



1 Cityplace Dr, Suite 490  
Creve Coeur, MO 63141

Phone: (314) 513-0147  
www.crowncastle.com

November 23, 2021

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

RE: **Notice of Exempt Modification for Sprint  
Crown Site ID#842875; T-Mobile Site ID#CTHA267A  
99 Day Hill Road, WINDSOR, CT 06095  
Latitude: 41° 52' 16.10"/ Longitude: -72° 40' 16.00"**

Dear Ms. Bachman:

Sprint currently maintains (6) antennas at the 131-foot mounts on the existing 168-foot Monopole Tower located at **99 Day Hill Road, WINDSOR**. The property is owned by The Town of Windsor and the Tower by Crown Castle. Sprint now intends to replace six (6) antennas. 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.

**Planned Modifications:**

**Tower:**

**REMOVE AND REPLACE**

- (3) RFS – APXV9ERR18-C-A20 Antennas (**REMOVE**), (3) RFS – APXVAALL24\_43\_U\_NA20 Antennas (**REPLACE**)
- (3) RFS- APXVTM14-C-120 Antennas (**REMOVE**), (3) Ericsson - AIR6449\_B41 Antennas (**REPLACE**)
- (3) Lucent – TD-RRH8X20-25 Remote Radio Heads (**REMOVE**), (3) Ericsson Radio 4460 B25 + B66 Remote Radio Heads (**REPLACE**)
- (3) Lucent – 1900MHZ Remote Radio Heads (**REMOVE**), (3) Ericsson Radio 4480 B71+B85 Remote Radio heads (**REPLACE**)
- (3) Lucent – 800MHZ W/ Filter Remote Radio heads (**REMOVE**)
- (3) Hybrid Cable (**REMOVE**), (4) Hybrid Cables (1-5/8") (**REPLACE**)
- (3) Ret Cable (**REMOVE**)
- (1) Antenna Platform (**Modify**)

**Ground:**

**REMOVE:**

- (2) Legacy Sprint Equipment Cabinets

**INSTALL:**

- (1) 6160 battery cabinet
- (2) B160 battery cabinet

---

The Foundation for a Wireless World.

CrownCastle.com



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Phone: (314) 513-0147  
[www.crowncastle.com](http://www.crowncastle.com)

- (1) PSU4813 Booster in (P) cabinet
- (3) BB6648 in (P) cabinets
- (1) IXRE Router in (P) cabinet
- (1) 2" LFTC BET. 6160 & B160
- (1) 2" Underground PVC BET. 6160 & PPC
- (1) 1" Underground PVC BET. 6160 & AAV

The facility was approved by the Town of Windsor Planning and Zoning Commission by way of Special Use Application #292A on October 10, 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 Donald Trinks, Mayor for the Town of Windsor, as well as Eric Barz, Town Planner, and Crown Castle who 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, Sprint 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).

Sincerely,

Ersilia Davis  
NETWORK BUILDING + CONSULTING  
Project Manager  
1777 Sentry Parkway W | VEVA 17, Suite 400  
Blue Bell, PA 19422  
[edavis@nbcllc.com](mailto:edavis@nbcllc.com)  
(551)804-0667



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[www.crowncastle.com](http://www.crowncastle.com)

cc:

Donald Trinks, Mayor  
Town Hall Council Chambers  
275 Broad Street  
Windsor, CT 06095  
860- 285-1800  
*(Via Fedex)*

Eric Barz, Town Planner  
Planning Department  
275 Broad Street  
Windsor, CT 06095  
(860) 285-1981  
*(Via Fedex)*

Crown Castle, Tower Owner



TRACK ANOTHER SHIPMENT

775292595247



ADD NICKNAME

Delivered  
Wednesday, 11/24/2021 at 10:19 am



DELIVERED

Signed for by: A.POSNIAK



GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Ersilia Davis  
1777 Sentry Parkway  
VEVA 17, Suite 210  
Blue Bell, PA US 19422  
551-804-0667

TO

Donald Tinks, Mayor  
Town of Windsor  
275 Broad Street  
WINDSOR, CT US 06095  
860-285-1800

MANAGE DELIVERY

Travel History

TIME ZONE

Local Scan Time



Wednesday, November 24,  
2021

10:19 AM	WINDSOR, CT	Delivered
8:47 AM	WINDSOR LOCKS, CT	At local FedEx facility
8:47 AM	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
7:50 AM	WINDSOR LOCKS, CT	At local FedEx facility
5:58 AM	EAST GRANBY, CT	At destination sort facility





TRACK ANOTHER SHIPMENT

775292638699



ADD NICKNAME

Delivered  
Wednesday, 11/24/2021 at 10:19 am



DELIVERED

Signed for by: A.POSNIAK



GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Ersilia Davis  
1777 Sentry Parkway  
VEVA 17, Suite 210  
Blue Bell, PA US 19422  
551-804-0667

TO

Eric Barz, /Town Manager  
Town of Windsor  
275 Broad Street  
WINDSOR, CT US 06095  
860-285-1981

MANAGE DELIVERY

Travel History

TIME ZONE

Local Scan Time




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11/24/21, 10:53 AM

Detailed Tracking

5:09 AM	NEWARK, NJ	Departed FedEx hub
Tuesday, November 23, 2021		
11:35 PM	NEWARK, NJ	Arrived at FedEx hub
10:13 PM	NEWBURGH, NY	Left FedEx origin facility
6:24 PM	NEWBURGH, NY	Picked up
11:32 AM		Shipment information sent to FedEx

Expand History 

Shipment Facts

<b>TRACKING NUMBER</b> 775292638699	<b>SERVICE</b> FedEx Priority Overnight	<b>WEIGHT</b> 1 lbs / 0.45 kgs
<b>DELIVERY ATTEMPTS</b> 1	<b>DELIVERED TO</b> Receptionist/Front Desk	<b>TOTAL PIECES</b> 1
<b>TOTAL SHIPMENT WEIGHT</b> 1 lbs / 0.45 kgs	<b>TERMS</b> Shipper	<b>SHIPPER REFERENCE</b> 100788/NBC Windsor
<b>PACKAGING</b> FedEx Envelope	<b>SPECIAL HANDLING SECTION</b> Deliver Weekday	<b>SHIP DATE</b> 11/23/21 
<b>STANDARD TRANSIT</b> 11/24/21 before 11:30 am 	<b>ACTUAL DELIVERY</b> 11/24/21 at 10:19 am	

# Exhibit A

## **Original Facility Approval**

I, Anita M. Mips, Chairperson of the Windsor Town Planning and Zoning Commission, hereby certify that on October 10, 2000 the Planning and Zoning Commission of the Town of Windsor granted approval of Special Use Application #292A for a Wireless Telecommunications Tower with a monopole height of 170 feet plus 20-foot Town public service whip antennas for a total height of 190 feet, under Zoning Regulations Sections 12.2 & 2.2.19E(1).

This approval also includes the following waivers in accordance with Zoning Regulations Section 12.1:

- 1) a waiver of the height requirement for 15 feet; and
- 2) a waiver of the fall zone distance requirement for 151 feet in relation to the distance of the tower from Day Hill Road, 380 feet being required, 229 feet being proposed.

Said Special Use was granted for the property located at: 99 Day Hill Road

The owner of record of said parcel is: Town of Windsor

Dated at Windsor, Connecticut, this 30<sup>th</sup> day of November, 2000

Anita Mips Chairperson

Public Act #75-317

Received for Record this \_\_\_\_\_ day of \_\_\_\_\_, 2000

\_\_\_\_\_  
Attest: Town Clerk

RECEIVED FOR RECORD  
WINDSOR TOWN CLERK

00 NOV 30 PM 12: 58

VOL 1249 PG 156

BY Kathleen H. Quinn  
TOWN CLERK

# Exhibit B

## **Property Card**

CURRENT OWNER		TOPO	UTILITIES	STRT / ROAD	LOCATION	CURRENT ASSESSMENT				
WINDSOR TOWN OF PUBLIC WORKS GARAGE 275 BROAD STREET  WINDSOR CT 06095		1 Level	2 Public Water	1 Paved		Description	Code	Appraised	Assessed	6164  WINDSOR, CT  <b>VISION</b>
			3 Public Sewer			EX COM LN	21	766,900	536,830	
			4 Gas			EX COM BL	22	1,633,800	1,143,660	
		<b>SUPPLEMENTAL DATA</b>				EX CM OTB	25	156,300	109,410	
Alt Prcl ID 9310		INC: GH		CTRACT 4735.01 CBLOCK 0 DIST HEART GL YEAR		Total		2,557,000	1,789,900	
2007 1376200		GIS ID 9310		Assoc Pid#						

RECORD OF OWNERSHIP		BK-VOL/PAGE	SALE DATE	Q/U	V/I	SALE PRICE	VC	PREVIOUS ASSESSMENTS (HISTORY)								
WINDSOR TOWN OF		0334 0257	11-04-1977			0		Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
								2019	21	536,830	2018	21	536,830	2017	21	536,830
									22	1,143,660		22	1,143,660		22	972,790
									25	109,410		25	109,410		25	103,460
								Total		1789900	Total		1789900	Total		1613080

EXEMPTIONS				OTHER ASSESSMENTS				This signature acknowledges a visit by a Data Collector or Assessor								
Year	Code	Description	Amount	Code	Description	Number	Amount	Comm Int								
2011	BAAX	MUNICIPAL	0.00													
Total			0.00													

ASSESSING NEIGHBORHOOD				APPROAISED VALUE SUMMARY			
Nbhd	Sub	Nbhd Name	B	Tracing	Batch	Appraised Bldg. Value (Card)	1,595,900
300	A					Appraised Xf (B) Value (Bldg)	37,900
						Appraised Ob (B) Value (Bldg)	156,300
						Appraised Land Value (Bldg)	766,900
						Special Land Value	0
						Total Appraised Parcel Value	2,557,000
						Valuation Method	C
						Total Appraised Parcel Value	2,557,000

NOTES			
9310.00 .04 AC REMOVED & ASSESSED			
0042-0108-0001 D TO AT&T WIRELESS FOR CELL			
BTR89-CLERICAL TOWER 10/01/2001			
CANOPY ADDED 10-92 ADDED STORAGE SHED 10/04			
REF:V1277 P506 7-18-01			
ELEC EASEMENT V1277 P511			

BUILDING PERMIT RECORD									VISIT / CHANGE HISTORY					
Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments	Date	Id	Type	Is	Cd	Purpost/Result
E-190462	03-12-2019	FP	Fire Protect		08-16-2019	100	10-01-2019	UPGRADE FIRE ALARM SYS	01-18-1990	JM			43	Change - Reinspection Rer
B041271	08-24-2004	NC	New Construct					STORAGE SHED	04-13-1988	GH			00	Measur+Listed

LAND LINE VALUATION SECTION																
B	Use Code	Description	Zone	Land Type	Land Units	Unit Price	I. Factor	Site Index	Cond.	Nbhd.	Nhbd Adj	Notes	Location Adjustment	Adj Unit Pric	Land Value	
1	903W	Municipal MDL-9	NZ		5.000 AC	82,000	1.00000	1	1.00	300	1.600			0	656,000	
1	903W	Municipal MDL-9	NZ		6.760 AC	82,000	1.00000	0	0.20		1.000			0	110,900	
Total Card Land Units					11.760 AC	Parcel Total Land Area: 11.7600					Total Land Value					766,900

CONSTRUCTION DETAIL			CONSTRUCTION DETAIL (CONTINUED)		
Element	Cd	Description	Element	Cd	Description
Style:	95	Garage/Office			
Model	96	Ind/Comm			
Grade	03	Average			
Stories:	1				
Occupancy			<b>MIXED USE</b>		
Exterior Wall 1	27	Pre-finish Metl	Code	Description	Percentage
Exterior Wall 2			903W	Municipal MDL-96	100
Roof Structure	01	Flat			0
Roof Cover	09	Enam Mtl Shing			0
Interior Wall 1	01	Minim/Masonry	<b>COST / MARKET VALUATION</b>		
Interior Wall 2			RCN		2,020,095
Interior Floor 1	03	Concrete			
Interior Floor 2			Year Built		1982
Heating Fuel	03	Gas	Effective Year Built		
Heating Type	03	Hot Air-no Duc	Depreciation Code		A
AC Type	01	None	Remodel Rating		
Bldg Use	903W	Municipal MDL-96	Year Remodeled		
Total Rooms			Depreciation %		21
Total Bedrms	00		Functional Obsol		0
Total Baths	2		External Obsol		0
Heat/AC	00	None	Trend Factor		1
Frame Type	05	Steel	Condition		
Baths/Plumbing	02	Average	Condition %		
Ceiling/Wall	04	Ceil & Min WI	Percent Good		79
Rooms/Prtns	02	Average	Cns Sect Rcndd		1,595,900
Wall Height	16.00		Dep % Ovr		
% Conn Wall	0.00		Dep Ovr Comment		
1st Floor Use:	903Z		Misc Imp Ovr		
			Misc Imp Ovr Comment		
			Cost to Cure Ovr		
			Cost to Cure Ovr Comment		



OB - OUTBUILDING & YARD ITEMS(L) / XF - BUILDING EXTRA FEATURES(B)												
Code	Descripti	Sub	Sub Ty	L/B	Units	Unit Price	Yr Blt	Cond. Cd	% Gd	Grade	Grade Ad	Appr. V
PAV1	PAVING-			L	20,00	2.50	2003		50		0.00	25,000
FGR1	GARAG			L	3,800	18.00	2003		75		0.00	51,300
CNP2	GOOD			B	2,400	20.00	1997		79		0.00	37,900
SHD1	SHED F			L	10,00	8.00	2004		100		0.00	80,000

BAS  
(36,300 sf)

BUILDING SUB-AREA SUMMARY SECTION							
Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value	
BAS	First Floor	36,300	36,300		55.65	2,020,095	
Ttl Gross Liv / Lease Area		36,300	36,300			2,020,095	







# Exhibit C

## **Construction Drawings**

# T-Mobile

**T-MOBILE SITE NUMBER: CTHA267A**

**T-MOBILE SITE NAME: CTHA267A**

**SITE TYPE: MONOPOLE**

**TOWER HEIGHT: 168'-0"**

**BUSINESS UNIT #: 842875**

**SITE ADDRESS: 99 DAY HILL ROAD WINDSOR, CT 06095**

**COUNTY: HARTFORD**

**JURISDICTION: TOWN OF WINDSOR**

**T-MOBILE SPRINT RETAIN SITE CONFIGURATION: 67E5998E\_1xAIR+10P**

T-Mobile

35 GRIFFIN ROAD  
BLOOMFIELD, CT 06002

**CROWN CASTLE**

2000 CORPORATE DRIVE  
CANONSBURG, PA 15317

**INFINIGY**

FROM ZERO TO INFINIGY  
the solutions are endless

1033 Watervliet Shaker Rd | Albany, NY 12205  
Phone: 518-690-0790 | Fax: 518-690-0793  
www.infinigy.com

T-MOBILE SITE NUMBER:  
**CTHA267A**

BU #: **842875**  
**WINDSORDAY HILL**

99 DAY HILL ROAD  
WINDSOR, CT 06095

EXISTING 168'-0" MONOPOLE

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES/QA
A	05/17/21	RCD	PRELIMINARY	SS
0	04/01/21	BMM	FINAL	SS
1	10/08/21	CB	FINAL	SS
2	11/11/21	TJ	SA UPDATE	SS

**SITE INFORMATION**

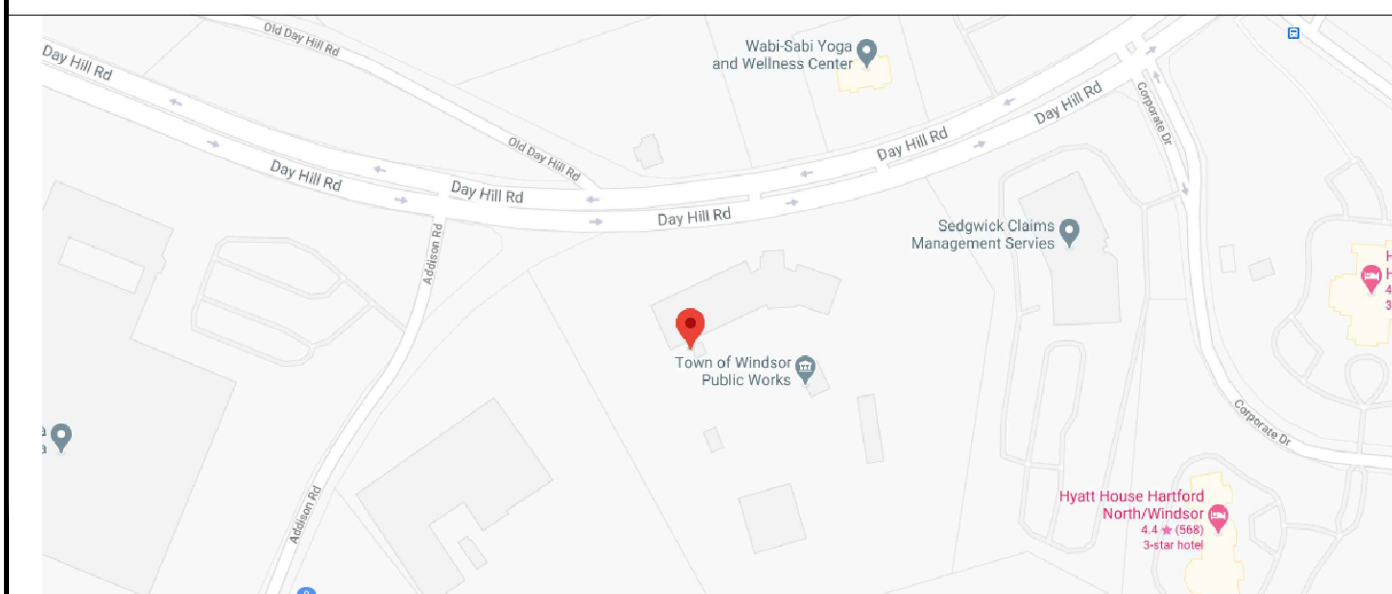
CROWN CASTLE USA INC. WINDSORDAY HILL  
SITE NAME:  
SITE ADDRESS: 99 DAY HILL ROAD WINDSOR, CT 06095  
COUNTY: HARTFORD  
MAP/PARCEL #: 9310.01  
AREA OF CONSTRUCTION: EXISTING  
LATITUDE: 41.87116388° (41° 52' 16.10")  
LONGITUDE: -72.67107500° (-72° 40' 16.00")  
LAT/LONG TYPE: NAD83  
GROUND ELEVATION: 166 FT  
CURRENT ZONING: 903W  
JURISDICTION: HARTFORD COUNTY  
OCCUPANCY CLASSIFICATION: U  
TYPE OF CONSTRUCTION: IIB  
A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION  
PROPERTY OWNER: AT&T MOBILITY 575 MOROSGO DR SUITE 13-F WEST TOWER ATTN: NREA TAX DEPT ATLANTA, GA 30324  
TOWER OWNER: CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317  
CARRIER/APPLICANT: T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002  
ELECTRIC PROVIDER: TBD  
TELCO PROVIDER: TBD

**DRAWING INDEX**

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

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR ----. 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.

**LOCATION MAP**



NO SCALE

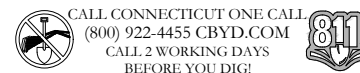
**APPLICABLE CODES/REFERENCE DOCUMENTS**

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

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

**REFERENCE DOCUMENTS:**

STRUCTURAL ANALYSIS:	MORRISON HERSHFIELD
DATED:	10/08/2021
MOUNT ANALYSIS:	GPD ENGINEERING AND ARCHITECTURE PROFESSIONAL CORPORATION
DATED:	10/05/2021
RFDS REVISION:	1
DATED:	08/03/2021
ORDER ID:	584557
REVISION:	0



**PROJECT DESCRIPTION**

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

**TOWER SCOPE OF WORK:**

- REMOVE (6) ANTENNAS
- REMOVE (9) RRU's
- REMOVE (3) HYBRID CABLES
- REMOVE (3) RET CABLES
- INSTALL (6) ANTENNAS
- INSTALL (6) RRU's
- INSTALL (4) HYBRID CABLES
- MODIFY (1) ANTENNA PLATFORM

**GROUND SCOPE OF WORK:**

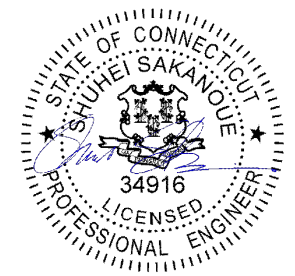
- REMOVE (2) EQUIPMENT CABINETS
- INSTALL (1) 6160 & (1) B160 BATTERY CABINETS
- INSTALL (1) PSU4813 BOOSTER IN (P) CABINET
- INSTALL (3) BB6648 IN (P) CABINETS
- INSTALL (1) IXRE ROUTER IN (P) CABINET

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

**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.



11/11/2021

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

SHEET NUMBER:

**T-1**

REVISION:

**2**

**PROJECT TEAM**

A&E FIRM: INFINIGY 1033 WATERVLIET SHAKER RD. ALBANY, NY 12205  
CROWN CASTLE USA INC. DISTRICT CONTACTS: 1500 CORPORATE DRIVE CANONSBURG, PA 15317  
TRICIA PELON - PROJECT MANAGER TRICIA.PELON@CROWNCastle.COM  
JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCastle.COM



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." 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.

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-OFF-POTENTIAL 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 ANTI-OXIDANT 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).

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. 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. 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° 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. VERIFY 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/IEEC 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 SIZES AND FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC 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 CLOTH 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. 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.
24. 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.
25. 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.
26. 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.
27. 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.
28. 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 table with columns for SYSTEM, CONDUCTOR, and COLOR. Rows include 120/240V, 10; 120/208V, 30; 277/480V, 30; and DC VOLTAGE.

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
RETS REMOTE ELECTRIC TILT
RFDS RADIO FREQUENCY DATA SHEET
RRH REMOTE RADIO HEAD
RRU REMOTE RADIO UNIT
SIAD SMART INTEGRATED DEVICE
TMA TOWER MOUNTED AMPLIFIER
TYP TYPICAL
UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P. WORK POINT

T-Mobile logo and address: 35 GRIFFIN ROAD, BLOOMFIELD, CT 06002

CROWN CASTLE logo and address: 2000 CORPORATE DRIVE, CANONSBURG, PA 15317

INFINIGY logo and tagline: FROM ZERO TO INFINIGY, the solutions are endless

T-MOBILE SITE NUMBER: CTHA267A, BU #: 842875, WINDSOR DAY HILL, 99 DAY HILL ROAD, WINDSOR, CT 06095, EXISTING 168'-0" MONOPOLE

ISSUED FOR table with columns: REV, DATE, DRWN, DESCRIPTION, DES/QA. Rows show revisions A, 0, 1, 2.

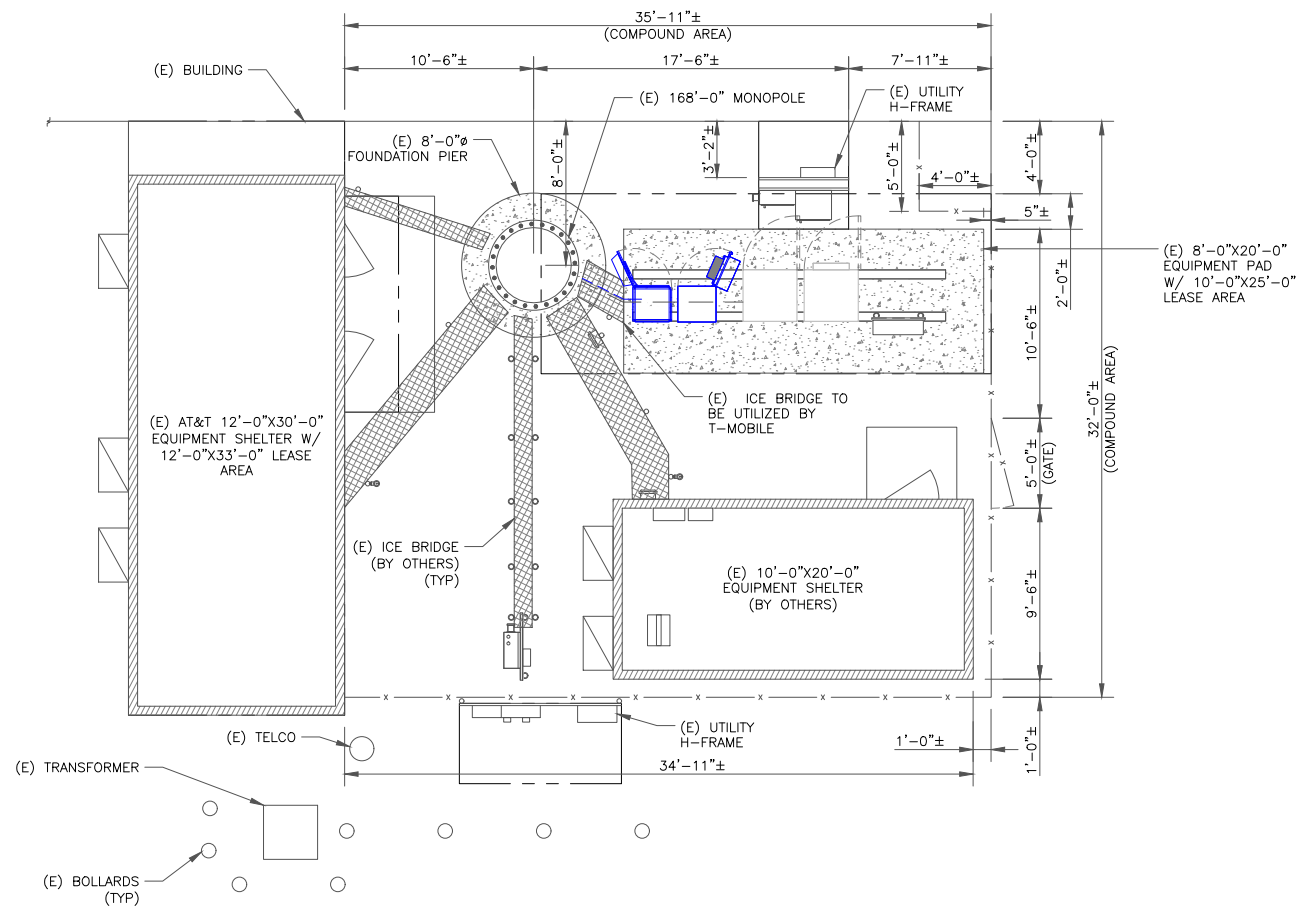
Professional Engineer Seal for Shuhet Sakanoue, State of Connecticut, License No. 34916, dated 11/11/2021

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SHEET NUMBER: T-2, REVISION: 2



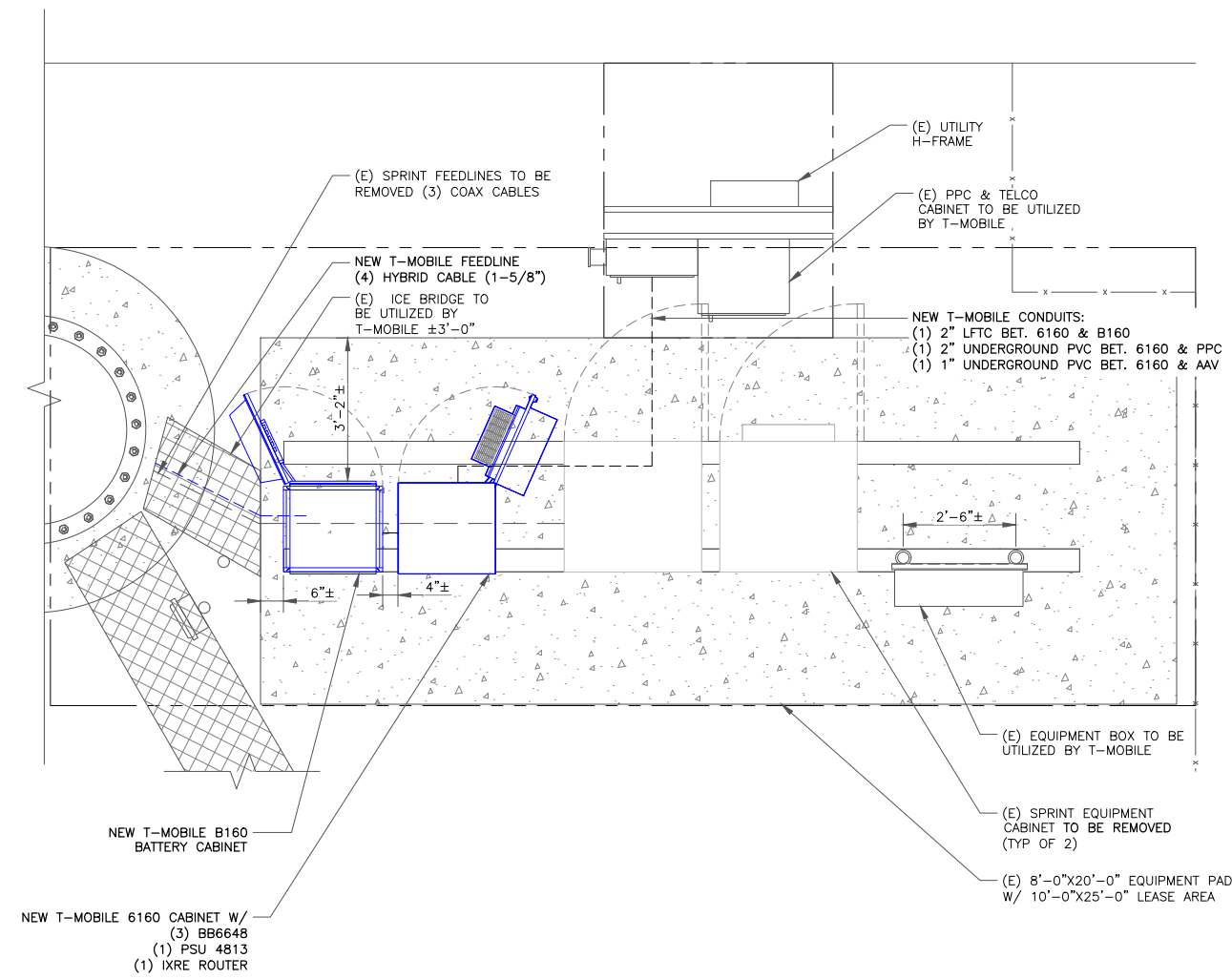
NOTE:  
 1. PLANS BASED ON SITE PLAN PROVIDED BY TOWER OWNER AND SITE VISIT PERFORMED BY INFINIGY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING T-MOBILE EQUIPMENT.



