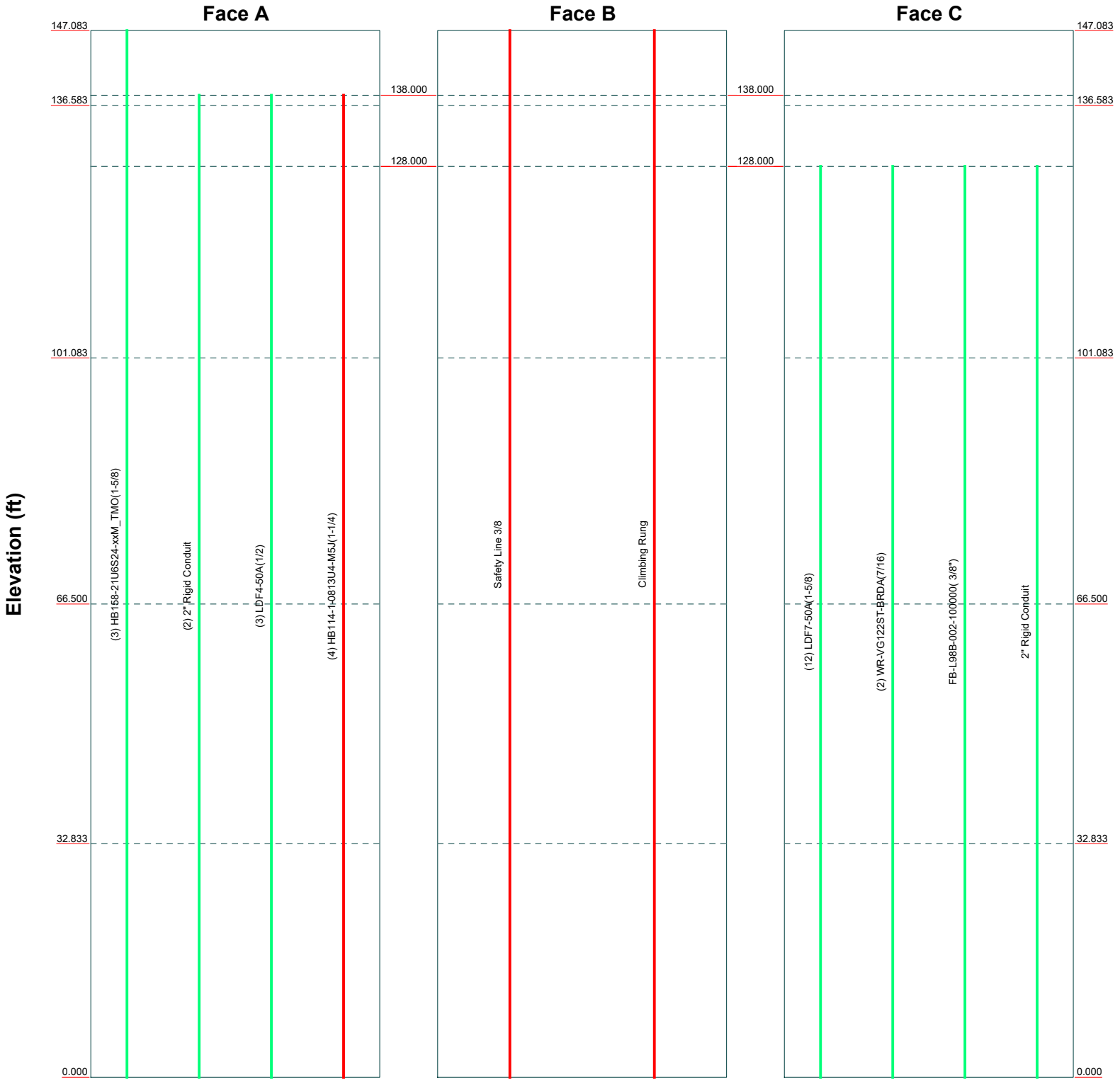
Job: ***126632.013.01 - Wallingford/ I-91/ X14/ S, CT (BU# 828915***		
Project:		
Client: Crown Castle	Drawn by: S. SHET	App'd:
Code: TIA-222-H	Date: 02/15/22	Scale: NTS
Path:		Dwg No. E-5

Feed Line Distribution Chart
0' - 147'1"

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



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Job: 126632.013.01 - Wallingford/ I-91/ X14/ S, CT (BU# 828915		
Project:		
Client: Crown Castle	Drawn by: S. SHET	App'd:
Code: TIA-222-H	Date: 02/15/22	Scale: NTS
Path:		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: 229.000 ft.
Basic wind speed of 120 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
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	147.083-136.583	10.500	2.000	18	15.000	17.688	0.250	1.000	A572-65 (65 ksi)
L2	136.583-101.083	37.500	2.917	18	16.676	26.000	0.250	1.000	A572-65 (65 ksi)
L3	101.083-66.500	37.500	3.833	18	24.775	34.063	0.313	1.250	A572-65 (65 ksi)
L4	66.500-32.833	37.500	4.667	18	32.488	41.750	0.375	1.500	A572-65 (65 ksi)
L5	32.833-0.000	37.500		18	39.847	49.063	0.375	1.500	A572-65 (65 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	15.193	11.704	321.707	5.236	7.620	42.219	643.837	5.853	2.200	8.8
	17.922	13.837	531.541	6.190	8.985	59.157	1063.782	6.920	2.673	10.692
L2	17.399	13.034	444.271	5.831	8.471	52.445	889.126	6.518	2.495	9.98
	26.363	20.433	1711.654	9.141	13.208	129.592	3425.561	10.218	4.136	16.544
L3	25.842	24.264	1834.360	8.684	12.586	145.751	3671.134	12.134	3.810	12.193
	34.540	33.476	4817.433	11.981	17.304	278.404	9641.206	16.741	5.445	17.424
L4	33.893	38.223	4979.914	11.400	16.504	301.741	9966.380	19.115	5.058	13.488
	42.336	49.247	10650.982	14.688	21.209	502.192	21315.979	24.628	6.688	17.835
L5	41.569	46.982	9248.183	14.013	20.242	456.870	18508.536	23.495	6.353	16.942
	49.762	57.950	17355.138	17.284	24.924	696.329	34733.112	28.981	7.975	21.267

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 147.083-136.583				1	1	1			
L2 136.583-101.083				1	1	1			
L3 101.083-66.500				1	1	1			
L4 66.500-32.833				1	1	1			
L5 32.833-0.000				1	1	1			

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 klf
HB114-1-0813U4-M5J(1 -1/4)	A	No	Surface Ar (CaAa)	138.000 - 0.000	4	4	0.350 0.450	1.540		0.001
*										
Safety Line 3/8	B	No	Surface Ar (CaAa)	147.083 - 0.000	1	1	0.040 0.050	0.375		0.000
Climbing Rung	B	No	Surface Ar (CaAa)	147.083 - 0.000	1	1	0.000 0.100	1.000		0.008
*										

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 klf
HB158-21U6S24-xx M_TMO(1-5/8)	A	No	No	Inside Pole	147.083 - 0.000	3	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.003 0.003 0.003
*									
2" Rigid Conduit	A	No	No	Inside Pole	138.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.003 0.003 0.003
LDF4-50A(1/2)	A	No	No	Inside Pole	138.000 - 0.000	3	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
*									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	128.000 - 0.000	12	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
WR-VG122ST-BRD A(7/16)	C	No	No	Inside Pole	128.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
FB-L98B-002-10000 0(3/8")	C	No	No	Inside Pole	128.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
2" Rigid Conduit	C	No	No	Inside Pole	128.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.003 0.003 0.003
*									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	147.083-136.583	A	0.000	0.000	0.873	0.000	0.094
		B	0.000	0.000	1.444	0.000	0.091
		C	0.000	0.000	0.000	0.000	0.000
L2	136.583-101.083	A	0.000	0.000	21.868	0.000	0.651
		B	0.000	0.000	4.881	0.000	0.306
		C	0.000	0.000	0.000	0.000	0.349

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L3	101.083-66.500	A	0.000	0.000	21.303	0.000	0.635
		B	0.000	0.000	4.755	0.000	0.298
		C	0.000	0.000	0.000	0.000	0.449
L4	66.500-32.833	A	0.000	0.000	20.739	0.000	0.618
		B	0.000	0.000	4.629	0.000	0.290
		C	0.000	0.000	0.000	0.000	0.437
L5	32.833-0.000	A	0.000	0.000	20.225	0.000	0.602
		B	0.000	0.000	4.515	0.000	0.283
		C	0.000	0.000	0.000	0.000	0.426

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	147.083-136.583	A	0.983	0.000	0.000	1.439	0.000	0.104
		B		0.000	0.000	5.574	0.000	0.133
		C		0.000	0.000	0.000	0.000	0.000
L2	136.583-101.083	A	0.965	0.000	0.000	36.062	0.000	0.906
		B		0.000	0.000	18.845	0.000	0.449
		C		0.000	0.000	0.000	0.000	0.349
L3	101.083-66.500	A	0.932	0.000	0.000	34.975	0.000	0.877
		B		0.000	0.000	18.109	0.000	0.433
		C		0.000	0.000	0.000	0.000	0.449
L4	66.500-32.833	A	0.885	0.000	0.000	33.770	0.000	0.845
		B		0.000	0.000	17.184	0.000	0.414
		C		0.000	0.000	0.000	0.000	0.437
L5	32.833-0.000	A	0.792	0.000	0.000	32.545	0.000	0.812
		B		0.000	0.000	16.136	0.000	0.395
		C		0.000	0.000	0.000	0.000	0.426

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	147.083-136.583	0.743	-1.024	1.496	-1.217
L2	136.583-101.083	-0.036	-3.645	0.677	-3.189
L3	101.083-66.500	-0.033	-3.976	0.771	-3.628
L4	66.500-32.833	-0.031	-4.189	0.816	-3.917
L5	32.833-0.000	-0.030	-4.338	0.823	-4.107

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	8	HB114-1-0813U4-M5J(1-1/4)	136.58 - 138.00	1.0000	1.0000
L1	15	Safety Line 3/8	136.58 - 147.08	1.0000	1.0000
L1	16	Climbing Rung	136.58 - 147.08	1.0000	1.0000
L2	8	HB114-1-0813U4-M5J(1-1/4)	101.08 - 136.58	1.0000	1.0000
L2	15	Safety Line 3/8	101.08 - 136.58	1.0000	1.0000
L2	16	Climbing Rung	101.08 - 136.58	1.0000	1.0000
L3	8	HB114-1-0813U4-M5J(1-1/4)	66.50 - 101.08	1.0000	1.0000
L3	15	Safety Line 3/8	66.50 - 101.08	1.0000	1.0000
L3	16	Climbing Rung	66.50 - 101.08	1.0000	1.0000
L4	8	HB114-1-0813U4-M5J(1-1/4)	32.83 - 66.50	1.0000	1.0000
L4	15	Safety Line 3/8	32.83 - 66.50	1.0000	1.0000
L4	16	Climbing Rung	32.83 - 66.50	1.0000	1.0000
L5	8	HB114-1-0813U4-M5J(1-1/4)	0.00 - 32.83	1.0000	1.0000
L5	15	Safety Line 3/8	0.00 - 32.83	1.0000	1.0000
L5	16	Climbing Rung	0.00 - 32.83	1.0000	1.0000

Discrete Tower Loads

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
AIR 6419 B41_TMO w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	6.533 6.916 7.308	3.750 4.243 4.752	0.111 0.165 0.225
AIR 6419 B41_TMO w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	6.533 6.916 7.308	3.750 4.243 4.752	0.111 0.165 0.225
AIR 6419 B41_TMO w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	6.533 6.916 7.308	3.750 4.243 4.752	0.111 0.165 0.225
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	14.690 15.460 16.230	6.870 7.550 8.250	0.183 0.311 0.453
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	14.690 15.460 16.230	6.870 7.550 8.250	0.183 0.311 0.453
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	14.690 15.460 16.230	6.870 7.550 8.250	0.183 0.311 0.453
Radio 4480_TMOV2	A	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	2.878 3.091 3.312	1.397 1.558 1.727	0.081 0.103 0.128

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
Radio 4480_TMOV2	B	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	2.878 3.091 3.312	1.397 1.558 1.727	0.081 0.103 0.128
Radio 4480_TMOV2	C	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	2.878 3.091 3.312	1.397 1.558 1.727	0.081 0.103 0.128
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	2.139 2.321 2.511	1.686 1.850 2.022	0.109 0.131 0.156
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	2.139 2.321 2.511	1.686 1.850 2.022	0.109 0.131 0.156
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	2.139 2.321 2.511	1.686 1.850 2.022	0.109 0.131 0.156
5' x 2" Pipe Mount	A	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	1.188 1.496 1.807	1.188 1.496 1.807	0.018 0.027 0.040
5' x 2" Pipe Mount	B	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	1.188 1.496 1.807	1.188 1.496 1.807	0.018 0.027 0.040
5' x 2" Pipe Mount	C	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	1.188 1.496 1.807	1.188 1.496 1.807	0.018 0.027 0.040
Miscellaneous [NA 510-1]	C	None		0.000	148.000	No Ice 1/2" Ice 1" Ice	6.360 8.520 10.620	6.360 8.520 10.620	0.256 0.344 0.459
Platform Mount [LP 403-1_KCKR] *	C	None		0.000	148.000	No Ice 1/2" Ice 1" Ice	30.160 37.530 45.130	30.160 37.530 45.130	1.775 2.318 2.971
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice	4.090 4.480 4.880	2.860 3.230 3.610	0.077 0.127 0.185
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice	4.090 4.480 4.880	2.860 3.230 3.610	0.077 0.127 0.185
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice	4.090 4.480 4.880	2.860 3.230 3.610	0.077 0.127 0.185
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice	7.550 8.040 8.530	4.230 4.670 5.120	0.110 0.197 0.296
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice	7.550 8.040 8.530	4.230 4.670 5.120	0.110 0.197 0.296
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice	7.550 8.040 8.530	4.230 4.670 5.120	0.110 0.197 0.296
FZHN	A	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice	2.020 2.197 2.381	0.607 0.715 0.829	0.044 0.058 0.075
FZHN	B	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice	2.020 2.197 2.381	0.607 0.715 0.829	0.044 0.058 0.075
FZHN	C	From Leg	4.000 0.000	0.000	138.000	No Ice 1/2" Ice	2.020 2.197	0.607 0.715	0.044 0.058

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Offsets: ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000					1" Ice	2.381	0.829	0.075
(2) RRH2X50-800	A	From Leg	4.000			0.000	138.000	No Ice	1.701	1.282	0.053
			0.000					1/2" Ice	1.864	1.428	0.070
			0.000					1" Ice	2.035	1.580	0.090
(2) RRH2X50-800	B	From Leg	4.000			0.000	138.000	No Ice	1.701	1.282	0.053
			0.000					1/2" Ice	1.864	1.428	0.070
			0.000					1" Ice	2.035	1.580	0.090
(2) RRH2X50-800	C	From Leg	4.000			0.000	138.000	No Ice	1.701	1.282	0.053
			0.000					1/2" Ice	1.864	1.428	0.070
			0.000					1" Ice	2.035	1.580	0.090
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.000			0.000	138.000	No Ice	2.322	2.238	0.060
			0.000					1/2" Ice	2.527	2.441	0.083
			0.000					1" Ice	2.739	2.651	0.110
PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.000			0.000	138.000	No Ice	2.322	2.238	0.060
			0.000					1/2" Ice	2.527	2.441	0.083
			0.000					1" Ice	2.739	2.651	0.110
PCS 1900MHZ 4X45W-65MHZ	C	From Leg	4.000			0.000	138.000	No Ice	2.322	2.238	0.060
			0.000					1/2" Ice	2.527	2.441	0.083
			0.000					1" Ice	2.739	2.651	0.110
4' x 3" Pipe Mount	B	From Leg	4.000			0.000	138.000	No Ice	1.000	1.000	0.029
			0.000					1/2" Ice	1.248	1.248	0.038
			0.000					1" Ice	1.505	1.505	0.050
4' x 3" Pipe Mount	C	From Leg	4.000			0.000	138.000	No Ice	1.000	1.000	0.029
			0.000					1/2" Ice	1.248	1.248	0.038
			0.000					1" Ice	1.505	1.505	0.050
(2) 6' x 2" Mount Pipe	A	From Leg	4.000			0.000	138.000	No Ice	1.425	1.425	0.022
			0.000					1/2" Ice	1.925	1.925	0.033
			0.000					1" Ice	2.294	2.294	0.048
(2) 6' x 2" Mount Pipe	B	From Leg	4.000			0.000	138.000	No Ice	1.425	1.425	0.022
			0.000					1/2" Ice	1.925	1.925	0.033
			0.000					1" Ice	2.294	2.294	0.048
(2) 6' x 2" Mount Pipe	C	From Leg	4.000			0.000	138.000	No Ice	1.425	1.425	0.022
			0.000					1/2" Ice	1.925	1.925	0.033
			0.000					1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	A	From Leg	4.000			0.000	138.000	No Ice	1.425	1.425	0.022
			0.000					1/2" Ice	1.925	1.925	0.033
			0.000					1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	B	From Leg	4.000			0.000	138.000	No Ice	1.425	1.425	0.022
			0.000					1/2" Ice	1.925	1.925	0.033
			0.000					1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	C	From Leg	4.000			0.000	138.000	No Ice	1.425	1.425	0.022
			0.000					1/2" Ice	1.925	1.925	0.033
			0.000					1" Ice	2.294	2.294	0.048
Platform Mount [LP 404-1]	C	None				0.000	138.000	No Ice	24.600	24.600	2.043
								1/2" Ice	31.630	31.630	2.600
								1" Ice	38.370	38.370	3.288
*											
7770.00 w/ Mount Pipe	A	From Leg	4.000			0.000	128.000	No Ice	5.746	4.254	0.055
			0.000					1/2" Ice	6.179	5.014	0.103
			0.000					1" Ice	6.607	5.711	0.157
7770.00 w/ Mount Pipe	B	From Leg	4.000			0.000	128.000	No Ice	5.746	4.254	0.055
			0.000					1/2" Ice	6.179	5.014	0.103
			0.000					1" Ice	6.607	5.711	0.157
7770.00 w/ Mount Pipe	C	From Leg	4.000			0.000	128.000	No Ice	5.746	4.254	0.055
			0.000					1/2" Ice	6.179	5.014	0.103
			0.000					1" Ice	6.607	5.711	0.157
HPA-65R-BUU-H6 w/	A	From Leg	4.000			0.000	128.000	No Ice	9.220	6.250	0.074