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



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



2 ENLARGED SITE PLAN  
 SCALE: 1/2"=1'-0" (FULL SIZE)  
 1/4"=1'-0" (11x17)



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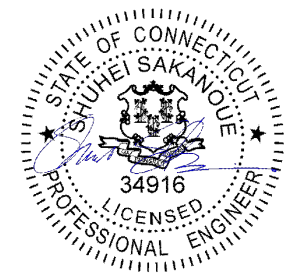
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T-MOBILE SITE NUMBER:  
**CTHA267A**  
 BU #: 842875  
**WINDSORDAY HILL**  
 99 DAY HILL ROAD  
 WINDSOR, CT 06095  
 EXISTING 168'-0" MONOPOLE

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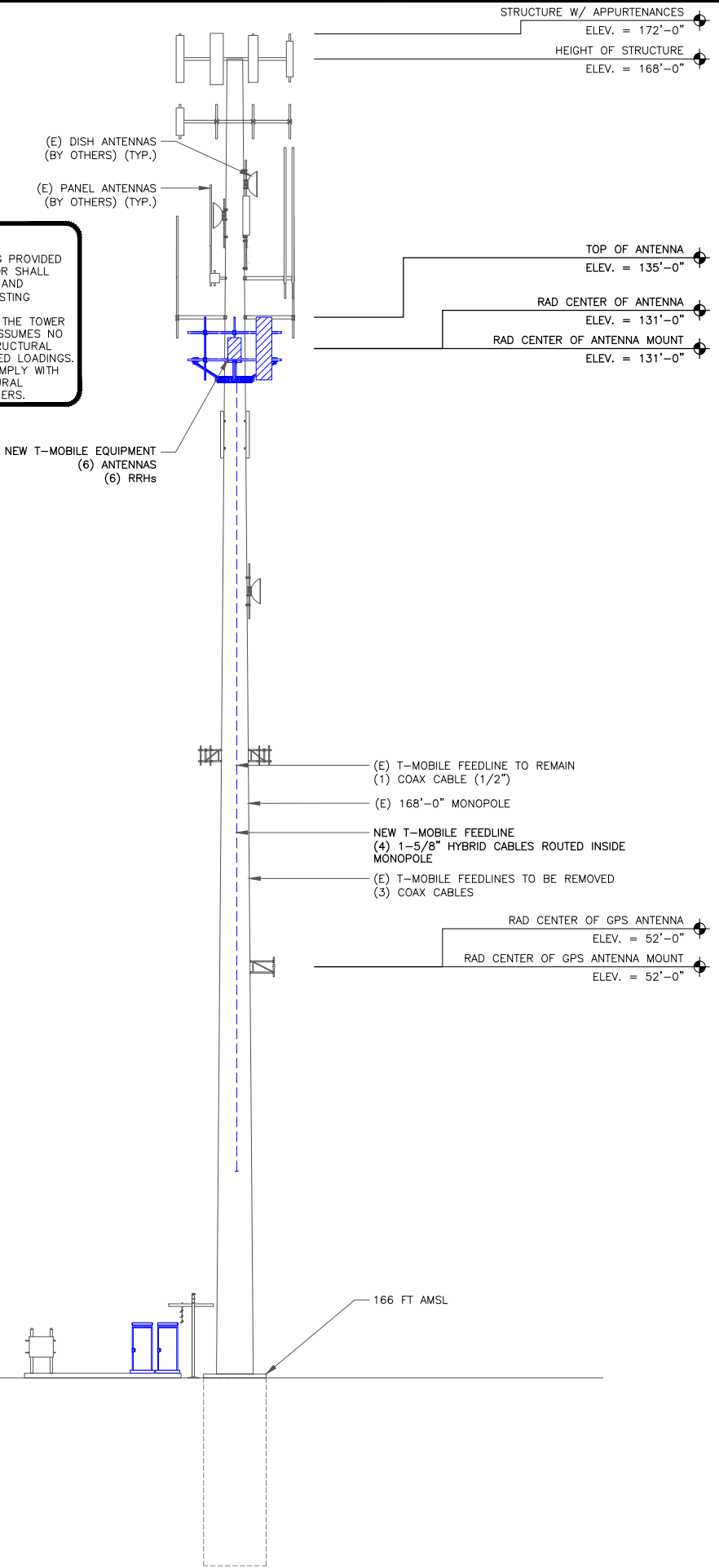
REV	DATE	DRWN	DESCRIPTION	DES/QA
A	05/17/21	RCD	PRELIMINARY	SS
0	04/01/21	BMM	FINAL	SS
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SHEET NUMBER: **C-1** REVISION: **2**



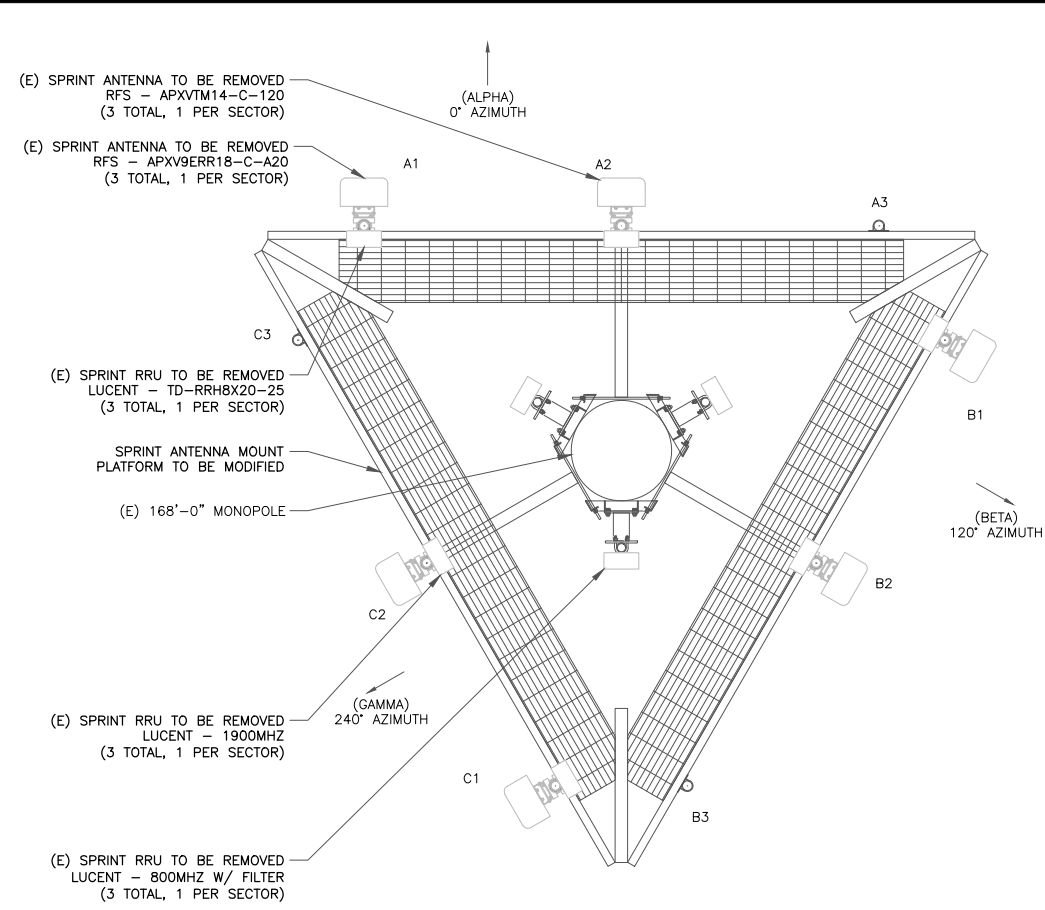
**NOTES:**

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

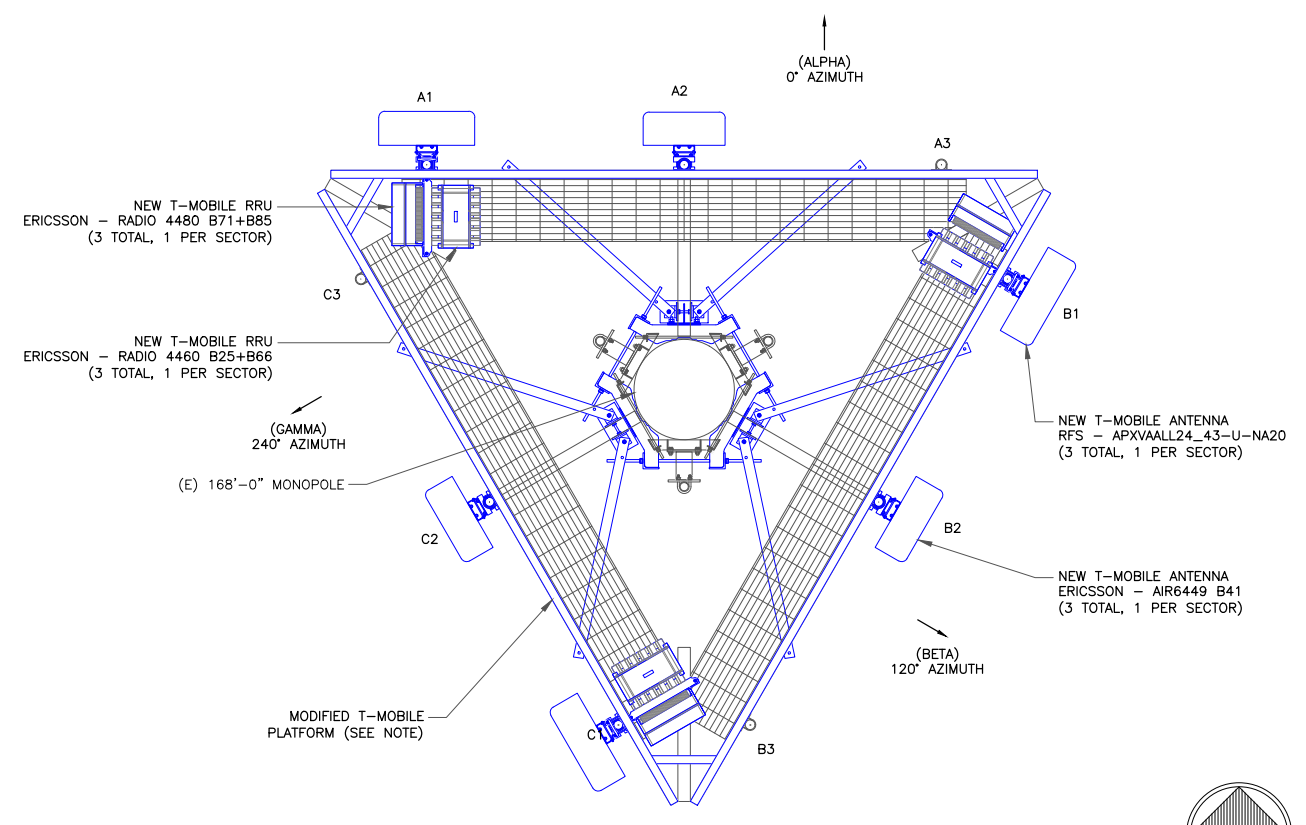
**T-MOBILE EQUIPMENT**  
 ANTENNA CL: 131'-0"  
 MOUNT CL: 131'-0"

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

1 FINAL ELEVATION  
 SCALE: NOT TO SCALE



2 EXISTING ANTENNA LAYOUT  
 SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT  
 SCALE: NOT TO SCALE

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BU #: 842875  
**WINDSORDAY HILL**

99 DAY HILL ROAD  
 WINDSOR, CT 06095

EXISTING 168'-0" MONOPOLE

**ISSUED FOR:**

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STATE OF CONNECTICUT  
 SHUHEI SAKANOU  
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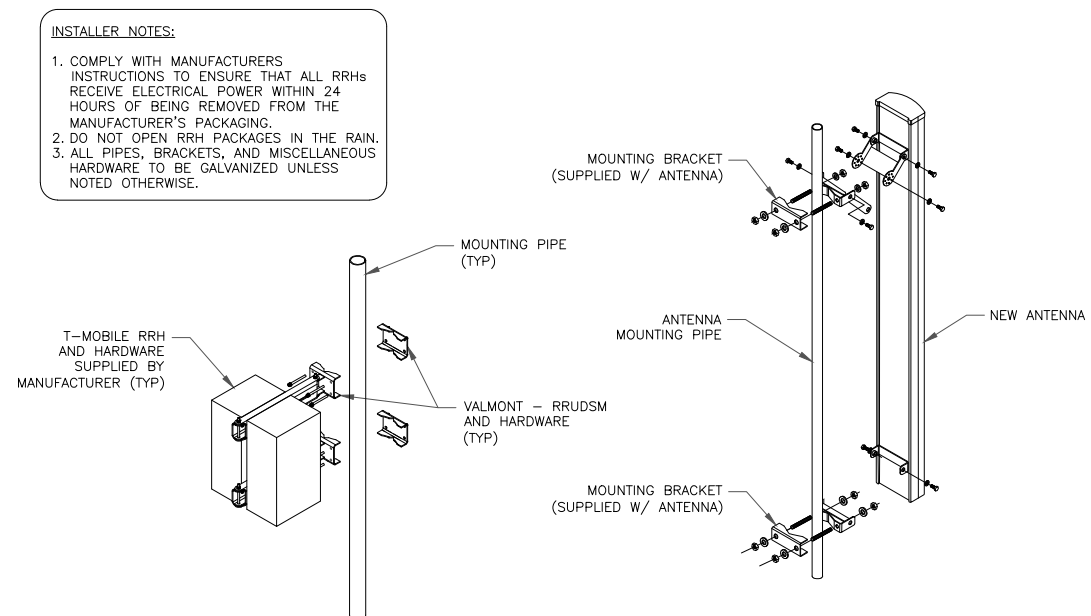
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SHEET NUMBER: **C-2** REVISION: **2**

ANTENNA SCHEDULE										
SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	L700, L600, N600, L1900, G1900, L2100	131'-0"	0°	RFS	APXVAALL24_43-U-NA20	0°	--	(1) ERICSSON - RRUS 4480 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	(4) 1-5/8" HYBRID (SHARED)
ALPHA	A2	L2500, N2500	131'-0"	0°	ERICSSON	AIR6449 B41	0°	--	--	
ALPHA	A3	--	--	--	--	--	--	--	--	
BETA	B1	L700, L600, N600, L1900, G1900, L2100	131'-0"	120°	RFS	APXVAALL24_43-U-NA20	0°	--	(1) ERICSSON - RRUS 4480 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	(4) 1-5/8" HYBRID (SHARED)
BETA	B2	L2500, N2500	131'-0"	120°	ERICSSON	AIR6449 B41	0°	--	--	
BETA	B3	--	--	--	--	--	--	--	--	
GAMMA	C1	L700, L600, N600, L1900, G1900, L2100	131'-0"	240°	RFS	APXVAALL24_43-U-NA20	0°	--	(1) ERICSSON - RRUS 4480 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	(4) 1-5/8" HYBRID (SHARED)
GAMMA	C2	L2500, N2500	131'-0"	240°	ERICSSON	AIR6449 B41	0°	--	--	
GAMMA	C3	--	--	--	--	--	--	--	--	

1 ANTENNA AND CABLE SCHEDULE  
SCALE: NOT TO SCALE



2 ANTENNA WITH RRHs MOUNTING DETAIL  
SCALE: NOT TO SCALE

NOTE:  
1. CONTRACTOR SHALL INSTALL 3RD DUAL RRH MOUNT TO ACCOMMODATE ALL RRH BRACKETS HOLES IF NECESSARY.

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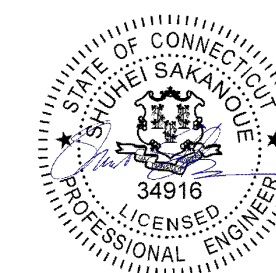
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T-MOBILE SITE NUMBER:  
**CTHA267A**  
  
BU #: 842875  
**WINDSORDAY HILL**  
  
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WINDSOR, CT 06095

EXISTING 168'-0" MONOPOLE

ISSUED FOR:

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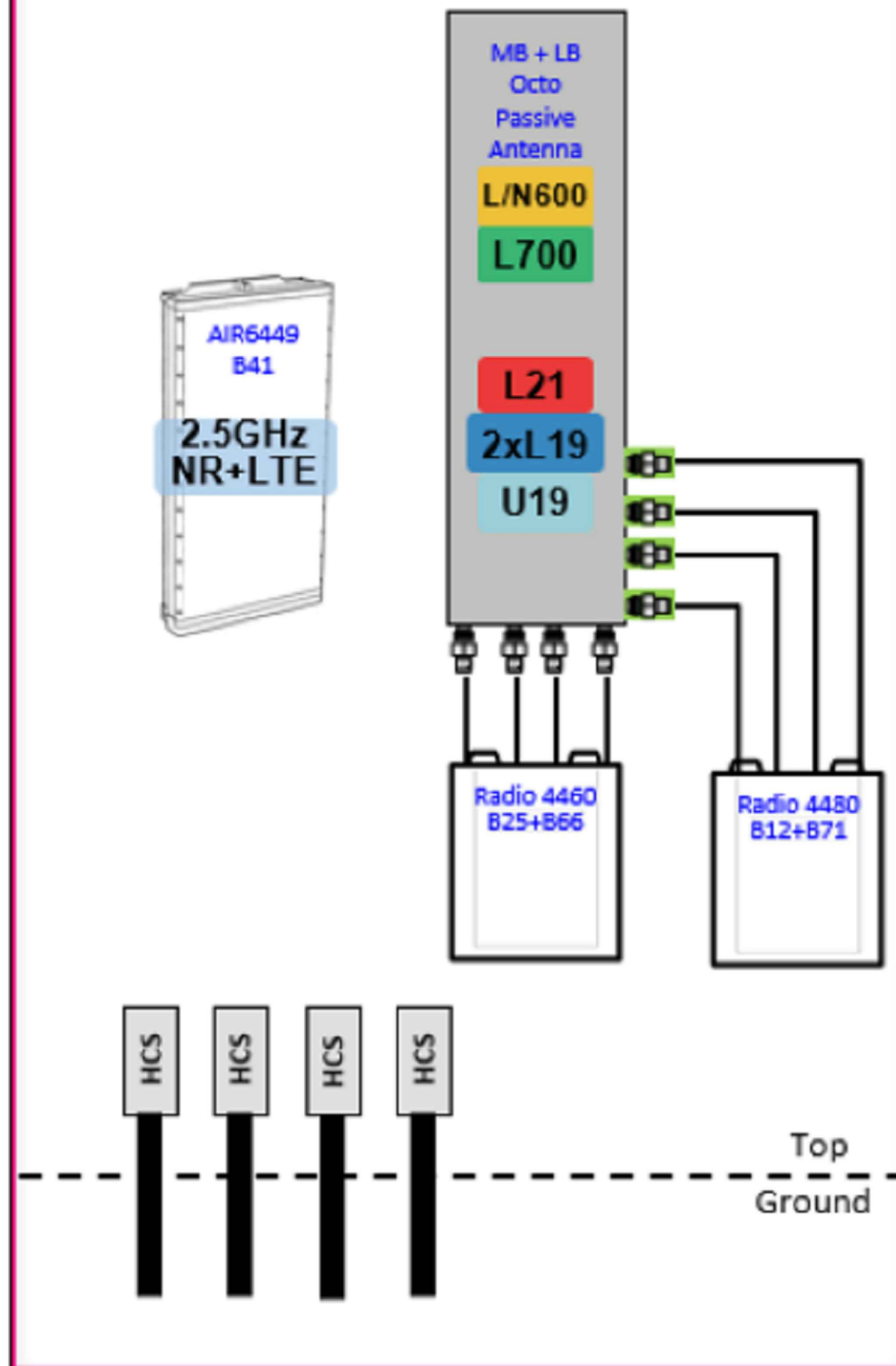


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SHEET NUMBER: **C-3** REVISION: **2**

# 67E5A998E\_1AIR+1OP



1 PLUMBING DIAGRAM  
SCALE: NOT TO SCALE

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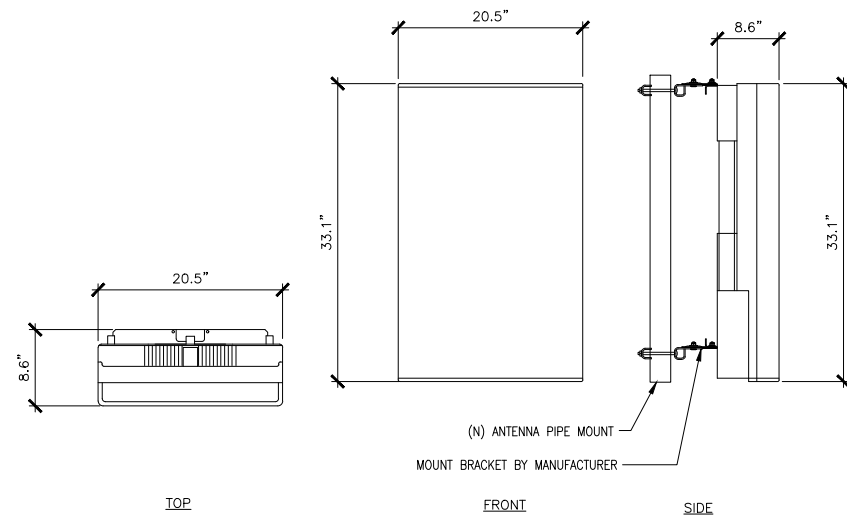
STATE OF CONNECTICUT  
SHUHEI SAKANQUE  
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11/11/2021

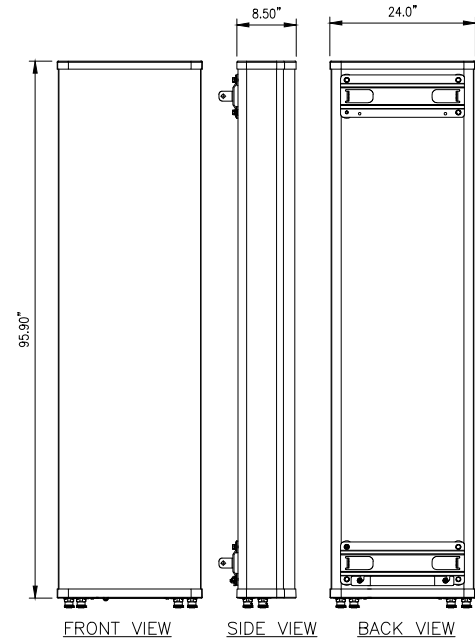
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SHEET NUMBER: **C-4** REVISION: **2**

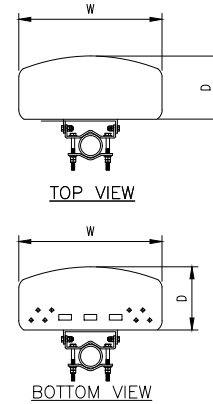
MANUFACTURER: ERICSSON  
 MODEL: AIR6449 B41  
 WEIGHT: 104 LBS (W/ MOUNT BRACKET 113)  
 DIMENSIONS: 33.1"H. X 20.5"W. X 8.6"D.  
 FREQUENCY: REFER TO RF DATA SHEET



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



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

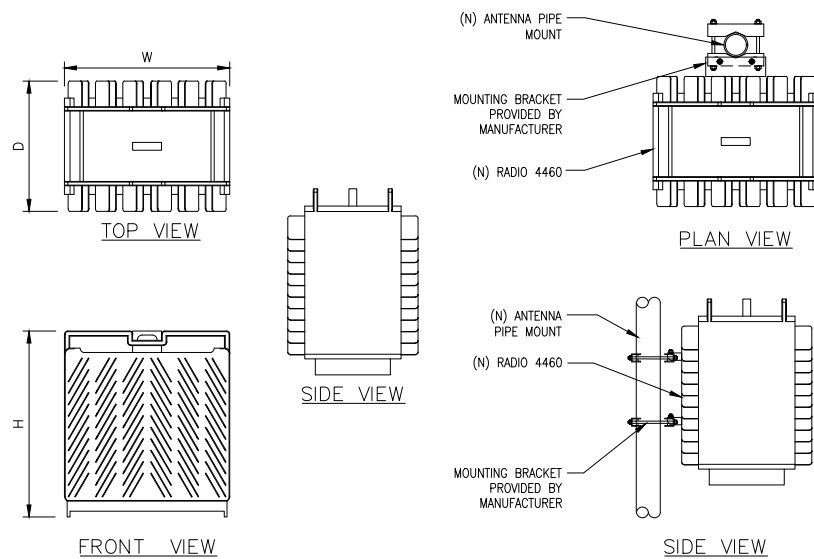
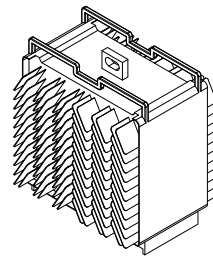


② (N) APXVAALL24\_43-UNA20 ANTENNA SPEC  
 SCALE: NOT TO SCALE

③ NOT USED  
 SCALE: NOT TO SCALE

**ERICSSON RADIO-4460 B25 B66**

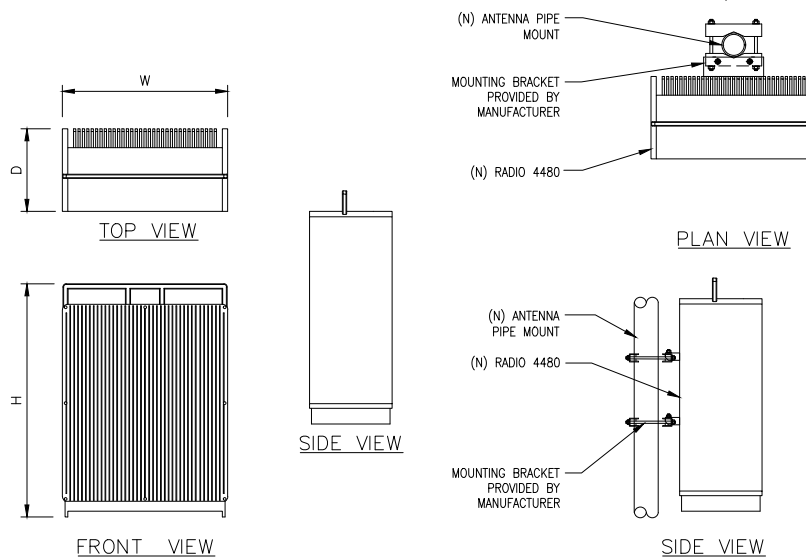
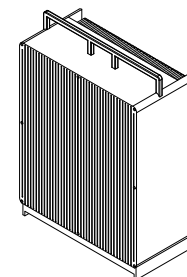
DIMENSIONS, WxDxH: 17.0"x15.1"x11.9"  
 MAX OUTPUT POWER: 4x80W (2x(2x80W))  
 TOTAL WEIGHT: 109 lbs  
 TEMPERATURE: -40° TO 55° C



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

**ERICSSON RADIO-4480 B71 B85**

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



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

⑥ NOT USED  
 SCALE: NOT TO SCALE

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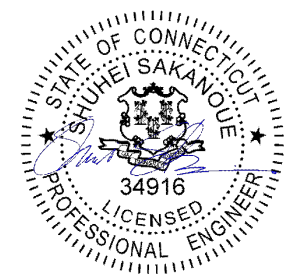
BU #: 842875  
**WINDSORDAY HILL**

99 DAY HILL ROAD  
 WINDSOR, CT 06095

EXISTING 168'-0" MONOPOLE

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES/QA
A	05/17/21	RCD	PRELIMINARY	SS
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1	10/08/21	CB	FINAL	SS
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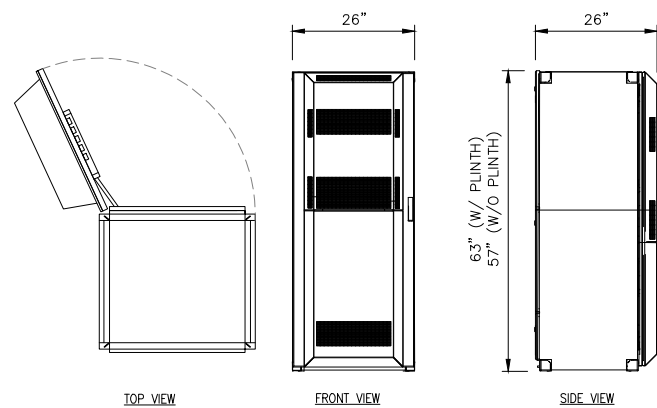
SHEET NUMBER:

**C-5**

REVISION:

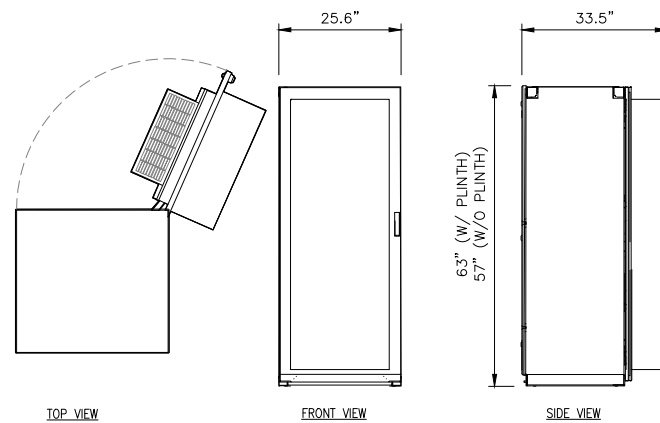
**2**





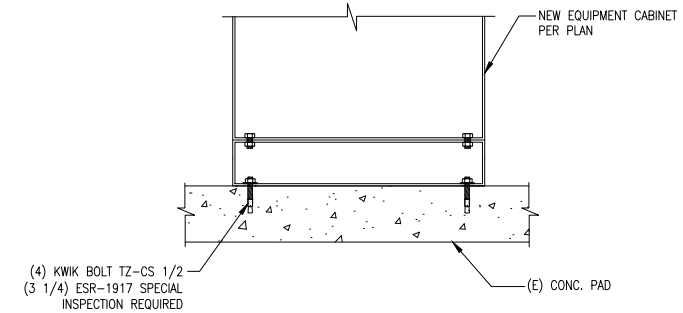
ERICSSON MODEL NO.:	B160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x26"x26" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	485 LBS
MAXIMUM WEIGHT:	2100± LBS