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe			0.000				1/2" Ice	9.980	6.960	0.143
			0.000				1" Ice	10.760	7.700	0.224
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	128.000	No Ice	9.220	6.250	0.074
			0.000				1/2" Ice	9.980	6.960	0.143
			0.000				1" Ice	10.760	7.700	0.224
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	128.000	No Ice	9.220	6.250	0.074
			0.000				1/2" Ice	9.980	6.960	0.143
			0.000				1" Ice	10.760	7.700	0.224
HPA65R-BU6A w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	128.000	No Ice	5.830	5.000	0.080
			0.000				1/2" Ice	6.400	5.560	0.142
			0.000				1" Ice	6.990	6.130	0.216
HPA65R-BU6A w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	128.000	No Ice	5.830	5.000	0.080
			0.000				1/2" Ice	6.400	5.560	0.142
			0.000				1" Ice	6.990	6.130	0.216
HPA65R-BU6A w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	128.000	No Ice	5.830	5.000	0.080
			0.000				1/2" Ice	6.400	5.560	0.142
			0.000				1" Ice	6.990	6.130	0.216
(2) 860 10025	A	From Leg	4.000	0.000	0.000	128.000	No Ice	0.142	0.121	0.001
			0.000				1/2" Ice	0.196	0.173	0.003
			0.000				1" Ice	0.259	0.231	0.005
(2) 860 10025	B	From Leg	4.000	0.000	0.000	128.000	No Ice	0.142	0.121	0.001
			0.000				1/2" Ice	0.196	0.173	0.003
			0.000				1" Ice	0.259	0.231	0.005
(2) 860 10025	C	From Leg	4.000	0.000	0.000	128.000	No Ice	0.142	0.121	0.001
			0.000				1/2" Ice	0.196	0.173	0.003
			0.000				1" Ice	0.259	0.231	0.005
RRUS 11 B12	A	From Leg	4.000	0.000	0.000	128.000	No Ice	2.833	1.182	0.051
			0.000				1/2" Ice	3.043	1.330	0.072
			0.000				1" Ice	3.259	1.485	0.095
RRUS 11 B12	B	From Leg	4.000	0.000	0.000	128.000	No Ice	2.833	1.182	0.051
			0.000				1/2" Ice	3.043	1.330	0.072
			0.000				1" Ice	3.259	1.485	0.095
RRUS 11 B12	C	From Leg	4.000	0.000	0.000	128.000	No Ice	2.833	1.182	0.051
			0.000				1/2" Ice	3.043	1.330	0.072
			0.000				1" Ice	3.259	1.485	0.095
TMABPD7823VG12A	A	From Leg	4.000	0.000	0.000	128.000	No Ice	1.370	0.518	0.026
			0.000				1/2" Ice	1.517	0.621	0.036
			0.000				1" Ice	1.671	0.730	0.048
TMABPD7823VG12A	B	From Leg	4.000	0.000	0.000	128.000	No Ice	1.370	0.518	0.026
			0.000				1/2" Ice	1.517	0.621	0.036
			0.000				1" Ice	1.671	0.730	0.048
TMABPD7823VG12A	C	From Leg	4.000	0.000	0.000	128.000	No Ice	1.370	0.518	0.026
			0.000				1/2" Ice	1.517	0.621	0.036
			0.000				1" Ice	1.671	0.730	0.048
782 10254	A	From Leg	4.000	0.000	0.000	128.000	No Ice	0.142	0.080	0.003
			0.000				1/2" Ice	0.194	0.122	0.004
			0.000				1" Ice	0.252	0.173	0.007
782 10254	B	From Leg	4.000	0.000	0.000	128.000	No Ice	0.142	0.080	0.003
			0.000				1/2" Ice	0.194	0.122	0.004
			0.000				1" Ice	0.252	0.173	0.007
782 10254	C	From Leg	4.000	0.000	0.000	128.000	No Ice	0.142	0.080	0.003
			0.000				1/2" Ice	0.194	0.122	0.004
			0.000				1" Ice	0.252	0.173	0.007
RRUS 32 B2	A	From Leg	4.000	0.000	0.000	128.000	No Ice	2.731	1.668	0.053
			0.000				1/2" Ice	2.953	1.855	0.074
			0.000				1" Ice	3.182	2.049	0.098
RRUS 32 B2	B	From Leg	4.000	0.000	0.000	128.000	No Ice	2.731	1.668	0.053

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
			0.000			1/2" Ice	2.953	1.855	0.074
			0.000			1" Ice	3.182	2.049	0.098
RRUS 32 B2	C	From Leg	4.000	0.000	128.000	No Ice	2.731	1.668	0.053
			0.000			1/2" Ice	2.953	1.855	0.074
			0.000			1" Ice	3.182	2.049	0.098
DC6-48-60-18-8F	A	From Leg	2.000	0.000	128.000	No Ice	0.917	0.917	0.019
			0.000			1/2" Ice	1.458	1.458	0.037
			0.000			1" Ice	1.643	1.643	0.057
Platform Mount [LP 404-1_KCKR]	C	None		0.000	128.000	No Ice	35.820	35.820	2.318
						1/2" Ice	45.850	45.850	3.016
						1" Ice	55.760	55.760	3.886
*									
(2) 4' x 2" Pipe Mount	A	From Leg	2.000	0.000	130.000	No Ice	0.785	0.785	0.029
			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
4' x 2" Pipe Mount	B	From Leg	2.000	0.000	130.000	No Ice	0.785	0.785	0.029
			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
4' x 2" Pipe Mount	C	From Leg	2.000	0.000	130.000	No Ice	0.785	0.785	0.029
			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
5' horizontal x 2.5" Pipe Mount	A	From Leg	2.000	0.000	130.000	No Ice	1.250	1.250	0.115
			0.000			1/2" Ice	1.601	1.601	0.245
			0.000			1" Ice	1.959	1.959	0.384
Side Arm Mount [SO 102-3]	C	None		0.000	130.000	No Ice	3.600	3.600	0.075
						1/2" Ice	4.180	4.180	0.105
						1" Ice	4.750	4.750	0.135
**									
**									
**									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
Andrew VHLP1-23-DW1	C	Paraboloid w/Shroud (HP)	From Leg	4.000	30.000		138.000	1.275	No Ice	1.280	0.000
				0.000					1/2" Ice	1.450	0.000
				0.000					1" Ice	1.630	0.000
*											

Load Combinations

Comb. No.	Description
1	Dead Only

Comb. No.	Description
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	147.083 - 136.583	Pole	Max Tension	39	0.000	-0.000	-0.000
			Max. Compression	26	-8.778	-0.044	-0.042
			Max. Mx	8	-3.912	-54.515	0.038

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-3.914	-0.047	54.490
			Max. Vy	8	6.126	-54.515	0.038
			Max. Vx	2	-6.124	-0.047	54.490
			Max. Torque	11			-0.256
L2	136.583 - 101.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-28.030	-0.133	1.954
			Max. Mx	8	-15.379	-584.157	0.747
			Max. My	2	-15.388	0.047	583.187
			Max. Vy	8	18.063	-584.157	0.747
			Max. Vx	2	-18.020	0.047	583.187
			Max. Torque	11			-0.390
L3	101.083 - 66.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.413	-0.190	2.719
			Max. Mx	8	-21.800	-1230.301	1.137
			Max. My	2	-21.805	0.125	1228.066
			Max. Vy	8	20.344	-1230.301	1.137
			Max. Vx	2	-20.302	0.125	1228.066
			Max. Torque	3			0.181
L4	66.5 - 32.8333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.136	-0.251	3.450
			Max. Mx	8	-30.247	-1939.397	1.588
			Max. My	2	-30.249	0.155	1935.993
			Max. Vy	8	22.813	-1939.397	1.588
			Max. Vx	2	-22.771	0.155	1935.993
			Max. Torque	3			0.180
L5	32.8333 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-58.140	-0.337	4.369
			Max. Mx	8	-41.719	-2842.793	2.175
			Max. My	2	-41.719	0.139	2838.146
			Max. Vy	8	25.241	-2842.793	2.175
			Max. Vx	2	-25.201	0.139	2838.146
			Max. Torque	3			0.179

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	58.140	0.002	6.655
	Max. H_x	20	41.737	25.196	0.000
	Max. H_z	2	41.737	0.007	25.172
	Max. M_x	2	2838.146	0.007	25.172
	Max. M_z	8	2842.793	-25.212	0.000
	Max. Torsion	3	0.179	0.007	25.172
	Min. Vert	5	31.303	-12.626	21.788
	Min. H_x	8	41.737	-25.212	0.000
	Min. H_z	14	41.737	0.007	-25.172
	Min. M_x	14	-2833.844	0.007	-25.172
	Min. M_z	20	-2838.755	25.196	0.000
	Min. Torsion	12	-0.177	-12.626	-21.788

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	34.781	0.000	-0.000	-1.712	-0.697	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	41.737	-0.007	-25.172	-2838.146	0.139	-0.179
0.9 Dead+1.0 Wind 0 deg - No Ice	31.303	-0.007	-25.172	-2784.439	0.352	-0.179
1.2 Dead+1.0 Wind 30 deg - No Ice	41.737	12.626	-21.788	-2456.564	-1424.804	-0.011
0.9 Dead+1.0 Wind 30 deg - No Ice	31.303	12.626	-21.788	-2410.001	-1397.879	-0.014
1.2 Dead+1.0 Wind 60 deg - No Ice	41.737	21.841	-12.581	-1419.415	-2463.167	0.026
0.9 Dead+1.0 Wind 60 deg - No Ice	31.303	21.841	-12.581	-1392.283	-2416.786	0.021
1.2 Dead+1.0 Wind 90 deg - No Ice	41.737	25.212	0.000	-2.175	-2842.793	0.076
0.9 Dead+1.0 Wind 90 deg - No Ice	31.303	25.212	0.000	-1.594	-2789.308	0.069
1.2 Dead+1.0 Wind 120 deg - No Ice	41.737	21.841	12.581	1415.076	-2463.188	0.139
0.9 Dead+1.0 Wind 120 deg - No Ice	31.303	21.841	12.581	1389.101	-2416.801	0.133
1.2 Dead+1.0 Wind 150 deg - No Ice	41.737	12.626	21.788	2452.248	-1424.827	0.177
0.9 Dead+1.0 Wind 150 deg - No Ice	31.303	12.626	21.788	2406.835	-1397.895	0.173
1.2 Dead+1.0 Wind 180 deg - No Ice	41.737	-0.007	25.172	2833.844	0.140	0.147
0.9 Dead+1.0 Wind 180 deg - No Ice	31.303	-0.007	25.172	2781.282	0.353	0.147
1.2 Dead+1.0 Wind 210 deg - No Ice	41.737	-12.611	21.793	2452.922	1420.865	0.066
0.9 Dead+1.0 Wind 210 deg - No Ice	31.303	-12.611	21.793	2407.491	1394.445	0.070
1.2 Dead+1.0 Wind 240 deg - No Ice	41.737	-21.825	12.577	1414.546	2459.068	0.001
0.9 Dead+1.0 Wind 240 deg - No Ice	31.303	-21.825	12.577	1388.579	2413.193	0.007
1.2 Dead+1.0 Wind 270 deg - No Ice	41.737	-25.196	0.000	-2.173	2838.755	-0.040
0.9 Dead+1.0 Wind 270 deg - No Ice	31.303	-25.196	0.000	-1.593	2785.778	-0.034
1.2 Dead+1.0 Wind 300 deg - No Ice	41.737	-21.825	-12.577	-1418.883	2459.049	-0.093
0.9 Dead+1.0 Wind 300 deg - No Ice	31.303	-21.825	-12.577	-1391.759	2413.180	-0.088
1.2 Dead+1.0 Wind 330 deg - No Ice	41.737	-12.611	-21.793	-2457.236	1420.844	-0.165
0.9 Dead+1.0 Wind 330 deg - No Ice	31.303	-12.611	-21.793	-2410.656	1394.431	-0.162
1.2 Dead+1.0 Ice+1.0 Temp	58.140	0.000	-0.000	-4.369	-0.337	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	58.140	-0.002	-6.655	-757.869	-0.109	-0.041
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	58.140	3.336	-5.761	-656.556	-378.415	-0.002
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	58.140	5.772	-3.326	-381.013	-654.249	0.007
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	58.140	6.663	-0.000	-4.497	-755.112	0.018
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	58.140	5.772	3.326	372.021	-654.253	0.032

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	58.140	3.336	5.761	647.568	-378.419	0.040
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	58.140	-0.002	6.655	748.883	-0.109	0.033
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	58.140	-3.333	5.762	647.722	377.213	0.015
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	58.140	-5.769	3.325	371.894	653.005	0.000
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	58.140	-6.660	-0.000	-4.497	753.882	-0.009
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	58.140	-5.769	-3.325	-380.885	653.002	-0.022
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	58.140	-3.333	-5.762	-656.710	377.209	-0.038
Dead+Wind 0 deg - Service	34.781	-0.002	-5.928	-663.353	-0.488	-0.043
Dead+Wind 30 deg - Service	34.781	2.973	-5.131	-574.357	-332.901	-0.004
Dead+Wind 60 deg - Service	34.781	5.143	-2.963	-332.412	-575.137	0.004
Dead+Wind 90 deg - Service	34.781	5.937	-0.000	-1.792	-663.680	0.015
Dead+Wind 120 deg - Service	34.781	5.143	2.963	328.828	-575.138	0.030
Dead+Wind 150 deg - Service	34.781	2.973	5.131	570.775	-332.902	0.041
Dead+Wind 180 deg - Service	34.781	-0.002	5.928	659.771	-0.488	0.036
Dead+Wind 210 deg - Service	34.781	-2.970	5.132	570.929	330.935	0.018
Dead+Wind 240 deg - Service	34.781	-5.140	2.962	328.700	573.129	0.004
Dead+Wind 270 deg - Service	34.781	-5.934	-0.000	-1.792	661.689	-0.006
Dead+Wind 300 deg - Service	34.781	-5.140	-2.962	-332.284	573.128	-0.020
Dead+Wind 330 deg - Service	34.781	-2.970	-5.132	-574.512	330.934	-0.039

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-34.781	0.000	0.000	34.781	0.000	0.000%
2	-0.007	-41.737	-25.172	0.007	41.737	25.172	0.000%
3	-0.007	-31.303	-25.172	0.007	31.303	25.172	0.000%
4	12.626	-41.737	-21.788	-12.626	41.737	21.788	0.000%
5	12.626	-31.303	-21.788	-12.626	31.303	21.788	0.000%
6	21.841	-41.737	-12.581	-21.841	41.737	12.581	0.000%
7	21.841	-31.303	-12.581	-21.841	31.303	12.581	0.000%
8	25.212	-41.737	0.000	-25.212	41.737	0.000	0.000%
9	25.212	-31.303	0.000	-25.212	31.303	0.000	0.000%
10	21.841	-41.737	12.581	-21.841	41.737	-12.581	0.000%
11	21.841	-31.303	12.581	-21.841	31.303	-12.581	0.000%
12	12.626	-41.737	21.788	-12.626	41.737	-21.788	0.000%
13	12.626	-31.303	21.788	-12.626	31.303	-21.788	0.000%
14	-0.007	-41.737	25.172	0.007	41.737	-25.172	0.000%
15	-0.007	-31.303	25.172	0.007	31.303	-25.172	0.000%
16	-12.611	-41.737	21.793	12.611	41.737	-21.793	0.000%
17	-12.611	-31.303	21.793	12.611	31.303	-21.793	0.000%
18	-21.825	-41.737	12.577	21.825	41.737	-12.577	0.000%
19	-21.825	-31.303	12.577	21.825	31.303	-12.577	0.000%
20	-25.196	-41.737	0.000	25.196	41.737	0.000	0.000%
21	-25.196	-31.303	0.000	25.196	31.303	0.000	0.000%
22	-21.825	-41.737	-12.577	21.825	41.737	12.577	0.000%
23	-21.825	-31.303	-12.577	21.825	31.303	12.577	0.000%
24	-12.611	-41.737	-21.793	12.611	41.737	21.793	0.000%
25	-12.611	-31.303	-21.793	12.611	31.303	21.793	0.000%
26	0.000	-58.140	0.000	-0.000	58.140	0.000	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
27	-0.002	-58.140	-6.655	0.002	58.140	6.655	0.000%
28	3.336	-58.140	-5.761	-3.336	58.140	5.761	0.000%
29	5.772	-58.140	-3.326	-5.772	58.140	3.326	0.000%
30	6.663	-58.140	0.000	-6.663	58.140	0.000	0.000%
31	5.772	-58.140	3.326	-5.772	58.140	-3.326	0.000%
32	3.336	-58.140	5.761	-3.336	58.140	-5.761	0.000%
33	-0.002	-58.140	6.655	0.002	58.140	-6.655	0.000%
34	-3.333	-58.140	5.762	3.333	58.140	-5.762	0.000%
35	-5.769	-58.140	3.325	5.769	58.140	-3.325	0.000%
36	-6.660	-58.140	0.000	6.660	58.140	0.000	0.000%
37	-5.769	-58.140	-3.325	5.769	58.140	3.325	0.000%
38	-3.333	-58.140	-5.762	3.333	58.140	5.762	0.000%
39	-0.002	-34.781	-5.928	0.002	34.781	5.928	0.000%
40	2.973	-34.781	-5.131	-2.973	34.781	5.131	0.000%
41	5.143	-34.781	-2.963	-5.143	34.781	2.963	0.000%
42	5.937	-34.781	0.000	-5.937	34.781	0.000	0.000%
43	5.143	-34.781	2.963	-5.143	34.781	-2.963	0.000%
44	2.973	-34.781	5.131	-2.973	34.781	-5.131	0.000%
45	-0.002	-34.781	5.928	0.002	34.781	-5.928	0.000%
46	-2.970	-34.781	5.132	2.970	34.781	-5.132	0.000%
47	-5.140	-34.781	2.962	5.140	34.781	-2.962	0.000%
48	-5.934	-34.781	0.000	5.934	34.781	0.000	0.000%
49	-5.140	-34.781	-2.962	5.140	34.781	2.962	0.000%
50	-2.970	-34.781	-5.132	2.970	34.781	5.132	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00011348
3	Yes	5	0.00000001	0.00004872
4	Yes	7	0.00000001	0.00011023
5	Yes	6	0.00000001	0.00038653
6	Yes	7	0.00000001	0.00011003
7	Yes	6	0.00000001	0.00038583
8	Yes	5	0.00000001	0.00007653
9	Yes	5	0.00000001	0.00002827
10	Yes	7	0.00000001	0.00011053
11	Yes	6	0.00000001	0.00038785
12	Yes	7	0.00000001	0.00010952
13	Yes	6	0.00000001	0.00038406
14	Yes	5	0.00000001	0.00010191
15	Yes	5	0.00000001	0.00004248
16	Yes	7	0.00000001	0.00011003
17	Yes	6	0.00000001	0.00038617
18	Yes	7	0.00000001	0.00010998
19	Yes	6	0.00000001	0.00038594
20	Yes	5	0.00000001	0.00007280
21	Yes	5	0.00000001	0.00002487
22	Yes	7	0.00000001	0.00010969
23	Yes	6	0.00000001	0.00038468
24	Yes	7	0.00000001	0.00011057
25	Yes	6	0.00000001	0.00038798
26	Yes	4	0.00000001	0.00007695
27	Yes	6	0.00000001	0.00022107

28	Yes	6	0.00000001	0.00038195
29	Yes	6	0.00000001	0.00038226
30	Yes	6	0.00000001	0.00021982
31	Yes	6	0.00000001	0.00037286
32	Yes	6	0.00000001	0.00037196
33	Yes	6	0.00000001	0.00021730
34	Yes	6	0.00000001	0.00037195
35	Yes	6	0.00000001	0.00037092
36	Yes	6	0.00000001	0.00021937
37	Yes	6	0.00000001	0.00038071
38	Yes	6	0.00000001	0.00038168
39	Yes	4	0.00000001	0.00042477
40	Yes	5	0.00000001	0.00024905
41	Yes	5	0.00000001	0.00024821
42	Yes	4	0.00000001	0.00042136
43	Yes	5	0.00000001	0.00024750
44	Yes	5	0.00000001	0.00024267
45	Yes	4	0.00000001	0.00041810
46	Yes	5	0.00000001	0.00024436
47	Yes	5	0.00000001	0.00024357
48	Yes	4	0.00000001	0.00041848
49	Yes	5	0.00000001	0.00024548
50	Yes	5	0.00000001	0.00024991