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

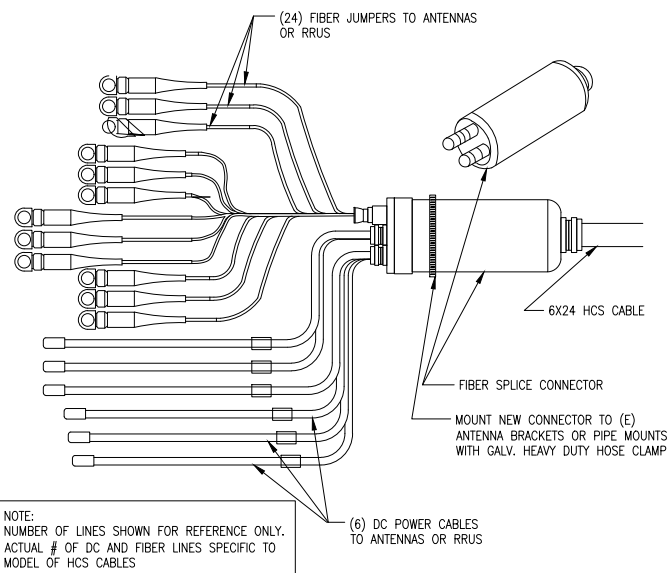


ERICSSON MODEL NO.:	6160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x25.6"x25.6" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	410 LBS
MAXIMUM WEIGHT:	770± LBS

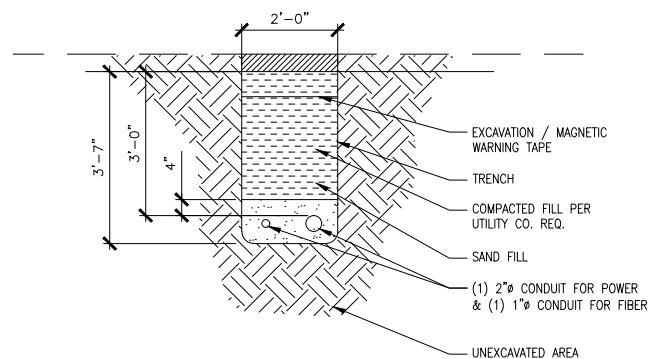
2 (N) 6160 CABINET DETAIL  
SCALE: NOT TO SCALE



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



4 (N) 6X12 HCS CABLE DETAIL  
SCALE: NOT TO SCALE



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

6 NOT USED  
SCALE: NOT TO SCALE

T-Mobile

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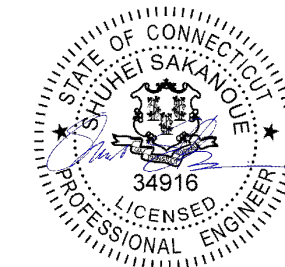
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SHEET NUMBER:

C-6

REVISION:

2

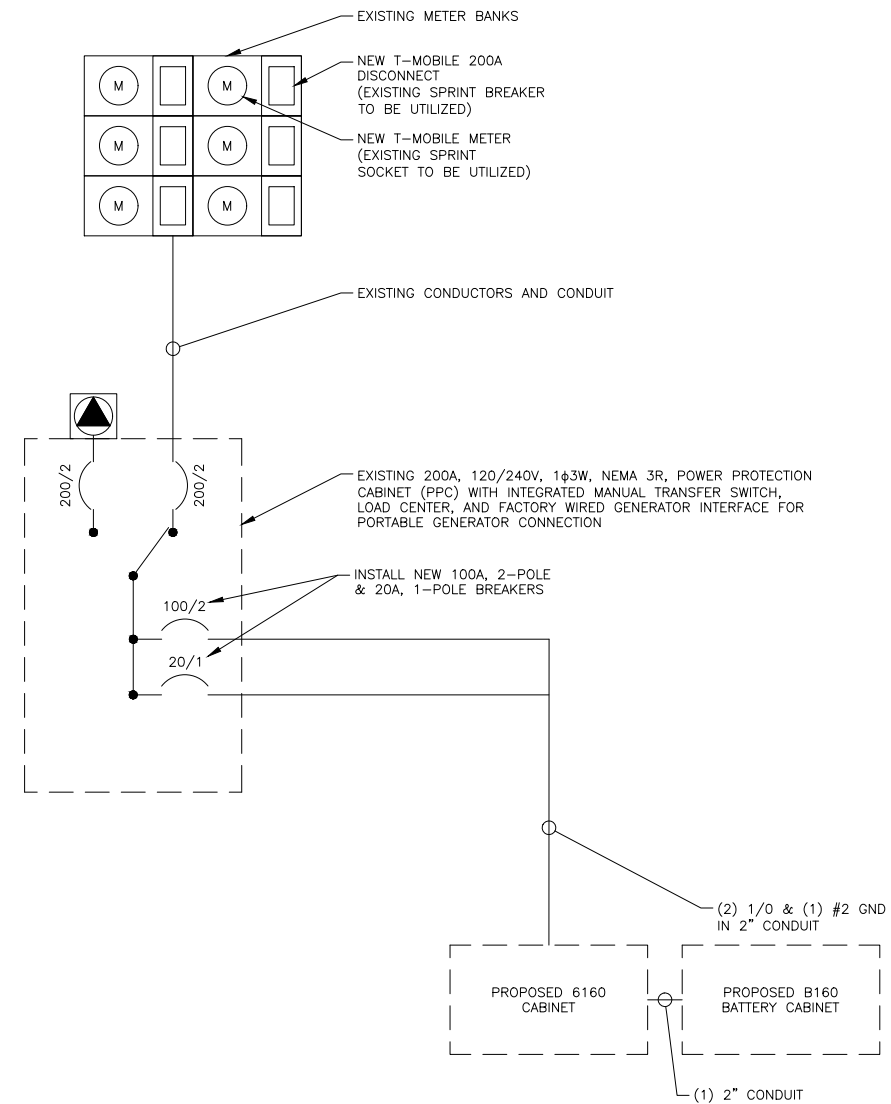
**NOTES:**

- EXISTING DISTRIBUTION PANEL WAS NOT ACCESSIBLE DURING SITE VISIT PERFORMED BY INFINIGY ON 07/21/20. CONTRACTOR SHALL INFORM ENGINEER IF THERE ARE ANY DISCREPANCIES IN PANEL SCHEDULE.

T-MOBILE PANEL SCHEDULE											
MAIN: 200A MAIN BREAKER			VOTAGE/PHASE: 120/240V, 1-PHASE, 3-WIRE				SHORT CIRCUIT CURRENT RATING: --				
MOUNTING: INSIDE PPC ENCLOSURE			ENCLOSURE: NEMA 3R				SURGE PROTECTION DEVICE: YES				
DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	PHASE LOADS (VA)		CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
					A	B					
6160	7000	C	100	1	7001		2	60	C	1	SURGE PROTECTION
	7000	C		3		7001	4		C	1	
6160 GFI	180	C	20	5	380		6	20	NC	200	TOWER LIGHTS
				7		200	8		NC	200	
BLANK				9	0		10				BLANK
				11	0		12				
				13	0		14				
				15	0		16				
				17	0		18				
				19	0		20				
				21	0		22				
				23	0		24				
BASE LOAD (VA) =					7381	7201					
25% OF CONTINUOUS LOAD (VA) =					1750	1750	C = CONTINUOUS LOAD; NC = NON-CONTINUOUS LOAD				
TOTAL LOAD (VA) =					9131	8951	NEW BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING. CUSTOMER HAS NOT PROVIDED LOADS FOR EQUIPMENT CABINETS THEREFORE THE CABINET LOADS SHOWN ARE ESTIMATED VALUES.				
TOTAL LOAD (A) =					76	75					

**NOTES:**

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



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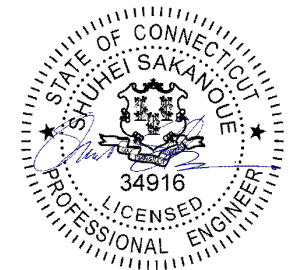
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WINDSORDAY HILL

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SHEET NUMBER:

E-1

REVISION:

2

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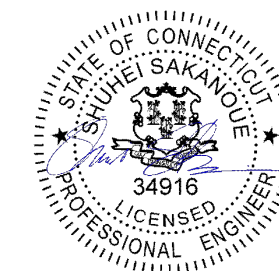
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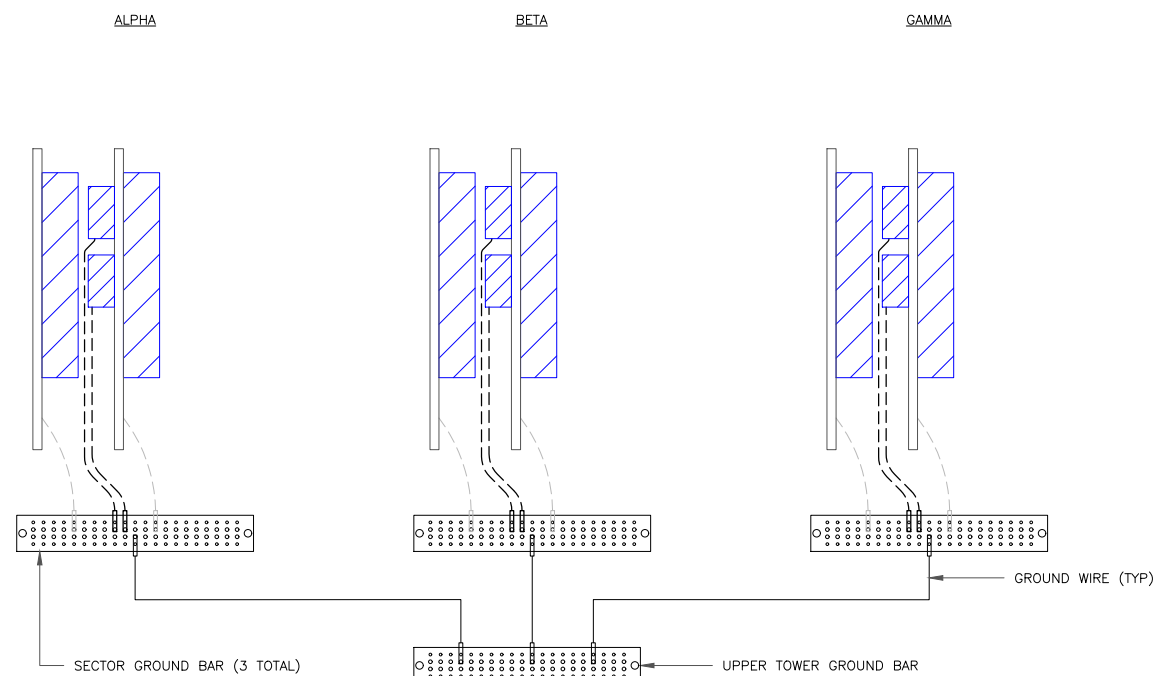
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SHEET NUMBER: REVISION:

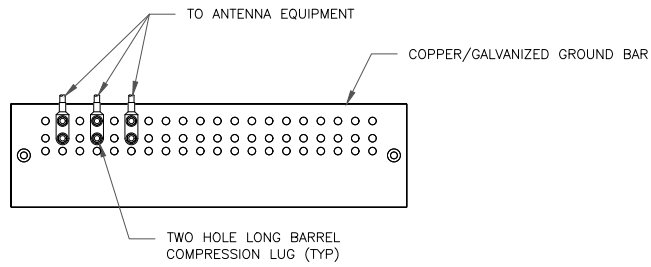
G-1

2



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

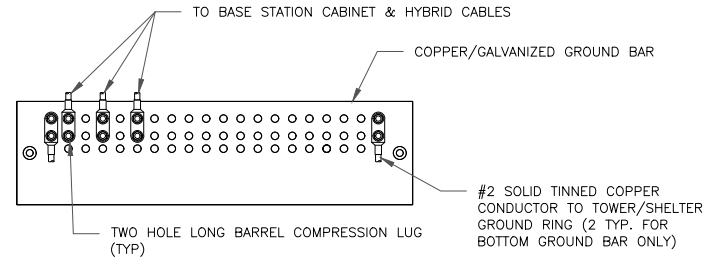
1 ANTENNA GROUNDING DIAGRAM  
SCALE: NOT TO SCALE



NOTES:

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

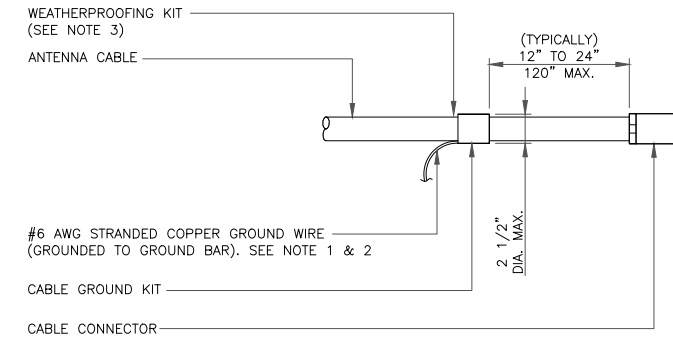
1 ANTENNA SECTOR GROUND BAR DETAIL  
SCALE: NOT TO SCALE



NOTES:

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

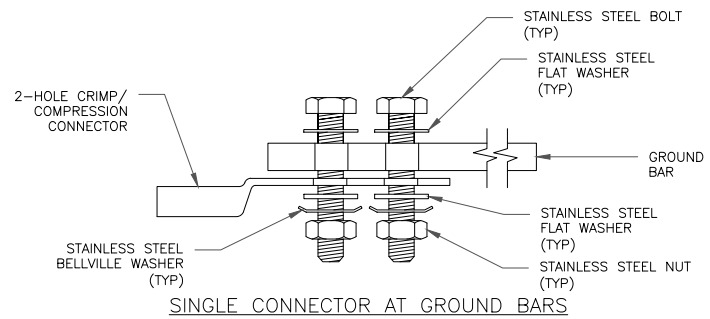
2 TOWER/SHELTER GROUND BAR DETAIL  
SCALE: NOT TO SCALE



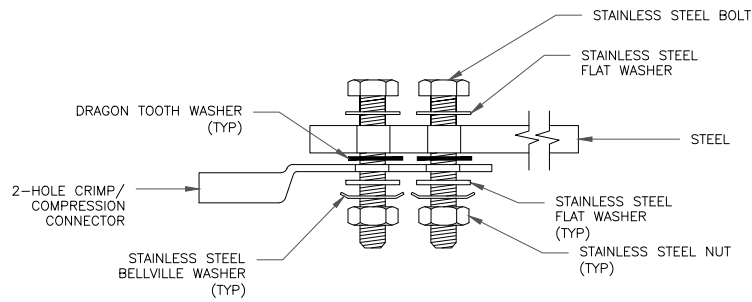
NOTES:

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

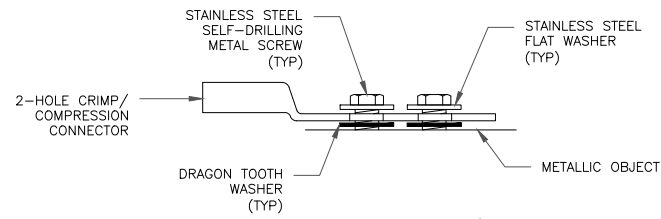
3 CABLE GROUND KIT CONNECTION  
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS



SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

4 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS  
SCALE: NOT TO SCALE

5 NOT USED  
SCALE: NOT TO SCALE

6 NOT USED  
SCALE: NOT TO SCALE

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**CTHA267A**

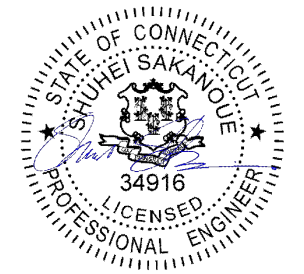
BU #: 842875  
**WINDSORDAY HILL**

99 DAY HILL ROAD  
WINDSOR, CT 06095

EXISTING 168'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
A	05/17/21	RCD	PRELIMINARY	SS
0	04/01/21	BMM	FINAL	SS
1	10/08/21	CB	FINAL	SS
2	11/11/21	TJ	SA UPDATE	SS



11/11/2021

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SHEET NUMBER:

**G-2**

REVISION:

**2**

# Exhibit D

## **Structural Analysis Report**



MORRISON HERSHFIELD

Morrison Hershfield  
1455 Lincoln Park, Suite 500  
Atlanta, GA 30346  
(770)379-8500

Date: **October 08, 2021**

**Subject:** **Structural Analysis Report**

**Carrier Designation:** **Site Number:** CTHA267A  
**Site Name:** CT54XC787

**Crown Castle Designation:** **BU Number:** 842875  
**Site Name:** Windsorday Hill  
**JDE Job Number:** 684573  
**Work Order Number:** 2014534  
**Order Number:** 584557 Rev. 0

**Engineering Firm Designation:** **Morrison Hershfield Project Number:** CN7-415R1 / 2101398

**Site Data:** **99 Day Hill Road, Windsor, Hartford County, CT 06095**  
**Latitude 41° 52' 16.1", Longitude -72° 40' 16"**  
**168 Foot – Summit Monopole Tower**

Morrison Hershfield 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:

LC7: Proposed Equipment Configuration

**Sufficient Capacity-99.4%**

This analysis utilizes an ultimate 3-second gust wind speed of 116 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

G. Lance Cooke, P.E. (CT License No. PEN.0028133)  
Senior Engineer



Digitally signed  
by G. Lance  
Cooke

Date: 2021.10.08  
09:31:30-07'00'

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tnxTower Output

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## 1) INTRODUCTION

This tower is a 168 ft Summit monopole tower designed by Paul J. Ford and Company.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	116 mph
<b>Exposure Category:</b>	C
<b>Topographic Factor:</b>	1
<b>Ice Thickness:</b>	1.5 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Service Wind Speed:</b>	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)
130.0	131.0	3	ericsson	AIR6449 B41_T-MOBILE	3	1-5/8
		3	rfs/celwave	APXVAALL24_43-U-NA20_TMO		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
	130.0	2	Site Pro 1	Support rail kit[#HRK14-U]		
		1	Site Pro 1	V-style reinforcement kit [PRK-SFS]		
		1	-	Platform Mount [LP 1201-1]		

**Table 2 - Other Considered Equipment**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
168.0	170.0	1	rfi antennas	CC807-08	12 6 2 1	1-5/8 3/4 3/8 1-1/4
	168.0	2	cci antennas	DMP65R-BU6D w/ Mount Pipe		
		1	cci antennas	DMP65R-BU8D w/ Mount Pipe		
		1	cci antennas	TPA-65R-LCUUUU-H8 w/Mount Pipe		
		3	kathrein	800 10121 w/ Mount Pipe		
		2	kathrein	80010965 w/ Mount Pipe		
		1	kathrein	80010966 w/ Mount Pipe		
		2	quintel technology	QS66512-2 w/ Mount Pipe		
		6	kathrein	860 10025		
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 32 B66		
		3	ericsson	RRUS 4415 B25		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14		
		3	cci antennas	DTMABP7819VG12A		
		1	raycap	DC6-48-60-0-8F		
		2	raycap	DC6-48-60-18-8F		
		1	-	Platform Mount [LP 1201-1_KCKR-HR-1]		



Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	
152.0	152.0	1	rfs/celwave	SC3-W100ASTX	1	EU 90-FR	
		1	-	Pipe Mount [PM 601-1]			
147.0	148.0	1	rfi antennas	BPA7496-180-11 w/ Mount Pipe	1	EU 90-FR 1/2	
		1	rfs/celwave	SC3-W100ASTX			
	147.0	1	kathrein	782 10876	1		
143.0	143.0	1	kathrein	782 10876	1	1/4	
		1	pctel	MPRD2449			
		1	-	Pipe Mount [PM 602-1]			
140.0	148.0	1	bird technologies group	432E-83I-01-T	2	7/8 1/4	
		2	rfi antennas	CC807-11			
		1	telewave	ANT450F6			
	140.0	140.0	1	motorola	PTP400 w/Mount Pipe	1	
			1	ericsson	RIU		
			2	-	Side Arm Mount [SO 306-1]		
135.0	144.0	2	telewave	ANT450F6	2	1/2	
	135.0	2	-	Side Arm Mount [SO 702-1]			
120.0	120.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-1/2	
		3	fujitsu	TA08025-B604			
		3	fujitsu	TA08025-B605			
		1	raycap	RDIDC-9181-PF-48			
		1	tower mounts	Commscope MC-PK8-DSH			
100.0	100.0	1	rfs/celwave	SC3-W100ASTX	1	EU 90-FR	
		1	-	Pipe Mount [PM 601-1]			
79.0	79.0	2	-	Side Arm Mount [SO 901-1]	-	-	
52.0	52.0	1	pctel	GPS-TMG-HR-26NCM	1	1/2	
		1	-	Side Arm Mount [SO 701-1]			

### 3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	4529457	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4529456	CCISITES
4-TOWER MANUFACTURER DRAWINGS	4589719	CCISITES

### 3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown 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) Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Morrison Hershfield 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	168 - 119.25	Pole	TP34.288x24x0.25	1	-15.74	1615.32	41.3	Pass
L2	119.25 - 78.5	Pole	TP42.387x32.8911x0.2813	2	-26.33	2248.05	69.1	Pass
L3	78.5 - 38.75	Pole	TP50.213x40.7166x0.375	3	-37.76	3547.28	61.2	Pass
L4	38.75 - 0	Pole	TP57.64x48.1441x0.375	4	-52.99	4186.71	72.5	Pass
							Summary	
						Pole (L4)	72.5	Pass
						Rating =	72.5	Pass

**Table 5 - Tower Component Stresses vs. Capacity – LC7**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	67.5	Pass
1	Base Plate		48.8	Pass
1	Base Foundation (Structure)	0	99.4	Pass
1	Base Foundation (Soil Interaction)		24.4	Pass

<b>Structure Rating (max from all components) =</b>	<b>99.4%*</b>
---	---------------

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) \*Rating per TIA-222-H, Section 15.5.

### 4.1) Recommendations

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

**APPENDIX A**  
**TNXTOWER OUTPUT**

168.0 ft

**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

**TOWER DESIGN NOTES**

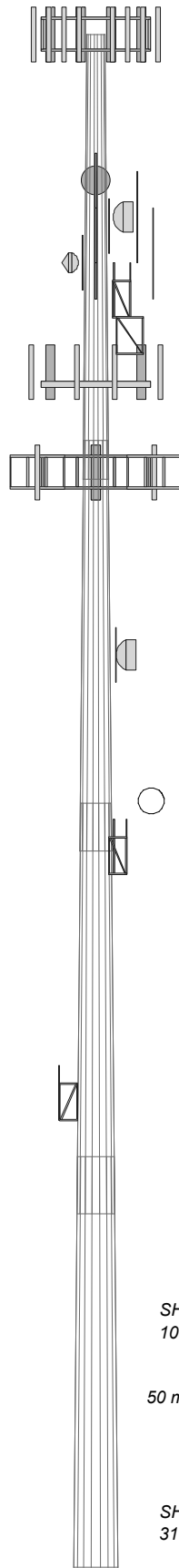
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 116 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 72.5%

119.3 ft

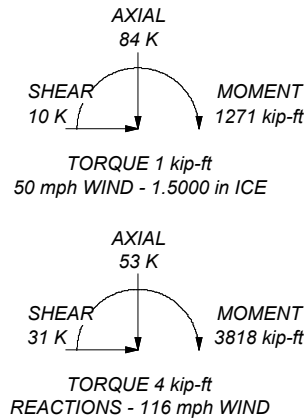
78.5 ft

38.8 ft

0.0 ft



ALL REACTIONS  
ARE FACTORED



Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	48.75	18	0.2500	4.25	24.0000	34.2880		3.8
2	45.00	18	0.2813	5.25	32.8911	42.3870	A607-65	5.1
3	45.00	18	0.3750	6.25	40.7166	50.2130	A607-65	8.2
4	45.00	18	0.3750	48.1441	57.6400			9.6
								26.7



Consulting Engineers

**Morrison Hershfield**

1455 Lincoln Park, Suite 500

Atlanta, GA 30346

Phone: (770)379-8500

FAX: (770)379-8501

Job: **CN7-415R1 / 2101398**

Project: **842875 / Windsorday Hill**

Client: **Crown Castle USA**

Drawn by: **CSA**

App'd:

Code: **TIA-222-H**

Date: **10/08/21**

Scale: **NTS**

Path:

Dwg No. **E-1**

C:\Users\CAsritha\Desktop\CN7-415R1\_SAIAnalysis\CN7-415R1\_BU\_842875\_WO\_2014534.dwg

## 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 Hartford County, Connecticut.
- Tower base elevation above sea level: 166.00 ft.
- Basic wind speed of 116 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used:  $K_{es}(F_w) = 0.95$ ,  $K_{es}(t_i) = 0.85$ .
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile  Include Bolts In Member Capacity  Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt.  Autocalc Torque Arm Areas  Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption  <div style="text-align: center; background-color: #e0e0e0; padding: 2px;"><b>Poles</b></div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets ✓ Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
--	---	---

## Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	
L1	168.00-119.25	48.75	4.25	18	24.0000	34.2880	0.2500	1.0000	A607-65 (65 ksi)
L2	119.25-78.50	45.00	5.25	18	32.8911	42.3870	0.2813	1.1250	A607-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	78.50-38.75	45.00	6.25	18	40.7166	50.2130	0.3750	1.5000	A607-65 (65 ksi)
L4	38.75-0.00	45.00		18	48.1441	57.6400	0.3750	1.5000	A607-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L1	24.3317	18.8456	1342.9976	8.4313	12.1920	110.1540	2687.7623	9.4246	3.7840	15.136
	34.7784	27.0092	3953.4521	12.0835	17.4183	226.9711	7912.1063	13.5071	5.5947	22.379
L2	34.2658	29.1104	3910.9583	11.5765	16.7087	234.0675	7827.0628	14.5580	5.2938	18.823
	42.9975	37.5873	8419.0120	14.9475	21.5326	390.9892	16849.1019	18.7972	6.9651	24.765
L3	42.4119	48.0166	9872.7116	14.3213	20.6841	477.3102	19758.4140	24.0129	6.5061	17.35
	50.9298	59.3197	18614.7607	17.6925	25.5082	729.7558	37254.0152	29.6655	8.1775	21.807
L4	50.1681	56.8571	16391.3899	16.9580	24.4572	670.2076	32804.3480	28.4340	7.8134	20.836
	58.4713	68.1597	28238.6178	20.3291	29.2811	964.3968	56514.3927	34.0863	9.4846	25.292

Tower Elevation ft	Gusset Area (per face) ft <sup>2</sup>	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>r</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
L1 168.00-119.25				1	1	1			
L2 119.25-78.50				1	1	1			
L3 78.50-38.75				1	1	1			
L4 38.75-0.00				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 plf
*****										
Safety Line 3/8"	C	No	Surface Ar (CaAa)	168.00 - 8.00	1	1	0.000	0.3750		0.22
Climbing Pegs	C	No	Surface Ar (CaAa)	168.00 - 8.00	1	1	-0.050 0.050	0.7050		1.80
***										

### Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C <sub>A</sub> A <sub>A</sub> ft <sup>2</sup> /ft	Weight plf	
*****									
LDF6-50A(1-1/4)	A	No	No	Inside Pole	168.00 - 3.00	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.60 0.60 0.60 0.60
***									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	168.00 - 3.00	12	No Ice 1/2" Ice	0.00 0.00	0.82 0.82

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C <sub>A</sub> A <sub>A</sub> ft <sup>2</sup> /ft	Weight plf
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
FB-L98B-034-XXXXXX(3/8)	C	No	No	Inside Pole	168.00 - 3.00	2	No Ice	0.00	0.05
							1/2" Ice	0.00	0.05
							1" Ice	0.00	0.05
							2" Ice	0.00	0.05
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	168.00 - 3.00	6	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58
***									
EU 90-FR(ELLIPTICAL)	A	No	No	Inside Pole	152.00 - 3.00	1	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
							2" Ice	0.00	0.34
***									
LDF4-50A(1/2)	A	No	No	Inside Pole	147.00 - 3.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
EU 90-FR(ELLIPTICAL)	A	No	No	Inside Pole	147.00 - 3.00	1	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
							2" Ice	0.00	0.34
****									
LDF1-50A(1/4)	A	No	No	Inside Pole	143.00 - 3.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
***									
CAT5E(1/4)	A	No	No	Inside Pole	140.00 - 3.00	1	No Ice	0.00	0.04
							1/2" Ice	0.00	0.04
							1" Ice	0.00	0.04
							2" Ice	0.00	0.04
LDF5-50A(7/8)	A	No	No	Inside Pole	140.00 - 3.00	2	No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33
							2" Ice	0.00	0.33
***									
LDF4-50A(1/2)	A	No	No	Inside Pole	135.00 - 3.00	2	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
***									
***									
HB158-21U6S24-xxM_TMO(1-5/8)	B	No	No	Inside Pole	130.00 - 3.00	3	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
							2" Ice	0.00	2.50
***									
CU12PSM9P6XXX(1-1/2)	C	No	No	Inside Pole	120.00 - 0.00	1	No Ice	0.00	2.35
							1/2" Ice	0.00	2.35
							1" Ice	0.00	2.35
							2" Ice	0.00	2.35
***									
EU 90-FR(ELLIPTICAL)	A	No	No	Inside Pole	100.00 - 3.00	1	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
							2" Ice	0.00	0.34
***									
LDF4-50A(1/2)	B	No	No	Inside Pole	52.00 - 3.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
***									

### Feed Line/Linear Appurtenances Section Areas

Tower Sectio n	Tower Elevation ft	Face	$A_R$ ft <sup>2</sup>	$A_F$ ft <sup>2</sup>	$C_{AA}A_A$ In Face ft <sup>2</sup>	$C_{AA}A_A$ Out Face ft <sup>2</sup>	Weight K
L1	168.00-119.25	A	0.000	0.000	0.000	0.000	0.07
		B	0.000	0.000	0.000	0.000	0.08
		C	0.000	0.000	5.265	0.000	0.76
L2	119.25-78.50	A	0.000	0.000	0.000	0.000	0.11
		B	0.000	0.000	0.000	0.000	0.31
		C	0.000	0.000	4.401	0.000	0.73
L3	78.50-38.75	A	0.000	0.000	0.000	0.000	0.11
		B	0.000	0.000	0.000	0.000	0.30
		C	0.000	0.000	4.293	0.000	0.71
L4	38.75-0.00	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.27
		C	0.000	0.000	3.321	0.000	0.63

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Sectio n	Tower Elevation ft	Face or Leg	Ice Thickness in	$A_R$ ft <sup>2</sup>	$A_F$ ft <sup>2</sup>	$C_{AA}A_A$ In Face ft <sup>2</sup>	$C_{AA}A_A$ Out Face ft <sup>2</sup>	Weight K
L1	168.00-119.25	A	1.476	0.000	0.000	0.000	0.000	0.07
		B		0.000	0.000	0.000	0.000	0.08
		C		0.000	0.000	34.042	0.000	1.11
L2	119.25-78.50	A	1.422	0.000	0.000	0.000	0.000	0.11
		B		0.000	0.000	0.000	0.000	0.31
		C		0.000	0.000	28.456	0.000	1.02
L3	78.50-38.75	A	1.350	0.000	0.000	0.000	0.000	0.11
		B		0.000	0.000	0.000	0.000	0.30
		C		0.000	0.000	26.904	0.000	0.98
L4	38.75-0.00	A	1.210	0.000	0.000	0.000	0.000	0.10
		B		0.000	0.000	0.000	0.000	0.27
		C		0.000	0.000	19.924	0.000	0.83

### Feed Line Center of Pressure

Section	Elevation ft	$CP_x$ in	$CP_z$ in	$CP_x$ Ice in	$CP_z$ Ice in
L1	168.00-119.25	0.0000	0.9675	0.0000	2.8186
L2	119.25-78.50	0.0000	0.9777	0.0000	2.9975
L3	78.50-38.75	0.0000	0.9838	0.0000	3.0291
L4	38.75-0.00	0.0000	0.7775	0.0000	2.3955

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

### Shielding Factor $K_a$

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
L1	2	Safety Line 3/8"	119.25 - 168.00	1.0000	1.0000
L1	3	Climbing Pegs	119.25 - 168.00	1.0000	1.0000
L2	2	Safety Line 3/8"	78.50 - 119.25	1.0000	1.0000
L2	3	Climbing Pegs	78.50 - 119.25	1.0000	1.0000



Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
L3	2	Safety Line 3/8"	38.75 - 78.50	1.0000	1.0000
L3	3	Climbing Pegs	38.75 - 78.50	1.0000	1.0000
L4	2	Safety Line 3/8"	8.00 - 38.75	1.0000	1.0000
L4	3	Climbing Pegs	8.00 - 38.75	1.0000	1.0000

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustmen t	Placement	$C_{AA}$ Front	$C_{AA}$ Side	Weight	
			Vert ft ft ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
800 10121 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	3.60	2.95	0.07
						1/2" Ice	4.00	3.34	0.11
						1" Ice	4.42	3.74	0.17
						1" Ice	5.29	4.59	0.30
						2" Ice			
800 10121 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	3.60	2.95	0.07
						1/2" Ice	4.00	3.34	0.11
						1" Ice	4.42	3.74	0.17
						1" Ice	5.29	4.59	0.30
						2" Ice			
800 10121 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	3.60	2.95	0.07
						1/2" Ice	4.00	3.34	0.11
						1" Ice	4.42	3.74	0.17
						1" Ice	5.29	4.59	0.30
						2" Ice			
80010965 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	12.26	5.79	0.14
						1/2" Ice	13.03	6.47	0.23
						1" Ice	13.80	7.17	0.33
						1" Ice	15.41	8.60	0.57
						2" Ice			
80010965 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	12.26	5.79	0.14
						1/2" Ice	13.03	6.47	0.23
						1" Ice	13.80	7.17	0.33
						1" Ice	15.41	8.60	0.57
						2" Ice			
80010966 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	14.61	6.84	0.16
						1/2" Ice	15.47	7.63	0.27
						1" Ice	16.35	8.42	0.39
						1" Ice	18.14	10.06	0.68
						2" Ice			
QS66512-2 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	4.04	4.18	0.14
						1/2" Ice	4.42	4.57	0.21
						1" Ice	4.82	4.97	0.29
						1" Ice	5.63	5.79	0.48
						2" Ice			
QS66512-2 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	4.04	4.18	0.14
						1/2" Ice	4.42	4.57	0.21
						1" Ice	4.82	4.97	0.29
						1" Ice	5.63	5.79	0.48
						2" Ice			
TPA-65R-LCUUUU-H8 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	11.85	8.99	0.11
						1/2" Ice	12.77	9.88	0.21
						1" Ice	13.71	10.79	0.32
						1" Ice	15.64	12.66	0.58
						2" Ice			
CC807-08	C	From Leg	4.00 0.00 2.00	0.0000	168.00	No Ice	2.85	2.85	0.03
						1/2" Ice	3.83	3.83	0.05
						1" Ice	4.67	4.67	0.07
						1" Ice	5.85	5.85	0.15
						2" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>Front</sub>	C <sub>A</sub> A <sub>Side</sub>	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
RRUS 4478 B14	A	From Leg	4.00	0.0000	168.00	No Ice	1.84	1.06	0.06
			0.00			1/2"	2.01	1.20	0.08
			0.00			Ice	2.19	1.34	0.09
						1" Ice	2.57	1.66	0.14
						2" Ice			
RRUS 4478 B14	B	From Leg	4.00	0.0000	168.00	No Ice	1.84	1.06	0.06
			0.00			1/2"	2.01	1.20	0.08
			0.00			Ice	2.19	1.34	0.09
						1" Ice	2.57	1.66	0.14
						2" Ice			
RRUS 4478 B14	C	From Leg	4.00	0.0000	168.00	No Ice	1.84	1.06	0.06
			0.00			1/2"	2.01	1.20	0.08
			0.00			Ice	2.19	1.34	0.09
						1" Ice	2.57	1.66	0.14
						2" Ice			
RRUS 32 B66	A	From Leg	4.00	0.0000	168.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			0.00			Ice	3.19	2.05	0.10
						1" Ice	3.68	2.46	0.16
						2" Ice			
RRUS 32 B66	B	From Leg	4.00	0.0000	168.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			0.00			Ice	3.19	2.05	0.10
						1" Ice	3.68	2.46	0.16
						2" Ice			
RRUS 32 B66	C	From Leg	4.00	0.0000	168.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			0.00			Ice	3.19	2.05	0.10
						1" Ice	3.68	2.46	0.16
						2" Ice			
RRUS 32 B30	A	From Leg	4.00	0.0000	168.00	No Ice	2.69	1.57	0.06
			0.00			1/2"	2.91	1.76	0.08
			0.00			Ice	3.14	1.95	0.10
						1" Ice	3.61	2.35	0.16
						2" Ice			
RRUS 32 B30	B	From Leg	4.00	0.0000	168.00	No Ice	2.69	1.57	0.06
			0.00			1/2"	2.91	1.76	0.08
			0.00			Ice	3.14	1.95	0.10
						1" Ice	3.61	2.35	0.16
						2" Ice			
RRUS 32 B30	C	From Leg	4.00	0.0000	168.00	No Ice	2.69	1.57	0.06
			0.00			1/2"	2.91	1.76	0.08
			0.00			Ice	3.14	1.95	0.10
						1" Ice	3.61	2.35	0.16
						2" Ice			
(2) 860 10025	A	From Leg	4.00	0.0000	168.00	No Ice	0.14	0.12	0.00
			0.00			1/2"	0.20	0.17	0.00
			0.00			Ice	0.26	0.23	0.01
						1" Ice	0.41	0.38	0.01
						2" Ice			
(2) 860 10025	B	From Leg	4.00	0.0000	168.00	No Ice	0.14	0.12	0.00
			0.00			1/2"	0.20	0.17	0.00
			0.00			Ice	0.26	0.23	0.01
						1" Ice	0.41	0.38	0.01
						2" Ice			
(2) 860 10025	C	From Leg	4.00	0.0000	168.00	No Ice	0.14	0.12	0.00
			0.00			1/2"	0.20	0.17	0.00
			0.00			Ice	0.26	0.23	0.01
						1" Ice	0.41	0.38	0.01
						2" Ice			
DTMABP7819VG12A	A	From Leg	4.00	0.0000	168.00	No Ice	0.98	0.34	0.02
			0.00			1/2"	1.10	0.42	0.03
			0.00			Ice	1.23	0.51	0.04
						1" Ice	1.52	0.71	0.06
						2" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
DTMABP7819VG12A	B	From Leg	4.00	0.0000	168.00	No Ice	0.98	0.34	0.02
			0.00			1/2"	1.10	0.42	0.03
			0.00			Ice	1.23	0.51	0.04
						1" Ice	1.52	0.71	0.06
						2" Ice			
DTMABP7819VG12A	C	From Leg	4.00	0.0000	168.00	No Ice	0.98	0.34	0.02
			0.00			1/2"	1.10	0.42	0.03
			0.00			Ice	1.23	0.51	0.04
						1" Ice	1.52	0.71	0.06
						2" Ice			
DC6-48-60-0-8F	A	From Leg	4.00	0.0000	168.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			0.00			Ice	1.64	1.64	0.06
						1" Ice	2.04	2.04	0.11
						2" Ice			
(2) DC6-48-60-18-8F	A	From Leg	4.00	0.0000	168.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			0.00			Ice	1.64	1.64	0.06
						1" Ice	2.04	2.04	0.11
						2" Ice			
6' x 2" Mount Pipe	C	From Leg	1.00	0.0000	168.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
Platform Mount [LP 1201-1_KCKR-HR-1]	C	None		0.0000	168.00	No Ice	37.61	37.61	2.63
						1/2"	45.62	45.62	3.48
						Ice	53.59	53.59	4.46
						1" Ice	69.65	69.65	6.85
						2" Ice			
***									
DMP65R-BU6D w/ Mount Pipe	A	From Leg	4.00	0.0000	168.00	No Ice	11.96	5.97	0.11
			0.00			1/2"	12.70	6.63	0.20
			0.00			Ice	13.46	7.30	0.30
						1" Ice	15.02	8.69	0.53
						2" Ice			
DMP65R-BU6D w/ Mount Pipe	B	From Leg	4.00	0.0000	168.00	No Ice	11.96	5.97	0.11
			0.00			1/2"	12.70	6.63	0.20
			0.00			Ice	13.46	7.30	0.30
						1" Ice	15.02	8.69	0.53
						2" Ice			
DMP65R-BU8D w/ Mount Pipe	C	From Leg	4.00	0.0000	168.00	No Ice	15.89	7.89	0.14
			0.00			1/2"	16.81	8.74	0.25
			0.00			Ice	17.76	9.60	0.38
						1" Ice	19.70	11.37	0.68
						2" Ice			
RRUS 4449 B5/B12	A	From Leg	4.00	0.0000	168.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			0.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4449 B5/B12	B	From Leg	4.00	0.0000	168.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			0.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4449 B5/B12	C	From Leg	4.00	0.0000	168.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			0.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4415 B25	A	From Leg	4.00	0.0000	168.00	No Ice	1.64	0.68	0.04
			0.00			1/2"	1.80	0.79	0.06
			0.00			Ice	1.97	0.91	0.07
						1" Ice	2.33	1.18	0.11
						2" Ice			

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>Front</sub>	C <sub>A</sub> A <sub>Side</sub>	Weight
			Horz	Lateral	Vert					
			ft	ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
RRUS 4415 B25	B	From Leg	4.00	0.0000	168.00		2" Ice			
			0.00				No Ice	1.64	0.68	0.04
			0.00				1/2"	1.80	0.79	0.06
							Ice	1.97	0.91	0.07
							1" Ice	2.33	1.18	0.11
RRUS 4415 B25	C	From Leg	4.00	0.0000	168.00		2" Ice			
			0.00				No Ice	1.64	0.68	0.04
			0.00				1/2"	1.80	0.79	0.06
							Ice	1.97	0.91	0.07
							1" Ice	2.33	1.18	0.11
***										
Pipe Mount [PM 601-1]	A	From Leg	0.50	0.0000	152.00		2" Ice			
			0.00				No Ice	1.32	1.32	0.07
			0.00				1/2"	1.58	1.58	0.08
							Ice	1.84	1.84	0.09
							1" Ice	2.40	2.40	0.13
***										
BPA7496-180-11 w/ Mount Pipe	A	From Leg	1.00	0.0000	147.00		2" Ice			
			0.00				No Ice	6.07	5.17	0.04
			1.00				1/2"	6.53	6.05	0.09
							Ice	6.99	6.81	0.15
							1" Ice	7.91	8.37	0.29
782 10876	A	From Leg	1.00	0.0000	147.00		2" Ice			
			0.00				No Ice	0.59	0.23	0.01
			1.00				1/2"	0.69	0.31	0.01
							Ice	0.80	0.39	0.02
							1" Ice	1.04	0.57	0.04
Pipe Mount [PM 601-1]	B	From Leg	0.50	0.0000	147.00		2" Ice			
			0.00				No Ice	1.32	1.32	0.07
			0.00				1/2"	1.58	1.58	0.08
							Ice	1.84	1.84	0.09
							1" Ice	2.40	2.40	0.13
***										
782 10876	C	From Leg	1.00	0.0000	143.00		2" Ice			
			0.00				No Ice	0.59	0.23	0.01
			0.00				1/2"	0.69	0.31	0.01
							Ice	0.80	0.39	0.02
							1" Ice	1.04	0.57	0.04
Pipe Mount [PM 602-1]	C	From Leg	0.50	0.0000	143.00		2" Ice			
			0.00				No Ice	2.78	2.78	0.09
			0.00				1/2"	3.21	3.21	0.11
							Ice	3.64	3.64	0.14
							1" Ice	4.54	4.54	0.21
***										
(2) CC807-11	A	From Leg	4.00	0.0000	140.00		2" Ice			
			0.00				No Ice	5.27	5.27	0.05
			8.00				1/2"	7.04	7.04	0.09
							Ice	8.83	8.83	0.14
							1" Ice	12.45	12.45	0.27
ANT450F6	B	From Leg	4.00	0.0000	140.00		2" Ice			
			0.00				No Ice	1.86	1.86	0.02
			8.00				1/2"	2.67	2.67	0.04
							Ice	3.30	3.30	0.05
							1" Ice	4.28	4.28	0.11
PTP400 w/Mount Pipe	B	From Leg	4.00	0.0000	140.00		2" Ice			
			0.00				No Ice	0.00	0.00	0.00
			0.00				1/2"	0.00	0.00	0.00
							Ice	0.00	0.00	0.00
							1" Ice	0.00	0.00	0.00
432E-831-01-T	A	From Leg	4.00	0.0000	140.00		2" Ice			
			0.00				No Ice	1.42	0.87	0.03
			8.00				1/2"	1.57	0.99	0.04
							Ice	1.73	1.12	0.05
							1" Ice	2.06	1.41	0.09

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>Front</sub>	C <sub>A</sub> A <sub>Side</sub>	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
RIU	B	From Leg	4.00	0.0000	140.00	No Ice	0.16	0.12	0.00
			0.00	1/2"		0.21	0.16	0.00	
			0.00	Ice		0.27	0.22	0.01	
				1" Ice		0.42	0.35	0.02	
				2" Ice					
Side Arm Mount [SO 306-1]	A	From Leg	2.00	0.0000	140.00	No Ice	0.41	2.26	0.04
			0.00	1/2"		0.81	3.83	0.06	
			0.00	Ice		1.23	5.48	0.09	
				1" Ice		2.08	9.37	0.19	
				2" Ice					
Side Arm Mount [SO 306-1]	B	From Leg	2.00	0.0000	140.00	No Ice	0.41	2.26	0.04
			0.00	1/2"		0.81	3.83	0.06	
			0.00	Ice		1.23	5.48	0.09	
				1" Ice		2.08	9.37	0.19	
				2" Ice					
***									
ANT450F6	A	From Leg	6.00	0.0000	135.00	No Ice	1.86	1.86	0.02
			0.00	1/2"		2.67	2.67	0.04	
			9.00	Ice		3.30	3.30	0.05	
				1" Ice		4.28	4.28	0.11	
				2" Ice					
ANT450F6	B	From Leg	6.00	0.0000	135.00	No Ice	1.86	1.86	0.02
			0.00	1/2"		2.67	2.67	0.04	
			9.00	Ice		3.30	3.30	0.05	
				1" Ice		4.28	4.28	0.11	
				2" Ice					
4' x 2" Pipe Mount	A	From Leg	6.00	0.0000	135.00	No Ice	0.79	0.79	0.03
			0.00	1/2"		1.03	1.03	0.04	
			0.00	Ice		1.28	1.28	0.04	
				1" Ice		1.81	1.81	0.07	
				2" Ice					
4' x 2" Pipe Mount	B	From Leg	6.00	0.0000	135.00	No Ice	0.79	0.79	0.03
			0.00	1/2"		1.03	1.03	0.04	
			0.00	Ice		1.28	1.28	0.04	
				1" Ice		1.81	1.81	0.07	
				2" Ice					
Side Arm Mount [SO 702-1]	A	From Leg	3.00	0.0000	135.00	No Ice	0.62	1.49	0.03
			0.00	1/2"		0.74	2.07	0.04	
			0.00	Ice		0.89	2.54	0.06	
				1" Ice		1.25	3.55	0.12	
				2" Ice					
Side Arm Mount [SO 702-1]	B	From Leg	3.00	0.0000	135.00	No Ice	0.62	1.49	0.03
			0.00	1/2"		0.74	2.07	0.04	
			0.00	Ice		0.89	2.54	0.06	
				1" Ice		1.25	3.55	0.12	
				2" Ice					
***									
Platform Mount [LP 1201-1]	C	None		0.0000	130.00	No Ice	18.38	18.38	2.10
				1/2"		22.11	22.11	2.65	
				Ice		25.87	25.87	3.26	
				1" Ice		33.47	33.47	4.66	
				2" Ice					
***									
APXVAALL24_43-U-NA20_TMO	A	From Leg	4.00	0.0000	130.00	No Ice	14.67	5.32	0.15
			0.00	1/2"		15.43	5.99	0.26	
			1.00	Ice		16.21	6.68	0.38	
				1" Ice		17.81	8.08	0.65	
				2" Ice					
APXVAALL24_43-U-NA20_TMO	B	From Leg	4.00	0.0000	130.00	No Ice	14.67	5.32	0.15
			0.00	1/2"		15.43	5.99	0.26	
			1.00	Ice		16.21	6.68	0.38	
				1" Ice		17.81	8.08	0.65	
				2" Ice					
APXVAALL24_43-U-NA20_TMO	C	From Leg	4.00	0.0000	130.00	No Ice	14.67	5.32	0.15
			0.00	1/2"		15.43	5.99	0.26	

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
			1.00			Ice 16.21	6.68	0.38
						1" Ice 17.81	8.08	0.65
						2" Ice		
AIR6449 B41_T-MOBILE	A	From Leg	4.00	0.0000	130.00	No Ice 5.27	2.03	0.11
			0.00			1/2" 5.70	2.36	0.15
			1.00			Ice 6.14	2.70	0.20
						1" Ice 7.06	3.43	0.30
						2" Ice		
AIR6449 B41_T-MOBILE	B	From Leg	4.00	0.0000	130.00	No Ice 5.27	2.03	0.11
			0.00			1/2" 5.70	2.36	0.15
			1.00			Ice 6.14	2.70	0.20
						1" Ice 7.06	3.43	0.30
						2" Ice		
AIR6449 B41_T-MOBILE	C	From Leg	4.00	0.0000	130.00	No Ice 5.27	2.03	0.11
			0.00			1/2" 5.70	2.36	0.15
			1.00			Ice 6.14	2.70	0.20
						1" Ice 7.06	3.43	0.30
						2" Ice		
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00	0.0000	130.00	No Ice 2.14	1.69	0.11
			0.00			1/2" 2.32	1.85	0.13
			1.00			Ice 2.51	2.02	0.16
						1" Ice 2.91	2.39	0.22
						2" Ice		
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00	0.0000	130.00	No Ice 2.14	1.69	0.11
			0.00			1/2" 2.32	1.85	0.13
			1.00			Ice 2.51	2.02	0.16
						1" Ice 2.91	2.39	0.22
						2" Ice		
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00	0.0000	130.00	No Ice 2.14	1.69	0.11
			0.00			1/2" 2.32	1.85	0.13
			1.00			Ice 2.51	2.02	0.16
						1" Ice 2.91	2.39	0.22
						2" Ice		
Radio 4480_TMOV2	A	From Leg	4.00	0.0000	130.00	No Ice 2.88	1.40	0.08
			0.00			1/2" 3.09	1.56	0.10
			1.00			Ice 3.31	1.73	0.13
						1" Ice 3.78	2.09	0.19
						2" Ice		
Radio 4480_TMOV2	B	From Leg	4.00	0.0000	130.00	No Ice 2.88	1.40	0.08
			0.00			1/2" 3.09	1.56	0.10
			1.00			Ice 3.31	1.73	0.13
						1" Ice 3.78	2.09	0.19
						2" Ice		
Radio 4480_TMOV2	C	From Leg	4.00	0.0000	130.00	No Ice 2.88	1.40	0.08
			0.00			1/2" 3.09	1.56	0.10
			1.00			Ice 3.31	1.73	0.13
						1" Ice 3.78	2.09	0.19
						2" Ice		
6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	130.00	No Ice 1.43	1.43	0.02
			0.00			1/2" 1.92	1.92	0.03
			0.00			Ice 2.29	2.29	0.05
						1" Ice 3.06	3.06	0.09
						2" Ice		
6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	130.00	No Ice 1.43	1.43	0.02
			0.00			1/2" 1.92	1.92	0.03
			0.00			Ice 2.29	2.29	0.05
						1" Ice 3.06	3.06	0.09
						2" Ice		
6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	130.00	No Ice 1.43	1.43	0.02
			0.00			1/2" 1.92	1.92	0.03
			0.00			Ice 2.29	2.29	0.05
						1" Ice 3.06	3.06	0.09
						2" Ice		
Support rail kit[#HRK14-U]	C	None		0.0000	130.00	No Ice 6.36	6.36	0.26
						1/2" 8.52	8.52	0.30

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight K
						Ice	10.62	10.62	0.46
						1" Ice	14.64	14.64	0.77
						2" Ice			
Support rail kit[#HRK14-U]	C	None		0.0000	130.00	No Ice	6.36	6.36	0.26
						1/2"	8.52	8.52	0.30
						Ice	10.62	10.62	0.46
						1" Ice	14.64	14.64	0.77
						2" Ice			
V-style reinforcement kit[PRK-SFS]	C	None		0.0000	130.00	No Ice	11.84	11.84	0.28
						1/2"	16.96	16.96	0.64
						Ice	22.08	22.08	0.32
						1" Ice	32.32	32.32	0.36
						2" Ice			
***									
***									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice	8.01	4.23	0.11
						1/2"	8.52	4.69	0.19
						Ice	9.04	5.16	0.29
						1" Ice	10.11	6.12	0.52
						2" Ice			
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice	8.01	4.23	0.11
						1/2"	8.52	4.69	0.19
						Ice	9.04	5.16	0.29
						1" Ice	10.11	6.12	0.52
						2" Ice			
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice	8.01	4.23	0.11
						1/2"	8.52	4.69	0.19
						Ice	9.04	5.16	0.29
						1" Ice	10.11	6.12	0.52
						2" Ice			
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice	1.96	0.98	0.06
						1/2"	2.14	1.11	0.08
						Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice	1.96	0.98	0.06
						1/2"	2.14	1.11	0.08
						Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice	1.96	0.98	0.06
						1/2"	2.14	1.11	0.08
						Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice	1.96	1.13	0.08
						1/2"	2.14	1.27	0.09
						Ice	2.32	1.41	0.11
						1" Ice	2.71	1.72	0.16
						2" Ice			
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice	1.96	1.13	0.08
						1/2"	2.14	1.27	0.09
						Ice	2.32	1.41	0.11
						1" Ice	2.71	1.72	0.16
						2" Ice			
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice	1.96	1.13	0.08
						1/2"	2.14	1.27	0.09
						Ice	2.32	1.41	0.11
						1" Ice	2.71	1.72	0.16
						2" Ice			
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice	2.01	1.17	0.02
						1/2"	2.19	1.31	0.04
						Ice	2.37	1.46	0.06
						1" Ice	2.76	1.78	0.11
						2" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> <sub>Front</sub>	C <sub>AA</sub> <sub>Side</sub>	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
(2) 8' x 2" Mount Pipe	A	From Leg	4.00	0.0000	120.00	No Ice	1.90	1.90	0.03
			0.00	1/2"		2.73	2.73	0.04	
			0.00	Ice		3.40	3.40	0.06	
				1" Ice		4.40	4.40	0.12	
				2" Ice					
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0.0000	120.00	No Ice	1.90	1.90	0.03
			0.00	1/2"		2.73	2.73	0.04	
			0.00	Ice		3.40	3.40	0.06	
				1" Ice		4.40	4.40	0.12	
				2" Ice					
(2) 8' x 2" Mount Pipe	C	From Leg	4.00	0.0000	120.00	No Ice	1.90	1.90	0.03
			0.00	1/2"		2.73	2.73	0.04	
			0.00	Ice		3.40	3.40	0.06	
				1" Ice		4.40	4.40	0.12	
				2" Ice					
Commscope MC-PK8-DSH	C	None		0.0000	120.00	No Ice	34.24	34.24	1.75
				1/2"		62.95	62.95	2.10	
				Ice		91.66	91.66	2.45	
				1" Ice		149.08	149.08	3.15	
				2" Ice					
****									
Pipe Mount [PM 601-1]	B	From Leg	1.00	0.0000	100.00	No Ice	1.32	1.32	0.07
			0.00	1/2"		1.58	1.58	0.08	
			0.00	Ice		1.84	1.84	0.09	
				1" Ice		2.40	2.40	0.13	
				2" Ice					
***									
1' x 2-1/2"	A	From Leg	2.00	0.0000	79.00	No Ice	0.16	0.16	0.03
			0.00	1/2"		0.23	0.23	0.03	
			0.00	Ice		0.31	0.31	0.03	
				1" Ice		0.51	0.51	0.04	
				2" Ice					
1' x 2-1/2"	B	From Leg	2.00	0.0000	79.00	No Ice	0.16	0.16	0.03
			0.00	1/2"		0.23	0.23	0.03	
			0.00	Ice		0.31	0.31	0.03	
				1" Ice		0.51	0.51	0.04	
				2" Ice					
Side Arm Mount [SO 901-1]	A	From Leg	1.00	0.0000	79.00	No Ice	0.33	0.62	0.11
			0.00	1/2"		0.46	0.78	0.11	
			0.00	Ice		0.62	0.97	0.12	
				1" Ice		1.01	1.43	0.15	
				2" Ice					
Side Arm Mount [SO 901-1]	B	From Leg	1.00	0.0000	79.00	No Ice	0.33	0.62	0.11
			0.00	1/2"		0.46	0.78	0.11	
			0.00	Ice		0.62	0.97	0.12	
				1" Ice		1.01	1.43	0.15	
				2" Ice					
***									
GPS-TMG-HR-26NCM	C	From Leg	3.00	0.0000	52.00	No Ice	0.13	0.13	0.00
			0.00	1/2"		0.18	0.18	0.00	
			0.00	Ice		0.24	0.24	0.01	
				1" Ice		0.37	0.37	0.01	
				2" Ice					
2' x 2" Pipe Mount	C	From Leg	3.00	0.0000	52.00	No Ice	0.02	0.02	0.01
			0.00	1/2"		0.05	0.05	0.01	
			0.00	Ice		0.09	0.09	0.01	
				1" Ice		0.19	0.19	0.01	
				2" Ice					
Side Arm Mount [SO 701-1]	C	From Leg	1.50	0.0000	52.00	No Ice	0.85	1.67	0.07
			0.00	1/2"		1.14	2.34	0.08	
			0.00	Ice		1.43	3.01	0.09	
				1" Ice		2.01	4.35	0.12	
				2" Ice					



### Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft <sup>2</sup>	Weight K	
*** SC3-W100ASTX	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	-32.0000		152.00	3.29	No Ice 1/2" Ice 1" Ice 2" Ice	8.51 8.95 9.38 10.26	0.04 0.09 0.13 0.22
*** SC3-W100ASTX	B	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 1.00	57.0000		147.00	3.29	No Ice 1/2" Ice 1" Ice 2" Ice	8.51 8.95 9.38 10.26	0.04 0.09 0.13 0.22
*** MPRD2449	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	10.0000		143.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.69 3.98 4.27 4.84	0.04 0.06 0.08 0.12
*** SC3-W100ASTX	B	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	37.0000		100.00	3.29	No Ice 1/2" Ice 1" Ice 2" Ice	8.51 8.95 9.38 10.26	0.04 0.09 0.13 0.22
***											

### Load Combinations

Comb. No.	Description
1	Dead Only
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

Comb. No.	Description
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	168 - 119.25	Pole	Max Tension	27	0.00	-0.00	-0.00
			Max. Compression	26	-34.06	-0.33	3.82
			Max. Mx	8	-15.78	-502.47	-1.75
			Max. My	2	-15.76	-2.68	504.73
			Max. Vy	8	18.04	-502.47	-1.75
			Max. Vx	2	-18.17	-2.68	504.73
			Max. Torque	22			-3.04
L2	119.25 - 78.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.61	-1.05	3.48
			Max. Mx	8	-26.37	-1407.08	-9.99
			Max. My	2	-26.34	-2.91	1418.44
			Max. Vy	8	24.81	-1407.08	-9.99
			Max. Vx	2	-25.17	-2.91	1418.44
			Max. Torque	22			-3.81
L3	78.5 - 38.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.30	-1.13	2.85
			Max. Mx	8	-37.78	-2435.09	-20.79
			Max. My	2	-37.76	-0.48	2459.93
			Max. Vy	8	28.14	-2435.09	-20.79
			Max. Vx	2	-28.51	-0.48	2459.93
			Max. Torque	22			-3.89
L4	38.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-84.11	-1.13	2.14
			Max. Mx	8	-52.99	-3772.37	-33.67
			Max. My	2	-52.99	3.02	3813.20
			Max. Vy	8	31.06	-3772.37	-33.67
			Max. Vx	2	-31.41	3.02	3813.20
			Max. Torque	22			-3.66

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	84.11	0.01	10.21
	Max. H <sub>x</sub>	20	53.01	30.95	0.18
	Max. H <sub>z</sub>	3	39.76	0.08	31.37
	Max. M <sub>x</sub>	2	3813.20	0.08	31.37
	Max. M <sub>z</sub>	8	3772.37	-31.02	-0.28
	Max. Torsion	10	3.05	-26.77	-15.84
	Min. Vert	7	39.76	-26.75	15.83

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. H <sub>x</sub>	8	53.01	-31.02	-0.28
	Min. H <sub>z</sub>	15	39.76	-0.11	-31.24
	Min. M <sub>x</sub>	14	-3796.92	-0.11	-31.24
	Min. M <sub>z</sub>	20	-3759.41	30.95	0.18
	Min. Torsion	22	-3.66	26.68	15.91