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147.083 - 136.583	32.555	41	2.224	0.001
L2	138.583 - 101.083	28.626	41	2.184	0.001
L3	104 - 66.5	14.797	41	1.530	0.000
L4	70.3333 - 32.8333	6.260	41	0.882	0.000
L5	37.5 - 0	1.724	41	0.429	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.000	AIR 6419 B41_TMO w/ Mount Pipe	41	32.555	2.224	0.001	8856
138.000	Andrew VHLP1-23-DW1	41	28.360	2.179	0.001	5341
130.000	(2) 4' x 2" Pipe Mount	41	24.807	2.082	0.001	4009
128.000	7770.00 w/ Mount Pipe	41	23.948	2.049	0.001	3807

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147.083 - 136.583	139.352	8	9.541	0.005

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L2	138.583 - 101.083	122.560	8	9.373	0.005
L3	104 - 66.5	63.408	8	6.565	0.001
L4	70.3333 - 32.8333	26.823	8	3.784	0.000
L5	37.5 - 0	7.383	8	1.838	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.000	AIR 6419 B41_TMO w/ Mount Pipe	8	139.352	9.541	0.005	2177
138.000	Andrew VHLP1-23-DW1	8	121.426	9.353	0.005	1310
130.000	(2) 4' x 2" Pipe Mount	8	106.238	8.936	0.004	977
128.000	7770.00 w/ Mount Pipe	8	102.561	8.795	0.004	926

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	147.083 - 136.583 (1)	TP17.688x15x0.25	10.500	0.000	0.0	13.431	-3.912	785.682	0.005
L2	136.583 - 101.083 (2)	TP26x16.676x0.25	37.500	0.000	0.0	19.857	-15.380	1161.640	0.013
L3	101.083 - 66.5 (3)	TP34.063x24.775x0.313	37.500	0.000	0.0	32.534	-21.801	1903.240	0.011
L4	66.5 - 32.8333 (4)	TP41.75x32.488x0.375	37.500	0.000	0.0	47.875	-30.247	2800.670	0.011
L5	32.8333 - 0 (5)	TP49.063x39.847x0.375	37.500	0.000	0.0	57.950	-41.719	3390.090	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	147.083 - 136.583 (1)	TP17.688x15x0.25	54.526	344.921	0.158	0.000	344.921	0.000
L2	136.583 - 101.083 (2)	TP26x16.676x0.25	584.274	748.000	0.781	0.000	748.000	0.000
L3	101.083 - 66.5 (3)	TP34.063x24.775x0.313	1230.367	1587.217	0.775	0.000	1587.217	0.000
L4	66.5 - 32.8333 (4)	TP41.75x32.488x0.375	1939.450	2847.767	0.681	0.000	2847.767	0.000
L5	32.8333 - 0 (5)	TP49.063x39.847x0.375	2842.875	3935.250	0.722	0.000	3935.250	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	147.083 - 136.583 (1)	TP17.688x15x0.25	6.126	235.705	0.026	0.001	349.375	0.000
L2	136.583 - 101.083 (2)	TP26x16.676x0.25	18.057	348.493	0.052	0.027	763.737	0.000
L3	101.083 - 66.5 (3)	TP34.063x24.775x0.313	20.338	570.973	0.036	0.027	1640.125	0.000
L4	66.5 - 32.8333 (4)	TP41.75x32.488x0.375	22.806	840.201	0.027	0.026	2959.592	0.000
L5	32.8333 - 0 (5)	TP49.063x39.847x0.375	25.235	1017.030	0.025	0.026	4336.408	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	147.083 - 136.583 (1)	0.005	0.158	0.000	0.026	0.000	0.164 ✔	1.050	4.8.2 ✔
L2	136.583 - 101.083 (2)	0.013	0.781	0.000	0.052	0.000	0.797 ✔	1.050	4.8.2 ✔
L3	101.083 - 66.5 (3)	0.011	0.775	0.000	0.036	0.000	0.788 ✔	1.050	4.8.2 ✔
L4	66.5 - 32.8333 (4)	0.011	0.681	0.000	0.027	0.000	0.693 ✔	1.050	4.8.2 ✔
L5	32.8333 - 0 (5)	0.012	0.722	0.000	0.025	0.000	0.735 ✔	1.050	4.8.2 ✔

Section Capacity Table

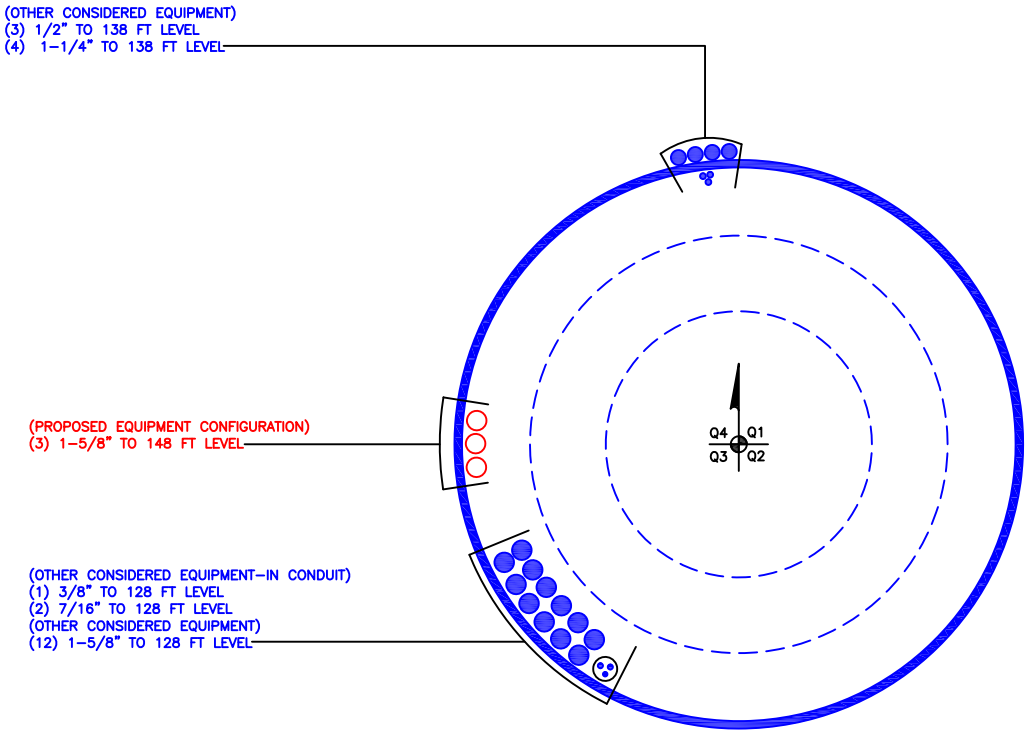
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	147.083 - 136.583	Pole	TP17.688x15x0.25	1	-3.912	824.966	15.6	Pass
L2	136.583 - 101.083	Pole	TP26x16.676x0.25	2	-15.380	1219.722	75.9	Pass
L3	101.083 - 66.5	Pole	TP34.063x24.775x0.313	3	-21.801	1998.402	75.0	Pass
L4	66.5 - 32.8333	Pole	TP41.75x32.488x0.375	4	-30.247	2940.703	66.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L5	32.8333 - 0	Pole	TP49.063x39.847x0.375	5	-41.719	3559.594	70.0	Pass
							Summary	
						Pole (L2)	75.9	Pass
						RATING =	**75.9**	**Pass**

Program Version 8.1.1.0

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 828915

APPENDIX C

ADDITIONAL CALCULATIONS

PROJECT	**126632.013.01 - Wallingford/ I-91/ X14/ S, CT**
SUBJECT	**Pole Splice Check**
DATE	**02-15-22**

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Pole Lap Splice Analysis

REV H

Input - tnxTower

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	17.922	13.837	531.541	6.19	8.985	59.157	1063.782	6.92	2.673	10.692
L2	26.363	20.433	1711.654	9.141	13.208	129.592	3425.561	10.218	4.136	16.544
L3	34.54	33.476	4817.433	11.981	17.304	278.404	9641.206	16.741	5.445	17.424
L4	42.336	49.247	10650.982	14.688	21.209	502.192	21315.979	24.628	6.688	17.835
L5	*49.762*	*57.95*	*17355.138*	*17.284*	*24.924*	*696.329*	*34733.112*	*28.981*	*7.975*	*21.267*

Section	Lap Splice Length (in)	Number of Sides	Pole Grade (ksi)	Base Diameter (in)	Thickness (in)
L1	24	18	65	17.688	0.25
L2	35.004	18	65	26	0.25
L3	45.996	18	65	34.063	0.313
L4	56.004	18	65	41.75	0.375
L5					

Results

Section	Elevation (ft)	Inner Base Diameter (in)	1.5*Inner Base Diamter (in)	Results
L1	136.583	17.188	25.782	Not Adequate, See Below
L2	101.083	25.500	38.250	Not Adequate, See Below
L3	66.500	33.437	50.156	Not Adequate, See Below
L4	32.833	41.000	61.500	Not Adequate, See Below
L5				

TIA method - Pole shaft stress ratio for the installed slip splicelength

Section	Pu (k)	ΦPn (k)	Mu (k-ft)	ΦMn (k-ft)	Vu (k)	ΦVn (k)	F'y (ksi)	ISL in Terms of Inner Diam.	Stress Ratio of Splice
L1	4.575	725.542	85.162	328.283	6.126	217.662	82.550	1.396	25.38%
L2	15.936	1043.172	640.254	695.045	18.057	312.952	81.942	1.373	89.50%
L3	22.787	1714.731	1313.149	1479.205	20.338	514.419	80.907	1.376	85.96%
L4		2494.762	2051.887	2623.052	22.806	748.429	80.423	1.366	
L5					25.23519127				

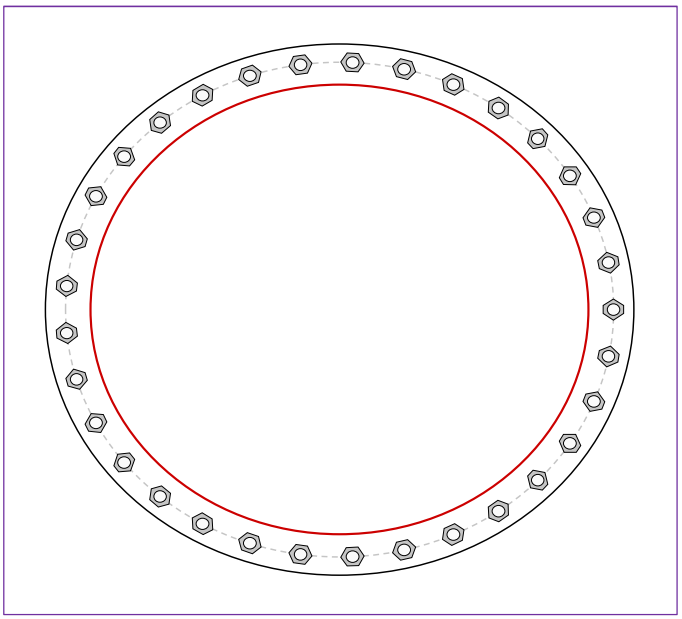
Monopole Base Plate Connection

Site Info	
BU #	828915
Site Name	llingford/ I-91/ X14/ S
Order #	603522, Rev#0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{ar} (in)	2.5

Applied Loads	
Moment (kip-ft)	2842.87
Axial Force (kips)	41.72
Shear Force (kips)	25.24

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(33) 1-1/4" ø bolts (A687 N; Fy=105 ksi, Fu=125 ksi) on 54" BC

Base Plate Data

58" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

49.0625" x 0.375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_t = 75.3	ϕPn_t = 90.84	**Stress Rating**
Vu = 0.76	ϕVn = 57.52	**78.9%**
Mu = 1.24	ϕMn = 30.76	**Pass**

Base Plate Summary

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**

Pier and Pad Foundation

BU # :	828915
Site Name:	Wallingford/ I-91/ X
App. Number:	603522, Rev# 0

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐
Rectangular Pad?:	☑

Superstructure Analysis Reactions		
Compression, P_{comp}:	42	kips
Base Shear, Vu_comp:	25	kips
Moment, M_u:	2843	ft-kips
Tower Height, **H**:	147.08	ft
BP Dist. Above Fdn, bp_{dist}:	3.75	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	6	ft
Ext. Above Grade, **E**:	0.7	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	28	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	8.3	ft
Pad Width, W_1:	19	ft
Pad Width, W_2:	17	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Bottom dir. 1), Sp_1:	7	
Pad Rebar Quantity (Bottom dir. 1), mp_1:	24	
Pad Rebar Size (Bottom dir. 2), Sp_2:	7	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	24	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	113	pcf
Ultimate Gross Bearing, Qult:	81.900	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	44	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.5	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	316.11	25.00	**7.5%**	**Pass**
Bearing Pressure (ksf)	61.43	7.97	**13.0%**	**Pass**
*Overturning (kip*ft)*	3789.92	3075.81	**81.2%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	3124.57	2993.00	**91.2%**	**Pass**
Pier Compression (kip)	17996.05	72.54	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	2012.99	1704.56	**80.6%**	**Pass**
Pad Shear - 1-way (kips)	613.25	282.14	**43.8%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	3147.97	1795.80	**54.3%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Structural Rating*:	**91.2%**
Soil Rating*:	**81.2%**

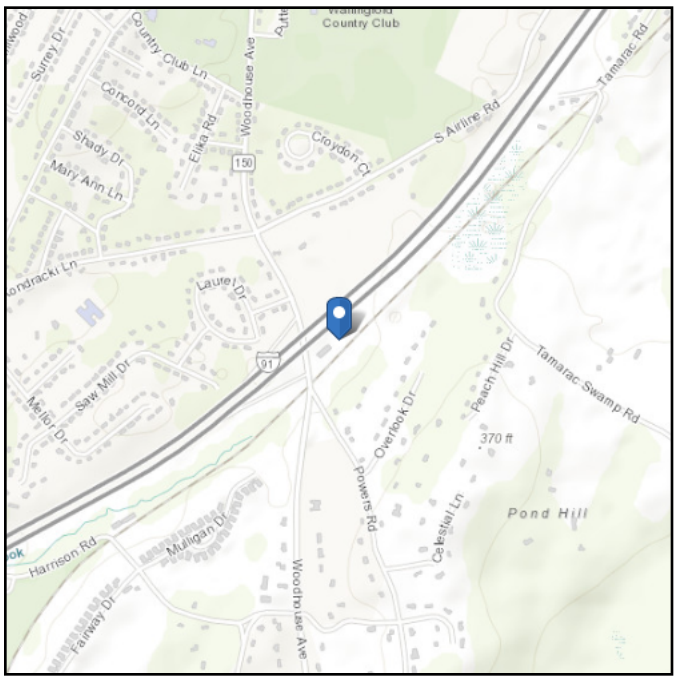
Version 4.1.1

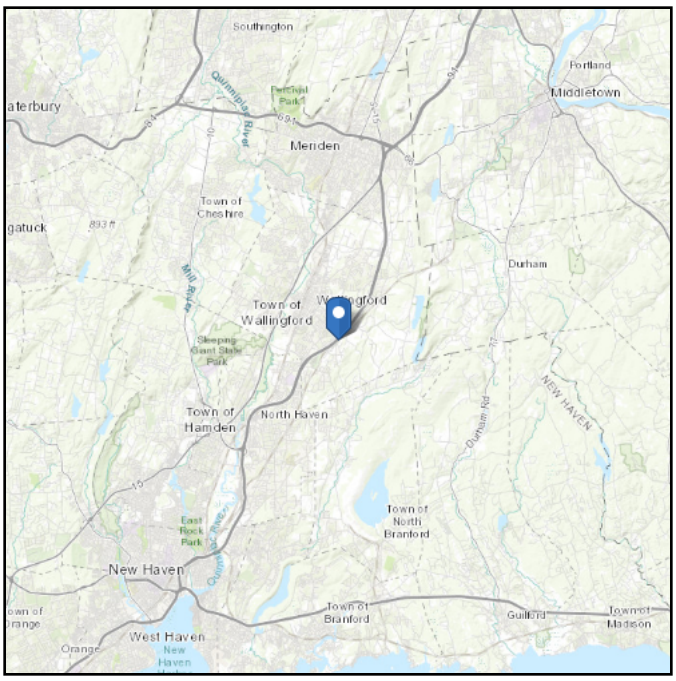
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 229.22 ft (NAVD 88)
Latitude: 41.4341
Longitude: -72.80146





Wind

Results:

Wind Speed	120 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	91 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: Mon Feb 14 2022

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.