### Tower Mast Reaction Summary

Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>z</sub>	Overturning Moment, M <sub>x</sub>	Overturning Moment, M <sub>z</sub>	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	44.17	0.00	0.00	-0.64	-0.65	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	53.01	-0.08	-31.37	-3813.20	3.02	1.21
0.9 Dead+1.0 Wind 0 deg - No Ice	39.76	-0.08	-31.37	-3761.77	3.26	1.20
1.2 Dead+1.0 Wind 30 deg - No Ice	53.01	15.29	-27.36	-3332.80	-1862.27	-0.40
0.9 Dead+1.0 Wind 30 deg - No Ice	39.76	15.29	-27.36	-3287.78	-1836.94	-0.39
1.2 Dead+1.0 Wind 60 deg - No Ice	53.01	26.75	-15.83	-1936.85	-3252.40	-1.73
0.9 Dead+1.0 Wind 60 deg - No Ice	39.76	26.75	-15.83	-1910.53	-3208.44	-1.71
1.2 Dead+1.0 Wind 90 deg - No Ice	53.01	31.02	0.28	33.67	-3772.37	-2.84
0.9 Dead+1.0 Wind 90 deg - No Ice	39.76	31.02	0.28	33.47	-3721.42	-2.81
1.2 Dead+1.0 Wind 120 deg - No Ice	53.01	26.77	15.84	1924.26	-3251.47	-3.05
0.9 Dead+1.0 Wind 120 deg - No Ice	39.76	26.77	15.84	1898.67	-3207.55	-3.02
1.2 Dead+1.0 Wind 150 deg - No Ice	53.01	15.45	27.07	3287.16	-1873.54	-2.30
0.9 Dead+1.0 Wind 150 deg - No Ice	39.76	15.45	27.07	3243.25	-1848.18	-2.28
1.2 Dead+1.0 Wind 180 deg - No Ice	53.01	0.11	31.24	3796.92	-11.66	-1.19
0.9 Dead+1.0 Wind 180 deg - No Ice	39.76	0.11	31.24	3746.12	-11.34	-1.18
1.2 Dead+1.0 Wind 210 deg - No Ice	53.01	-15.21	27.20	3310.81	1846.72	0.12
0.9 Dead+1.0 Wind 210 deg - No Ice	39.76	-15.21	27.20	3266.53	1822.08	0.11
1.2 Dead+1.0 Wind 240 deg - No Ice	53.01	-26.78	15.72	1914.95	3255.94	1.74
0.9 Dead+1.0 Wind 240 deg - No Ice	39.76	-26.78	15.72	1889.41	3212.34	1.72
1.2 Dead+1.0 Wind 270 deg - No Ice	53.01	-30.95	-0.18	-16.70	3759.41	3.07
0.9 Dead+1.0 Wind 270 deg - No Ice	39.76	-30.95	-0.18	-16.35	3709.08	3.04
1.2 Dead+1.0 Wind 300 deg - No Ice	53.01	-26.68	-15.91	-1932.70	3233.00	3.66
0.9 Dead+1.0 Wind 300 deg - No Ice	39.76	-26.68	-15.91	-1906.58	3189.80	3.63
1.2 Dead+1.0 Wind 330 deg - No Ice	53.01	-15.42	-27.18	-3301.54	1864.44	2.69
0.9 Dead+1.0 Wind 330 deg - No Ice	39.76	-15.42	-27.18	-3257.00	1839.66	2.67
1.2 Dead+1.0 Ice+1.0 Temp	84.11	0.00	-0.00	-2.14	-1.13	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	84.11	-0.01	-10.21	-1267.14	-2.09	0.42
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	84.11	5.04	-8.88	-1105.49	-626.94	-0.23

Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>z</sub>	Overturning Moment, M <sub>x</sub>	Overturning Moment, M <sub>z</sub>	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	84.11	8.77	-5.14	-643.02	-1089.42	-0.78
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	84.11	10.15	0.05	3.78	-1260.59	-1.17
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	84.11	8.77	5.13	632.94	-1087.52	-1.22
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	84.11	5.06	8.81	1089.13	-626.49	-0.91
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	84.11	0.01	10.18	1259.17	-2.00	-0.41
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	84.11	-5.02	8.85	1096.17	621.28	0.17
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	84.11	-8.78	5.12	633.74	1088.11	0.78
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	84.11	-10.14	-0.03	-4.18	1255.51	1.22
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	84.11	-8.75	-5.14	-639.02	1081.14	1.35
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	84.11	-5.05	-8.84	-1096.62	622.27	0.99
Dead+Wind 0 deg - Service	44.17	-0.02	-7.91	-954.06	0.27	0.31
Dead+Wind 30 deg - Service	44.17	3.85	-6.89	-833.93	-466.18	-0.10
Dead+Wind 60 deg - Service	44.17	6.74	-3.99	-484.83	-813.80	-0.44
Dead+Wind 90 deg - Service	44.17	7.82	0.07	7.92	-943.81	-0.72
Dead+Wind 120 deg - Service	44.17	6.74	3.99	480.69	-813.56	-0.77
Dead+Wind 150 deg - Service	44.17	3.89	6.82	821.50	-469.00	-0.58
Dead+Wind 180 deg - Service	44.17	0.03	7.87	948.98	-3.41	-0.30
Dead+Wind 210 deg - Service	44.17	-3.83	6.85	827.42	461.31	0.03
Dead+Wind 240 deg - Service	44.17	-6.75	3.96	478.35	813.70	0.44
Dead+Wind 270 deg - Service	44.17	-7.80	-0.05	-4.69	939.58	0.78
Dead+Wind 300 deg - Service	44.17	-6.72	-4.01	-483.80	807.95	0.93
Dead+Wind 330 deg - Service	44.17	-3.89	-6.85	-826.10	465.74	0.68

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-44.17	0.00	0.00	44.17	0.00	0.000%
2	-0.08	-53.01	-31.37	0.08	53.01	31.37	0.000%
3	-0.08	-39.76	-31.37	0.08	39.76	31.37	0.000%
4	15.29	-53.01	-27.36	-15.29	53.01	27.36	0.000%
5	15.29	-39.76	-27.36	-15.29	39.76	27.36	0.000%
6	26.75	-53.01	-15.83	-26.75	53.01	15.83	0.000%
7	26.75	-39.76	-15.83	-26.75	39.76	15.83	0.000%
8	31.02	-53.01	0.28	-31.02	53.01	-0.28	0.000%
9	31.02	-39.76	0.28	-31.02	39.76	-0.28	0.000%
10	26.77	-53.01	15.84	-26.77	53.01	-15.84	0.000%
11	26.77	-39.76	15.84	-26.77	39.76	-15.84	0.000%
12	15.45	-53.01	27.07	-15.45	53.01	-27.07	0.000%
13	15.45	-39.76	27.07	-15.45	39.76	-27.07	0.000%
14	0.11	-53.01	31.24	-0.11	53.01	-31.24	0.000%
15	0.11	-39.76	31.24	-0.11	39.76	-31.24	0.000%
16	-15.21	-53.01	27.20	15.21	53.01	-27.20	0.000%
17	-15.21	-39.76	27.20	15.21	39.76	-27.20	0.000%
18	-26.78	-53.01	15.72	26.78	53.01	-15.72	0.000%
19	-26.78	-39.76	15.72	26.78	39.76	-15.72	0.000%
20	-30.95	-53.01	-0.18	30.95	53.01	0.18	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
21	-30.95	-39.76	-0.18	30.95	39.76	0.18	0.000%
22	-26.68	-53.01	-15.91	26.68	53.01	15.91	0.000%
23	-26.68	-39.76	-15.91	26.68	39.76	15.91	0.000%
24	-15.42	-53.01	-27.18	15.42	53.01	27.18	0.000%
25	-15.42	-39.76	-27.18	15.42	39.76	27.18	0.000%
26	0.00	-84.11	0.00	-0.00	84.11	0.00	0.000%
27	-0.01	-84.11	-10.21	0.01	84.11	10.21	0.000%
28	5.04	-84.11	-8.88	-5.04	84.11	8.88	0.000%
29	8.77	-84.11	-5.14	-8.77	84.11	5.14	0.000%
30	10.15	-84.11	0.05	-10.15	84.11	-0.05	0.000%
31	8.77	-84.11	5.13	-8.77	84.11	-5.13	0.000%
32	5.06	-84.11	8.81	-5.06	84.11	-8.81	0.000%
33	0.01	-84.11	10.18	-0.01	84.11	-10.18	0.000%
34	-5.02	-84.11	8.85	5.02	84.11	-8.85	0.000%
35	-8.78	-84.11	5.12	8.78	84.11	-5.12	0.000%
36	-10.14	-84.11	-0.03	10.14	84.11	0.03	0.000%
37	-8.75	-84.11	-5.14	8.75	84.11	5.14	0.000%
38	-5.05	-84.11	-8.84	5.05	84.11	8.84	0.000%
39	-0.02	-44.17	-7.91	0.02	44.17	7.91	0.000%
40	3.85	-44.17	-6.89	-3.85	44.17	6.89	0.000%
41	6.74	-44.17	-3.99	-6.74	44.17	3.99	0.000%
42	7.82	-44.17	0.07	-7.82	44.17	-0.07	0.000%
43	6.74	-44.17	3.99	-6.74	44.17	-3.99	0.000%
44	3.89	-44.17	6.82	-3.89	44.17	-6.82	0.000%
45	0.03	-44.17	7.87	-0.03	44.17	-7.87	0.000%
46	-3.83	-44.17	6.85	3.83	44.17	-6.85	0.000%
47	-6.75	-44.17	3.96	6.75	44.17	-3.96	0.000%
48	-7.80	-44.17	-0.05	7.80	44.17	0.05	0.000%
49	-6.72	-44.17	-4.01	6.72	44.17	4.01	0.000%
50	-3.89	-44.17	-6.85	3.89	44.17	6.85	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	0.00006135
3	Yes	4	0.00000001	0.00066537
4	Yes	6	0.00000001	0.00012934
5	Yes	5	0.00000001	0.00095880
6	Yes	6	0.00000001	0.00013541
7	Yes	6	0.00000001	0.00004463
8	Yes	5	0.00000001	0.00011242
9	Yes	5	0.00000001	0.00005362
10	Yes	6	0.00000001	0.00012526
11	Yes	5	0.00000001	0.00092963
12	Yes	6	0.00000001	0.00013260
13	Yes	5	0.00000001	0.00098475
14	Yes	5	0.00000001	0.00007220
15	Yes	4	0.00000001	0.00077069
16	Yes	6	0.00000001	0.00012902
17	Yes	5	0.00000001	0.00095786
18	Yes	6	0.00000001	0.00012692
19	Yes	5	0.00000001	0.00094263
20	Yes	5	0.00000001	0.00018024
21	Yes	5	0.00000001	0.00008578
22	Yes	6	0.00000001	0.00013635
23	Yes	6	0.00000001	0.00004522
24	Yes	6	0.00000001	0.00012391
25	Yes	5	0.00000001	0.00091848
26	Yes	4	0.00000001	0.00003514
27	Yes	5	0.00000001	0.00082769
28	Yes	6	0.00000001	0.00015385
29	Yes	6	0.00000001	0.00015705
30	Yes	5	0.00000001	0.00082747
31	Yes	6	0.00000001	0.00014906

32	Yes	6	0.00000001	0.00015239
33	Yes	5	0.00000001	0.00081541
34	Yes	6	0.00000001	0.00015106
35	Yes	6	0.00000001	0.00014999
36	Yes	5	0.00000001	0.00082458
37	Yes	6	0.00000001	0.00015592
38	Yes	6	0.00000001	0.00014997
39	Yes	4	0.00000001	0.00011771
40	Yes	4	0.00000001	0.00066293
41	Yes	4	0.00000001	0.00074161
42	Yes	4	0.00000001	0.00018613
43	Yes	4	0.00000001	0.00061273
44	Yes	4	0.00000001	0.00072438
45	Yes	4	0.00000001	0.00011810
46	Yes	4	0.00000001	0.00066751
47	Yes	4	0.00000001	0.00062609
48	Yes	4	0.00000001	0.00020708
49	Yes	4	0.00000001	0.00077665
50	Yes	4	0.00000001	0.00060579

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	168 - 119.25	28.965	40	1.4983	0.0035
L2	123.5 - 78.5	15.858	40	1.2456	0.0038
L3	83.75 - 38.75	7.160	40	0.8018	0.0016
L4	45 - 0	2.101	40	0.4246	0.0007

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
168.00	800 10121 w/ Mount Pipe	40	28.965	1.4983	0.0035	49121
152.00	SC3-W100ASTX	40	24.028	1.4304	0.0036	15350
148.00	SC3-W100ASTX	40	22.817	1.4110	0.0037	12280
147.00	BPA7496-180-11 w/ Mount Pipe	40	22.516	1.4060	0.0037	11695
143.00	MPRD2449	40	21.325	1.3845	0.0038	9823
140.00	(2) CC807-11	40	20.445	1.3672	0.0038	8771
135.00	ANT450F6	40	19.005	1.3354	0.0039	7441
130.00	Platform Mount [LP 1201-1]	40	17.606	1.2995	0.0039	6462
120.00	MX08FRO665-21 w/ Mount Pipe	40	14.953	1.2128	0.0037	5513
100.00	SC3-W100ASTX	40	10.297	0.9915	0.0026	5470
79.00	1' x 2-1/2"	40	6.353	0.7503	0.0014	5353
52.00	GPS-TMG-HR-26NCM	40	2.751	0.4888	0.0007	4916

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	168 - 119.25	115.632	4	5.9903	0.0145
L2	123.5 - 78.5	63.366	4	4.9814	0.0153
L3	83.75 - 38.75	28.626	4	3.2077	0.0065
L4	45 - 0	8.402	4	1.6984	0.0026

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
168.00	800 10121 w/ Mount Pipe	4	115.632	5.9903	0.0145	12582
152.00	SC3-W100ASTX	4	95.949	5.7195	0.0150	3930
148.00	SC3-W100ASTX	4	91.121	5.6422	0.0152	3143
147.00	BPA7496-180-11 w/ Mount Pipe	4	89.923	5.6219	0.0153	2993
143.00	MPRD2449	4	85.175	5.5364	0.0156	2513
140.00	(2) CC807-11	4	81.664	5.4671	0.0158	2243
135.00	ANT450F6	4	75.923	5.3401	0.0159	1902
130.00	Platform Mount [LP 1201-1]	4	70.342	5.1967	0.0158	1650
120.00	MX08FRO665-21 w/ Mount Pipe	4	59.756	4.8507	0.0148	1405
100.00	SC3-W100ASTX	4	41.162	3.9662	0.0104	1384
79.00	1' x 2-1/2"	4	25.400	3.0015	0.0056	1346
52.00	GPS-TMG-HR-26NCM	4	10.998	1.9552	0.0030	1232

### Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	KI/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
L1	168 - 119.25 (1)	TP34.288x24x0.25	48.75	0.00	0.0	26.297 5	-15.74	1538.40	0.010
L2	119.25 - 78.5 (2)	TP42.387x32.8911x0.281 3	45.00	0.00	0.0	36.598 3	-26.33	2141.00	0.012
L3	78.5 - 38.75 (3)	TP50.213x40.7166x0.375	45.00	0.00	0.0	57.749 8	-37.76	3378.36	0.011
L4	38.75 - 0 (4)	TP57.64x48.1441x0.375	45.00	0.00	0.0	68.159 7	-52.99	3987.34	0.013

### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub> kip-ft	φM <sub>nx</sub> kip-ft	Ratio M <sub>ux</sub> / φM <sub>nx</sub>	M <sub>uy</sub> kip-ft	φM <sub>ny</sub> kip-ft	Ratio M <sub>uy</sub> / φM <sub>ny</sub>
L1	168 - 119.25 (1)	TP34.288x24x0.25	509.05	1206.64	0.422	0.00	1206.64	0.000
L2	119.25 - 78.5 (2)	TP42.387x32.8911x0.2813	1425.03	2002.83	0.712	0.00	2002.83	0.000
L3	78.5 - 38.75 (3)	TP50.213x40.7166x0.375	2465.93	3912.78	0.630	0.00	3912.78	0.000
L4	38.75 - 0 (4)	TP57.64x48.1441x0.375	3817.80	5107.74	0.747	0.00	5107.74	0.000

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V <sub>u</sub> K	φV <sub>n</sub> K	Ratio V <sub>u</sub> / φV <sub>n</sub>	Actual T <sub>u</sub> kip-ft	φT <sub>n</sub> kip-ft	Ratio T <sub>u</sub> / φT <sub>n</sub>
L1	168 - 119.25 (1)	TP34.288x24x0.25	18.28	461.52	0.040	1.13	1339.48	0.001
L2	119.25 - 78.5 (2)	TP42.387x32.8911x0.2 813	25.15	642.30	0.039	0.33	2306.11	0.000
L3	78.5 - 38.75 (3)	TP50.213x40.7166x0.3 75	28.48	1013.51	0.028	0.40	4306.46	0.000
L4	38.75 - 0 (4)	TP57.64x48.1441x0.37 5	31.38	1196.20	0.026	0.40	5998.93	0.000

### Pole Interaction Design Data

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		$P_u$	$M_{ux}$	$M_{uy}$	$V_u$	$T_u$			
L1	168 - 119.25 (1)	0.010	0.422	0.000	0.040	0.001	0.434	1.050	4.8.2
L2	119.25 - 78.5 (2)	0.012	0.712	0.000	0.039	0.000	0.725	1.050	4.8.2
L3	78.5 - 38.75 (3)	0.011	0.630	0.000	0.028	0.000	0.642	1.050	4.8.2
L4	38.75 - 0 (4)	0.013	0.747	0.000	0.026	0.000	0.761	1.050	4.8.2

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail	
L1	168 - 119.25	Pole	TP34.288x24x0.25	1	-15.74	1615.32	41.3	Pass	
L2	119.25 - 78.5	Pole	TP42.387x32.8911x0.2813	2	-26.33	2248.05	69.1	Pass	
L3	78.5 - 38.75	Pole	TP50.213x40.7166x0.375	3	-37.76	3547.28	61.2	Pass	
L4	38.75 - 0	Pole	TP57.64x48.1441x0.375	4	-52.99	4186.71	72.5	Pass	
							Summary		
							Pole (L4)	72.5	Pass
							<b>RATING =</b>	<b>72.5</b>	<b>Pass</b>



**APPENDIX B**  
**BASE LEVEL DRAWING**



(OTHER CONSIDERED EQUIPMENT)  
(1) 1-1/4" TO 168 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)  
(1) 1/4" TO 140 FT LEVEL  
(1) 1/4" TO 143 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)  
(1) EU 90-FR TO 100 FT LEVEL  
(2) 1/2" TO 135 FT LEVEL  
(2) 7/8" TO 140 FT LEVEL  
(1) EU 90-FR TO 147 FT LEVEL  
(1) 1/2" TO 147 FT LEVEL  
(1) EU 90-FR TO 152 FT LEVEL

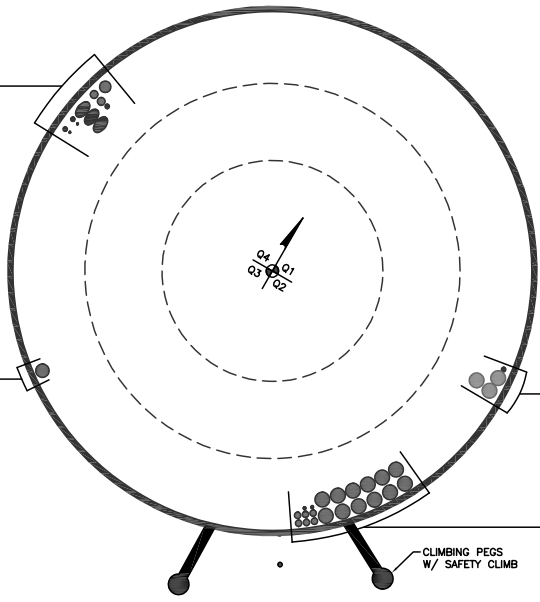
(OTHER CONSIDERED EQUIPMENT)  
(1) 1-1/2" TO 120 FT LEVEL

(PROPOSED EQUIPMENT CONFIGURATION)  
(3) 1-5/8" TO 130 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)  
(1) 1/2" TO 52 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)  
(2) 3/8" TO 168 FT LEVEL  
(6) 3/4" TO 168 FT LEVEL  
(12) 1-5/8" TO 168 FT LEVEL

CLIMBING PEGS  
W/ SAFETY CLIMB



**APPENDIX C**  
**ADDITIONAL CALCULATIONS**

# Monopole Base Plate Connection

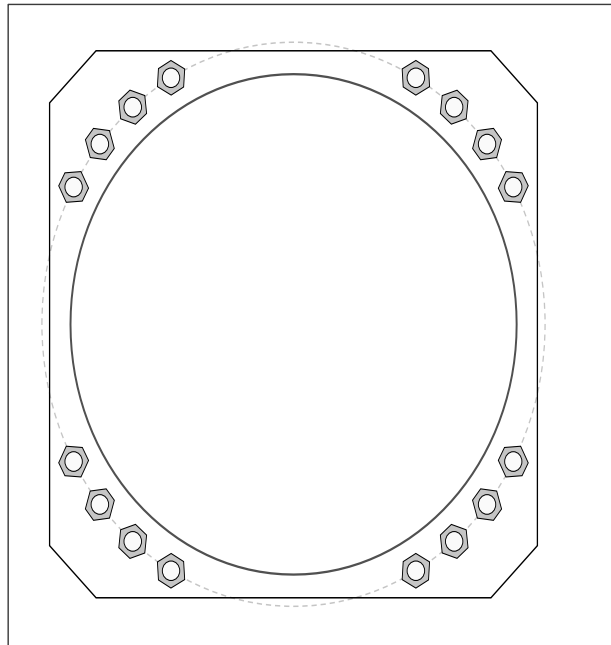


Site Info	
BU #	842875
Site Name	Windsorday Hill
Order #	584557

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
$l_{ar}$ (in)	1.75

Applied Loads	
Moment (kip-ft)	3817.80
Axial Force (kips)	52.99
Shear Force (kips)	31.38

\*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

**Anchor Rod Data**

(16) 2-1/4"  $\phi$  bolts (A615-75 N;  $F_y=75$  ksi,  $F_u=100$  ksi) on 65" BC  
Anchor Spacing: 6 in

**Base Plate Data**

63" W x 3.25" Plate (A572-55;  $F_y=55$  ksi,  $F_u=70$  ksi); Clip: 6 in

**Stiffener Data**

N/A

**Pole Data**

57.64" x 0.375" 18-sided pole (A607-65;  $F_y=65$  ksi,  $F_u=80$  ksi)

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

$P_{u,t} = 172.81$	$\phi P_{n,t} = 243.75$	<b>Stress Rating</b>
$V_u = 1.96$	$\phi V_n = 149.1$	<b>67.5%</b>
$M_u = n/a$	$\phi M_n = n/a$	Pass

**Base Plate Summary**

Max Stress (ksi):	25.37	(Flexural)
Allowable Stress (ksi):	49.5	
Stress Rating:	<b>48.8%</b>	Pass

### Drilled Pier Foundation

BU # :	842875
Site Name:	Windsorday Hill
Order Number:	584557 Rev.0
TIA-222 Revision:	H
Tower Type:	Monopole



Check Limitation	
Apply TIA-222-H Section 15.5:	<input checked="" type="checkbox"/>
N/A	<input type="checkbox"/>
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	<input type="checkbox"/>
Shear Design Options	
Check Shear along Depth of Pier:	<input checked="" type="checkbox"/>
Utilize Shear-Friction Methodology:	<input type="checkbox"/>
Override Critical Depth:	<input type="checkbox"/>

Go to Soil Calculations

Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	3817.8	
Axial Force (kips)	53.01	
Shear Force (kips)	31.34	

Material Properties	
Concrete Strength, f <sub>c</sub> :	3 ksi
Rebar Strength, F <sub>y</sub> :	60 ksi
Tie Yield Strength, F <sub>y</sub> :	40 ksi

Rebar 2, F <sub>y</sub> Override (ksi)	
Rebar 3, F <sub>y</sub> Override (ksi)	

Pier Design Data	
Depth	24 ft
Ext. Above Grade	0.5 ft
Pier Section 1	
<i>From 0.5' above grade to 24' below grade</i>	
Pier Diameter	8 ft
Rebar Quantity	24
Rebar Size	11
Clear Cover to Ties	4 in
Tie Size	5
Tie Spacing	18 in

Rebar & Pier Options  
Embedded Pole Inputs  
Belled Pier Inputs

Analysis Results			
Soil Lateral Check		Compression	Uplift
D <sub>req</sub> (ft from TOC)	8.73	-	-
Soil Safety Factor	5.20	-	-
Max Moment (kip-ft)	4055.62	-	-
Rating*	24.4%	-	-
Soil Vertical Check		Compression	Uplift
Skin Friction (kips)	1187.52	-	-
End Bearing (kips)	3015.93	-	-
Weight of Concrete (kips)	150.11	-	-
Total Capacity (kips)	4203.45	-	-
Axial (kips)	203.12	-	-
Rating*	4.6%	-	-
Reinforced Concrete Flexure		Compression	Uplift
Critical Depth (ft from TOC)	8.22	-	-
Critical Moment (kip-ft)	4054.08	-	-
Critical Moment Capacity	6983.70	-	-
Rating*	55.3%	-	-
Reinforced Concrete Shear		Compression	Uplift
Critical Depth (ft from TOC)	20.58	-	-
Critical Shear (kip)	859.02	-	-
Critical Shear Capacity	822.97	-	-
Rating*	99.4%	-	-

Structural Foundation Rating*	99.4%
Soil Interaction Rating*	24.4%

\*Rating per TIA-222-H Section 15.5

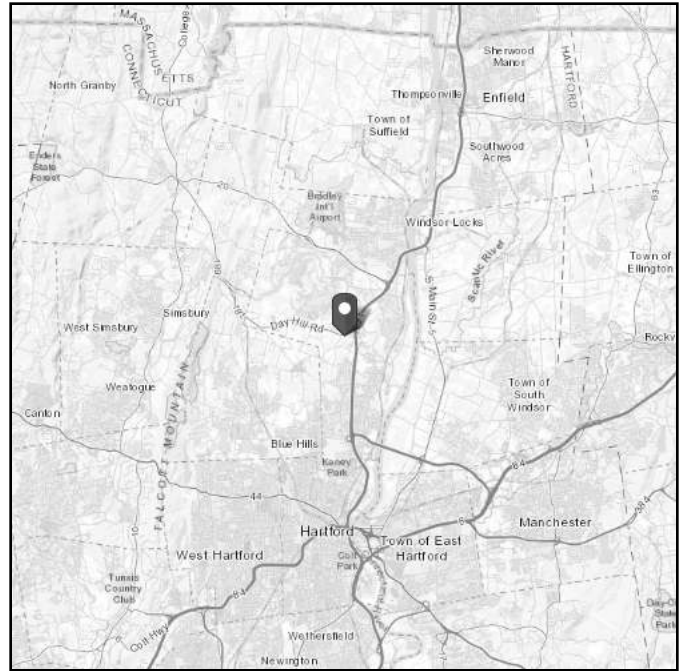
Soil Profile														
Groundwater Depth	5			# of Layers	5									
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ <sub>soil</sub> (pcf)	γ <sub>concrete</sub> (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	5	5	100	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	5	10	5	60	87.6	0	35	0.000	0.000	0.00	0.00			Cohesionless
3	10	15	5	55	87.6	0	33	0.000	0.000	0.00	0.00			Cohesionless
4	15	17	2	80	87.6	0	40	0.000	0.000	0.00	0.00			Cohesionless
5	17	24	7	95	87.6	20	0	9.000	9.000			80		Cohesive

# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

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

**Elevation:** 166.35 ft (NAVD 88)  
**Latitude:** 41.871139  
**Longitude:** -72.671111



## Wind

### Results:

Wind Speed:	116 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Thu Oct 07 2021

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

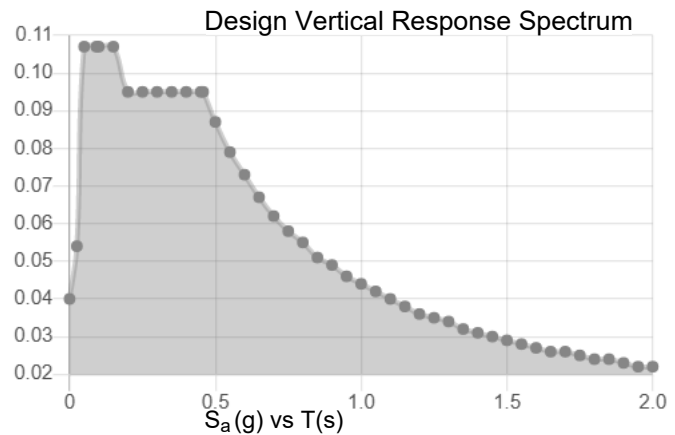
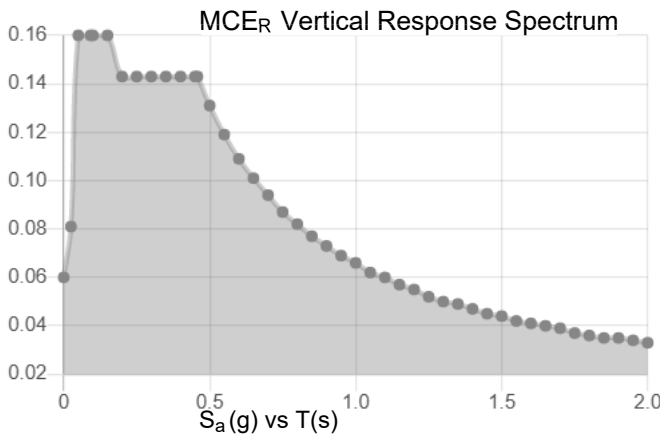
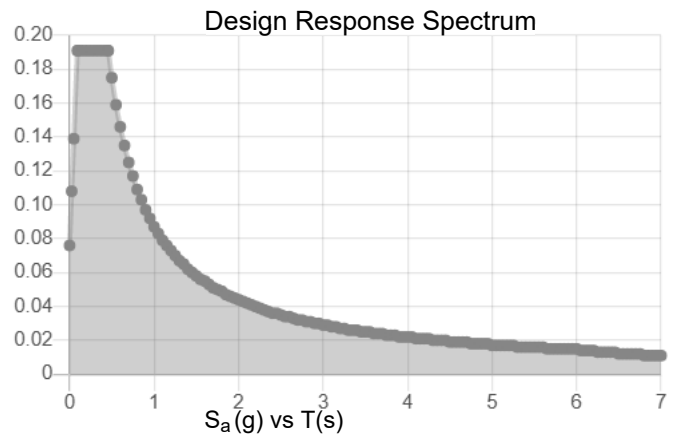
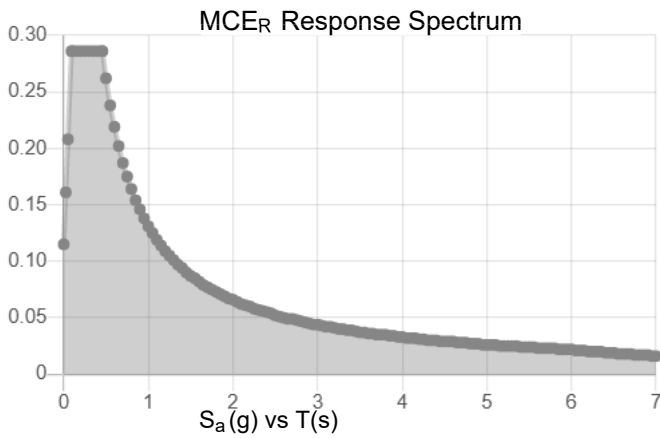
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

**Results:**

$S_s$ :	0.179	$S_{D1}$ :	0.087
$S_1$ :	0.055	$T_L$ :	6
$F_a$ :	1.6	PGA :	0.095
$F_v$ :	2.4	PGA <sub>M</sub> :	0.152
$S_{MS}$ :	0.286	$F_{PGA}$ :	1.6
$S_{M1}$ :	0.131	$I_e$ :	1
$S_{DS}$ :	0.191	$C_v$ :	0.7

**Seismic Design Category** B



**Data Accessed:**

Thu Oct 07 2021

**Date Source:**

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

## Ice

---

### Results:

Ice Thickness: 1.50 in.  
Concurrent Temperature: 5 F  
Gust Speed: 50 mph

**Data Source:** Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

**Date Accessed:** Thu Oct 07 2021

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

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

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# Exhibit E

## **Mount Analysis**

Date: **October 5, 2021**



**GPD Engineering and Architecture**  
Professional Corporation  
520 South Main Street, Suite 2531  
Akron, Ohio 44311  
(216) 927-8663  
CrownMA@gpdgroup.com

**Subject:** **Mount Modification Report**

**Carrier Designation:** **T-Mobile Equipment Change-Out**  
**Carrier Site Number:** CTHA267A  
**Carrier Site Name:** CT54XC787

**Crown Castle Designation:** **BU Number:** 842875  
**Site Name:** WINDSORDAY HILL  
**JDE Job Number:** 684573  
**Order Number:** 584557 Rev. 0

**Engineering Firm Designation:** **GPD Report Designation:** 2021777.842875.04

**Site Data:** **99 Day Hill Road, Windsor, Hartford County, CT 06095**  
**Latitude 41° 52' 16.10" Longitude -72° 40' 16.00"**

**Structure Information:** **Tower Height & Type:** **168.0 ft Monopole Tower**  
**Mount Elevation:** **130.0 ft**  
**Mount Type:** **14.0 ft Platform Mount**

GPD is pleased to submit this “**Mount Modification Report**” to determine the structural integrity of T-Mobile’s antenna mounting system with the proposed appurtenance and equipment addition on the above mentioned 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 Mount**

**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 125 mph as required by the 2018 Connecticut Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Brandon Brookbank

Respectfully Submitted by:

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



*Christopher J. Scheks*

10/5/2021

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3.2) Assumptions

### 4) ANALYSIS RESULTS

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### 8) APPENDIX D

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### 9) APPENDIX E

Mount Modification Design Drawings (MDD)

**1) INTRODUCTION**

This is an existing 14.0' Platform Mount.