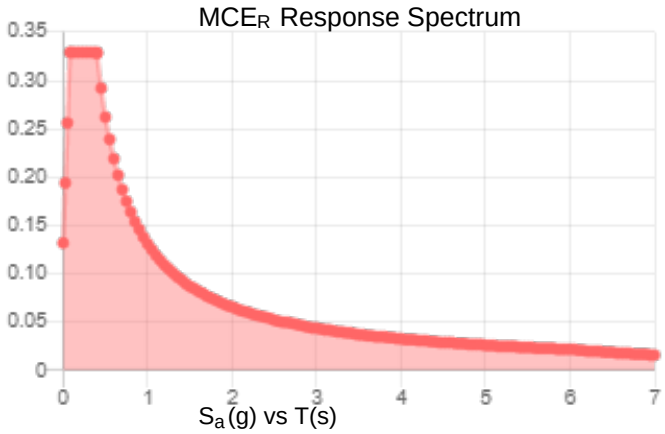
Seismic

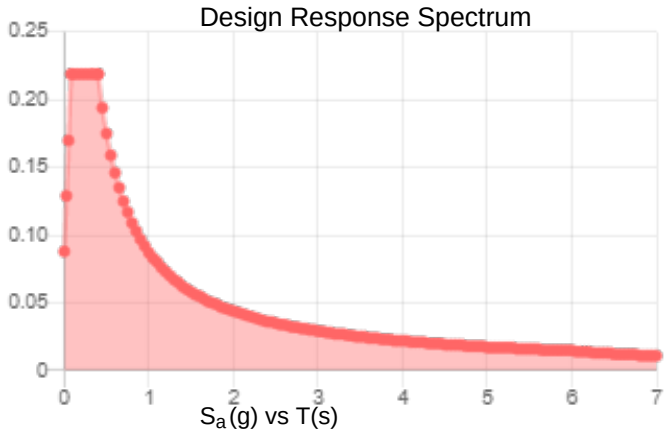
Site Soil Class: D - Default (see Section 11.4.3)

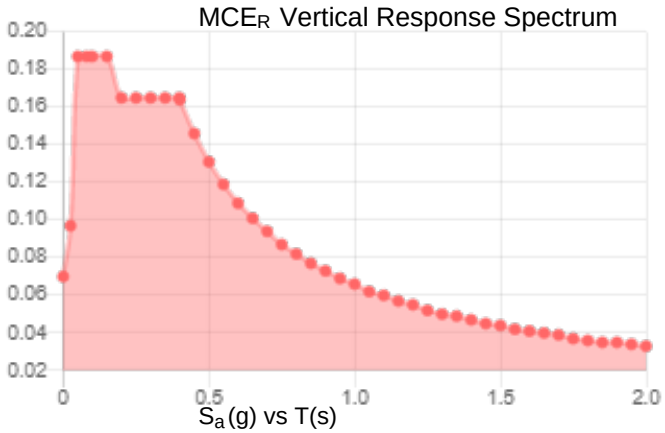
Results:

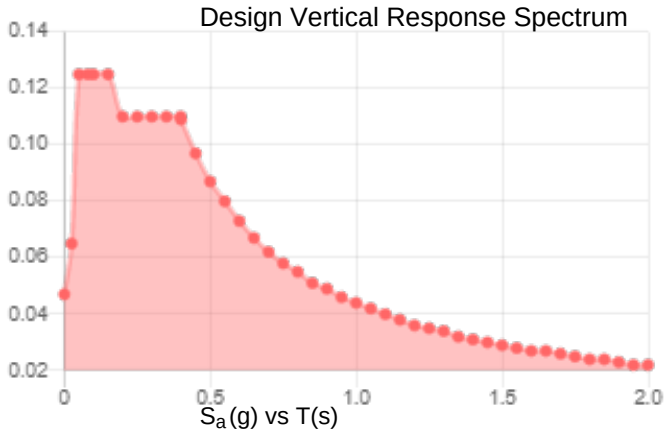
S_S :	0.206	S_{D1} :	0.087
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.115
F_v :	2.4	PGA_M :	0.18
S_{MS} :	0.329	F_{PGA} :	1.57
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.219	C_v :	0.711

Seismic Design Category B









Data Accessed: **Mon Feb 14 2022**

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:	Mon Feb 14 2022

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: **February 11, 2022**

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

Subject:	**Mount Analysis Report**	
Carrier Designation:	**T-Mobile Anchor**	
	Carrier Site Number:	CT11053E
	Carrier Site Name:	Wallingford/I-91/X14/S
Crown Castle Designation:	**Crown Castle BU Number:**	828915
	Crown Castle Site Name:	Wallingford/I-91/X14/S
	Crown Castle JDE Job Number:	704594
	Crown Castle Order Number:	603522 Rev.0
Engineering Firm Designation:	**Infinigy Engineering, PLLC Report Designation:**	1039-Z0001-B
Site Data:	**316 Woodhouse Avenue, Wallingford, New Haven County, CT, 06492** **Latitude 41°26'2.76" Longitude -72°48'5.26"**	
Structure Information:	**Tower Height & Type:**	**147.1 ft Monopole**
	Mount Elevation:	**148.0 ft**
	Mount Type:	**15.5 ft Platform**

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:

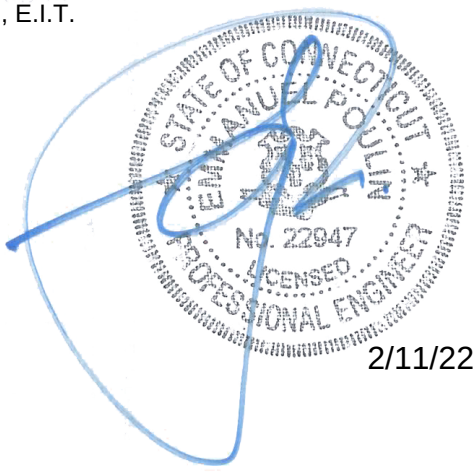
Platform **Sufficient**

***See Section 4.1 of this report for the loading and structural modifications required in order for the mount to support the loading listed in Table 1.**

This analysis utilizes an ultimate 3-second gust wind speed of 120 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



2/11/22

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 3 sector 15.5 ft Platform, mapped by Infinigy Engineering. Proposed modifications are being considered in the analysis per the Mount Modification Drawings designed by Infinigy Engineering, dated July of 2019.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC / 2018 Connecticut State Building Code
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.182
Seismic S_1:	0.062
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
148.0	148.0	3	ERICSSON	AIR 6419 B41_TMO	15.5 ft Platform
		3	RFS/CELWAVE	APXVAALL24_43-U-NA20_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	603522 Rev.0	CCI Sites
Mount Modification Drawings	Infinigy Engineering	8548246	CCI Sites
Mount Mapping Report	Infinigy Engineering	8513579	CCI Sites
Loading Docuements	T-Mobile	RFDS Version 7	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 *Mount Analysis* (Revision D).

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)	MP2	148.0	70.7	Pass
	Horizontal(s)	H3		29.9	Pass
	Standoff(s)	S4		47.0	Pass
	Handrail(s)	HR2		34.2	Pass
	Bracing(s)	M43B		71.6	Pass
	Kicker(s)	K1		55.4	Pass
	Mount Connection(s)	--		39.3	Pass

Structure Rating (max from all components) =	71.6%

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. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

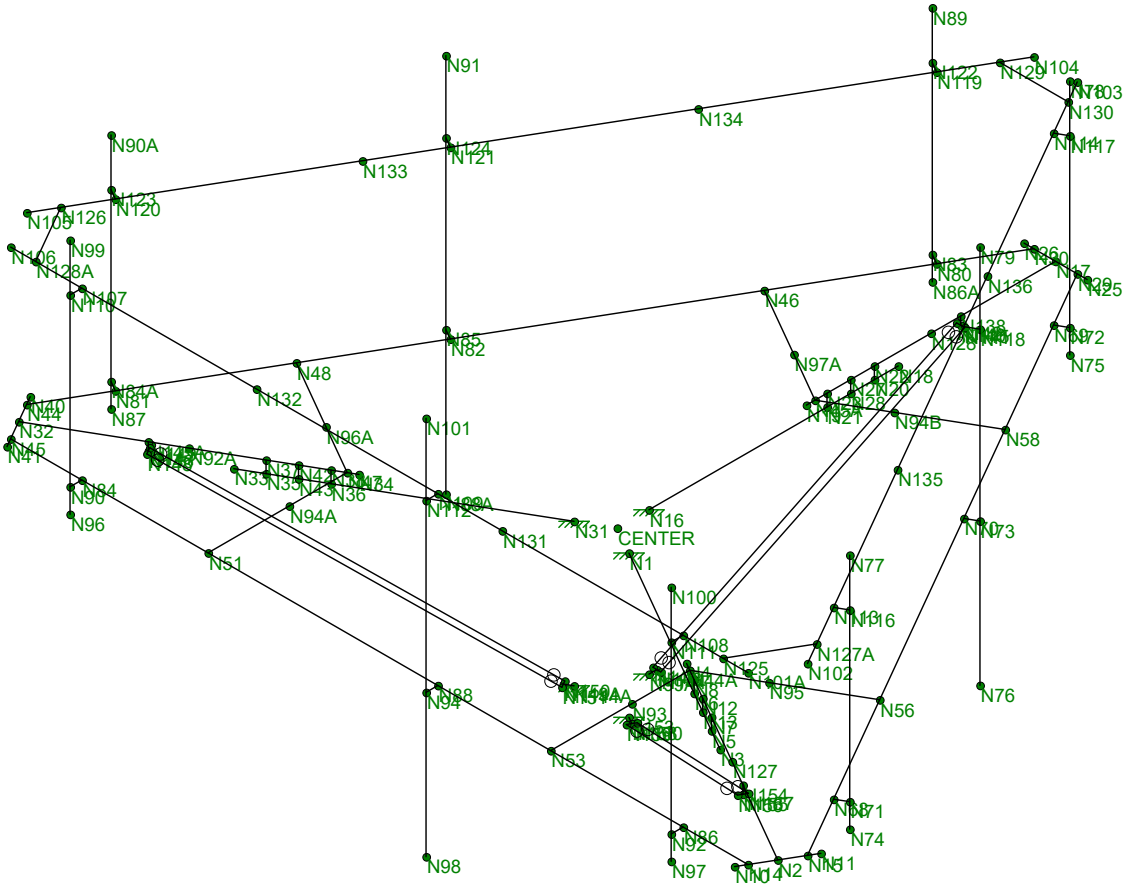
1. Installation of (1) Site Pro 1 PRK-1245L Reinforcement Kit.

2. Installation of (1) AHCP Corner Plate Kit with 2.0 STD pipe to fit per sector. Installation of (3) Site Pro 1 SCX1-K Crossover Plates per sector.

No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



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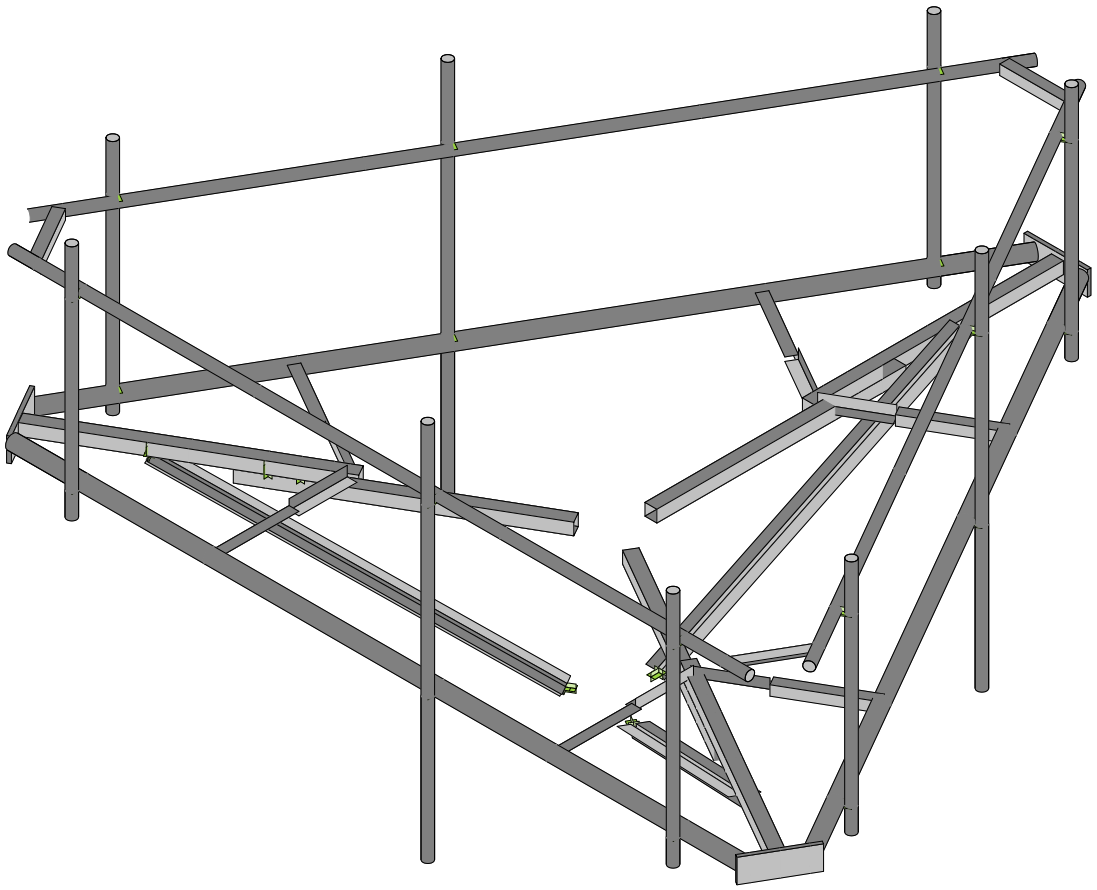

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APPENDIX B

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:	229.22	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	148.00	ft
Tower Height AGL:	147.10	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}):	120	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1	in
Flat Pressure:	95.477	psf
Round Pressure:	57.286	psf
Ice Wind Pressure:	9.946	psf

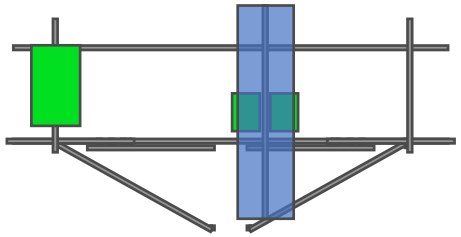
SEISMIC DATA		
Short-Period Accel. (S_s):	0.182	g
1-Second Accel. (S_1):	0.062	g
Short-Period Design (S_{DS}):	0.194	
1-Second Design (S_{D1}):	0.099	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

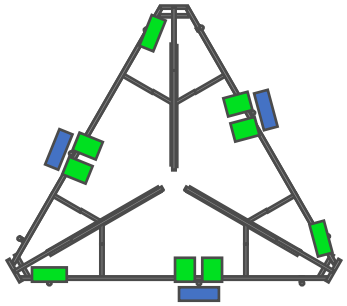
Infinigy Load Calculator V2.1.7

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION

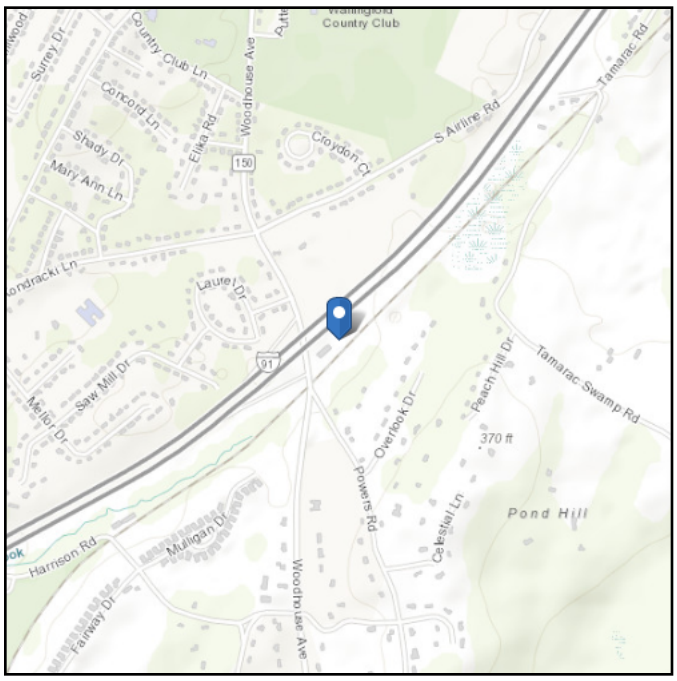
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
/CELWAVE APXVAALL24_43-U-NA20_TI	148.0	3	0.90	47.74	14.67	5.32	630.29	228.57	149.90	43.65	MP2
ERICSSON AIR 6419 B41_TMO	148.0	3	0.90	47.74	6.32	2.88	271.39	123.66	96.50	28.10	MP3
RICSSON RADIO 4460 B2/B25 B66_TMC	148.0	3	0.90	47.74	2.14	1.69	91.91	72.43	109.00	31.74	MP2
RICSSON RADIO 4460 B2/B25 B66_TMC	148.0	3	0.90	47.74	2.14	1.69	91.91	72.43	109.00	31.74	MP2

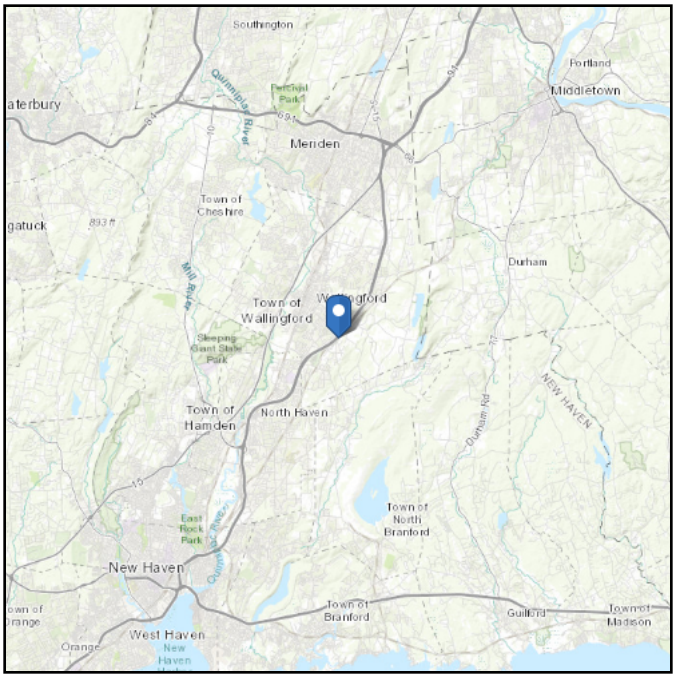
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 229.22 ft (NAVD 88)
Latitude: 41.4341
Longitude: -72.801461





Wind

Results:

Wind Speed	120 Vmph per the state allowing ASCE-16 windspeeds
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	94 Vmph
100-year MRI	102 Vmph

Data Accessed: Thu Feb 10 2022

Date 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

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.

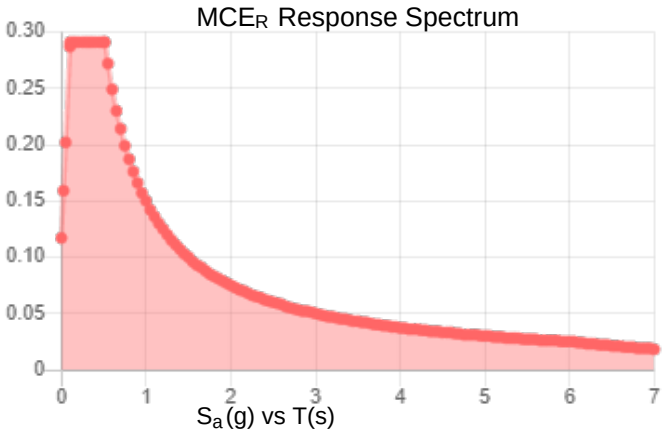
Seismic

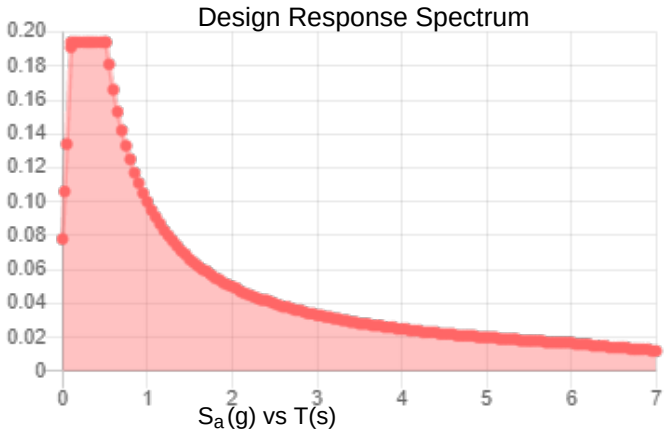
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.182	S_{DS} :	0.194
S_1 :	0.062	S_{D1} :	0.1
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.094
S_{MS} :	0.291	PGA_M :	0.15
S_{M1} :	0.15	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: **Thu Feb 10 2022**

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:	1.00 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 Feb 10 2022

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	S6	N1	N3			Standoff	Beam	None	A500 Gr....	Typical
2	S5	N4	N2			Standoff	Beam	None	A500 Gr....	Typical
3	M3	N5	N7			RIGID	None	None	RIGID	Typical
4	M4	N6	N8			RIGID	None	None	RIGID	Typical
5	M5	N10	N11			Corner Plate	Beam	None	A36 Gr.36	Typical
6	M6	N13	N12			RIGID	None	None	RIGID	Typical
7	S4	N16	N18			Standoff	Beam	None	A500 Gr....	Typical
8	S3	N19	N17			Standoff	Beam	None	A500 Gr....	Typical
9	M9	N20	N22			RIGID	None	None	RIGID	Typical
10	M10	N21	N23			RIGID	None	None	RIGID	Typical
11	M11	N25	N26			Corner Plate	Beam	None	A36 Gr.36	Typical
12	M12	N28	N27			RIGID	None	None	RIGID	Typical
13	S2	N31	N33			Standoff	Beam	None	A500 Gr....	Typical
14	S1	N34	N32			Standoff	Beam	None	A500 Gr....	Typical
15	M15	N35	N37			RIGID	None	None	RIGID	Typical
16	M16	N36	N38			RIGID	None	None	RIGID	Typical
17	M17	N40	N41			Corner Plate	Beam	None	A36 Gr.36	Typical
18	M18	N43	N42			RIGID	None	None	RIGID	Typical
19	H1	N14	N45			Horizontal	Beam	None	A53 Gr.B	Typical
20	H2	N44	N30			Horizontal	Beam	None	A53 Gr.B	Typical
21	H3	N15	N29			Horizontal	Beam	None	A53 Gr.B	Typical
22	M43	N92	N86			RIGID	None	None	RIGID	Typical
23	M45	N94	N88			RIGID	None	None	RIGID	Typical
24	M47	N90	N84			RIGID	None	None	RIGID	Typical
25	MP3	N99	N96			Mount Pipes	Column	None	A53 Gr.B	Typical
26	MP1	N100	N97			Mount Pipes	Column	None	A53 Gr.B	Typical
27	MP2	N101	N98			Mount Pipes	Column	None	A53 Gr.B	Typical
28	M34	N72	N69			RIGID	None	None	RIGID	Typical
29	M35	N73	N70			RIGID	None	None	RIGID	Typical
30	M36	N71	N68			RIGID	None	None	RIGID	Typical
31	MP9	N77	N74			Mount Pipes	Column	None	A53 Gr.B	Typical
32	MP7	N78	N75			Mount Pipes	Column	None	A53 Gr.B	Typical
33	MP8	N79	N76			Mount Pipes	Column	None	A53 Gr.B	Typical
34	M40	N84A	N81			RIGID	None	None	RIGID	Typical
35	M41	N85	N82			RIGID	None	None	RIGID	Typical
36	M42	N83	N80			RIGID	None	None	RIGID	Typical
37	MP6	N89	N86A			Mount Pipes	Column	None	A53 Gr.B	Typical
38	MP4	N90A	N87			Mount Pipes	Column	None	A53 Gr.B	Typical
39	MP5	N91	N88A			Mount Pipes	Column	None	A53 Gr.B	Typical
40	M40A	N47	N94A		270	Bracing Angle	Beam	None	A36 Gr.36	Typical
41	M41A	N47	N96A			Bracing Angle	Beam	None	A36 Gr.36	Typical
42	M42A	N45A	N97A		270	Bracing Angle	Beam	None	A36 Gr.36	Typical
43	M43B	N45A	N94B			Bracing Angle	Beam	None	A36 Gr.36	Typical
44	M44A	N44A	N95		270	Bracing Angle	Beam	None	A36 Gr.36	Typical
45	M45B	N44A	N93			Bracing Angle	Beam	None	A36 Gr.36	Typical
46	M46	N94A	N51		180	Kickers	Beam	None	A36 Gr.36	Typical
47	M47A	N96A	N48		180	Kickers	Beam	None	A36 Gr.36	Typical
48	M48	N97A	N46		180	Kickers	Beam	None	A36 Gr.36	Typical
49	M49	N94B	N58		180	Kickers	Beam	None	A36 Gr.36	Typical
50	M50	N95	N56		180	Kickers	Beam	None	A36 Gr.36	Typical
51	M51	N93	N53		180	Kickers	Beam	None	A36 Gr.36	Typical
52	HR1	N101A	N106			Handrails	Beam	None	A53 Gr.B	Typical
53	HR2	N105	N104			Handrails	Beam	None	A53 Gr.B	Typical
54	HR3	N102	N103			Handrails	Beam	None	A53 Gr.B	Typical
55	M58	N111	N108			RIGID	None	None	RIGID	Typical
56	M59	N112	N109			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
57	M60	N110	N107			RIGID	None	None	RIGID	Typical
58	M61	N117	N114			RIGID	None	None	RIGID	Typical
59	M62	N118	N115			RIGID	None	None	RIGID	Typical
60	M63	N116	N113			RIGID	None	None	RIGID	Typical
61	M64	N123	N120			RIGID	None	None	RIGID	Typical
62	M65	N124	N121			RIGID	None	None	RIGID	Typical
63	M66	N122	N119			RIGID	None	None	RIGID	Typical
64	M67	N128A	N126		180	Handrail Corners	Beam	None	A36 Gr.36	Typical
65	M68	N129	N130		180	Handrail Corners	Beam	None	A36 Gr.36	Typical
66	M69	N125	N127A		90	Handrail Corners	Beam	None	A36 Gr.36	Typical
67	K1	N145	N142		180	Kickers	Beam	None	A36 Gr.36	Typical
68	K2	N144	N141		90	Kickers	Beam	None	A36 Gr.36	Typical
69	M72A	N142	N140			RIGID	None	None	RIGID	Typical
70	M73	N141	N140			RIGID	None	None	RIGID	Typical
71	M74	N140	N138			RIGID	None	None	RIGID	Typical
72	M75	N99A	N143			RIGID	None	None	RIGID	Typical
73	M76	N143	N145			RIGID	None	None	RIGID	Typical
74	M77	N143	N144			RIGID	None	None	RIGID	Typical
75	K3	N151	N148		180	Kickers	Beam	None	A36 Gr.36	Typical
76	K4	N150	N147		90	Kickers	Beam	None	A36 Gr.36	Typical
77	M77A	N148	N146			RIGID	None	None	RIGID	Typical
78	M78	N147	N146			RIGID	None	None	RIGID	Typical
79	M79	N146	N145A			RIGID	None	None	RIGID	Typical
80	M80	N144A	N149A			RIGID	None	None	RIGID	Typical
81	M81	N149A	N151			RIGID	None	None	RIGID	Typical
82	M82	N149A	N150			RIGID	None	None	RIGID	Typical
83	K5	N160	N157		180	Kickers	Beam	None	A36 Gr.36	Typical
84	K6	N159	N156		90	Kickers	Beam	None	A36 Gr.36	Typical
85	M85	N157	N155			RIGID	None	None	RIGID	Typical
86	M86	N156	N155			RIGID	None	None	RIGID	Typical
87	M87	N155	N154			RIGID	None	None	RIGID	Typical
88	M88	N153	N158			RIGID	None	None	RIGID	Typical
89	M89	N158	N160			RIGID	None	None	RIGID	Typical
90	M90	N158	N159			RIGID	None	None	RIGID	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		45	105	0
3	Total General		45	105	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	PL6X0.875	3	48	71.458
7	A36 Gr.36	L2.5x2.5x3	21	774.4	197.861
8	A500 Gr.B Rect	HSS3X3X3	6	378	217.882
9	A53 Gr.B	PIPE_2.0	12	1207.2	349.176
10	A53 Gr.B	PIPE_3.0	3	559.2	328.259
11	Total HR Steel		45	2966.9	1164.635

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			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(Plate/Wall)
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						90		
15	Distr. Wind Load X	WLX						90		
16	Ice Weight	OL1					15	90	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						90		
30	Distr. Ice Wind Loa...	OL3						90		
31	Seismic Load Z	ELZ			-.291		15			
32	Seismic Load X	ELX	-.291				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	BLC 1 Transient Ar...	None						39		
44	BLC 16 Transient ...	None						39		

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												

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...
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											
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	1.239	31	1	32															
40	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	.866	32	.5														
41	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	.5	32	.866														
42	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31		32	1														
43	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-.5	32	.866														
44	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-.8...	32	.5														
45	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-1	32															
46	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-.8...	32	-.5														
47	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-.5	32	-.8...														
48	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31		32	-1														
49	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	.5	32	-.8...														
50	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	.866	32	-.5														
51	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	1	32															
52	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	.866	32	.5														
53	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	.5	32	.866														
54	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31		32	1														
55	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-.5	32	.866														
56	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-.8...	32	.5														
57	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-1	32															
58	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-.8...	32	-.5														
59	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-.5	32	-.8...														
60	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31		32	-1														
61	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	.5	32	-.8...														
62	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	.866	32	-.5														
63	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	2	.25	14	.25	15		33	1.5										
64	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	3	.25	14	.216	15	.125	33	1.5										
65	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	4	.25	14	.125	15	.216	33	1.5										
66	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	5	.25	14		15	.25	33	1.5										
67	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	6	.25	14	-.1...	15	.216	33	1.5										
68	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	7	.25	14	-.2...	15	.125	33	1.5										

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...
69	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	8	.25	14	-.25	15		33	1.5										
70	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	9	.25	14	-.2...	15	-.1...	33	1.5										
71	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	10	.25	14	-.1...	15	-.2...	33	1.5										
72	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	11	.25	14		15	-.25	33	1.5										
73	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	12	.25	14	.125	15	-.2...	33	1.5										
74	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	13	.25	14	.216	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	.063	14	.063	15											
77	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	3	.063	14	.054	15	.031										
78	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	4	.063	14	.031	15	.054										
79	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	5	.063	14		15	.063										
80	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	6	.063	14	-.0...	15	.054										
81	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	7	.063	14	-.0...	15	.031										
82	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	8	.063	14	-.0...	15											
83	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	9	.063	14	-.0...	15	-.0...										
84	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	10	.063	14	-.0...	15	-.0...										
85	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	11	.063	14		15	-.0...										
86	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	12	.063	14	.031	15	-.0...										
87	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	13	.063	14	.054	15	-.0...										
88	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	2	.063	14	.063	15											
89	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	3	.063	14	.054	15	.031										
90	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	4	.063	14	.031	15	.054										
91	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	5	.063	14		15	.063										
92	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	6	.063	14	-.0...	15	.054										
93	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	7	.063	14	-.0...	15	.031										
94	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	8	.063	14	-.0...	15											
95	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	9	.063	14	-.0...	15	-.0...										
96	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	10	.063	14	-.0...	15	-.0...										
97	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	11	.063	14		15	-.0...										
98	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	12	.063	14	.031	15	-.0...										
99	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	13	.063	14	.054	15	-.0...										
100	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	2	.063	14	.063	15											
101	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	3	.063	14	.054	15	.031										
102	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	4	.063	14	.031	15	.054										
103	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	5	.063	14		15	.063										
104	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	6	.063	14	-.0...	15	.054										
105	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	7	.063	14	-.0...	15	.031										
106	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	8	.063	14	-.0...	15											
107	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	9	.063	14	-.0...	15	-.0...										
108	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	10	.063	14	-.0...	15	-.0...										
109	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	11	.063	14		15	-.0...										
110	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	12	.063	14	.031	15	-.0...										
111	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	13	.063	14	.054	15	-.0...										
112	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	2	.063	14	.063	15											
113	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	3	.063	14	.054	15	.031										
114	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	4	.063	14	.031	15	.054										
115	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	5	.063	14		15	.063										
116	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	6	.063	14	-.0...	15	.054										
117	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	7	.063	14	-.0...	15	.031										
118	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	8	.063	14	-.0...	15											
119	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	9	.063	14	-.0...	15	-.0...										
120	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	10	.063	14	-.0...	15	-.0...										
121	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	11	.063	14		15	-.0...										
122	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	12	.063	14	.031	15	-.0...										
123	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	13	.063	14	.054	15	-.0...										
124	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	2	.063	14	.063	15											
125	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	3	.063	14	.054	15	.031										

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...
126	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	4	.063	14	.031	15	.054										
127	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	5	.063	14		15	.063										
128	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	6	.063	14	-.0...	15	.054										
129	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	7	.063	14	-.0...	15	.031										
130	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	8	.063	14	-.0...	15											
131	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	9	.063	14	-.0...	15	-.0...										
132	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	10	.063	14	-.0...	15	-.0...										
133	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	11	.063	14		15	-.0...										
134	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	12	.063	14	.031	15	-.0...										
135	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	13	.063	14	.054	15	-.0...										
136	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	2	.063	14	.063	15											
137	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	3	.063	14	.054	15	.031										
138	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	4	.063	14	.031	15	.054										
139	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	5	.063	14		15	.063										
140	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	6	.063	14	-.0...	15	.054										
141	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	7	.063	14	-.0...	15	.031										
142	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	8	.063	14	-.0...	15											
143	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	9	.063	14	-.0...	15	-.0...										
144	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	10	.063	14	-.0...	15	-.0...										
145	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	11	.063	14		15	-.0...										
146	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	12	.063	14	.031	15	-.0...										
147	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	13	.063	14	.054	15	-.0...										
148	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	2	.063	14	.063	15											
149	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	3	.063	14	.054	15	.031										
150	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	4	.063	14	.031	15	.054										
151	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	5	.063	14		15	.063										
152	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	6	.063	14	-.0...	15	.054										
153	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	7	.063	14	-.0...	15	.031										
154	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	8	.063	14	-.0...	15											
155	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	9	.063	14	-.0...	15	-.0...										
156	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	10	.063	14	-.0...	15	-.0...										
157	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	11	.063	14		15	-.0...										
158	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	12	.063	14	.031	15	-.0...										
159	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	13	.063	14	.054	15	-.0...										
160	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	2	.063	14	.063	15											
161	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	3	.063	14	.054	15	.031										
162	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	4	.063	14	.031	15	.054										
163	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	5	.063	14		15	.063										
164	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	6	.063	14	-.0...	15	.054										
165	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	7	.063	14	-.0...	15	.031										
166	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	8	.063	14	-.0...	15											
167	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	9	.063	14	-.0...	15	-.0...										
168	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	10	.063	14	-.0...	15	-.0...										
169	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	11	.063	14		15	-.0...										
170	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	12	.063	14	.031	15	-.0...										
171	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	13	.063	14	.054	15	-.0...										
172	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	2	.063	14	.063	15											
173	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	3	.063	14	.054	15	.031										
174	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	4	.063	14	.031	15	.054										
175	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	5	.063	14		15	.063										
176	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	6	.063	14	-.0...	15	.054										
177	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	7	.063	14	-.0...	15	.031										
178	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	8	.063	14	-.0...	15											
179	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	9	.063	14	-.0...	15	-.0...										
180	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	10	.063	14	-.0...	15	-.0...										
181	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	11	.063	14		15	-.0...										
182	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	12	.063	14	.031	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	N1	max	2528.503	16	390.806	4	1696.471	16	168.797	24	1857.04	19	543.196	3
2		min	-4327.738	10	-168.881	22	-2750.83	10	-447.591	6	-1858.1...	25	-203.729	21
3	N31	max	4326.232	6	387.723	12	1533.197	24	225.3	16	1926.87	15	169.912	18
4		min	-2523.944	24	-165.814	18	-2583.4...	6	-379.371	10	-1925.6...	21	-581.182	12
5	N16	max	1261.125	5	367.709	8	4756.967	2	606.961	8	2890.181	23	363.491	11
6		min	-1261.495	11	-146.163	14	-2670.3...	20	-174.579	14	-2891.0...	17	-290.629	17
7	N99A	max	132.757	17	2229.613	27	-324.733	20	371.579	27	157.775	23	66.78	11
8		min	-132.948	23	146.53	20	-4468.5...	27	24.422	20	-157.727	17	-66.419	5
9	N144A	max	-290.953	24	2228.996	31	2227.669	31	44.986	23	138.957	23	-25.556	25
10		min	-3858.322	31	121.787	24	182.252	23	-193.959	5	-137.307	17	-317.934	31
11	N153	max	3857.884	35	2228.65	35	2227.017	35	39.334	17	125.764	23	318.075	34
12		min	270.856	16	110.58	16	170.541	16	-193.735	36	-127.209	17	19.482	15
13	Totals:	max	5585.578	17	7062.559	32	5240.712	2						
14		min	-5585.587	11	2481.857	51	-5240.7	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	M43B	L2.5x2.5x3	.716	0	30	.068	0	y	30	2744...	2919...	872....	1971...	....	H2-1
2	M41A	L2.5x2.5x3	.711	0	33	.067	0	y	34	2744...	2919...	872....	1971...	....	H2-1
3	M45B	L2.5x2.5x3	.710	0	38	.067	0	y	38	2744...	2919...	872....	1971...	....	H2-1
4	MP2	PIPE_2.0	.707	60	2	.086	60		2	1491...	32130	1871...	1871...	....	H1-...
5	MP5	PIPE_2.0	.691	60	10	.095	60		5	1491...	32130	1871...	1871...	....	H1-...
6	MP8	PIPE_2.0	.680	60	5	.075	60		6	1491...	32130	1871...	1871...	....	H1-...
7	M42A	L2.5x2.5x3	.645	0	37	.062	0	z	37	2744...	2919...	872....	1971...	....	H2-1
8	M44A	L2.5x2.5x3	.643	0	34	.061	0	z	33	2744...	2919...	872....	1971...	....	H2-1
9	M40A	L2.5x2.5x3	.641	0	30	.061	0	z	29	2744...	2919...	872....	1971...	....	H2-1
10	K1	L2.5x2.5x3	.554	42.624	5	.016	0	z	11	6507...	2919...	872....	1443...	....	H2-1
11	K2	L2.5x2.5x3	.553	42.624	11	.016	85.248	y	11	6507...	2919...	872....	1443...	....	H2-1
12	M49	L2.5x2.5x3	.535	20.513	31	.066	0	y	30	2653...	2919...	872....	1971...	....	H2-1
13	M48	L2.5x2.5x3	.535	20.513	36	.060	0	y	37	2653...	2919...	872....	1971...	....	H2-1
14	M51	L2.5x2.5x3	.535	20.513	27	.066	0	y	38	2653...	2919...	872....	1971...	....	H2-1
15	M46	L2.5x2.5x3	.535	20.513	28	.060	0	y	29	2653...	2919...	872....	1971...	....	H2-1
16	M50	L2.5x2.5x3	.533	20.513	32	.060	0	y	33	2653...	2919...	872....	1971...	....	H2-1
17	M47A	L2.5x2.5x3	.530	20.513	35	.066	0	y	34	2653...	2919...	872....	1971...	....	H2-1
18	K6	L2.5x2.5x3	.487	42.624	35	.015	0	y	7	6507...	2919...	872....	1443...	....	H2-1
19	K3	L2.5x2.5x3	.487	42.624	31	.015	85.248	z	3	6507...	2919...	872....	1443...	....	H2-1
20	S4	HSS3X3X3	.470	0	11	.122	0	z	11	6373...	78246	6796...	6796...	....	H1-...
21	K5	L2.5x2.5x3	.456	42.624	34	.015	85.248	z	7	6507...	2919...	872....	1443...	....	H2-1
22	K4	L2.5x2.5x3	.455	42.624	32	.015	85.248	y	3	6507...	2919...	872....	1443...	....	H2-1
23	MP9	PIPE_2.0	.443	53.75	10	.171	53.75		12	2380...	32130	1871...	1871...	....	H1-...
24	MP3	PIPE_2.0	.405	53.75	6	.181	53.75		8	2380...	32130	1871...	1871...	....	H1-...
25	MP6	PIPE_2.0	.403	53.75	2	.178	53.75		4	2380...	32130	1871...	1871...	....	H1-...
26	M69	L2.5x2.5x3	.349	0	11	.083	0	y	13	2713...	2919...	872....	1971...	....	H2-1
27	HR2	PIPE_2.0	.342	77.671	5	.179	17.476		4	4076...	32130	1871...	1871...	....	H1-...
28	MP4	PIPE_2.0	.340	53.75	6	.156	53.75		4	2380...	32130	1871...	1871...	....	H1-...
29	S2	HSS3X3X3	.328	0	9	.100	0	z	3	6373...	78246	6796...	6796...	....	H1-...
30	M67	L2.5x2.5x3	.326	17.321	8	.086	0	z	9	2713...	2919...	872....	1971...	....	H2-1
31	MP1	PIPE_2.0	.318	53.75	10	.161	53.75		8	2380...	32130	1871...	1871...	....	H1-...
32	S6	HSS3X3X3	.318	0	13	.097	0	z	7	6373...	78246	6796...	6796...	....	H1-...
33	HR1	PIPE_2.0	.318	77.671	9	.183	17.476		8	4076...	32130	1871...	1871...	....	H1-...
34	MP7	PIPE_2.0	.315	53.75	2	.160	53.75		5	2380...	32130	1871...	1871...	....	H1-...
35	HR3	PIPE_2.0	.300	106.798	11	.171	168.935		12	4076...	32130	1871...	1871...	....	H1-...
36	H3	PIPE_3.0	.299	108.74	145	.142	0		36	1852...	65205	5748...	5748...	....	H1-...
37	H1	PIPE_3.0	.299	77.671	105	.142	186.411		32	1852...	65205	5748...	5748...	....	H1-...