**2) ANALYSIS CRITERIA**

**TIA-222 Revision:** TIA-222-H  
**Risk Category:** II  
**Ultimate Wind Speed:** 125 mph  
**Exposure Category:** C  
**Topographic Factor at Base:** 1  
**Topographic Factor at Mount:** 1  
**Ice Thickness:** 2.0 in  
**Wind Speed with Ice:** 50 mph  
**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
130.0	131.0	3	Ericsson	AIR6449 B41_T-MOBILE	14.0 ft. Platform Mount
		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
CCI Application	Crown Order Number 584557 Rev. 0	-	CCI
RF Data Sheet	Sprint Retain Site ID: CTHA267A, dated 7/9/2021	-	CCI
Mount Modification Design Drawings	GPD Project #: 2021777.842875.04, dated 10/05/2021	-	GPD

**3.1) Analysis Method**

RISA-3D Edition (Version 17.0.2), 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.

A tool internally developed by GPD, using Microsoft Excel, was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

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) This analysis assumes all information reference in Table 2 is current and correct.
- 5) 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.
- 6) The mount was modeled from site photos. Member information and dimensions not provided have been assumed based on previous experience with similar mounts. No guarantee can be made as to the accuracy of these assumptions without a complete mount mapping.
- 7) Steel grades have been assumed as follows, unless noted otherwise:
 

Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)

This analysis may be affected if any assumptions are not valid or have been made in error. GPD 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 Mount)**

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,3	Face Horizontal	M23	130.0	54.7	Pass
	Inner Horizontal	M46		41.3	Pass
	Corner Angle	M25		6.5	Pass
	Standoff Arm (Outer)	M4		26.5	Pass
	Standoff Arm (Inner)	M27		44.9	Pass
	Support Rail	M69		47.1	Pass
	Support Rail Corner Connection	M22		32.4	Pass
	Pipe Mount	A1		53.9	Pass
	Grating Brace	M52A		10.0	Pass
	Reinforcement Angle	M55	13.6	Pass	
2,3	Reinforcement to Tower Connection	-		2.1	Pass

<b>Structure Rating (max from all components) =</b>	<b>54.7%<sup>3</sup></b>
---	--------------------------

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 calculations supporting the % capacity consumed.
- 3) Ratings per TIA-222-H section 15.5.

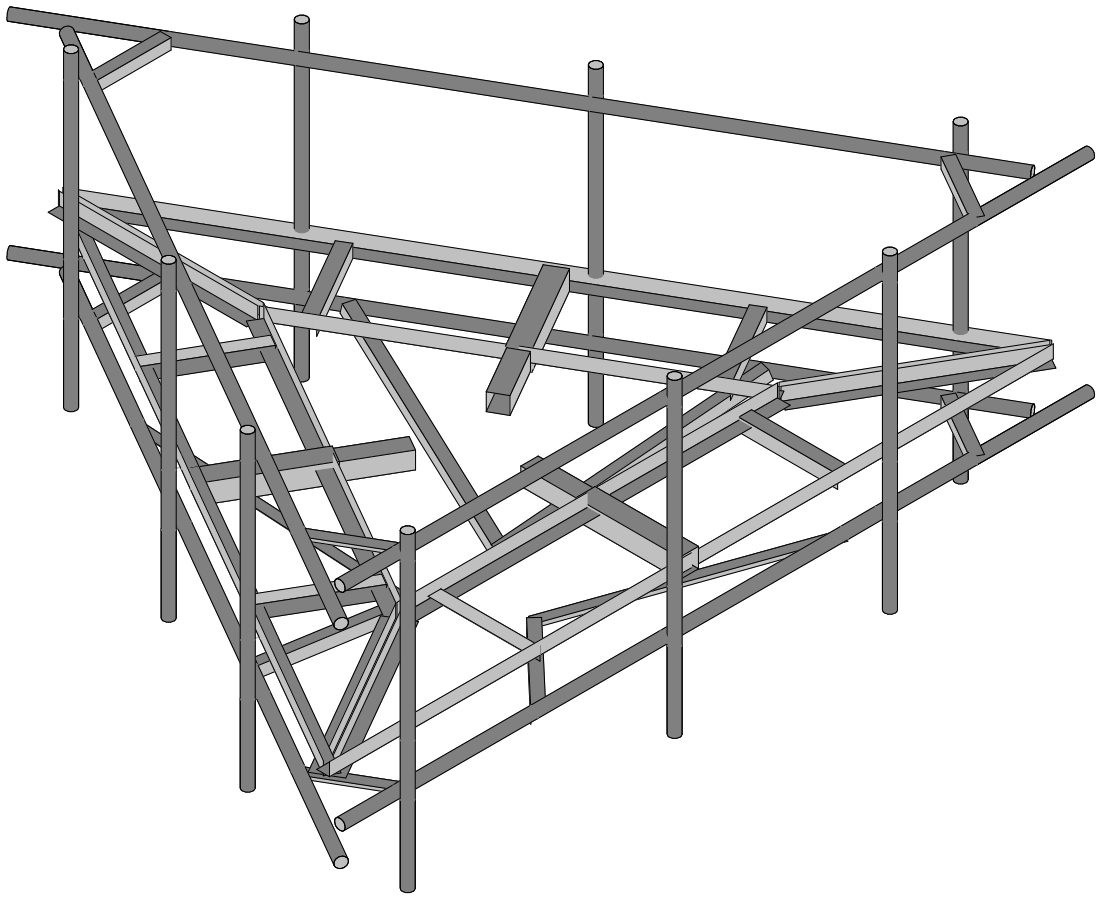
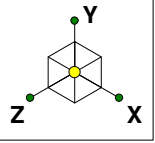
#### **4.1) Recommendations**

The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

1. Install (2) support rail kits, Site Pro 1 HRK14-U
2. Install v-style reinforcement kit, Site Pro 1 PRK-SFS

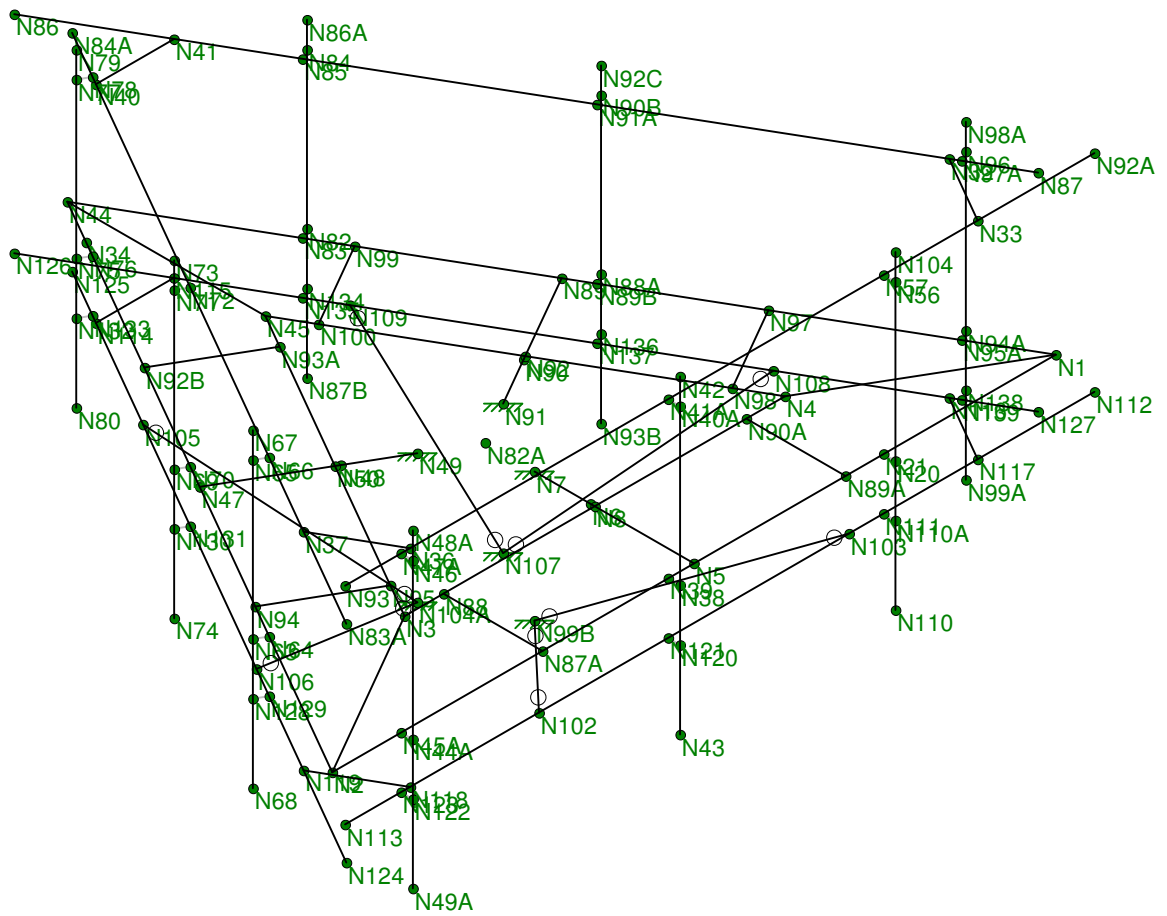
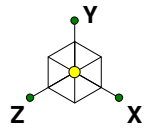
Engineering detail drawings have been provided in Appendix E – Mount Modification Design Drawings (MDD). Connection from the mount to the tower and local stresses on the tower are sufficient.

**APPENDIX A**  
**WIRE FRAME AND RENDERED MODELS**



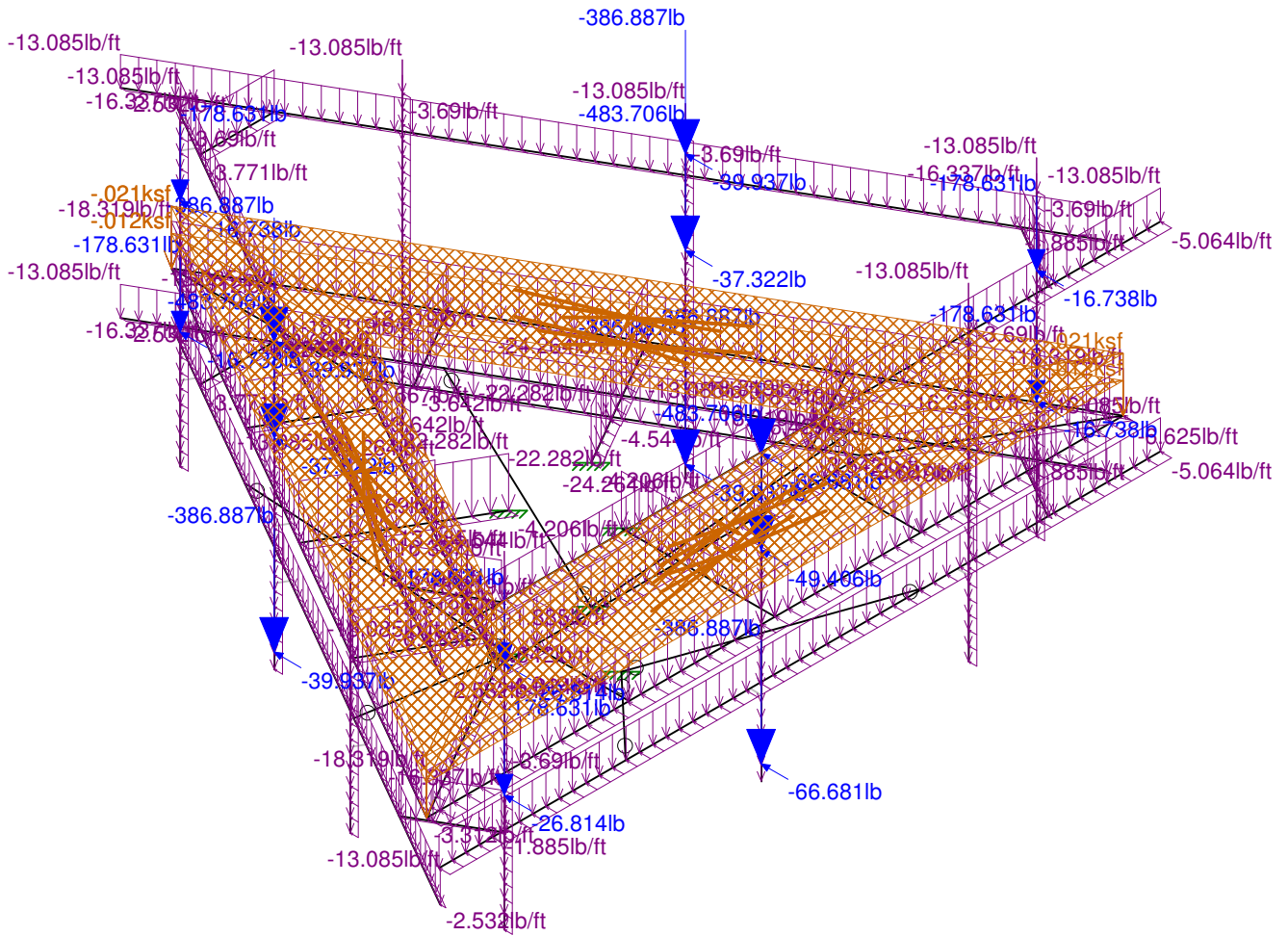
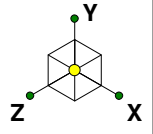












Loads: LC 32, 1.2 Dead + 1.0 Ice Wind @ 180° + 1.0 Ice + 1.0 Temp

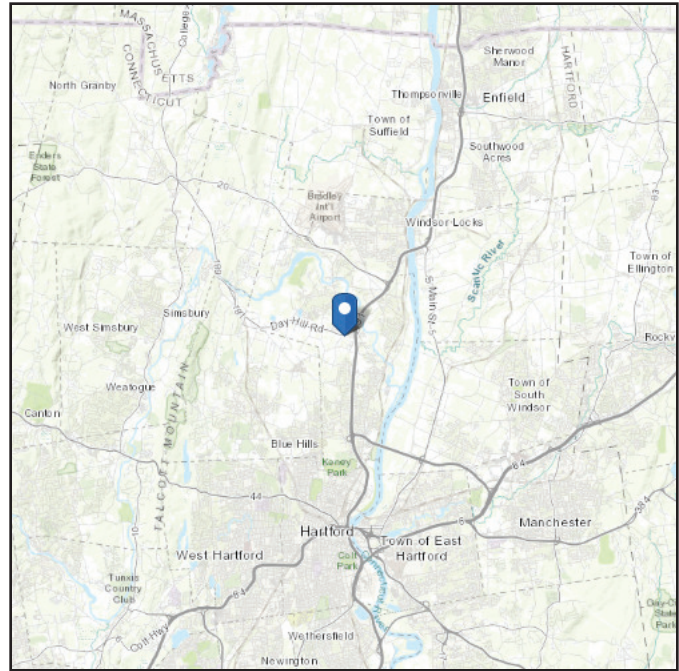
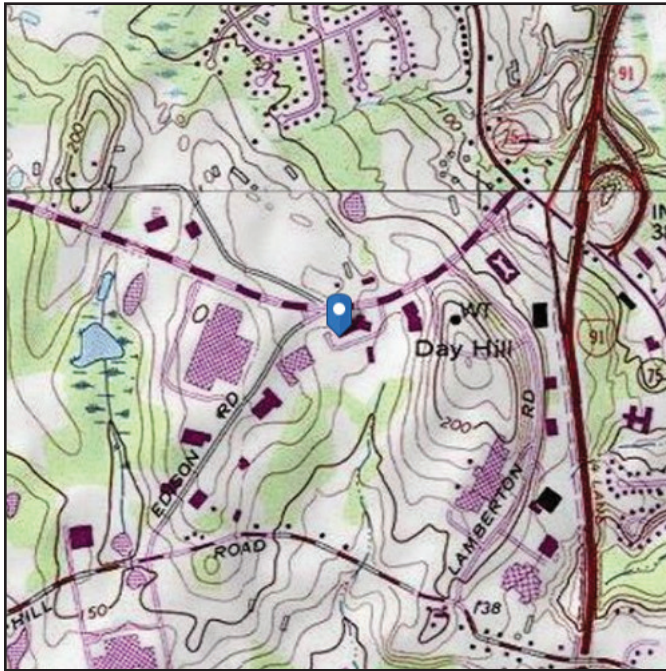
**APPENDIX B**  
**SOFTWARE INPUT CALCULATIONS**

# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

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

**Elevation:** 166.35 ft (NAVD 88)  
**Latitude:** 41.871139  
**Longitude:** -72.671111



## Wind

### Results:

Wind Speed:	<del>121 Vmph</del>	125 Vmph per 2018 Connecticut Building Code Appendix N
10-year MRI	76 Vmph	
25-year MRI	86 Vmph	
50-year MRI	92 Vmph	
100-year MRI	99 Vmph	

**Date Accessed:** 7/26/2021  
**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).

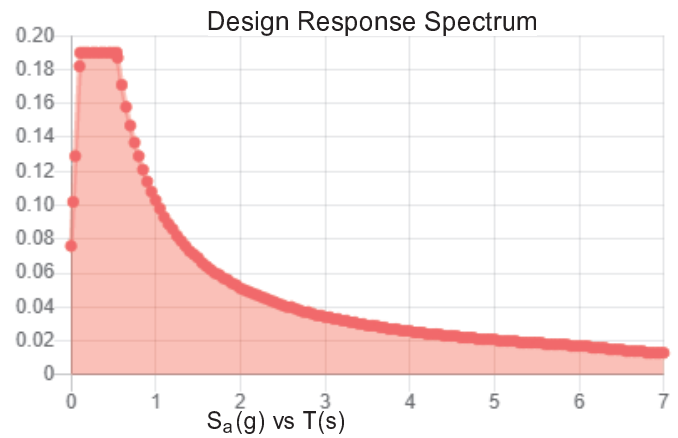
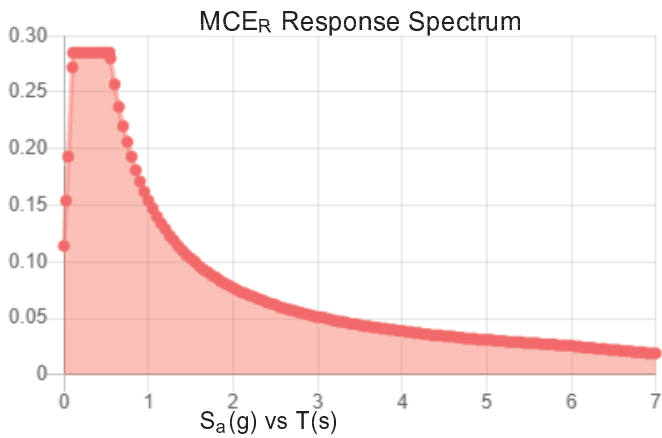
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

**Site Soil Class:** D - Stiff Soil

**Results:**

$S_s$ :	0.178	$S_{DS}$ :	0.19
$S_1$ :	0.064	$S_{D1}$ :	0.103
$F_a$ :	1.6	$T_L$ :	6
$F_v$ :	2.4	PGA :	0.089
$S_{MS}$ :	0.285	PGA <sub>M</sub> :	0.142
$S_{M1}$ :	0.154	$F_{PGA}$ :	1.6
		$I_e$ :	1

**Seismic Design Category** B



**Data Accessed:**

Thu Aug 26 2021

**Date Source:**

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



## Ice

---

**Results:**

Ice Thickness: 1.00 in.  
Concurrent Temperature: 5 F  
Gust Speed: 50 mph

**Data Source:** Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

**Date Accessed:** Thu Aug 26 2021

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

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

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Structure Information	
Structure Type:	Monopole
Structure Height:	168 ft
z (Mount Centerline) =	130 ft
Gh (Mount Gust Effect Factor) =	1.00
Risk Category:	II

Code Specifications	
TIA/EIA Code:	H
Ultimate Wind Speed (No Ice) =	125 mph (3-s gust)
Ultimate Wind Speed (With Ice) =	50 mph (3-s gust)
Ice Thickness	2 in
Exposure Category	C
Tower Base Elevation (AMSL)	166 ft

Topographic Inputs	
Topographic Feature:	N/A

Section Sets										No Ice		Ice Output	
Mount Components	Member Type	Length (in)	Side (Longest seeing wind) (in)	Other Side (in)	Calculated Dc, for ice weight (in)	Dc, for ice weight (in)	Area Type (Round or Flat)	K <sub>s</sub>	User's Wind Multiplier	Normal Wind Force (lb/ft)*	Normal Ice Wind Force (lb/ft)*	Ice Weight (lb/ft)*	
Face Horizontal	Angle	168.000	3	3		4.24	Flat	0.90	1.00	25.26	7.36	18.32	
Inner Horizontal	Angle	88.000	3	3		4.24	Flat	0.90	1.00	25.26	5.93	18.32	
Corner Angle	Other	48.000	3	6.375	0	0.00	Flat	0.90	1.00	21.47	5.19	6.43	
Standoff Arm (Outer)	Square/Rect.	24.000	4.5	4.5		6.36	Flat	0.90	1.00	25.12	5.83	24.26	
Standoff Arm (Inner)	Square/Rect.	13.000	4	4		5.66	Flat	0.90	1.00	20.77	5.40	22.28	
Support Rail	Pipe	174.000	2.375	2.375		2.38	Round	0.90	1.00	12.00	5.63	13.08	
Support Rail Corner Connection	Angle	18.000	2.5	2.5		3.54	Flat	0.90	1.00	14.81	4.19	16.34	
Pipe Mount	Pipe	72.000	2.375	2.375		2.38	Round	0.90	1.00	12.00	4.10	13.08	
Grating Brace	Angle	23.000	3	3		4.24	Flat	0.90	1.00	17.96	4.67	18.32	
Reinforcement Angle	Angle	53.000	2.5	2.5		3.54	Flat	0.90	1.00	19.72	4.89	16.34	

\*All forces are unfactored.

Appurtenances							Shielding			No Ice		Ice Output	
Appurtenance Model	Loading Elevation (ft)	Height (in)	Front Width (in)	Side Depth (in)	Wt (lbs)	Type for Area	Front Shielding (%)	Side Shielding (%)	K <sub>s</sub> and/or block shielding	Normal Wind Force (lbs)*	Wt (lbs) (no ice)*	Normal Wind Force (lbs) (w/ ice)*	Wt (lbs) (only ice)*
(3) AIR6449 B41_T-MOBILE	131	33.11	20.51	8.54	114.63	CFD	0%	0%	0.90	240.00	114.63	53.63	219.71
(3) APXVAALL24_43-U-NA20_TMO	131	95.9	24	8.5	149.9	CFD	0%	0%	0.90	668.09	149.90	133.36	593.89
(3) RADIO 4460 B2/B25 B66_TMO	131	17	15.1	11.9	109	Flat	0%	0%	0.90	97.42	109.00	21.55	128.23
(3) Radio 4480_TMOV2	131	22	15.7	7.5	81	Flat	0%	0%	0.90	131.08	81.00	27.85	127.48

\*All forces are unfactored.