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*...	phi*...	phi*...	phi*...	...	Eqn
38	H2	PIPE_3.0	.298	77.671	181	.141	186.411		28	1852..	65205	5748..	5748..		H1-..
39	M68	L2.5x2.5x3	.274	17.321	4	.093	0	z	5	2713..	2919..	872....	1971..		H2-1
40	S1	HSS3X3X3	.226	39.375	30	.082	4.594	z	9	6373..	78246	6796..	6796..		H1-..
41	S5	HSS3X3X3	.224	39.375	34	.080	4.594	z	13	6373..	78246	6796..	6796..		H1-..
42	S3	HSS3X3X3	.224	39.375	38	.101	4.594	z	5	6373..	78246	6796..	6796..		H1-..
43	M11	PL6X0.875	.133	8	32	.268	8	y	126	1377...	1701..	3100..	2126..		H1-..
44	M5	PL6X0.875	.133	8	29	.268	8	y	98	1377...	1701..	3100..	2126..		H1-..
45	M17	PL6X0.875	.129	8	37	.268	8	y	166	1377...	1701..	3100..	2126..		H1-..

APPENDIX D

ADDITIONAL CALCUATIONS

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	Wallingford/I-91/X14/S
Site Number:	828915
Connection Description:	Platform to Tower

MAXIMUM BOLT LOADS		
Bolt Tension:	5018.55	lbs
Bolt Shear:	660.26	lbs

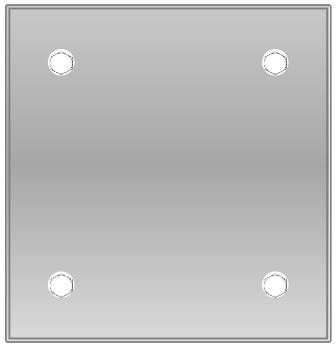
WORST CASE BOLT LOADS[1]		
Bolt Tension:	5018.55	lbs
Bolt Shear:	633.56	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.5	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #11 on member S4 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of S6, S4, S2

BOLT CHECK		
Tensile Strength	12770.86	
Shear Strength	8835.73	
Max Tensile Usage	39.3%	
Max Shear Usage	7.5%	
Interaction Check (Worst Case)	0.16	***≤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: CT11053E

828915
316 Woodhouse Avenue
Wallingford, Connecticut 06492

March 14, 2022

EBI Project Number: 6222001689

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**19.91%**

March 14, 2022

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

Emissions Analysis for Site: CT11053E - 828915

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **316 Woodhouse Avenue** in **Wallingford, 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 316 Woodhouse Avenue in Wallingford, 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 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 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

7) 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.

8) 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.

9) 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.

10) 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.

11) 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.

12) 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.

13) 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.

14) 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 / 2100 MHz channel(s), the Ericsson AIR 6419 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 / 2100 MHz channel(s), the Ericsson AIR 6419 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 / 2100 MHz channel(s), the Ericsson AIR 6419 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.

15) The antenna mounting height centerline of the proposed antennas is 148 feet above ground level (AGL).

16) 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.

17) 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 / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd / 16.45 dBd
Height (AGL):	148 feet	Height (AGL):	148 feet	Height (AGL):	148 feet
Channel Count:	15	Channel Count:	15	Channel Count:	15
Total TX Power (W):	620.00 Watts	Total TX Power (W):	620.00 Watts	Total TX Power (W):	620.00 Watts
ERP (W):	20,518.14	ERP (W):	20,518.14	ERP (W):	20,518.14
Antenna A1 MPE %:	**4.68%**	Antenna B1 MPE %:	**4.68%**	Antenna C1 MPE %:	**4.68%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.35 dBd / 17.3 dBd / 22.35 dBd / 17.3 dBd	Gain:	22.35 dBd / 17.3 dBd / 22.35 dBd / 17.3 dBd	Gain:	22.35 dBd / 17.3 dBd / 22.35 dBd / 17.3 dBd
Height (AGL):	148 feet	Height (AGL):	148 feet	Height (AGL):	148 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240.00 Watts	Total TX Power (W):	240.00 Watts	Total TX Power (W):	240.00 Watts
ERP (W):	34,144.54	ERP (W):	34,144.54	ERP (W):	34,144.54
Antenna A2 MPE %:	**6.09%**	Antenna B2 MPE %:	**6.09%**	Antenna C2 MPE %:	**6.09%**

• Specifications were not available for the Ericsson AIR 6419 antenna. Specifications for the AIR 6449 antenna were used to model the 6419 due to its similarity.

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	10.77%
Nextel	0.34%
Sprint	3.62%
Metro PCS	0.97%
AT&T	4.21%
Site Total MPE % :	19.91%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	10.77%
T-Mobile Sector B Total:	10.77%
T-Mobile Sector C Total:	10.77%
Site Total MPE % :	19.91%

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	148.0	2.11	600 MHz LTE	400	0.53%
T-Mobile 600 MHz NR	1	1577.94	148.0	2.81	600 MHz NR	400	0.70%
T-Mobile 700 MHz LTE	2	695.22	148.0	2.48	700 MHz LTE	467	0.53%
T-Mobile 1900 MHz GSM	4	1052.26	148.0	7.50	1900 MHz GSM	1000	0.75%
T-Mobile 1900 MHz LTE	2	2104.51	148.0	7.50	1900 MHz LTE	1000	0.75%
T-Mobile 2100 MHz UMTS	2	1324.71	148.0	4.72	2100 MHz UMTS	1000	0.47%
T-Mobile 2100 MHz LTE	2	2649.42	148.0	9.45	2100 MHz LTE	1000	0.94%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	10307.45	148.0	18.38	2500 MHz LTE 1C & 2C Traffic	1000	1.84%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	148.0	1.92	2500 MHz LTE 1C & 2C Broadcast	1000	0.19%
T-Mobile 2500 MHz NR Traffic	1	20614.90	148.0	36.76	2500 MHz NR Traffic	1000	3.68%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	148.0	3.83	2500 MHz NR Broadcast	1000	0.38%
						Total:	**10.77%**

• 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:	10.77%
Sector B:	10.77%
Sector C:	10.77%
T-Mobile Maximum MPE % (Sector A):	10.77%
Site Total:	19.91%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **19.91%** 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: CT11053E
T-MOBILE SITE NAME: WALLINGFORD/ I-91/ X14/ S
SITE TYPE: MONOPOLE
TOWER HEIGHT: 148'-0"

BUSINESS UNIT #: 828915
SITE ADDRESS: 316 WOODHOUSE AVENUE WALLINGFORD, CT 06492
COUNTY: NEW HAVEN
JURISDICTION: CONNECTICUT SITING COUNCIL

T-MOBILE ANCHOR SITE CONFIGURATION: 67D5A997DB OUTDOOR

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	WALLINGFORD/ I-91/ X14/ S
SITE ADDRESS:	316 WOODHOUSE AVENUE WALLINGFORD, CT 06492
COUNTY:	NEW HAVEN
MAP/PARCEL #:	MAP: 190 LOT: 28
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.434130
LONGITUDE:	-72.801460
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	220'
CURRENT ZONING:	CA-40
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	CONNECTICUT STREET ROD ASSOCIATION INC P.O. BOX 1517 WALLINGFORD, CT 06492
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054
ELECTRIC PROVIDER:	UNITED ILLUMINATING CO. 203-499-2000
TELCO PROVIDER:	COMCAST PHONE 800-934-6489

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277 TRICIA PELON - PROJECT MANAGER TRICIA.PELON@CROWNCASTLE.COM JASSON D'AMICO - CONSTRUCTION MANAGER JASON.D'AMICO@CROWNCASTLE.COM

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 24X36. 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

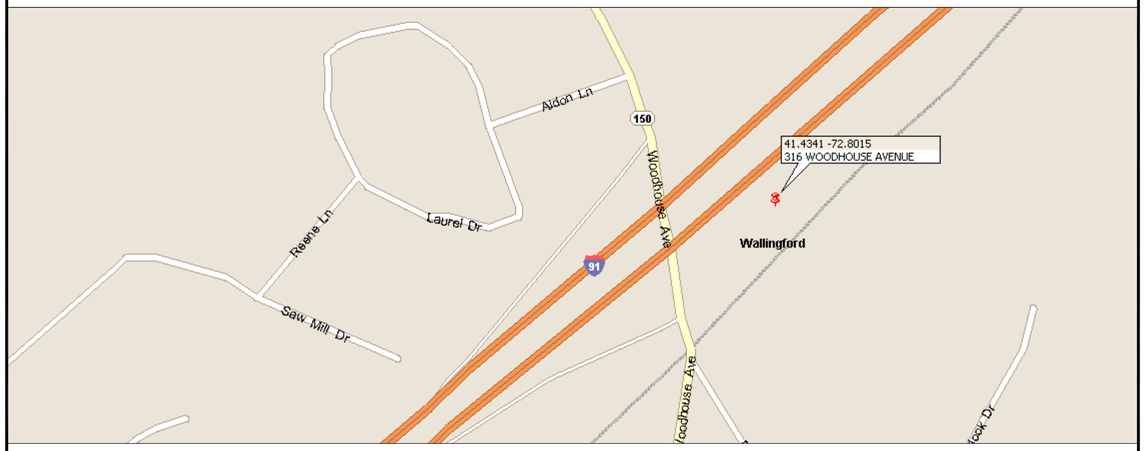
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (9) ANTENNAS
- REMOVE (3) RRH
- RELOCATE (3) TMA
- REMOVE (12) 1 5/8" COAX CABLES
- REMOVE (1) 9x18 HCS HYBRID CABLE
- INSTALL (9) ANTENNAS
- INSTALL (6) RRH
- INSTALL (3) 6x24 HCS HYBRID CABLES
- INSTALL (1) KICKER SUPPORT, SITEPRO 1 PRK-1245L
- INSTALL (3) 2.0 STD HANDRAIL PIPES, (9) CROSSOVER PLATES, AND (1) CORNER PLATE KIT

GROUND SCOPE OF WORK:
- REMOVE RBS 6131 CABINET
- REMOVE S8000 OUTDOOR CABINET
- REMOVE (1) BB DUW30
- INSTALL (2) RP6651
- INSTALL (1) BB 6648 IN NEW 6160
- INSTALL (1) BB 6630 IN NEW 6160
- INSTALL (1) 1XRe ROUTER IN NEW 6160
- INSTALL (1) PSU 4813 POWER BOOSTER IN NEW 6160
- INSTALL (1) 6160 SSC CABINET
- INSTALL (1) B160 BATTERY CABINET

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 CONNECTICUT STATE BUILDING CODE
MECHANICAL	2018 CONNECTICUT STATE BUILDING CODE
ELECTRICAL	NEC 2017

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	B+T GROUP
DATED:	2/16/22
MOUNT ANALYSIS:	INFINIGY
DATED:	2/10/22
RFDS REVISION:	7
DATED:	1/21/22
ORDER ID:	494410
REVISION:	7

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

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
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11053E

BU #: **828915**
WALLINGFORD/ I-91/ X14/ S

316 WOODHOUSE AVENUE
WALLINGFORD, CT 06492

EXISTING
148'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	2/10/22	JTS	PRELIMINARY	MTJ
0	3/2/22	JTS	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
No. 23924
LICENSED PROFESSIONAL ENGINEER
3/2/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER: T-1
REVISION: 0

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.

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

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).

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PARSIPPANY, NJ 07054

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CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11053E

BU #: **828915**
WALLINGFORD/ I-91/ X14/ S

316 WOODHOUSE AVENUE
WALLINGFORD, CT 06492

EXISTING
148'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	2/10/22	JTS	PRELIMINARY	MTJ
0	3/2/22	JTS	CONSTRUCTION	MTJ

3/2/22

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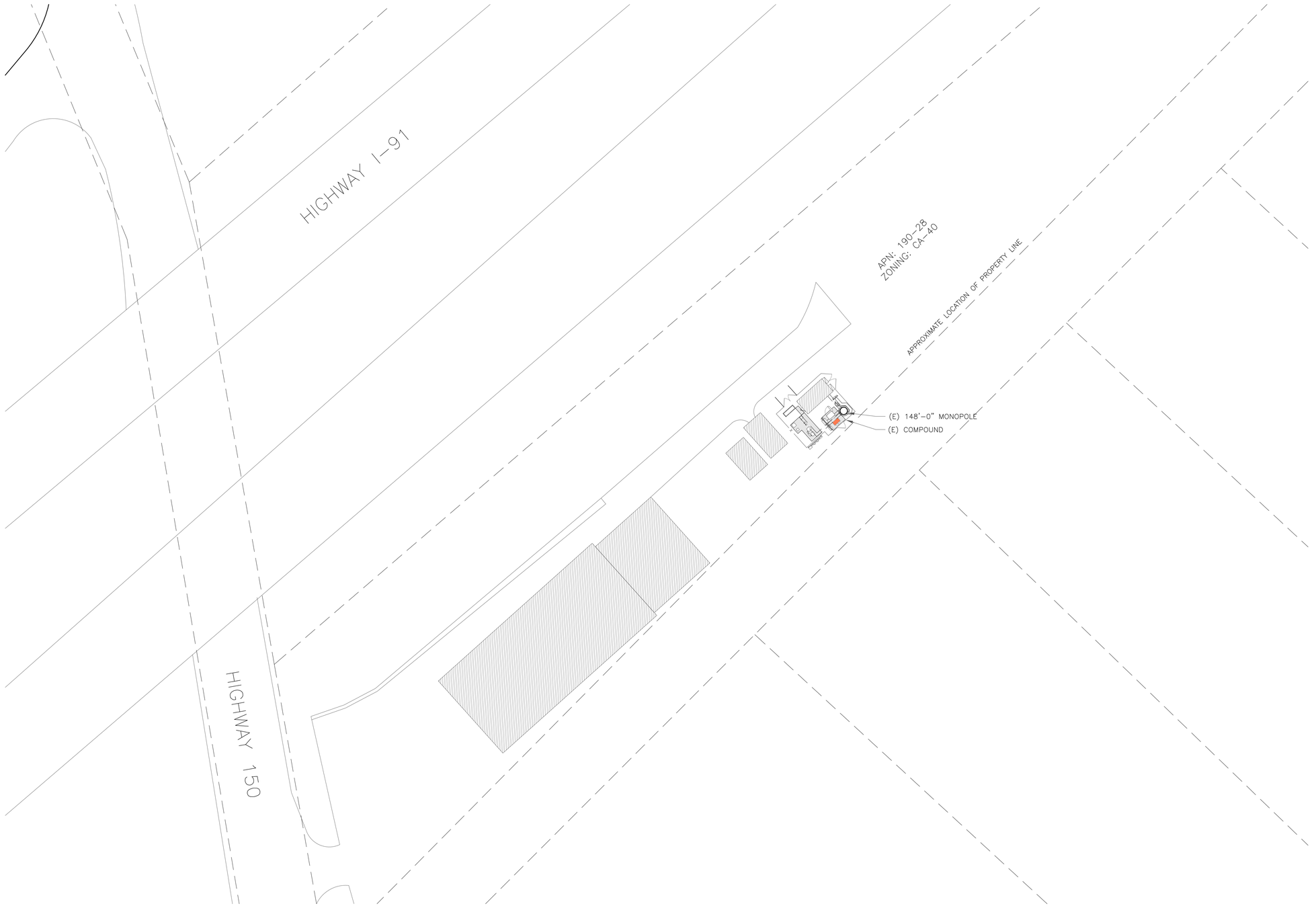
PEC.0001564
Expires 2/10/23

SHEET NUMBER:	REVISION:
T-2	0

SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS OR FROM ASSESSORS MAPS. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET



1 OVERALL SITE PLAN

SCALE: 30' 15' 0 30' 1"=30'-0" (FULL SIZE) 1"=60'-0" (11x17)

N

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No. 23924
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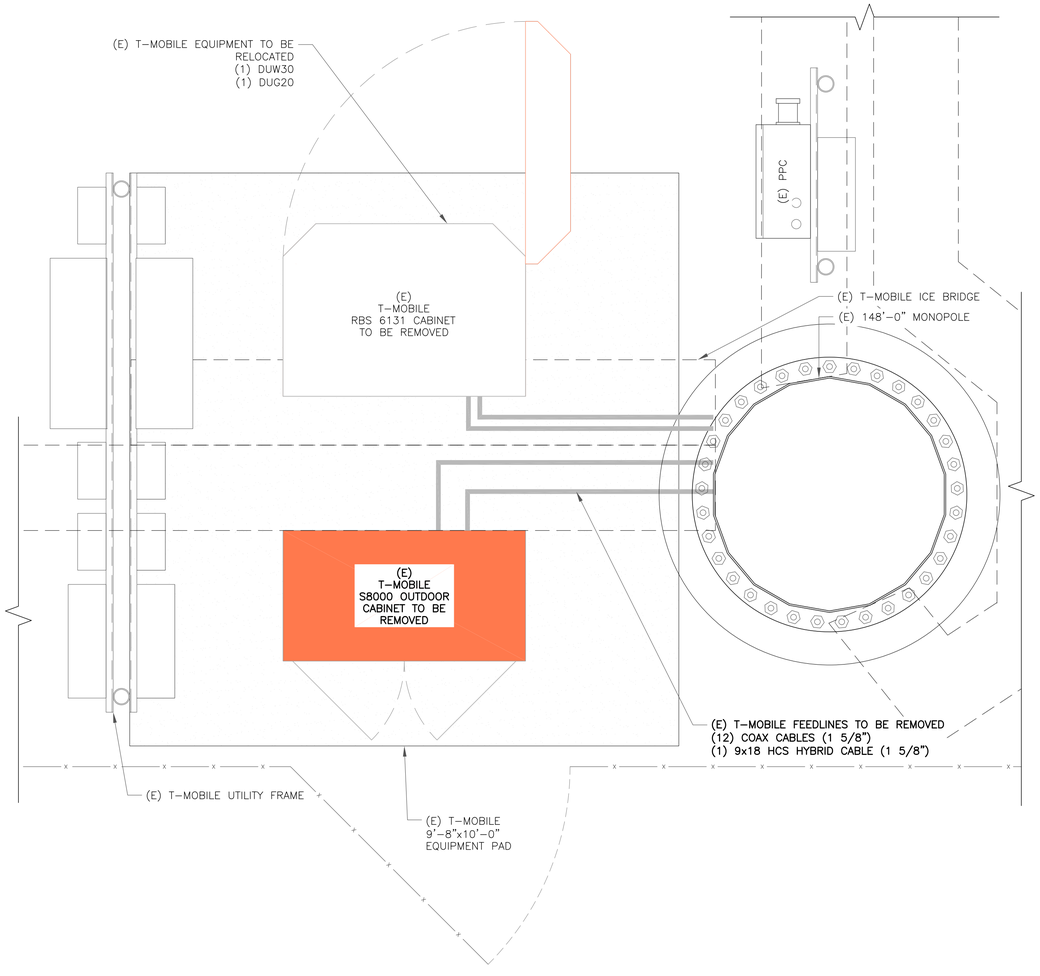
SHEET NUMBER: C-1.1

REVISION: 0

126632.007.01_WALLINGFORD I-91 X14 S_CC_TMO_NE_CD Upgrades.dwg – Sheet:C-1.1 – User: mjones – Mar 02, 2022 – 7:10pm

EQUIPMENT LEGEND:

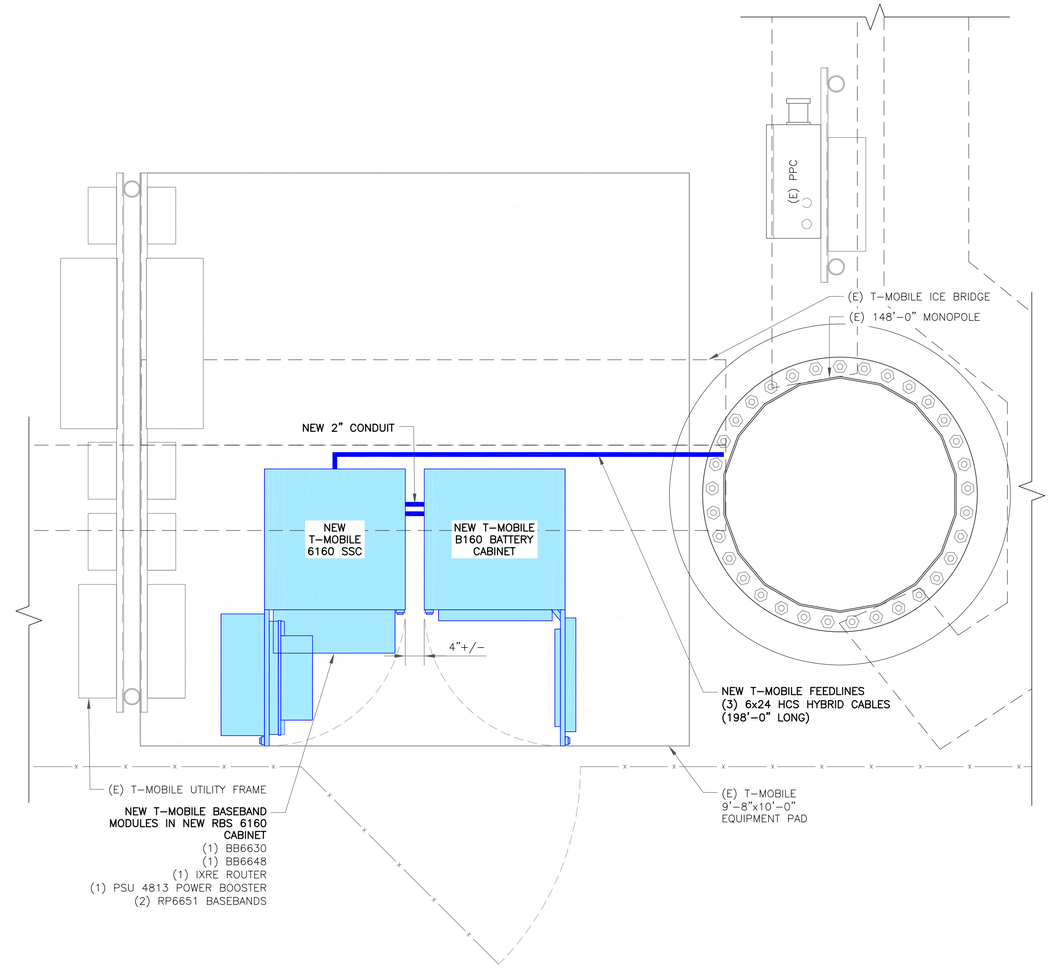
- EXISTING
- TO BE RELOCATED/REMOVED
- NEW



1 EXISTING EQUIPMENT PLAN

SCALE: 1' 6" 0 1' — 3/4"=1'-0" (FULL SIZE) 3/8"=1'-0" (11x17)

N



2 FINAL EQUIPMENT PLAN

SCALE: 1' 6" 0 1' — 3/4"=1'-0" (FULL SIZE) 3/8"=1'-0" (11x17)

N

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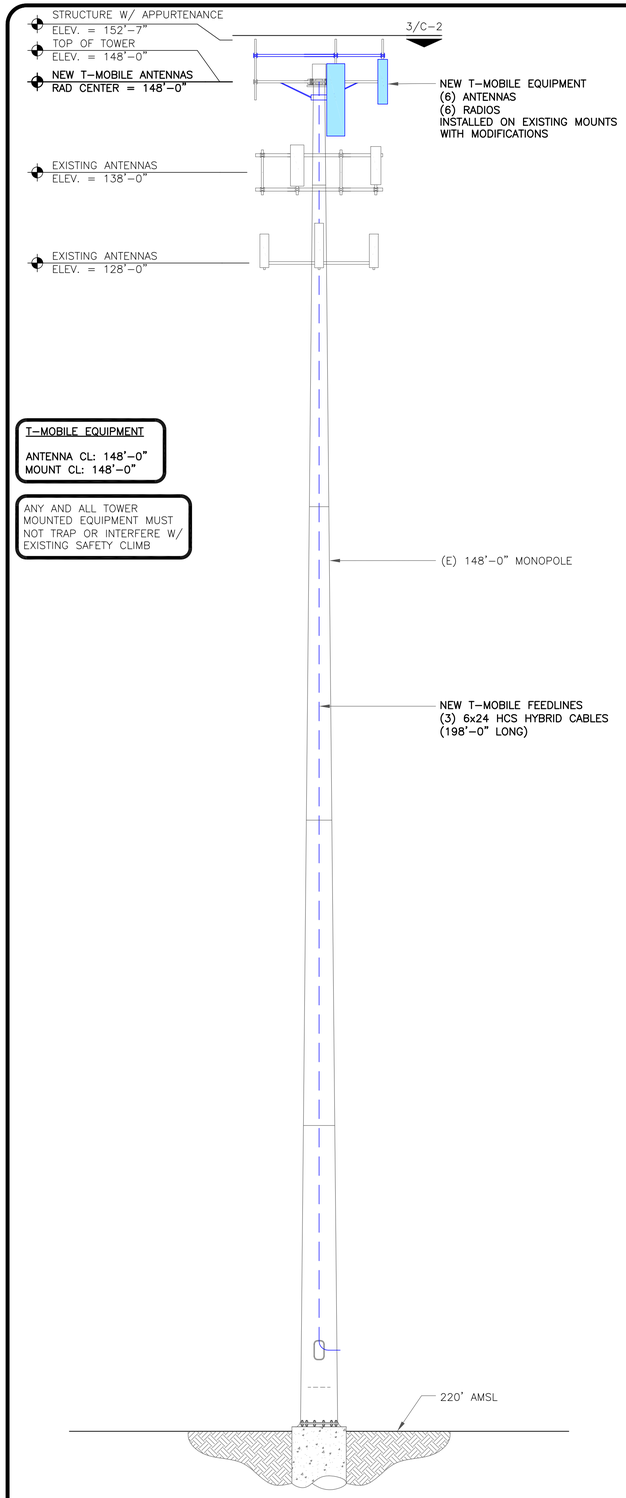
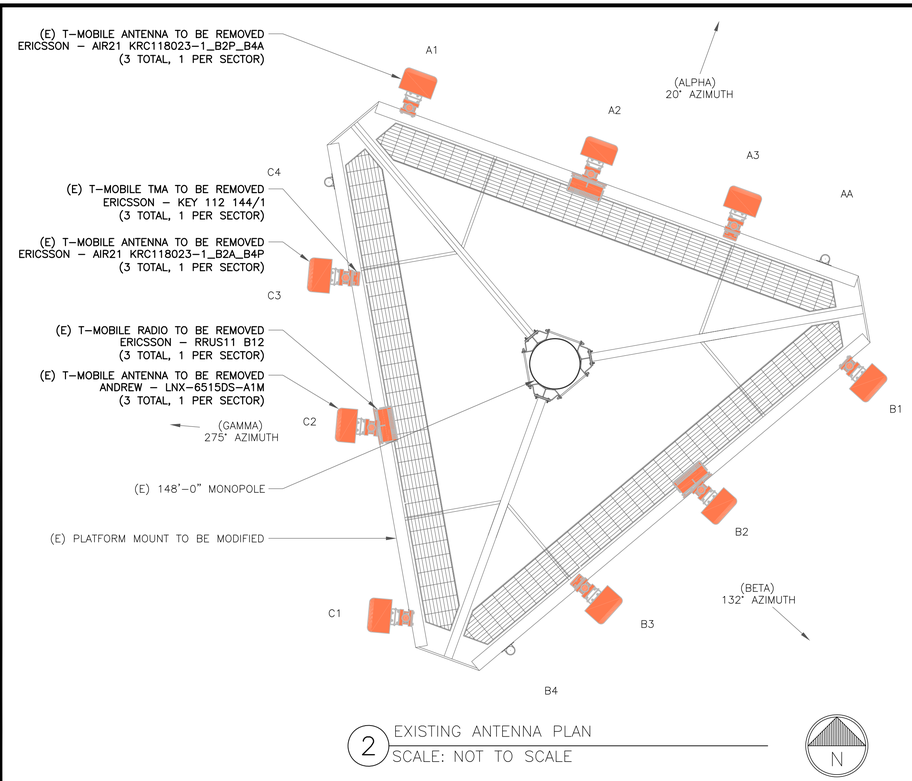
SHEET NUMBER: C-1.2

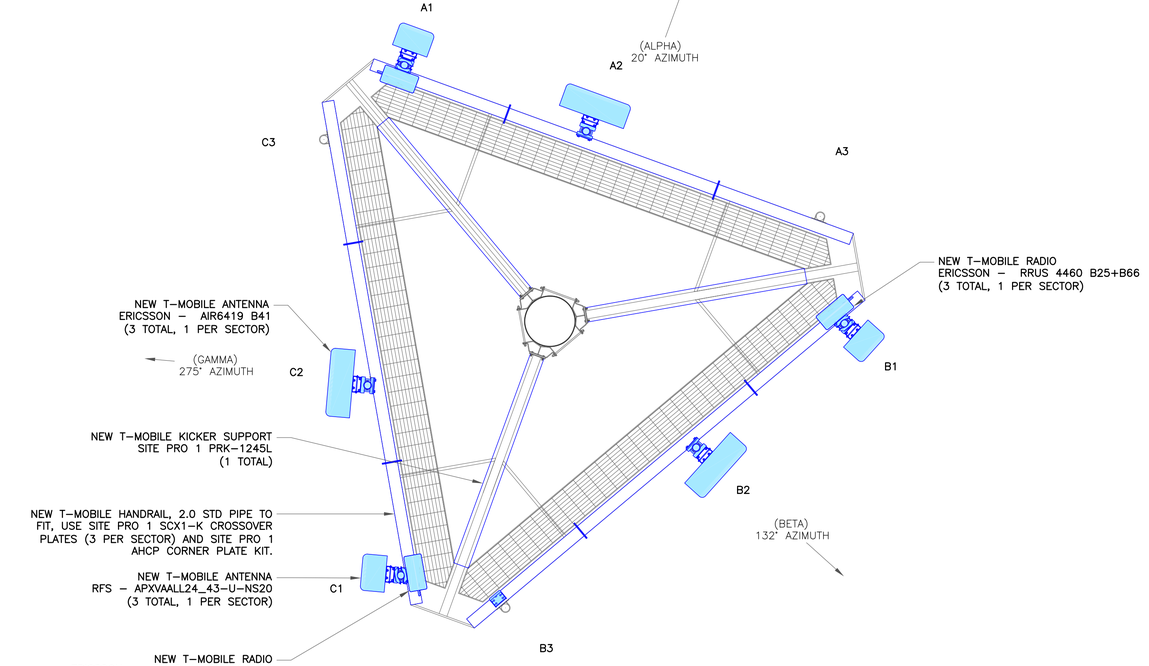
REVISION: 0



1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: NOT TO SCALE



3 FINAL ANTENNA PLAN
SCALE: NOT TO SCALE

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REVISION: 0

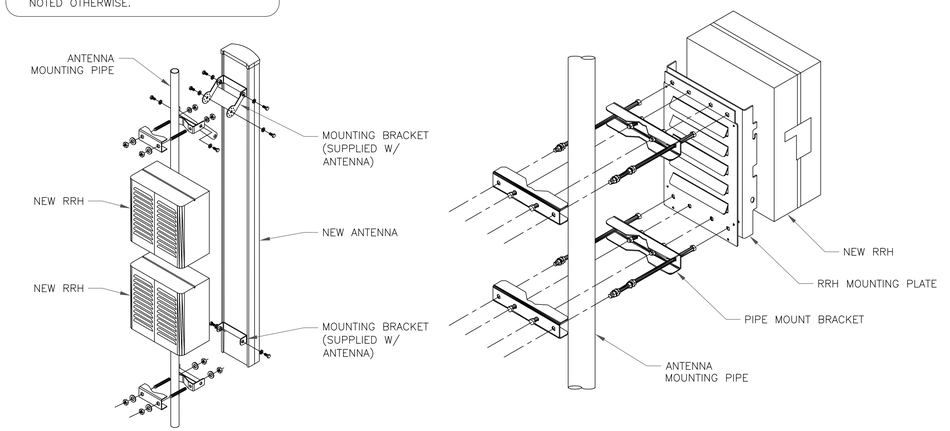
RF SYSTEM SCHEDULE

SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	CABLE TYPE	CABLE DIAMETER	CABLE LENGTH
ALPHA	A-1	L700/L600/L2100 G1900/L1900/U2100	RFS	APXVAALL24_43-UNA20	20°	0°	–	148'-0"	(1) 4480 B71+B85 (1) 4460 B25+B66	(2) COAX (1) FIBER	1-5/8" 6x24 HYBRID	160'-0"
	A-2	L2500/N2500	ERICSSON	AIR6419	20°	0°	–	146'-0"	–	(1) FIBER	6x24 HYBRID	160'-0"
	A-3	–	–	–	–	–	–	–	–	–	–	–
BETA	B-1	L700/L600/L2100 G1900/L1900/U2100	ERICSSON	APXVAALL24_43-UNA20	132°	0°	–	148'-0"	(1) 4480 B71+B85 (1) 4460 B25+B66	(2) COAX SHARED FIBER	1-5/8" 6x24 HYBRID	160'-0"
	B-2	L2500/N2500	RFS	AIR6419	132°	0°	–	146'-0"	–	(1) FIBER (SHARED)	6x24 HYBRID	160'-0"
	B-3	–	–	–	–	–	–	–	–	–	–	–
GAMMA	C-1	L700/L600/L2100 G1900/L1900/U2100	ERICSSON	APXVAALL24_43-UNA20	275°	0°	–	148'-0"	(1) 4480 B71+B85 (1) 4460 B25+B66	(2) COAX SHARED FIBER	1-5/8" 6x24 HYBRID	160'-0"
	C-2	L2500/N2500	RFS	AIR6419	275°	0°	–	146'-0"	–	(1) FIBER (SHARED)	6x24 HYBRID	160'-0"
	C-3	–	–	–	–	–	–	–	–	–	–	–

1 ANTENNA & FEEDLINE 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

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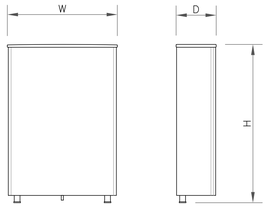
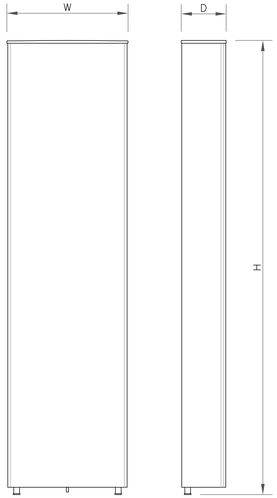
REVISION: 0



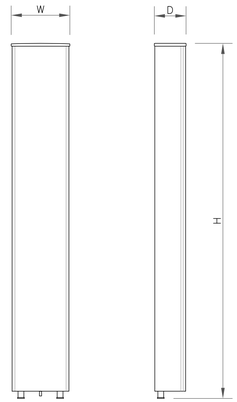
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6419
WIDTH	20.91"
DEPTH	9.02"
HEIGHT	36.25"
WEIGHT	96.50 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



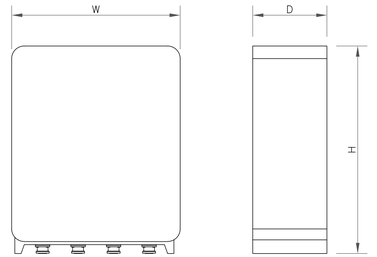
ANTENNA SPECS	
MANUFACTURER	RFS/CELLWAVE
MODEL #	APXVAALL24_43-U-NA20
WIDTH	24.00"
DEPTH	8.50"
HEIGHT	95.90"
WEIGHT	149.9 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



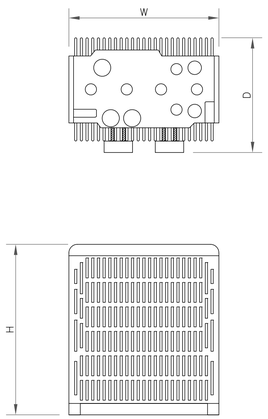
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR 32 KRD901146-1_B66A_B2A
WIDTH	12.87"
DEPTH	8.70"
HEIGHT	59.25"
WEIGHT	171.96 LBS

3 ANTENNA SPECS
SCALE: NOT TO SCALE



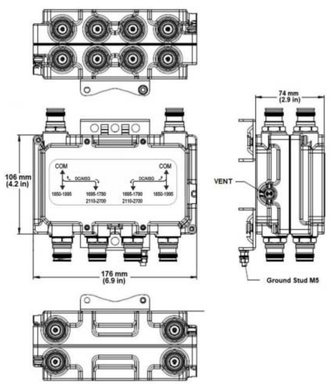
RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RRUS 4415 B25
WIDTH	13.19"
DEPTH	5.39"
HEIGHT	14.96"
WEIGHT	44.00 LBS