**APPENDIX C**  
**SOFTWARE ANALYSIS OUTPUT**



Company : GPD  
 Designer : bbrookbank  
 Job Number : 2021777.842875.04  
 Model Name : 842875 - WINDSORDAY HILL

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### Hot Rolled Steel Properties

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

### Hot Rolled Steel Section Sets

	Label	Shape	Type	Design ...	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Face Horizontal	L3X3X4	None	None	A36 Gr.36	Typical	1.44	1.23	1.23	.031
2	Inner Horizontal	L3X3X4	None	None	A36 Gr.36	Typical	1.44	1.23	1.23	.031
3	Corner Angle	LL3x3x4x3	None	None	A36 Gr.36	Typical	2.88	5.48	2.46	.063
4	Standoff Arm (Outer)	HSS4-1/2x4-1/2x3/16	None	None	A500 Gr.B Re...	Typical	3.234	10.044	10.044	15.038
5	Standoff Arm (Inner)	HSS4x4x1/4 HRA	None	None	A500 Gr.B Re...	Typical	3.75	8.828	8.828	13.184
6	Support Rail	P2Std	None	None	A53 Gr.B	Typical	1.075	.666	.666	1.331
7	Support Rail Corner Connection	L2.5x2.5x4	None	None	A36 Gr.36	Typical	1.19	.692	.692	.026
8	Pipe Mount	P2Std	None	None	A53 Gr.B	Typical	1.075	.666	.666	1.331
9	Grating Brace	L3X3X4	None	None	A36 Gr.36	Typical	1.44	1.23	1.23	.031
10	Reinforcement Angle	L2.5x2.5x3	None	None	A36 Gr.36	Typical	.901	.535	.535	.011

### Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	DL		-1			18		3	
2	No Ice Wind 0 deg	None					18	37		
3	No Ice Wind 30 deg	None					36	72		
4	No Ice Wind 60 deg	None					36	74		
5	No Ice Wind 90 deg	None					18	36		
6	No Ice Wind 120 deg	None					36	74		
7	No Ice Wind 150 deg	None					36	72		
8	No Ice Wind 180 deg	None					18	37		
9	No Ice Wind 210 deg	None					36	72		
10	No Ice Wind 240 deg	None					36	74		
11	No Ice Wind 270 deg	None					18	36		
12	No Ice Wind 300 deg	None					36	74		
13	No Ice Wind 330 deg	None					36	72		
14	Ice Weight	None					18	42	3	
15	Ice Wind 0 deg	None					18	37		
16	Ice Wind 30 deg	None					36	72		
17	Ice Wind 60 deg	None					36	74		
18	Ice Wind 90 deg	None					18	36		
19	Ice Wind 120 deg	None					36	74		
20	Ice Wind 150 deg	None					36	72		
21	Ice Wind 180 deg	None					18	37		
22	Ice Wind 210 deg	None					36	72		
23	Ice Wind 240 deg	None					36	74		
24	Ice Wind 270 deg	None					18	36		
25	Ice Wind 300 deg	None					36	74		
26	Ice Wind 330 deg	None					36	72		
27	Live Load - A1	None					1			
28	Live Load - A2	None					1			
29	Live Load - A3	None					1			
30	Live Load - B1	None					1			



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**Basic Load Cases (Continued)**

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
31	Live Load - B2	None					1		
32	Live Load - B3	None					1		
33	Live Load - C1	None					1		
34	Live Load - C2	None					1		
35	Live Load - C3	None					1		
36	Live Load - M1 (Start)	None					1		
37	Live Load - M1 (Mid...	None					1		
38	Live Load - M1 (End)	None					1		
39	Live Load - M4 (Start)	None					1		
40	Live Load - M4 (Mid...	None					1		
41	Live Load - M4 (End)	None					1		
42	Live Load - M5 (Start)	None					1		
43	Live Load - M5 (Mid...	None					1		
44	Live Load - M5 (End)	None					1		
45	Live Load - M23 (Start)	None					1		
46	Live Load - M23 (Mid...	None					1		
47	Live Load - M23 (End)	None					1		
48	Live Load - M26 (Start)	None					1		
49	Live Load - M26 (Mid...	None					1		
50	Live Load - M26 (End)	None					1		
51	Live Load - M27 (Start)	None					1		
52	Live Load - M27 (Mid...	None					1		
53	Live Load - M27 (End)	None					1		
54	Live Load - M45 (Start)	None					1		
55	Live Load - M45 (Mid...	None					1		
56	Live Load - M45 (End)	None					1		
57	Live Load - M47B (St...	None					2		
58	Live Load - M47B (Mi...	None					2		
59	Live Load - M47B (E...	None					2		
60	Live Load - M48 (Start)	None					1		
61	Live Load - M48 (Mid...	None					1		
62	Live Load - M48 (End)	None					1		
63	Live Load - M48B (St...	None					2		
64	Live Load - M48B (Mi...	None					2		
65	Live Load - M48B (E...	None					2		
66	Live Load - M49 (Start)	None					1		
67	Live Load - M49 (Mid...	None					1		
68	Live Load - M49 (End)	None					1		
69	Live Load - M52 (Start)	None					2		
70	Live Load - M52 (Mid...	None					2		
71	Live Load - M52 (End)	None					2		
72	BLC 1 Transient Area...	None						69	
73	BLC 14 Transient Are...	None						69	

**Load Combinations**

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4 Dead	Yes	Y		1	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	2	1	0	0	0	0	0	0	0	0	0	0	0	0
3	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	2	1	0	0	0	0	0	0	0	0	0	0	0	0
4	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	3	1	0	0	0	0	0	0	0	0	0	0	0	0
5	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	3	1	0	0	0	0	0	0	0	0	0	0	0	0
6	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	4	1	0	0	0	0	0	0	0	0	0	0	0	0
7	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	4	1	0	0	0	0	0	0	0	0	0	0	0	0
8	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	5	1	0	0	0	0	0	0	0	0	0	0	0	0
9	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	5	1	0	0	0	0	0	0	0	0	0	0	0	0



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**Load Combinations (Continued)**

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	
10	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	6	1	0		0		0		0		0		0		0		0		0
11	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	6	1	0		0		0		0		0		0		0		0		0
12	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	7	1	0		0		0		0		0		0		0		0		0
13	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	7	1	0		0		0		0		0		0		0		0		0
14	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	8	1	0		0		0		0		0		0		0		0		0
15	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	8	1	0		0		0		0		0		0		0		0		0
16	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	9	1	0		0		0		0		0		0		0		0		0
17	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	9	1	0		0		0		0		0		0		0		0		0
18	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	10	1	0		0		0		0		0		0		0		0		0
19	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	10	1	0		0		0		0		0		0		0		0		0
20	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	11	1	0		0		0		0		0		0		0		0		0
21	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	11	1	0		0		0		0		0		0		0		0		0
22	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	12	1	0		0		0		0		0		0		0		0		0
23	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	12	1	0		0		0		0		0		0		0		0		0
24	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	13	1	0		0		0		0		0		0		0		0		0
25	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	13	1	0		0		0		0		0		0		0		0		0
26	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	15	1	14	1		1	0		0		0		0		0		0		0
27	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	16	1	14	1		1	0		0		0		0		0		0		0
28	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	17	1	14	1		1	0		0		0		0		0		0		0
29	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	18	1	14	1		1	0		0		0		0		0		0		0
30	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	19	1	14	1		1	0		0		0		0		0		0		0
31	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	20	1	14	1		1	0		0		0		0		0		0		0
32	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	21	1	14	1		1	0		0		0		0		0		0		0
33	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	22	1	14	1		1	0		0		0		0		0		0		0
34	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	23	1	14	1		1	0		0		0		0		0		0		0
35	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	24	1	14	1		1	0		0		0		0		0		0		0
36	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	25	1	14	1		1	0		0		0		0		0		0		0
37	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	26	1	14	1		1	0		0		0		0		0		0		0
38	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	2	.058	0		0		0		0		0		0		0		0
39	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	3	.058	0		0		0		0		0		0		0		0
40	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	4	.058	0		0		0		0		0		0		0		0
41	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	5	.058	0		0		0		0		0		0		0		0
42	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	6	.058	0		0		0		0		0		0		0		0
43	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	7	.058	0		0		0		0		0		0		0		0
44	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	8	.058	0		0		0		0		0		0		0		0
45	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	9	.058	0		0		0		0		0		0		0		0
46	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	10	.058	0		0		0		0		0		0		0		0
47	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	11	.058	0		0		0		0		0		0		0		0
48	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	12	.058	0		0		0		0		0		0		0		0
49	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	27	1.5	13	.058	0		0		0		0		0		0		0		0
50	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	2	.058	0		0		0		0		0		0		0		0
51	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	3	.058	0		0		0		0		0		0		0		0
52	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	4	.058	0		0		0		0		0		0		0		0
53	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	5	.058	0		0		0		0		0		0		0		0
54	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	6	.058	0		0		0		0		0		0		0		0
55	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	7	.058	0		0		0		0		0		0		0		0
56	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	8	.058	0		0		0		0		0		0		0		0
57	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	9	.058	0		0		0		0		0		0		0		0
58	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	10	.058	0		0		0		0		0		0		0		0
59	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	11	.058	0		0		0		0		0		0		0		0
60	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	12	.058	0		0		0		0		0		0		0		0
61	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	28	1.5	13	.058	0		0		0		0		0		0		0		0
62	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	2	.058	0		0		0		0		0		0		0		0
63	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	3	.058	0		0		0		0		0		0		0		0
64	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	4	.058	0		0		0		0		0		0		0		0
65	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	5	.058	0		0		0		0		0		0		0		0
66	1.2 Dead + 1.5 Live ...	Yes	Y		1	1.2	29	1.5	6	.058	0		0		0		0		0		0		0		0



Company : GPD  
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 Job Number : 2021777.842875.04  
 Model Name : 842875 - WINDSORDAY HILL

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**Load Combinations (Continued)**

Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
67	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	29	1.5	7	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	29	1.5	8	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	29	1.5	9	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	29	1.5	10	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	29	1.5	11	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	29	1.5	12	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	29	1.5	13	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	30	1.5	2	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	30	1.5	3	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	30	1.5	4	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	30	1.5	5	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	30	1.5	6	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	30	1.5	7	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	30	1.5	8	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	30	1.5	9	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	30	1.5	10	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	30	1.5	11	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	30	1.5	12	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	30	1.5	13	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	31	1.5	2	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	31	1.5	3	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	31	1.5	4	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	31	1.5	5	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	31	1.5	6	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	31	1.5	7	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	31	1.5	8	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	31	1.5	9	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	31	1.5	10	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	31	1.5	11	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	31	1.5	12	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	31	1.5	13	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	32	1.5	2	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	32	1.5	3	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	32	1.5	4	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	32	1.5	5	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	32	1.5	6	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	32	1.5	7	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	32	1.5	8	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	32	1.5	9	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	32	1.5	10	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	32	1.5	11	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	32	1.5	12	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	32	1.5	13	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	33	1.5	2	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	33	1.5	3	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	33	1.5	4	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	33	1.5	5	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	33	1.5	6	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	33	1.5	7	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	33	1.5	8	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	33	1.5	9	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	33	1.5	10	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	33	1.5	11	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	33	1.5	12	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	33	1.5	13	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	34	1.5	2	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	34	1.5	3	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0





Company : GPD  
 Designer : bbrookbank  
 Job Number : 2021777.842875.04  
 Model Name : 842875 - WINDSORDAY HILL

Oct 5, 2021  
 3:34 PM  
 Checked By: \_\_\_\_\_

**Load Combinations (Continued)**

Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
124	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	34	1.5	4	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	34	1.5	5	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	34	1.5	6	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	34	1.5	7	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	34	1.5	8	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	34	1.5	9	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	34	1.5	10	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	34	1.5	11	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	34	1.5	12	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	34	1.5	13	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	35	1.5	2	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	35	1.5	3	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	35	1.5	4	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	35	1.5	5	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	35	1.5	6	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	35	1.5	7	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	35	1.5	8	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	35	1.5	9	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	35	1.5	10	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	35	1.5	11	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	35	1.5	12	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	1.2 Dead + 1.5 Live_...	Yes	Y	1	1.2	35	1.5	13	.058	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	36	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	37	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	38	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
149	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	39	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	40	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
151	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	41	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
152	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	42	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
153	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	43	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	44	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	45	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	46	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	47	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
158	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	48	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	49	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	50	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	51	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	52	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
163	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	53	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	54	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	55	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	56	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	57	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	58	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
169	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	59	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	60	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
171	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	61	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	62	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	63	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	64	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	65	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	66	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	67	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	68	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	69	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	1.2 Dead + 1.5 Live_V...	Yes	Y	1	1.2	70	1.5	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0





Company : GPD  
 Designer : bbrookbank  
 Job Number : 2021777.842875.04  
 Model Name : 842875 - WINDSORDAY HILL

Oct 5, 2021  
 3:34 PM  
 Checked By: \_\_\_\_\_

### Load Combinations (Continued)

Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
181 1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	71	1.5	0		0		0		0		0		0		0	

### Envelope Joint Reactions

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1 N7	max 1068.397	15	2961.665	37	2169.149	18	.328	175	1.759	7	7.705	37
2	min -1495.412	2	650.211	13	-2165.446	7	-.498	167	-1.903	18	1.68	13
3 N49	max 2381.286	14	2961.81	29	1783.1	21	-1.373	15	1.906	15	-.75	3
4	min -2170.576	3	644.728	21	-2155.456	8	-6.601	28	-2.052	2	-4.043	32
5 N91	max 2350.101	14	2960.706	32	2032.179	20	6.763	34	1.796	5	-.645	25
6	min -2134.754	3	654.112	5	-1664.01	9	1.471	7	-1.937	16	-3.745	32
7 N99B	max 2328.606	26	1129.724	26	431.787	181	0	143	0	143	0	7
8	min 60.673	15	42.026	15	-871.408	179	0	167	0	167	0	34
9 N104A	max 35.329	167	1125.974	30	2171.73	30	0	173	0	63	0	26
10	min -924.91	169	54.35	23	65.417	23	0	23	0	173	0	15
11 N107	max -3.022	9	1126.024	35	-83.527	7	0	23	0	103	0	179
12	min -1474.45	173	54.675	7	-1848.159	34	0	30	0	179	0	13
13 Totals:	max 4933.199	15	12047.433	28	4856.996	21						
14	min -4933.204	2	2891.378	19	-4857.003	8						

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

Member	Shape	Code	Loc[...]	LC	Shear...	Loc[in]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
1	M23	L3X3X4	.574 84	32	.360	84	y	36	3944.532	46656	1.688	2.744	1...	H2-1
2	M45	L3X3X4	.572 84	36	.361	84	y	29	3944.532	46656	1.688	2.731	1...	H2-1
3	M1	L3X3X4	.571 84	28	.362	84	y	32	3944.532	46656	1.688	2.74	1...	H2-1
4	B1	P2Std	.566 54	167	.236	42		30	22066....	33862.5	1.998	1.998	1...	H1-1b
5	C1	P2Std	.566 54	173	.237	42		32	22066....	33862.5	1.998	1.998	1...	H1-1b
6	A1	P2Std	.566 54	179	.237	42		26	22066....	33862.5	1.998	1.998	1...	H1-1b
7	A2	P2Std	.520 42	2	.146	42		167	22066....	33862.5	1.998	1.998	1...	H1-1b
8	B2	P2Std	.508 42	10	.146	42		173	22066....	33862.5	1.998	1.998	1...	H1-1b
9	C2	P2Std	.507 42	18	.145	42		179	22066....	33862.5	1.998	1.998	1...	H1-1b
10	M71	P2Std	.495 48.9...	173	.269	48.938		173	4969.533	33862.5	1.998	1.998	2...	H3-6
11	M69	P2Std	.495 48.9...	167	.269	48.937		167	4969.533	33862.5	1.998	1.998	2...	H3-6
12	M73	P2Std	.495 48.9...	179	.269	48.938		179	4969.533	33862.5	1.998	1.998	2...	H3-6
13	M49	HSS4x4x1...	.471 0	32	.089	0	y	36	154502..	155250	18.22	18.22	1...	H1-1b
14	M27	HSS4x4x1...	.471 0	29	.090	0	y	32	154502..	155250	18.22	18.22	1...	H1-1b
15	M5	HSS4x4x1...	.467 0	36	.090	0	y	28	154502..	155250	18.22	18.22	1...	H1-1b
16	M46	L3X3X4	.434 44.1...	32	.094	88.326	z	35	14270....	46656	1.688	3.273	1...	H2-1
17	M47B	P2Std	.432 48.9...	167	.191	48.937		167	4969.533	33862.5	1.998	1.998	2...	H1-1b
18	M48B	P2Std	.432 48.9...	173	.191	48.938		173	4969.533	33862.5	1.998	1.998	2...	H1-1b
19	M52	P2Std	.432 48.9...	179	.191	48.938		179	4969.533	33862.5	1.998	1.998	2...	H1-1b
20	M24	L3X3X4	.431 44.1...	29	.087	88.326	z	31	14270....	46656	1.688	3.275	1...	H2-1
21	M2	L3X3X4	.429 44.1...	36	.093	88.326	z	27	14270....	46656	1.688	3.273	1...	H2-1
22	C3	P2Std	.366 54	175	.111	42		175	22066....	33862.5	1.998	1.998	1...	H1-1b
23	B3	P2Std	.366 54	169	.111	42		169	22066....	33862.5	1.998	1.998	1...	H1-1b
24	A3	P2Std	.366 54	181	.111	42		181	22066....	33862.5	1.998	1.998	1...	H1-1b
25	M57	L2.5x2.5x4	.340 18.1...	173	.142	0	y	173	35790....	38556	1.114	2.537	1...	H2-1
26	M22	L2.5x2.5x4	.340 18.1...	179	.142	0	y	179	35790....	38556	1.114	2.537	1...	H2-1
27	M62	L2.5x2.5x4	.340 18.1...	167	.110	0	y	167	35790....	38556	1.114	2.537	1...	H2-1
28	M61	L2.5x2.5x4	.340 18.1...	179	.111	0	y	179	35790....	38556	1.114	2.537	1...	H2-1
29	M24A	L2.5x2.5x4	.340 18.1...	167	.142	0	y	167	35790....	38556	1.114	2.537	1...	H2-1
30	M75	L2.5x2.5x4	.340 18.1...	173	.111	0	y	173	35790....	38556	1.114	2.537	1...	H2-1
31	M4	HSS4-1/2x...	.278 1	29	.101	1	y	29	132242..	133903..	18.057	18.057	1...	H1-1b
32	M48	HSS4-1/2x...	.277 1	37	.101	1	y	37	132242..	133903..	18.057	18.057	1...	H1-1b
33	M26	HSS4-1/2x...	.276 0	33	.101	1	y	33	132242..	133903..	18.057	18.057	1...	H1-1b



Company : GPD  
 Designer : bbrookbank  
 Job Number : 2021777.842875.04  
 Model Name : 842875 - WINDSOR DAY HILL

Oct 5, 2021  
 3:34 PM  
 Checked By: \_\_\_\_\_

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

Member	Shape	Code	Loc[...]	LC	Shear...	Loc[in]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
34	M55	L2.5x2.5x3	.143	27.3...	26	.008	54.672	y	35	14829....	29192.4	.873	1.659	1... H2-1
35	M59	L2.5x2.5x3	.143	27.3...	35	.008	0	y	31	14829....	29192.4	.873	1.659	1... H2-1
36	M57A	L2.5x2.5x3	.143	27.3...	30	.008	0	y	26	14829....	29192.4	.873	1.659	1... H2-1
37	M56	L2.5x2.5x3	.110	27.3...	26	.008	0	y	167	14829....	29192.4	.873	1.659	1... H2-1
38	M58	L2.5x2.5x3	.110	27.3...	29	.008	54.672	y	173	14829....	29192.4	.873	1.659	1... H2-1
39	M60	L2.5x2.5x3	.110	27.3...	34	.008	54.672	y	179	14829....	29192.4	.873	1.659	1... H2-1
40	M52A	L3X3X4	.105	23	8	.022	0	y	29	43009....	46656	1.688	3.756	2... H2-1
41	M50	L3X3X4	.095	23	2	.021	0	y	26	43009....	46656	1.688	3.756	1... H2-1
42	M54	L3X3X4	.093	23	16	.021	0	y	34	43009....	46656	1.688	3.756	2... H2-1
43	M53	L3X3X4	.073	23	20	.011	0	z	179	43009....	46656	1.688	3.756	2... H2-1
44	M25	LL3x3x4x3	.068	45.0...	26	.018	0	y	167	75234....	93312	7.427	4.379	1... H1-1b
45	M47	LL3x3x4x3	.068	46	29	.018	0	y	173	75234....	93312	7.427	4.379	2... H1-1b
46	M3	LL3x3x4x3	.066	42.1...	34	.018	0	y	179	75234....	93312	7.427	4.379	1... H1-1b
47	M49A	L3X3X4	.064	23	4	.011	0	y	167	43009....	46656	1.688	3.756	2... H2-1
48	M51	L3X3X4	.063	23	12	.011	0	y	173	43009....	46656	1.688	3.756	2... H2-1

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

Member	Shape	Code Check Actual	Code Check Allowable	Ratio (Act./Allow.)	Loc[in]	LC	Shear Check	Shear Check Allowable	Ratio (Act./Allow.)	Loc[in]	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn	
1	M23	L3X3X4	0.574	1.05	0.547*	84	32	0.36	1.05	0.343*	84	3944.532	46656	1.688	2.744	1.646	H2-1
2	M45	L3X3X4	0.572	1.05	0.545*	84	36	0.361	1.05	0.344*	84	3944.532	46656	1.688	2.731	1.625	H2-1
3	M1	L3X3X4	0.571	1.05	0.544*	84	28	0.362	1.05	0.345*	84	3944.532	46656	1.688	2.74	1.639	H2-1
4	B1	P2Std	0.566	1.05	0.539*	54	167	0.236	1.05	0.225*	42	22066.014	33862.5	1.998	1.998	1.429	H1-1b
5	C1	P2Std	0.566	1.05	0.539*	54	173	0.237	1.05	0.226*	42	22066.014	33862.5	1.998	1.998	1.429	H1-1b
6	A1	P2Std	0.566	1.05	0.539*	54	179	0.237	1.05	0.226*	42	22066.014	33862.5	1.998	1.998	1.429	H1-1b
7	A2	P2Std	0.52	1.05	0.495*	42	2	0.146	1.05	0.139*	42	22066.014	33862.5	1.998	1.998	1.911	H1-1b
8	B2	P2Std	0.508	1.05	0.484*	42	10	0.146	1.05	0.139*	42	22066.014	33862.5	1.998	1.998	1.909	H1-1b
9	C2	P2Std	0.507	1.05	0.483*	42	18	0.145	1.05	0.138*	42	22066.014	33862.5	1.998	1.998	1.909	H1-1b
10	M71	P2Std	0.495	1.05	0.471*	48.94	173	0.269	1.05	0.256*	48.938	4969.533	33862.5	1.998	1.998	2.178	H3-6
11	M69	P2Std	0.495	1.05	0.471*	48.94	167	0.269	1.05	0.256*	48.937	4969.533	33862.5	1.998	1.998	2.178	H3-6
12	M73	P2Std	0.495	1.05	0.471*	48.94	179	0.269	1.05	0.256*	48.938	4969.533	33862.5	1.998	1.998	2.178	H3-6
13	M49	HSS4x4x1/4 HRA	0.471	1.05	0.449*	0	32	0.089	1.05	0.085*	0	154502.105	155250	18.22	18.22	1.199	H1-1b
14	M27	HSS4x4x1/4 HRA	0.471	1.05	0.449*	0	29	0.09	1.05	0.086*	0	154502.105	155250	18.22	18.22	1.199	H1-1b
15	M5	HSS4x4x1/4 HRA	0.467	1.05	0.445*	0	36	0.09	1.05	0.086*	0	154502.105	155250	18.22	18.22	1.199	H1-1b
16	M46	L3X3X4	0.434	1.05	0.413*	44.16	32	0.094	1.05	0.09*	88.326	14270.535	46656	1.688	3.273	1.564	H2-1
17	M47B	P2Std	0.432	1.05	0.411*	48.94	167	0.191	1.05	0.182*	48.937	4969.533	33862.5	1.998	1.998	2.252	H1-1b
18	M48B	P2Std	0.432	1.05	0.411*	48.94	173	0.191	1.05	0.182*	48.938	4969.533	33862.5	1.998	1.998	2.252	H1-1b
19	M52	P2Std	0.432	1.05	0.411*	48.94	179	0.191	1.05	0.182*	48.938	4969.533	33862.5	1.998	1.998	2.252	H1-1b
20	M24	L3X3X4	0.431	1.05	0.41*	44.16	29	0.087	1.05	0.083*	88.326	14270.535	46656	1.688	3.275	1.568	H2-1
21	M2	L3X3X4	0.429	1.05	0.409*	44.16	36	0.093	1.05	0.089*	88.326	14270.535	46656	1.688	3.273	1.564	H2-1
22	C3	P2Std	0.366	1.05	0.349*	54	175	0.111	1.05	0.106*	42	22066.014	33862.5	1.998	1.998	1.815	H1-1b
23	B3	P2Std	0.366	1.05	0.349*	54	169	0.111	1.05	0.106*	42	22066.014	33862.5	1.998	1.998	1.815	H1-1b
24	A3	P2Std	0.366	1.05	0.349*	54	181	0.111	1.05	0.106*	42	22066.014	33862.5	1.998	1.998	1.815	H1-1b
25	M57	L2.5x2.5x4	0.34	1.05	0.324*	18.12	173	0.142	1.05	0.135*	0	35790.473	38556	1.114	2.537	1.687	H2-1
26	M22	L2.5x2.5x4	0.34	1.05	0.324*	18.12	179	0.142	1.05	0.135*	0	35790.473	38556	1.114	2.537	1.688	H2-1
27	M62	L2.5x2.5x4	0.34	1.05	0.324*	18.12	167	0.11	1.05	0.105*	0	35790.473	38556	1.114	2.537	1.301	H2-1
28	M61	L2.5x2.5x4	0.34	1.05	0.324*	18.12	179	0.111	1.05	0.106*	0	35790.473	38556	1.114	2.537	1.301	H2-1
29	M24A	L2.5x2.5x4	0.34	1.05	0.324*	18.12	167	0.142	1.05	0.135*	0	35790.473	38556	1.114	2.537	1.688	H2-1
30	M75	L2.5x2.5x4	0.34	1.05	0.324*	18.12	173	0.111	1.05	0.106*	0	35790.473	38556	1.114	2.537	1.301	H2-1
31	M4	HSS4-1/2x4-1/2x3/16	0.278	1.05	0.265*	1	29	0.101	1.05	0.096*	1	132242.822	133903.1	18.057	18.057	1.711	H1-1b
32	M48	HSS4-1/2x4-1/2x3/16	0.277	1.05	0.264*	1	37	0.101	1.05	0.096*	1	132242.822	133903.1	18.057	18.057	1.711	H1-1b
33	M26	HSS4-1/2x4-1/2x3/16	0.276	1.05	0.263*	0	33	0.101	1.05	0.096*	1	132242.822	133903.1	18.057	18.057	1.711	H1-1b
34	M55	L2.5x2.5x3	0.143	1.05	0.136*	27.34	26	0.008	1.05	0.008*	54.672	14829.276	29192.4	0.873	1.659	1.136	H2-1
35	M59	L2.5x2.5x3	0.143	1.05	0.136*	27.34	35	0.008	1.05	0.008*	0	14829.276	29192.4	0.873	1.659	1.136	H2-1
36	M57A	L2.5x2.5x3	0.143	1.05	0.136*	27.34	30	0.008	1.05	0.008*	0	14829.276	29192.4	0.873	1.659	1.136	H2-1
37	M56	L2.5x2.5x3	0.11	1.05	0.105*	27.34	26	0.008	1.05	0.008*	0	14829.276	29192.4	0.873	1.659	1.136	H2-1
38	M58	L2.5x2.5x3	0.11	1.05	0.105*	27.34	29	0.008	1.05	0.008*	54.672	14829.276	29192.4	0.873	1.659	1.136	H2-1
39	M60	L2.5x2.5x3	0.11	1.05	0.105*	27.34	34	0.008	1.05	0.008*	54.672	14829.276	29192.4	0.873	1.659	1.136	H2-1
40	M52A	L3X3X4	0.105	1.05	0.1*	23	8	0.022	1.05	0.021*	0	43009.694	46656	1.688	3.756	2.072	H2-1
41	M50	L3X3X4	0.095	1.05	0.09*	23	2	0.021	1.05	0.02*	0	43009.694	46656	1.688	3.756	1.764	H2-1
42	M54	L3X3X4	0.093	1.05	0.089*	23	16	0.021	1.05	0.02*	0	43009.694	46656	1.688	3.756	2.263	H2-1
43	M53	L3X3X4	0.073	1.05	0.07*	23	20	0.011	1.05	0.011*	0	43009.694	46656	1.688	3.756	2.045	H2-1
44	M25	LL3x3x4x3	0.068	1.05	0.065*	45.04	26	0.018	1.05	0.017*	0	75234.506	93312	7.427	4.379	1.851	H1-1b
45	M47	LL3x3x4x3	0.068	1.05	0.065*	46	29	0.018	1.05	0.017*	0	75234.506	93312	7.427	4.379	2.064	H1-1b
46	M3	LL3x3x4x3	0.066	1.05	0.063*	42.17	34	0.018	1.05	0.017*	0	75234.506	93312	7.427	4.379	1.772	H1-1b
47	M49A	L3X3X4	0.064	1.05	0.061*	23	4	0.011	1.05	0.011*	0	43009.694	46656	1.688	3.756	2.3	H2-1
48	M51	L3X3X4	0.063	1.05	0.06*	23	12	0.011	1.05	0.011*	0	43009.694	46656	1.688	3.756	2.303	H2-1

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

**APPENDIX D**  
**ADDITIONAL CALCULATIONS**



**TIA-222-H CONNECTION CHECK**  
**Mount to Tower Connection - Typ. All Sectors**  
**2021777.842875.04**

Bolt Information		
Bolt Diameter (d)	0.625	in
Net Tensile Area (A <sub>n</sub> )	0.226	in <sup>2</sup>
# of Bolts Total (n)	4	
Bolt Grade	A325N	
Bolt Tensile Strength (F <sub>ub</sub> )	120	ksi

RISA 3D Reactions		
Moment (M)	0.00	k-ft
Axial (T)	-2.33	kips
Shear (V)	1.18	kips

Bolt Capacity		
Nominal Tensile Strength (R <sub>nt</sub> )	27.120	kips
Nominal Shear Strength (R <sub>nv</sub> )	18.41	kips
Bolt Tensile Force (T <sub>ub</sub> )	-0.58	kips
Bolt Shear Force (V <sub>ub</sub> )	0.294	kips
T <sub>ub</sub> /φR <sub>nt</sub>	-0.02862	
V <sub>ub</sub> /φR <sub>nv</sub>	0.02128	
(V <sub>ub</sub> /φR <sub>nv</sub> ) <sup>2</sup> +(T <sub>ub</sub> /φR <sub>nt</sub> ) <sup>2</sup>	0.00127	
<b>Bolt Capacity =</b>	2.1%	OK

**APPENDIX E**  
**MOUNT MODIFICATION DESIGN DRAWINGS (MDD)**

# MOUNT DESIGN DRAWINGS PREPARED FOR CROWN CASTLE

SITE NAME: WINDSORDAY HILL  
BU NUMBER: 842875

SITE ADDRESS:  
99 DAY HILL ROAD  
WINDSOR, CT 06095  
HARTFORD COUNTY, USA

ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT 800-788-7011.

PERFORMED WORK SHALL NOT DAMAGE ANY EXISTING STRUCTURE, MOUNTS, SAFETY CLIMB, OR EQUIPMENT WHILE ON SITE. SHOULD DAMAGE OCCUR, CONTACT CROWN EOR AT EORAPPROVAL@CROWNCastle.COM



**SAFETY CLIMB: 'LOOK UP'**  
THE INTEGRITY OF THE WIRE ROPE SAFETY CLIMB SYSTEM SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER REINFORCEMENT AND EQUIPMENT INSTALLATION SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF ANY WIRE ROPE SAFETY CLIMB ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT 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, OR IMPACT THE ANCHORAGE POINTS IN ANY WAY. ANY COMPROMISED SAFETY CLIMB MUST BE REPORTED TO YOUR CROWN POC FOR RESOLUTION, INCLUDING EXISTING CONDITIONS.