4 RRU SPECS
SCALE: NOT TO SCALE



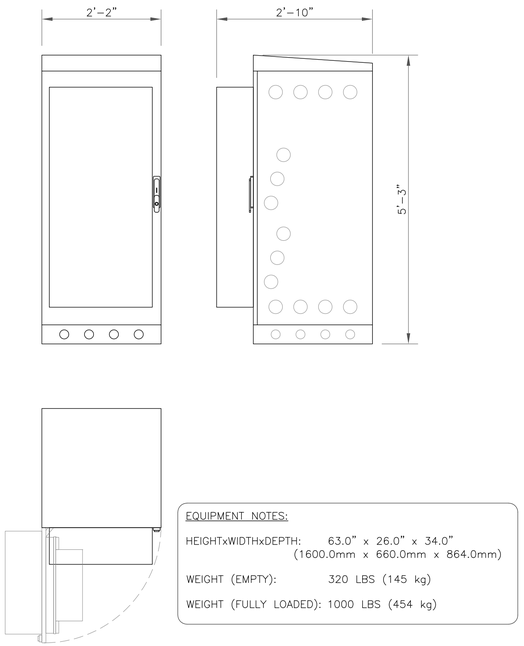
RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4449 B71+B85
WIDTH	13.20"
DEPTH	10.63"
HEIGHT	17.91"
WEIGHT	73.21 LBS

5 RRU SPECS
SCALE: NOT TO SCALE



DIPLEXER SPECS	
MANUFACTURER	COMMSCOPE
MODEL #	SDX1926Q-43
WIDTH	6.92
DEPTH	2.91
HEIGHT	4.17
WEIGHT	6.17 LBS

6 DIPLEXER SPECS
SCALE: NOT TO SCALE



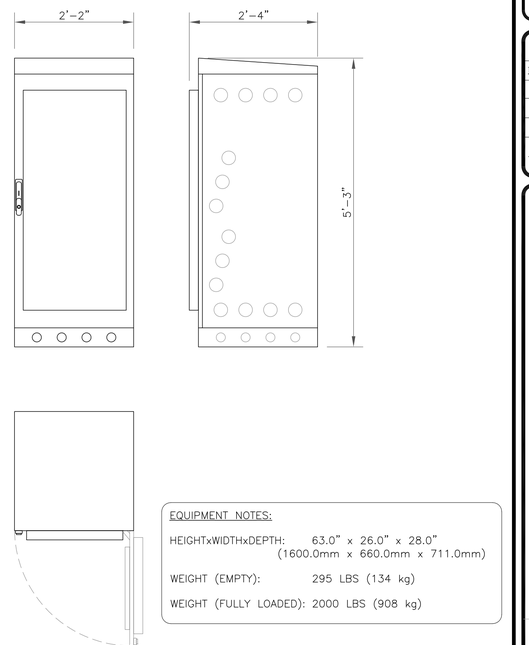
EQUIPMENT NOTES:

HEIGHTxWIDTHxDEPTH: 63.0" x 26.0" x 34.0" (1600.0mm x 660.0mm x 864.0mm)

WEIGHT (EMPTY): 320 LBS (145 kg)

WEIGHT (FULLY LOADED): 1000 LBS (454 kg)

7 ERICSSON - 6160
SCALE: NOT TO SCALE



EQUIPMENT NOTES:

HEIGHTxWIDTHxDEPTH: 63.0" x 26.0" x 28.0" (1600.0mm x 660.0mm x 711.0mm)

WEIGHT (EMPTY): 295 LBS (134 kg)

WEIGHT (FULLY LOADED): 2000 LBS (908 kg)

8 ERICSSON - B160
SCALE: NOT TO SCALE

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SHEET NUMBER: C-4

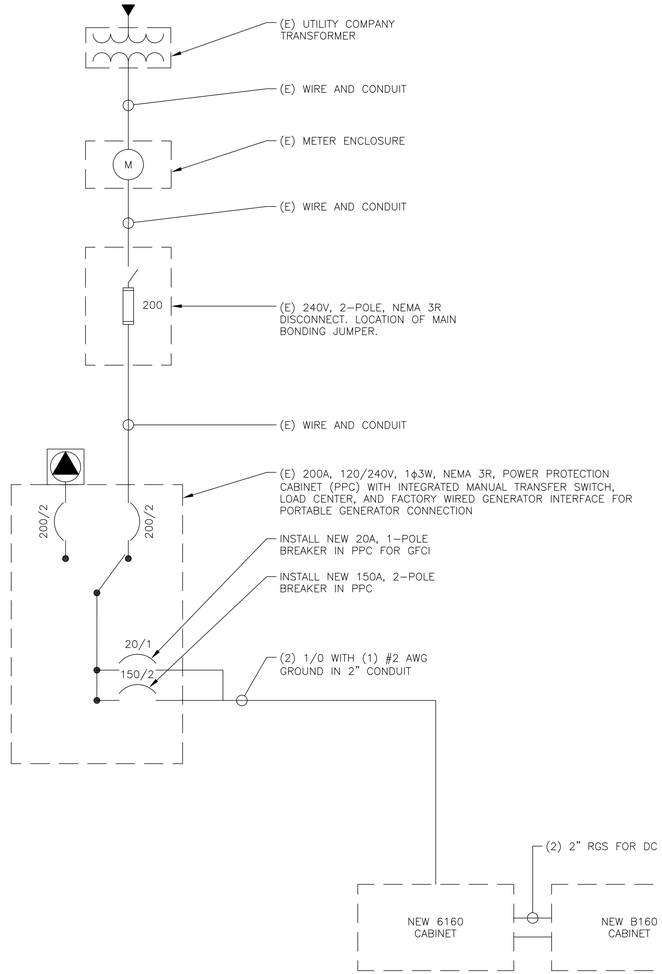
REVISION: 0

FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
EQUIPMENT (DARK)	2	40A	1	2	150A	3	RBS 6131
			3	4			
SAFETY LIGHT	1	15A	5	6			
			7	8	150A	2	6160 SSC
			9	10			
			11	12	20A	1	6160 GFCI
			13	14			
			15	16			
			17	18			
			19	20			
			21	22			
			23	24			
			25	26			
			27	28			
			29	30			

RATED VOLTAGE: ■120/240 □_____, 1 PHASE, 3 WIRE	BRANCH POLES: □12 □24 ■30 □42	APPROVED MF'RS
RATED AMPS: □100 ■200 □400 □_____,	CABINET: ■SURFACE □FLUSH	NEMA □1 ■3R □4X
□MAIN LUGS ONLY MAIN 200 AMPS ■BREAKER □FUSED SWITCH	■HINGED DOOR	■KEYED DOOR LATCH
□FUSED ■CIRCUIT BREAKER BRANCH DEVICES	□_____ TO BE GFCI BREAKERS	FULL NEUTRAL BUS GROUND BAR
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL		

REPLACE EXISTING BREAKER IN POSITION 2 AND 4 WITH NEW 150A BREAKER
INSTALL NEW BREAKER IN POSITION 8 AND 10 WITH A NEW 2P 100A BREAKER
INSTALL NEW BREAKER IN POSITION 12 WITH A NEW 1P 20A BREAKER
REPLACE EXISTING WIRES FOR EXISTING 6131 CABINET WITH (3) 1/0 W/ (1) #6 AWG GROUND IN 1 ½" CONDUIT.
INSTALL NEW WIRES FOR NEW 6160 CABINET (3) 1/0 AWG THWN (COPPER) AND (1) #2G AWG. MINIMUM CONDUIT SIZE TO BE 2".
IF 100A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL QO12040M200RB (OR APPROVED EQUAL).
UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING PHOTOS

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, XHHW-2, THW, THW-2, RHW, OR RHW-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

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3/2/22

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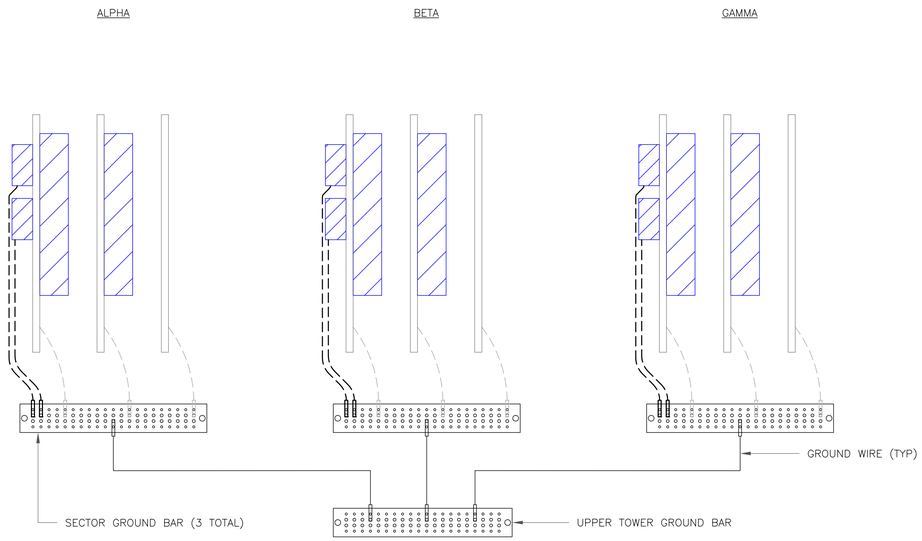
SHEET NUMBER: E-1
REVISION: 0



NOTE:

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

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

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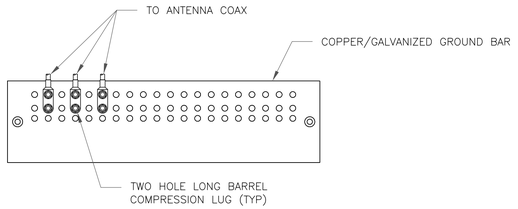
PEC.0001564
Expires 2/10/23

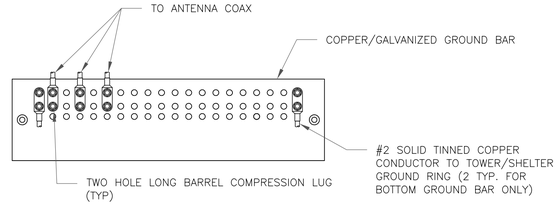
SHEET NUMBER: G-1
REVISION: 0



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.

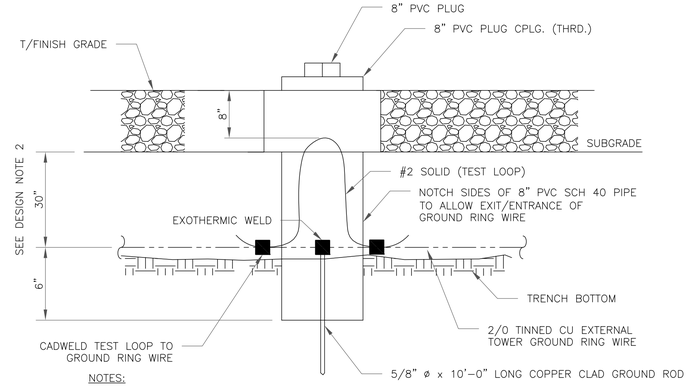
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



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.

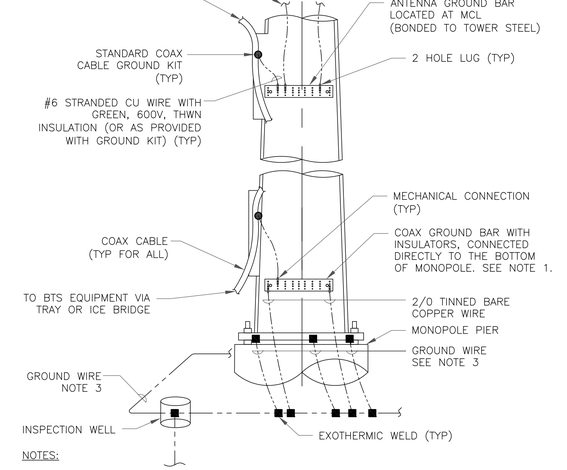
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

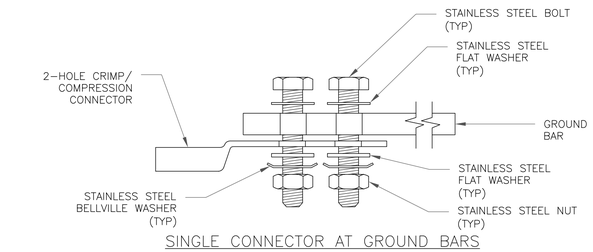
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



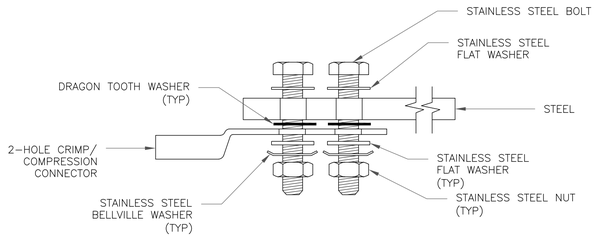
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

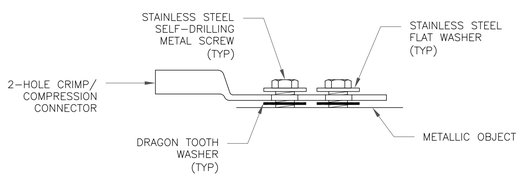
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

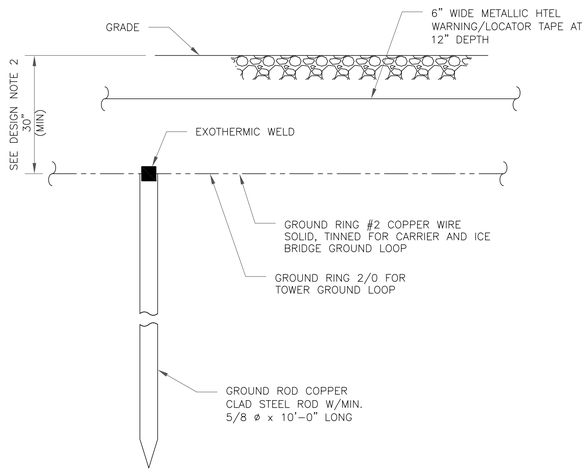


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11053E

BU #: **828915**
WALLINGFORD/ I-91/ X14/ S

316 WOODHOUSE AVENUE
WALLINGFORD, CT 06492

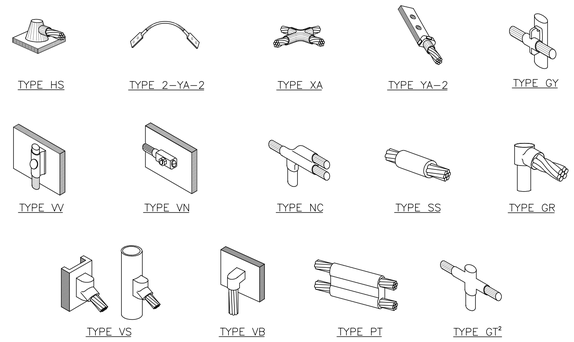
EXISTING
148'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	2/10/22	JTS	PRELIMINARY	MTJ
0	3/2/22	JTS	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER: G-2
REVISION: 0

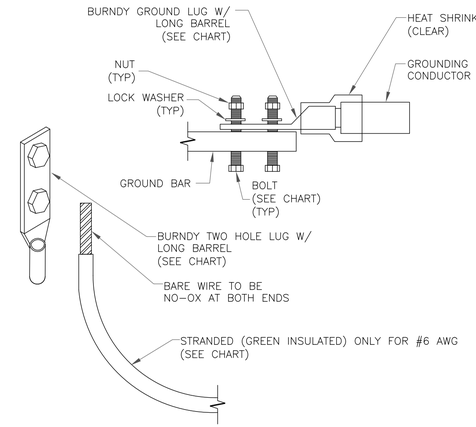


NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

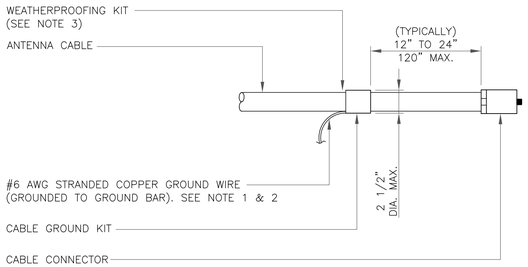
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

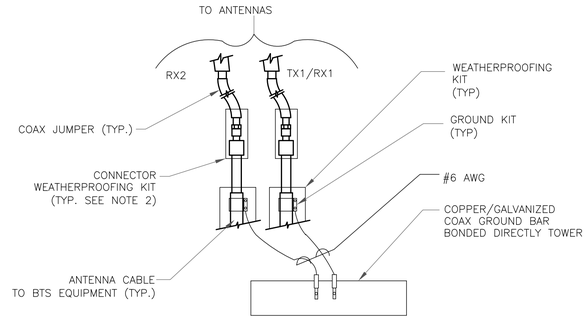
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



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.

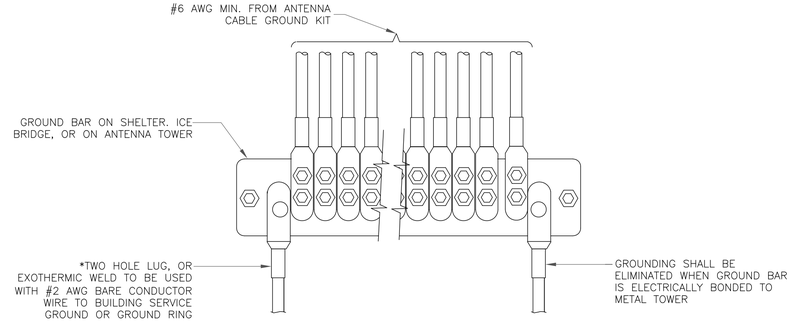
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



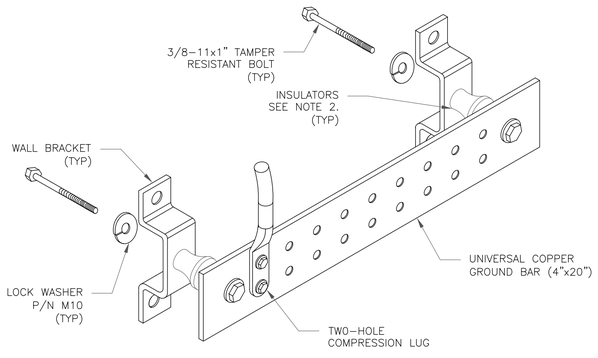
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



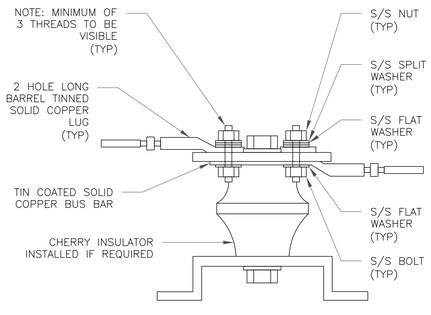
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



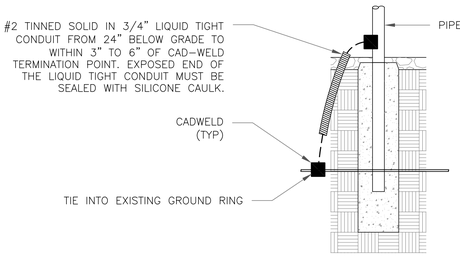
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

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148'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	2/10/22	JTS	PRELIMINARY	MTJ
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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER: G-3
REVISION: 0