## DRAWINGS INCLUDED

<u>SHEET NUMBER</u>	<u>DESCRIPTION</u>
S-1	TITLE PAGE
S-2	GENERAL NOTES
S-3	MOUNT MODIFICATION SCHEDULE
S-4	DETAILS/PARTS

## TOWER INFORMATION

TOWER HEIGHT / TYPE: 168.0 FT MONOPOLE  
TOWER LOCATION: LAT: 41° 52' 16.10"  
DATUM: (NAD 1983) LONG: -72° 40' 16.00"  
WORK ORDER #: CCI/WO #: NA  
ORDER #: 584557 REV #: 0  
SITE ADDRESS: 99 DAY HILL ROAD  
WINDSOR, CT 06095  
HARTFORD COUNTY, USA

## CODE COMPLIANCE

GOVERNING CODES: TIA-222-H  
WIND SPEEDS: 125 MPH 3 SECOND GUST  
50 MPH 3 SECOND GUST (W/ ICE)  
ICE THICKNESS: 2 IN  
RISK CATEGORY: II  
EXPOSURE CATEGORY: C  
TOPO CATEGORY: 1

## PROJECT CONTACTS:

### 1. CROWN PROJECT MANAGER:

TRICIA PELON  
(518) 373-3507  
TRICIA.PELON@CROWNCastle.COM  
3 CORPORATE PARK DRIVE, SUITE 101  
CLIFTON PARK, NY 12065


### 2. ENGINEER OF RECORD:

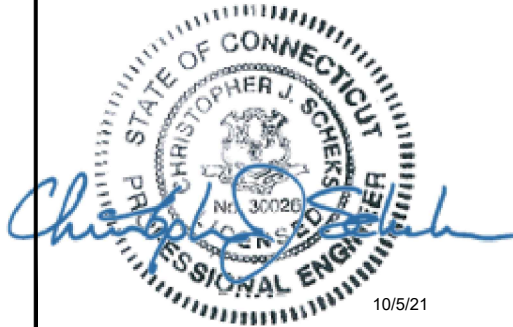
GPD ENGINEERING AND ARCHITECTURE  
PROFESSIONAL CORPORATION  
520 SOUTH MAIN STREET, SUITE 2531  
AKRON, OH 44311  
(330) 572-2100  
FOR QUESTIONS PLEASE EMAIL:  
CROWNMODS@GPDGROUP.COM

				 <small>520 South Main Street, Suite 2531 Akron, OH 44311 330.572.2100 Fax 330.572.2102</small>	
NO.	DATE	DESCRIPTION	BY	CARRIER: T-MOBILE	
REVISIONS				SITE NAME: WINDSORDAY HILL	
				BU NUMBER: 842875	
				WO NUMBER: NA	
				ENG/QA BY: BAB DATE: 10/5/21	
				DFT BY: BAB DATE: 10/5/21	
				DFT/QA BY: DP DATE: 10/5/21	
				APRVD BY: CJS DATE: 10/5/21	
				SCALE: N.T.S.	
				TITLE PAGE	
				S-1	REV 0

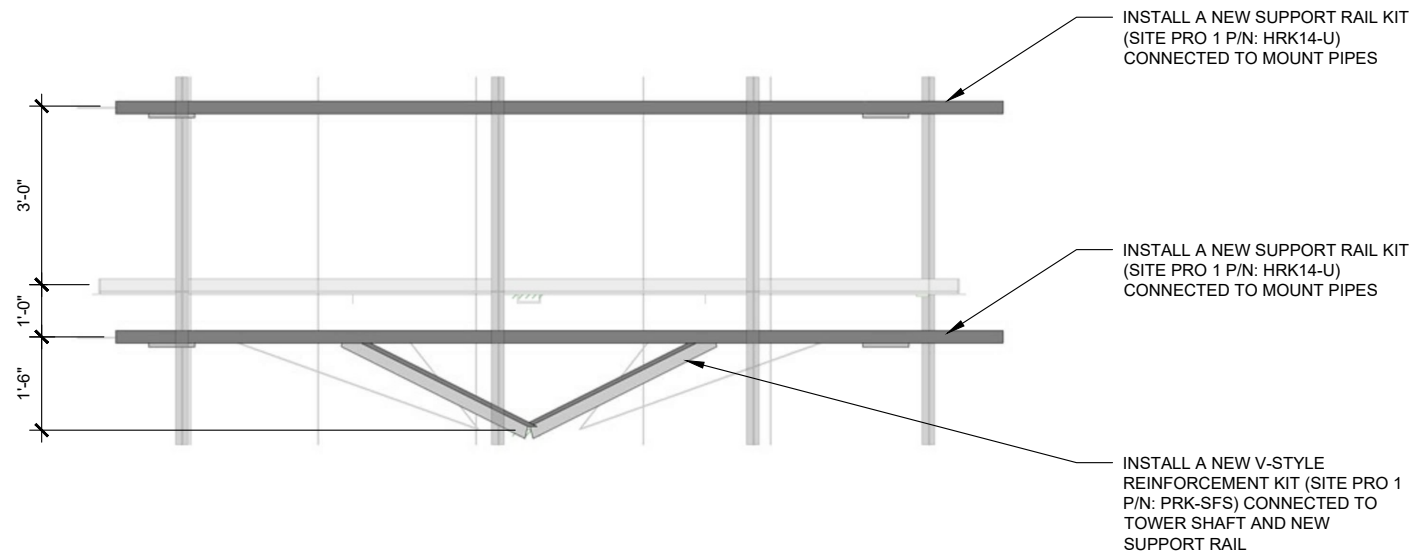
**GENERAL NOTES**

1. DETAILED DRAWINGS AND NOTES SHALL GOVERN GENERAL NOTES AND TYPICAL DETAILS. CONTACT VENDOR POINT OF CONTACT (POC) AND ENGINEER OF RECORD (EOR) FOR CLARIFICATION AS NEEDED.
2. DO NOT SCALE DRAWINGS.
3. FOR THIS MODIFICATION, THE TOWER AND MOUNT HAS BEEN ASSUMED TO BE IN GOOD CONDITION WITHOUT ANY STRUCTURAL DEFECTS, UNO. IF THE GC DISCOVERS ANY INDICATION OF AN EXISTING STRUCTURAL DEFECT, CONTACT THE CROWN POC AND EOR IMMEDIATELY.
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	 <b>GPD Engineering and Architecture</b> Professional Corporation <small>520 South Main Street, Suite 2531 Akron, OH 44311 330.572.2100 Fax 330.572.2102</small>		
	GPD PROJECT NUMBER 2021777.842875.04		
	CARRIER: T-MOBILE		
	SITE NAME: WINDSORDAY HILL		
	BU NUMBER: 842875		
	WO NUMBER: NA		
	ENG/QA BY: BAB DATE: 10/5/21		
	DFT BY: BAB DATE: 10/5/21		
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	APRVD BY: CJS DATE: 10/5/21		
	SCALE: N.T.S.		
	<b>GENERAL NOTES</b>		
	<div style="display: flex; justify-content: space-between;"> <span style="font-size: 2em;"><b>S-2</b></span> <table border="1" style="border-collapse: collapse;"> <tr> <td style="font-size: 0.8em;">REV</td> <td style="font-size: 0.8em;">0</td> </tr> </table> </div>	REV	0
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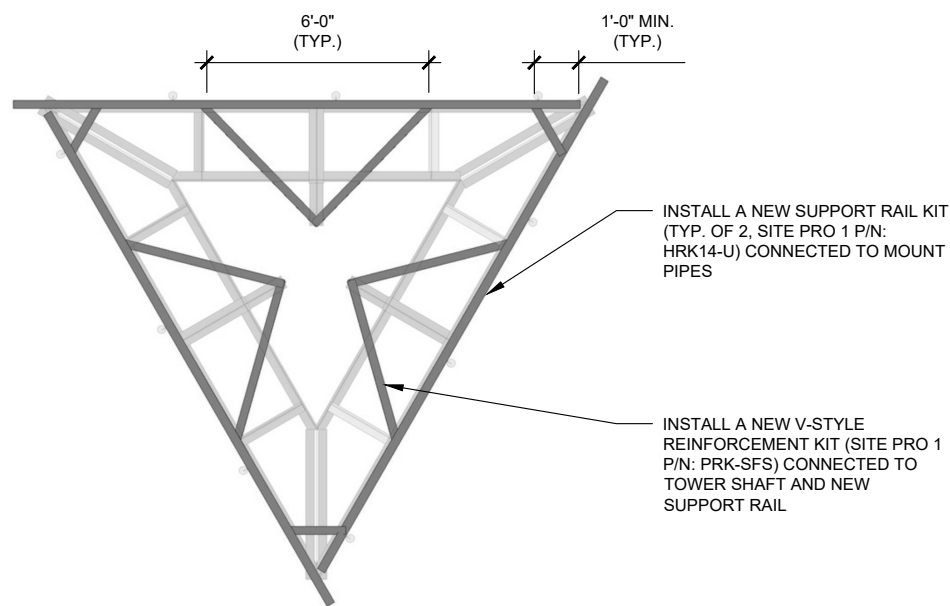






**1** ELEVATION VIEW  
S-3

**NOTE:**  
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**2** PLAN VIEW  
S-3

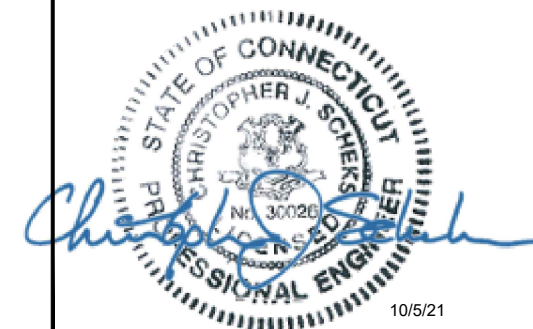
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	ELEVATION (FT)	MODIFICATION	REFERENCE SHEET
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<b>B</b>	130.0	INSTALL A NEW SUPPORT RAIL KIT BELOW PLATFORM CONNECTED TO MOUNT PIPES.	S-3 & S-4
<b>C</b>	130.0	INSTALL A NEW V-STYLE REINFORCEMENT KIT CONNECTED TO TOWER SHAFT AND NEW LOWER SUPPORT RAIL.	S-3 & S-4

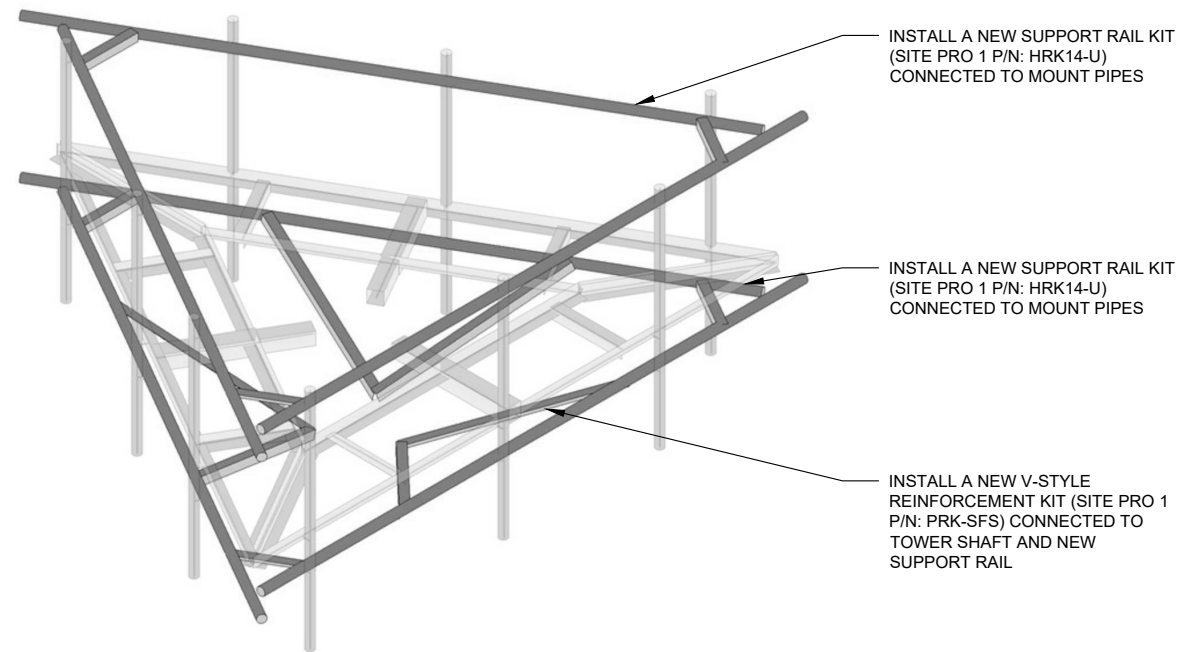
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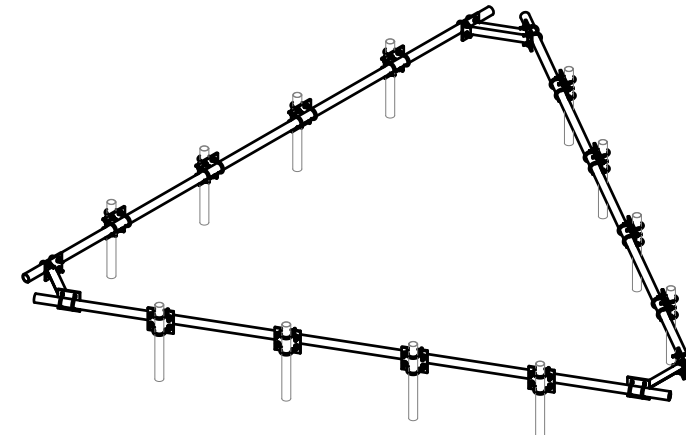
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<b>MOUNT MODIFICATION SCHEDULE</b>											
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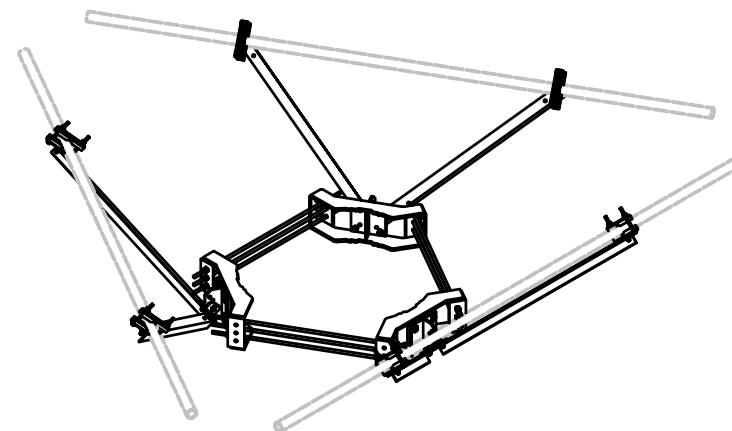





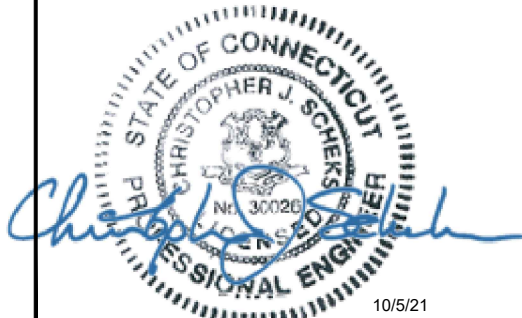
3 ISOMETRIC VIEW  
S-4



4 HRK14-U SUPPORT RAIL KIT  
S-4



5 PRK-SFS V-STYLE REINFORCEMENT KIT  
S-4

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0											

# MOUNT DESIGN DRAWINGS PREPARED FOR CROWN CASTLE

SITE NAME: WINDSORDAY HILL  
BU NUMBER: 842875

SITE ADDRESS:  
99 DAY HILL ROAD  
WINDSOR, CT 06095  
HARTFORD COUNTY, USA

ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT 800-788-7011.

PERFORMED WORK SHALL NOT DAMAGE ANY EXISTING STRUCTURE, MOUNTS, SAFETY CLIMB, OR EQUIPMENT WHILE ON SITE. SHOULD DAMAGE OCCUR, CONTACT CROWN EOR AT EORAPPROVAL@CROWNCastle.COM



**SAFETY CLIMB: 'LOOK UP'**  
THE INTEGRITY OF THE WIRE ROPE SAFETY CLIMB SYSTEM SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER REINFORCEMENT AND EQUIPMENT INSTALLATION SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF ANY WIRE ROPE SAFETY CLIMB ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT 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, OR IMPACT THE ANCHORAGE POINTS IN ANY WAY. ANY COMPROMISED SAFETY CLIMB MUST BE REPORTED TO YOUR CROWN POC FOR RESOLUTION, INCLUDING EXISTING CONDITIONS.

## DRAWINGS INCLUDED

SHEET NUMBER	DESCRIPTION
S-1	TITLE PAGE
S-2	GENERAL NOTES
S-3	MOUNT MODIFICATION SCHEDULE
S-4	DETAILS/PARTS

## TOWER INFORMATION

TOWER HEIGHT / TYPE: 168.0 FT MONOPOLE  
TOWER LOCATION: LAT: 41° 52' 16.10"  
DATUM: (NAD 1983) LONG: -72° 40' 16.00"  
WORK ORDER #: CCI/WO #: NA  
ORDER #: 584557 REV #: 0  
SITE ADDRESS: 99 DAY HILL ROAD  
WINDSOR, CT 06095  
HARTFORD COUNTY, USA

## CODE COMPLIANCE

GOVERNING CODES: TIA-222-H  
WIND SPEEDS: 125 MPH 3 SECOND GUST  
50 MPH 3 SECOND GUST (W/ ICE)  
ICE THICKNESS: 2 IN  
RISK CATEGORY: II  
EXPOSURE CATEGORY: C  
TOPO CATEGORY: 1

## PROJECT CONTACTS:

### 1. CROWN PROJECT MANAGER:

TRICIA PELON  
(518) 373-3507  
TRICIA.PELON@CROWNCastle.COM  
3 CORPORATE PARK DRIVE, SUITE 101  
CLIFTON PARK, NY 12065


### 2. ENGINEER OF RECORD:

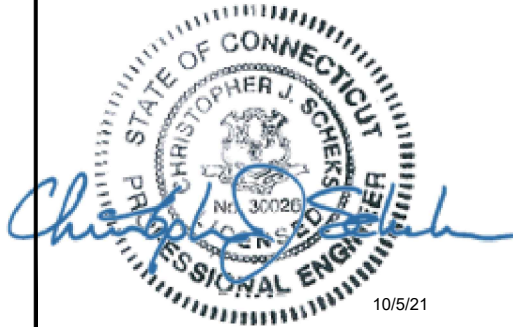
GPD ENGINEERING AND ARCHITECTURE  
PROFESSIONAL CORPORATION  
520 SOUTH MAIN STREET, SUITE 2531  
AKRON, OH 44311  
(330) 572-2100  
FOR QUESTIONS PLEASE EMAIL:  
CROWNMODS@GPDGROUP.COM

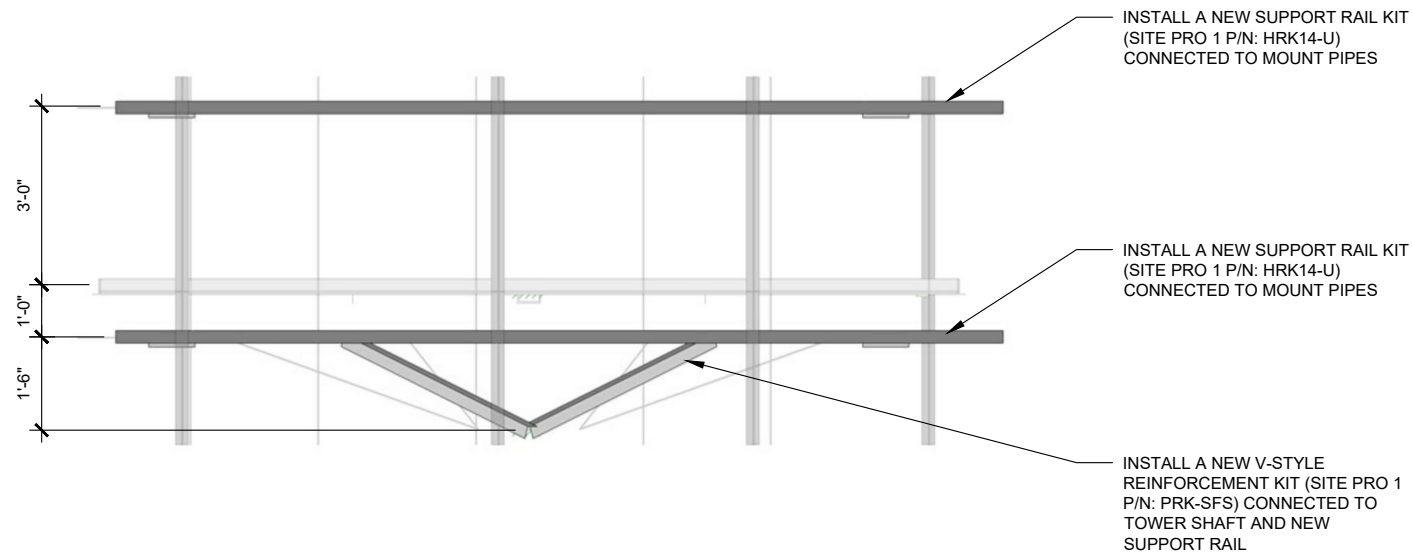
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				S-1	REV 0

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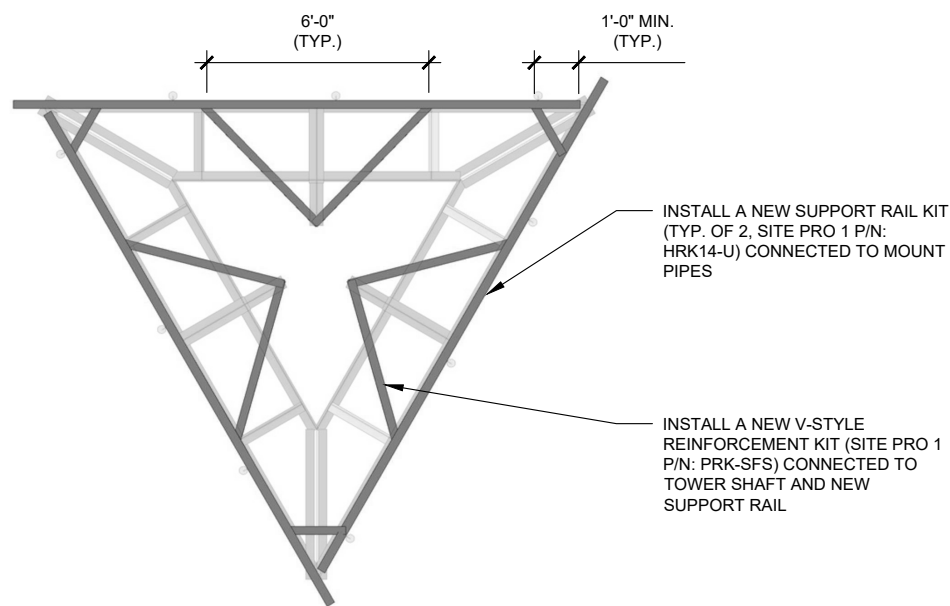
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	CARRIER: T-MOBILE		
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**1** ELEVATION VIEW  
S-3

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**2** PLAN VIEW  
S-3

MOUNT MODIFICATION SCHEDULE			
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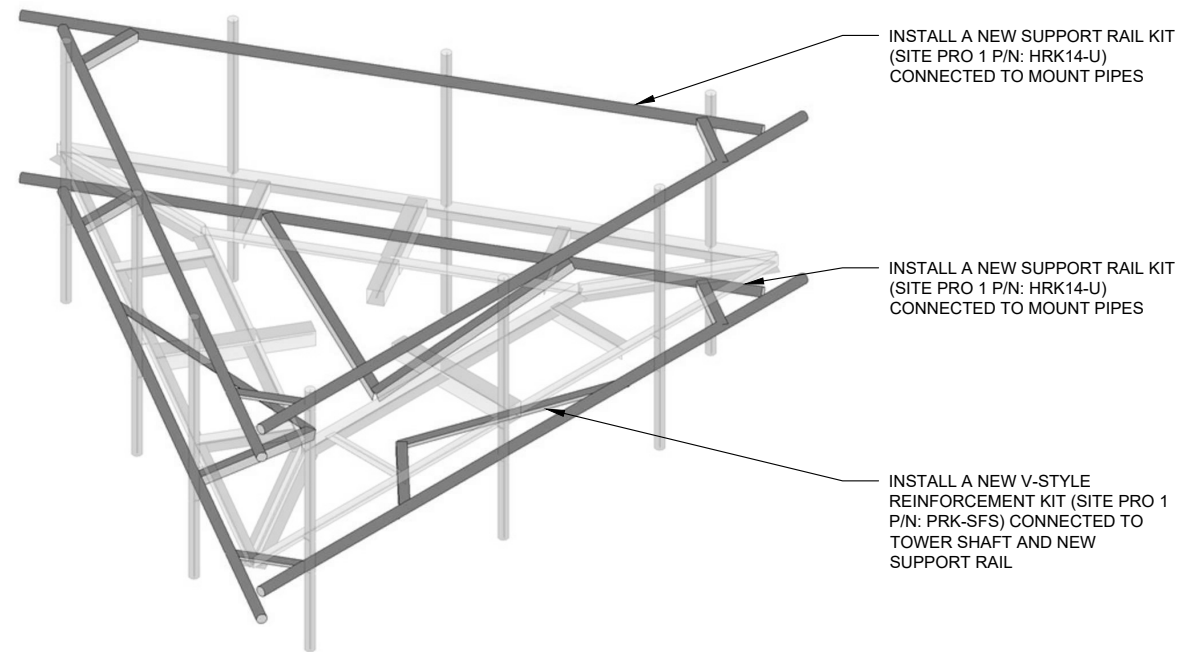
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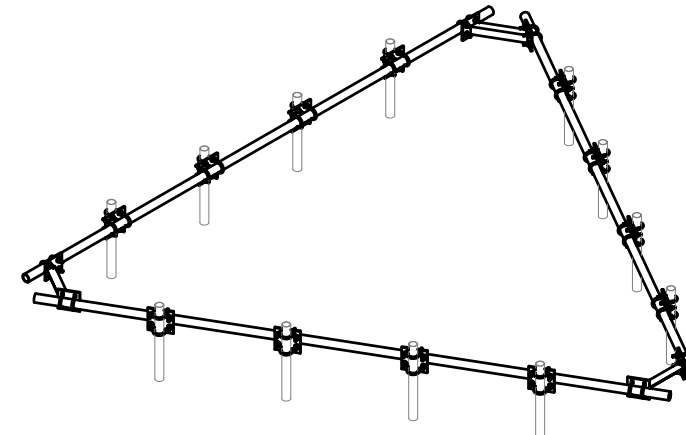
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<b>S-3</b>			REV 0

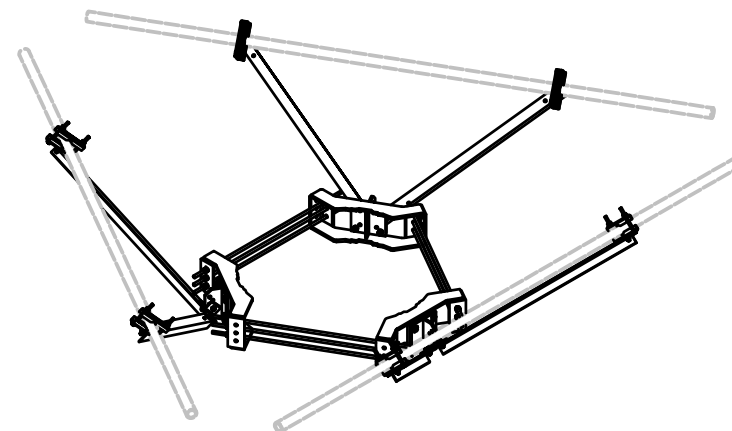





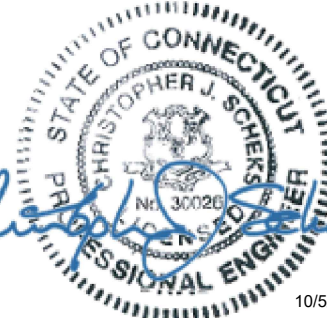
3 ISOMETRIC VIEW  
S-4



4 HRK14-U SUPPORT RAIL KIT  
S-4



5 PRK-SFS V-STYLE REINFORCEMENT KIT  
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				SCALE: N.T.S.	
				 <i>Christopher J. Schekes</i> 10/5/21	
				<b>DETAILS/PARTS</b>	
				<b>S-4</b>	REV 0

# Exhibit F

## **Power Density/RF Emissions Report**

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

T-Mobile Existing Facility

Site ID: CTHA267A

CTHA267A  
99 Day Hill Road  
Windsor, Connecticut 06095

**November 11, 2021**

**EBI Project Number: 6221007048**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>20.28%</b>



November 11, 2021

T-Mobile

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

Emissions Analysis for Site: CTHA267A - CTHA267A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **99 Day Hill Road in Windsor, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  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 ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately  $400 \mu\text{W}/\text{cm}^2$  and  $467 \mu\text{W}/\text{cm}^2$ , respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is  $1000 \mu\text{W}/\text{cm}^2$ . 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 99 Day Hill Road in Windsor, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

- 6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.
- 8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.
- 9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 13) The antennas used in this modeling are the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied



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specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 14) The antenna mounting height centerline of the proposed antennas is 131 feet above ground level (AGL).
- 15) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 16) All calculations were done with respect to uncontrolled / general population threshold limits.

## T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43- U-NA20	Make / Model:	RFS APXVAALL24_43- U-NA20	Make / Model:	RFS APXVAALL24_43- U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	131 feet	Height (AGL):	131 feet	Height (AGL):	131 feet
Channel Count:	13	Channel Count:	13	Channel Count:	13
Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts
ERP (W):	17,868.72	ERP (W):	17,868.72	ERP (W):	17,868.72
Antenna A1 MPE %:	<b>5.43%</b>	Antenna B1 MPE %:	<b>5.43%</b>	Antenna C1 MPE %:	<b>5.43%</b>
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	131 feet	Height (AGL):	131 feet	Height (AGL):	131 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	<b>8.37%</b>	Antenna B2 MPE %:	<b>8.37%</b>	Antenna C2 MPE %:	<b>8.37%</b>

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	13.79%
Clearwire	0.08%
AT&T	5.12%
Metro PCS	0.93%
Bloomfield PD	0.01%
Muni Ant I	0.35%
<b>Site Total MPE % :</b>	<b>20.28%</b>

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	13.79%
T-Mobile Sector B Total:	13.79%
T-Mobile Sector C Total:	13.79%
<b>Site Total MPE % :</b>	<b>20.28%</b>

### 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 ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	131.0	2.72	600 MHz LTE	400	0.68%
T-Mobile 600 MHz NR	1	1577.94	131.0	3.63	600 MHz NR	400	0.91%
T-Mobile 700 MHz LTE	2	695.22	131.0	3.20	700 MHz LTE	467	0.69%
T-Mobile 1900 MHz GSM	4	1052.26	131.0	9.68	1900 MHz GSM	1000	0.97%
T-Mobile 1900 MHz LTE	2	2104.51	131.0	9.68	1900 MHz LTE	1000	0.97%
T-Mobile 2100 MHz LTE	2	2649.42	131.0	12.19	2100 MHz LTE	1000	1.22%
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	11044.63	131.0	25.41	2500 MHz LTE IC & 2C Traffic	1000	2.54%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	1074.06	131.0	2.47	2500 MHz LTE IC & 2C Broadcast	1000	0.25%
T-Mobile 2500 MHz NR Traffic	1	22089.26	131.0	50.83	2500 MHz NR Traffic	1000	5.08%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	131.0	4.94	2500 MHz NR Broadcast	1000	0.49%
						<b>Total:</b>	<b>13.79%</b>

• 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:	13.79%
Sector B:	13.79%
Sector C:	13.79%
T-Mobile Maximum MPE % (Sector A):	13.79%
Site Total:	20.28%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **20.28%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

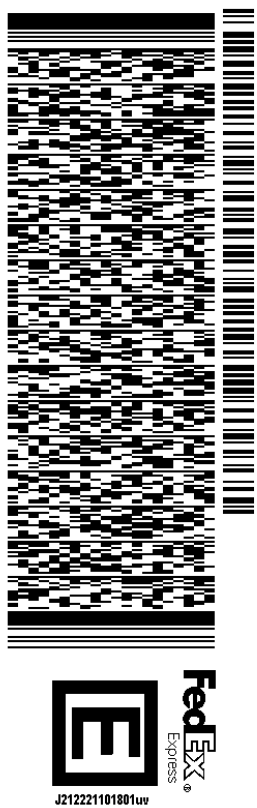
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